FOOD STAMPS, UNEMPLOYMENT INSURANCE, AND THE SAFETY NET

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Executive Summary

Food Stamps (FS) and cash assistance were reformed in 1996 and later to emphasize work as a route out of poverty. When employment opportunities were plentiful, as they were during the late 1990s, many families were able to transition off program rolls and into jobs. However, when the employment situation reversed starting in 2000, social supports were needed. This study attempts to determine whether Unemployment Insurance (UI) was a significant source of support for these families, as might be expected because many former welfare recipients should have developed work histories that would have made them eligible for UI benefits. In particular, the study asks whether UI was able to replace or complement food stamps for unemployed, welfare-eligible families.

This study uses a rich data set of electronic case records from the state of Texas on Food Stamp receipt, UI earnings, and UI claim benefits to examine patterns of employment, unemployment, and program participation over the period 1996-2004. Research using administrative records is advantageous due to large sample sizes and accurate accounts of the beginning and ending dates of assistance spells. The primary disadvantage of this approach is lack of depth in the constructs measured.

Data were assembled into longitudinal datasets for analysis. Descriptive analysis of UI earnings data over time indicates that monetary eligibility for UI among Food Stamp recipients was moderate to begin with (40-41%), but as expected with the increased emphasis on work, eligibility increased by several percentage points throughout the study period, peaking at 46% around 2002. Concurrent receipt of UI benefits among FS recipients also rose to a peak around 2002, at the height of the recession, at 7%, several times higher than its level at the beginning of the study.

Food Stamp Dynamics. Cox proportional hazards regressions were used to identify factors associated with *exit from* a Food Stamps spell, and found that both current and recent receipt of UI benefits were associated with increased rates of exit from the FS program. This effect held even when controlling for earnings levels and

monetary eligibility for UI benefits, suggesting that UI can act as a *substitute* for FS among families that qualify for and receive this benefit.

Similar attempts to model *return* to Food Stamps among former recipients also found strong positive associations with current and recent UI receipt. Contrary to the deterrent effect that had been expected, this finding suggests that UI might be acting as a first tier safety net, with FS being the second tier. Although there was some concern that UI benefit receipt in this regression may have served as a marker for job loss, inclusion of UI earnings and employment measures in this regression did not diminish the UI benefit effects.

A final attempt to ascertain the role of UI benefits in Food Stamps participation was estimated by modeling take-up, or entry into the FS program, among the entire population of workers with earnings reported to the Unemployment Insurance system. Among those with a recent decline in earnings (20% or greater decline in quarterly earnings within a year), entry into the FS program was found once again to be strongly positively associated with both current and recent UI benefit receipt.

Whereas most prior analysis suggested that the UI role in FS dynamics did not vary in the economic expansion and recession/post-recession periods, this last model did suggest some variation. Prior to 2001, concurrent receipt of UI (in the same quarter) strongly predicted entry into FS, while recent UI receipt (in the prior quarter) only weakly predicted FS entry. But in 2001 and later, recent UI receipt is a much stronger predictor of FS entry, while the estimated effect of concurrent receipt is substantially weaker. This can also be observed in descriptive statistics, which show that in the early years of the study between five and ten percent of FS spells were preceded by UI benefit receipt, whereas in 2002 and later, sixteen to twenty percent of FS spells were. As with the findings regarding re-entry to FS, this suggests that UI benefits act as first tier safety net, with FS being the second tier, and this trend appears to be increasing over time.

Unemployment Insurance Dynamics. Similar methods were also used to identify factors associated with exit from, re-entry, and entry into spells of Unemployment Insurance benefit receipt, but Food Stamp participation was found to

play little or no role in UI benefit dynamics. Although indicators for concurrent FS receipt were sometimes associated with measures of UI entry and re-entry, prior FS receipt did not show such associations. This pattern of findings suggests that FS was not the causal factor in UI dynamics.

In summary, findings from this study suggested that Unemployment Insurance benefit receipt plays a large role in Food Stamp dynamics, but that Food Stamps plays little role in the dynamics of UI benefit receipt. Food Stamp recipients who qualified for and received UI benefits tended to have shorter spells on FS, suggesting a substitution effect. And although the analysis did not reveal the expected deterrent effect of UI receipt on FS participation, UI benefits did seem to increasingly provide a first tier safety net, where Food Stamps constituted the second tier. These findings suggest that the increased emphasis on work has led to a greater role for Unemployment Insurance in the dynamics of the Food Stamp program, but that room for improvement remains.

Food Stamps, Unemployment Insurance and the Safety Net

Food stamps and cash assistance were reformed in 1996 to emphasize work as a route out of poverty. When employment opportunities were plentiful, as they were during the late 1990s, many families were able to transition off the program rolls and into jobs. However, when the employment situation reversed in 2000, social supports were needed. This study attempts to determine whether Unemployment Insurance (UI) was a significant source of support for these families, as might be expected because many former welfare recipients should have developed work histories that would have made them eligible for UI benefits. In particular, the study asks whether UI was able to replace or complement food stamps for unemployed or low-income families.

This study uses a rich data set of electronic case records from the state of Texas on food stamp receipt, UI earnings, and UI claim benefits to examine patterns of employment, unemployment, and program participation over the period 1996-2004. Administrative records have begun to be used more frequently in welfare research. The records provide accurate accounts of the beginning and ending dates of assistance spells. Because they also cover the universe of cases, the sample sizes are large enough to support analyses of important subsets of the population. Partially offsetting these advantages, the primary drawback of this approach is a lack of depth in the constructs measured, since all administrative data elements are collected for program administration purposes, rather than for research.

Background and Significance

Although the nationwide overlap between food stamp and UI receipt has been small historically, the level of support provided by UI benefits to food stamp households who qualify for them is substantial. The U.S. Food and Nutrition Service (2004) reports that in FY 2003, only 3.1 percent of food stamp households were receiving UI benefits. However, among food stamp households without elderly or disabled members, receipt of UI was higher, at around 5.0 percent. Furthermore, the

receipt of UI compensation among food stamp households has nearly doubled since FY 1997, when the figure was 1.7 percent (Cody & Castner 1999).

While the incidence of UI receipt among low-income households is low, these benefits appear to make a considerable difference in household economic well-being. The FNS reports that among food stamp households, those with UI compensation had higher average gross incomes ($873, as compared to $632 for non-UI FS households), with the bulk of this income ($642) being UI benefits. FS households with UI compensation also had higher monthly food stamp benefits ($204, versus $184 for non-UI), but also larger family sizes (3.2 versus 2.3 for non-UI) than FS households without UI. It is unclear whether UI plays a larger role in the safety net in Texas. While a larger percentage of the state's food stamp households are able-bodied (67% versus 59% nationally), a larger percentage also have earned income (37% versus 28% nationally).

There is a great deal of research that links food stamp participation to changes in employment conditions. For instance, state-level analyses by Currie & Grogger (2001), Kornfeld (2002), Wallace & Blank (1999), Wilde et al. (2000) and Ziliak et al. (2003) indicated that food stamp caseloads rose with increases in unemployment rates. Individual-level analyses by Gleason et al. (1998), Heflin (2004), McKernan and Ratcliffe (2003) and Ribar et al. (2005a, 2005b) found that individual spells of unemployment were positively associated and periods of employment were negatively associated with food stamp participation. The caseload studies have not directly examined the role of UI benefits, although several individual-level studies have included controls for total incomes (e.g. Farrell et al. 2003) and unearned income (e.g., Blank & Ruggles 1996 and Gleason et al. 1998).

Looking more broadly at other public assistance programs, several studies have examined receipt of UI benefits among current and former welfare recipients, and whether these dynamics have changed since welfare reform. Some, for example, predicted increasing UI eligibility of former welfare recipients as they became employed at unprecedented rates in the booming economy following welfare reform (Holzer, 2000). Others point out numerous characteristics of former welfare recipients that would continue to make them ineligible for UI benefits, despite their

perhaps being monetarily eligible. Such features might include insufficient work experience, lack of availability for full-time work (Vroman, 1998), and a tendency toward voluntary job separations, all of which would typically make them ineligible for UI (Gustafson & Levine, 1998). More recent research confirms that UI eligibility of former welfare recipients is indeed low (Boushey & Wenger, 2003; Rangarajan and Razafindrakoto, 2004). These latter studies, however, suffer from the weakness of only examining monetary eligibility for UI, while ignoring the other initial and ongoing eligibility criteria, examples of which were discussed above, that could be problematic for TANF leavers.

A study by Schexnayder et al. (2002) examined the receipt of UI benefits among former welfare recipients in Texas. Similar to the national figures for Food Stamps cited above, the study's survey of those leaving TANF in 2000 indicated that less than five percent of TANF leavers received UI benefits in the six months after they left TANF, but that payments averaged $451 a month for this group. Furthermore, an econometric analysis of combined administrative and survey data found that receipt of UI was significantly associated with a reduced rate of re-entry to TANF.

In addition to these studies, there is a vast research literature that examines the role of UI compensation and other factors in unemployment spells. Economists have focused much of their attention on whether the UI program increases the length of unemployment spells but also encourages individuals to work to become eligible for benefits (see Krueger and Meyer, 2002, for a recent review of this literature). There are also many relevant descriptive studies, such as that by the U.S. Department of Labor (1999) which reports that among those who qualify for UI benefits, women and Hispanics were more likely to use their available benefits, and blacks were less likely to take-up UI, but utilized benefits more fully if they received an initial payment. It is also notable that UI claimants last employed in industries that tend to employ former public assistance recipients show similar patterns of UI claim durations. Those who were previously employed in retail and wholesale trade and services sectors, for example, are less likely to ever receive a benefit payment, but those with work histories in these industries who receive a payment utilize benefits more intensely.

The present study directly examines the relationship between UI receipt and food stamp benefits. In so doing, the study will unpack previous findings related to unemployment and income. As with the studies by Blank & Ruggles (1996), Gleason et al. (1998) and Hofferth (2003), it will estimate longitudinal event-history models of program transitions. There is no existing study in the literature, to our knowledge, which has examined the incidence and timing of food stamp and UI receipt, and the interaction of these two safety net programs at the same level of detail.

Of course, any single state, including Texas, cannot be regarded as representative of the nation as a whole. Texas has its own unique characteristics, but this also makes it of interest. In particular, Texas has quite low TANF benefits but also short time limits and an effective sanctioning policy, all of which have resulted in significant exits from the TANF rolls, just as in other states. This combination of characteristics has historically made food stamps a particularly important program in Texas, given that food stamp benefit levels are nationally set, and are thus quite high relative to potential TANF benefits. It also means the UI program should be a particularly important component of the safety net, but this has not been extensively examined to date.

Method

Data Sources

The data for this study were garnered exclusively from administrative data sources. Two state agencies contributed data for this project: the Texas Health and Human Services Commission (HHSC) and the Texas Workforce Commission (TWC). The data systems at these agencies contain all the information necessary to administer the respective programs, but were not designed to support longitudinal research projects.

The Texas HHSC, which was recently expanded by the consolidation of numerous state agencies and departments, is currently responsible for administration of the state's Food Stamp and TANF programs, among others. Records available from its data system consist primarily of monthly cross-sectional snapshots of the caseloads for each program, which are taken about one week from the end of the month and represent the master list of those approved to receive benefits in the following month. These monthly snapshots, containing a series of client- and case-level descriptors, were processed to link clients and cases across months into longitudinal records.

The TWC, as administrator for the federal/state UI program, maintains both a quarterly earnings database for people working in covered jobs as well as detailed case records for UI claims filed by workers who are unemployed. The earnings database contains total employee earnings by employer for each calendar quarter. Although the TANF and Food Stamp data systems also have some income information, these records only cover current recipients, are generally only updated at application or recertification, and are based on self-reported income. Previous food stamp and welfare caseload research has shown that UI earnings data are an important complement to self-reported data from assistance program records. UI wage data cover over 95 percent of all employment in the state of Texas. Some jobs are not covered, including out-of-state employment, self-employment, federal government employment, and most agricultural employment.

The TWC UI case management system also includes claim and payment records. The claims system contains one record for each claim filed per person per

benefit year. Not all of these claims are approved; however, once approved to receive benefits, a claimant who meets ongoing program requirements can file to receive weekly checks until their benefits are exhausted or until their program year ends (unless benefits are extended by another program). All records of these weekly payments are maintained in a separate payment file, which also includes weekly earnings reports for those UI recipients who obtain partial re-employment, and thus may receive partial benefits, during their UI spell. These files have been converted and aggregated into monthly research-ready longitudinal databases, the result of which yields an accurate measure of income from UI benefits, as well as a precise administratively based measure of insured unemployment durations.

Sampling

Although data were available for the entire state of Texas from the administrative data sources, the numbers of observations typically available, often millions or tens of millions of records, far exceeded that which was deemed necessary to have sufficient statistical power for the analyses presented here. Thus, for all analysis presented below, a ten percent random sample was selected from all sources by choosing only those with the same last digit of a unique identifier. This identifier was not the individual's SSN, but a pseudo-SSN that bears a 1:1 relationship with the true SSN. Several of the regressions listed below were also repeated with the entire statewide universe included, and the results, not shown, were not found to be qualitatively different.

Analysis

Analysis of the data involved three stages. First, descriptive techniques were used to examine the size and characteristics of the food stamp caseload, UI caseload and joint caseload in Texas over the period 1996 through 2004. Second, Kaplan-Meier descriptive methods and accelerated failure time models were used to examine spells of food stamp and UI benefit participation. Finally, longitudinal, multivariate models were used to examine the association between both time-varying and constant factors and spell durations, and exit or entry rates. Each of these approaches is

described in more detail below, followed by additional information concerning data structure, inclusion criteria, and units of analysis, among others.

Spells and Transition Models

Several types of spell analyses were conducted. These included analysis of spells of food stamp receipt and spells of UI benefit receipt, which can also be regarded as exit models. We also examine spells off these programs, among those who exit, which can be regarded as models of re-entry or recidivism in these programs. Finally, we use transition models to study entry into these programs over time among the general population of UI wage earners. Unlike the recidivism models, these entry models include people both with and without prior experience with the programs.

At the most basic level, Kaplan-Meier estimation techniques, including hazard and survivor functions, were used to examine the characteristics of spells. These non-parametric tests involve no assumptions about the functional form of the underlying relationships. Next, we utilized accelerated failure time models, which assume mathematical form to the hazard function, to estimate median spell durations for some subgroups of participants. We also used Cox proportional hazards regression to examine factors associated with individuals' probability of spell exit over time, including both constant and time-varying covariates among the predictors. Finally, we used logistic regression techniques to study models of transition into both the Food Stamp and Unemployment Insurance programs among the general population of UI wage earners.

Units of Analysis

The primary units of analysis for regressions presented below, whether spells involving hazard models or transition models, include person-time observations at one level, or person-spell data at another level. The administrative data sets that are the source of data for this study include constructs measured at widely varying time intervals. On the high frequency end, Unemployment Insurance claims data contain weekly observations for those receiving UI benefits. Next, Food Stamps receipts are

recorded on a monthly basis. And finally, UI earnings and associated employer measures are only available at the quarterly level.

These observations were aggregated over time in different ways for the tests that follow. For most of the analysis presented here, including FS and UI exit and re-entry models, person-month observations and spells based on person-months, served as the primary unit of analysis. For these regressions, the weekly UI claims data were summed to the monthly level, with any receipt of UI in a calendar month considered as receipt for the entire month. Although this elimination of weekly variability in UI claims data arguably obscures a portion of the UI program dynamics, this paper is not primarily focused on UI dynamics, but rather on Food Stamp dynamics.

Using quarterly data, such as UI earnings, in monthly regressions could present other problems, in that they have the potential of measuring effects, rather than causes, of the dependent variable in question. To the extent that quarterly UI earnings data are included in these regressions, they are included with a 1-quarter lag to ensure they measure only employment activity that actually precedes the month of interest.

The unit of analysis for the models of entry into Food Stamps and UI benefit programs, on the other hand, was person-quarters. In these regressions, FS receipt was aggregated to the quarterly level by considering any FS receipt in a calendar quarter to represent receipt for the entire quarter. Likewise, any UI benefit receipt in a quarter was considered receipt for the entire quarter. Furthermore, to be eligible, or at risk of entering Food Stamps in a quarter, one needed to have remained doff of Food Stamps for the entire prior quarter. Similarly, to be eligible to enter UI in one quarter, one must have received no UI benefits in the prior quarter. The primary advantage of this aggregation, when used in combination with appropriate lags in the predictor variables, is to clarify the direction of potential causality in any relationships observed. The major disadvantage is that the aggregation causes the estimates to be overly conservative, in effect understating the true relationship, due to the failure to capture variation that occurs entirely within the same calendar quarter.

Inclusion Criteria

Several issues in the study of spells of benefit receipt concern whether to include spells that were ongoing at the beginning of the study, and whether to include multiple spells per person (see Davis, Schroeder, & Grobe, 2007, for detailed discussion). Including spells that were ongoing at the beginning of the study, sometimes referred to as left-censored spells, emphasizes the stock, or ongoing caseload of the program in question. Because the caseload at any point in time tends to have a disproportionate share of long-term recipients, including ongoing spells tends to overstate spell durations for a typical recipient. On the other hand, studying only new spells emphasizes the flow of recipients into the program. Although good arguments could be made to either include or exclude such ongoing spells, they are excluded the analysis presented below, primarily because long-term recipients could have very different program dynamics, as compared to new recipients. Similar arguments could be made for whether or not to include multiple spells per person, however, in keeping with a focus on recipients, only the first spell per person was included in the results presented here. The spell analyses presented below were repeated with ongoing spells included, and also with multiple spells per person, and the results for the parameters of interest (not shown) were not found to be qualitatively different.

For the analysis of entry into the Food Stamps and UI benefit programs among the general population of UI wage earners, it was necessary to subset the population of earners to those likely to be in need of an economic safety net. Of the limited information available for this population over time, a substantial decline in quarterly earnings would potentially signify such need (see Ashenfelter, 1978). On the other hand, some unknown proportion of those whose quarterly earnings decline to zero in UI administrative records are likely to have left the state of Texas, and thus should not be considered in the risk pool for entry into Texas safety net programs. To ensure that the analysis focuses on those in need without being overly influenced by those no longer in the risk pool, the FS and UI entry regressions included only those with a twenty percent or greater decline in quarterly earnings within the past four quarters. People in this condition are referred to as having experience a recent earnings dip

Variable Details

Coding and Omitted Levels

The definitions for many variables included in the regressions are straightforward, but the omitted levels of categorical variables may not be so obvious. Age is defined in a time-varying manner, is represented by three category variables, and the omitted level includes those under 28 years. The omitted level for gender includes female; for race/ethnicity it includes white; and for education it includes those with a high school diploma or GED. Family size is also defined in a time varying manner, based on members of a Food Stamp household, and the omitted level includes families with only one member. Definitions of other predictors, including omitted levels, vary depending on the regression model, and thus are discussed in conjunction with the model(s) in which they appear.

Industry of Employment

Primary industry of employment was defined for those with earnings reported to the Unemployment Insurance system based on the reported industry, if available, of the employer who paid the highest total earnings to an employee in a given quarter. Because of the large number of industry codes available when using 4-digit NAICS codes, it was desirable to devise an aggregation scheme to represent thousands of industry codes in a reasonable number of categories for inclusion in regressions. Industry categories specific to this population of Food Stamp recipients were formed through a strictly empirical process by:

- Selecting all four-digit NAICS codes that accounted for 5% or more of the person-quarters of employment among recipients;

- Removing these and then selecting all three-digit NAICS codes accounting for 5% or more of the total population;

- Repeating this process for 2-digit and 1-digit NAICS codes;

- Grouping the remaining lower-frequency codes into an "other" category; and

- Creating another category for those employers for whom industry codes were unavailable.

The resulting scheme includes twelve mutually exclusive categories of industry plus "other," for the remaining low-frequency industries not hereby classified, and another category for industry unknown. Table 1 lists the industry categories and the share of Food Stamp spells accounted for by each category. Note that the information sector (first digit of "5") accounts for the largest share of employment among child care subsidy recipients. Substantial shares were also accounted for by subsectors in food service (first digit of "7"), health care ("6"), and retail trade ("4"). These primary industry category variables were entered into the regressions as time-varying covariates, and sometimes with lags as described elsewhere. At times when a participant was not presently employed, the most recently available industry code was substituted, on the assumption that the participant is still affected by employment opportunities within that industry. In the regressions, the omitted level of industry includes the remaining industries not categorized by this scheme.

Table 1: Industry of Employment Coding Scheme

NAICS Code	Industry Group	Percent
5613	Employment Services	10.5%
7222	Limited-Service Eating Places	9.4%
6216	Home Health Care Services	5.3%
561_	Other Administrative and Support Services	6.2%
722_	Other Food Services and Drinking Places	6.0%
623_	Nursing and Residential Care Facilities	5.3%
452_	General Merchandise Stores	5.1%
44__	Retail Trade	9.9%
62__	Other Health Care and Social Assistance	6.5%
5___	Other Information industries	6.4%
3___	Manufacturing	5.8%
4___	Other Trade, Transportation, Warehousing	5.4%
Other	Other industries not categorized above	18.1%

Results and Discussion

Descriptive Statistics on Food Stamps and UI Programs

Caseload Counts

     Figure 1 shows the annual unduplicated caseload counts of the Food Stamps and Unemployment Insurance (UI) programs in Texas over the period of study. With the economic expansion, Food Stamp caseloads had been declining throughout the late 1990s, while the number of those receiving Unemployment Insurance benefits remained fairly steady. Then with the economic recession starting around 2001, caseloads for both programs increased, suggesting a safety-net like response to declining employment levels. After a couple of years, unemployment in Texas peaked at around 6.8 percent. With the economic outlook starting to improve, the UI benefit caseload leveled off around this time, and began to decline toward pre-recession levels. The Food Stamps caseloads, however, appear to have continued to increase, at least throughout the period under study.

Figure 1: Texas FS and UI Caseloads over Time
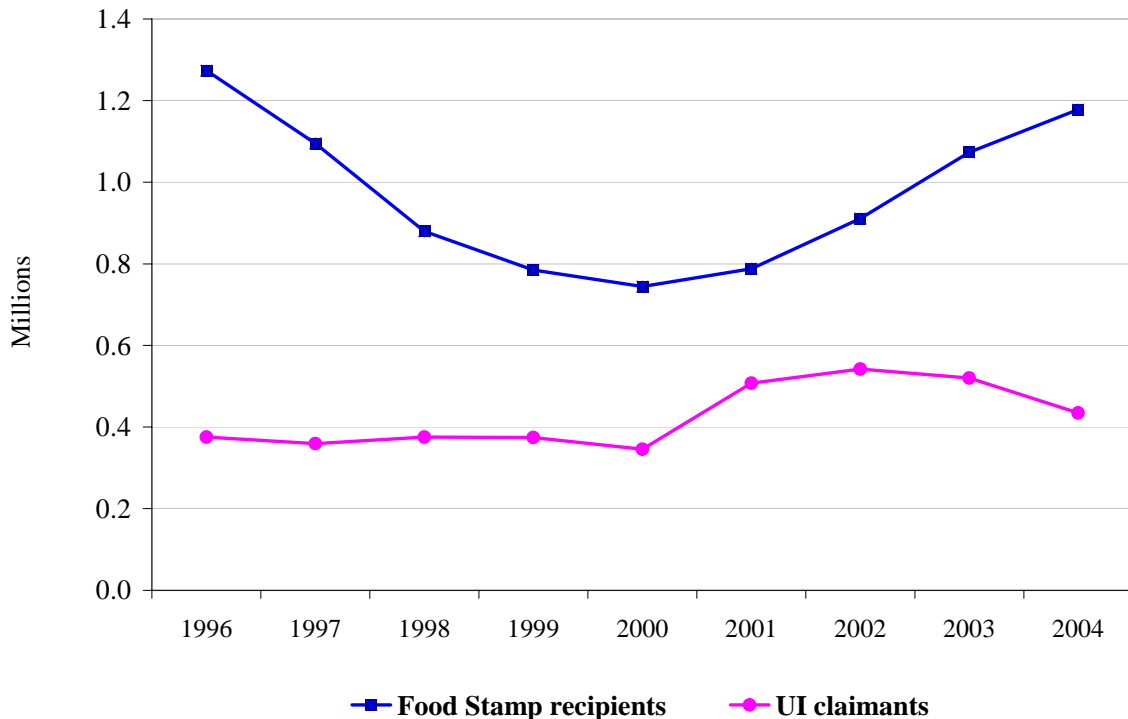
Program Eligibility

Discussion of the relationship between the Food Stamp and Unemployment Insurance programs would be incomplete without understanding the interactions between these safety net programs' eligibility criteria. Generally speaking, eligibility for Food Stamps and Unemployment Insurance benefits interact only slightly. UI benefits are counted as income in the process of determining eligibility for FS, with higher UI benefits making one less likely to receive FS. Eligibility for UI, however, is essentially independent of FS receipt. Since the UI program is not means-tested aside from covered earnings, receipt of income from any source other than earnings (including FS) is irrelevant to determination of UI eligibility.

Descriptive analysis of quarterly UI earnings data over time was done in order to examine monetary eligibility for UI among Food Stamp recipients. Note, however, that monetary eligibility for UI does not equate with total eligibility. Other criteria must also be met in order to qualify for UI compensation, such as not having voluntarily quit one's previous job. Monetary eligibility for UI among FS recipients (in the same quarter as FS receipt) was moderate to begin with, in the range of 40 to 41 percent in 1996. As expected with the increased emphasis on work, monetary eligibility among FS recipients increased by several percentage points throughout the study period, peaking at 46 percent in late 2001 and early 2002, before declining to 44 percent in 2004.

Program Overlap

Figure 2 presents two simplified views of the overlap over time between the populations of Texas Food Stamps recipients and those receiving UI benefits. The top line shows, for all those receiving UI benefits in a given year, the percentage also receiving Food Stamps within the same year. According to the graph, this measure showed declining overlap between the two safety net programs throughout the late 1990s, then increasing beginning around 2001, essentially parallel to the trend in the Food Stamp caseload noted above. The lower line in Figure 2 shows, for all those receiving Food Stamps in a given calendar year, the percentage of those who also receive UI benefits within the same year. This line shows the overlap between the

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two programs to have been steady throughout the late 1990s, but rising beginning with the economic decline around 2001, and peaking around 2002 before declining slightly. This trend is essentially parallel to both the trend in UI caseloads noted above, as well as the trend in monetary UI eligibility among FS recipients. Thus, although neither of these is an ideal measure of overlap between the two programs, they both tell a similar story of increasing overlap between the safety net programs in response to the dire employment situation that accompanied the economic recession.

Figure 2: Texas Food Stamp and UI Program Overlap over Time
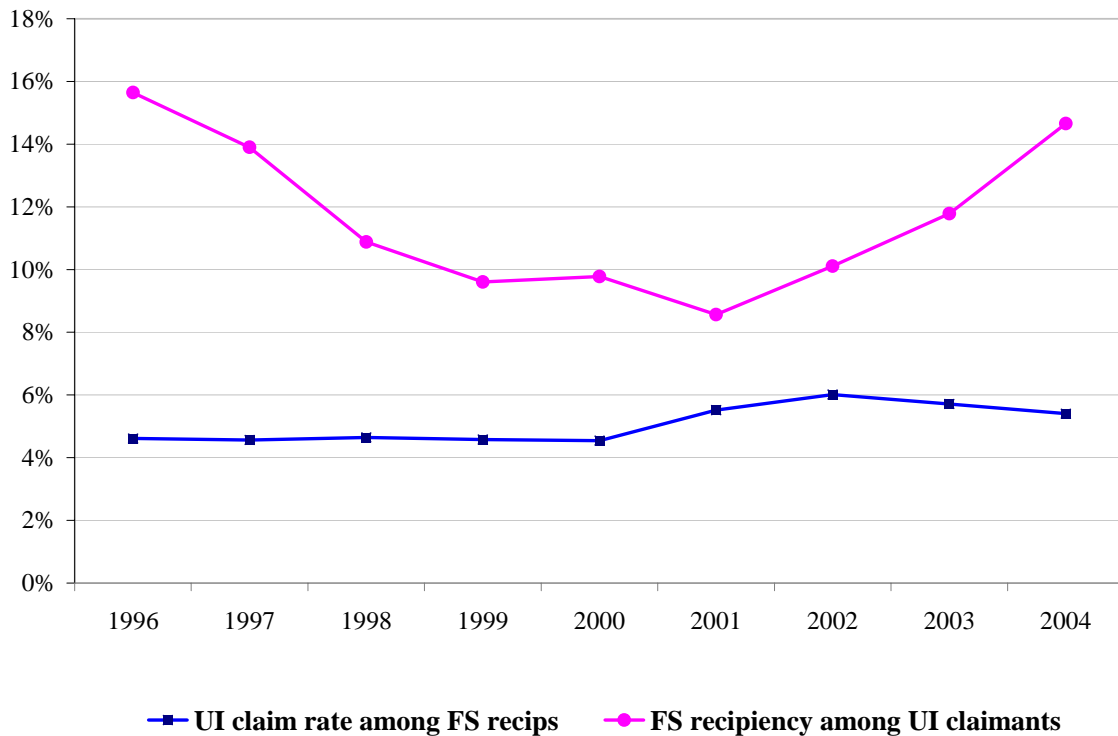
Food Stamp Program Dynamics

Food Stamp Spell Descriptives

Survival plots for Food Stamp (FS) spells, which show the percentage of recipients at each point in time whose benefit receipt spells last at least that long, are

illustrated in Figure 3 (tails omitted). Three separate survival curves are shown, based on the entire study interval (1996 through 2004), and *roughly* dividing this interval into economic expansion (1996 through 2000) and recession/early recovery periods (2001 through 2004). Note first of all that survival is higher, meaning more stay on FS and thus FS spells are longer, during the recession/early recovery period. Furthermore, although the survival curves are relatively smooth, one can see a slight serrated pattern around three and six months of duration. Such a pattern, the effect of which will be directly tested for below, might be an indication of a recertification effect like that observed by Staveley et al. (2002) and Ribar et al. (2005a, b), who noted significantly higher FS exit rates at recertification intervals.

Figure 3: Survival Plots for Food Stamp Spells

Spell duration, months
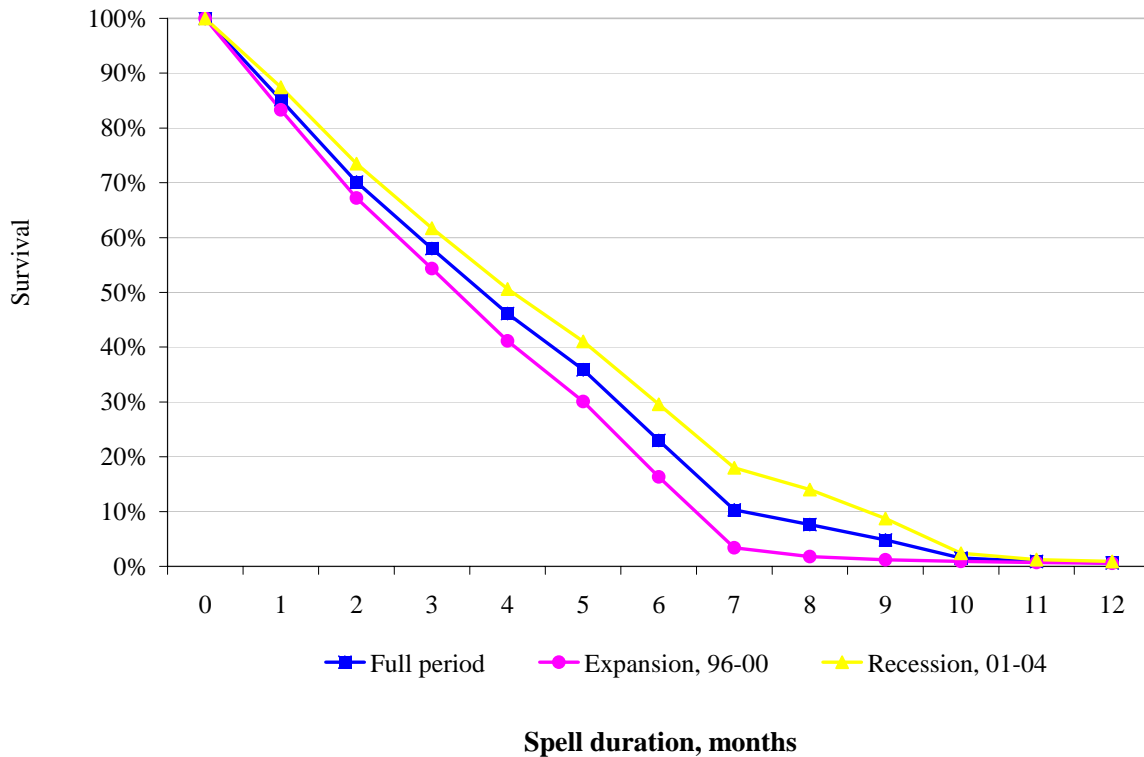
Median Food Stamp receipt spells were estimated using accelerated failure-time model regressions, a method that, like other event-history methods, allows a correction for right-censoring of spells, or spells that continued beyond the study interval. Although the presence of a mild serrated pattern in the survival curves, as

discussed above, would argue against the appropriateness of this approach, the comparison is still useful for descriptive purposes. Several versions of this regression were run, including one with all spells occurring in the entire study interval, and two more examining only those spells beginning within the expansion versus recession/early-recovery periods. Regression results indicated the following pattern of median Food Stamp spells:

- Overall median - 4.7 months
- Expansion (1996-2000) median – 4.3 months
- Recession/early recovery (2001-2004) median – 5.4 months

As expected, the median spell on Food Stamps was more than a full month longer during the economic recession and early recovery period (2001 through 2004), as compared to spells occurring during the economic expansion of the late 1990s.

Exit from Food Stamps

To identify factors associated with exit from Food Stamps, Cox proportional hazards regressions were used to model FS spells. As described previously, the models presented here are restricted to the first uncensored spell per person (i.e., omitting those already receiving benefits at the beginning of the study). Most variables in these models are specified as time-varying covariates, with the details of their parameterization as described above. The parameters for Unemployment Insurance receipt were estimated using two dummy variables with different timing, with one measuring UI receipt in the current month (the month from which exit from FS is measured), while the other measures UI receipt any time within the prior three months. Interestingly, monetary eligibility for UI, as measured by UI earnings history, was not found to be associated with odds of exiting FS. This can be interpreted to mean that it is the actual receipt of UI, rather than eligibility that is related to probability of exiting FS. Note, however, that this model cannot control for all factors affecting UI eligibility, the most significant of which, voluntary job loss, is a frequent cause of UI ineligibility. On the whole, this pattern of results suggests that for those who qualify, apply, and receive them, UI benefits can serve as a substitute for Food Stamps, and can thus lead to reduced duration of FS spells.

Table 2 presents results for the full model of Food Stamps exit. Of primary interest to this paper, receipt of UI benefits was found to be a strong predictor of FS exit. Current receipt of UI was associated with a seven percent increase in the odds of exiting FS, and recent UI benefit receipt (within the prior three months) was associated with a twenty-one percent increase in the odds of exiting FS. Interestingly, monetary eligibility for UI, as measured by UI earnings history, was not found to be associated with odds of exiting FS. This can be interpreted to mean that it is the actual receipt of UI, rather than eligibility that is related to probability of exiting FS. Note, however, that this model cannot control for all factors affecting UI eligibility, the most significant of which, voluntary job loss, is a frequent cause of UI ineligibility. On the whole, this pattern of results suggests that for those who qualify, apply, and receive them, UI benefits can serve as a substitute for Food Stamps, and can thus lead to reduced duration of FS spells.

Table 2: Exit from Food Stamps

Dependent variable: Food Stamps exit	Hazard Ratio	
Unemployment Insurance Benefits		
Receipt of UI benefits in current month	1.06	**
Receipt of UI benefits within prior 3 months	1.21	**
Employment		
Any UI earnings in prior quarter	1.26	**
UI earnings in prior quarter ($1000)	1.01	**
Earnings history would qualify monetarily for UI claim	1.01	
Food Stamps		
Three months since last periodic case review	3.37	**
Six months since last periodic case review	6.87	**
FS spell began in 1997	1.04	**
FS spell began in 1998	1.09	**
FS spell began in 1999	1.13	**
FS spell began in 2000	1.09	**
FS spell began in 2001	1.04	**
FS spell began in 2002	0.91	**
FS spell began in 2003	0.71	**
FS spell began in 2004	0.58	**
Demographics		
Casehead age 28-36 years	0.88	**
Casehead age 37-51 years	0.83	**
Casehead age 52+ years	0.41	**
Casehead male	1.34	**

Dependent variable: Food Stamps exit	Hazard Ratio	
Casehead Black	0.92	**
Casehead Hispanic	0.82	**
Casehead race other	0.75	**
Education less than high school	0.98	**
Education beyond high school	1.01	*
Two family members	0.76	**
Three family members	0.74	**
Four family members	0.73	**
Five or more family members	0.72	**
Employer		
Changed employer last quarter	1.12	**
NAICS5613: Employment Services	1.14	**
NAICS7222: Limited-Service Eating Places	0.99	
NAICS6216: Home Health Care Services	0.93	**
NAICS561: Other Administrative and Support Services	1.05	**
NAICS722: Other Food Services and Drinking Places	1.03	**
NAICS623: Nursing and Residential Care Facilities	1.00	
NAICS452: General Merchandise Stores	1.00	
NAICS44: Retail Trade	1.04	**
NAICS62: Other Health Care and Social Assistance	0.99	
NAICS5: Other Information industries	1.08	**
NAICS3: Manufacturing	1.05	**
NAICS4: Trade, Transportation, Warehousing	1.07	**
Employer industry unknown	0.94	**

Among the other variables of interest in the model, employment and earnings, as measured through UI earnings with a one-quarter lag from the focal month, were found to be predictably related to FS exit rates. Those who had been employed in the prior quarter (with any non-zero UI earnings reported) were found to have 26 percent greater odds of exiting FS, with an additional one percent increase for every $1000 of total quarterly earnings.

Also interesting to note were the very strong associations between periodic case review indicators and FS exit, which suggest the importance of the timing of eligibility determination in FS caseload dynamics. This pattern of food stamp exits exhibits the same kind of serrated pattern, with exits occurring disproportionately at recertification periods, that Staveley et al. (2002) and Ribar et al. (2005a, b) found for other states. And as further confirmation of the association between Food Stamp dynamics and the macro economy, FS exit rates were found to be highest for spells

beginning toward the end of the economic expansion (spells starting around 1998 through 2000), and lowest during the recession and recovery.

Examining demographic factors, exit rates were found to be higher for males and for younger caseheads, but lower for racial/ethnic groups other than white (but note that Hispanic is not coded separately from race in these data). Exit rates also declined with increasing family size, indicating the longest FS durations for those with large families. And as expected, those with education beyond high school tended to exit FS sooner, while those with less than a high school diploma were less likely to exit, and thus spent more time receiving FS.

Those whose major employer (from whom they received the most earnings) changed as of the prior quarter were found to have eleven percent greater odds of exiting FS. Furthermore, industry of employment was found to be associated with FS exit rates in predictable ways. Those recently working in the employment services industry, consisting in large part of temporary employees, were most likely to exit FS. Others with high FS exit rates include those working in other information industries, manufacturing, and the trade, transportation, and warehousing sector. The lowest FS exit rates were observed for those recently working in home health case services.

Return to Food Stamps

The next model is a preliminary attempt to study the dynamics of entry into the Food Stamps program by examining the *time to return* to FS among those who exited FS at some point in our study period. For those who exit the Food Stamp program, this approach essentially treats the subsequent off-FS period as a spell to be modeled as above, but in this case the event that terminates the spell is re-entry into, or recidivism to Food Stamps, rather than exit. The advantage of this approach is that it allows the study of a reasonably well-specified model of entry into Food Stamps. The disadvantage is that this analysis can only be done for those who previously received Food Stamps, so the results of this entry model can only be generalized to the population of former FS recipients. In a subsequent section of this report, entry to Food Stamps will be modeled for a broader population, thus increasing the generalizability of the results, but with the disadvantage being that the available data on this broader population will be less rich.

Before proceeding to examine factors associated with return to FS, accelerated failure-time model regressions were used to estimate median Food Stamp recidivism time for descriptive purposes. This regression was run several ways, including 1) all who exited FS during the entire study interval, 2) those exiting FS during the economic expansion, and 3) those exiting during the recession/early-recovery periods. Results indicated the following pattern of median times to return to FS:

- Overall – 26.5 months
- Expansion (1996-2000) – 25.7 months
- Recession/early recovery (2001-2004) – 13.9 months

Overall, these results indicate that of those exiting Food Stamps, approximately half of them return to FS within just over two years. During the recession/early recovery period this dynamic was quite different, however, with half of those exiting Food Stamps in this period tending to return to FS within just over one year.

Next, Cox proportional hazards regressions were used to identify factors associated with return to Food Stamps. Results of this model of Food Stamps recidivism, shown in Table 3 indicate that former FS recipients were much more likely to return to Food Stamps if they were currently receiving or recently received UI benefits. Those currently receiving UI benefits were found to be more than twice as likely to return to Food Stamps, while those receiving UI within the prior three months had 47 percent greater odds of returning to FS. There was initially some concern that UI benefit receipt in this regression may have served as a marker for job loss, thereby explaining the positive associations with return to FS. However, the addition of UI earnings and employment measures to this regression, which should to some extent control for potential job loss, did not diminish the UI benefit effects (intermediate model not shown). Thus, contrary to the deterrent effect of UI that had been expected, these findings suggest that UI benefits might be acting as a first tier safety net, with Food Stamps constituting the second tier.

Table 3: Return to Food Stamps

Dependent variable: Return to Food Stamps	Hazard Ratio	
Unemployment Insurance Benefits		
Receipt of UI benefits in current month	2.09	**
Receipt of UI benefits within prior 3 months	1.45	**
Employment		
Any UI earnings in quarter	1.30	**
UI earnings in quarter ($1000)	0.84	**
Earnings history would qualify monetarily for UI claim	1.10	**
Food Stamps		
Length of prior FS spell, in months	1.005	**
Exited FS in 1997	0.90	**
Exited FS in 1998	0.86	**
Exited FS in 1999	0.94	**
Exited FS in 2000	0.92	**
Exited FS in 2001	0.92	**
Exited FS in 2002	0.97	*
Exited FS in 2003	0.90	**
Exited FS in 2004	0.69	**
Demographics		
Casehead age 28-36 years	0.94	**
Casehead age 37-51 years	0.95	**
Casehead age 52+ years	1.00	
Casehead male	0.69	**
Casehead Black	1.31	**
Casehead Hispanic	1.11	**
Casehead race other	1.03	
Education less than high school	1.17	**
Education beyond high school	1.00	
Two family members, prior case	1.36	**
Three family members, prior case	1.57	**
Four family members, prior case	1.63	**
Five or more family members, prior case	1.71	**
Employer		
Changed employer last quarter	1.00	
NAICS5613: Employment Services	1.12	**
NAICS7222: Limited-Service Eating Places	1.29	**
NAICS6216: Home Health Care Services	1.11	**
NAICS561: Other Administrative and Support Services	1.17	**
NAICS722: Other Food Services and Drinking Places	1.15	**
NAICS623: Nursing and Residential Care Facilities	1.19	**
NAICS452: General Merchandise Stores	1.19	**
NAICS44: Retail Trade	1.15	**
NAICS62: Other Health Care and Social Assistance	1.04	**
NAICS5: Other Information industries	1.02	
NAICS3: Manufacturing	1.02	
NAICS4: Other Trade, Transportation, Warehousing	1.02	
Employer industry unknown	0.86	**

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Among the other variables of interest in the model, the earnings level and employment measures produced some peculiar results, or at least they appear that way on the surface. First, those who were employed in the prior quarter had 30 percent *greater* odds of returning to FS. On the other hand, for every $1000 of prior quarterly earnings a sixteen percent *reduction* in the odds of returning to FS was observed. This pair of findings may initially seem difficult to explain, until one combines the two effects. One then sees that employment at low earnings levels, below $1875 per quarter, is associated with greater likelihood of return to FS, but earnings above that level reduce the odds of returning to FS. Although this interpretation seems to make sense, there is still somewhat of a puzzle around the next finding, which suggests that those whose earnings histories are at levels high enough to make them monetarily eligible for UI have ten percent *greater* odds of returning to Food Stamps.

In addition to these findings, the model suggests that return to Food Stamps is more likely the longer one's prior spell on FS was. For every two months of prior FS receipt duration, there is a one percent increase in the odds of returning to FS in any given month. Many of the remaining findings from this analysis of return to FS are essentially inverted from the FS exit results reported above. Thus for example, return to FS is *more* likely with increasing age, among non-whites, the lesser educated, and those with larger families, but less likely among male caseheads. These patterns reveal little new other than that factors associated with a lesser likelihood of leaving FS are associated with a greater likelihood of returning.

There are several notable exceptions to this general pattern, however, when comparing the results for employer industry indicators to the previous results. Those recently employed in certain industries were found to be both more likely to exit from Food Stamps and more likely to return to FS. In particular, those with recent employment in employment services, other administrative and support services, other food service, and the retail trade industries were most likely to display this "churning" pattern.

Entry to Food Stamps

The final model focusing on Food Stamp dynamics is a broader look at entry into the FS program, perhaps the broadest view that can be had with administrative data sources. Unlike the prior model that focused on reentry, or entry only for those with recent prior experience with FS, this model expands the population to include everyone in Texas with a history of earnings reported to the Unemployment Insurance system. The advantage of using this population is broad coverage of the adult working population, which provides the ability to model entry for those who had not previously participated in FS. The primary disadvantages are the exclusion of those with no work history, or no history with UI-covered work (typically not covered by UI are those working on small farms, some religious organizations, the self-employed, and US government employees). Furthermore, the variables available to model entry to FS, or take-up, are relatively few – limited to UI earnings, employer, and UI claims measures.

As described previously, the sample for this analysis of entry to Food Stamps was designed to ensure a reasonable likelihood that both 1) they had recently experienced economic hardship that might predispose them to require assistance, but 2) they are somewhat likely to still be in the state of Texas, and thus still in the risk set for entry to Texas safety net programs. Someone whose earnings history drops off to zero, as determined from UI earnings wage reports, could be unemployed and remaining in Texas, but could also be employed in a non-covered position, or could be either employed or unemployed out of state. To satisfy both concerns cited above, the sample was limited to those with some history of earnings within the prior four quarters, but whose earnings history during that time frame showed a decline, or earnings dip, of twenty percent or more in average quarterly earnings (e.g., Ashenfelter, 1978).

Entry into, or take-up of Food Stamps, among those with recent dips in earnings was estimated using logistic regression to predict entry to Food Stamps on a quarterly basis. Observations for this regression included all person-quarters within the study interval for which UI history indicated a recent earnings dip, as described above.

Table 4: Entry to Food Stamps, Full Model

Dependent variable: Entry to Food Stamps	Hazard Ratio	
Unemployment Insurance Benefits		
Current Unemployment Insurance claim	1.53	**
Recent Unemployment Insurance claim (last qtr)	2.37	**
Employment		
Quarterly earnings ($1000)	0.84	**
Earnings history would qualify monetarily for UI claim	2.04	**
Average quarterly earnings over prior 2 yrs ($1000)	0.78	**
Time since earnings dip occurred (qtrs)	0.89	**
Earnings dip magnitude, as percent of income	1.002	*
Employer		
NAICS5613: Employment Services	2.11	**
NAICS7222: Limited-Service Eating Places	1.33	**
NAICS6216: Home Health Care Services	1.27	**
NAICS561: Other Administrative and Support Services	0.96	**
NAICS722: Other Food Services and Drinking Places	0.76	*
NAICS623: Nursing and Residential Care Facilities	2.03	**
NAICS452: General Merchandise Stores	2.94	**
NAICS44: Retail Trade	1.57	**
NAICS62: Other Health Care and Social Assistance	1.24	**
NAICS5: Other Information industries	4.29	**
NAICS3: Manufacturing	2.14	*
NAICS4: Trade, Transportation, Warehousing	1.48	
Employer industry unknown	1.86	**

Results of this logistic regression predicting entry to Food Stamps are shown in Table 4. Of primary interest to our hypotheses, we observe once again that those with current or recent unemployment insurance claims were more likely to enter Food Stamps than those with no such history. This provides additional evidence that UI serves as a first-tier safety net, with Food Stamps providing the second tier for those who might still need it. This pattern, essentially the same as that observed for re-entry to FS, is all the more convincing now that it has been demonstrated in the general working population as well as with former recipients.

Results also show, not surprisingly, that those with recent earnings dips are more likely to enter Food Stamps to the extent that their current and recent earnings levels were lower. The earnings dip measures also showed interesting patterns. For

example, the more time that passes following the earnings dip, the less likely one is to enter Food Stamps. Furthermore, the greater the absolute magnitude of the earnings dip, the more likely one is to enter Food Stamps. Within this sample, for every five-point decline in earnings, about a one percent increase in the odds of entering Food Stamps was observed. Finally, the employer industry of sample members' current or most recent employment showed strong relationships with odds of entering Food Stamps. Those recently working in employment services, nursing and residential care, general merchandise, other information industries, and manufacturing were especially likely to enter Food Stamps, while those working in food services were especially unlikely to enter FS.

Multiple versions of this FS entry regression were done to determine whether these dynamics varied in the economic expansion versus recession/early recovery periods. In the analysis of FS exit and re-entry, in prior sections, the role of UI benefits in FS dynamics was not found to vary in the economic expansion and recession periods (not shown). However, this model of entry to FS did suggest some variation. Prior to 2001, concurrent receipt of UI (in the same quarter) strongly predicted entry into FS (hazard ratio=1.96), while recent UI receipt (in the prior quarter) only weakly predicted FS entry (hazard ratio=1.69). But in 2001 and later, recent UI receipt is a much stronger predictor of FS entry (hazard ratio=3.06), while the estimated effect of concurrent receipt is substantially weaker (hazard ratio=1.22). This pattern can also be observed in descriptive statistics, which show that in the early years of the study between five and ten percent of FS spells were preceded by UI benefit receipt, whereas in 2002 and later, the figure sixteen to twenty percent of FS spells were preceded by UI receipt. As with the findings regarding re-entry to FS, this suggests that UI benefits act as first tier safety net, with FS being the second tier, and this trend appears to be increasing over time.

Unemployment Insurance Benefit Dynamics

The next set of models examines factors associated with exit from, entry, and reentry to Unemployment Insurance (UI) benefit spells. In particular, they ask

whether FS program participation bears any relation to the dynamics of the UI program.

Exit from Spells of Insured Unemployment

The first model in this section examines factors associated with exit from a spell of insured unemployment, that is, a spell of Unemployment Insurance (UI) benefit receipt. Unemployment Insurance benefits in Texas are available to those who recently lost employment through no fault of their own, and have a significant recent history of employment covered by the UI program.

This model is restricted to the first uncensored spell of UI benefit receipt per person that occurs in the study period. As mentioned above, the measures included here are defined at the person-month level, including UI benefit data on a weekly basis that have been summarized to calendar months. Furthermore, to the extent that UI earnings-derived measures are included in these regressions, it is done with a one quarter lag so that they do not reverse the causal sequence.

Results of a Cox proportional hazards regression predicting exit from UI are presented in Table 5. Of primary interest to the role of FS in UI benefit dynamics, the estimated associations between FS receipt and exit from UI is no statistically significant. Thus, FS receipt appears to play little role in UI benefit dynamics, or at least not among those who qualify and receive UI benefits...

Unlike the prior models, employment and earnings indicators in this model are derived from weekly earnings reported to the UI claims office, aggregated to the monthly level, rather than the quarterly measures used elsewhere. Furthermore, because UI benefits can be paid to those working part-time but who have not approached their prior earnings levels, the actual earnings have been expressed in terms of a ratio to potential UI benefits. Findings for these measures indicate that both any reported earnings and higher earnings replacement ratios are associated with greater likelihood of exiting UI benefit spells.

Table 5: Exit from Spells of Insured Unemployment

Dependent variable: Unemployment Insurance benefit spell exit	Hazard Ratios	
Food Stamps		
Receipt of FS benefits in current month	1.00	
Receipt of FS benefits within prior 3 months	1.00	
Employment		
Any reported wages	1.32	**
Ratio of monthly reported wages to potential UI benefits	1.30	**
Unemployment Insurance Benefits		
Receiving extended benefits	0.44	**
Benefits exhausted	1.90	**
Benefits near exhaustion	2.32	**
Spell began in 1997	1.05	**
Spell began in 1998	1.02	**
Spell began in 1999	1.03	**
Spell began in 2000	1.15	**
Spell began in 2001	1.17	**
Spell began in 2002	1.12	**
Spell began in 2003	1.05	**
Spell began in 2004	0.96	**
Demographics		
Age 28-36 years	0.90	**
Age 37-51 years	0.84	**
Age 52+ years	0.74	**
Male	1.17	**
Black	0.87	**
Hispanic	0.93	**
Race other	0.95	**
Education less than high school	1.06	**
Education beyond high school	1.00	
Employer		
Changed employer last quarter	0.93	**
NAICS5613: Employment Services	1.05	**
NAICS7222: Limited-Service Eating Places	1.01	
NAICS6216: Home Health Care Services	0.85	**
NAICS561: Other Administrative and Support Services	0.97	*
NAICS722: Other Food Services and Drinking Places	1.03	*
NAICS623: Nursing and Residential Care Facilities	1.03	*
NAICS452: General Merchandise Stores	0.90	**
NAICS44: Retail Trade	0.95	**
NAICS62: Other Health Care and Social Assistance	0.99	
NAICS5: Other Information industries	1.01	
NAICS3: Manufacturing	0.99	*
NAICS4: Other Trade, Transportation, Warehousing	0.98	**
Employer industry unknown	1.01	

Results for UI dynamics measures indicate that those receiving extended unemployment benefits (temporary benefit extensions occurred in 2003) were substantially less likely to exit UI, while those at or near the point of exhausting their benefits were much more likely to exit. Interestingly, the highest exit rates were observed for those whose UI spells began in 2001.

High UI benefit exit rates were also observed among whites, males, and the lesser educated, while lower exit rates were seen among non-whites and with increasing age. Finally, although employer industry on the whole does not predict exit from UI as well as it has some other outcomes, several interesting patterns emerge. Those working for the employment services sector, for example, have the highest UI exit rates, while those in home health care, general merchandise, and retail trade are least likely to exit UI, and hence have the longest spells of UI receipt.

Return to Unemployment Insurance Benefits

The next model in this section examines return to UI benefits among those with previous UI claims, also known as repeat claimants. Results of this analysis are presented in Table 6. Interestingly, in contrast to the prior section, FS receipt does appear to be significantly related to the tendency of former UI recipients to return to UI benefits. Current receipt of FS is associated with a ten percent increase in the odds of returning to a UI claims spell, and recent receipt of FS is associated with an additional nine percent increase in these odds. Thus, at least among recent UI claimants, FS receipt appears to predict a repeated UI claim, and in many cases *precedes* the repeated claim. This suggests that the FS safety net plays a role in the dynamics of repeated UI claims, albeit on a scale 5 to 10 times smaller than the role that UI was found to play in FS dynamics.

Table 6: Return to Unemployment Insurance Benefits

Dependent variable: Return to Unemployment Insurance Benefits	Hazard Ratio	
Food Stamps		
Receipt of FS benefits in current month	1.10	**
Receipt of FS benefits within prior 3 months	1.09	**
Employment		
Any UI earnings in prior quarter	2.25	**
UI earnings in prior quarter ($1000)	1.001	**
Earnings history would qualify monetarily for UI claim	3.37	**
Unemployment Insurance Benefits		
Length of prior UI spell, in months	0.87	**
Received extended benefits in prior UI spell	2.83	**
Benefits near or completely exhausted in prior UI spell	1.99	**
Any reported wages during prior UI spell	1.02	*
Ratio of monthly reported wages to potential UI benefits, prior UI spell	1.15	**
Last UI claim in 1997	1.00	
Last UI claim in 1998	0.90	**
Last UI claim in 1999	0.85	**
Last UI claim in 2000	0.89	**
Last UI claim in 2001	1.12	**
Last UI claim in 2002	0.96	*
Last UI claim in 2003	0.64	**
Last UI claim in 2004	0.41	**
Demographics		
Age 28-36 years	1.09	**
Age 37-51 years	1.20	**
Age 52+ years	1.22	**
Male	1.12	**
Black	1.22	**
Hispanic	1.17	**
Race other	1.28	**
Education less than high school	1.08	**
Education beyond high school	0.90	**
Employer		
Changed employer last quarter	1.01	
NAICS5613: Employment Services	0.99	
NAICS7222: Limited-Service Eating Places	0.50	**
NAICS6216: Home Health Care Services	0.70	**
NAICS561: Other Administrative and Support Services	0.78	**
NAICS722: Other Food Services and Drinking Places	0.69	**
NAICS623: Nursing and Residential Care Facilities	0.60	**
NAICS452: General Merchandise Stores	0.52	**
NAICS44: Retail Trade	0.60	**
NAICS62: Other Health Care and Social Assistance	0.64	**
NAICS5: Other Information industries	0.88	**
NAICS3: Manufacturing	1.08	**
NAICS4: Other Trade, Transportation, Warehousing	0.76	**
Employer industry unknown	1.08	**

One puzzling finding includes the high hazard ratio for recent UI earnings. This estimate indicates that those with UI earnings in the prior quarter are several times more likely to return to UI than those without earnings, a 125 percent increase in odds of returning. Quite reasonable, however, is the finding that monetary eligibility for UI is associated with much greater likelihood of a repeat claim.

UI benefit history from one's prior spell is strongly predictive of a repeated claim. Those with longer recent UI spells were less likely to return to UI, but those who previously received extended benefits, nearly exhausted their benefits, or who last received benefits in 2001, the start of the recession, were much more likely to return. Those who combined work and UI benefits in their prior UI claim were also more likely to have a repeated claim.

Older workers, non-whites, and those with lesser education were all more likely to have a repeated UI claim, as were those recently working in the manufacturing industry. The lowest repeat claim rates were observed for those in food service, general merchandise, retail, and nursing and residential facilities.

Entry to UI claims

The final model focusing on Unemployment Insurance claims dynamics constitutes a broader look at entry into this program, or take-up of UI claims. This model expands the population of interest to include everyone in Texas with a history of earnings reported to the Unemployment Insurance system. Again, the variables available to model take-up of UI are relatively few – limited to UI earnings and employer measures, and current and recent FS history measures.

As with the analysis of entry to Food Stamps, above, the sample for this analysis was limited to those with experiencing a recent earnings dip, or in other words, those with some history of earnings within the prior four quarters, but whose earnings history during that time frame showed a decline of twenty percent or more in average quarterly earnings. Entry into, or take-up of Unemployment Insurance benefits, was estimated using logistic regression to model take-up on a quarterly basis.

Results of this analysis of take-up of UI benefits among those experiencing a recent earnings dip are shown in Table 7. Note that substantially similar results were

obtained for a related analysis that was restricted to only those whose earnings histories made them monetarily eligible for UI (not shown).

Table 7: Begin Unemployment Insurance Claim

Dependent variable: Begin Unemployment Insurance Claim	Hazard Ratio	
Food Stamps		
Currently receiving Food Stamps	2.58	**
Recent Food Stamp receipt (last qtr)	0.88	**
Employment		
Employed, any UI earnings	2.29	**
Quarterly earnings ($1000)	0.94	**
Earnings history would qualify monetarily for UI claim	8.10	**
Percent of time employed over prior 2 yrs	1.02	**
Average quarterly earnings over prior 2 yrs ($1000)	1.0005	**
Time since earnings dip occurred (qtrs)	0.89	**
Earnings dip magnitude, as percent of income	1.01	**
Employer		
NAICS5613: Employment Services	1.26	**
NAICS7222: Limited-Service Eating Places	1.03	**
NAICS6216: Home Health Care Services	1.38	**
NAICS561: Other Administrative and Support Services	0.93	**
NAICS722: Other Food Services and Drinking Places	2.09	**
NAICS623: Nursing and Residential Care Facilities	0.30	**
NAICS452: General Merchandise Stores	0.82	**
NAICS44: Retail Trade	0.77	**
NAICS62: Other Health Care and Social Assistance	0.33	**
NAICS5: Other Information industries	0.67	*
NAICS3: Manufacturing	0.59	**
NAICS4: Trade, Transportation, Warehousing	0.59	**

Results of interest to the primary hypotheses indicate that, as expected, concurrent receipt of Food Stamps is strongly associated with take-up of UI benefits. Especially when measured on a quarterly basis, when the timing of events is blurred, the overlap among responses of these two safety net programs appears to be substantial. Interestingly, however, receipt of Food Stamps in the prior quarter is associated with reduced odds of taking-up UI. One might be tempted to conclude that this is a sign of a deterrent effect of Food Stamps on take-up of UI. Arguably, however, the large difference in the magnitudes of these two parameters might suggest that take-up of UI among Food Stamps recipients declines over the duration of their FS spells. Or in other words, one could think of this instead as a choice point, where some who were ineligible for UI for reasons other than monetary, which are

not recorded in our data, entered FS. On the other hand, those who were eligible to receive UI benefits entered UI instead, and perhaps eventually made their way to FS. Such an explanation would be difficult to test, however, without additional data on non-monetary factors affecting UI eligibility

In summary, findings from this study suggest that Unemployment Insurance benefit receipt plays a large role in Food Stamp dynamics, but that Food Stamps plays a much smaller role in the dynamics of UI benefit receipt. Food Stamp recipients who qualified for and received UI benefits tended to have shorter spells on FS, suggesting a substitution effect. And although the analysis did not reveal the expected deterrent effect of UI receipt on FS participation, UI benefits did seem to increasingly provide a first tier safety net, where Food Stamps constituted the second tier. These findings suggest that the increased emphasis on work has led to a greater role for Unemployment Insurance in the dynamics of the Food Stamp program, but that room for improvement remains.

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