DYNAMIC MODELS OF UNEMPLOYMENT INSURANCE BENEFIT RECEIPT:

SURVIVAL RATE ANALYSIS REPORT

July 1998

Submitted to:

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CHAPTER 1
INTRODUCTION

The Federal-State Unemployment Insurance (UI) system faces many challenges in meeting its two primary objectives of providing temporary income replacement for involuntarily unemployed workers who were recently employed and helping stabilize the economy during recessionary periods. Numerous changes in the United States economy and ensuing changes in Federal and State UI policies have increased the extent to which the UI system is called upon to serve as the primary means of achieving these objectives. For example, structural changes in the economy over the last two decades have shifted many jobs from the manufacturing sector to the service and retail sectors. In addition, the demographic composition of the workforce is changing with more of the workforce being comprised of women and minorities. These two factors have, in conjunction with other structural changes in the labor market, contributed to higher numbers of displaced workers and more long-term unemployment, both of which have had large impacts on UI benefit payments and the automatic economic stabilization role of the UI system. This renewed significance of the UI system as the first line of support for workers who lose their jobs through no fault of their own makes it imperative that policy makers have the information needed to make informed decisions about changes to the Federal-State UI system.

A wide range of information is needed by policy makers to make informed decisions about the Federal-State UI system because UI policies influence a variety of labor-market decisions. Foremost, policy makers need to know how changes in UI systems affect the decisions of UI recipients to return

to work or to continue to collect UI benefits, which is often referred to as the reemployment disincentive effect of UI benefits. In addition, policy makers need to know how changes in UI policies alter the decisions of nonworking individuals to become UI recipients. Considering less direct effects, policy makers require information concerning the potential responses of workers to policy changes by adjusting their employment activities to affect their eligibility to collect future UI benefits. Finally, if policy changes alter the financing features of UI programs, policy makers need to know how these changes will influence employers to alter their hiring and separation behavior. Each of these labor market behaviors that are influenced by UI policies also have important budgetary implications for the Federal-State UI system.

Existing research examines each of these potential routes through which UI policies can influence the labor market decisions of individuals and employers. However, this extensive research provides very few definitive answers to the key questions policy makers face and, quite often, different research studies yield conflicting conclusions. Many factors contribute to the absence of the definitive information that policy makers need to make informed decisions about UI programs. For example, available studies utilize different data sources, invoke disparate behavioral assumptions, define variables in different ways and apply alternative analytical approaches. Moreover, most studies consider specific effects in isolation because of data limitations or methodological problems. The incompatibilities across studies and the examination of isolated effects of UI policies on labor market decisions make it quite difficult to integrate results to develop reliable assessments of the comprehensive effects of UI policies on the labor market decisions.

The purpose of this study is to provide one component of the information policy makers need to devise UI policies that can help ensure the Federal-State UI system will continue to fulfill its two primary missions. Specifically, this study examines the decisions of UI claimants to collect benefits during their eligibility period. This information about the dynamic patterns of UI benefit payments will be helpful in determining the optimal levels of the weekly benefit amount and the potential duration of benefits, which are the two key elements of UI programs. In addition, this type of information is needed in the formulation of policies that extend the length of time UI claimants can receive benefits during recessionary times, such as the Emergency Unemployment Compensation program.

To develop an improved understanding of the dynamic patterns of UI benefit payments, this study examines six characteristics of UI claimants behavior.

1. The week-by-week decisions of claimants to collect a benefit payment over the course of the period they are eligible to receive payments, which is generally their 52-week benefit year in non-recessionary times and longer periods in recessionary times when extended and/or supplemental benefits are available.

2. The extent to which these weekly patterns of UI receipt are influenced by provisions of State UI programs focusing on the effects of the level of the weekly benefit amount, the potential duration of benefits, and whether the State requires an uncompensated waiting period before receiving benefits.

3. The extent to which the dynamic patterns of UI benefit receipt are affected by the availability of extended and/or supplemental benefits.

4. The seasonal variation in the benefit receipt decisions of claimant cohorts filing initial claims at different times of the year.

5. The extent to which the dynamic patterns of UI benefit receipt vary across different demographic characteristics of the UI population, as measured by age, sex, race, and pre-UI industry of employment.

6. The extent to which the dynamic patterns of UI benefit receipt are affected by general economic conditions and the business cycle.

Together, the findings from these six aspects will help provide the information needed by policy makers to assess the budgetary and economic consequences of alternative UI policies.

The remainder of the report is organized as follows. Chapter 2 provides a brief overview of the Federal-State UI system. Chapter 3 reviews some of the existing empirical evidence on the effects of UI policies on the behavior of unemployed workers. Chapter 4 describes the data set constructed for the study based on a random sample of UI claimants from 13 States. Chapter 5 describes the econometric framework used in the analysis of the dynamic patterns of UI benefit payments. Chapter 6 presents the specification of, and the results from, the model used to summarize the likelihood a UI claimant receives a benefit payment in the first week they are eligible to collect benefits. Chapter 7 presents the specification of, and the empirical results obtained from, the model used to summarize periods of continuous weeks of UI benefit receipt. Chapter 8 describes the specification used to model the number of continuous weeks a claimant does not receive a benefit payment and the results from the estimation of this model. Chapter 9 combines the findings from the previous three chapters to characterize the dynamic patterns of UI benefit receipt and summarize the variation in these dynamic patterns across different UI policy regimes, demographic characteristics of claimants and general economic conditions. Finally, Chapter 10 summarizes the results, relates the findings from this study to the existing literature and discusses the policy implications of the findings.

CHAPTER 2
OVERVIEW OF UNEMPLOYMENT INSURANCE PROGRAMS

The Federal-State Unemployment Insurance (UI) system was established by The Social Security Act of 1935 as a joint Federal and State effort. The Social Security Act in conjunction with the Federal Unemployment Tax Act (FUTA) form the framework for the UI system by establishing the administrative structure for the system, funding for the administrative structure, identifying the workers covered by the system (i.e., covered employment), and establishing certain requirements that State programs must meet. Within this general framework, however, States have a great deal of latitude in determining individual qualification requirements, disqualification provisions, eligibility, waiting periods, weekly benefit amounts, potential weeks of benefits and the State tax structure to finance the unemployment benefits States are responsible for paying.

To fulfill its two primary objectives of providing temporary and partial wage replacement to involuntarily unemployed workers who were recently employed and helping stabilize the economy during recessionary periods of the business cycle, the Federal-State UI system has developed a three-tiered system of providing unemployment compensation benefits. The first tier consists of the regular State UI benefits that are financed by State unemployment taxes levied on employers.[1] The second tier consists of the permanent Federal-State Extended Benefits (EB) Program that provides additional benefits to qualified claimants who have exhausted their regular State UI benefits and reside in States

[1] Alaska, New Jersey and Pennsylvania also levy unemployment benefit taxes directly on employees.

with high unemployment rates. Finally, the third tier encompasses a variety of emergency supplemental benefit programs that are temporarily authorized by Federal or State legislation in periods of severe unemployment.[2]

This chapter provides an overview of the three tiered Federal-State UI system. Section 2.1 summarizes some of the key features of regular State UI programs. Section 2.2 provides a brief history and description of the Federal-State EB program. Section 2.3 summarizes the history of Federal emergency supplemental benefit programs and describes some of the key features of the latest program.

2.1 Regular State Unemployment Insurance Systems

The Federal-State UI system provides States a great deal of latitude for developing the particular UI program that seems best adapted to the conditions prevailing within a State. Within broad Federal guidelines, States have developed specific rules and regulations determining coverage of the UI system, qualification and eligibility requirements, benefits, and financing that vary substantially across States. This section briefly discusses each of these elements of regular State UI systems. A detailed description of State UI programs can be found in the publication *Comparison of State Unemployment Insurance Laws* that is published twice a year by the U.S. Department of Labor, Employment and Training Administration; Unemployment Insurance Service.

[2] Several States also have supplemental benefit programs that are fully State-funded and that can be implemented at the State's discretion.

The coverage provisions of State UI systems determine which employers are liable for contributions and which workers accrue rights to benefits under State law. Coverage provisions are generally determined by the FUTA because employers in State's with approved UI systems can credit a percentage of their State UI tax payments against their Federal tax liability. Approximately 98 percent of all wage and salary workers and 91 percent of all employed persons are covered by the State UI systems. The major categories of uncovered workers include self-employed individuals, certain corporate officers, certain agricultural laborers and domestic servants, employees of relatives, certain student interns, certain alien farmworkers, certain seasonal workers, and railroad workers. States have the option of covering additional workers, but most States have not expanded coverage beyond FUTA requirements.

Although States have developed distinct and intricate methods for determining the qualification and eligibility of UI claimants, there are three major factors that enter into the determination of a worker's benefit rights in all States. These three factors are:

1. The workers experience in covered employment in a recent period of either 52 weeks or 4 calendar quarters, which is referred to as the base period (BP),[3]

2. The reason for separation from the most recent employer, and

3. A demonstrated ability and willingness to seek and accept suitable employment during weeks in which benefits are claimed.

[3] The most common BP used by States is the first 4 of the last 5 completed calendar quarters prior to the initial claim filing date. Other BP include the 52 weeks prior to filing an initial claim, the last 4 completed quarters prior to finding an initial claim, 4 calendar quarters ending 3 to 7 months before the initial claim filing date, and the calendar year prior to the year of filing an initial claim.

The first factor only enters into the qualification and eligibility determination process at the time a person files an initial claim. The second factor determines a person's eligibility following each separation from an employer. The third factor applies throughout the claimant's benefit year and involves satisfaction of a number of eligibility criteria on a week-by-week basis.

States also require that a claimant must have a specified level of earnings in covered employment, or must have worked for a certain period of time within the BP, or both, to satisfy the monetary qualification requirements for UI benefits. All States use some combination of total earnings received in the base period (BPE), highest earnings in any quarter of the base period (HQE), and total weeks of work during the base period (WW) to establish an individual's eligibility to receive UI payments. Approximately half of the States require a worker to have a minimum HQE along with BPE greater than some multiple (usually 1.25 or 1.5) of HQE to become eligible for benefits. Another one-fourth of the States express their eligibility requirements in terms of a minimum level of BPE, and half of these States add a requirement of wages in more than one calendar quarter. The remainder of the States determine eligibility based upon a required number of WW with wages greater than some nominal amount. Whether explicit or implicit, all but five States require wages in more than one calendar quarter for an individual to meet the monetary qualification requirements for UI payments.

Individuals who first file an initial claim and meet the monetary qualification requirements establish a benefit year (BY) that is usually a 1-year or 52-week period during which claimants may receive their benefit entitlements. Nearly all States have an individual BY that begins with the week in which claimants first file an initial claim that is valid in terms of the monetary qualification requirements.

While workers have the right to cancel a valid initial claim, once a monetarily valid initial claim is filed, claimants' regular benefit entitlements are determined for the BY.[4]

The Federal-State UI system is designed to compensate individuals for earnings losses resulting from lack of work and not to provide payments to individuals who are voluntarily unemployed. To fulfill this purpose, States examine the circumstances of separation from the most recent employer when individuals begin a new period of claiming benefits.[5] All States have disqualification provisions for leaving work without good cause, discharge for misconduct and unemployment resulting from direct involvement in a labor dispute. While the provision for good cause is often ambiguously phrased, the majority of States do not disqualify individuals who quit for reasons related to the employment relationship. Thus, in practice, this provision usually disqualifies only those individuals who quit for personal reasons. In most States, a disqualification for leaving work without good cause generally applies for the entire duration of the claimant's unemployment and requires some employment with a minimum level of earnings to end the period of disqualification. Similar disqualifications are applied for discharges from an employer because of misconduct, although in some States higher levels of misconduct increase the disqualification period. Moreover, some States reduce claimants benefit rights because of leaving work without good cause and discharge for misconduct. To maintain "neutrality" in

[4] States do allow redeterminations of benefits because of incomplete reporting of BP earnings or other special circumstances and some States automatically redetermine benefits when there are changes in the State rules establishing benefits, such as increases in the maximum weekly benefit payable.

[5] A few States also examine the reasons for separations from other employers within a specified period of time.

labor disputes, all but one State law disqualifies individuals involved in an active labor dispute for the period of the labor dispute, but there is no reduction in benefits because of this type of disqualification.[6]

The final factor determining a claimants eligibility to receive a benefit payment in a week involves an able-and-available for work test, refusal of suitable work test, and the receipt of disqualifying income. All State laws provide that a claimant must be able to work and available for work to receive compensation for each week the person is claiming a UI benefit payment. The ability to work generally specifies that claimants must be mentally and physically able to work. Availability for work is often translated to require that claimants be actively seeking work. In addition, to remain eligible for a benefit payment, claimants must not refuse suitable work without good cause. While the definition of suitable work usually refers to employment in a claimant's customary occupation at a market wage, the claimant is generally required to accept a broader range of jobs as the unemployment spell continues toward the exhaustion of benefits.[7] Finally, most States have provisions that a claimant is disqualified for any week in which the person has received other types of income, such as dismissal wages, holiday and vacation pay, back pay, worker's compensation payments, and benefits from an employer-provided unemployment benefit plan.

Claimants' BP employment histories determine their regular State UI benefit entitlements, as well as the monetary qualification of an initial claim. These regular benefit entitlements consist of an assigned weekly benefit amount (WBA) and either the maximum benefits payable (MBP) in a BY, or

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[6] New York only disqualifies individuals involved in labor disputes for 7 weeks rather than the duration of the entire labor dispute.

[7] In addition, Federal law requires States to deny extended benefits to claimants who fail to accept any "suitable" work.

the potential duration of benefits (PDB) available to claimants in a BY.[8] States use three methods to determine a claimant's WBA as a fraction of his or her "usual" earnings in covered employment up to some maximum level. These three methods, which can be distinguished by the concept of usual earnings, use a fraction of either HQE, a percentage of BPE, or a proportion of average weekly earnings (AWE), such that approximately 50 to 70 percent of the claimant's usual earnings are replaced by the WBA. States apply one of two basic approaches for determining the PDB. The first approach, adopted by about ten States, provides the same number of weeks of benefits to every individual who is eligible for UI payments. The second approach determines the PDB as a function of an individual's work experiences in the base period using information on BPE, HQE and WW. Both the WBA and the PDB vary greatly across States because of the complex rules used to calculated these quantities and the vastly different minimum and maximum amounts limiting the values of both the WBA and the PDB.

Another aspect of State UI systems is the requirement for serving a waiting week prior to receiving a first payment. A waiting week is a period, usually a calendar week, where claimants meet all of the other eligibility criteria to receive a benefit payment and they have not fully meet these requirements in any previous week since filing their initial claims. The vast majority of States (41 out of 53) impose a full week of unemployment as a waiting period.[9] The remaining States either do not impose a waiting week requirement or impose a waiting period of less than one week.

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[8] These latter two quantities are related by the formula MBP = WBA×PDB.

[9] Three States (Missouri, New Jersey and Texas) with full waiting week requirements permit claimants to receive compensation for the waiting week after receiving a fixed amount of benefits during a benefit year.

The last element of State UI systems is the financing scheme used by States to fund the State's benefit payments. The taxation provisions adopted by States are heavily influenced by FUTA because of the credit employers receive on their Federal payroll tax for their payments of State taxes in all approved State UI system. All States levy taxes on covered employers and a few States also collect employee contributions. Further, all States have in effect some system of experience-rating such that employers' tax rates are based upon their experience with the risk of unemployment. However, the experience-rating provisions vary greatly across States and this variation has increased in the last few years. At present, there are four experience-rating systems that are usually identified as reserve-ratio, benefit-ratio, benefit-wage-ratio and payroll-decline. These designations refer to the formulas used to determine individual employer's risk of unemployment. Most States are using a single experience-rating system, but a few have adopted combinations of two or more systems. An employer's tax rate can also vary because States have different tax schedules that come into effect at different times depending upon the status of the State's trust fund. Specifically, States impose schedules with higher rates when their trust funds become closer to insolvency.

2.2 Federal-State Extended Benefit System

The Federal-State Extended Unemployment Compensation Act of 1970 authorized a permanent mechanism for providing additional unemployment benefits to workers who had exhausted their regular benefits during periods of high unemployment. Under this original program, UI recipients who exhausted their regular benefits could receive extended benefits (EB) at the same weekly benefit amount as they received under the regular State program and half of the costs of these benefits are paid

out of Federal funds. These benefits were available to UI exhaustees when the national seasonally adjusted insured unemployment rate (IUR) exceeded 4.5 percent for 3 consecutive months or when their State's 13-week average IUR exceeded 4 percent and was at least 120 percent higher than the IUR for the corresponding 13-week average during the preceding 2 years. Crossing either of these IUR thresholds resulted in the EB program triggering on either nationally or in a particular State. When EB were triggered on, UI recipients who exhausted their regular benefits were entitled to receive 50 percent of their regular benefits for up to 13 weeks of EB, provided that the total amount of benefits received did not exceed 39 weeks of full benefit payments. The remainder of this section highlights the changes to the EB program that have occurred since 1970.

The structure of the EB program was first altered by the Omnibus Budget Reconciliation Act of 1981. Claimants who had exhausted their regular State UI benefits still were entitled to one-half of their total State benefits for up to 13 additional weeks of benefits in States with an activated EB program. However, the combined regular and extended benefit payments still could not exceed a maximum of 39 weeks of full benefit payments. In addition, to qualify for EB, a claimant had to have 20 weeks of work in the base period. The primary changes in the EB program that were enacted involved the triggering rules that determined when States activated a period of EB availability. Specifically, the national trigger rate was eliminated and the State triggering rules were changed by raising the State trigger rate to an average IUR of 5 percent in the most recent 13 weeks and 120 percent of the average IUR in the last 2 years for the same 13-week calendar period. An alternative trigger rate of an average IUR of 6 percent in the most recent 13 weeks was also provided at State option and has been adopted by all but 12 States. One other modification to the EB program was also

made by excluding claims for extended benefits from the calculation of the IUR used for a State's EB trigger rate.

The last significant change in the EB program was enacted with the Emergency Unemployment Compensation Act of 1991 and its subsequent amendments in 1992. Both the amount of extended benefits and the triggering mechanisms have been modified by these legislative actions. Under this legislation, the EB program provides an optional seasonally adjusted total unemployment rate (TUR) triggering mechanism and two tiers of extended benefits with 13 and 20 weeks of additional benefits depending upon a State's 3-month average TUR. The optional TUR triggering rules are very similar to the IUR rules in that it requires the TUR to not only equal or exceed a fixed threshold, but must also be above 110 percent of either the prior year or second prior year TURs. For a State to have an activated EB program with 13 weeks of extended benefits, a States TUR must be at least 6.5 percent and exceed the 110 percent of previous years' TURs. For a State to have an activated EB program with 20 weeks of extended benefits, a State's TUR must be at least 8 percent and exceed the 110 percent of previous years' TURs. This alternative triggering mechanism would have made EB more widely available if it was used, however, only 7 States have adopted the alternative TUR trigger.

The EB program has not been widely available to UI exhaustees during the 1990s because of two factors. First, there has been a weakening of the relationship between the IUR and the TUR over the last two decades. Specifically, there was a sharp decline in the fraction of unemployed persons receiving unemployment compensation in the early 1980s and subsequently there has been a general

downward trend in this ratio.[10] This divergence between the IUR and the TUR provided a justification for the introduction of the optional TUR trigger for the EB program. Second, the Emergency Unemployment Compensation Act of 1991--a supplemental benefits program--in effect temporarily superseded the permanent EB program between late 1991 and early 1994. Although States had the option of triggering on the EB program rather than the Emergency Unemployment Compensation (EUC) program, very few States did so during this period.[11]

2.3 Third Tier Supplemental Benefit Programs

During recessionary times with prolonged periods of high unemployment, the U.S. Congress has enacted temporary supplemental benefit programs to provide additional unemployment benefits to UI recipients who have exhausted all other unemployment benefits available to them. Two of these types of programs were enacted prior to the establishment of a permanent extended benefits programs in 1970. Following the establishment of the permanent EB program, four temporary emergency supplement benefits programs were enacted by Congress in periods of severe unemployment. In addition, several State legislatures enacted temporary supplemental benefit programs during times of

[10] Several studies have examined this decline in the ratio of the IUR to the TUR and attempted to attribute the decline to specific economic factors. For example, see Blank and Card (1991), Burtless and Saks (1984), Corson and Nicholson (1988) and Vroman (1991).

[11] There are two likely explanations for States' behavior. First, benefit payments under the EUC program were entirely Federally financed, while a State would have had to fund half of the costs of benefits paid under the EB program. Second, prior to March 1993 the EUC program provided more benefits to UI claimants than were possible under the EB program. The few States that did trigger on EB did so only after the benefits available from the EUC program were less than the 13 or 20 weeks of benefits in the EB program.

economic distress in a State. This section briefly describes the six Federal temporary emergency supplemental benefit programs.

The first temporary program that was introduced prior to the enactment of the permanent EB program was the Temporary Unemployment Compensation Act of 1958. This act was in response to the 1957-58 recession and was in effect for slightly less than one year beginning in June 1958. The program offered States interest-free loans if they increase the duration of benefits to UI recipients by 50 percent, up to a maximum of 13 weeks, after they had exhausted their regular benefits. A total of 17 States participated in this program.

The other temporary program that was enacted before the establishment of the permanent EB program was the Temporary Extended Unemployment Compensation Act of 1961. This temporary program was in effect for slightly more than one year beginning in March 1961 and was financed by a temporary increase in the Federal unemployment tax. UI recipients who had exhausted their regular benefits were eligible to collect up to 50 percent of their regular benefits for up to 13 weeks, provided that the combined weeks of benefits from both the regular and the temporary program did not exceed 39 weeks. State participation was mandatory for this program in contrast to the voluntary nature of the 1958 act.

The first temporary emergency program that provided supplemental benefits for UI recipients who had exhausted both their regular benefits and EB benefits was the Emergency Unemployment Compensation Act of 1971. This program was in effect for approximately 15 months and the emergency benefits were made available to States when the IUR was at least 6.5 percent and the IUR had to exceed 120 percent of the average rates for the same 13-week period in the last 2 years. The

program provided emergency benefits to claimants who had exhausted regular and EB benefits up to half of the duration of their regular State program or 13 weeks of benefits, whichever was less.

Slightly less than 2 years after the Emergency Unemployment Compensation of 1971 expired, Congress passed the Emergency Unemployment Compensation Act of 1974. This act created the Federal Supplemental Benefits (FSB) program that was authorized in response to the 1973-75 recession and as the recession continued this act was extended 3 times. In the original act, UI recipients who exhausted their regular and extended benefits could receive up to 13 weeks of FSB if they lived in a State that was triggered on for EB. The first extension of the program, which was included in the Tax Reduction Act of 1975, doubled the potential duration of FSB benefits to 26 weeks allowing UI recipients to received benefits for a total of 65 weeks if they exhausted regular benefits, EB and FSB. The second extension did not change the available benefits but eliminated the national trigger for State FSB eligibility. The last extension of the act, which finally expired in October, 1977, reduced the potential duration of FSB back to 13 weeks.

The Federal Supplemental Compensation (FSC) program was the third temporary emergency benefits program and was created by the Tax Equity and Fiscal Responsibility Act of 1982. This program was also extended and modified several times. The first version of the FSC program provided a multi-tiered benefit structure providing 6, 8 or 10 weeks of benefits to UI recipients who had exhausted their regular and extended benefits on or after June 1, 1982. The first extension to the FSC program changed the benefit structure to provide 8, 10, 12, 14, or 16 weeks of benefits to claimants who exhausted regular and extended benefits depending on conditions within a State. The program was unchanged until the third extension in 1983 that eliminated the two tiers of 12 weeks and above,

but provided additional FSC benefits of 6, 8 or 10 weeks of benefits (depending upon unemployment conditions within a State) for recipients who exhausted their basic FSC benefits on or before April 1, 1983. There were three other extensions to the FSC program before it expired in 1985. However, only the fifth extension modified the program by reducing the additional FSC benefits to 2, 4 or 5 weeks depending upon the unemployment conditions within a State.

The latest temporary supplemental program was created by the Emergency Unemployment Compensation Act of 1991 that authorized the EUC program. As with other temporary programs, this program was also modified and extended several times. The first version of the EUC program provided UI recipients whose benefit year expired on or after March 1, 1991, with either 13 or 20 weeks of benefits depending on the unemployment conditions in a State. The program provided 20 weeks of additional benefits in States with an adjusted insured unemployment rate (AIUR) of at least 5 percent or a 6-month average TUR of at least 9 percent.[12] Beneficiaries in all other States were entitled to 13 weeks of benefits. The first extension of the EUC program added 13 more weeks of benefits resulting in 26 and 33 weeks of additional benefits. The second extension of the EUC program provided for 20 or 26 additional weeks of benefits. The third extension reduced the weeks of benefit available under the program to 10 and 15 weeks. The last extension of the EUC program phased out the benefit available, first providing either 7 or 13 weeks depending upon the unemployment conditions in a State.

[12] The AIUR is the IUR used to trigger the permanent EB program in a State, adjusted by including regular benefit exhaustees in a State for the most recent 3 months for which data are available.

CHAPTER 3
EXISTING EVIDENCE ON THE DYNAMICS OF UNEMPLOYMENT INSURANCE BENEFIT RECEIPT

Over the past 20 years a steady flow of empirical research has evaluated the effects of unemployment insurance (UI) programs on the labor market activities of various demographic groups. The vast majority of this research has focused on the effects of the weekly benefit amount (WBA) and the potential duration of benefits (PDB) on the unemployment experiences of UI claimants. Although there have been some studies that examine other labor market effects of UI, such as the decision of non-working individuals to become UI claimants, the effects on the employment decisions of workers, and the response of employers to the tax schemes used to finance UI benefits, the review in this chapter will focus solely on the empirical studies that examine the effects of UI policies on unemployment experiences.[13]

As noted in Chapter 1, it is difficult to develop consistent inferences from the existing literature regarding the effects of the WBA and the PDB on the unemployment experiences of UI claimants because of difference in data sets, differences in the definitions of key variables and disparate assumptions and estimation methods. Researchers have primarily used two types of data to investigate the effects of the WBA and the PDB on the unemployment experiences of UI claimants: (1) program data obtained from administrative records; and (2) survey data obtained from interviews conducted

[13] More in-depth surveys of the literature examining UI are provided by Atkinson and Micklewright (1991), Burtless (1990), Danziger, Haveman and Plotnick (1981), and Gustman (1982).

with individuals. Program data provide much more accurate measures of benefit entitlements and benefit receipt information, but often lack other important variables that are related to individuals labor market decisions. On the other hand, survey data provide a much richer source of other information that includes many of the variables that are related to individuals' labor market behavior, such as past employment experiences, household income, and family demographics, but often lack sufficient or reliable information about key benefit variables and UI benefit receipt.

Previous empirical studies examining the effects of UI policies on unemployment also differ considerably in the way key variables are defined. Some of these differences are related to the type of data source used in the analysis. Program data, for example, only contains information on insured unemployment and, as such, studies using these data define unemployment as weeks receiving UI benefits. This feature of program data precludes the analysis of the effects of UI on other definitions of unemployment, such as the common definition of unemployment used by the Current Population Survey and broader definitions, such as time spent not employed. Similarly, the nature of survey data also results in differences in the definition of key variables. For example, survey data generally lack information on UI benefit entitlements and only contain information on the receipt of UI benefits. Hence, the definitions used in these analyses of the WBA and the PDB are often imputed measures that are constructed using State program characteristics and past information on earnings rather than the actual values for these variables that are available in program data. Moreover, the definition of unemployment that is used in the analysis of survey data is either total number of weeks individuals are unemployed during a calendar year or the number of weeks between jobs and looking for work, and survey data sets generally do not include enough information to determine insured unemployment.

Finally, differences in assumptions and analytical techniques across empirical studies also result from the type of data sources used in the analysis. As noted above, program data lack information about many individual or household variables and studies using program data must assume that these variables have no influence on claimants' behavior. In addition, different analytical techniques are used in studies based on program or survey data. For example, survey data often only include information on the total number of weeks a person is unemployed and does not provide weekly information about the employment status of individuals. This common feature of survey data precludes the use of duration models to examine the effects of the WBA and the PDB on unemployment, which is a common empirical approach used with the weekly receipt information available in program data.

Although these differences make it difficult to arrive at definitive conclusions about the effects of the WBA and the PDB on unemployment, there are some common themes running through this literature. The discussion below first summarizes the empirical studies that are based on program data and then briefly reviews the studies based on survey data. The chapter concludes with a synthesis of these findings.

3.1 Empirical Results Using Program Data

A large number of empirical studies have used program data sources to investigate the effects of the WBA and the PDB on unemployment over the last 20 years. These studies have generally shown employment disincentive effects in the direction predicted by economic theory. Specifically, studies based on program data have found that higher WBAs and more weeks of benefits lead to more

unemployment, measured as the number of weeks receiving UI benefits. However, the magnitude of these effects has varied considerably across studies.

Table 3-1 presents a summary of the findings from some of the more widely cited empirical studies of the effects of UI on unemployment based on program data. This table identifies the data source used in the study, the definition of unemployment examined, the estimation method used, the estimated impact of the WBA and the estimated effect of the PDB on the measure of unemployment. Studies are presented in chronological order.

As shown in this table, the earlier studies (Classen (1979) and Newton and Rosen (1979)) based on program data used Tobit models to examine the effects of the WBA and the PDB on the total number of weeks recipients received UI benefits in their benefit year. The estimated impact of the WBA on this measure of unemployment indicated that a 10 percentage point increase in the replacement rate (i.e., the ratio of the WBA over a recipients typical weekly earnings during the base period) would result in an increase in the number of weeks of benefits received between 1.0 week and 1.8 weeks. The estimated impact of changes in the PDB is also quite variable in these early studies ranging from no effect to an additional 0.5 to 0.6 weeks of insured unemployment resulting from a 1 week increase in the PDB variable. In addition to the differences in the estimated impacts of these two UI variables, concerns were also raised about the generalizability of findings from 1 or 2 States.[14]

[14] Classen's (1979) results are based only on claimants from Arizona and Pennsylvania and Newton and Rosen's (1979) findings are based on claimants from Georgia.

TABLE 3-1
Summary of Findings from Empirical Studies Using Program Data

Study	Data Source	Definition of Unemployment	Estimation Method	Estimated Impact of the WBA	Estimated Impact of the PDB
Classen (1979)	UI claimants in Arizona and Pennsylvania (1967-1969)	Weeks of UI receipt in benefit year	Tobit maximum likelihood	A 10 percentage point increase in the replacement rate increases unemployment by 1.0 week	No significant effect
Newton and Rosen (1979)	UI claimants in Georgia (1974-1976)	Weeks of UI receipt in benefit year	Tobit maximum likelihood	A 10 percentage point increase in the replacement rate increases unemployment by 1.8 weeks	A 1 week increase in the PDB increases unemployment by 0.5 - 0.6 weeks
Moffitt (1985)	CWBH data from 13 states for men only (1978-1983)	Weeks of UI receipt in benefit year truncated at 39	Proportional hazards model	A 10 percent increase in the WBA increases unemployment by 0.5 weeks	A 1 week increase in the PDB increases unemployment by 0.15 weeks
Solon (1985)	CWBH data from Georgia (1978-1979)	Weeks of UI receipt in benefit year	Proportional hazards model	A 10 percentage point increase in the replacement rate increases unemployment by 0.5 to 1.0 weeks	A 1 week increase in the PDB increases unemployment by 0.3 to 0.4 weeks
Meyer (1990)	CWBH data from 13 states for men only (1978-1983)	Weeks of UI receipt in benefit year truncated at 39	Proportional hazards model	A 10 percentage point increase in the replacement rate increases unemployment by 1.5 weeks	A 1 week increase in the PDB increases unemployment by 0.2 weeks
Katz and Meyer (1990a)	CWBH data from 13 states for men only (1978-1983)	Weeks of UI receipt in benefit year truncated at 39	Proportional hazards model	A 10 percentage point increase in the replacement rate increases unemployment by 1.5 weeks	A 1 week increase in the PDB increases unemployment by 0.16 to 0.20 weeks

Empirical studies using program data that have been completed since 1985 have attempted to refine the estimated impacts of the WBA and the PDB through the use of additional data and more sophisticated methodologies. Recently, the most widely used program data source is the Continuous Wage and Benefit History (CWBH) data file that was maintained by the U.S. Department of Labor from 1978 and throughout the 1980s. The CWBH combines administrative records from up to 13 States and a mail survey completed by a random sample of initial UI claimants in these States.[15] The administrative data elements in the CWBH include accurate information on benefit entitlements, total number of weeks of benefit receipt, total payments by program type, and the exhaustion of regular UI benefits, thereby avoiding the inevitable errors in measuring these variables with survey data. These more recent studies also generally used a proportional hazards model to examine the effects of the WBA and the PDB on the likelihood a recipient collected an additional week of UI benefits. Proportional hazards models provide a more flexible and appropriate methodology for the type of data available from program data sources compared to the Tobit type models used in the earlier studies.

The studies that use CWBH data and that apply the more sophisticated hazard models tend to find impacts of the WBA slightly lower, but in the same range as the earlier studies using program data. For example, Moffitt (1985) using CWBH data from 13 States in the late 1970s and early 1980s finds that a 10 percent increase in the WBA increases the number of weeks of insured unemployment in a benefit year by 0.5 weeks. In terms of changes in the replacement rate, which is the measure used in other studies, this finding implies that a 10 percentage point increase in the replacement rate will result in

[15] The CWBH program was a voluntary program started by DOL in 1978. While 13 States participated in the program during the late 1970s and early 1980s, the numbers had dwindled to as few as 2 States during the early 1990s and DOL is no longer asking States to participate in the program.

an increase in insured unemployment of approximately 0.8 weeks. Meyer (1990) and Katz and Meyer (1990a), using the same data as Moffitt (1985) but somewhat different estimation methods, find a somewhat larger impact of the WBA on unemployment that is more in the middle of the range found in the earlier program studies. Specifically, the findings from these two studies indicate that a 10 percentage point increase in the replacement rate results in a 1.5 week increase in insured unemployment. On the lower end of the estimated effects of the WBA are the findings presented by Solon (1985) based on CWBH data from Georgia that indicate a 10 percentage point increase in the replacement rate increases unemployment by 0.5 weeks.

With regards to the estimated effects of the PDB on unemployment, the studies using the CWBH data and hazards model fall in the lower range of the earlier estimates. Specifically, the estimated impacts for a 1 week increase in the PDB range from 0.15 weeks of additional insured unemployment found by Moffitt (1985) to 0.4 weeks more of unemployment found by Solon (1985). A related issue that Moffitt (1985) and subsequent studies have examined is the relationship between benefit exhaustion and insured unemployment. Specifically, the hazard rate models used in this research are especially well suited to examine the relationship between benefit exhaustion and the likelihood claimants end a period of insured unemployment. The findings in Moffitt (1985), Meyer (1990) and Katz and Meyer (1990) all suggest that the rate at which recipients stop receiving UI benefits increases substantially as they near the exhaustion of their UI benefits in a given benefit year. Katz and Meyer (1990) conclude from these findings that either individuals' job-search strategies change substantially, employers' recall practices are tied to benefit exhaustions, or these two factors are working in

combination to have such a strong effect on the rate at which recipients end a period of insured unemployment.

3.2 Empirical Results Using Survey Data

Fewer empirical studies have used survey data to investigate the effects of UI benefit variables on the unemployment experiences of individuals. One of the major obstacles in using survey data for this purpose is the limitations of the types of information available in survey data sets. An empirical study of the effects of UI policies makes substantial demands of survey data. Specifically, in addition to information about individuals' unemployment experiences, the survey data must include information on the potential UI benefits available to these individuals over an extended time horizon and the utilization of these benefits over this horizon, or the information needed to reliably infer these quantities. With the exception of survey samples that are drawn from UI administrative records (of which only a limited number have been completed), survey data often lack sufficient information to include these key benefit and utilization variables in specifications. This shortage of information also commonly forces the imposition of assumptions in statistical models that result in specifications known to be grossly inconsistent with the facts.

Table 3-2 summarizes some of the empirical studies examining the effects of UI policies using several different survey data sources. Two of these studies (Moffitt and Nicholson (1982) and Katz and Meyer (1990b)) use survey data sets that are linked to UI administrative records and include reliable benefit availability and utilization data, while the other three are based on

TABLE 3-2
Summary of Findings from Empirical Studies Using Survey Data

Study	Data Source	Definition of Unemployment	Estimation Method	Estimated Impact of the WBA	Estimated Impact of the PDB
Ehrenberg and Oaxaca (1976)	National Longitudinal Survey - Original Cohorts (1966-1969)	Weeks unemployed in previous calendar year	Ordinary least squares regression	A 25 percent increase in the WBA increases unemployment by 0.5 to 1.5 weeks	Not estimated
Barron and Mellow (1981)	Current Population Survey (1976)	CPS definition of unemployed	Multinomial logit for transitions from unemployment	No significant effect	Not estimated
Moffitt and Nicholson (1982)	Survey of Federal Supplemental Benefits Claimants (1974-1977)	Percentage of time employed	Tobit type maximum likelihood	A 10 percentage point increase in the replacement rate increases unemployment by 0.8 to 1.0 weeks	A 1 week increase in the PDB increases unemployment by 0.1 weeks
Katz and Meyer (1990b)	Survey of UI claimants in Missouri and Pennsylvania (1979-1981)	Weeks from first UI benefit receipt to self-reported date of re-employment	Proportional hazard model	No significant effect	Not reported
Gritz and MaCurdy (1997)	National Longitudinal Survey of Youth - 1979 Cohort (1978-1984)	Weeks of unemployment between jobs using a CPS type definition of unemployment	Transition Probability Model	No significant effect	A 1 week increase in the PDB increases unemployment by 0.1 weeks on “average” and by 1.0 week for individuals with long spells of unemployment

national probability samples of certain segments of the population. Table 3-2 presents the same type of information that is presented in Table 3-1.

In contrast to the consistent predictions of the program-data studies, the findings outlined in Table 3-2 indicate that most studies based on survey data imply that changes in the WBA have no perceptible effect on the amount of unemployment and among the studies that do find a significant effect (Ehrenberg and Oaxaca (1976) and Moffitt and Nicholson (1982)) it is smaller than the estimates using program data. For example, Barron and Mellow (1981), using a supplement of the CPS, find that the WBA becomes insignificant once one accounts for recipiency status. Katz and Meyer (1990a), using a survey supplement to a program-data source, also find that the WBA plays an insignificant role in the transitions out of unemployment. The findings reported in Gritz and MaCurdy (1997) are consistent with these findings. Of course, there are a variety of potential reasons for explaining this discrepancy, including the nontrivial observation that unemployment in program data measures weeks of UI receipt instead of CPS-type unemployment. In studies relying on unemployment measures more in tune with the CPS-type measures, the evidence of the effects of the WBA on unemployment durations is far less conclusive.

The estimated effects of the PDB from empirical studies based on survey data are also substantially smaller than the estimated effects of this variable obtained by studies using program data. Both of the survey based studies reporting results of the impact of a change in the PDB find that a 1 week increase in the PDB increases unemployment by 0.1 weeks. Both the Katz and Meyer (1990b) and Gritz and MaCurdy (1997) studies also examine the extent to which the exhaustion of benefits affects the likelihood a claimant ends a period of unemployment and begins working again. The results

in these two studies are consistent with the findings from the studies using program data and provide strong evidence of exhaustions effects. Specifically, the findings from both of these studies suggests that the likelihood a person becomes re-employed begins to increase 3 to 4 weeks before exhaustion of benefits and remains at a higher level for another 3 to 4 weeks after benefit exhaustion.

3.3 Synthesis of Findings

The findings from studies using program data or survey data to investigate the effects of UI policies on unemployment cover a range of estimates that suggest great caution should be taken in making policy prescriptions based on this uncertain evidence. There are a variety of potential reasons for the uncertainty of the impact of the WBA and the PDB on unemployment. As noted in the introduction to this chapter, these differences can result from the data sources used to estimate the empirical models, differences in the definitions of key variables, and disparate assumptions and statistical models used to obtain the empirical results. While studies vary considerably along these 3 dimensions, there are some consistent themes that emerge from an examination of Tables 3-1 and 3-2.

Although caution must be used in comparing results, an examination of the results in Tables 3-1 and 3-2 clearly suggests that the WBA and the PDB have a larger impact on insured unemployment compared to the broader definitions of unemployment that more closely corresponds to the CPS type measure or the length of time until re-employment. This is particularly the case for the WBA where the studies that use the concept of insured unemployment consistently show a significant positive effect but the majority of studies using a broader definition of unemployment find no significant effect. Similarly, while the studies that estimate the impact of the PDB on the broader concepts of unemployment find a

significant positive effect of this UI variable on unemployment, the results from studies examining insured unemployment find much larger effects. Overall, these results suggest that increases in either the WBA or the PDB should have a substantially large impact on the amount of insured unemployment and a much smaller effect on the amount of general unemployment in the economy.

CHAPTER 4
DEVELOPMENT OF A DATA BASE FOR THE ANALYSIS OF THE DYNAMICS OF UNEMPLOYMENT INSURANCE BENEFIT RECEIPT

A comprehensive analysis of the dynamic patterns of UI benefit payments requires a very rich data source that includes measures of UI benefit entitlements and benefit payment histories for a random sample of UI claimants, characteristics of these claimants at the time their initial claim is filed, and measures of the general economic conditions faced by these claimants. Moreover, very reliable measures of UI benefit entitlements and benefit payments are necessary for such an analysis. This latter requirement limits the potential sources to data based on administrative records. Although there are several data sources based on administrative records that have been used in previous studies, none of these sources are suitable for the purposes of this analysis. Specifically, extant program data sources either lack the detailed payment history information needed for this analysis or these sources are not nationally representative.

This chapter details the construction of a new data base that was developed for this study. The first section discusses the development of the data base including its design and the desired data elements. The second section provides a description of the data elements included in the data base. The chapter concludes with a description of the steps taken to create the estimation samples that are used in the empirical analyses reported in the following chapters.

4.1 Development of Project Data Base

A new data base was developed for this study to examine the dynamic patterns of UI benefit payments. To meet the objectives of this project, this new data base had to satisfy several criteria. First, the data base must contain detailed and accurate data regarding UI benefit entitlements and weekly information concerning benefit payments. Second, to ensure that the patterns observed in the data are representative of the experiences of typical UI claimants, the data base must include a nationally representative sample of UI claimants. Third, to obtain reliable estimates of the effects of the WBA and the PDB, there must be variation in these UI policy variables across claimants with similar work histories. Fourth, to estimate the impact of the availability of extended or supplemental benefits on benefit payments, the data base needs to include periods when these types of benefits were available, as well as times when these benefits were not available to UI claimants. Fifth, the data base must span a long enough time period to examine seasonal variation in benefit payments and the relationship between general economic conditions and claimants' benefit payment experiences. Finally, the data base must also include some key demographic characteristics of claimants, such as age, sex, race and pre-UI industry of employment.

State UI administrative records were identified as the only source suitable for creating a data base that satisfied these criteria. To create such a data base, we implemented a two-stage clustered sample design to select a random sample of UI claimants who filed an initial claim for benefits between January 1, 1990 and December 31, 1993. The time period spanning 1990 through 1993 was selected for two reasons. First, there were known difficulties in obtaining older historical information from States

and 1990 was deemed the earliest year that we could reasonably expect States to have electronic records of claims and benefit payments available without having to retrieve archived records. Second, the EUC program was operative during the middle of this period, which provided a sample of claimants some of whom had these additional benefits available and others who were not eligible to receive these benefits.

The first stage of the two-stage sample design selected a random sample of 15 States using a systematic random sampling scheme with the probability of selection proportional to the total number of monetarily eligible initial claims filed in calendar years 1990, 1991, 1992 and 1993. The systematic aspect of the sampling scheme was designed to ensure that the sample included variation in key UI policy variables by sorting States along a single dimension that summarized the generosity of each State's UI program. Specifically, the generosity of a State's UI program was calculated by taking the average total benefits payable to a set of 23 hypothetical workers who were characterized by different combinations of base period earnings, high quarter earnings and average weekly earnings. Using the rules for determining eligibility that were in effect during each calendar quarter (starting with the first quarter of 1990 through the fourth quarter of 1993), we calculated the WBA and the total benefits payable to each of the 23 hypothetical worker types for all 16 calendar quarters. These 368 values of total benefits payable were then averaged for each State to calculate the average total benefits payable in each State from 1990 to 1993.[16] States were then ranked according to the average total benefits payable with the least generous State being assigned a rank of 1. Table 4-1 presents the 15 States that

[16] If a hypothetical worker did not meet a State's monetary eligibility criteria, a value of zero was used for total benefits payable and this value was included in the calculation of the average.

were randomly selected using this procedure along with each State's average total benefits payable and ranking.

TABLE 4-1
Characteristics of States Requested to Provide a Random Sample of UI Claimants

State	Average Total Benefits Payable	Ranking
Alabama	$2,794.66	12
California	$3,591.83	40
Connecticut	$3,854.90	46
Florida	$2,618.56	6
Georgia	$2,678.59	8
Illinois	$3,145.16	23
Indiana	$2,248.23	1
Kansas	$3,450.86	34
Michigan	$3,699.20	43
Nevada	$3,317.78	30
New York	$3,648.10	41
Oklahoma	$3,029.12	20
Pennsylvania	$4,283.05	50
Texas	$2,926.80	17
Washington	$3,582.87	39

The second stage of the sampling scheme selected a stratified random sample of UI claimants who filed a monetarily eligible initial claim between January 1, 1990 and December 31, 1993 in these 15 States. Each State was requested to select a simple random sample of at least 1,000 claimants from each of the four calendar years of 1990, 1991, 1992 and 1993. If a State already had a random sampling mechanism for other program or research purposes, this mechanism was used to obtain the sample. If a State did not have an on-going random sampling mechanism, the last few digits of claimants Social Security Numbers were used as the selection mechanism.

The data elements requested from these 15 States included information on the determinants and amount of benefit entitlements, weekly claims and payment information, disqualification information, and demographic characteristics of UI claimants. Specifically, the data elements requested included claimant demographic data (age, sex, race, marital status, number of dependents), the effective date of the initial claim, week by week payment history, benefit entitlements, dates of any periods of disqualification, qualifying earnings, pre-UI occupation and industry of employment, Union status, reason for job separation, and date of job separation.

4.2 Data Elements Included in the Data Base

Thirteen of the 15 States were able to provide data for a random sample of monetarily eligible UI claimants during this time period. Eleven of the States were able to provide samples of claimants from all 4 of the years requested. However, Oklahoma was only able to provide data for a sample of claimants who filed a monetarily eligible initial claim in the last three years and Connecticut was only able to provide a sample of claimants who filed a monetarily eligible initial claim in 1992 or 1993. Data

were not obtained from Indiana and Michigan and claimants from these two States are not included in the empirical analyses.

Table 4-2 presents the data elements that were obtained from each of the 13 States. Original data obtained from most States was in the form of two files that were linked by a common identification number based off of claimants Social Security Number. The first file contained information pertaining to the initial claim and characteristics of a claimant. The second file contained detailed weekly data for all benefit payments made to each claimant.

State UI administrative records are maintained independently by each State. As such, the electronic historical claim data were not uniform in content or in structure across the sampled States. Measures of educational attainment, marital status, reason and date of job separation, pre-UI occupation code, and union status of claimants were not available from several States and these data elements are excluded from the data base. The remaining data elements were standardized and together formed the core of the data base constructed for the analysis, which consists of demographic characteristics, pre-UI employment information, benefit entitlements, and weekly payment histories for sampled claimants.

This longitudinal micro-level data base was combined with published data that summarized economic conditions at the State-level and nationally. State-level data obtained from the U.S. Department of Labor summarized unemployment rates, levels of covered employment and the amount of covered wages in the 13 sampled States. Monthly State-level unemployment rates beginning in 1990 were obtained from the Bureau of Labor Statistics (BLS)

TABLE 4-2
Data Elements Obtained From States

Data Element	AL	CA	CT	FL	GA	IL	KS	NV	NY	OK	PA	TX	WA
Initial Claim Date	T	T	T	T	T	T	T	T	T	T	T	T	T
Sex of Claimant	T	T	T	T	T	T	T	T	T	T	T	T	T
Race of Claimant	T	T	T	T	T	T	T	T	T	T	T	T	T
Age/Date of Birth of Claimant	T	T	T	T	T	T	T	T	T	T	T	T	T
Years of Education	T								T	T	T	T	T
Marital Status			T			T					T		T
Number of Dependents	T		T			T					T		T
Reason for Job Separation	T	T	T	T		T	T			T	T	T	T
Date of Job Separation	T	T	T	T		T	T			T		T	
Pre-UI SIC Industry Code	T	T	T	T	T	T	T	T	T	T	T	T	T
Pre-UI DOT Occupation Code	T	T	T	T		T	T		T	T	T	T	T
Union Status		T					T			T			T
Qualifying Base Period Earnings	T	T	T	T	T	T	T	T	T	T	T	T	T
Weekly Benefit Amount - UI	T	T	T	T	T	T	T	T	T	T	T	T	T
Maximum Benefits Payable - UI	T	T	T	T	T	T	T	T	T	T	T	T	T
Detailed Weekly Payment Data	T	T	T	T	T	T	T	T	T	T	T	T	T

and merged with the claimant data. Similarly, beginning in 1990, quarterly State-level data from the ES-202 program were obtained, including data on covered employment, total wages paid in covered employment, taxable wages, and covered employment by industry. These data elements were merged with the claimant data.

4.3 Construction of the Analysis Data

The analysis data base constructed from the records we obtained from the 13 States consisted of the State-level economic data, claimant demographic information, claim characteristics and 208 weeks of UI payment history for each monetarily eligible initial claim.[17] Construction of the database involved determining eligible claims, imputing missing data, and standardizing similar measures into consistent data elements across all the States. This section describes the procedures used to determine valid data and to correct for inadequate samples or missing data. It also details variable construction when original source data were used to compute additional measures.

Claims included in the file were restricted to monetarily eligible claims for which only regular UI, extended benefits (EB) or emergency benefits (EUC) were payable because of the overall project focus on the dynamic patterns of benefit payments under these three major components of the UI system. Claims with weekly benefit amounts or base period earnings equal to zero were considered monetarily ineligible and screened out of the sample. Further, claims with entitlements to benefits from Trade Readjustment Assistance (TRA), Disaster Unemployment Insurance (DUA), Short Term

[17] Payment histories were tracked for 208 weeks because of the reach back provision of EUC that allowed claimants whose benefit years had already expired to claim benefits from an initial claim that was potentially more than three years ago.

Compensation (STC) or compensation under any other temporary program other than EUC were also excluded from the analysis database.

Other screens were used to eliminate records with questionable information including missing dates and records with inconsistent information. Claim records with missing initial claim dates were excluded from the analysis data base. Additional records were omitted in cases of contradictory data or probable data entry errors. These included instances where regular UI payments were made beyond 54 weeks after the initial claim date or after EUC payments had already begun. Also omitted were claims for which total overpayments under any one program were greater than the claimant's WBA under that program. Overpayments were computed in two ways: (1) the sum of any portion of a weekly payment greater than WBA; and, (2) the total amount of benefits payed compared to the maximum potential benefit amount. If either amount exceeded the WBA, the initial claim and all matched payments were excluded from the analysis data base.

The other significant screen applied in the construction of the analysis data base eliminated records where we were unable to match an initial claim record with matching payment histories. In general, this screen eliminated only a very small percentage of claims with fewer than 1 percent of initial claims missing payment information. However, in one State approximately 27 percent of the claims that resulted in at least one benefit payment were missing at least some of the detailed weekly payment information in the records we received. A comparison of the available data between claims with and without matching payment histories revealed that the claims with missing information were very similar to the claims without missing information. Hence, we excluded all of these claims from the analysis data base. Moreover, to maintain the same proportion of initial claims that did not result in a benefit

payment, we selected a random sample of 73 percent of the claims for which no payment were made in this State.

The remaining valid claims from all 13 States made up the analysis data base. Aside from the State-level economic measures, the following variables were included in the time-invariant portion of the file: the claimant sex, race, age, employment sector type, base period earnings category and worker type category; the initial claim date; the WBA; the maximum potential benefit amount (MBA); and whether or not a waiting week was required before first payment.

Although records with missing data on some variables were completely excluded from the analysis data base, we did retain records with missing data for some variables, including base period earnings, race, sex, pre-UI industry of employment, and age when filing initial claim. Missing data for these variables were treated in two distinct ways. A dummy variable for missing age data was included in the file when age was less than 16 or none was provided. Meanwhile, multiple imputation techniques, based on the methods proposed by Little and Rubin (1987), were used to account for missing data regarding base period earnings, race, sex and pre-UI industry of employment. For each record with missing data, multiple records were created, one for each variable category. Each new record was weighted based on the estimated probability of that outcome. The calendar quarter the initial claim was filed and the UI benefit entitlement variables were used to estimate the probability a claimant with missing sex information was a female or male. These same variables, in addition to sex, were used to estimate the probabilities claimants with missing race information were Black, Hispanic, or from some other racial category. Predicted probabilities for the claimants with missing pre-UI industry information were also constructed using the same sets of predictor variables. Similarly, missing

information regarding base period earnings were accounted for by predicting the probabilities a claimant fell into each of the 42 worker type categories based on seasonal factors, benefit entitlements, sex, race, pre-UI industry, and any available earnings information.[18]

The time-varying portion of the analysis data base consisted of payment, program type, and remaining benefits available information for 208 weeks, starting with the week of the initial claim date, or the following week if a waiting week was required. For all States excepting New York and Texas, weeks were defined as beginning on Sunday and ending on Saturday. New York's payment week begins on Monday and ends on Sunday. Texas' definition of week depends on the date that the claim is filed. For instance, if a claim is filed on Friday in Texas, the week is defined as Friday through Thursday. These State conventions were used to determine appropriate claim week numbers in the longitudinal portion of the database.

Payment amount and program type for each consecutive week of a claim were provided in the State UI administration record files. In cases where dependent allowances were excluded from recorded benefit amounts, the dependent allowance amount was added to all relevant data elements, including payments, as well as the WBA. Any censored data or disqualification periods were coded in the program type variable for future reference. For instance, only one year of data was available for each claim from one of the sampled States. In this case, a variable was created indicating that no more information was available for the claim after week 53.

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[18] Missing base period earnings information most commonly occurred because information on high quarter earnings was missing for States that did not use this measure of recent labor market experience in determining claimants' benefit entitlements. In these instances, information on total base period earnings was available and this information was used to estimate the probabilities that a claimant's high quarter earnings fell into the brackets defining the 42 worker types.

The measure of remaining benefits available at each week was calculated at the end of the week, as the total regular UI benefits available plus any EUC or EB benefits available, minus the current and all previous week payments. For this calculation, State-level maximum potential weeks of EUC and EB were obtained from the Unemployment Insurance Service, for each month in which the programs were in effect. To compute the EUC and EB benefits available, the potential weeks were multiplied by the claimant's WBA. While UI total benefits available were generally determined at the beginning of the claim, EUC and EB benefits available could potentially change throughout a claimant's benefit year depending on availability of these benefits during a particular week.

The resulting longitudinal file, merged with the base file of claimant and claim data, provided the information necessary to identify first payments, spells of receipt and non-receipt, as well as transitions from exhaustion to payment when additional benefits became available. Finally, adding State-level unemployment rate data, CPI adjusted average quarterly wages, and a measure of total covered employment completed the analysis data base. These variables were transformed to reflect appropriate measures for each week from 1990 through 1996. Merged with sampled claim data by initial claim week, these measures provided baseline conditions. Merged with the longitudinal data, they were used as time-varying measures of the State's economic conditions.

4.4 Sub-sampling to Construct an Estimation Sample

The estimation sample consisted of a random sample of approximately 1,000 claims per State. Such a sub-sample was necessary for two reasons. First, the number of claims received from the 13 States varied greatly. We received approximately 10,000 claim records from New York, while over

36,000 were received from Oklahoma. Second, the processing time for a longitudinal micro-level data file is too long to exceed what is necessary for adequate estimation.

Table 4-3 shows each State's total number of valid claims, the sampling probability, and the number of cases found in the final sub-sample. The goal of the sub-sampling was to obtain a data set with approximately 13,000 claimants with approximately 1,000 claimants from each of the 13 States. Sample weights were created for each claimant to account for the four steps involved in the development of the estimation sub-sample. A weight was first created to represent the differential probability that the State was selected using the systematic random sampling procedure with probability proportional to size. This weight was then multiplied by the inverse of the probability individual claimants were randomly selected within each State. This intermediate weight was then multiplied by the inverse of the sub-sampling probability to create the weight associated with each claimant in the estimation sub-sample. The final weight created for the estimation was developed to account of the multiple imputation of missing data and consisted of multiplying the third-step weight by the probabilities associated with each imputed value.

TABLE 4-3
Sample Size, Sub-Sampling Probability and Sub-Sample Size by State

State	Number of Valid Claims in State Sample	Sub-Sampling Probability	Number of Claims in Estimation Sub-Sample
Alabama	10649	10%	1033
California	21119	5%	992
Connecticut	9195	10%	920
Florida	11167	9%	951
Georgia	10019	10%	1019
Illinois	16340	6%	959
Kansas	14267	7%	986
Nevada	28976	4%	1174
New York	9377	11%	1025
Oklahoma	33775	3%	969
Pennsylvania	17359	5%	923
Texas	19541	6%	1186
Washington	12427	8%	1002

CHAPTER 5
A FRAMEWORK FOR MODELING THE DYNAMICS OF UNEMPLOYMENT INSURANCE BENEFIT RECEIPT

Characterizing the dynamic patterns of UI benefit payments requires an econometric framework that not only provides a complete description of claimants' payment experiences over their benefit year, but also accounts for various factors--including UI policy variables--that influence claimants' decisions to collect the UI benefits they are entitled to receive. This chapter develops an econometric framework that meets these requirements. The first section describes the basic elements of this econometric framework and Section 5.2 discusses three modifications of this basic framework to account for some of the unique features of UI programs. Section 5.3 presents the empirical specifications used to operationalize this framework. The chapter concludes with a discussion of specific modeling issues related to estimating the influence of UI policy variables on the dynamic patterns of benefit payments.

5.1 The Econometric Framework

The econometric framework used in this study to characterize the dynamic patterns of UI benefit payments is referred to as a Transition Probability Model (TPM) and it includes two basic components: initial probabilities; and duration distributions. The initial probabilities summarize the likelihood a claimant receives a benefit payment in the first week of the benefit year that he or she is eligible to receive benefits. The duration distributions, which are based on transition probabilities,

characterize the length of spells or number of uninterrupted weeks that an individual is in a particular UI benefit payment status.

When combined, these two components of a TPM can fully summarize the benefit payment experiences of claimants over their entire benefit year. Specifically, this framework can be used to characterize six aspects of the time paths of UI benefit payments. First, it estimates the likelihood of receiving a first payment conditional on filing a valid initial claim and establishing a benefit year. Second, among claimants who do not receive a payment at the beginning of their benefit year, it describes the length of time until they receive a first payment. Third, it determines the distribution of the number of consecutive calendar weeks of UI receipt. Fourth, among claimants who have a break in their UI payments, it determines the likelihood of beginning a repeat period of UI receipt before the end of a benefit year (the recidivism rate). Fifth, it provides measures of the total number of weeks of UI receipt in a benefit year (accumulative duration) and the likelihood of receiving a UI benefit payment during each week of a benefit year. Finally, it can account for the way in which initial probabilities and duration distributions vary across individuals who possess different characteristics, including the WBA, the PDB, and previous periods of UI receipt in a benefit year.

To describe the UI benefit payment experiences of claimants over their benefit year, it is useful to characterize this experience by classifying each claimant as being in one of two UI benefit payment statuses in each week of a benefit year. Specifically, a claimant is defined to be in status $R(t)$ during week t of the benefit year if he or she receives a UI benefit payment in this specific week. Otherwise, a claimant is defined to be in status $N(t)$ during week t if he or she does not receive a UI benefit payment in this particular week. Although we are recording a claimant's status as of week t, conceptually--and

as a matter of convention--the claimant's decision regarding whether to collect a benefit payment in week *t* will be treated as if it occurred in the immediately preceding week (i.e., the decision was made at the end of week *t-1*).

The first element of the econometric model needed to characterize claimants' UI benefit payment experiences is the specification of the payment status that claimants enter immediately upon becoming eligible to receive UI benefits at the beginning of their benefit year. In econometric terminology this component determines the initial conditions of the process describing individuals UI benefit payments over the benefit year. The statistical specification needed here is a type of initial probability because it reflects the likelihood that a claimant starts his or her benefit year off in status *R(1)* or in status *N(1)*, where the first week that a claimant is eligible to receive a benefit is denoted by week 1.[19] These initial probabilities can be represented by:

$I_R(0^*X)$ = Probability a claimant with characteristics X receives a UI benefit payment in the first week of the benefit year; and,

$I_N(0^*X)$ = Probability a claimant with characteristics X is in a non-payment status in the first week of the benefit year,

where $I_R(0^*X) = 1 - I_N(0^*X)$. By incorporating demographic characteristics, pre-UI employment experiences, benefit levels, the PDB, and other factors that are determined at the beginning of claimants' benefit years in X, we can allow for differences in the proportion of claimants that begin their benefit year in each of these statuses.

[19] For claimants in States without a waiting week requirement this is the first week of their benefit year and for claimants in States with a waiting week requirement this is the second week of their benefit year.

The second element required to model the dynamics of UI benefit payments is a summary of the length of time that individuals spend in each of the two UI payment statuses after they are known to enter this status. A duration distribution characterizes the likelihood that a claimant experiences a particular number of consecutive weeks in a specific UI payment status given the claimant has already started a period in this status. The essential building blocks of the two duration distributions used to characterize spells of UI receipt and non-receipt are the transition probabilities given by:

$H_R(t, Z(t))$ = $Pr(R(t) \mid N(t+1))$, which designates the likelihood that a claimant with characteristics Z(t) who is receiving a UI benefit payment in week t will not be receiving benefits in week t+1; and,

$H_N(t, Z(t))$ = $Pr(N(t) \mid R(t+1))$, which represents the probability a claimant with characteristics Z(t) who is not receiving a UI benefit payment in week t begins receiving benefits in week t+1.

The literature on duration models often refers to these transition probabilities $H_R(t, Z(t))$ and $H_N(t, Z(t))$ as hazard rates. A formulation for the duration distribution describing spells of UI benefit payment receipt based on the transition probability $H_R(t, Z(t))$ is given by

$$f_R(t) = S_R(t-1) H_R(t * Z(t)),$$

where

$$S_R(t-1) = \prod_{t=t_b}^{t-1} P_R(t),$$

$$P_R(t) = 1 - H_R(t * Z(t)),$$

and t_b represents the specific week within the benefit year that this particular spell of benefit payments began. Analogous expressions for the duration distribution describing the number of consecutive weeks claimants are classified in a non-payment status are defined by replacing $H_R(t, Z(t))$ with the transition probability $H_N(t, Z(t))$.

In these expressions, the function $f_R(t)$ denotes the duration distribution that specifies the probability that duration in the benefit receipt status will last exactly t weeks for claimants characterized by attributes $Z(t)$ who are known to have entered this status at week t_b of their benefit year. The quantity $S_R(t - 1)$ is the survivor function, indicating the probability that claimants in this category will experience at least $(t - 1)$ consecutive weeks in a receipt status after entering this status at week t_b. Finally, the expression $P_R(t)$ represents the probability that a claimant will continue receiving benefits in week t+1 given the claimant was receiving benefits in week t.

The claimant attributes represented by $Z(t)$ will consist of two sets of variables. The first set of variables includes the same claimant characteristics that are included in the variable X that enters into the initial probabilities. The second set of variables included in $Z(t)$ consists of various measures of claimants benefit receipt experiences prior to week t, which are referred to as receipt history variables, and factors that account for seasonal variation in payment experiences. The specific measures that are included the receipt history variables differs between spells of UI receipt and spells of nonreceipt and will be discussed below.

Estimated variants of the initial probabilities and the two duration distributions provide all of the information needed to describe the dynamic patterns of UI benefit payments over a claimant's benefit

year. Quite literally, it is possible to analytically calculate the likelihood of every conceivable sequence of weeks of UI payments and non-payments by forming the appropriate product of initial probabilities and duration distributions. Such a procedure permits one to predict the likelihood that claimants with a particular set of attributes will experience any specific pattern of UI benefit payments.

To illustrate this procedure, consider the benefit payment experiences of a claimant over a period of T weeks. Further, define $f_{Rj}(t_{Rj})$ and $f_{Nk}(t_{Nk})$ as the duration distributions associated with the j^{th} spell of UI benefit receipt and the k^{th} spell of non-receipt, respectively. In conjunction with $I_R(0*X)$ and $I_N(0*X)$, these duration distributions can fully characterize any weekly pattern of UI receipt and nonreceipt.

For example, the likelihood that a claimant with characteristics X_c begins the benefit year by receiving a UI payment in the first week he or she is eligible, continues to receive benefit payments for t_{R1} weeks and spends the rest of the benefit year in a non-receipt status ($t_{N1} = T - t_{R1}$) is given by

$$I_R(0*X_c)\, f_{R1}(t_{R1})\, S_{N1}(t_{N1}).$$

If instead, this individual begins another period of benefit receipt after t_{N1} and receives benefit payments for t_{R2} and again enters a non-receipt status for the remainder of the benefit year (i.e., $t_{N2} = T - t_{R1} - t_{N1} - t_{R2}$), then the implied probability is

$$I_R(0*X_c)\, f_{R1}(t_{R1})\, f_{N1}(t_{N1})\, f_{R2}(t_{R2})\, S_{N2}(t_{N2}).$$

Alternatively, consider a claimant with the same characteristics who begins the benefit year in a non-receipt status and remains in this status for the entire benefit year. The likelihood of this type of pattern is given by

$$I_N(0^* X_c) S_{N1}(T).$$

One can construct similar expressions for all possible patterns of UI benefit receipt and non-receipt, although as one can imagine this exercise becomes quite complex when considering the length of a benefit year. These expressions become even more involved when the transition probabilities include variables in $Z(t)$ that summarize previous periods of UI receipt in a benefit year, which is a type of history dependence in the transition probabilities.[20] These analytical methods can also be used to construct summary measures of the dynamic patterns of UI benefit receipt. However, these expressions also become exceedingly complex and computationally very burdensome. Simulation methods, of the sort now commonly used in econometrics and statistics, offer a far simpler approach for computing these summary statistics that characterize the UI benefit payment experiences of claimants. Such simulation methods will be used in the subsequent analyses to examine the UI benefit payment experiences of claimants with various characteristics and facing a number of alternative UI policy options.

[20] See Gritz and MaCurdy (1997) for a discussion of these complexities.

5.2 Modifications of Framework to Account for Features of UI Programs

The two-State TPM outlined above provides a very general framework to examine claimants UI benefit payment experiences. However, there are some unique features of UI programs that require slight modifications to this general framework. Specifically, three features of UI programs require four modifications to this framework. These three features are benefit exhaustion, the triggering on of extended or supplemental benefits for exhaustees, and the extension of benefit years under supplemental programs.

The exhaustion of UI benefit entitlements within a claimant's benefit year introduces a special category of non-receipt status, which we referred to as exhaustion, and requires two modifications to the general framework. The unique feature of the exhaustion non-receipt status results because once a claimant has exhausted his or her UI entitlements it is impossible for a claimant to re-enter a recipiency status. In this sense, the exhaustion non-receipt status is very similar to what is referred to as an absorbing state in the terminology of Markov models.

Two modifications of the above framework are needed to account for the exhaustion of benefits. Both of these modifications involve assigning particular values to the transition probabilities $H_R(t, Z(t))$ and $H_N(t, Z(t))$. Specifically, if a claimant exhausts his or her benefit entitlement at the end of week t-1 of the benefit year, $H_R(t, Z(t))$ will be set equal to one for week t and the transition probability $H_N(t, Z(t))$ will be set equal to zero for all subsequent weeks of the claimant's benefit year that he or she has no available benefits. These two modifications are easily implemented in the above framework by including a variable in $Z(t)$ measuring the total amount of UI benefits available to a

claimant at the end of week t-1. If the value of this variable is zero, the definitions of $H_R(t, Z(t))$ and $H_N(t, Z(t))$ will be modified to set the probabilities to one and zero for the appropriate weeks.

The second feature of UI programs that requires a modification of the general framework relates to the exhaustion of regular UI benefits and the triggering on of extended or supplemental benefits. The triggering on of extended or supplemental benefits at a fixed point in calendar time results in making additional UI benefits available to claimants who had exhausted their regular UI benefits earlier in their benefit year. For example, if extended benefits triggered on during the 39th week of a benefit year for a claimant who exhausted regular benefits in the 26th week of the benefit year, this claimant would go from having no available benefits at the beginning of the 38th week to having 13 weeks of benefits available at the beginning of week 39 of the benefit year. Hence, it is possible for a claimant to go from an exhaustion non-receipt status to a receipt status because of the sudden availability of extended benefits.[21]

The modification of the two-State TPM model needed to account for the possibility of going from an exhaustion non-receipt status to a receipt status is very similar to the initial probabilities component of the basic framework. Specifically, to incorporate the needed component into the model, let E represent the exhaustion non-receipt status and define

$Pr(E6R^*t, Z(t))$	=	Probability a claimant with attributes $Z(t)$ who has exhausted his or her benefit entitlements receives a UI benefit payment in the first week that extended or supplemental benefits are available; and,

[21] This aspect of the exhaustion non-receipt status makes it different from an absorbing state in a standard Markov model.

$Pr(E6N^*t, Z(t))$	=	Probability a claimant with attributes $Z(t)$ who has exhausted his or her benefit entitlements does not receive a UI benefit payment in the first week that extended or supplemental benefits are available.

These exit probabilities are easily incorporated into the basic framework and only enter into the model if extended or supplemental benefits are available to claimants after they have exhausted their regular benefits.

The final modification of the basic framework is needed to account for potential reach back provisions of supplemental benefits programs, such as the provision included in the EUC program. Specifically, the EUC program included a reach back provision that permitted claimants whose benefit years expired after March 1, 1991 to claim EUC benefits on an initial claim that would no longer be considered valid under the regular UI program or the permanent extended benefits program. For example, a claimant who filed a valid initial claim in March 1990 could have conceivably claimed an EUC benefit payment in February 1994 based off of this claim even if the claimant had not received any benefit payments from this claim prior to this date.

The reach back provisions of some supplemental benefits programs does not introduce any new conceptual issues into the basic framework over and above the three modifications just discussed. However, these reach back provisions do require an extension of the time frame over which benefit payment experiences are characterized. Under the regular UI program, claimants' benefit years extend for a maximum of 52 weeks and without extended or supplemental programs the empirical model would only need to encompass a time frame of 52 weeks. The model implemented in this analysis

extends the time frame to 208 weeks because of the reach back provision included in the EUC program.

5.3 Empirical Specifications

Implementing the econometric framework outlined above requires the specification and estimation of four statistical quantities: the initial probability $I_R(0^*X)$; the transition probabilities $H_R(t, Z(t))$, which determine the length of UI receipt spells; the transition probabilities $H_N(t, Z(t))$, which determine the length of non-receipt spells; and, the entrance probability $Pr(E6R^*t, Z(t))$, which indicates the likelihood of entering a receipt status at the time extended or supplemental benefits are triggered on for claimants who had earlier exhausted their entitlements to benefits. This section introduces the empirical specifications adopted in the analysis for these quantities and briefly discusses the estimation methods used in the analysis. The specific variables included in the empirical models and the estimation results will be presented in the following chapters.

5.3.1 Initial probabilities

As stated above, the initial probabilities determine the likelihood that a claimant with a specific set of characteristics enters a recipiency status during the first week of the benefit year that he or she is eligible to receive a benefit payment. The nature of these initial-status probabilities rules out the possibility that they depend upon any experiences of claimants after filing their initial claim and establishing their benefit year. Hence, the specification of these probabilities depend exclusively on claimant characteristics that are determined at the time an initial claim is filed. These characteristics are represented by X and include demographic characteristics, pre-UI employment information, UI benefit

entitlements available at the beginning of the benefit year from regular, extended and supplemental programs, measures of local economic conditions, and seasonal variables.

To provide a flexible specification for the initial probabilities, $I_R(0^*X)$ is parameterized using a logit specification given by

$$I_R(0^*X) \; ' \; \frac{1}{1\%e^{X?}},$$

where $?$ is a parameter vector that captures the effects of the variables included in X on the likelihood claimants begin their benefit year in a recipiency status. The dichotomous nature of the potential statuses implies that $I_N(0^*X) = 1 - I_R(0^*X)$, which provides the specification of the likelihood claimants begin their benefit year in a non-receipt status.

5.3.2 Duration distributions for receipt spells

Proposing specifications for $f_R(t)$ and $S_R(t)$ requires an appropriate functional form for $H_R(t, Z(t))$, representing the probability of leaving the recipiency status at the end of week t given entry into this status and the covariates $Z(t)$ measured at time t. Three aspects of this functional form are critical to these specifications. The first involves that nature of the dependence between the number of consecutive weeks benefits have been received and the likelihood of not receiving a benefit payment in the following week, which primarily determines how $H_R(t, Z(t))$ varies with t. This type of dependence is commonly referred to as duration dependence in the literature. The second aspect concerns the effect individual attributes that are included in $Z(t)$ have on the transition probability $H_R(t, Z(t))$, particularly variables that capture a claimant's benefit receipt experiences prior to week t. The third

relates to the possibility that the central features of duration dependence change as the values of the variables included in $Z(t)$ change.[22] To account for such a possibility, a formulation for $H_R(t, Z(t))$ is needed that admits flexibility both in the functional form for duration dependence, and in the way in which this dependence varies for different values of the covariates $Z(t)$.

To develop an empirical specification that incorporates the needed flexibility, the analysis below uses a logistic specification for $H_R(t, Z(t))$. The general form of this specification is

$$H_R[t*Z(t)] = \frac{e^{Z_1(t)\beta_R + g_R(t, Z_2(t), a_R)}}{1 + e^{Z_1(t)\beta_R + g_R(t, Z_2(t), a_R)}},$$

where t represents the duration of the current spell at the end of week t, $Z_1(t)$ and $Z_2(t)$ are vectors of variables consisting of the covariates included in $Z(t)$, β_R and a_R are parameter vectors, and the function $g_R(t, Z_2(t), a_R)$ determines the duration dependence properties associated with spells of UI benefit receipt. The presence of $Z_2(t)$ in the function $g_R(t, Z_2(t), a_R)$ permits the central features of duration dependence to vary according to all of the variables included in $Z_2(t)$.

In this specification, the function $g_R(t, Z_2(t), a_R)$ incorporates many of the features of alternative models, such as piecewise exponential and conventional spline models, but provides a more flexible approach with a smooth function for modeling duration effects. Implicit in piecewise exponential and conventional spline models is a tradeoff between smoothness and goodness of fit. The fit of these models can be improved by increasing either the number of intervals in the piecewise exponential model

[22] Accounting for this type of feature rules out standard proportional hazard models for this analysis.

or the number of spline points in the conventional spline model. However, nondifferentiability at the boundaries of the intervals or the spline points sacrifices smoothness in the predicted transition probabilities by allowing discrete jumps in the probabilities at the boundaries. Alternatively, the smoothness of these models can be improved by limiting the number of intervals or spline points but only at the cost of diminishing the capabilities of these models to detect complicated forms of duration dependence.

To provide a flexible yet smooth approach to modeling duration dependence, the analysis here specifies a general functional form for $g_R(t, Z_2(t), a_R)$ given by

$$g_R\left(t, Z_2(t), a_R\right) = \sum_{k=1}^{K_R} \left[F_{Rk}(t) - F_{Rk-1}(t)\right] \left[a_{Rk0} Z_2(t) + a_{Rk1} t + a_{Rk2} t^2 + a_{Rk3} t^3\right].$$

The quantities $F_{Rk}(t)$ denote the cumulative distribution function of a normal random variable possessing mean μ_{Rk} and variance σ^2_{Rk}, a_{Rk0} represents a parameter vector, and a_{Rk1}, a_{Rk2} and a_{Rk3} are parameters capturing the effects of duration dependence. The inclusion of the term in the first bracket in $g_R(t, Z_2(t), a_R)$ results in a smooth spline function that determines the duration properties associated with the time spent in the UI benefit payment status.

To understand the nature of these splines, consider the properties of $g_R(t, Z_2(t), a_R)$ which allow for increasing, decreasing or non-monotonic forms of duration dependence. The presence of the cumulative distribution functions in the specification incorporates spline features in $g_R(t, Z_2(t), a_R)$ so that the polynomial $a_{Rk0} Z_2(t) + a_{Rk1} t + a_{Rk2} t^2 + a_{Rk3} t^3$ represents $g_R(t, Z_2(t), a_R)$ over only a prespecified range of t and the inclusion of $Z_2(t)$ in $g_R(t, Z_2(t), a_R)$ allows the patterns of duration dependence to vary according to all the attributes included in this vector of variables. In particular,

suppose the duration properties characterizing spells of UI benefit payments are summarized by a cubic polynomial for values of t between 0 and t^* and a quadratic polynomial for values of t between t^* and the end of the benefit year T. To create a specification of $g_R(t, Z_2(t), a_R)$ that satisfies this property assign $K_R = 2$; fix the three means determining the cumulative distribution functions as $\mu_{R0} = 0$, $\mu_{R1} = t^*$, $\mu_{R2} = T$; pick small values for the three standard deviations σ_{R0}, σ_{R1}, and σ_{R2}; and set $a_{R23} = 0$. These choices for the μ's and the σ's imply that the quantity $F_{R1}(t) - F_{R0}(t) = 1$ over the range $(0, t^*)$ and $= 0$ elsewhere, and the quantity $F_{R2}(t) - F_{R1}(t) = 1$ over the range (t^*, T) and $= 0$ elsewhere. The function $g_R(t, Z_2(t), a_R)$ has the desired property and it is differentiable in t.

The properties of these smooth spline functions are also easily controlled by adjusting just a few parameters. Specifically, the duration values where each spline or polynomial begins and ends can easily be adjusted by changing the values of the μ's. Similarly, the speed at which each spline cuts in and out can be adjusted by changing the values of the σ^2's, with higher values providing for a more gradual and smoother transition from one polynomial to the next.

This specification of the transition probabilities is very similar to many other nonparametric statistical models. The use of the normal cumulative distribution function for the smoothing of the spline segments is not essential to the specification, but the normal distribution provides a function with very well known properties and is readily available in many computer programs. Moreover, these functions serve many of the same purposes that "kernel" functions serve in other nonparametric statistical models and the results in the nonparametric statistics literature indicate that the choice of the kernel function has very little influence of the parameter estimates of nonparametric models.

5.3.3 Duration distributions for non-receipt spells

Proposing specifications for the duration distribution characterizing non-receipt spells (i.e., $f_N(t)$ and $S_N(t)$) involves the same issues that were described above for receipt spells. Specifically, an appropriate functional form for the transition probability $H_N(t, Z(t))$ that represents the probability of leaving the non-recipiency status at the end of week t given entry into this status and the covariates $Z(t)$ measured at time t. As was the case for the specification of the model for receipt spells, the three central features of the specification involve the nature of duration dependence, the manner in which the covariates $Z(t)$ affect this transition probability, and the extent to which the effects of the covariates vary with the length of the spell.

The same flexible specification adopted for the receipt spell transition probability is used to parameterize the non-receipt transition probability. Specifically, the logistic specification for $H_N(t, Z(t))$ is given by

$$H_N[t*Z(t)] = \frac{e^{Z_1(t)\beta_N + g_N(t,\, Z_2(t),\, a_N)}}{1 + e^{Z_1(t)\beta_N + g_N(t,\, Z_2(t),\, a_N)}},$$

where t represents the duration of the on-going non-receipt spell at the end of week t, $Z_1(t)$ and $Z_2(t)$ are vectors of variables consisting of the covariates included in $Z(t)$, β_N and a_N are parameter vectors, and the function $g_N(t, Z_2(t), a_N)$ determines the duration dependence properties associated with non-receipt spells. Specifically, the function $g_N(t, Z_2(t), a_N)$ is given by

$$g_N\left(t, Z_2(t), a_N\right) = \sum_{k=1}^{K_N} \left[F_{Nk}(t) - F_{Nk-1}(t)\right] \left[a_{Nk0} Z_2(t) + a_{Nk1} t + a_{Nk2} t^2 + a_{Nk3} t^3\right].$$

The quantities $F_{Nk}(t)$ denote the cumulative distribution function of a normal random variable possessing mean μ_{Nk} and variance σ^2_{Nk}, a_{Nk0} represents a parameter vector, and a_{Nk1}, a_{Nk2} and a_{Nk3} are parameters capturing the effects of duration dependence. This specification also provides a smooth spline function determining the duration properties associated with the time spent in the UI benefit payment status and that possesses the same properties described above. Again, the inclusion of $Z_2(t)$ in this specification incorporates the needed flexibility to permit covariates to have differing effects on the transition probability as spells progress from short to longer.

5.3.4 Exit probabilities from the exhaustion non-receipt status

The final elements of the empirical framework outlined above that needs to be specified are the exit probabilities from the exhaustion non-receipt status, denoted by $Pr(E \to R^* t, Z(t))$ and $Pr(E \to N^* t, Z(t))$, that arise because some claimants suddenly become eligible to receive extended or supplemental benefits after having exhausted their earlier UI benefit entitlements. The empirical formulation introduced above for the initial probabilities is a natural candidate for specifying $Pr(E \to R^* t, Z(t))$ because these probabilities also measure the likelihood of receiving a benefit payment in the first week a claimant is eligible to receive a payment from a newly activated extended or supplemental benefits program.

The exit probability from the exhaustion non-receipt status to a receipt status is parameterized using a logit specification similar to the one used for the initial probabilities. This empirical formulation is given by

$$Pr(E6R^{*}t, Z(t)) \;=\; \frac{e^{Z_3(t)\beta}}{1+e^{Z_3(t)\beta}}.$$

The covariates $Z_3(t)$ include some of the claimant attributes that are included in $Z(t)$, although the relatively small percentage of claimants who experience this event limits the number of covariates that can be included in $Z_3(t)$.

5.3.5 Estimation procedures

The parameters of the initial probability $I_R(0^{*}X)$, the transition probabilities $H_R(t, Z(t))$ and $H_N(t, Z(t))$, and the exit probability $Pr(E6N^{*}t, Z(t))$ are estimated using weighted maximum likelihood techniques. The maximum likelihood techniques used to estimate the transition probabilities account for right censoring when observed spells are interrupted because of data limitations. Our sample consists of the UI benefit payment experiences of the subsample of claimants described in Chapter 4.

Weighted maximum likelihood procedures are required to account for two factors in the construction of our analysis sample of UI claimants. First, the sample used in the analysis is drawn with unequal probabilities from the 13 States that provided data. Second, the multiple imputation techniques used to overcome the missing data problems require the use of weighted procedures.

Following general guidelines for choosing specifications, the specific parameterizations differs for each of the four components. The particular specifications adopted and the covariates that are

included in each model are discussed in Chapter 6 for the initial probabilities and the exit probabilities, and Chapters 7 and 8 present the specifications for the duration distributions for receipt and non-receipt spells, respectively.

5.4 Identifying the Effects of UI Policy Variables

Obtaining reliable estimates of the effects of State UI policies on the unemployment experiences of a group of individuals has long been recognized as a scientific challenge. Several surveys of the literature examining this issue, such as Welch (1977), Hamermesh (1977) and Danziger, Haverman and Plotnick (1981), discuss a variety of possible biases that might be present in empirical studies examining the effects of State UI policies on unemployment. These potential biases arise because a claimant's UI entitlements (i.e., the WBA, the PDB, and the availability of extended and/or emergency benefits) depends upon both UI policies and a person's prior work history. This dependence of UI benefit entitlements on claimants' employment experiences prior to filing their initial claims makes it challenging to distinguish the effects of UI policies from the influence of prior work histories on claimants' unemployment experiences.

Assessing the influence of UI policies on unemployment experiences requires an empirical formulation that incorporates measurable variables that isolate policy shifts from other factors. To highlight the issues involved in estimating behavioral responses attributable to variations in UI policies, let P represent a UI policy regime consisting of a particular combination of policies, B denote the UI benefit entitlements claimants qualify for under policy regime P, E summarize claimants' pre-

unemployment work experiences, *L* represent labor market and other general economic conditions (e.g., unemployment rates), and the variable *U* denote the unemployment experiences of claimants.

In principal it would be possible to gain an understanding of the influence of UI policies on unemployment experiences by relating *U* to the variables included in *P*. However, it is infeasible to formulate and estimate an empirical model relating *U* to *P* because there is no simple way to quantify *P*. For example, one cannot rank UI policy regimes according to some unidimensional measures of generosity, which would provide one possible candidate for quantifying *P* because it is often the case that State programs paying higher weekly benefits simultaneously impose more stringent eligibility requirements. This combination of policies means that programs offering more generous benefits to high-earnings workers are at the same time less generous to low-earnings workers. Another potential route for quantifying *P* is to replace it by the rules defining benefits, but here too one encounters difficulties. Programs differ quite substantially in their rules for determining claimants' WBA and PDB, and these rules are not easily summarized by a set of explanatory variables that vary along some continuous spectrum.

To avoid the problems inherent in estimating relationships that directly relate the policy variables *P* to individuals' unemployment experiences, virtually all of the previous empirical research examining the effects of UI on unemployment experiences rely on formulations that essentially substitute the UI benefit entitlement variables *B* in place of *P*. In contrast to the multidimensional character of *P*, only two readily quantifiable elements make up *B* -- the WBA and the PDB. While *B* is readily quantifiable, to ensure that variation in *B* identify and accurately predict responses to shifts in policy regimes *P*, the

variation in *B* that is used to empirically identify the effects of changes in *P* must reflect only programmatic differences in UI policies.

To appropriately substitute *B* in place of *P* and to isolate the variation in *B* resulting from differences in policy regimes, one must carefully take into account the relationships between these two quantities. Conceptually, one can represent the relationship between these two quantities with a function of the form $B = \ddot{o}(P, E, L)$, where the inclusion of *E* and *L* recognizes the dependence of *B* on these quantities as well. The forms of $\ddot{o}(\bullet)$ always involve intricate nonlinearities, with much diversity in the functional forms of $\ddot{o}(\bullet)$ across States and--in some instances--over time for the same State. Furthermore, States use different measures of *E* to infer *B*. Finally, inclusion of *L* in this function is needed to account for the fact that some program features, such as extended or supplemental benefits, depend on the general economic environment.

Hence, to isolate the effects of changes in UI policy regimes by replacing *P* with *B* it is necessary to account for all of the variation in *B* attributable to differences in the relevant work experiences of claimants (*E*) and labor market measures (*L*). While UI programs differ quite substantially across States in terms of the rules they apply to determine benefits, all define benefits using information on only a few aspects of a person's recent work history. These aspects include such items as base period earnings (BPE), high quarter earnings (HQE), average weekly earnings (AWE), weeks worked in the base period (WW), the circumstances under which employment terminated (e.g., quit, fire, etc.), and whether previous employment was covered by the UI system. The value of the above earnings variables must fall into particular regions for individuals to qualify for UI benefits. Moreover, for those who qualify, the calculation of the WBA and the PDB depend on sophisticated interactions

involving BPE, HQE and AWE, with all policy regimes introducing nonlinearities in these relationships through lower and upper thresholds on benefit entitlements. Specifically, all claimants with combinations of these earnings variables above certain levels will qualify for the maximum weekly benefit amount and the maximum total benefits payable. Compared to the claimants' work histories, it is relatively straightforward to account for variation in B that depends on L because the way in which these variables determine UI benefit entitlements is a simple function of insured and overall unemployment rates that is common across States.[23]

The implications of this discussion for the empirical framework outlined above entails the incorporation of the necessary elements of E and L in the covariate vector X, which by extension also incorporates these elements in $Z(t)$, to ensure that the remaining variation in B is due solely to variation in UI policies. To incorporate elements of E that captures the interactions between the various earnings measures and the nonlinearities involved in the determination of claimants' UI benefit entitlements, the empirical analysis below examines three different sets of variables that are included in X to isolate variation in B due to differences in policy regimes. The first set of variables consists of the following variables

ATMAXWBA: a dummy variable indicating whether a claimant's qualifying earnings are above the threshold set to qualify for the State's maximum WBA;

[23] The only potential complicating factor in accounting for variation in B attributable to L is the existence of State-based extended benefit programs. These State-specific extended benefit programs are generally initiated at the discretion of a Governor and not based upon a simple formula. This characteristic of these programs make it difficult to account for them in any empirical model of this sort. However, these programs are only in a small number of States and are used infrequently.

ATMAXBEN: a dummy variable indicating whether a claimant's qualifying earnings are above the threshold set to qualify for the maximum total benefits payable (i.e., maximum WBA and maximum PDB) in a State; and,

E_c: a set of 42 dummy variables indicating that a claimant's qualifying earnings fall within a series of brackets distinguishing possible combinations of BPE and HQE.

The variables represented by E_c obviously allow for sophisticated forms of relationships characterizing the determination of UI benefit entitlements. Each bracket or dummy variable making up E_c identifies what could be considered a "worker type." The second set of variables considered in the analysis consists of ATMAXWBA, ATMAXBEN, and

E_b: a set of 9 dummy variables indicating that a claimant's qualifying BPE fall within a series of 9 brackets.

The BPE categories that define the 9 dummy variables included in E_b use the same bracket values for BPE that are used in the construction of the 42 dummy variables in E_c. Finally, the third set of variables considered in the empirical analysis consists only of ATMAXWBA and ATMAXBEN. Each States' overall unemployment rate is included in the empirical analysis to account for the elements of *L* that determine UI benefit entitlements.

The initial probabilities and the duration distributions for both receipt and non-receipt spells will be estimated using each of these three sets of variables. The focus of this exercise is to examine the extent to which the estimated effects of the UI entitlement variables in *B* change as richer sets of controls are used to account for claimants' work histories. If the estimated effects of *B* do not change significantly across these three models, we will have more confidence that the estimated effects reflect the behavioral responses of claimants to changes in UI policies.

CHAPTER 6
A MODEL OF INITIAL UNEMPLOYMENT INSURANCE BENEFIT RECEIPT

This chapter describes the specification and estimation of the initial receipt probabilities $I_R(0^*X)$ and $I_N(0^*X)$ characterizing the likelihood claimants will receive a payment in the first week of the benefit year that they are eligible to receive UI benefits. The first section in the chapter summarizes the characteristics of the sample used to estimate the initial probability model. Section 6.2 discusses the treatment of waiting week requirements and the variables included in the model. Section 6.3 presents the parameter estimates and discusses the implications of these estimates.

6.1 Description of the Data

The sub-sample of claimant records described in Chapter 4 is used to examine the extent to which claimants collect a payment during the first week of the benefit year they are eligible to receive UI benefits. Table 6-1 presents the mean for the sample of first week payments used in the estimation of the model. Summary statistics are presented for the overall sample and separately for claimants in States without a waiting week requirement and those in States that have a waiting week requirement. These summary statistics are calculated using weighted methods to account for the differential probability of inclusion in the sub-sample and the multiple imputation of missing data items.

Table 6-1

As shown in Table 6-1, 70.80 percent of claimants receive a payment during the first week of their benefit year, with claimants in States with a waiting week slightly more likely to receive a benefit payment in the first week compared to claimants in States without a waiting week requirement. These summary statistics also show that a greater percentage of claims are initially filed in the first and fourth quarters of the year without any substantial differences between the States with and without a waiting week requirement. A slightly higher percentage of claimants were previously employed in the manufacturing sector, with the service and wholesale and retail trade sectors being the next most prevalent. Moreover, comparing the last two columns, these findings show that claimants in States without a waiting week requirement are more likely to have been employed in the manufacturing and services sectors compared to States with such a requirement.

The last five rows of the table summarize the UI benefit entitlements of claimants. These findings show that more than one out or every four claimants were entitled to their State's maximum benefits payable and than more than one-third of claimants were eligible to receive their State's maximum weekly benefit amount. The last three rows show that the inflation adjusted average WBA for claimants in the sample is $192.24, expressed in 1996 dollars, at the time they filed their initial UI claim the average claimant in the sample was entitled to 35.14 weeks of benefits including benefits payable from the extended and EUC programs, and the average claimant's WBA replaced 43.78 percent of his or her average weekly earnings.[24] Comparing the findings in the last two columns indicates that claimants in States with a waiting week requirement were less likely to be at the maximum

[24] For this purpose, average weekly earnings are defined as a claimant's HQE divided by 13.

amounts payable, but were also qualified for a higher WBA and more weeks of benefits compared to claimants in States that did not have this requirement.

6.2 Specification of Logistic Model for Initial Probability

The specification of the logistic model for the initial benefit receipt probability described in Chapter 5 entails the choice of the specific covariates that are to be included in the model and the treatment of waiting week requirements. The selection of the covariates to include in X involves both the factors that are known to effect the likelihood claimants receive a benefit payment in their first week of eligibility, as well as, ensuring the appropriate variables are included to isolate the variation in benefit entitlements that reflect differences in UI policy regimes. The presence of a waiting week requirement in some States and not others also introduces a potential complexity into the specification of the model because separate models may be needed to account for this difference. This section discusses these two issues and presents the empirical model estimated to examine the extent to which claimants begin their benefit year in a receipt status and the factors that affect this process.

To assess the extent to which UI benefit entitlements affect the likelihood a claimant will receive a UI benefit payment during the first week he or she is eligible to receive compensation at the beginning of the benefit year, the model must not only include the UI benefit entitlement variables the WBA and the PDB, but it must also include measures of the claimant's work history and economic variables. A number of different specifications of UI benefit entitlements and claimants' work histories are examined in the empirical analysis, with most of the analysis focused on four specifications. The first specification uses the natural log of the WBA and the natural log of the PDB as measures of benefit entitlements and

includes the E_c set of variables, (i.e., the 42 worker-type indicator variables) to account for claimants' work experiences that determine their benefit entitlements. The second uses the same measures of benefit entitlements, but only includes the E_b set of variables (i.e., the 9 indicator variables for different categories of BPE) to account for claimants' work histories. The third specification also uses the same measures of benefit entitlements but includes the minimal set of work history variables (i.e., only ATMAXWBA and ATMAXBEN). Finally, the fourth specification uses a different measure of benefit entitlements by replacing the natural log of the WBA with the natural log of a claimant's replacement rate (i.e., the natural log of WBA divided by average weekly earnings) and the full set of work history controls included in E_c.

In addition, to the WBA or the replacement rate, the PDB, and the work history variables, all of the empirical specifications include variables to account for general economic conditions, seasonal differences, demographic characteristics and claimants' industry of employment prior to filing a monetarily eligible initial claim. To adjust for economic conditions all of these specifications include the State's overall unemployment rate (UNRATE) in the calendar month the initial claim was filed by the claimant. The seasonal adjustments consist of a set of four indicator variables (QTR1, QTR2, QTR3, and QTR4) that are equal to one if the initial claim was filed during the corresponding calendar quarter. The demographic characteristics included in the empirical specification consists of the following variables

FEMALE:	an indicator variable equal to one if the claimant is a female;
BLACK:	an indicator variable equal to one if the claimant's reported race was Black;

HISPANIC: an indicator variable equal to one if the claimant's reported a Hispanic origin;

AGEMISSING: an indicator variable equal to one if the claimant's age was missing;

AGE16-21: an indicator variable equal to one if the claimant was age 16 to 21 at the time the initial claim was filed;

AGE22-24: an indicator variable equal to one if the claimant was age 22 to 24 at the time the initial claim was filed;

AGE25-34: an indicator variable equal to one if the claimant was age 25 to 34 at the time the initial claim was filed;

AGE35-44: an indicator variable equal to one if the claimant was age 35 to 44 at the time the initial claim was filed;

AGE55-59: an indicator variable equal to one if the claimant was age 50 to 59 at the time the initial claim was filed;

AGE60-64: an indicator variable equal to one if the claimant was age 60 to 64 at the time the initial claim was filed; and,

AGE65+: an indicator variable equal to one if the claimant was age 65 or older at the time the initial claim was filed.

The pre-unemployment industry variables also consists of a set of indicator variables denoting whether the claimant was employed in either the manufacturing sector (MAN), the construction sector (CON), the retail and wholesale trade sector (RWT), the services sector (SRV), or other industries (OTH).

Apart from the WBA or the replacement rate, the PDB and the UNRATE, all of the other covariates included in X are dichotomous variables that take a value of either zero or one. The WBA is expressed in 1996 dollars and the WBA, the replacement rate, and the PDB enter the equation in their natural logarithmic form. The natural logs of the WBA and the PDB are used to facilitate testing whether these benefit variables should enter the model separately or in terms of the total benefits

payable to a claimant (i.e., WBA×PDB). The UNRATE variable is expressed as a percentage in all specifications.

6.3 Parameter Estimates and Implications of Empirical Results

To estimate the parameters of the logistic model describing the likelihood claimants begin the benefit year in a recipiency status the first week they are eligible to receive a payment, we apply weighted maximum likelihood techniques to estimate the parameters of the model. We estimated several specifications for the initial receipt probability, including separate specifications for each of the four combinations of benefit entitlements and work history variables. In addition, we estimated separate models for States with a waiting week requirement and States without a waiting week requirement. Although the results from all of these different specifications are not presented here, the estimation results from these models suggest two conclusions. First, there is not a need to estimate separate models distinguishing between States with and without a waiting week requirement based on the failure to reject the hypothesis that the same model holds across these two groups of States. Second, examining the parameter estimates from the four separate specifications of the benefit entitlements and work history variables reveals that there is very little variation in the parameter estimates across these four specifications.

Table 6-2 presents parameter estimates of the recipiency probabilities for three of these specifications all of which do not distinguish between States with and without a waiting week

Table 6-2
Parameter Estimates for Initial Receipt Probability

Variable	Parameter Estimate		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
Intercept	1.2798***	2.2593***	-0.7047***
QTR 1	-0.1012*	-0.1045***	-0.1009***
QTR 2	0.0393	0.0451	0.0452
QTR 3	0.0833***	0.0794***	0.0790***
QTR 4	-0.0214	-0.0200	-0.0233
FEMALE	-0.0400	-0.0448	-0.0326
BLACK	0.1077**	0.1133**	0.1112**
HISPANIC	-0.0126	-0.0030	0.0068
AGE 16-21	0.2904	0.2968***	0.3112***
AGE 22-24	0.1448**	0.1563***	0.1541***
AGE 25-34	0.0531	0.0566	0.0464
AGE 35-44	-0.0304	-0.0281	-0.0380
AGE 45-54	-0.1205**	-0.1249***	-0.1296***
AGE 55-59	-0.2331***	-0.2438***	-0.2493***
AGE 60-64	-0.3809***	-0.3837***	-0.3800***
AGE 65+	0.2766**	0.2709**	0.2852**
AGEMISSING	-0.1879	-0.1937	-0.1929
MAN	0.0708**	0.0626*	0.0602*
CON	-0.2010***	-0.1795***	-0.1859***
RWT	0.0530	0.0462	0.0535
SRV	0.0776**	0.0762**	0.0771**
OTH	-0.0004	-0.0055	-0.0049
ln(WBA) or ln(RRATE)	-0.3503***	-0.5328***	-0.2311***
ATMAXBEN	0.2711***	0.1505*	0.1630**
ATMAXWBA	-0.1242	-0.1410*	-0.1891**
UNRATE	-1.4812	-0.5944	-1.2160
ln(PDB)	-0.0973	-0.1491**	-0.1177**

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.

** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.

* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance

requirement. The first column presents the results from the specification that uses the natural log of the WBA and includes the limited set of work history variables. The second column presents the results from the specification using the WBA and including the full set of work history controls represented by E_c. The third column presents the estimation results from the specification that uses the replacement rate and includes the full set of work history controls. In these specifications, a positive coefficient indicates that an increase in the corresponding variable decreases the probability a claimant will begin the benefit year in a recipiency status and a negative parameter estimate indicates that an increase in the corresponding variable increases the likelihood a claimant starts the benefit year off by receiving a payment.

Although it is difficult to determine the magnitude of the effects covariates have on the likelihood a claimant receives a benefit payment in the first week of the benefit year from the value of the parameter estimates, several conclusions can be drawn from the estimation results presented in Table 6-2.[25] With regards to seasonal variation in the likelihood of starting the benefit year in a recipiency status, the findings indicate that claimants whose benefit year starts in the first quarter are significantly more likely to collect a payment the first week they are eligible and significantly less likely to do so in if their benefit years begin in the third quarter. These results also display a consistent relationship between the age of claimants and the likelihood of receiving a payment in the first week. Specifically, except for claimants age 65 and over, there is a monotonic relationship between age and the likelihood of receiving a payment in the first week with older claimants more likely to receive a payment than younger

[25] To conserve space, the parameter estimates corresponding to the 42 worker type controls included in the specifications reported in the second and third columns are not reported in the table.

claimants. The results also show that claimants who worked in the construction industry prior to filing an initial claim are more likely to receive a benefit payment in the first week.

Finally, the results also show that claimants in States with more generous UI programs–that is those with higher WBA and/or longer PDB–are more likely to collect a benefit payment in the first week.

Comparing the parameter estimates across the three specifications presented in the table show that the results are very consistent. The estimates of the parameters corresponding to the seasonal factors, demographic characteristics, and pre-UI industry of employment are very similar across the three specifications. Further, while there are some differences in the magnitudes of the parameters related to benefit entitlements, work history controls, and the unemployment rate, the general effects of these variables on the likelihood of receiving a payment in the first week of eligibility are the same. For example, the estimates corresponding to the WBA or the replacement rate are all negative and strongly statistically significant. Similarly, the estimates corresponding to the PDB, the unemployment rate, ATMAXBEN and ATMAXWBA are also all of the same sign and not significantly different across the three columns.

To provide a better understanding of the magnitude of the effects the covariates have on the likelihood claimants receive a benefit payment in the first week, Table 6-3 presents several predicted probabilities for claimants with various characteristics. To provide a benchmark to compare the effects of changes in various covariates on the predicted probability, we have selected a base set of characteristics that uses a White male, age 35-44, who worked in the manufacturing industry before filing an initial UI claim in the first calendar quarter and who was

Table 6-3
Predicted Initial Receipt Probabilities for Different Types of Claimants

Claimant and Program Characteristics	Predicted Probability of Receiving Payment in First Week		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
Base Case White male, age 35-44, manufacturing, filed claim in 1st quarter, at Max WBA, PDB of 26 weeks, TUR of 5%, WBA of $250 or Replacement Rate @50%.	72.30	78.34	74.91
Claim filed during 3rd quarter	68.45	75.06	71.38
White female	73.09	79.09	75.51
Black male	70.09	76.36	72.76
Hispanic male	72.55	78.39	74.78
Age 22-24	65.44	75.05	71.13
Age 60-64	78.75	83.77	80.78
Worked in construction	77.40	82.17	79.24
WBA of $300 or Replacement Rate of 60%	73.56	79.51	75.69
PDB of 39 weeks	73.08	80.47	75.79
Unemployment rate of 10 percent	73.75	79.99	76.03

earning an average of $500 per week. In addition, this base case uses a UI program such that the claimant has a WBA of $250 that is payable for 26 weeks and the claimant is both at the maximum WBA and at the maximum benefits payable under this program. Finally, we have selected an unemployment rate of 5 percent to use for this case.

The results in Table 6-3 show that the model corresponding to the specification presented in the first column of Table 6-2 predicts that 72.30 percent of claimants with these characteristics will receive a benefit payment in the first week of their benefit year. The corresponding predicted probabilities for the other two specifications reported in Table 6-2 are 78.34 percent and 74.91 percent. The differences in the predicted probabilities across these three specifications arise because of the large estimated parameters on the benefit entitlement variables and because the base case set of characteristics do not represent the average characteristics of all claimants.

The lower part of Table 6-3 shows the predicted probability resulting from a change in a single characteristic from the base set. For example, if the claimant filed the initial claim during the third quarter instead of the first quarter of the year the predicted probability for the specification reported in the first column would fall to 68.45 percent from 72.30 percent. The results in this table show there is some relationship between gender and race and the likelihood claimants start the benefit year off receiving a payment. The table also illustrates the strong relationship between age with the predicted probabilities differing by about 10 percentage points between 19-24 and 60-64 year old claimants. Finally, the last three rows of the table show a rather modest relationship between the UI entitlement variables, the unemployment rate and the likelihood of receiving a payment in the first week. For example, increasing the WBA by $50 or the replacement rate from 50 to 60 percent (a 20 percent

increase) or increasing the PDB from 26 to 39 weeks--similar to the triggering on of extended benefits--increases the likelihood of receiving a payment in the first week by only 1 to 2 percentage points. Finally, comparing results across the three specifications reveals a very consistent picture of the effects of changing UI policies with all of the changes in the predicted probabilities moving in the same direction and of roughly the same magnitude.

CHAPTER 7
EPISODES OF UNEMPLOYMENT INSURANCE BENEFIT RECEIPT

This chapter describes the specification and estimation of the duration distribution that characterizes periods claimants are receiving UI benefit payments. The first section of the chapter discusses the data set used to examine spells of UI benefit receipt and the findings from an exploratory data analysis exercise that guided the specific parameterization of the empirical model. Section 7.2 describes the parameterization of the duration distribution for episodes of UI benefit receipt and specifies the specific covariates included in the model. Section 7.3 presents the estimation results from this specification and describes some of the implications of these results.

7.1 Data Description

The data used to estimate the duration distributions characterizing the number of consecutive weeks claimants receive a benefit payment is drawn from the sub-sample of claimants described in Chapter 4. The estimation sample includes all spells of UI benefit payment receipt for claimants who were selected into the sub-sample and ever received a UI payment. Specifically, a spell is used as the unit of observation in the sample and this sample of spells includes the claimants' first spell of UI benefit receipt and all subsequent spells, including periods during which claimants received extended and supplemental benefits. Table 7-1 presents the sample averages, and where appropriate the sample

standard deviation, for the spells of UI benefit receipt that are used in the estimation of the empirical model. The table presents these summary statistics for the overall sample of receipt spells and separately for claimants' first spell of receipt and all subsequent spells. These summary statistics are calculated using weighted procedures to account for the composition of the sample.

The means and percentages presented in top of Table 7-1 indicated that the average receipt spell lasts just under 10 weeks with first spells lasting more than 13 weeks on average and subsequent spells less than half the length of first spells. These findings also show that the average spell of receipt begins more than 17 weeks after a claimant files an initial claim. As expected, first spells begin on average between 3 and 4 weeks after filing an initial claim and subsequent spells begin on average almost 8 months after the start of claimants' benefit years. Further, 83.46 percent of first spells begin the first week a claimant is eligible to begin receiving benefits with the remaining spells beginning after a period of non-receipt.

The results in Table 7-1 suggest that women, Blacks and Hispanics are less likely to have subsequent spells after having an initial spell of benefit receipt. These findings also suggest that claimants 35 years old and older are more likely to have repeated spells of benefit receipt compared to their younger counterparts. In addition, claimants who were employed in a manufacturing or construction industry prior to filing their initial claim are also more likely to experience more than one episode of benefit receipt. Finally, the averages presented in the bottom two rows show that claimants begin an average receipt spell with a WBA entitlement of about $200, which represents approximately 43.19 percent of claimants' average weekly

earnings, and just over 30 weeks of benefits available. As expected, claimants beginning subsequent spells have, on average, fewer weeks of benefit available at the start of the spell.

7.2 Model Specification

Proposing an empirical specification of the transition probability $H_R(t, Z(t))$ using the general specification outlined in Chapter 5, requires the selection of the covariates that enter into the vector $Z_1(t)$, the variables that will comprise the vector $Z_2(t)$, and the specification of the properties of the smooth spline function $g_R(t, Z_2(t), a_R)$. This section reports the results of an exploratory data analysis exercise that informs the specification of these three elements of the transition probability. In addition, the definitions of the variables that are used in the empirical model for the receipt spell duration distribution that were not defined earlier are also presented in this section.

To help guide the selection of the covariates to include in $Z_1(t)$ and $Z_2(t)$ and the specification of the properties of $g_R(t, Z_2(t), a_R)$, we conducted an extensive exploratory data analysis exercise. Plotting empirical hazard rates, often referred to as Kaplan-Meier hazard rates, is a common approach for characterizing the nature of duration distributions. These empirical hazard rates represent the proportion of sample members who are observed to stop receiving benefits after a specific number of consecutive weeks of receipt among all sample members who were observed to receive benefits for the specific number of consecutive weeks. Plotting these proportions against the length of spells provides evidence about the nature of duration dependence. Further, separating spells into distinct categories based on the values of covariates and plotting the empirical hazard rates provides evidence about the

covariates that effect the length of spells and the nature of the relationship between covariates and the form of duration dependence.

We examined the properties of a large number of empirical hazard plots for the receipt spells of the sub-sample of claimants used in the analysis, as well as for all of the claimants in our base sample. Although the results of this analysis are too extensive to report here, this exercise revealed several important properties of the duration distribution describing episodes of benefit receipt. First, the transition probabilities are not a monotonic function of spell length. The empirical hazards revealed an initial period of an increasing hazard rate for the first 4 weeks of a spell followed by a sharp decrease over the next 8 weeks of a spell. This sharp decline was followed by an extended period of relatively constant proportions leaving a recipiency status until the hazard increased again for spells lasting more than 26 weeks. These patterns were consistent across the plots for spells associated with different values of covariates and provide valuable information regarding the required properties of $g_R(\mathrm{t}, Z_2(t), \mathrm{a}_R)$.

The second property revealed by the empirical hazard plots was the extent to which some variables were not related to the patterns of duration dependence while others showed a distinct relationship with the nature of duration dependence. For example, while the plots revealed a difference between the hazard rates for men and women, the patterns of duration dependence were virtually identical between these two categories of spells. In contrast, distinguishing among spells associated with claimants who had lower versus higher weekly benefit amounts indicated there was a distinct relationship between the patterns of duration dependence and the values of the WBA. Similar exercises provided valuable information regarding the selection of variables into either $Z_1(t)$ or $Z_2(t)$.

Our exploratory data analysis also revealed a property of the hazard rates that was very consistent with the findings in the literature suggesting that the likelihood claimants end a period of UI benefit receipt tends to increase near the time they are going to exhaust their available benefits. Since these exhaustion effects were first documented by Moffitt (1985), a series of empirical studies have supported the contention that an important and complicated interaction effect exists between benefit availability and the duration dependence properties of receipt spells. This finding provides evidence that a sophisticated interaction is needed in our empirical model to account for the relationship between duration dependence and benefit exhaustion.

Finally, the exploratory data analysis also suggested that there was not a need to distinguish between claimants first spells of UI receipt and subsequent spells. Initially, the empirical hazard plots revealed a difference between the duration dependence patterns of first and subsequent spells. However, further investigation indicated that controlling for the amount of time claimants received benefits prior to the start of a subsequent spell accounted for the differences in the duration patterns between first and subsequent spells. This finding suggested that there was not a need to estimate separate duration distributions for first spells and subsequent spells.

The findings from this exploratory data analysis provided valuable guidance in our selection of variables for the two covariate vectors and the specification of the properties of the smooth spline function. With regards to the selection of variables for the covariate vector $Z_1(t)$, the findings from the exploratory data analysis suggested that this set of covariates include the indicator variables for the quarter the claimant filed an initial claim (QTR1, QTR2, QTR3, and QTR4), the indicator variables FEMALE, BLACK and HISPANIC, the set of indicator variables denoting the age category a

claimant was in when he or she filed their initial claim, and the set of dummy variables indicating the industry the claimant was employed in prior to filing an initial claim. In addition, to incorporate first and subsequent spells into the same empirical model, three variables summarizing claimants UI receipt experiences within the current benefit year prior to the current spell are included in the empirical specification of $Z_1(t)$. The definitions of these three variables are

PREVIOUS:	an indicator variable equal to one if the claimant had at least one prior spell of benefit receipt within the benefit period established by this initial claim;
WEEKSPAID:	the total number of weeks a claimant received benefit payments in all prior receipt spells within the benefit period established by this initial claim (set to zero if no prior spells); and,
LASTPAID:	the total number of weeks since the last benefit payment was received by the claimant at the end of the preceding receipt spell and the beginning of the current spell of benefit receipt (set to zero if no prior spells).

The values of all of the variables included in $Z_1(t)$ are fixed over the entire length of a spell. However, the values of the three variables summarizing prior benefit receipt experiences change as claimants transition back from a non-receipt status and experience multiple episodes of benefit receipt.

A wide variety of variables were considered in the exploratory data analysis for inclusion in the covariate vector $Z_2(t)$. The empirical analysis includes four sets of variables in this covariate vector. The first set of variables account for seasonal effects during the course of a spell. Specifically, these variables consist of four indicator variables that are set equal to one if the particular week of the spell is in the first, second, third or fourth calendar quarter, respectively. Unlike the seasonal variables that are included in $Z_1(t)$ that are constant throughout the claimants benefit year, the values of these variables

change over time. These variables are labeled as TVQ1, TVQ2, TVQ3 and TVQ4 to denote the time varying nature of these seasonal adjustments.

The second set of variables included in the covariate vector $Z_2(t)$ consist of State-level measures of the economic environment. These variables measure the average level of wages in the State, the relative size of a State's labor market, and general labor market conditions. Specifically, the three variables included in $Z_2(t)$ are

AQE: the Statewide average of the quarterly earnings of workers in covered employment, expressed in 1996 dollars;

COVEMP: the level of covered employment in a State divided by the nationwide total level of covered employment; and,

UNRATE that was defined in Chapter 6. To be consistent with the form in which other monetary variables are entered into the specification the natural logarithm of AQE is used in the empirical model. The values of these three variables also vary over time.

The third set of variables included in $Z_2(t)$ consists of the three sets of work history variables. These variables are included in E_c, E_b, ATMAXBEN, and ATMAXWBA. Three separate specifications are estimated in the empirical analysis: a specification with E_c, ATMAXBEN, and ATMAXWBA; a specification with E_b, ATMAXBEN, and ATMAXWBA; and a specification with only ATMAXBEN and ATMAXWBA.

The UI entitlement variables and an indicator variable for a waiting week requirement comprise the fourth set of variables that are included in $Z_2(t)$. The value of a claimant's benefit entitlement is measured using two different variables. First, the WBA is directly included in the covariate vector taking the natural logarithm of the variable to remain consistent with the way this variable entered into

the initial receipt probability. Second, we also estimated a set of models with the replacement rate (RRATE) used as the measure of benefit entitlements, again using the natural logarithm of this variable in the covariate vector. While the PDB could be directly included in the covariate vector, the evidence from our exploratory data analysis exercise and the findings in the literature both indicate that this variable must enter into $Z_2(t)$ in a manner that incorporates exhaustion effects. To provide the needed flexibility to account for an overall effect of the PDB, as well as an exhaustion effect, a smooth spline function in the number of weeks of full benefits available to a claimant at the end of each week is included in $Z_2(t)$. Specifically, to incorporate these effects, $Z_2(t)$ includes the function

$$b(\phi(t), \psi) = \sum_{k=1}^{K_b} [F_{bk}(\phi(t)) - F_{bk-1}(\phi(t))][\psi_{bk0} + \psi_{bk1}\phi(t)],$$

where $\phi(t)$ is the number of weeks of full benefit payments the claimant has available at the end of week t of the spell, $F_{bk}(\phi(t))$ denote a cumulative distribution function of a normal random variable possessing mean μ_{bk} and variance σ^2_{bk}, and ψ_{bk0}, and ψ_{bk1} are unknown parameters. Finally, the last UI program policy variable included in the model is a dummy variable indicating whether the State has a waiting week requirement. This variable (WAITWEEK) is defined as one if the initial claim is filed in a State with a full waiting week requirement and the relevant receipt spell is a claimants first episode of benefit receipt; otherwise, the variable is set equal to zero for States that do not have a waiting week and for all subsequent spells.

The function $b(\phi(t), \psi)$ possess the same types of properties as $g_R(t, Z_2(t), a_R)$. Specifically, it is a very flexible specification, it is differentiable, and it provides a smooth function across the spline points μ_{bk}. To allow for exhaustion effects, we pick a specification of $b(\phi(t), \psi)$ by setting $K_b = 5$, with

$\mu_{b0} = 0$, $\sigma_{b0} = 0.01$, $\mu_{b1} = 1$, $\sigma_{b1} = 0.10$, $\mu_{b2} = 4$, $\sigma_{b2} = 0.20$, $\mu_{b3} = 8$, $\sigma_{b3} = 0.20$, $\mu_{b4} = 13$, $\sigma_{b4} = 1.00$, and $\mu_{b5} = 4$. To avoid multicolinearity problems in the estimation, we set $\gamma_{b11} = 0$ and $\gamma_{b50} = 0$.

This specification for the function $b(\gamma(t), \gamma)$ possess the desired properties in that it incorporates both a general effect of the total number of weeks of benefits remaining and an exhaustion effect. For instance, if a claimant has more than 13 weeks of benefits remaining, the parameter γ_{b51} captures the effect of the number of weeks of benefits remaining on the likelihood the claimant will transition to a non-receipt status. Similarly, the parameters γ_{b21}, γ_{b31}, and γ_{b41} incorporate the overall effects of the number of weeks of benefits remaining in the corresponding range. This specification also fully incorporates a range of exhaustion effects. Specifically, the parameters γ_{b10}, γ_{b20}, γ_{b30}, and γ_{b40} allow for additional effects on the hazard for crossing the corresponding weeks remaining thresholds. For example, the parameter γ_{b20} summarizes the effect of going from having more than 4 weeks of benefits available to having from 1 to 4 weeks of benefits left, which is over and above the overall effect of having 4 weeks of benefits available. Moreover, this type of specification encompasses the types of specifications used by Moffitt (1985) and other researchers who have estimated exhaustion effects.

The specification of the properties of the smooth spline function $g_R(t, Z_2(t), a_R)$ suggested by the exploratory data analysis involves a number of spline points that correspond to the patterns in the plots of empirical hazard rates. Specifically, the specification used in the analysis sets $K_R = 6$, with $\mu_{R0} = 0$, $\sigma_{R0} = 0.10$, $\mu_{R1} = 4$, $\sigma_{R1} = 0.20$, $\mu_{R2} = 10$, $\sigma_{R2} = 0.25$, $\mu_{R3} = 26$, $\sigma_{R3} = 1.00$, $\mu_{R4} = 44$, $\sigma_{R4} = 1.50$, $\mu_{R5} = 52$, $\sigma_{R5} = 1.00$, and $\mu_{R6} = 4$. Thus, if only a constant term was included in Z_2, the

polynomial $a_{R10} + a_{R11}\, t + a_{R12}\, t^2 + a_{R13}\, t^3$ determines the duration properties over the first 4 weeks of a spell. Over the 3 to 5 week range the duration properties switch to the polynomial $a_{R20} + a_{R21}\, t + a_{R22}\, t^2 + a_{R23}\, t^3$ that determines the properties of $g_R(\bullet)$ until about week 10. This specification corresponds to the duration dependence patterns exhibited by the empirical hazard rates. Moreover, this specification introduces a very rich set of interactions between the covariates included in $Z_2(t)$ and duration dependence.

7.3 Estimation Results and Implications of Findings

The parameters of the duration distribution for UI benefit receipt spells are estimated using conventional weighted maximum likelihood methods using the sample of receipt spells described above. We explored a number of alternative empirical specifications and estimated the final specification using each of the three sets of work history variables and both measures of the value of benefit entitlements as covariates. Standard significance tests were used to test specific parameters and the model was simplified to reflect the results of these tests when appropriate.

Table 7-2 presents three sets of parameter estimates for the same model specifications that were reported in Chapter 6. Specifically, the first column presents results for the specification that uses the WBA and includes the minimal set of work history variables. The second column presents the estimates from the model specification that also uses the WBA but it

Table 7-2
Parameter Estimates for Receipt Spell Duration Distribution

Variable	Parameter Estimates		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
QTR1	-0.0084	-0.0072	-0.0068
QTR2	-0.0460***	0.0440***	0.0441***
QTR3	-0.0049	-0.0077	-0.0075
QTR4	0.0592***	0.0588***	0.0583***
FEMALE	-0.0550***	-0.0564***	-0.0553***
BLACK	-0.1529***	-0.1572***	-0.1583***
HISPANIC	-0.0237	-0.0198	-0.0181
AGE 16-21	0.1340*	0.1349***	0.1352***
AGE 22-24	0.0347	0.0407**	0.0405**
AGE 25-34	0.0353**	0.0347***	0.0334***
AGE 35-44	0.0265*	0.0260**	0.0253*
AGE 45-54	0.0425**	0.0396***	0.0390***
AGE 55-59	0.0002	-0.0033	-0.0037
AGE 60-64	-0.1268***	-0.1243***	-0.1234***
AGE 65+	-0.1464***	-0.1484***	-0.1463***
AGE MISSING	0.4302***	0.4289***	0.4284***
MAN	0.2001***	0.1965***	0.1963***
CON	0.0853***	0.0859***	0.0850***
RWT	-0.1280***	-0.1270***	-0.1258***
SRV	-0.0795***	-0.0812***	-0.0810***
OTH	-0.0778***	-0.0743***	-0.0745***
PREVIOUS	0.8612***	0.8550***	0.8546***
WEEKSPAID	-0.0161***	-0.0161***	-0.0160***
LASTPAID	-0.0021***	-0.0021***	-0.0021***

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 7-2 (cont.)
Parameter Estimates for Receipt Spell Duration Distribution

Variable	1-4 Weeks			5-10 Weeks		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
TVQ1	0.1463***	0.1460***	0.1467***	-0.0002	-0.0012	-0.0002
TVQ2	-0.0237	-0.0234	-0.0235	0.0876***	0.0884***	0.0887***
TVQ3	0.0189	0.0189	0.0187	0.0716***	0.0722***	0.0719***
TVQ4	-0.1415***	-0.1414***	-0.1419***	-0.1590***	-0.1594***	-0.1605***
ln(AQE)	-0.5483*	-0.5180**	-0.5072**	-0.1896	-0.1638	-0.1514
COVEMP	5.8730	6.4202*	6.1530*	5.6606	6.1725*	5.8745*
UNRATE	-0.0663***	-0.0649***	-0.0659***	-0.0298*	-0.0275*	-0.0290**
ATMAXBEN	0.1030***	0.0646**	0.0715**	0.0842	0.0382	0.0376
ATMAXWBA	0.0031	-0.0102	0.0026	0.0818	0.0714	0.0774
WAITWEEK	-0.3121***	-0.3118***	-0.3107***	0.1472***	0.1440***	0.1445***
ln(WBA) or ln(RRATE)	-0.0493*	-0.0172	0.0152	-0.0487	-0.0149	-0.0269
$?_{b10}$	0.1749	0.1807*	0.1787	0.7044***	0.7031***	0.7032***
$?_{b20}$	0.9596***	0.9579***	0.9571***	-0.1620	-0.1694	-0.1708
$?_{b21}$? (t)	-0.3206***	-0.3189***	-0.3187***	0.0426	0.0437	0.0439
$?_{b30}$	0.0929	0.0962	0.0983	0.3879	0.3795	0.3779
$?_{b31}$? (t)	-0.0334	-0.0335	-0.0340	-0.0743	-0.0726	-0.0725
$?_{b40}$	0.3578	0.3397	0.3390	-0.3186	-0.2965	-0.2997
$?_{b41}$? (t)	-0.0669**	-0.0645**	-0.0646**	0.0197	0.0178	0.0180
$?_{b51}$? (t)	0.0026***	0.0026***	0.0027***	-0.0052***	-0.0052***	-0.0052***
Intercept	4.2290*	3.7530*	3.5941	-0.2772	-0.7197	-0.9090
t	-0.4423***	-0.4411***	-0.4410***	-0.0877***	-0.0874***	-0.0872***
t^2						

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.

** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.

* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 7-2 (cont.)
Parameter Estimates for Receipt Spell Duration Distribution

Variable	11-26 Weeks			27-44 Weeks		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
TVQ1	-0.1321***	-0.1319***	-0.1337***	-0.0248	-0.0303	-0.0294
TVQ2	0.1383***	0.1403***	0.1383***	-0.1947***	-0.1924***	-0.1955***
TVQ3	0.0232	0.0247	0.0233	-0.1343**	-0.1283***	-0.1330***
TVQ4	-0.0294	-0.0331	-0.0278	0.3538***	0.3509***	0.3579***
ln(AQE)	-0.5754*	-0.5564**	-0.6202**	-0.9793**	-0.9523***	-1.0217***
COVEMP	6.6373	7.1887**	7.0036**	11.6373**	12.1596***	12.0795***
UNRATE	-0.0367**	-0.0346**	-0.0338**	-0.1060***	-0.1045***	-0.1011***
ATMAXBEN	-0.2008***	-0.2429***	-0.2497***	-0.1773	-0.2194*	-0.2130*
ATMAXWBA	0.2104***	0.1969***	0.1493***	0.2844**	0.2683**	0.2467**
WAITWEEK	0.1803***	0.1766***	0.1695***	0.5099***	0.5049***	0.4997***
ln(WBA) or ln(RRATE)	-0.1450***	-0.1104**	-0.0444	-0.1610*	-0.1312	0.1132
$?_{b10}$	0.9472***	0.9444***	0.9445***	2.7512***	2.7493***	2.7436***
$?_{b20}$	-0.4055**	-0.4155***	-0.4133***	1.6310***	1.6119***	1.5978***
$?_{b21}$?(t)	0.0717	0.0729	0.0728	-0.1201	-0.1174	-0.1164
$?_{b30}$	-0.4363*	-0.4419*	-0.4409*	1.4635***	1.4468***	1.4277***
$?_{b31}$?(t)	0.0456	0.0452	0.0451	-0.0240	-0.0227	-0.0210
$?_{b40}$	-0.9615***	-0.9650***	-0.9690***	0.5112	0.5126	0.5132
$?_{b41}$?(t)	0.0652**	0.0648**	0.0652**	0.0486	0.0477	0.0470
$?_{b51}$?(t)	-0.0125***	-0.0127***	-0.0127***	0.0374***	0.0368***	0.0365***
Intercept	4.8893*	4.5109*	4.4898*	8.0785**	7.6752***	7.6966***
t	-0.2255***	-0.2254***	-0.2255***	-0.0823***	-0.0825***	-0.0823***
t^2	0.0064***	0.0064***	0.0064***			

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 7-2 (cont.)
Parameter Estimates for Receipt Spell Duration Distribution

Variable	45-52 Weeks			53+ Weeks		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and full Set of Work History Variables	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
TVQ1	0.2117	0.2004	0.1801			
TVQ2	-0.1454	-0.1528	-0.1517			
TVQ3	-0.3424**	-0.3375**	-0.3479***			
TVQ4	0.2762**	0.2898**	0.3195***			
ln(AQE)	-1.0808	-1.0950*	-1.3827**			
COVEMP	-5.0614	-4.4554	-4.1350			
UNRATE	0.1855**	0.1886**	0.1950**			
ATMAXBEN	-1.3287***	-1.3549***	-1.3965***			
ATMAXWBA	1.2491***	1.2097***	1.0038***			
WAITWEEK	-0.1008	-0.1105	-0.1555			
ln(WBA) or ln(RRATE)	-0.4983**	-0.4655**	-0.0666			
$?_{b10}$	-1.5173**	-1.4868**	-1.4148**			
$?_{b20}$	-1.3428**	-1.2823**	-1.2132**			
$?_{b21)} ? (t)$	-0.5628***	-0.5710***	-0.5702***			
$?_{b30}$	-2.0313**	-1.9824**	-1.8562**			
$?_{b31} ? (t)$	0.0312	0.0294	0.0204			
$?_{b40}$	-1.5032	-1.4442	-1.4289			
$?_{b41} ? (t)$	-0.1505	-0.1529	-0.1519			
$?_{b51} ? (t)$	-0.0978***	-0.0956***	-0.0952***			
Intercept	302.6275***	303.0362***	302.7766***	35.7288*	34.5038**	34.2502**
t	-12.4451***	-12.4666***	-12.4541***	-0.9384*	-0.9036*	-0.8937*
t^2	0.1322***	0.1325***	0.1323***	0.0086*	0.0084**	0.0083*

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

includes the full set of work history measures included in E_c. Finally, the third column presents the results from the specification that uses the replacement rate to measure the value of benefit entitlement and includes the full set of work history measures. A positive parameter estimate indicates that an increase in the corresponding covariate increases the likelihood a claimant will end a receipt spell and transition to a non-receipt status. A negative parameter estimate indicates that an increase in the covariate decreases the likelihood of ending a receipt spell and increase the probability claimants will continue receiving UI benefits for an additional week.

The first part of Table 7-2 presents the parameter estimates associated with the variables included in the covariate vector $Z_1(t)$. The results presented here suggest that there is a persistent relationship between the quarter a claimant files an initial claim and the length of their spells of benefit receipt. Specifically, claimants who file their initial claim in the second calendar quarter are significantly more likely to have longer receipt spells and claimants who file their initial claim in the fourth quarter are more likely to experience shorter episodes of benefit receipt. These estimates also indicate that women, Blacks and Hispanics tend to have longer spells of receipt and that claimants who worked in the manufacturing and construction sectors are more likely to have shorter episodes of benefit receipt holding other factors constant. Finally, previous periods of UI receipt within the same benefit year effect the length of subsequent spells. In particular, as one would expect, subsequent spells are shorter than first spells of receipt and, holding all else constant, claimants who have collected more benefits prior to the start of a subsequent spell and have had longer non-receipt spells tend to receive benefit payments for longer periods. Comparing the results from the three different specifications in the first

part of this table shows that the estimated effects of the covariates included in $Z_1(t)$ are remarkably consistent across these specifications.

The second part of Table 7-2 presents the parameter estimates associated with the smooth spline function $g_R(t, Z_2(t), a_R)$ that includes the a_R coefficients and the ? parameters that characterize the benefit exhaustion effects. The table presents the parameter estimates corresponding to each segment of the smooth spline function. The last spline function does not include any covariates except the duration dependence variables because of the small number of receipt spells that last more than 52 weeks.

Although most of the parameter estimates are statistically significant, there are two sets of parameters that are of particular relevance. The first set of parameters capture the effects of State-level variables on the likelihood claimants continue to receive a benefit payment the following week. Apart from the effects of the Statewide average level of quarterly earnings in covered employment (AQE), the effects of the other State-level variables are consistent with our expectations. In particular, the larger a State's labor market the more likely claimants are to end a receipt spell and the higher the unemployment rate the more likely claimants are to continue to receive another week of benefits. The results are somewhat at odds with the effects one would expect the AQE to have on receipt spells. While one would expect claimants in States with higher average earnings to have shorter spells, because the opportunity cost of remaining unemployed is on average higher, these results suggest that claimants in these States have longer receipt spells. This could be the result of labor demand conditions because of fewer job openings in these higher wage States.

The second set of parameter estimates that are of particular relevance are the coefficients associated with the UI entitlement variables. Overall, these results imply that higher benefit levels and additional weeks of benefit eligibility are associated with longer spells of benefit receipt, which is consistent with much of the literature. For two of the three specifications, the effect of the WBA on the likelihood a claimant continues to receive a benefit payment increases with the length of a spell such that the coefficient for longer spells is more than 10 times the size of the coefficient applicable at the beginning of spells. Comparing the results across the three specifications presented in the table indicate that the only estimates that vary much across these columns are the coefficients related to the benefit amount. Whereas the estimates for the two specifications that include the WBA directly are negative in all of the splines mostly statistically different from zero, none of the estimates corresponding to the replacement rate are statistically different from zero and two of the point estimates are positive. Hence, the specification in the first column suggest that changes in the WBA will have the largest effects on the length of receipt spells while the specification with the replacement rate suggest there is an absence of any effect of benefit levels on receipt spells.

The results presented in Table 7-2 also show a pattern of significant and increasing exhaustion effects over the most relevant range of spell lengths. In particular, the $?_{b10}$ coefficient is positive and gets larger over time, except for the longest spells. Moreover, these estimated exhaustion effects are very consistent across the three specifications presented in this table.

These parameter estimates only yield direct evidence on the very short-term links between the covariates included in the model and the benefit receipt experiences of claimants. To examine the longer-term links and to develop a more comprehensive picture of the relationship between the

covariates and claimants' benefit receipt experiences we will use simulation methods. These methods and the implications of these parameter estimates are presented in Chapter 9.

CHAPTER 8
A MODEL OF PERIODS NOT RECEIVING UNEMPLOYMENT INSURANCE BENEFITS

This chapter presents the estimated variants of the model that characterizes periods claimants are not receiving UI benefit payments while they are still eligible to receive such payments. These components of the model include the duration distributions describing the length of spells in a non-recipiency status and the exit probability model that determines whether claimants who are suddenly eligible to receive benefit payments, because extended or supplemental benefits become available, begin receiving a payment during the first week these benefits are available. The first section summarizes the non-receipt spell data used to estimate the duration distributions. Section 8.2 describes the findings from an exploratory data analysis that guided the selection of the particular specifications of the transition probabilities. Section 8.3 presents the estimation results and discusses the implications of these results for non-receipt spells. Finally, Section 8.4 briefly describes the data, specification and estimation of the exhaustion non-receipt exit probability model.

8.1 Data Description

The characterization of UI claimants' experiences in a benefit non-receipt status is based on data from the sub-sample of claimants described in Chapter 4. In contrast to the data used to describe UI benefit receipt experiences, which uses information only on claimants who ever received a benefit payment, the data set used for the estimation of claimants' non-receipt experiences uses information on

all claimants in the sub-sample. As was the case for the analysis of benefit receipt, spells are the unit of analysis for the estimation of the duration distributions. Hence, an individual claimant can contribute more than one spell of non-receipt to the analysis.

Table 8-1 presents the summary statistics for the sample of non-receipt spells used in the estimation of the duration distributions. The table presents sample averages and percentages for all non-receipt spells, as well as separate summary measures for the spells where claimants began their benefit year in a non-receipt status (initial spells) and other spells of non-receipt that begin later in claimants benefit years (subsequent spells). Again, the summary statistics are calculated using weighted procedures to account for the composition of the estimation sample.

The first row in Table 8-1 shows the average length of non-receipt spells overall, for initial spells and for subsequent spells. It is important to note that time spent in the exhaustion non-receipt status is not included in these spells of non-receipt and, if a claimant is eligible for benefits again because an extended or supplement benefit program triggered on and they do not collect benefits during the first week of this new eligibility, this begins a subsequent non-receipt spell for this claimant. The findings presented here show that the average non-receipt spell last approximately 42 weeks with initial spells lasting more than 49 weeks and subsequent spells lasting an average of just under 41 weeks. The longer average initial spells result because approximately 10 percent of claimants who file an initial claim never collect a UI payment as a result of the claim. In addition, the second row shows that subsequent spells begin, on average, approximately in the middle of a benefit year.

The other summary statistics presented in Table 8-1 suggest several differences between initial and subsequent spells. For example, claimants who worked in the manufacturing and construction sectors are more likely to have subsequent spells relative to workers in other industries, which is consistent with the findings presented in Chapter 7 showing these claimants were more likely to have repeat receipt spells as well. Similarly, consistent with the findings in the previous chapter suggesting that claimants 35 years old and older are more likely to have subsequent receipt spells, these older claimants are also relatively more likely to have subsequent non-receipt spells. Finally, these results show that claimants have collected an average of 13 weeks of benefits prior to starting a subsequent spell of non-receipt and that there is on average approximately 4 weeks between spells of non-receipt.

8.2 Specification of Duration Distributions for Episodes of Non-Receipt

Specifying the form of the empirical models for the duration distributions describing the number of consecutive weeks claimants are not receiving a UI benefit payment involves the same issues that were discussed in Chapter 7 for receipt spells. Specifically, based on the general framework outlined in Chapter 5, the central issues involved in specifying the empirical model for $H_N(t, Z(t))$ are related to the selection of the variables included in the covariate vectors $Z_1(t)$ and $Z_2(t)$, and the properties of the smooth spline function $g_N(t, Z_2(t), a_N)$. The specification of these three elements is based upon empirical results in the existing literature and an extensive exploratory data analysis exercise that paralleled the exercise described in Chapter 7 for receipt spells.

Plots of a wide variety of empirical hazard rates for non-receipt spells suggested three conclusions regarding the specification of the model. First, although the patterns of duration

dependence were less complex than the patterns for receipt spells, a flexible specification is needed to adequately describe the duration dependence features of non-receipt spells. Second, there is an important interaction between several variables, such as the UI benefit entitlement measures, and the duration dependence properties of the non-receipt spells. Third, the patterns of duration dependence differ substantially, especially at medium and long spell lengths, between initial non-receipt spells and subsequent spells. This last result indicates that separate models are needed for initial and subsequent non-receipt spells.

Although separate models are estimated for initial and subsequent non-receipt spells, we adopted very similar specifications for the two models. Specifically, similar variables were selected to include in the covariate vectors $Z_1(t)$ and $Z_2(t)$ and the same parameterization of the smooth spline function $g_N(\mathrm{t}, Z_2(t), \mathrm{a}_N)$ is used in both specifications. The variables included in $Z_1(t)$ for both the initial and subsequent non-receipt duration models include the four dummy variables QTR1, QTR2, QTR3 and QTR4 indicating the calendar quarter the initial claim was filed, the set of indicator variables summarizing claimants' demographic characteristics (FEMALE, BLACK, HISPANIC, and the set of age variables), and the set of dummy variables representing claimants' industry of employment prior to filing their initial claim (MAN, CON, RWT, SRV, and OTH). In addition to these common variables, the covariate vector $Z_1(t)$ in the specification of the duration model for subsequent spells of non-receipt includes the dummy variable indicating a claimant had collected at least one week of benefit payments prior to the start of the non-receipt spell (PREVIOUS), the variable measuring the total number of weeks a claimant received benefit payments prior to the start of the non-receipt spell (WEEKSPAID),

and a variable measuring the number of weeks since a claimant ended their previous non-receipt spell (WEEKSLNR).[26] The values of all of these variables are constant over the entire spell of non-receipt.

The same set of variables are included in the covariate vector $Z_2(t)$ for both the initial and subsequent non-receipt spell duration distributions. A set of four time varying quarterly dummy variables are included in this covariate vector to account for seasonal differences in the likelihood of ending a period of non-receipt. To account for general labor market conditions, the State-level measures of the unemployment rate (UNRATE) and the natural logarithm of the inflation adjusted level of average quarterly earnings in covered employment (AQE) are included in $Z_2(t)$. The variables ATMAXBEN, ATMAXWBA, and the natural logarithm of the WBA or the replacement rate (RRATE) are also included in these covariates. The last variable included in the model measures the number of week of full benefits payable to a claimant at the end of each week of the non-receipt spell (WEEKSLEFT). This variable includes any benefit available to a claimant from extended or supplemental benefit programs.

The specification of the duration dependence properties of the smooth spline function $g_N(t, Z_2(t), a_N)$ based on the findings from the exploratory data analysis suggested $K_N = 4$, with $\mu_{N0} = 0$, $\sigma_{N0} = 0.10$, $\mu_{N1} = 6$, $\sigma_{N1} = 0.25$, $\mu_{N2} = 20$, $\sigma_{R2} = 1.00$, $\mu_{N3} = 52$, $\sigma_{R3} = 2.00$, and $\mu_{N4} = 4$. This specification of the properties of $g_N(t, Z_2(t), a_N)$ is used for both non-receipt spell duration distributions and corresponds to the duration dependence patterns exhibited by the empirical hazard rates for both categories of spells.

[26] This variable is equal to the length of the preceding receipt spell for claimants who transition from a receipt status to the non-receipt status and, for claimants who just ended a period in the exhaustion non-receipt status, it is the number of weeks since a claimant was last eligible to receive a UI payment.

8.3 Parameter Estimates and Implications of Results

Tables 8-2 and 8-3 present the parameter estimates for the same three specifications reported in earlier chapters for initial spells of non-receipt and subsequent spell of benefit non-receipt, respectively. These parameters are estimated using weighted maximum likelihood methods to account for the composition of the sub-sample used for estimation. The estimation takes account of the right censoring of non-receipt spells when claimants loose their eligibility to collect benefits under a particular initial claim. We examined a number of alternative specifications, including several models that varied the measures of the benefit amounts and the set of work history variables included in the models. The tables present the results for the specifications that use the natural logarithm of the WBA with the small set of work history controls, the WBA specification with the full set of work history variables, and the replacement rate specification with the full set of work history measures.

The interpretation of the sign of the parameter estimate are similar to the inferences drawn from receipt spells. Specifically, a positive parameter estimate indicates that an increase in the corresponding covariate will increase the likelihood a claimant will end a non-receipt spell and a negative parameter estimate indicates that an increase in the covariate will decrease the likelihood of ending a non-receipt spell.

The first parts of Tables 8-2 and 8-3 present the parameter estimates associated with the variables included in the covariate vector $Z_1(t)$. The results in the first part of Table 8-2 suggest

Table 8-2
Parameter Estimates for Initial Non-Receipt Spell Duration Distributions

Variable	Parameter Estimates		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
QTR1	-0.0453	-0.0456	-0.0462
QTR2	0.1035*	0.1104**	0.1085**
QTR3	-0.0228	-0.0277	-0.0257
QTR4	-0.0355	-0.0372	-0.0367
FEMALE	0.0993**	0.1004**	0.1006**
BLACK	-0.0839	-0.0755	-0.0753
HISPANIC	0.0303	0.0391	0.0386
AGE 16-21	-0.3631	-0.3209***	-0.3225***
AGE 22-24	-0.2294***	-0.2272***	-0.2265***
AGE 25-34	0.0010	0.0054	0.0032
AGE 35-44	-0.0088	-0.0046	-0.0067
AGE 45-54	0.1556***	0.1543***	0.1542***
AGE 55-59	0.1620**	0.1479*	0.1467*
AGE 60-64	0.2204**	0.2163**	0.2146**
AGE 65+	0.0623	0.0289	0.0370
AGE MISSING	-0.2044	-0.1847	-0.1866
MAN	0.0610*	0.0551*	0.0548*
CON	0.1872***	0.2039***	0.2021***
RWT	-0.1035***	-0.1041***	-0.1028***
SRV	-0.1410***	-0.1381***	-0.1381***
OTH	-0.0036	-0.0167	-0.0161

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.

** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.

* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 8-2 (cont.)
Parameter Estimates for Initial Non-Receipt of Spell Duration Distribution

Variable	1-6 Weeks			7-20 Weeks		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
TVQ1	0.0232	0.0201	0.0194	0.0917	0.0891	0.0947
TVQ2	-0.2792***	-0.2726***	-0.2708***	0.0029	0.0106	0.0093
TVQ3	-0.1593**	-0.1470**	-0.1511**	-0.2990***	-0.2906***	-0.2912***
TVQ4	0.4152***	0.3996***	0.4024***	0.2043*	0.1909*	0.1873*
ln(AQE)	-3.7925***	-3.5144***	-3.6031***	-1.7596*	-1.5127*	-1.4450
UNRATE	0.1024***	0.1151***	0.1159***	-0.0987**	-0.0823**	-0.0893**
ATMAXBEN	0.0702	0.0246	0.0110	0.0943	0.0488	0.0731
ATMAXWBA	0.1501	0.1291	0.0623	-0.0386	-0.0526	0.0393
ln(WBA) or ln(RRATE)	0.3599***	-0.0757	-0.0650	0.5607***	0.1348	0.1771
ln(WEEKSLEFT)	0.0038	-0.0774	-0.0840	0.0116	-0.0788	-0.0535
Intercept	30.2432***	30.1517***	30.5310***	9.4312	9.5759	9.7532
t	-1.1903***	-1.1896***	-1.1901***	-0.0547	-0.0548	-0.0546
t^2	0.1190***	0.1191***	0.1192***	-0.0005	-0.0005	-0.0005

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 8-2 (cont.)
Parameter Estimates for Initial Non-Receipt of Spell Duration Distribution

Variables	21-52 Weeks			53+ Weeks		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
TVQ1	-0.2139	-0.2125**	-0.2137**	-0.3233	-0.3151	-0.2877
TVQ2	-0.3122***	-0.3006***	-0.3013***	0.1085	0.1169	0.1162
TVQ3	-0.0629	-0.0576	-0.0588	0.5756**	0.5872**	0.5841**
TVQ4	0.5890***	0.5708***	0.5738***	-0.3607	-0.3890	-0.4126
ln(AQE)	-2.6553***	-2.4334***	-2.4712***	-2.2720	-1.9665	-1.5630
UNRATE	-0.0402	-0.0227	-0.0200	0.0408	0.0401	0.0250
ATMAXBEN	-0.1360	-0.1795	-0.1729	-1.2450	-1.3004*	-1.1288
ATMAXWBA	0.0965	0.0786	0.0707	0.1043	0.1001	0.6094
ln(WBA) or ln(RRATE)	0.3602**	-0.0665	0.1707	1.1425***	0.6827	1.0562***
ln(WEEKSLEFT)	0.1890	0.0897	0.0954	0.2689	0.2637	0.2702
Intercept	16.4735**	16.8698**	16.9738**	7.4364	7.0584	7.7836
t	-0.0125**	-0.0126**	-0.0126**	-0.0203	-0.0203*	-0.0203*
t^2						

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 8-3
Parameter Estimates for Subsequent Non-Receipt Spell Duration Distributions

Variable	Parameter Estimates		
	Specification with WBA and Small Set of Work History Variables	Specification with WBA and Full Set of Work History Variables	Specification with Replacement Rate and Full Set of Work History Variables
QTR1	-0.0133	-0.0149	-0.0151
QTR2	0.0330**	0.0289*	0.0277*
QTR3	0.0115	0.0164	0.0161
QTR4	-0.0312**	-0.0304**	-0.0287**
FEMALE	0.0037	-0.0046	-0.0099
BLACK	0.1150***	0.1052***	0.1053***
HISPANIC	0.0379	0.0221	0.0170
AGE 16-21	-0.2965***	-0.2978***	-0.3001***
AGE 22-24	-0.2665***	-0.2778***	-0.2773***
AGE 25-34	-0.0657***	-0.0714***	-0.0691***
AGE 35-44	0.0461**	0.0465**	0.0483***
AGE 45-54	0.1141***	0.1176***	0.1180***
AGE 55-59	0.0693*	0.0821**	0.0843***
AGE 60-64	0.1191***	0.1347***	0.1326***
AGE 65+	0.2802***	0.2661***	0.2634***
AGE MISSING	-0.1799***	-0.1858***	-0.1817***
MAN	-0.0269	-0.0211	-0.0208
CON	0.2044***	0.1928***	0.1945***
RWT	-0.1299***	-0.1247***	-0.1268***
SRV	-0.0383**	-0.0373**	-0.0366**
OTH	-0.0093	-0.0096	-0.0102
PREVIOUS	3.2359***	3.2440***	3.2458***
WEEKSPAID	-0.0083***	-0.0084***	-0.0085***
WEEKSLNR	-0.0709***	-0.0713***	-0.0713***

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.

** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.

* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 8-3 (cont.)
Parameter Estimates for Subsequent Non-Receipt Spell Duration Distributions

	1-6 Weeks			7-20 Weeks		
Variable	**Specification with WBA and Small Set of Work History Variables**	**Specification with WBA and Full Set of Work History Variables**	**Specification with Replacement Rate and Full Set of Work History Variables**	**Specification with WBA and Small Set of Work History Variables**	**Specification with WBA and Full Set of Work History Variables**	**Specification with Replacement Rate and Full Set of Work History Variables**
TVQ1	-0.0162	-0.0167	-0.0133	-0.0820	-0.0832**	-0.0904***
TVQ2	-0.2497***	-0.2508***	-0.2479***	-0.2758***	-0.2760***	-0.2806***
TVQ3	-0.2034***	-0.2028***	-0.2005***	-0.0862***	-0.0864***	-0.0908***
TVQ4	0.4693***	0.4703***	0.4618***	0.4440***	0.4456***	0.4618***
ln(AQE)	-3.8050***	-3.7980***	-3.6840***	-2.9808***	-2.9695***	-3.1394***
UNRATE	-0.0469***	-0.0448***	-0.0489***	-0.0823***	-0.0803***	-0.0702***
ATMAXBEN	-0.1412***	-0.0737*	-0.0711*	-0.1218*	-0.0544	-0.0674
ATMAXWBA	-0.0832*	-0.0589	0.0148	0.3011***	0.3354***	0.2123***
ln(WBA) or ln(RRATE)	0.2241***	0.3038***	0.1015***	-0.1433***	-0.0763	0.1000**
ln(WEEKSLEFT)	0.2237***	0.2267***	0.2252***	0.2596***	0.2632***	0.2587***
Intercept	27.7344***	27.2376***	27.8869***	20.9544***	20.4815***	21.6439***
t	-0.6984***	-0.6975***	-0.6974***	-0.1611***	-0.1606***	-0.1600***
t^2	0.0557***	0.0557***	0.0556***	0.0037***	0.0037***	0.0037***

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

Table 8-3 (cont.)
Parameter Estimates for Subsequent Non-Receipt Spell Duration Distributions

	21-52 Weeks			53+ Weeks		
Variable	**Specification with WBA and Small Set of Work History Variables**	**Specification with WBA and Full Set of Work History Variables**	**Specification with Replacement Rate and Full Set of Work History Variables**	**Specification with WBA and Small Set of Work History Variables**	**Specification with WBA and Full Set of Work History Variables**	**Specification with Replacement Rate and Full Set of Work History Variables**
TVQ1	-0.0061	-0.0044	-0.0074	-0.1474	-0.1492	-0.1083
TVQ2	-0.3657***	-0.3659***	-0.3658***	-0.4911***	-0.4918***	-0.4702***
TVQ3	-0.3040***	-0.3048***	-0.3061***	0.0895	0.0919	0.0974
TVQ4	0.6758***	0.6751***	0.6792***	0.5490***	0.5491***	0.4811***
ln(AQE)	-3.1422***	-3.1286***	-3.1790***	-5.0463***	-5.0340***	-4.2737***
UNRATE	-0.0958***	-0.0943***	-0.0892***	0.0820	0.0841	0.0589
ATMAXBEN	-0.3262***	-0.2635***	-0.2639***	-0.1456	-0.0563	-0.0075
ATMAXWBA	0.2322***	0.2689***	0.2381***	-0.0344	-0.0411	0.3641
ln(WBA) or ln(RRATE)	0.0066	0.0812	0.1385**	0.8383***	0.9300***	0.3396
ln(WEEKSLEFT)	0.4666***	0.4742***	0.4702***	1.8348***	1.8281***	1.8375***
Intercept	20.1143***	19.5776***	20.5364***	24.9161***	24.3537***	22.7631***
t	-0.0363***	-0.0363***	-0.0363***	-0.0147***	-0.0148***	-0.0149***
t^2						

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.
** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.
* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

that there are substantial differences between the initial spell lengths for claimants that file in the second quarter of the year compared to claimants who file at other times. Specifically, the significant positive coefficient on the dummy variable for initial claims filed during the second quarter of the year indicates that these claimants are much more likely to end their initial non-receipt spell and begin a period of benefit receipt. These results also show that older workers and claimants who were employed in the manufacturing and construction sectors are more likely to end their initial non-receipt spells earlier than younger claimants and workers employed in other industrial sectors. Comparing these parameter estimates across the three specifications presented in the table reveals that these are very consistent across the models that use the different measures of the benefit levels and work history controls.

The results presented in the first part of Table 8-3 show similar patterns to the findings for initial spells of non-receipt. These findings suggest that there are persistent seasonal effects related to the timing of an initial claim with claimants filing in the second quarter of the year having shorter subsequent non-receipt spells and claimants filing their initial claim in the fourth quarter having longer periods of non-receipt. Consistent with the findings for initial spells of non-receipt, the results presented in this table also suggest that younger claimants are more likely to experience longer periods of non-receipt compared to their older counterparts. Further, claimants who were employed in the construction industry are more likely to experience shorter spells of non-receipt and begin another period of benefit receipt compared to workers from other industries. The last three rows suggest there are significant history effects on the length of subsequent non-receipt spells. For example, the last two rows suggest that the more weeks of benefits collected and the longer the spell of benefit receipt, the less likely claimants are going to begin another period of benefit receipt. Finally, the large and significant

coefficient associated with the variable indicating claimants had a prior period of benefit receipt suggests that these claimants are much more likely to begin a period of benefit receipt compared to claimants who begin a subsequent non-receipt spell after becoming eligible to collect benefits again because of the EUC program when they never collected a payment during their original period of eligibility. These results are also very consistent across the three specifications presented in the table.

The second part of Tables 8-2 and 8-3 present the parameter estimates associated with the smooth spline function $g_N(t, Z_2(t), a_N)$. The results in both of these tables suggests there are significant seasonal effects during the course of non-receipt spells with on-going spells during the fourth quarter of the year more likely to end compared to spells in progress during the second quarter of the year that are much more likely to continue. These findings also show that claimants in States with higher wages, as measured by average quarterly earnings in covered employment, are much less likely to begin a period of benefit receipt, which is in line with what one would expect because of the higher opportunity costs of unemployment in these locations.

The estimation results related to the effects of the UI entitlement variables presented in Tables 8-2 and 8-3 exhibit some interesting differences between initial and subsequent non-receipt spells, as well as differences across the specifications using the WBA and the model with the replacement rate. Overall, the results for the three specifications in both tables suggest that higher WBA and weeks of available benefits increase the likelihood that claimants will exit non-receipt and begin a period of receiving benefit payments.

The results in Table 8-2 for the model that uses the WBA and includes only the minimal work history controls indicate that the WBA plays a much more important factor in the decision to begin

receiving benefits after starting the benefit year out in a non-receipt status than the number of weeks of benefits payable. However, the results for the two specifications that include the full set of work history controls suggests that neither the WBA/replacement rate or the PDB have a significant effect on the likelihood of ending an initial non-receipt spell except for the longest spells.

Although the WBA plays an important role, the results in Table 8-3 show that the number of weeks of benefits left available to a claimant plays a more important role in determining the likelihood of beginning another spell of benefit receipt. Moreover, comparing the results across the three specifications presented in the table suggest that the estimates for subsequent non-receipt spells are more consistent across the different models compared to initial spells. These findings have important implications for the effects of extended and supplemental benefit programs.

As was the case for receipt spells, these implications of the empirical results only relate to the very short-term links between the covariates and the benefit receipt experiences of claimants. The simulation exercise discussed in the next chapter provides a more comprehensive examination of the effects various factors have on the benefit receipt experiences of UI claimants.

8.4 Specification and Estimation of Exhaustion to Receipt Probabilities

The final element of the empirical framework are the exit probabilities from the exhaustion non-receipt status that was introduced to accommodate the possibility that claimants can become eligible to receive a UI benefit payment after they have lost eligibility for regular UI benefits. As described in Chapter 5, it is possible for claimants who have exhausted or lost their eligibility for regular UI benefits to become eligible to receive extended or supplemental benefits. This component of the model

estimates the probability an individual will receive a UI benefit payment in the first week they are newly eligible to receive an extended or supplemental benefit payment.

Relatively few claimants in the data set used for the analysis experienced this type of event. Specifically, there are 1804 claimants in the estimation sub-sample that became eligible for addition UI benefits with the enactment of the EUC program after having lost their eligibility for other UI benefits. Of these, 42.73 percent had exhausted their regular UI benefits and the benefit years of the other claimants in this group had expired before the enactment of the EUC program. This group of 1804 claimants had been without any benefits payable for an average of 21 weeks. They had collected an average of 15.37 weeks of benefits prior to becoming eligible for benefits again. At the time these claimants became eligible for EUC payments they had on average 12.69 weeks of benefits available from this program that was payable at an average WBA of $187.11. Overall, just over 10% of the claimants who became eligible for UI benefits under the same initial claim began receiving these extended or supplemental benefits during the first week these benefits were available.

The logistic model described in Chapter 5 is used to specify the exit probability from the exhaustion non-receipt status. The relatively small number of claimants and the infrequency of receiving a benefit payment in the first week of claimants new eligibility restricts the number of covariates that can be included in the logistic model. The specification adopted in the empirical analysis only includes four variables besides the constant term. Specifically, the four variables are the total number of weeks paid of UI benefits prior to this event, the State-level unemployment rate, an indicator variable signifying if the claimants had exhausted benefits (EXHAUSTEE), and the number of weeks the claimant was not eligible to receive any UI benefit payment (WEEKSNOBEN).

Table 8-4 present the parameter estimates from the logistic model describing the proportion of claimants who leave the exhaustion non-receipt status and begin receiving benefits during the first week these additional benefit are available to these claimants. A positive coefficient in this specification signifies that an increase in the corresponding variable will lead to an increase in the percentage of claimants who begin receiving a benefit payment during the first week of this new eligibility period. A negative coefficient in this model implies that an increase in the corresponding variable will result in a decrease in the likelihood of receiving a benefit payment in the first week.

The parameter estimates in Table 8-4 suggest that claimants who exhausted their regular UI benefits and those who collected more weeks of benefits are more likely to begin receiving benefits in the first week of this new eligibility period. In contrast, the longer amount of time (i.e., number of weeks) claimants were without benefits available (WEEKSNOBEN) the less likely these claimants are to begin receiving a benefit payment in the first week they are eligible for these payments. The implications of these parameter estimates will be discussed in Chapter 9 when all components of the model are brought together to greatly improve our understanding of the dynamic patterns of UI benefit receipt.

TABLE 8-4
Parameter Estimates for Exhaustion Non-Receipt to Receipt Exit Probability

Variable	Parameter Estimate
WEEKSPAID	0.0224*
WEEKSNOBEN	-0.0380***
UNRATE	0.1660**
EXHAUSTEE	3.2276***
Intercept	-5.2999***

*** Indicates that the parameter estimate is statistically different from zero at the 1 percent level of significance.

** Indicates that the parameter estimate is statistically different from zero at the 5 percent level of significance.

* Indicates that the parameter estimate is statistically different from zero at the 10 percent level of significance.

CHAPTER 9
DYNAMIC PATTERNS OF UNEMPLOYMENT INSURANCE BENEFIT PAYMENTS

Combining the estimated specifications presented in Chapters 6, 7 and 8 provides all the ingredients needed to describe the dynamic patterns of UI benefit payments of claimants. While it is conceptually possible to analytically derive the expressions needed to describe these dynamic patterns, from a computational perspective it is virtually impossible to develop a comprehensive description of the implications of these results. However, it is possible to uncover these implications in a readily understandable manner using a simulation analysis designed to develop a comprehensive picture of the dynamic patterns of UI benefit payments over a benefit year and the effects of various policy variables and other characteristics on these patterns. This simulation analysis captures the accumulative and interaction effects implied by the particular specifications of the initial receipt probabilities and transition probabilities that characterize the Transition Probability Model (TPM) using this analysis.

This chapter describes the simulation methods that are used to uncover the implications of the estimated TPM and characterizes the relationships between the dynamic patterns of UI benefit payment receipt and key UI policy variables, individual demographic characteristics and general economic conditions. Section 9.1 discusses simulation methods and describes the steps in the simulation exercise that is used to illustrate the implications of the empirical findings. Section 9.2 examines the role of key UI policy variables, including the WBA, the PDB and the triggering on of a supplemental benefits program, in determining the dynamic patterns of benefit payments for a cohort of claimants. The focus

of Section 9.3 is on describing the differences in the UI benefit payment experiences over an extended period of time for claimants with various demographic characteristics. Finally, Section 9.4 explores the effects of the general economic environment, as measured by the unemployment rate and average level of earnings, on the amount and timing of the UI payments for a claimant cohort.

9.1 Simulating Unemployment Insurance Benefit Payment Experiences

Simulation methods, such as those commonly used in both statistics and econometrics, produce the information needed to describe the dynamic patterns of UI benefit payments and the extent to which these patterns are influenced by UI policy variables, demographic characteristics of claimants, and the general economic environment. Implementing a simulation of our empirical TPM involves generating sequences of Monte Carlo trials using our estimated initial receipt, transition and exhaustion exit probabilities to mimic the process governing claimants' UI benefit payment experiences over the length of their benefit year and an additional 52 weeks, or for 104 weeks after filing an initial UI claim. The additional 52 weeks beyond a claimant's benefit year is needed to consider the effects of supplemental benefit program similar to the EUC program that had a reach back provision and that extends claimants eligibility to collect UI benefits under an initial claim beyond the regular benefit year.

We carry out the simulation exercise by assigning sequences of discrete variables indicating a claimant's benefit receipt status during each week by comparing values of independently-drawn random variables to the predicted probabilities relevant in determining the discrete variable in the week under consideration. The initial receipt probabilities $I_R(0^*X)$ and $I_N(0^*X)$ are the relevant probabilities for assigning the value of the discrete variable at the beginning of a claimant's benefit year. The transition

probability $H_R(t, Z(t))$ is relevant for assigning the outcomes of the simulation while a spell of benefit receipt is in progress and the transition probability $H_N(t, Z(t))$ is the appropriate quantity for assigning outcomes when a spell of non-receipt is in progress. Finally, the exhaustion non-receipt exit probability $Pr(E6R^*t, Z(t))$ is the relevant probability for assignment when a claimant becomes eligible for additional benefits after no longing having benefits available from their original entitlement. The simulation exercise calculates the predicted values of these probabilities using the parameter estimates obtained in the empirical analysis that are reported in Chapters 6, 7 and 8. Evaluating these probabilities in every week over the 104 week horizon following the filing of an initial claim allows one to assign a sequence of weekly UI benefit payments experienced by a typical claimant with a specified set of attributes and UI entitlements. Repeating this procedure numerous times and recording the sequences of weekly experiences for a large number of hypothetical individuals provides the basis for characterizing the dynamic patterns of UI benefit payments.

To provide a basis for comparing the effects of specific factors on the time patterns of UI benefit payments, we select a particular set of claimant attributes and UI benefit entitlements as the benchmark simulation that will serve as a comparison for all other simulation exercises. We have selected a baseline set of characteristics that examines the UI benefit payment experiences of hypothetical claimants with the following attributes and UI entitlements:

- White male,
- age 35-44 years old,
- worked in the manufacturing industry before filing an initial UI claim,
- filed initial claim during the first calendar quarter,

- earned $500 per week in the calendar quarter with the highest earnings during the base period,
- a WBA of $250 that is at the maximum weekly benefit amount payable,
- eligible for 26 weeks of benefits that is at the maximum PDB,
- entitled to the maximum benefits payable,
- no extended or supplemental programs available,
- in a State with an unemployment rate of 5 percent, with 5 percent of the nationwide total covered employment, and with average quarterly earnings in covered employment of $6,500.

Each of these characteristics will be varied (one at a time) and the simulation exercise will be repeated to illustrate the effects of the factor on UI benefit payment experiences.

To better illustrate this simulation exercise, consider the steps needed to examine how the availability of extended benefits affects a typical claimant's benefit receipt experiences. To determine the effects of extended benefits one simulation exercise will characterize the benefit payment experiences of the baseline set of characteristics and a second simulation exercise that changes the baseline set of characteristics to make the extended benefit program available to hypothetical claimants that have all of the other characteristics the same. Each of these two simulation exercises will involve three steps.

The first step in this simulation exercise involves drawing a uniformly-distributed random number and comparing this number to the predicted value of the initial probability of beginning the benefit year in a payment status using the parameter estimates reported in Chapter 6 and the base set of characteristics. Specifically, if the random number is less than or equal to the predicted initial

probability $I_R[0^*X(0)]$, this simulated claimant receives a benefit payment in the first week of the benefit year, otherwise the claimant starts the benefit year in a non-payment status. The simulation will record the outcome of this comparison as an indicator variable, represented by d(1), that equals one if the simulated claimant receives a payment in the first week of the benefit year and zero otherwise.[27]

The second step in the simulation exercise depends upon the result of the first step. If the simulated claimant receives a benefit payment in the first week, the second step will compare another uniformly-distributed random number to the predicted value of the hazard rate $H_R[1^*Z(1)]$ to determine the payment status of the claimant in the second week of the benefit year. Specifically, if the random number is less than or equal to the predicted value of the hazard rate, the simulated claimant stops receiving a benefit payment in the second week and this outcome is recorded by setting the indicator variable d(2) equal to zero. Alternatively, if the random number is greater than the predicted hazard rate, the claimant continues to receive a benefit payment in the second week and the indicator variable d(2) will be set equal to one. If the claimant started the benefit year in a non-payment status, an identical procedure is followed using the predicted value of the hazard rate $H_N[1^*Z(1)]$ and making the appropriate switch in the assignment of the payment and non-payment status for the second week of the benefit year.

Subsequent steps in the simulation process follow the same decision rules. At each step in the process, the duration of the current spell will be updated to reflect the variation in the hazard rates that arise because of duration dependence and the values of the variables included in $Z(t)$ that are updated

[27] Recall, if a State requires a waiting week, the first week of the benefit year is assigned to a non-payment status and the initial probability $I_R[0^*X(0)]$ determines the claimants status during the second week of the benefit year.

weekly in the simulation to accurately summarize the hypothetical claimant's UI experiences prior to week *t* of the benefit year. Repeating these steps for each week of a claimants benefit year will result in a sequence of d's that characterizes the UI benefit experiences of the simulated claimant over the course of the benefit year.

The simulation exercises reported here repeat the above procedure 5,000 times for each set of characteristics. This provides 5,000 simulated sequences of d's for the hypothetical claimants with the base set of characteristics and it provides all the information needed to construct a comprehensive description of the dynamic patterns in UI benefit payments.

To examine the extent to which UI benefit entitlements, demographic characteristics, pre-UI employment experiences, and the general economic environment influence UI benefit receipt patterns, we will calculate 5,000 sequences of d's for claimants that have characteristics defined by our base case and 5,000 sequences of d's for identical claimants that have extended benefits available to them over the entire course of their benefit year. Similar procedures will be used to investigate other relationships among the dynamic patterns of UI benefit payments and other important measures of the business cycle, seasonal factors, demographic characteristics, and the provisions of State UI laws.

The simulation results presented below are derived almost exclusively from the model specification that uses the natural log of the WBA to measures benefit levels and the small set of work history variables (i.e., only ATMAXBEN and ATMAXWBA). Except for small differences in the baseline simulation results, all of the patterns that summarize the effects of the different determinants of benefit payment experiences are very similar to the results presented below. To illustrate the differences between the implications of the three separate specifications presented in Chapters 6, 7 and

8, three separate sets of simulation results are presented when we examine the influence of UI policy regimes on benefit payment experiences of our baseline claimant characteristics.

9.2 Benefit Payment Experiences of Claimants with Baseline Characteristics

Table 9-1 presents a variety of summary statistics from the simulation describing the UI benefit payment experiences of claimants with the baseline set of characteristics. The measures of claimants' benefit payment experiences presented in the table consists of:

- The percentage of claimants receiving a payment in the first week of the benefit year.
- The length of non-receipt spells that begin in the first week of the benefit year.
- The number ever receiving a UI payment.
- The length of first receipt spells.
- The number of receipt spells.
- The total number of weeks receiving benefit payments over all spells and programs.
- The total number of weeks receiving benefit payments from the regular UI program.
- The percent of claimants who ever receive either an extended or supplemental benefit payment.
- The total number of weeks receiving benefit payments from either an extended or supplemental benefit program.
- The percentage of claimants exhausting regular UI entitlements.

Table 9-1
Summary Measures of UI Payment Experiences of Baseline Characteristics

Measure of Receipt Experiences	Mean	Percentile of Simulated Distribution				
		5th	25th	50th	75th	95th
Percent receive payment in first week	72.30	-	-	-	-	-
Length of initial non-receipt spell	12.61	0	0	0	1	103
Percent ever receive a payment	89.58	-	-	-	-	-
Length of first receipt spell	6.78	0	1	3	10	26
Number of receipt spells	1.85	0	1	1	3	5
Number of weeks of benefits	9.92	0	3	8	16	26
Number of weeks of regular benefits	9.92	0	3	8	16	26
Percent ever receive supplemental benefits	N/A	-	-	-	-	-
Number of weeks of supplemental benefits	N/A	-	-	-	-	-
Percent exhaust regular benefits	9.18	-	-	-	-	-
Percent exhaust supplemental benefits	N/A	-	-	-	-	-

- The percentage of claimants exhausting extended or supplemental benefit entitlements.

For each of these measures this table presents the mean and the percentage of hypothetical claimants with a value of zero. In addition, for some measures the table also presents the 5th, 25th, 50th, 75th, and 95th percentiles for the simulated distributions of claimants benefit payment experiences. These summary statistics are calculated over all 5,000 hypothetical claimants.

The simulation results presented in Table 9-1 suggest that slightly less than three-fourths of claimants with the baseline set of characteristics receive a benefit payment during the first week they are eligible to receive compensation for such a claim and that nearly 90 percent of claimants with these characteristics receive a benefit payment at some time during their benefit year. Specifically, 72.30 percent of claimants receive their first benefit payment in the second week of their benefit year because the baseline characteristics include a waiting week requirement for claimants and 89.58 percent receive at least one benefit payment over the course of their benefit year. In addition, the average claimant with baseline characteristics has a non-receipt spell of 12.61 weeks before receiving a benefit payment.[28] Although not shown in the table, the average length of the first non-receipt spell for the 17.28 percent of claimants who have a non-receipt spell prior to receiving a payment implies that the average claimant experiences an initial spell of non-receipt of 10.85 weeks. Further, among this group about one-third receive their first payment after a 1 week non-receipt spell (i.e., the third week of their benefit year) and approximately one-half receive their first payment by the fifth week of their benefit year.

[28] This average includes zero weeks for claimants who receive a payment in the first week and a value of 103 weeks for the 10.42 percent of claimants who never receive a payment.

The remaining rows in Table 9-1 summarize the benefit payment receipt experiences of claimants with the baseline set of characteristics. For example, claimants with these characteristics experience a first spell of UI receipt that lasts on average 6.78 weeks, which implies an average spell length of 7.57 weeks among the claimants who ever receive a payment. Moreover, approximately 5 percent of claimants collect 26 weeks of benefits during their first spell and exhaust their entitlements. Claimants with baseline characteristics also experience an average of 1.85 spells of benefit receipt with at least 5 percent having 5 or more receipt spells during the benefit year. Cumulative over the entire benefit year, an average claimant with these characteristics receives 9.92 weeks of benefits, or among those who receive a payment, the average is 11.07 weeks of benefit receipt over the year. Finally, the results in this table show that 9.18 percent of all claimants with baseline characteristics exhaust their regular UI entitlements over the benefit year, which implies that 10.25 percent of claimants who ever received a payment exhausted their benefits and collected 26 weeks of benefits.

While these findings are similar to what one would expect for a typical UI claimant, it is important to recognize that the baseline set of characteristics is not representative of a typical UI claimant. For example, aggregate data and previous research suggests that a lower percentage of monetarily eligible claimants ever receive a payment (80 to 85 percent), the average claimant receives more weeks of benefits (13-16 weeks), and a higher percentage exhaust their benefits (25-35 percent). This difference between the baseline set of characteristics and a typical UI claimant is essential to keep in mind when interpreting the findings below. While these findings characterize the extent to which

various factors affect UI benefit payment experiences, these results do not provide estimates of the impact changes in these factors would have on overall UI benefit payments.[29]

9.3 Comparing UI Receipt Experiences Across UI Policy Regimes

Tables 9-2 and 9-3 present the simulation results that illustrate the effects of alternative UI policy regimes on the UI benefit receipt experiences of claimants. The simulation results presented in Tables 9-2A, 9-2B, and 9-2C show the implied effects of changes in the features of a regular UI program. The results in Table 9-2A correspond to the specification with the natural logarithm of the WBA and the small set of work history controls, the results in Table 9-2B correspond to the specification with the same benefit entitlement variables but also includes the full set of work history controls, and the results presented in Table 9-2C are derived from the model specification with the replacement rate measuring benefit levels and the same set of work history controls. These results illustrate the effects of dropping the waiting week requirement, increasing the WBA from $250 to $300 (a 20 percent increase), and increasing the PDB from 26 weeks to 31 weeks (a 19 percent increase). Table 9-3 presents the results from instituting four variants of a supplemental benefits program similar to the EUC program. The first variant provides 13 additional weeks of benefits to claimants that are available to claimants over the entire 104 week horizon and includes the option that claimants can collect a supplemental payment after the end of the regular benefit year regardless of whether they collected a regular UI payment. The second option provides 26 additional weeks of benefits instead of the 13 weeks in

[29] The empirical model and this simulation approach can readily generate forecasts of the overall effects of changes in various factors and this feature is incorporated in the benefit projection model developed as the other part of this project.

Table 9-2A
Summary Measures of UI Payment Experiences Across Regular UI Policy Regimes
Specification with WBA and Small Set of Work History Variables

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	72.30	-	-	-	-	-
	No wait	72.30	-	-	-	-	-
	$300 WBA	73.56	-	-	-	-	-
	31 Weeks	72.64	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.61	0	0	0	1	103
	No wait	12.50	0	0	0	1	104
	$300 WBA	11.21	0	0	0	1	103
	31 Weeks	12.47	0	0	0	1	103
Percent ever receive a payment	Baseline	89.58	-	-	-	-	-
	No wait	89.64	-	-	-	-	-
	$300 WBA	90.88	-	-	-	-	-
	31 Weeks	89.72	-	-	-	-	-
Length of first receipt spell	Baseline	6.78	0	1	3	10	26
	No wait	6.34	0	1	2	9	26
	$300 WBA	6.95	0	1	4	11	26
	31 Weeks	7.00	0	1	3	10	26
Number of receipt spells	Baseline	1.85	0	1	1	3	5
	No wait	1.87	0	1	2	3	5
	$300 WBA	1.88	0	1	2	3	5
	31 Weeks	1.96	0	1	2	3	5
Number of weeks of benefits	Baseline	9.92	0	3	8	16	26
	No wait	9.58	0	2	7	16	26
	$300 WBA	10.17	0	3	8	16	26
	31 Weeks	10.48	0	3	8	16	30
Percent exhaust regular benefits	Baseline	9.18	-	-	-	-	-
	No wait	10.28	-	-	-	-	-
	$300 WBA	9.74	-	-	-	-	-
	31 Weeks	4.78	-	-	-	-	-

Table 9-2B
Summary Measures of UI Payment Experiences Across Regular UI Policy Regimes
Specification with WBA and Full Set of Work History Variables

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	77.88	-	-	-	-	-
	No Wait	77.88	-	-	-	-	-
	$300 WBA	79.51	-	-	-	-	-
	31 Weeks	78.3	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.72	0	0	0	0	103
	No Wait	12.97	0	0	0	0	104
	$300 WBA	11.81	0	0	0	0	103
	31 Weeks	11.81	0	0	0	0	103
Percent ever receive a payment	Baseline	88.86	-	-	-	-	-
	No Wait	88.60	-	-	-	-	-
	$300 WBA	89.68	-	-	-	-	-
	31 Weeks	88.96	-	-	-	-	-
Length of first receipt spell	Baseline	7.19	0	1	4	11	26
	No Wait	6.62	0	1	2	10	26
	$300 WBA	7.32	0	1	4	11	26
	31 Weeks	7.50	0	1	4	11	28
Number of receipt spells	Baseline	1.63	0	1	1	2	4
	No Wait	1.68	0	1	1	2	4
	$300 WBA	1.66	0	1	1	2	4
	31 Weeks	1.73	0	1	1	2	4
Number of weeks of benefits	Baseline	9.75	0	2	7	16	26
	No Wait	9.37	0	2	6	15	26
	$300 WBA	9.97	0	2	7	16	26
	31 Weeks	10.40	0	2	7	16	31
Percent exhaust regular benefits	Baseline	9.98	-	-	-	-	-
	No Wait	11.46	-	-	-	-	-
	$300 WBA	8.97	-	-	-	-	-
	31 Weeks	5.22	-	-	-	-	-

Table 9-2C
Summary Measures of UI Payment Experiences Across Regular UI Policy Regimes
Specification with Replacement Rate and Full Set of Work History Variables

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	74.91	-	-	-	-	-
	No Wait	74.91	-	-	-	-	-
	RRATE .6	75.69	-	-	-	-	-
	31 Weeks	75.29	-	-	-	-	-
Length of initial non-receipt spell	Baseline	13.31	0	0	0	0	103
	No Wait	13.08	0	0	0	0	104
	RRATE .6	12.75	0	0	0	0	103
	31 Weeks	13.05	0	0	0	0	103
Percent ever receive a payment	Baseline	88.46	-	-	-	-	-
	No Wait	88.80	-	-	-	-	-
	RRATE .6	88.98	-	-	-	-	-
	31 Weeks	88.70	-	-	-	-	-
Length of first receipt spell	Baseline	7.12	0	1	4	11	26
	No Wait	6.23	0	1	2	9	26
	RRATE .6	7.18	0	1	4	11	26
	31 Weeks	7.42	0	1	4	11	28
Number of receipt spells	Baseline	1.93	0	1	1	3	5
	No Wait	1.98	0	0	2	3	5
	RRATE .6	1.97	0	1	2	3	5
	31 Weeks	2.06	0	1	2	3	5
Number of weeks of benefits	Baseline	10.79	0	3	9	18	26
	No Wait	10.00	0	2	7	17	26
	RRATE .6	10.94	0	3	9	18	26
	31 Weeks	11.56	0	3	9	18	31
Percent exhaust regular benefits	Baseline	12.28	-	-	-	-	-
	No Wait	11.86	-	-	-	-	-
	RRATE .6	12.48	-	-	-	-	-
	31 Weeks	6.50	-	-	-	-	-

Table 9-3
Summary Measures of UI Payment Experiences Across Supplemental UI Policy Regimes

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	72.30	-	-	-	-	-
	EUC 13	73.08	-	-	-	-	-
	EUC 26	73.63	-	-	-	-	-
	EUC 13 @ 40	72.30	-	-	-	-	-
	EUC 13 @ 66	72.30	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.61	0	0	0	1	103
	EUC 13	11.92	0	0	0	1	103
	EUC 26	11.47	0	0	0	1	103
	EUC 13 @ 40	12.47	0	0	0	1	103
	EUC 13 @ 66	12.55	0	0	0	1	103
Percent ever receive a payment	Baseline	89.58	-	-	-	-	-
	EUC 13	90.46	-	-	-	-	-
	EUC 26	90.96	-	-	-	-	-
	EUC 13 @ 40	89.96	-	-	-	-	-
	EUC 13 @ 66	89.82	-	-	-	-	-
Length of first receipt spell	Baseline	6.78	0	1	3	10	26
	EUC 13	7.28	0	1	3	11	27
	EUC 26	8.00	0	1	3	11	29
	EUC 13 @ 40	6.80	0	1	3	10	26
	EUC 13 @ 66	6.78	0	1	3	10	26
Number of receipt spells	Baseline	1.85	0	1	1	3	5
	EUC 13	2.11	0	1	2	3	5
	EUC 26	2.26	0	1	2	3	5
	EUC 13 @ 40	1.96	0	1	2	3	5
	EUC 13 @ 66	1.85	0	1	1	3	5
Number of weeks of benefits	Baseline	9.92	0	3	8	16	26
	EUC 13	12.85	0	3	10	20	37
	EUC 26	15.19	0	4	11	23	49
	EUC 13 @ 40	11.90	0	3	9	19	32
	EUC 13 @ 66	10.19	0	3	8	16	26
Number of weeks of regular benefits	Baseline	9.92	0	3	8	16	26
	EUC 13	10.49	0	3	8	17	26
	EUC 26	11.07	0	3	9	18	26
	EUC 13 @ 40	10.07	0	3	8	16	26
	EUC 13 @ 66	9.92	0	3	8	16	26
Percent ever receive supplemental benefits	Baseline	N/A	N/A	N/A	N/A	N/A	N/A
	EUC 13	30.44	-	-	-	-	-
	EUC 26	39.42	-	-	-	-	-
	EUC 13 @ 40	24.86	-	-	-	-	-
	EUC 13 @ 66	4.44	-	-	-	-	-

Table 9-3 (cont.)
Summary Measures of UI Payment Experiences Across Supplemental UI Policy Regimes

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated				
			5th	25th	50th	75th	95th
Number of weeks of supplemental benefits	Baseline	N/A	N/A	N/A	N/A	N/A	N/A
	EUC 13	2.36	0	0	0	3	13
	EUC 26	4.12	0	0	0	5	26
	EUC 13 @ 40	1.83	0	0	0	0	13
	EUC 13 @ 66	0.28	0	0	0	0	0
Percent exhaust regular benefits	Baseline	9.18	-	-	-	-	-
	EUC 13	11.58	-	-	-	-	-
	EUC 26	14.38	-	-	-	-	-
	EUC 13 @ 40	9.86	-	-	-	-	-
	EUC 13 @ 66	9.18	-	-	-	-	-
Percent exhaust supplemental benefits	Baseline	N/A	N/A	N/A	N/A	N/A	N/A
	EUC 13	8.62	-	-	-	-	-
	EUC 26	5.68	-	-	-	-	-
	EUC 13 @ 40	6.08	-	-	-	-	-
	EUC 13 @ 66	0.78	-	-	-	-	-

the first variant. The third and fourth alternative also provide 13 weeks of additional benefits, however, these benefits do not become available until the fortieth week of the benefit year and the sixty-sixth week of the benefit year, respectively.

The simulation results presented in Tables 9-2A through 9-2C suggest that the removal of a waiting week requirement would have very little impact on the benefit receipt experiences of claimants with the other baseline characteristics held constant. Moreover, this finding is robust across the three specifications examined in these tables. Specifically, the findings in the first three sets of rows show that the same percentage of claimants collect benefits in the first week they are eligible, among those who begin the benefit year in a non-receipt status they receive their first payment after essentially the same number of weeks, and essentially the same percentage of claimants ever receive a benefit payment if they are in a State without a waiting week. The results in the lower four sets of rows indicate that claimants in a State without a waiting week on average spend almost one-half a week less in their first spell of benefit receipt, experience slightly more spells, receive between one-third and three-quarters of a week less in benefits, and essentially the same percentage exhaust their benefit entitlements.

The percentiles of the simulated distribution suggest that these effects result from a reduction of short spells and the accumulation of more weeks of benefits among those with longer spells. For example, the results in these tables show that the median of the first spell and cumulative weeks distribution is one week less under the simulation without a waiting week requirement suggesting there is a one-week reduction in the shorter spells, while the same upper quartile of the cumulative weeks distributions--in conjunction with the higher exhaustion rate--indicates that claimants accumulating more than 16 weeks of benefits are experiencing longer spells and exhausting benefits.

Increasing the WBA from $250 to $300, which corresponds to an increase in the replacement rate from 50 percent to 60 percent, has a moderate influence on the benefit receipt experiences of claimants as shown in Tables 9-2A through 9-2C. This 20 percent increase in the WBA increased the percentage of claimants who receive a benefit payment during the first week and over the benefit year by one-half to more than 1 percentage point. This increase also slightly reduced the length of initial non-receipt spells for those claimants who did not collect a payment during the first week.

In addition, increases in the WBA moderately increase benefit receipt experiences by increasing the length of first receipt spells, the number of receipt spells, the cumulative number of weeks of benefit receipt, and–except for the specification used in the simulations reported in Table 9-2B–the percentage of claimants who exhaust regular benefits. Overall, increases in the WBA appear to induce more claimants to collect benefits and do so earlier in their benefit year. However, this increase has a rather insignificant influence on the benefit receipt experiences of those claimants who ever receive benefits.

A similar increase in the PDB from 26 to 31 weeks, which is close to a 20 percent increase, has somewhat of the opposite overall effect compared to increases in the WBA. Specifically, as shown in Tables 9-2, increasing the PDB by 5 weeks has only a small influence on the receipt of benefits and a moderate influence on the receipt experiences among claimants who become recipients. The results in the first and third sets of rows in Tables 9-2 show that the availability of 31 weeks of benefits increases the percentage who receive a payment in the first week by about one-third of a percentage point and the percentage who ever receive benefits by less than one-fourth of a percentage point. The findings in these tables also show that these additional weeks increase the length of first receipt spells, the number of spells and the total number of weeks benefits are received with the increase generally resulting from a

lengthening of the longest spells (i.e., cumulative amounts longer than 16 weeks). Finally, as one would expect, increasing the PDB substantially reduced the percentage of claimants who exhaust their regular benefit entitlement.

Table 9-3 presents the simulation results for four different examples of supplemental benefit programs based on the parameter estimates from the specification that measures benefit levels with the natural logarithm of the WBA and the small set of work history variables. The results for the first two variants of supplemental benefit programs that provide additional weeks of benefits to claimants throughout the 104 week benefit horizon follow the same patterns as the results presented in Tables 9-2 for the simulations where claimants had 31 weeks of regular benefits. Specifically, a higher percentage of claimants collect a payment in the first week of eligibility, more claimants collect at least one benefit payment, first receipt spells are longer, claimants have more receipt spells, more total weeks of regular UI benefits paid, and a higher percentage exhaust their regular benefit entitlements.

Comparing the results in the second and third set of rows shows there is a monotonic relationship between the changes in receipt experiences and the number of additional weeks of benefits available with larger changes for the variant with 26 weeks of supplemental benefits compared to the program offering 13 additional weeks of benefits. There is also a monotonic relationship between the number of additional weeks of benefits available under the supplemental program and claimants' receipt of supplemental benefits. For example, under the program with 13 additional weeks of benefits, 30.44 percent of claimants collect at least one week of supplemental benefits, while under the program with 26 additional weeks of benefits 39.42 percent of claimants collect at least one supplemental benefit payment. Although not directly shown in the table, providing more weeks of supplemental benefits

substantially reduces the percentage of claimants who exhaust their supplemental benefit entitlement. In particular, under the program that offers 13 additional weeks of supplemental benefits, 28.32 percent of claimants who ever receive a supplemental payment exhaust their entitlement, while only 14.41 percent of claimants who ever receive a supplemental payment exhaust the benefits available to them under the program that offers 26 weeks of supplemental benefits. Finally, the substantially larger percentage of claimants ever receiving supplemental benefits relative to the percentage exhausting regular benefits indicates that the majority of supplemental benefit recipients are receiving their first supplemental benefit payment after the end of their regular benefit year.

The last two variants of supplemental programs presented in Table 9-3 illustrate the implications of introducing a supplemental benefits program well into a claimants benefit year and the inclusion of a reach back provision that permits claimants to collect benefits based on an initial claim beyond the usual 52 week benefit year. As expected, introducing a supplemental benefits program in the fortieth week of a claimants benefit year has only modest effects on claimants' receipt of regular benefits. As shown in the table, there are only slight increases in the percent that ever receive a payment, the length of the first receipt spell, the number of weeks of regular benefits and the percent of claimants who exhaust regular benefits. The introduction of the supplemental program during the fortieth week also results in less utilization of supplemental benefits as well. For example, approximately 5 percent fewer claimants ever collect supplemental benefits when the additional benefit become available in the fortieth week compared to the scenario where these benefits are available to claimants throughout the entire 104 week simulation horizon. Further, claimants collect on average about one-half a week less of supplemental benefits and fewer claimants exhaust their supplemental entitlements. This reduced use of

supplemental benefits when combined with the reductions in use of regular benefits result in approximately 1 week less of all benefits paid to claimants over the 104 week horizon compared to the supplemental program with 13 weeks of benefits available to claimants over the entire period.

The introduction of a supplemental program approximately 3 months after the end of a claimant's regular benefit year has no effect on the receipt of regular benefits. As shown in Table 9-3, the percentage of claimants who receive a payment in the first week, the length of the first receipt spell, the number of weeks of regular benefits, and the percentage of claimants exhausting regular benefits are not affected by the introduction of 13 additional weeks of supplemental benefits 66 weeks after claimants filed their initial claim. The introduction of the supplemental program after the end of claimants' regular benefit year also substantially reduces the utilization of supplemental benefits with substantial reductions in the percentage ever receiving a supplemental payment, the number of weeks of supplemental benefits and the percentage exhausting their supplemental benefits. Interestingly, the reach back provision of this supplemental program does induce a very small number of claimants (0.24 percent) to collect a supplemental benefit payment after the end of their regular benefit year even though they did not collect a regular UI payment.[30] This finding is consistent with the infrequent occurrence of this type of event when the EUC program was in effect.

[30] Although not presented in the table, the results presented in the third set of rows indicate that 89.82 percent of claimants ever received a payment in this variant of a supplemental program and 89.58 percent ever received a payment in the baseline case.

9.4 Comparing UI Receipt Experiences Across Demographic Characteristics

The relationships between UI benefit receipt experiences and the various demographic and pre-UI work experiences variables are presented in Tables 9-4 and 9-5. Specifically, these tables present the results of the simulation exercises that vary the sex, race, age and pre-UI industry of employment of claimants. Table 9-4 presents the simulation results that reveal the differences in the UI benefit receipt experiences of women, Black males, Hispanic males, and ages 22-24 and 60-64 relative to the baseline experiences. The differences in benefit receipt experiences across claimants who were employed in different industrial sectors prior to filing an initial claim are illustrated in Table 9-5.

The results presented in Table 9-4 suggest that women who file an initial UI claim utilize more of their regular UI entitlements compared to men with the same characteristics. For example, women are more likely to receive a payment in the first week they are eligible with 73.09 percent of women doing so compared to 72.30 percent of men with the same baseline characteristics. Moreover, a higher percentage of women are also more likely to ever receive a benefit payment (90.92 compared to 89.58), which indicates that women are also slightly more likely to begin receiving benefit payments after the first week compared to men. Women also have longer first spells of receipt and more weeks of total benefits paid, with most of the difference in the middle of the distribution. Finally, consistent with the higher utilization of benefits, women are more likely to exhaust regular benefit compared to men.

The findings in third and fourth sets of rows presented in Table 9-4 illustrate some interesting differences in the dynamic patterns of UI benefit utilization that are related to race. Specifically, these findings indicate that Black claimants are less likely to use UI benefits, but among those who do, they

utilize more of these benefits. In contrast, Hispanic claimants are more likely to use UI benefits and to use them more intensely compared to non-Black, non-Hispanic claimants. For example, while approximately 2 percent fewer Black claimants ever receive a benefit payment, this group of claimants experiences longer first spells of receipt, receive almost 1.5 weeks more of benefits over the benefit year and are substantially more likely to exhaust their benefits. On the other hand, Hispanic claimants are more likely to receive a benefit payment in the first week, as well as ever receive a benefit payment, compared to non-Black, non-Hispanic claimants. Further, Hispanic claimants also experience relatively longer first spells, have more spells of receipt, more weeks of benefits and are more likely to exhaust their benefit entitlements.

The last two sets of rows in Table 9-4 also show a monotonic relationship between age and the utilization of UI benefits. Specifically, younger claimants use substantially less UI benefits relative to their older counterparts. Claimants between the ages of 22 and 24 are less likely to receive a payment in the first week, they wait longer to receive their first payment, they are less likely to ever receive a payment, they have shorter first spells of receipt, they have fewer receipt spells, they collect fewer total weeks of benefits, and they are significantly less likely to exhaust their regular benefits compare to their older counterparts. For example, overall, 60-64

Table 9-4
Summary Measures of UI Payment Experiences Across Demographic Characteristics

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	72.30	-	-	-	-	-
	Female	73.09	-	-	-	-	-
	Black	70.09	-	-	-	-	-
	Hispanic	72.55	-	-	-	-	-
	Age 22-24	68.65	-	-	-	-	-
	Age 60-64	78.75	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.61	0	0	0	1	103
	Female	11.21	0	0	0	1	103
	Black	14.47	0	0	0	1	103
	Hispanic	12.31	0	0	0	1	103
	Age 22-24	16.52	0	0	0	2	103
	Age 60-64	7.85	0	0	0	0	103
Percent ever receive a payment	Baseline	89.58	-	-	-	-	-
	Female	90.92	-	-	-	-	-
	Black	87.86	-	-	-	-	-
	Hispanic	89.88	-	-	-	-	-
	Age 22-24	85.88	-	-	-	-	-
	Age 60-64	93.86	-	-	-	-	-
Length of first receipt spell	Baseline	6.78	0	1	3	10	26
	Female	7.26	0	1	4	11	26
	Black	7.63	0	1	4	12	26
	Hispanic	6.97	0	1	4	11	26
	Age 22-24	6.47	0	1	3	10	26
	Age 60-64	8.15	0	1	5	13	26
Number of receipt spells	Baseline	1.85	0	1	1	3	5
	Female	1.85	0	1	1	3	4
	Black	1.86	0	1	1	3	5
	Hispanic	1.88	0	1	2	3	5
	Age 22-24	1.51	0	1	1	2	4
	Age 60-64	1.94	0	1	2	3	5
Number of weeks of benefits	Baseline	9.92	0	3	8	16	26
	Female	10.51	0	3	8	17	26
	Black	11.32	0	3	10	20	26
	Hispanic	10.25	0	3	8	16	26
	Age 22-24	8.60	0	2	6	14	26
	Age 60-64	11.93	0	4	10	20	26
Percent exhaust regular benefits	Baseline	9.18	-	-	-	-	-
	Female	10.76	-	-	-	-	-
	Black	13.80	-	-	-	-	-
	Hispanic	9.92	-	-	-	-	-
	Age 22-24	7.38	-	-	-	-	-
	Age 60-64	14.48	-	-	-	-	-

year old claimants receive more than 3 weeks of benefit payments compared to their counterparts that are 22-24 years old.

The findings presented in Table 9-5 illustrate some significant differences between the dynamic patterns of UI benefit receipt across claimants with different pre-UI industries of employment. Relative to claimants from the manufacturing sector, claimants who were employed in the construction industry before filing an initial UI claim have quite different benefit receipt patterns. Moreover, while claimants who were employed in the retail and wholesale trades, and service industry sectors have similar experiences to each other, these are quite different from both claimants previously employed in either the manufacturing, construction, or other industries.

Claimants who were employed in the construction industry are more likely to receive a payment in their first week of eligibility and to ever receive a payment over the benefit year. In addition, these claimants have more spells of receipt, longer first spells, and more total weeks of benefits compared to claimants employed in the manufacturing sector. These findings also suggest that claimants employed in the construction industry are more likely to exhaust their UI benefits compared to claimants employed in manufacturing.

Claimants who were employed in either the retail and wholesale trade or service industries have quite different benefit payment experiences compared to other claimants. For example, claimants who worked in these industries are less likely to receive at least one benefit payment. Further, although these claimants have longer first spells, they have the fewest number of receipt spells. Overall, these claimants collect about 12 weeks of benefits on average and

Table 9-5
Summary Measures of UI Payment Experiences Across Pre-UI Industry of Employment

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	72.30	-	-	-	-	-
	Construction	77.40	-	-	-	-	-
	RWT	72.65	-	-	-	-	-
	Service	72.16	-	-	-	-	-
	Other	73.70	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.61	0	0	0	1	103
	Construction	9.17	0	0	0	0	103
	RWT	14.22	0	0	0	1	103
	Service	14.67	0	0	0	1	103
	Other	12.49	0	0	0	1	103
Percent ever receive a payment	Baseline	89.58	-	-	-	-	-
	Construction	92.68	-	-	-	-	-
	RWT	87.90	-	-	-	-	-
	Service	87.44	-	-	-	-	-
	Other	89.58	-	-	-	-	-
Length of first receipt spell	Baseline	6.78	0	1	3	10	26
	Construction	7.78	0	1	4	12	26
	RWT	8.95	0	1	5	15	26
	Service	8.57	0	1	5	14	26
	Other	8.73	0	1	5	14	26
Number of receipt spells	Baseline	1.85	0	1	1	3	5
	Construction	2.12	0	1	2	3	5
	RWT	1.57	0	1	1	2	4
	Service	1.65	0	1	1	2	4
	Other	1.72	0	1	1	2	4
Number of weeks of benefits	Baseline	9.92	0	3	8	16	26
	Construction	12.09	0	4	11	20	26
	RWT	12.00	0	3	10	22	26
	Service	11.87	0	3	10	21	26
	Other	12.20	0	3	11	22	26
Percent exhaust regular benefits	Baseline	9.18	-	-	-	-	-
	Construction	14.48	-	-	-	-	-
	RWT	18.18	-	-	-	-	-
	Service	17.10	-	-	-	-	-
	Other	17.84	-	-	-	-	-

exhaust benefits at substantially higher rates compared to claimants who were employed in the manufacturing sector prior to filing an initial claim.

9.5 Comparing UI Receipt Experiences Across Economic Environments

Tables 9-6 and 9-7 presents the results from simulations that vary the quarter during which an initial claim is filed, the unemployment rate, the level of average quarterly earnings in covered employment, and the size of a State's labor market. The results presented in Table 9-6 depict the seasonal effects regarding the timing of filing an initial claim. Table 9-7 explores the effects of increases in the unemployment rate, AQE, and the percentage of the nation's covered workforce employed in a State. As was the case in previous tables, for each measure of receipt experiences the first row in these tables present the baseline simulation results. The results presented in the second, third and fourth rows for each measure represents the experiences of claimants with the specific variable set equal to the alternative value.

Table 9-6 illustrates the differences in the benefit payment experiences of claimants who file claims at different times of the year. These results indicate that claimants that file their initial claim in the first quarter of the year have different benefit receipt experiences compared to claimants that file at other times of the year. In particular, claimants who file their initial claim during the first quarter are more likely to collect a payment during the first week, but also have the lowest level of utilization of their benefit entitlements. For example, this group of claimants have the shortest first spells, the fewest number of receipt spells, the lowest total number of weeks of benefits, and the lowest percentage who exhaust their benefits. The experiences of

Table 9-6
Summary Measures of UI Payment Experiences Across Quarter of Initial Claim

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95t
Percent receive payment in first week	Baseline	72.30	-	-	-	-	-
	QTR 2	69.40	-	-	-	-	-
	QTR 3	68.45	-	-	-	-	-
	QTR 4	70.67	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.61	0	0	0	1	103
	QTR 2	13.83	0	0	0	2	103
	QTR 3	15.51	0	0	0	2	103
	QTR 4	11.20	0	0	0	1	103
Percent ever receive a payment	Baseline	89.58	-	-	-	-	-
	QTR 2	88.86	-	-	-	-	-
	QTR 3	86.80	-	-	-	-	-
	QTR 4	90.48	-	-	-	-	-
Length of first receipt spell	Baseline	6.78	0	1	3	10	26
	QTR 2	7.46	0	1	4	11	26
	QTR 3	7.00	0	1	4	10	26
	QTR 4	7.91	0	1	5	12	26
Number of receipt spells	Baseline	1.85	0	1	1	3	5
	QTR 2	1.89	0	1	2	3	5
	QTR 3	1.87	0	1	2	3	5
	QTR 4	1.89	0	1	2	3	5
Number of weeks of benefits	Baseline	9.92	0	3	8	16	26
	QTR 2	11.02	0	3	9	18	26
	QTR 3	10.62	0	3	8	18	26
	QTR 4	11.14	0	4	9	18	26
Percent exhaust regular benefits	Baseline	9.18	-	-	-	-	-
	QTR 2	12.70	-	-	-	-	-
	QTR 3	11.74	-	-	-	-	-
	QTR 4	11.52	-	-	-	-	-

claimants who file during the second and third quarters suggest that these cohorts are the least likely to ever receive a benefit payment, but among those who do receive a payment they are the most likely to exhaust their entitlements compared to claimants who file during the first and fourth quarters.

Table 9-7 presents the findings from the simulations that illustrate the relationship between UI claimants benefit payment experiences and measures of the economic environment. As one would expect, these results indicate that higher unemployment rates are associated with increased utilization of UI benefits by claimants. This increased utilization results from more claimants ever receiving payments, as well as receiving them earlier in their benefit year, and more weeks of benefit receipt. For example, compared to the baseline characteristics, which includes a 5 percent unemployment rate, the percentage of claimants ever receiving a payment increases by almost 2 percentage points and exhaustions increase by almost 5 percentage points. In addition, the increased number of weeks of benefits in combination with the lower number of receipt spells indicates that claimants facing higher unemployment rates experience longer spells of receipt, which is confirmed by the almost 2 week increase in the length of first spells.

Claimants who are operating in labor markets that are characterized by higher earnings, as measured by average quarterly earnings in covered employment, use less of their UI entitlements compared to their counterparts with lower earnings opportunities. For example, fewer claimants ever receive a payment, they experience fewer spells of receipt, and they receive fewer weeks of total benefits. These results also show that this group of claimants experience slightly longer first spells of receipt. These findings are consistent with what one would expect based on economic theory. For example, higher earnings in the labor market result in claimants

Table 9-7
Summary Measures of UI Payment Experiences Across Economic Environments

Measure of Receipt Experiences	Case	Mean	Percentile of Simulated Distribution				
			5th	25th	50th	75th	95th
Percent receive payment in first week	Baseline	72.30	-	-	-	-	-
	10% unrate	73.75	-	-	-	-	-
	AQE $7800	72.30	-	-	-	-	-
	10% covered emp.	72.30	-	-	-	-	-
Length of initial non-receipt spell	Baseline	12.61	0	0	0	1	103
	10% unrate	10.17	0	0	0	1	103
	AQE $7800	17.40	0	0	0	1	103
	10% covered emp.	12.61	0	0	0	1	103
Percent ever receive a payment	Baseline	89.58	-	-	-	-	-
	10% unrate	91.34	-	-	-	-	-
	AQE $7800	84.68	-	-	-	-	-
	10% covered emp.	89.58	-	-	-	-	-
Length of first receipt spell	Baseline	6.78	0	1	3	10	26
	10% unrate	8.62	0	1	5	14	26
	AQE $7800	6.92	0	1	3	11	26
	10% covered emp.	5.12	0	1	2	7	20
Number of receipt spells	Baseline	1.85	0	1	1	3	5
	10% unrate	1.51	0	1	1	2	3
	AQE $7800	1.29	0	1	1	2	3
	10% covered emp.	1.97	0	1	2	3	5
Number of weeks of benefits	Baseline	9.92	0	3	8	16	26
	10% unrate	11.13	0	3	9	19	26
	AQE $7800	8.51	0	1	5	14	26
	10% covered emp.	7.89	0	2	6	12	24
Percent exhaust regular benefits	Baseline	9.18	-	-	-	-	-
	10% unrate	14.14	-	-	-	-	-
	AQE $7800	8.52	-	-	-	-	-
	10% covered emp.	3.66	-	-	-	-	-

having a higher opportunity cost of remaining unemployed and, hence, they have an incentive to work more during the benefit year. Moreover, the longer first spells may indicate higher reservations wages in States with higher wages.

The final set of simulation results presented in Table 9-7 illustrate the relationship between UI benefit receipt experiences and the size of the labor market. As shown in the table, claimants in States with 10 percent of the nation's covered employment receive fewer UI benefits compared to claimants in smaller labor markets holding all other factor constant. For example, claimants in the large labor market receive 2 weeks less of benefits and only 3.66 percent exhaust their regular benefits compared to claimants with baseline characteristics. These claimants also stop receiving benefits more quickly once they begin their first spell of receipt, with the average claimant receiving benefits for only 5.12 weeks during their first spell. Finally, the higher number of receipt spells indicate that these claimants are more likely to move in and out of episodes of benefit receipt.

CHAPTER 10
SYNTHESIS OF EMPIRICAL FINDINGS AND CONCLUDING REMARKS

The preceding empirical analysis presents a comprehensive picture of the dynamic patterns of UI benefit payments over claimants' benefit years and examines the extent to which UI policies, demographic and background characteristics, seasonality, and the general economic environment influence these benefit payment experiences. This chapter summarizes this picture, relates these empirical findings to other results in the literature, and discusses some of the policy implications of these findings.

10.1 Summary of the Findings

The empirical results presented in earlier chapters suggest that there are quite complex dynamic patterns of UI benefit receipt and that UI policies, demographic characteristics, and the general economic environment influence these patterns through a variety of routes. The dynamic patterns of UI benefit receipt are characterized by decisions regarding whether to collect any UI benefits, how long to collect benefits once a claimant has received an initial payment, and finally whether to begin collecting benefits again once a claimant has stopped receiving benefits for at least a week.

The empirical results obtained in this analysis indicate that approximately 70 to 80 percent of monetarily eligible claimants collect a benefit payment in the first week of the benefit year that they are eligible to receive payments. In addition, another 15 to 25 percent of monetarily eligible claimants will

receive a benefit payment sometime before the end of their benefit year with the vast majority only waiting 1 to 3 weeks after their first week of eligibility to begin receiving benefits. These findings also suggest that UI policies have relatively little influence on the extent to which claimants ever receive a UI benefit payment. However, there is substantial variation in the proportion of claimants who collect benefits across demographic groups and economic environments, as well as significant seasonal differences.

The second aspect of claimants' UI benefit receipt experiences that results in the complex patterns of benefit payments involves the complicated nature of the process determining the number of consecutive weeks claimants receive benefit payments. As described in Chapter 7, there is an underlying process determining the duration of episodes of benefit receipt and there are complex interrelationships between this underlying process and UI policy variables, demographic characteristics, and economic conditions. For example, our findings suggest that the underlying process results in some claimants experiencing very long periods of benefit receipt while others experience only short periods. Moreover, UI policies, demographic background characteristics and economic measures have very complex relationships with this underlying process such that the effects of these variables on the number of consecutive weeks benefits are collected varies over the length of each spell. In addition, there are complicated interactions among duration of the spell and the number of weeks of benefits remaining such that there are significant exhaustion effects where claimants are much more likely to stop receiving benefits if they are close to exhausting their benefit entitlements.

The simulation results illustrated these complex relationships between the number of consecutive weeks of benefit receipt and UI policies, demographic characteristics and economic conditions. These

results indicate that increases in the WBA have modest effects on both the length of first spells of benefit receipt and the total number of weeks claimants receive benefits. Similarly, increases in the number of weeks of benefits available to claimants, either through increases in regular benefits or the introduction of supplemental benefits, are shown to have modest effects as well. In addition, the simulations highlighted the strong relationships between the length of receipt spells and demographic characteristics, such as age and the industry claimants were employed in prior to filing an initial claim. For example, older workers and claimants who were employed in the retail and wholesale trade and service industries are much more likely to experience longer spells. Finally, there are also strong relationships among economic conditions and labor market characteristics and the receipt of UI benefits. In particular, higher levels of unemployment result in longer spells of benefit receipt and claimants in larger labor markets are less likely to collect benefits for long periods of time.

The findings presented above also suggest that a large number of claimants have repeated episodes of UI benefit receipt after one or more periods of not receiving benefits for at least one week. The average claimant has between 1.5 and 2 distinct episodes of benefit receipt with considerable variation across demographic characteristics and economic conditions. Specifically, younger claimants have fewer spells of receipt relative to their older counterparts and claimants who were employed in the construction industry have, on average, about 0.5 more spells than similar claimants who were employed in either the retail and wholesale trade or service sectors. Finally, claimants in labor markets that have higher earnings also have substantially fewer spells of UI receipt because of the higher opportunity costs of remaining unemployed.

Finally, these results are robust across the three different specifications presented earlier. Although there are slight differences in the general levels of the simulation results, the patterns that arise from changes in UI benefit rules, demographic characteristics, and the general economic environment are very similar across the two specifications that use the WBA to measure the level of benefits and the specification that uses the replacement rate as the measures of UI benefits. These similarities arise despite some differences in the parameter estimates presented in Chapters 6, 7 and 8.

10.2 Comparison with Results in the Literature

Relating our findings to those in other studies requires consideration of differences in the definitions of key variables, in empirical approaches adopted, and in sample compositions. Definitions of key variables such as unemployment duration and UI entitlements vary considerably in the existing body of research. The largest group of studies utilize program data that are similar to the data source used in this analysis and equate unemployment to UI receipt. The studies using program data generally define UI collection as either the duration of the first spell of benefit receipt or the cumulative number of weeks benefits are received over a benefit year. Other studies use survey data and define unemployment more in accord with the CPS concept and UI receipt as ever receiving a benefit payment. Studies also differ in the concepts used to characterize UI programs. Studies using program data generally analyze the effects of both the weekly benefit amount and the potential duration of benefits--including the availability of extended or supplemental benefits--to capture the influence of UI policies, whereas survey-data studies generally consider only the weekly benefit amount as the key characteristic of UI programs. The analysis in this study not only examines the weekly benefit amount,

the potential duration of benefits, and the availability of supplemental benefits, it also analyzes the influence of other policy variables including waiting week requirements and the reach back provisions of supplemental programs similar to the provisions included in the EUC program.

Concerning differences in empirical approaches, the interpretation of what is meant by a UI effect varies across studies depending on the particular econometric framework applied to obtain estimates and on the sorts of variables incorporated to control for contaminating sources of variation. Some analyses estimate effects via a simple regression model in an attempt to measure movements in average durations, while other studies use transition-probability frameworks to determine the influence of UI entitlements on hazard rates. A necessary econometric feature needed to measure UI-entitlement effects reliably is recognition of the important interactions between UI benefits and duration, creating a framework that allows UI programs to affect unemployment in a nonuniform manner varying with duration length.

While several program-data studies implement estimation approaches incorporating versions of these interactions, very few studies using survey data adopt this type of empirical model. Further, to ensure that variation in UI benefits in estimation reflects differences in the generosity of UI policies rather than movements along UI schedules, an empirical procedure must in theory incorporate elaborate controls to account for those aspects of individuals' earnings histories that go into the computation of entitlements. The vast majority of existing studies include only a subset of these controls and generally do not examine the sensitivity of estimates to the inclusion of these variables. Finally, to obtain reliable estimates of the dynamic patterns of UI benefit payments, an empirical approach must account for the endogeneity of the choice to collect a UI benefit payment even among monetarily eligible claimants.

Without admitting such possibilities, one cannot reliably predict the full range of effects arising from alterations in UI programs, including comprehensive effects characterizing the influence of UI policies on the total monetarily eligible claimant population.

Although a few survey-data studies admit such a possibility, the vast majority of program-data studies examine the benefit payment experiences of claimants who receive at least one payment. This study recognizes this possibility and provides predictions of the extent to which various factors are related to this more comprehensive notion of benefit payment experiences.

Turning finally to differences in sample compositions, there are obvious qualifications to consider in relating the findings presented here to those of other studies. The results obtained above describe the UI benefit payment experiences of all monetarily eligible claimants during the early 1990s, which was mostly a recessionary period. Program-data studies generally restrict analyses to claimants who receive at least one payment and some consider only men. Survey-data studies investigate the experiences of a wide range of populations and rarely can determine whether unemployed individuals are eligible to receive UI benefits, much less distinguish claimants from non-claimants.

While these differences lead to some ambiguities in directly comparing the findings here to those available in the literature, it is nonetheless valuable to place these current results into context. Previous studies focus almost exclusively on the effects of the WBA and the PDB on the unemployment experiences of populations. Although many of these studies include measures of demographic characteristics, background characteristics, and economic conditions, the implications of these variables for unemployment experiences are generally not discussed. Moreover, as described above, these

studies do not examine other aspects of UI policies. As such, the following discussion is limited to comparisons to the effects of the WBA and the PDB on unemployment experiences.

Previous studies using both program data and survey data offer predictions of the influence of the WBA on unemployment experiences. Results based on program data generally suggest that a rise in the WBA induces an increase in weeks of unemployment, with a 10 percent increase in the WBA predicted to generate anywhere from a 0.5 to a 2 week lengthening of insured unemployment. Within the empirical framework used in this study, such a forecast most closely corresponds to the effect of WBA on the distribution the cumulative number of weeks of benefits. In sharp contrast to the predictions of the previous program-data studies, the simulation findings outlined in Chapter 9 indicate that changes in the WBA have a much smaller effect. Specifically, the results presented in Table 9-2A indicate that a 20 percent increase in the WBA leads to an increase of only 0.25 weeks of cumulative benefits received by claimants with our baseline characteristics. Of course, there are a variety of potential reasons for explaining this discrepancy, including the significant changes in the U.S. economy between the late-1970s/early-1980s and the period covered by the data used in this study. Our results are more consistent with the findings from studies based on survey data, although the evidence of the effects of the WBA on unemployment in these set of studies is far less conclusive. For example, Barron and Mellow (1981), using a supplement of the CPS, find that the WBA becomes insignificant once one accounts for recipiency status. Katz and Meyer (1990b), using a survey supplement to a program-data source, also find that the WBA plays an insignificant role.

Existing evidence of the effects of the PDB are primarily based on program-data studies, although some of the studies using survey data offer a source for comparing predictions of the influence

of the PDB on unemployment experiences. The results presented in Chapter 9 are at the low end of the findings from program-data studies and, again, very consistent with the findings from the analysis of survey data. Results from program-data studies suggest that a 1 week increase in the PDB leads to a lengthening of cumulative weeks of benefits received somewhere in the 0.15 to 1 week range. The findings from the survey-data studies suggest that a 1 week increase in the PDB lead to an increase of unemployment by 0.1 weeks of unemployment on average. The finding of this analysis correspond to this estimate, with a 5 week increase resulting in an estimated increase of 0.56 weeks of cumulative benefit receipt for the average claimant with baseline characteristics and almost a full 5 week increase for those claimants with the longest spells. Overall, our predictions are clearly in general agreement with those advanced in the literature.

10.3 Policy Implications

The findings from this study suggest several implications concerning the role of UI policies on the amount of insured unemployment and the extent to which policy considerations need to take into account recent changes in the U.S. economy. At the most basic level, the results indicate that changes in the two basic features of UI programs--the WBA and the PDB--are likely to affect insured unemployment through several routes, including the propensity to collect benefits, the length of benefit receipt spells, and the number of episodes of benefit receipt. Specifically, our findings suggest that changes in the WBA will have very modest effects on the amount of insured unemployment, whereas features that alter the number of weeks of eligibility are likely to have slightly larger effects on the "typical" claimants but will lengthen unemployment for those individuals who already experience the

longer durations. Although it is clear there are some work disincentive effects of increasing the WBA and the PDB, these disincentives, which have been at the heart of UI policy debates for decades, appear to be quite modest. Overall, these findings indicate that policy makers should be relatively more concerned about the disincentive effects of extending the number of weeks of benefits payable to claimants and somewhat less concerned about changes in the WBA when balancing the need for adequate benefits with the need to limit the work disincentives of these policy variables.

At a more subtle level, the findings from this study have important implications for policies related to waiting requirements, extended and supplemental benefit programs, and the recognition of the potential effects of changes in the U.S. economy on the balance between adequate benefits and work disincentives of UI programs. Several recent policy proposals have called for the extension of the waiting requirement beyond the usual 1 week period. These proposals have argued that extending the waiting period will yield substantial savings in benefit payments that could be used to finance longer potential durations. However, our findings indicate that the waiting week requirement has very little effect on benefit payments and suggest that a marginal extension of the waiting requirement by an additional week or two would not yield substantial savings in benefit payments.

There are several implication of our findings for the development of policies related to extended and supplemental benefit programs. For example, the simulation results clearly illustrate the differences between a more permanent increase in the PDB and a more sudden increases in the number of weeks of benefits through the introduction of an extended or supplemental program during the middle of a claimant's benefit year. Moreover, the extension of claimants' eligibility to receive benefits under supplemental programs beyond the usual 52 week benefit year also have different implications than

increases in the PDB that are only payable during the benefit year. These findings clearly have implications for the design of supplemental programs and the desirability of enacting temporary programs. In addition, the simulation results also highlighted the relative unimportance of reachback provisions in supplemental benefit programs. In light of the difficulties many States had in implementing this aspect of the EUC program, the low levels of claimants' utilization of these benefits suggests that these types of provisions are not an effective means of assisting unemployed workers during recessionary times.

The last policy relevant area that our findings provide insights into involve the modification of policies to account for recent trends in the U.S. economy. These trends include changes in the working populations, which is aging with the baby boom generation and is comprised of an increasing percentage of women and minorities, as well as changes in the industrial composition of the economy. With regard to the aging of the working population, our findings indicate that policy makers should anticipate higher utilization of UI benefits as the working population ages. Similarly, the increasing proportions of women and minorities in the labor force also have implications for the design of UI policies. For example, our findings indicate that Black claimants are less likely to ever receive a benefit payment and this could have important implications in the design of policies that will facilitate the UI system serving as an income maintenance program. In particular, if the lower take-up rate of Blacks is due to operational issues that inhibit them from collecting the benefits they are eligible to receive, policies may need to be developed to reach out to this population of claimants and assist them in the process of obtaining benefits. Similar issues will confront policy makers as the industrial composition of the workforce changes toward a greater proportion of workers in the services sector. Policy makers

need to take into account that workers in these industries are less likely to collect benefits, but those who do receive UI payments have higher levels of utilization compared to workers from the manufacturing sector when they are devising policies that best meet the needs of today's workforce.

A factor ignored throughout this discussion concerns the potential influence of UI policies on two other labor market decisions of individuals. First, the analysis in this study focuses solely on the experiences of claimants who filed a monetarily valid UI claim and does not take into account the possibility that changes in UI policies may affect the decisions of recently nonemployed individuals to file a UI claim. If this type of effect occurs, then policy changes can change the composition of UI claimants and alter the effects of this policy change on the amount of insured unemployment. Second, the conclusions drawn in this paper ignore the possibility that characteristics of UI regimes induce persons to change their employment activities. If this possibility occurs, then policy shifts, such as increases in the weekly benefit amount, can lead individuals to alter their work histories, including entering employment when they would not otherwise. Further, this latter possibility has important implications for UI policies not only in terms of the financing of programs, but also because changes in work histories imply a different set of unemployment experiences for the population. Although developing an empirical framework to account for the decisions of nonemployed workers to file a claim for UI benefits and the potential work-experience effects of UI policies is not as difficult as one might expect, it would require a different type of data that is more akin to the data available in survey data sets. Future research should pursue such an objective to fully uncover the effects of UI policies on the unemployment experiences of the population.

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