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Use of supplemental nutritional assistance program benefits by unemployment insurance applicants in Michigan during the Great Recession

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ABSTRACT

During the Great Recession, both the Supplementary Nutrition Assistance Program (SNAP) and the federal-state unemployment insurance (UI) program experienced dramatic increases in participation. Using Michigan program administrative data on all SNAP (2006–2011) recipients and all UI (2001–2010) applicants, we examine SNAP use before and after UI application. Both past and future receipts of SNAP are highly negatively correlated with meeting UI income and job separation eligibility requirements. Unemployment insurance applicants with insufficient wage credits or job separations because of quitting or employer discharge are much more likely to have received SNAP in the past. Furthermore, such UI applicants are also more likely to receive SNAP soon after applying for UI benefits. The data also indicate that as of the start of the Great Recession, UI applicants who received SNAP after UI application began receiving those benefits sooner compared with UI applicants before the economic downturn. Parameter estimates from regression models suggest that SNAP receipt after UI application was higher among ineligible UI applicants, applicants who quit or were fired from prior jobs, those with prior recent SNAP receipt, prime age workers, females, those with education of less than a high school diploma, those having three to five years’ prior job tenure, and those separating from jobs in the retail trade, health care, or hospitality industries.

JEL Classification Codes: J65, I38

Key Words: Unemployment insurance, food stamps, supplemental nutrition assistance program, job loss, self sufficiency, economic security, safety net.

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1 INTRODUCTION

The Supplementary Nutrition Assistance Program (SNAP) provides financial assistance for buying food to households near or below the poverty level.¹ Unemployment insurance (UI) provides temporary partial wage replacement to the involuntarily unemployed. Both programs are part of the social safety net that operates to alleviate hardship, and the beneficiary populations of the two programs usually differ. Unemployment insurance is commonly viewed as serving middle class Americans for relatively short-term lapses in income during joblessness, while SNAP recipients tend to be grouped near the bottom of the income distribution, often with weak labor force attachment. Protracted periods of joblessness during the Great Recession of 2007–2009 raised questions about the adequacy of UI income replacement to prevent descent into poverty.² Naturally, these circumstances piqued interest in customer flows between safety net programs. This paper provides some evidence relating to the extent and sequencing of SNAP and UI usage. Our investigation sheds light on the degree to which separate threads of the social safety net weave together to assure economic security.

Our analysis relies on program administrative data for people ages 18 to 64 in Michigan during the first decade of the twenty-first century. This period includes two economic recessions, both of which severely affected Michigan, with the second having catastrophic effects between late 2008 and mid-2010. This paper was prepared with the Administrative Data Analysis and Research (ADARE) consortium as one part of a multistate study sponsored by the

¹In 2011, individuals living in households with income at or below 130 percent of the poverty level would be eligible for SNAP assistance if they also satisfied the asset limits. Additionally, recipients of Temporary Assistance to Needy Families (TANF) and Supplemental Security Income (SSI) payments also qualify for SNAP. Further eligibility details and asset limits are listed at http://www.fns.usda.gov/snap/applicant_recipients/eligibility.htm.

²Acs and Dahl (2010) estimate poverty among households experiencing unemployment would have reached 25 percent instead of 20 percent had federal extended UI benefits not been provided in 2009.

Economic Research Service (ERS) of the United States Department of Agriculture (USDA) examining the relationships between SNAP and UI at the individual and household levels.

2 ELIGIBILITY FOR AND BENEFITS UNDER SNAP AND UI

Eligibility rules for SNAP are determined by federal regulations. As a nutritional assistance program for the economically disadvantaged, the criteria for SNAP eligibility concern household levels of gross monthly income, net monthly income, and liquid assets (USDA, 2014). The federal rules for household SNAP eligibility include the following three: 1) gross monthly income must be below 130 percent of the federal poverty income level; 2) net income after allowable deductions must be at or below the poverty income level; and 3) liquid assets must be \$2,000 or less.

Gross monthly income is the total from all sources, including labor earnings, unemployment insurance benefits, Temporary Assistance for Needy Families (TANF), Supplemental Security Income (SSI), general assistance (GA), and child support. Net income is computed as the remainder after all allowable expenses and exemptions for dependents. Liquid assets, those that can be readily accessed like money in savings accounts, are limited for most households to \$2,000, while households with an elderly or disabled member may have up to \$3,250. Assets that cannot be readily converted into cash are not considered in SNAP eligibility. Examples are the principal residence, personal property, retirement savings, and one automobile. Asset limits vary somewhat across states. In 2013 there were 36 states with no asset limits whatsoever, while the limits varied between \$2,000 and \$25,000 in the states with asset limits (USDA 2014). For example, Michigan permits liquid assets up to \$5,000 and one vehicle valued at up to \$15,000.

Some persons are excluded from SNAP eligibility even if they meet income limits, while others are categorically eligible because they qualify for other safety net programs. Excluded are persons separated from work because of union actions, undocumented immigrants, and some legal immigrants who have been in this country only a short time. Able-bodied adults without dependents (ABAWDs) are limited to three months of SNAP benefits every three years unless they are also working at least 20 hours a week or participating in an approved job training program.

“Categorical eligibility” establishes SNAP eligibility through benefit receipt from another means-tested program such as TANF, SSI, or GA. For SNAP beneficiaries who also receive income from another safety net program, a dollar of additional labor earnings usually reduces SNAP benefits by less than a dollar of program benefits. Hanson and Andrews (2009) show that labor earnings affect SNAP benefits differently across states for households also receiving TANF, because the TANF and SNAP earnings offsets can differ. In Michigan and four other states (AL, NE, SD, and VA) additional earnings below the eligibility threshold do not affect SNAP benefits, since the TANF earnings reduction and the SNAP earnings disregard both equal 20 percent.

The benefit level under SNAP increases with household size. SNAP expects families receiving benefits to spend 30 percent of their net income on food. Families with no net income receive the maximum benefit, which equals the cost of the USDA Thrifty Food Plan (a diet plan intended to provide adequate nutrition at minimal cost). For all other households, the monthly SNAP benefit equals the maximum benefit for that household size minus the household’s expected contribution. For households eligible for the maximum amount, the benefit level increases by \$150 per person per month.

Unemployment insurance eligibility rules are set to ensure that those compensated were strongly attached to the labor force and are now temporarily jobless through no fault of their own. Unlike SNAP there is no means test for UI. To initially qualify for UI, a claimant must have a sufficient amount of prior earnings and a sufficient duration of prior employment: Those two conditions define the claimant's monetary eligibility. Furthermore, the job separation must be involuntary. Nonmonetary eligibility rules prohibit quits and discharge for misconduct or other causes justifiable by an employer. UI applicants must also be able, available, and actively seeking full-time work. To obtain initial eligibility and maintain continuing eligibility, beneficiaries may not refuse an offer of suitable work.

Monetary eligibility for UI is determined by base period earnings. The UI base period is normally the first four of the previous five completed calendar quarters before the date of claim for benefits. Many states permit an alternate base period for those with insufficient earnings in the standard base period. The alternate base period is usually the four most recently completed calendar quarters. Some states have a high quarterly earnings requirement. Most states also have an earnings dispersion requirement. Since 2009, Michigan has required that there be earnings in at least two quarters of the base period, that the high for quarterly earnings be at least \$2,871, and that base period earnings total at least 1.5 times this threshold for the high in quarterly earnings, or \$4,307 (UIA 2013, pp. 3D–4D).³

3 DATA FOR ANALYSIS

Michigan administrative data provided to the Upjohn Institute includes the complete population of all those who filed regular UI applications between January 2001 and December

³ The UI monetary eligibility requirement in Michigan depends on the state minimum wage, which has remained at \$7.40 an hour since July 2008.

2010. These data were accumulated over several years in the course of research on several different projects undertaken by the W.E. Upjohn Institute for Employment Research for the Michigan Unemployment Agency and federal government agencies.⁴ Monthly Michigan SNAP data from January 2006 through August 2011 were obtained from the Michigan Department of Human Services in 2010 and 2011. Quarterly UI wage record data for individuals in both programs were matched and provided by the Michigan Department of Technology, Management, and Budget. The earnings data span the third quarter of 1997 through the third quarter of 2010.

4 SNAP RECEIPT AND UI INFLOW⁵

Figure 1 and Table 1 each present some of the same data in a summary of SNAP recipients and UI applicants between 2006 and 2010. Available data for the two programs overlap during these years and highlight the severity of the economic downturn faced by Michigan residents during the Great Recession. During the prerecession years of 2006 and 2007, about 1.5 million people received a SNAP benefit in at least one month of each year. In 2010, the number of persons receiving SNAP during at least one month reached about 2.25 million in a state population of 9.88 million people. SNAP receipt in 2010 was thus more than 50 percent higher than in 2006. The growth in the UI recipient population was also dramatic over the

⁴ Originally, UI data were used in 2002–2003 to estimate a model of regular UI exhaustion for the Michigan Unemployment Insurance Agency (UIA) as part of the Worker Profiling and Reemployment Services (WPRS) program. This was followed by a state initiative titled the Value Added Performance Improvement System (VAPIS), where statistical models were developed by the Upjohn Institute to adjust performance standards of Michigan workforce agencies (2004–2006). More recent use includes Upjohn Institute contracts with the Department of Health and Human Services (DHHS) in Washington, DC, to investigate links between Temporary Assistance to Needy Families (TANF) and UI (2005–2012).

⁵ Throughout this analysis, the actual reference date used for UI applicants is the Benefit Year Begin (BYB) date of the UI claim, which is the Sunday of the week in which the UI claim was filed. The date of UI application was not part of the UI data extracted. In this text, all references to “UI application,” “filing,” or “start of UI claim” actually refer to the BYB date.

period, rising more than 30 percent between 2006 and 2009.⁶ Among claims filed in 2006, 467,000 persons between the ages of 18 and 64 received UI benefits. This level rose to 604,000 in 2009.

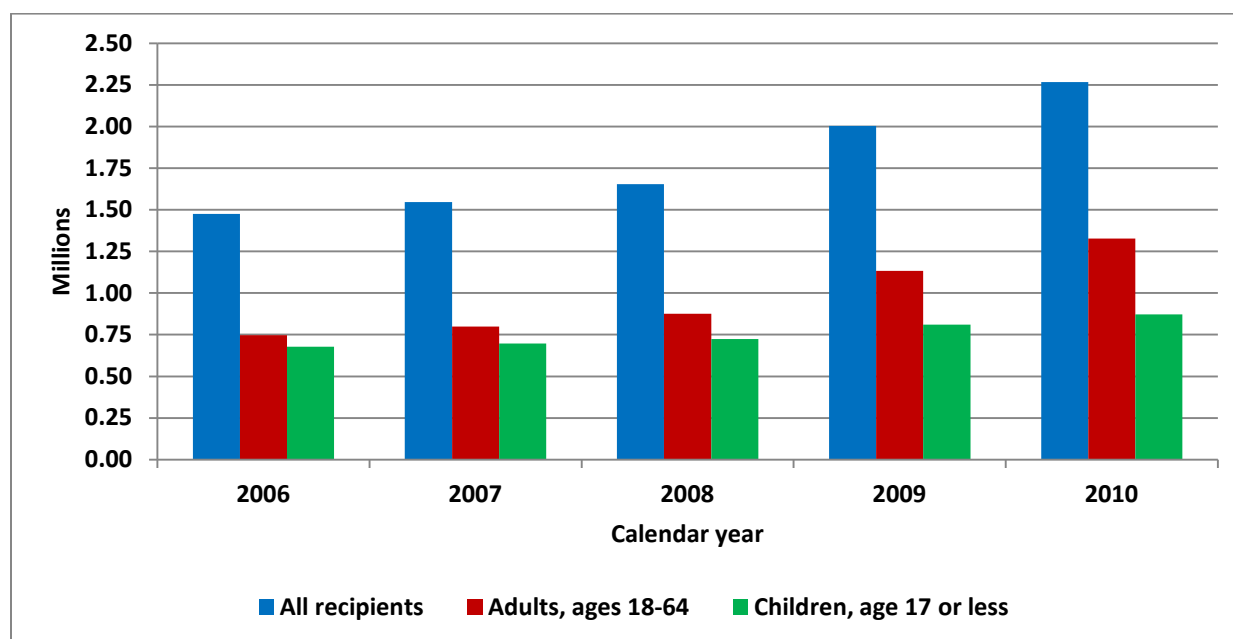


Figure 1 Michigan SNAP Recipients 2006-2010

Table 1 Michigan SNAP Recipients and UI Applicants for Calendar Years 2006–2010

	Levels				
	2006	2007	2008	2009	2010 (*2)
All SNAP recipients (*1)	1,474,536	1,546,236	1,652,956	2,003,353	2,267,478
Adults, ages 18–64	747,829	798,726	876,154	1,133,306	1,326,638
Children, age 17 or less	676,898	697,086	723,908	810,401	870,966
Older adults (65+)	62,758	66,995	72,612	82,034	93,285
UI applicants, ages 18 –64	589,623	538,712	665,960	774,753	542,546
	Year-to-year percentage change				
	2006	2007	2008	2009	2010
All SNAP recipients	—	4.9	6.9	21.2	13.2
Adults, ages 18–64	—	6.8	9.7	29.4	17.1
Children, age 17 or less	—	3.0	3.8	11.9	7.5
Older adults (65+)	—	6.8	8.4	13.0	13.7
UI applicants, ages 18 –64	—	–8.6	23.6	16.3	–30.0

NOTE: (*1) The component sum of all SNAP recipients is greater than the recipient total because of age changes, and therefore category changes, within a given year. (*2) Complete benefit-year UI data was only provided for the first three calendar quarters of 2010. “—” means data are not available.

⁶ Complete benefit-year data were only provided for UI applicants with BYBs in the first three calendar quarters of 2010; therefore, our contrast is between 2006, before the recession, and 2009, during the recession.

5 COUNTING UI APPLICANTS

The UI inflow data were adjusted to properly compare UI application rates over time and to assess joint UI and SNAP usage. A downward adjustment was necessary because of the availability of recession-related Extended Benefits (EB) and Emergency Unemployment Compensation (EUC) during our period of analysis. For those who exhaust regular UI benefit entitlements and transition to EB or EUC during their original 52-week benefit year, the Michigan UI Agency requires reapplication for regular UI once the original benefit year expires. Since most of these beneficiaries had not worked since before the start of their prior UI application, most could not qualify for a new regular benefit year; they simply continued on EB or EUC. Since these transitional claims did not represent real economic activity but resulted instead mainly from a procedural requirement, we removed them from the sample analyzed in this section. Figure 2 and Table 2 summarize the impact of this adjustment.⁷

Figure 2 illustrates that counts of claims from 2008 through 2010 were greatly affected by the requirement that EB and EUC beneficiaries must reapply for regular UI immediately after their original benefit year–ending dates pass. Table 2 reports that about 250,000, or 11 percent, of the UI applications in these three years were simply procedural matters that claimants submitted to ensure continuous receipt of benefits. Failure to exclude these claims would have greatly biased computed rates of benefit eligibility and receipt. For example, Figure 3 shows the share of UI applicants with sufficient wage credits to qualify for regular UI benefits, also known as the monetary eligibility rate. Before the sample restriction, a sharp eligibility decline occurs during the Great Recession. Monetary eligibility rates fall from 90 percent in the prerecession

⁷ We excluded UI applications that did not have sufficient wage credits to qualify for a new regular UI benefit year if they were filed within 10 weeks after the benefit year–ending date of the original UI claim. The Michigan UI data file provided to the Upjohn Institute included only the total amount of benefits and program type—regular, EB, or EUC. For further details about required reapplication for regular UI by exhaustees seeking extended benefits, see UIA (2012).

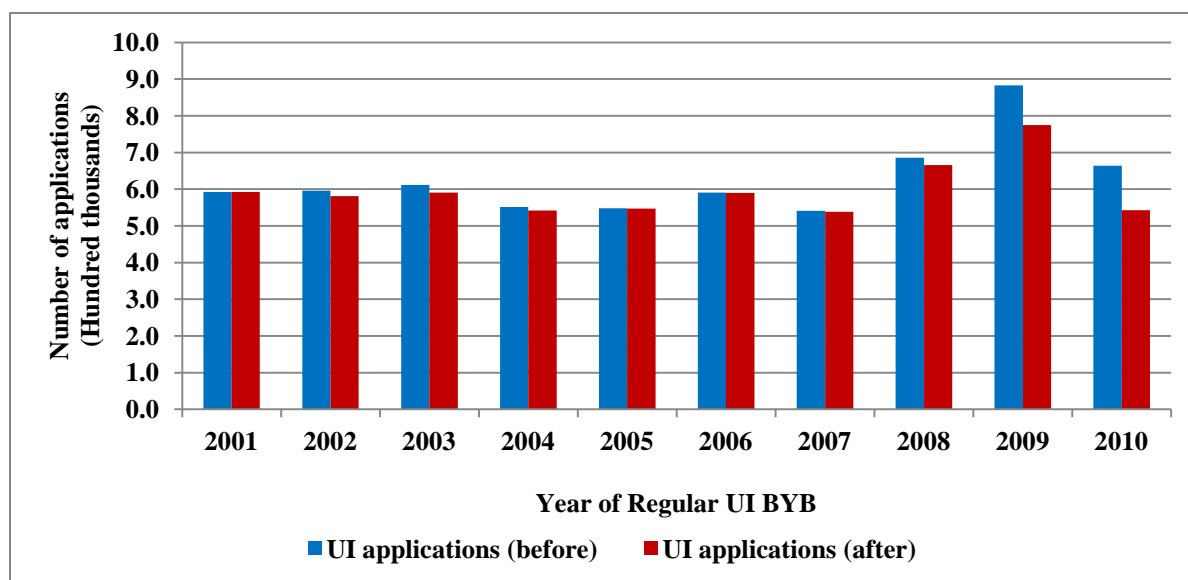


Figure 2 Michigan Regular UI Applications for Persons Ages 18 to 64 before and after Removing Regular UI Applications that are Procedurally Required to be Filed by Claimants at the End of their Initial Regular UI Benefit Year as a Condition of Continued Receipt of EB/EUC.

Table 2 Michigan Regular UI Application, Eligibility, Benefit Receipt, and Exhaustion Rates, 2001–2010, using All Available Data and Adjusting for Procedural Requirements Related to Continued EB/EUC Benefit Receipt

Year of UI application	Regular UI applicants, 18–64		Monetary eligibility rate		Nonmonetary eligibility rate (*1)	
	Overall	EB/EUC adjusted	Overall	EB/EUC adjusted	Overall	EB/EUC adjusted
2001	592,438	592,438	0.950	0.950	0.789	0.789
2002	595,894	581,344	0.895	0.917	0.760	0.757
2003	611,311	590,468	0.879	0.910	0.770	0.768
2004	551,573	541,974	0.895	0.911	0.737	0.735
2005	548,126	547,333	0.912	0.914	0.730	0.730
2006	590,463	589,623	0.915	0.916	0.737	0.736
2007	540,559	538,712	0.892	0.895	0.722	0.721
2008	685,923	665,960	0.867	0.893	0.745	0.743
2009	882,481	774,753	0.756	0.861	0.799	0.791
2010	664,077	542,546	0.654	0.800	0.769	0.744
Total	6,262,845	5,965,151	0.854	0.896	0.759	0.753
	Full eligibility rate (*1)		UI beneficiary rate		UI exhaustion rate (*2)	
	Overall	EB/EUC adjusted	Overall	EB/EUC adjusted	Overall	EB/EUC adjusted
2001	0.755	0.755	0.842	0.842	0.250	0.250
2002	0.680	0.697	0.779	0.799	0.279	0.286
2003	0.677	0.701	0.769	0.796	0.272	0.281
2004	0.659	0.670	0.772	0.786	0.266	0.270
2005	0.666	0.667	0.784	0.785	0.264	0.265
2006	0.674	0.675	0.790	0.792	0.269	0.270
2007	0.644	0.646	0.772	0.775	0.281	0.282
2008	0.646	0.665	0.781	0.805	0.395	0.407
2009	0.600	0.685	0.684	0.779	0.349	0.398
2010	0.481	0.589	0.559	0.685		
Total	0.644	0.676	0.748	0.785	0.297	0.306

NOTE: (*1) 1.1 percent of the overall sample (71,093) and 1.2 percent of the EB/EUC adjusted sample (70,688) had missing data for job separation reasons. Therefore, the rates for nonmonetary and full UI eligibility exclude those observations. The rates for monetary eligibility, regular UI beneficiary, and regular UI exhaustion include those observations. (*2) The exhaustion rate for regular UI applications filed in 2010 is not available because of incomplete benefit-year information as of the date of the data extract.

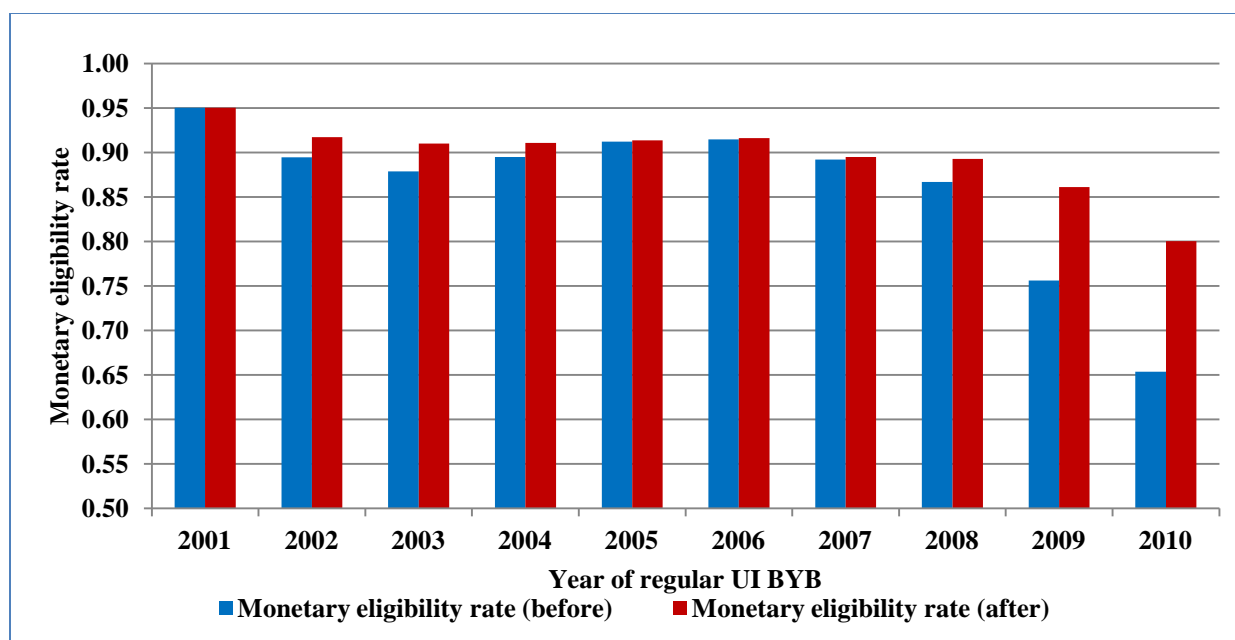


Figure 3 Monetary Eligibility Rates for Regular UI Applicants Ages 18 to 64 before and after Removing Regular UI Applications that are Procedurally Required to be Filed by Claimants at the End of their Initial Regular UI Benefit Year as a Condition of Continued Receipt of EB/EUC

years to 75 and 65 percent in 2009 and 2010, respectively. After excluding back-to-back claims by EUC applicants, monetary eligibility rates still decline during recession years, but at dramatically smaller rates. Monetary eligibility in the selected sample is 86 percent in 2009 and 80 percent in 2010.

Concerning rates of nonmonetary eligibility—involuntary separations mainly due to lack of work—the rates are fairly similar before and after the sample adjustment (Table 2). The beneficiary rates for the full and restricted samples follow patterns similar to monetary eligibility rates (Table 2 and Figure 4). The share of UI applicants who actually received a UI benefit payment fell from about 78 percent before the recession to 68 percent in 2009 and 56 percent in 2010 in the full sample, and to 78 percent in 2009 and 69 percent in 2010 in the selected sample of new applicants not exhausting a previous back-to-back claim (Figure 4). Therefore, removal of the back-to-back claims that are simply procedural in nature provides a clearer, more precise

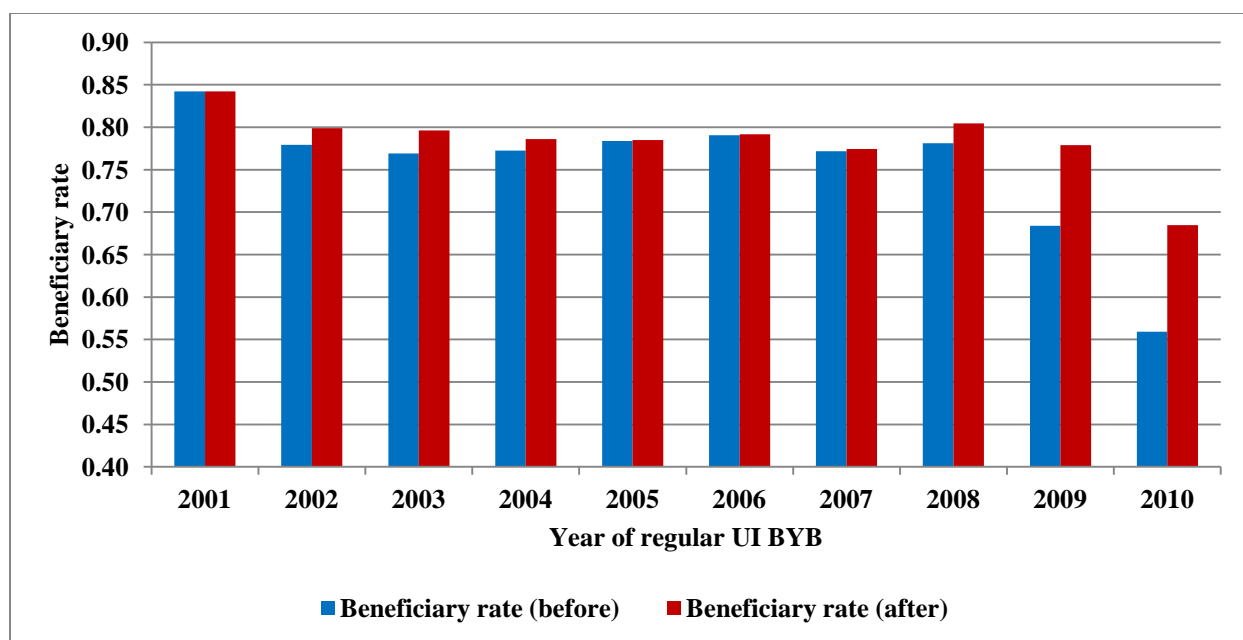


Figure 4 UI Beneficiary Rate Among Regular UI Applicants Age 18-64 before and after Removing UI Re-Applications by EB/EUC Recipients at BYE

picture of actual UI activity. Analysis in the remainder of this paper is done on the sample excluding such back-to-back claims.

6 SNAP RECEIPT BEFORE UI APPLICATION

Starting from the census of all UI applications in Michigan, we examine the transition from labor force participation to joblessness, to involvement with UI, and then perhaps involvement with SNAP. Table 3 explores the background for this perspective by examining the extent of involvement with SNAP before job separations among UI applicants.

Overall, between 2007 and 2010 an average of 20.2 percent of UI applicants received some SNAP benefits in the year prior to their UI application. However, the share with prior SNAP receipt increased dramatically in 2010 to 27.2 percent, up from 19.5 percent in 2009. There is considerable variation in SNAP receipt by the degree of UI benefit eligibility and receipt. For UI applicants between 2007 and 2010, the rate of prior SNAP receipt tends to be

Table 3 SNAP Receipt Rate in the 12 Months Prior to UI Application among Michigan Regular UI Applicants Ages 18–64 by Eligibility and Benefit Receipt Group

	2007	2008	2009	2010	Overall
All UI applicants	0.174	0.176	0.195	0.272	0.202
Monetarily eligible	0.150	0.151	0.161	0.227	0.169
Not a UI beneficiary (*1)	0.228	0.233	0.235	0.305	0.250
Monetarily ineligible	0.374	0.385	0.403	0.454	0.410
Nonmonetarily eligible	0.144	0.149	0.171	0.244	0.175
Lack of work	0.142	0.147	0.170	0.242	0.174
Quit or discharge	0.255	0.258	0.289	0.354	0.287
Fully UI-eligible	0.121	0.125	0.139	0.197	0.142
Not a UI beneficiary (*1)	0.168	0.176	0.169	0.253	0.192
UI beneficiary (*1)	0.138	0.142	0.153	0.213	0.158
Not an exhaustee	0.110	0.107	0.116		0.111
UI exhaustee	0.188	0.176	0.189		0.184
Not an EC/EB recipient	0.187	0.180	0.207		0.194
EC/EB recipient	0.188	0.176	0.183		0.180

NOTE: (*1) Given the timing of the data extract (February 2011), the claims data for 2010 are sufficient to measure regular UI benefit receipt with some downward bias, but not sufficient to fully measure exhaustion and extended compensation receipt.

lower among those with higher earnings and relatively stronger labor force attachments. Only 16.9 percent of monetarily eligible UI applicants received SNAP in the 12 months before application, while the rate was 41.0 percent for those not monetarily eligible. Similarly, 17.5 percent of UI applicants with qualifying job separations (nonmonetarily eligible) received SNAP in the prior year, while 28.7 percent of those disqualified for UI by a job quit or employer discharge received SNAP in the year before UI application. Additionally, UI exhaustees had prior SNAP at a higher rate (18.4 percent) than did UI beneficiaries who did not exhaust their entitlement (11.1 percent). This may have resulted from greater job search effort by those in the latter group that had a smaller share of prior SNAP recipients, leading to more favorable labor market outcomes after UI application, and shorter periods of UI benefit receipt.

Figure 5 provides a longer look back at prior SNAP usage by UI applicants sorted into UI eligibility and job separation groups. As shown, 35 percent of UI applicants in 2010 received some SNAP benefits between 2006 and the month before UI application. The prior SNAP

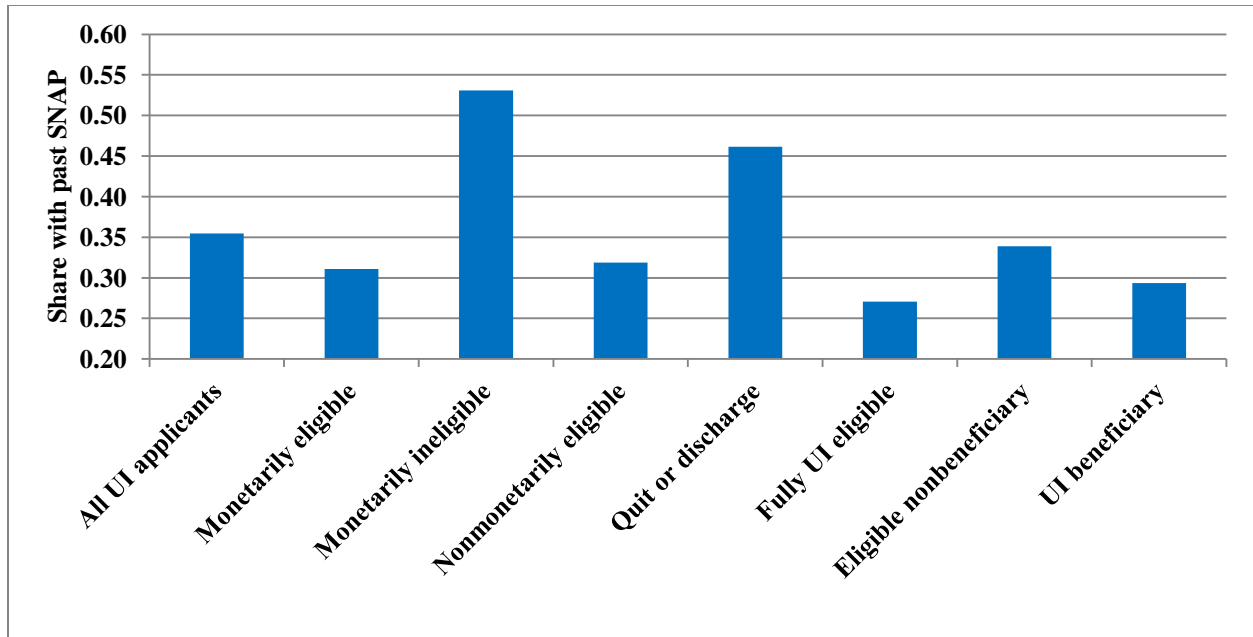


Figure 5 Share of Michigan Regular UI Applicants in 2010 who Received SNAP between January 2006 and UI Application by UI Eligibility and Benefit Receipt Group

receipt rate for persons without prior earnings sufficient to establish monetary entitlement was 53 percent, compared to only 31 percent for those with sufficient prior earnings. Persons who quit or were discharged from employment were also much more likely to have received SNAP prior to 2010 compared with their nonmonetarily eligible counterparts, by a margin of 46 to 32 percent.⁸ These data suggest a correlation between weak labor force attachment, inconsistent earnings history, difficulties on the job and SNAP receipt.

Finally, Figure 5 shows a group of UI applicants who appear to be fully eligible to receive unemployment benefits but do not become UI beneficiaries. While this is a relatively small group of UI applicants (an average of 2.7 percent of applicants between 2007 and 2010), their prior SNAP receipt rate is higher than similar persons who became UI beneficiaries.

Assuming these data are accurate, they may have obtained immediate reemployment or simply

⁸ This discussion is merely descriptive and assumes comparable characteristics and UI application rates across different eligibility and UI benefit receipt groups. For example, if persons with no prior SNAP benefits who quit or were discharged from employment are less likely to apply for UI benefits and therefore are not part of the sample we observe, the true difference in past SNAP receipt for persons who quit or were discharged from employment compared to fully UI-eligible applicants would be less than what is implied graphically in Figure 5.

chosen not to receive benefits for other reasons. This failure to take-up available UI benefits is discussed more deeply in section 8 of this paper.

7 SNAP RECEIPT AFTER UI APPLICATION

Our main aim in this investigation is to measure the reliance on SNAP of UI applicants who experienced protracted joblessness during the Great Recession. Since the available Michigan SNAP data begin in 2006, we cannot limit analysis exclusively to a sample of persons without any prior SNAP involvement—we do not have prior lifetime histories of program participation for all observations. Our strategy is to focus on persons who did not receive SNAP benefits in the year prior to their UI application. We first examine the likelihood that these UI applicants will receive SNAP benefits within one year after applying for UI benefits. A summary of observed rates is presented in Table 4, with some subgroup contrasts presented graphically in Figure 6.

Table 4 Rates of SNAP Receipt within One Year after UI Application among Persons Ages 18 to 64 Who Did Not Receive SNAP in the Year Prior to UI Application

	2007	2008	2009	2010 (*1)	Overall
All UI applicants	0.099	0.132	0.141	0.152	0.130
Monetarily eligible	0.095	0.125	0.131	0.144	0.122
Not a beneficiary	0.176	0.233	0.240	0.252	0.222
Monetarily ineligible	0.143	0.220	0.229	0.201	0.204
Nonmonetarily eligible	0.067	0.100	0.108	0.110	0.097
Lack of work	0.066	0.099	0.107	0.108	0.095
Nonmonetarily ineligible					
Quit or discharge	0.198	0.243	0.291	0.289	0.251
Fully eligible	0.062	0.092	0.098	0.098	0.088
Not a beneficiary	0.069	0.099	0.097	0.118	0.093
UI beneficiary	0.084	0.114	0.121	0.128	0.111
Not an exhaustee	0.049	0.069	0.068		0.062
UI exhaustee	0.151	0.161	0.176		0.165
Not an EC/EB recipient	0.138	0.131	0.139		0.137
EC/EB recipient	0.165	0.165	0.187		0.175

NOTE: (*1) With SNAP data ending in August, 2011, the 2010 numbers summarize rates for UI claims filed through August 2010.

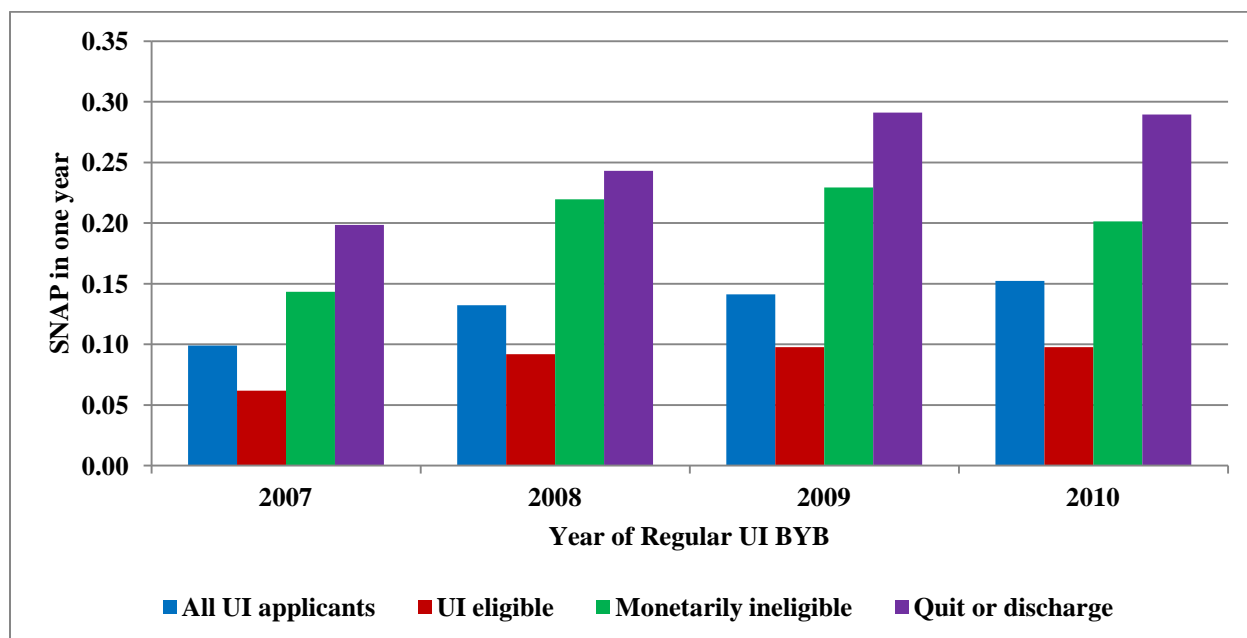


Figure 6 Rate of SNAP Receipt within One Year of UI Application for Persons Ages 18-64 Having No SNAP in the Year Prior to UI Filing

Among UI applicants between January 2007 and August 2010 who had no SNAP receipt in the year prior to filing, 13 percent entered SNAP within a year of UI application. Rates of failure to satisfy UI eligibility screens correlate strongly with entry into SNAP for those not having received SNAP benefits in the year prior to UI application, just as they do for those who received SNAP prior to entering the UI system. Overall, between 2007 and 2010, 25 percent of persons quitting or being discharged from employment entered SNAP within one year of applying for UI. Over that period, persons who could not establish monetary entitlement to UI benefits because of insufficient prior earnings entered SNAP at an average rate of 20.4 percent. Persons fully eligible for UI who had sufficient earnings and job separations not resulting in disqualification entered SNAP within one year at a rate of 8.8 percent. This suggests that UI could be an important part of the safety net, supporting transitions back to employment with less reliance on SNAP.

Checking for SNAP receipt within 12 months of the UI benefit year begin (BYB) date may underestimate the reliance on SNAP by UI applicants in this period. Regular UI benefit years last 52 weeks from the BYB date and usually provide a maximum entitled duration of 26 weeks of benefits, so checking for SNAP within 12 months of the BYB is reasonable when other UI assistance is not available. However, for benefit years ending in or after May 2007, many UI beneficiaries had extended or emergency UI benefits available for more than the usual maximum of 26 weeks. Indeed, during 2009 in Michigan, some applicants received UI for as much as 99 weeks. Therefore, in the following multivariate analysis we examine SNAP receipt within both 12 and 24 months after UI application.

8 SNAP USAGE, CONTROLLING FOR OBSERVABLE CHARACTERISTICS

To assess the importance of factors influencing flows into SNAP for different categories of UI applicants, we estimate regression models of the effects of SNAP receipt on our sample of Michigan UI applicants. The regression approach allows us to control for changes in the composition of UI applicants over time. We estimate linear probability models for the probability of receiving SNAP within one or two years of UI application, controlling for UI eligibility requirements, UI entitlement, UI benefit receipt, and recent prior interactions with the UI system. The models also include control variables for age, gender, race, education, industry of prior employment, and length of time spent on the job immediately preceding UI application. Finally, a vector of variables for the year and month of UI application and the county of residence are included.

To permit comparison of parameter estimates from the models estimated on one-year and two-year outcomes, the same estimation sample is used for both models. The sample is based on

UI applications received between January 2007 and August 2009. While descriptive statistics in the preliminary sections of this paper excluded persons who received SNAP in the year prior to entering UI, we did not exclude those observations from our multivariate analysis. Our procedure included a vector of explanatory variables to control for the number of months since a client last received a SNAP benefit as well as a variable for persons with no observed SNAP receipt prior to UI application.⁹ The complete set of parameter estimates, standard errors and *t*-statistics is presented in Appendix Table A1, and summaries of parameter estimates on variables of interest appear in Tables 5, 6, and 7. Because the estimation sample includes 1.6 million observations, all parameters are estimated with a high degree of statistical significance.¹⁰ Consequently, the tables presenting parameter estimates do not include indicators for statistical significance, and our discussion of the results reported in Tables 5, 6, and 7 focuses on the magnitudes of parameter estimates.

Parameter estimates for the vector of past SNAP receipt variables are reported in Table 5. Each variable is a binary indicator of a given number of months since the last receipt of SNAP and takes on the value 1 if yes, 0 if no.¹¹ There is a strong positive correlation between past receipt of SNAP benefits and future SNAP receipt, but the correlation declines rapidly as the time since prior SNAP receipt increases. UI applicants with no prior observable SNAP receipt

⁹ We also estimated models that excluded persons who had received SNAP benefits in the year prior to UI application. The models included a control variable for receipt of SNAP for more than one year prior, along with another for the dollar amount of those benefits. There were no significant differences across the models in the values of parameter estimates.

¹⁰ All parameter estimates are significant at the one percent level in a two-tailed test.

¹¹ This vector of variables representing past SNAP receipt forms an exhaustive list of possible outcomes, which results in the sum of the variables' means equaling one. Parameters have been estimated for each variable by applying a linear constraint in the estimation process, which requires that the weighted sum of each variable be equal to zero. The weights are the sample means for the variables. Therefore, the parameter estimates are interpreted relative to the dependent variable mean rather than relative to an omitted category, as is normally the case for dummy variables in ordinary least squares (OLS) estimation. For the amount of the last SNAP payment, persons who did not receive a prior SNAP benefit were assigned the mean value for those that did receive SNAP prior to UI application. This enables the parameter estimate on the amount of the last SNAP benefit to better reflect deviations from its mean rather than be simply an indicator of whether SNAP was received in the past.

Table 5 Impact of Past SNAP Receipt on the Likelihood of Receiving SNAP within One or Two Years of UI Application among Persons Entering UI between January 2007 and August 2009 ($n = 1,633,566$).

Variable description	SNAP receipt after entering UI (*1)		
	One year ($m = 0.251$)	Two years ($m = 0.321$)	Sample mean
Months since last SNAP: 1 month	0.669	0.581	0.115
Months since last SNAP: 2–6 mos.	0.306	0.330	0.033
Months since last SNAP: 7–12 mos.	0.207	0.254	0.028
Months since last SNAP: 13–24 mos.	0.120	0.179	0.031
Months since last SNAP: 25+ mos.	0.075	0.125	0.015
Months since last SNAP: no prior SNAP	–0.126	–0.119	0.778
Last SNAP benefit (in \$100s)	0.006	0.006	2.36

NOTE: (*1) All parameter estimates statistically significant at the one percent level.

are estimated to be much less likely to receive SNAP within one or two years after UI application.

Just over 11 percent of UI applicants had a SNAP benefit in the month prior to entering UI. Controlling for observable characteristics including UI eligibility and benefit receipt, those receiving SNAP in the prior month are 67 percentage points more likely to receive a SNAP benefit within one year of UI application. UI applicants who received SNAP receipt two-to-six months prior to UI application (3.3 percent of applicants) are estimated to be 31 percentage points more likely to draw SNAP within a year. Applicants who last received SNAP seven-to-twelve months before UI (2.8 percent of applicants) were 21 percentage points more likely to receive SNAP in the year after entering UI. Remaining parameter estimates in the table continue the pattern of a lower likelihood of applicants' returning to SNAP the longer they are independent from the program.¹²

The monthly amount of the most recent prior SNAP benefit averaged \$236 for the 22 percent of applicants observed to have been part of the SNAP program prior to UI application.¹³

¹² With the estimation starting in 2007, we can reliably measure the first three variables. Beginning in 2008, the variable for the last SNAP benefit occurring 13 to 24 months prior can be measured reliably; however, it is likely that someone entering UI in 2007, whom we have classified as having no prior SNAP receipt, actually received SNAP in 2005 (unobserved) and should be classified as having last received SNAP 13–24 months prior. This “censoring” of data means that the parameter estimates are biased despite showing the expected pattern.

¹³ There is a censoring issue here. SNAP participation prior to UI application is based on the SNAP grant amount data which begin in January 2006. For persons applying for UI benefits in January 2007, we have 12

While changes to this amount have a statistically significant, positive impact on the likelihood of future receipt, the marginal impact is negligible. All else equal, persons with a \$100 higher level of prior SNAP benefits were just six-tenths of one percent more likely to receive SNAP after applying for UI.

Impacts of UI eligibility, entitlement, and benefit receipt are summarized in Table 6.

Controlling for observable factors, the parameter estimates are consistent with the evidence on prior SNAP receipt discussed above. Persons who are not eligible for UI benefits based on their

Table 6 Impact of UI Eligibility, Entitlement, and Benefit Receipt on SNAP Entry within One or Two Years of UI Application for UI Applications Filed January 2007 through August 2009 ($n = 1,633,566$)

Variable description	SNAP receipt after entering UI (*1)		
	One year ($m = 0.251$)	Two years ($m = 0.321$)	Sample mean
Monetarily ineligible	0.042	0.056	0.105
Monetarily eligible but not a beneficiary	0.016	0.008	0.096
Job separation, lack of work	-0.021	-0.024	0.743
Job separation, fired/discharged	0.068	0.079	0.165
Job separation, quit	0.046	0.058	0.083
Job separation, other	0.030	0.028	0.008
Able, available, active issue, and disqualified	0.051	0.060	0.040
Work refusal issue and disqualified	0.033	0.047	0.002
UI beneficiary but not an exhaustee	-0.035	-0.044	0.425
UI exhaustee but not an EUC/EB recipient	0.009	0.006	0.089
EUC/EB recipient	0.028	0.040	0.285
Applicant, nonbeneficiary on prior UI claim	-0.008	-0.002	0.085
UI beneficiary, nonexhaustee on prior UI claim	-0.019	-0.023	0.295
UI exhaustee on prior UI claim	-0.015	-0.009	0.140
Weekly benefit amount (in \$10s)	-0.001	-0.002	30.3
WBA at maximum	-0.008	-0.018	0.461
Regular UI entitlement length (weeks, *1)	0.000	-0.001	24.9
Employed at UI filing	-0.022	-0.022	0.006
Requests income tax withholding	0.013	0.015	0.416
Search-exempt and recalled to prior employment	-0.014	-0.026	0.153

NOTE: (*1) With the exception of regular UI entitlement length, all parameter estimates are statistically significant at the one percent level. See Appendix Table A1 for actual t -statistics.

months of data to observe prior SNAP benefits. For persons applying for UI in January 2008 that window increases to 24 months.

recent earnings history are 4.2 and 5.6 percentage points more likely to enter SNAP in one or two years, respectively. Eligibility factors based on job separation as well as the continuing eligibility requirements of being able, available, and actively seeking work are positively correlated with SNAP receipt after UI application. With nearly 25 percent of the sample either having quit past employment or having been dismissed from work for an employer justifiable cause, those UI applicants were 4.6 and 6.8 percentage points more likely to receive SNAP within one year of UI application, respectively. The biggest share of UI applicants (74.3 percent) laid off due to lack of work were 2.1 percentage points less likely to receive SNAP within one year after entering UI and 2.4 percentage points less likely within two years.

It is not surprising that the likelihood of SNAP receipt correlates positively with unemployment duration. Persons who received benefits under the EUC or EB programs were 2.8 and 4.0 percentage points more likely to receive SNAP within one or two years, respectively. Regular UI beneficiaries who did not exhaust benefits and presumably reentered employment were 3.5 and 4.4 percentage points less likely to receive SNAP within one or two years, all else being equal.

Persons having recent prior interactions with the UI system were also less likely to receive SNAP after their current UI claim. When looking at past UI claims that had a benefit year ending within 12 months before the current claim and different levels of benefit receipt during the benefit years associated with those claims, each of the three variables—1) applicants with no benefits, 2) UI beneficiaries who do not exhaust their benefits, and 3) extended compensation recipients—are negatively correlated with SNAP benefits after the current UI application. This could be indicative of greater familiarity with navigating the UI system; it

could also point to more significant labor force attachment and experience, which enables more favorable labor market outcomes.

It is important to acknowledge in the discussion of UI and its relationship to future SNAP receipt that the parameter estimates in these models on current and past receipt of UI benefits are biased because the application for and receipt of UI benefits is endogenous. Persons have control over whether to apply for and receive UI benefits. Even fully eligible UI applicants sometimes do not draw a single dollar in benefits. Therefore, the impacts shown in Table 6 cannot solely be attributed to UI and should not be interpreted as “causal.”¹⁴

This is not to imply that the impacts are necessarily overstated. For example, in the estimation sample, there are 958,172 UI applicants who had no SNAP in the year prior to applying for benefits, had sufficient wage credits to qualify for UI, and were laid off because of lack of work. Of those, 32,791, or 3.4 percent, did not receive UI benefits, and among these, 2,399, or 7.3 percent, received SNAP within one year of their UI application. Within two years of UI application, 4,288 (13.1 percent of those who did not receive UI benefits) became SNAP recipients.¹⁵ Therefore, it is unclear what direction proper controls for the probability of benefit receipt would have on the parameter estimates.

Table 7 presents estimates for the effects of age, gender, race, and education. The parameter estimates suggest that among UI applicants, with all other things being equal, less-educated, prime-working-age African American females are more likely to receive SNAP after applying for UI benefits. However, these parameter estimates likely suffer from omitted

¹⁴ Ideally, we would employ an instrumental variables approach and would properly control for factors that explain UI application and benefit receipt but are uncorrelated with future SNAP receipt. This would enable the UI parameter estimates to properly be interpreted as attributable to the UI system. However, a great deal of data needed to properly produce such estimates are unavailable to us and would include items such as detailed statewide quarterly wage records; complete occupational history data; mass layoff information; household composition data for all UI applicants, including marital status; and individual and household balance sheet information.

¹⁵ These data include the results of UI applications contested by employers. Assuming the adjudication data are complete and accurate, the numbers reflect actual lack of UI benefit receipt despite complete eligibility.

Table 7 Impact of Age, Gender, Race, and Education on SNAP Entry within One or Two Years of UI Application for UI Applications Filed January 2007 through August 2009 ($n = 1,633,566$)

Variable description	SNAP receipt after entering UI (*1)		
	One year ($m = 0.251$)	Two years ($m = 0.321$)	Sample mean
Aged 18–24	–0.007	0.002	0.121
Aged 25–44	0.016	0.022	0.501
Aged 45+	–0.018	–0.029	0.379
Gender, male	–0.008	–0.010	0.630
Gender, female	0.014	0.017	0.370
Race, white/Caucasian	–0.011	–0.016	0.608
Race, African American	0.038	0.057	0.129
Race, other (*1)	–0.003	–0.007	0.021
Race, unknown	0.007	0.011	0.242
Registered alien	–0.026	–0.037	0.024
Education, less than high school	0.033	0.051	0.114
Education, high school grad/GED	0.002	0.003	0.523
Education, some college	–0.005	–0.008	0.247
Education, bachelor’s degree	–0.032	–0.048	0.069
Education, advanced degree	–0.031	–0.048	0.046
Education, missing/unknown (*1)	–0.010	–0.028	0.001

NOTE: (*1) With the exception of the other race category and missing or unknown education data, all parameter estimates are statistically significant at the one percent level. In the regression, each characteristic class (age, gender, race and education) includes an exhaustive list of variables. In the estimation, a linear restriction is applied such that the weighted sum of the variables equals zero. The weights are the variable means within the class. Parameter estimates are interpreted with respect to the mean rather than relative to an omitted category.

variables bias because data on household composition, marital status, and financial assets are not available for estimation.

Even with bias acknowledged, the parameter estimates on education in particular are quite striking and comparable to evidence in the literature on the importance of education in labor market outcomes. With the sample mean educational attainment being that of a high school graduate, the impacts of having less than a high school education compared with higher attainment are mirror opposites. Persons with less than a high school education are estimated to be 3.3 percentage points more likely to receive SNAP after UI than persons with only a high school degree, compared to a very similar but opposite sign parameter estimate for persons with a bachelor’s degree or higher attainment.

9 TRENDS IN UI-TO-SNAP

In this section, we examine changes in the likelihood of UI applicants receiving SNAP.

Figure 7 shows the share of UI applicants who received SNAP within 24 months after UI application by select categories of past SNAP receipt.

Visual examination of figure 7 suggests a slight upward time trend in the share of all UI applicants having future SNAP receipt. However there is no apparent trend in the share of UI applicants without any prior involvement with SNAP having future SNAP receipt. Only UI applicants having last received SNAP more than one year before UI application exhibit an upward trend in the likelihood of receiving SNAP within two years of UI application.

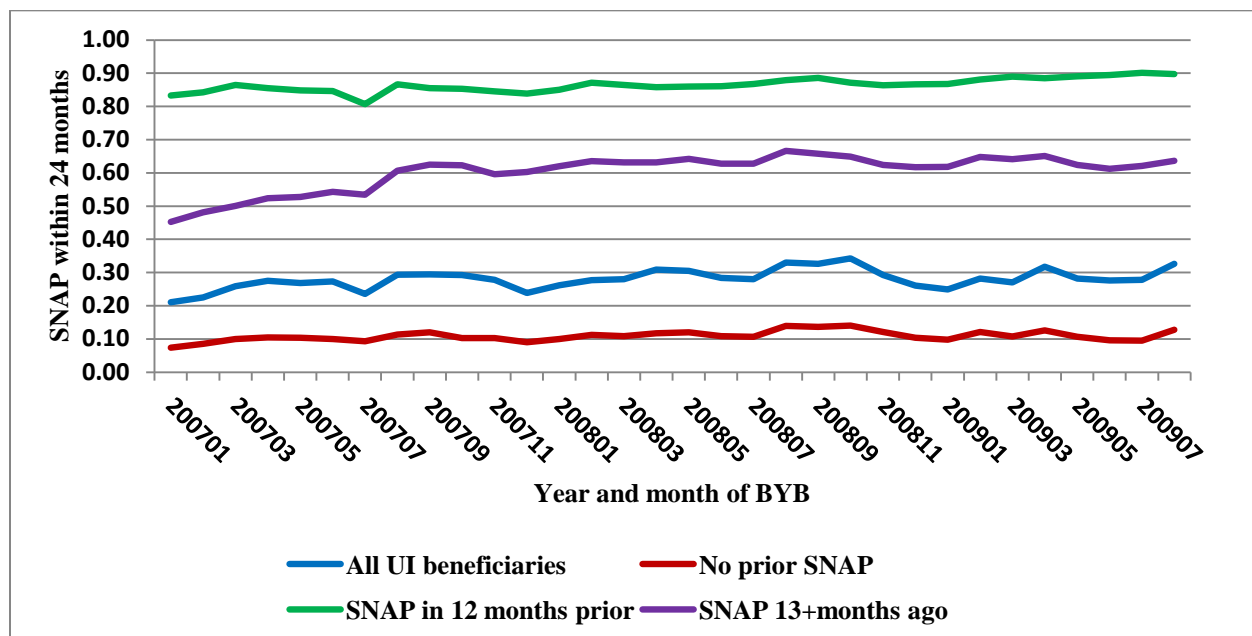


Figure 7 Probability of Receiving SNAP within 24 Months of UI Application by Prior SNAP receipt Status

Figure 8 examines SNAP receipt from a slightly different perspective and suggests UI applicants entered SNAP at a faster rate during the Great Recession than before. All persons represented in Figure 8 received SNAP within 24 months of UI application, the ratios plotted

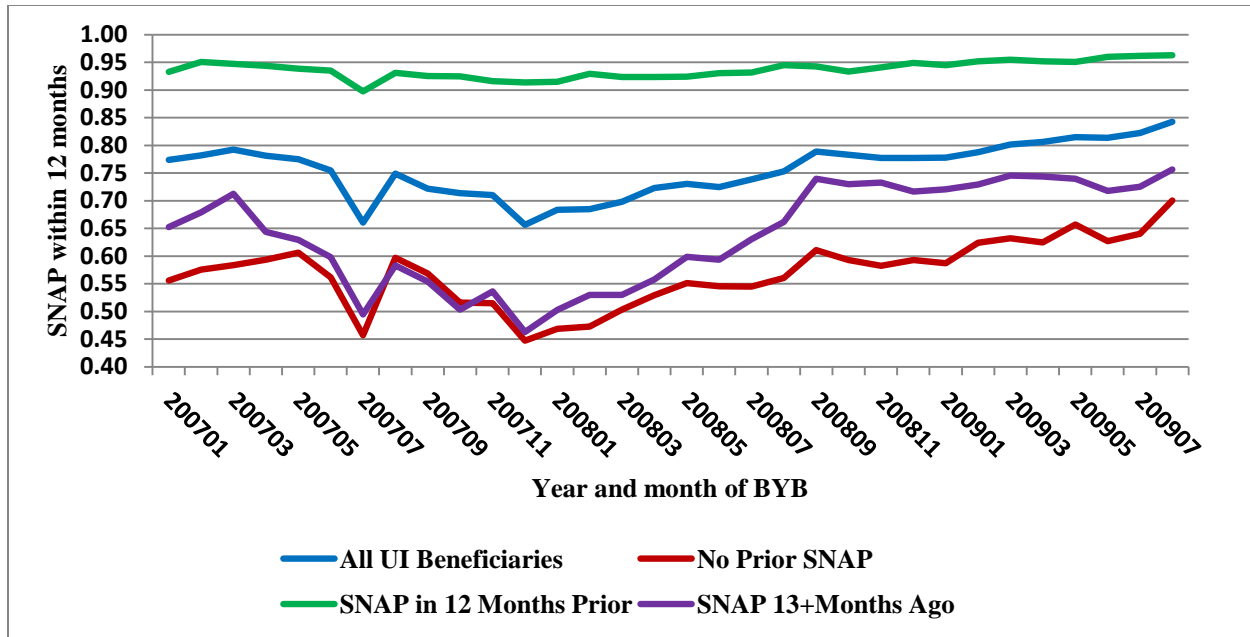


Figure 8 Share of UI Applicants who Received SNAP within 12 Months of UI Application among the Sample of UI Applicants who Entered SNAP within 24 Months of UI Filing by Prior SNAP Receipt Status

show the shares of who received SNAP within 12 months of UI application. If an increasing share of persons who received SNAP within 24 months of filing received that first benefit within 12 months of application, those persons are, on average, entering SNAP faster. Among all UI applicants there is an initial downward trend that pivots in December, 2007 which is month pegged by the National Bureau of Economic Research (NBER) as the official start of the Great Recession. That same pivot month in the trend is prominent for persons with no prior SNAP receipt and for those with prior SNAP receipt more than one year ago. The upward trend from that point indicates an acceleration of entry into SNAP.

10 WAGE REPLACEMENT AND SNAP RECEIPT

A frequent question in UI research concerns benefit adequacy as income replacement during spells of joblessness. Many state programs define their weekly benefit amount (WBA) formulas to approximate 50 percent replacement of an applicant's average weekly wage up to a

statutory maximum, but is actual wage replacement adequate? Table 8 summarizes evidence on the effect WBA levels on the likelihood of SNAP receipt after UI application. To the of SNAP receipt model summarized in Table 7 (Appendix Table A1) we add a series of dummy variables for various ranges of UI wage replacement rates in the range between the Michigan statutory minimum and maximum UI weekly benefit amount (WBA). The WBA distribution within that range is broken into 10 groups, and indicator variables are defined for each group. By also including in the model a variable for UI applicants not eligible to receive UI benefits and another variable for UI applicants at the statutory maximum, the complete set of wage replacement variables are included in the model for estimation, under the restriction that the sum of the variable proportions is one.¹⁶

Table 8 Weekly Benefit Amounts and the Likelihood of Receiving SNAP within One or Two Years of UI Application

Variable description	SNAP in one year ($m = 0.251$)		SNAP in two years ($m = 0.321$)		Regression Sample mean	Mean WBA (\$)
	Parameter estimate	<i>t</i> -Statistic	Parameter estimate	<i>t</i> -Statistic		
Monetarily ineligible	0.072	77.56	0.098	90.86	0.105	n/a
Nonmax decile, 1st	0.013	10.27	0.026	17.77	0.043	129
Nonmax decile, 2nd	0.014	11.24	0.028	19.85	0.043	158
Nonmax decile, 3rd	0.013	10.42	0.023	15.96	0.043	183
Nonmax decile, 4th	0.011	9.13	0.021	14.96	0.043	207
Nonmax decile, 5th	0.008	7.08	0.016	12.11	0.043	230
Nonmax decile, 6th	0.003	2.90	0.009	6.83	0.043	253
Nonmax decile, 7th	-0.001	-0.59	0.004	2.73	0.043	276
Nonmax decile, 8th	-0.003	-2.54	-0.001	-0.71	0.043	300
Nonmax decile, 9th	-0.009	-7.79	-0.008	-6.24	0.043	324
Nonmax decile, 10th	-0.014	-11.55	-0.015	-10.78	0.043	349
WBA at maximum	-0.020	-51.04	-0.032	-71.20	0.461	362

¹⁶ A full set of dummy variables (zero, one) defining an exhaustive partition of categories for an independent variable (e.g., the categories male and female exhaustively partition the independent variable sex) can be included in a regression model if a linear restriction is imposed to force the weighted sum of means of categories within the independent variable equal to zero. The weights are the share of each category within the sample. Parameter estimates on such categorical variables are interpreted relative to the mean effect of the independent variable on the dependent variable.

Results from estimating this model suggest that UI applicants not monetarily eligible to receive benefits are 7.2 percent more likely to receive SNAP within one year of UI application. Controlling for benefit receipt and other factors, persons with an average WBA of \$129 are 1.3 percentage points more likely to receive SNAP. Not until WBA approaches \$300 is there a significant reduction in the likelihood of receiving SNAP within one year after UI application. In the model for SNAP receipt within two years, a significant reduction in the likelihood of SNAP receipt occurs at an average WBA of \$324.

11 SUMMARY

Based on Michigan data on all SNAP recipients from 2006 to 2011 and all UI applicants from 2001 to 2011, we examined gross flows between programs by degree of UI eligibility, and also reviewed regression-adjusted flows from UI to SNAP. Gross levels of SNAP usage increased every year from 2006 to 2010, with an average annual increase of 11.6 percent. Applications for UI dipped slightly in 2007 but surged 23.6 percent in 2008 and made an additional rise of 16.3 percent in 2009.

An average of 20.2 percent of UI applicants between 2007 and 2010 received some SNAP benefits in the year prior to their UI application. Over this period, 15.8 percent of UI beneficiaries had prior SNAP receipt, while 25.0 percent of nonbeneficiary UI applicants received SNAP in the prior year. Prior SNAP receipt was highest among UI applicants who quit or got fired from jobs (28.7 percent) and lowest among UI beneficiaries who did not exhaust their entitlement (13.0 percent). Among UI exhaustees, 18.4 percent had prior SNAP receipt, while among UI exhaustees who transitioned to extended benefits (EB) or emergency unemployment compensation (EUC) 19.4 percent had prior SNAP receipt.

Among UI applicants between 2007 and 2010 who did not receive SNAP benefits in the year before UI application, 13.0 percent received SNAP during the year after UI application. Among UI applicants, subsequent SNAP receipt was more likely for those who were not monetarily eligible, as well as for those who quit or were discharged from their prior job. Among UI beneficiaries in the sample, only 6.2 percent of those who did not exhaust their regular UI benefits received SNAP within a year, while 16.5 percent of UI exhaustees and 17.5 percent of exhaustees who transitioned to EB or EUC received SNAP within one year of UI application.

Linear models of the probability of receiving SNAP within one or two years of UI application were estimated controlling for UI eligibility requirements, UI entitlement, UI benefit receipt, and recent prior interactions with the UI system. The models also controlled for age, gender, race, education, industry of prior employment, and length of time spent on the job immediately preceding UI application. Finally, a vector of variables for the year and month of UI application and the county of residence are included. These models suggested that SNAP receipt after UI application was higher among those who:

- had job separations due to quits or employer discharge,
- were monetarily ineligible for UI,
- exhausted their regular UI benefit entitlement,
- were between the ages of 25 and 44,
- were less educated,
- had recent prior job tenure of three to five years, and
- separated from employment in the industries of retail trade, hospitality, or health care services.

The data also suggest that during the Great Recession, UI applicants entered SNAP faster than before the official start date of the economic decline in December, 2007.

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Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
Intercept	0.264	0.004	73.15	0.365	0.004	88.11	
Monetarily ineligible	0.042	0.001	44.19	0.056	0.001	51.17	0.105
Monetarily eligible but not a beneficiary	0.016	0.001	19.13	0.008	0.001	8.75	0.096
UI beneficiary but not an exhaustee	-0.035	0.000	-97.97	-0.044	0.000	-106.97	0.425
UI exhaustee but not an EC/EB recipient	0.009	0.001	11.40	0.006	0.001	6.01	0.089
EC/EB recipient	0.028	0.000	65.39	0.040	0.000	80.90	0.285
Weekly benefit amount (\$10)	-0.001	0.000	-20.60	-0.002	0.000	-27.52	30.33
WBA at maximum	-0.008	0.001	-8.22	-0.018	0.001	-16.77	0.461
Regular UI entitlement length (weeks)	0.000	0.000	2.35	-0.001	0.000	-3.79	24.9
Bottom third of earnings (5 qtrs.)	0.004	0.001	7.18	0.008	0.001	13.12	0.333
Middle third of earnings (5 qtrs.)	0.001	0.000	3.52	0.001	0.000	2.96	0.333
Top third of earnings (5 qtrs.)	-0.005	0.000	-11.15	-0.010	0.001	-17.47	0.333
Job separation, lack of work	-0.021	0.000	-120.40	-0.024	0.000	-124.28	0.743
Job separation, fired/discharged	0.068	0.001	111.01	0.079	0.001	113.06	0.165
Job separation, quit	0.046	0.001	52.95	0.058	0.001	57.56	0.083
Job separation, other	0.030	0.003	10.93	0.028	0.003	8.75	0.008
Months since last SNAP: no prior SNAP	-0.126	0.000	-876.32	-0.119	0.000	-720.85	0.778
Months since last SNAP: one month	0.669	0.001	921.69	0.581	0.001	697.48	0.115
Months since last SNAP: 2–6 mos.	0.306	0.001	227.51	0.330	0.002	213.84	0.033
Months since last SNAP: 7–12 mos.	0.207	0.001	141.74	0.254	0.002	150.94	0.028
Months since last SNAP: 13–24 mos.	0.120	0.001	86.66	0.179	0.002	112.58	0.031
Months since last SNAP: 25+ mos.	0.075	0.002	36.79	0.125	0.002	53.55	0.015
Last SNAP benefit (in \$100s)	0.006	0.000	19.22	0.006	0.000	17.75	2.36
Applicant, nonbeneficiary on prior UI claim	-0.008	0.001	-8.39	-0.002	0.001	-1.86	0.085
UI beneficiary, nonexhaustee, prior claim	-0.019	0.001	-30.67	-0.023	0.001	-31.43	0.295
UI exhaustee on prior UI claim	-0.015	0.001	-18.88	-0.009	0.001	-9.74	0.140

Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
Age 18–24	-0.007	0.001	-9.93	0.002	0.001	1.90	0.121
Age 25–44	0.016	0.000	61.78	0.022	0.000	75.56	0.501
Age 45+	-0.018	0.000	-54.53	-0.029	0.000	-76.29	0.379
Gender, male	-0.008	0.000	-40.01	-0.010	0.000	-42.49	0.630
Gender, female	0.014	0.000	40.01	0.017	0.000	42.49	0.370
Race, white/Caucasian	-0.011	0.000	-50.03	-0.016	0.000	-65.91	0.608
Race, African American	0.038	0.001	54.43	0.057	0.001	70.95	0.129
Race, other	-0.003	0.002	-1.96	-0.007	0.002	-3.78	0.021
Race, unknown	0.007	0.000	15.10	0.011	0.001	20.92	0.242
Registered alien	-0.026	0.002	-15.34	-0.037	0.002	-19.45	0.024
Education, less than high school	0.033	0.001	46.84	0.051	0.001	62.66	0.114
Education, high school grad/GED	0.002	0.000	8.04	0.003	0.000	11.60	0.523
Education, some college	-0.005	0.000	-10.74	-0.008	0.000	-15.55	0.247
Education, bachelor's degree	-0.032	0.001	-34.17	-0.048	0.001	-45.30	0.069
Education, advanced degree	-0.031	0.001	-27.28	-0.048	0.001	-36.42	0.046
Education, missing/unknown	-0.010	0.008	-1.23	-0.028	0.009	-3.08	0.001
Job tenure, less than one year	-0.004	0.000	-8.83	-0.002	0.000	-4.06	0.341
Job tenure, 1–2 years	0.001	0.000	3.29	0.002	0.001	4.80	0.240
Job tenure, 3–5 years	0.010	0.001	15.18	0.012	0.001	15.66	0.129
Job tenure, 6–10 years	0.006	0.001	8.58	0.007	0.001	9.03	0.134
Job tenure, 11 years or more	-0.008	0.001	-11.53	-0.015	0.001	-20.46	0.154
Employed at UI filing	-0.022	0.003	-6.70	-0.022	0.004	-5.71	0.006
Requests income tax withholding	0.013	0.000	46.08	0.015	0.000	49.33	0.416
Able, available, active issue and disqualified	0.051	0.001	39.57	0.060	0.001	40.52	0.040
Work refusal issue and disqualified	0.033	0.005	6.02	0.047	0.006	7.52	0.002

Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
Search-exempt, recalled to prior employment	-0.014	0.001	-17.63	-0.026	0.001	-27.66	0.153
Ind (NAICS): Agric., forestry, fishing	-0.006	0.003	-2.02	-0.019	0.004	-5.30	0.006
Ind (NAICS): Mining	-0.009	0.004	-2.09	-0.013	0.005	-2.61	0.003
Ind (NAICS): Utilities	0.011	0.009	1.28	0.003	0.010	0.33	0.001
Ind (NAICS): Construction	-0.011	0.001	-14.59	-0.014	0.001	-16.65	0.118
Ind (NAICS): Manufacturing	-0.001	0.000	-2.31	0.002	0.000	4.62	0.298
Ind (NAICS): Wholesale trade	-0.005	0.001	-4.10	-0.006	0.001	-4.01	0.038
Ind (NAICS): Retail trade	0.005	0.001	5.46	0.004	0.001	3.69	0.079
Ind (NAICS): Transportation, warehousing	0.005	0.001	3.40	0.005	0.002	3.47	0.031
Ind (NAICS): Information	-0.003	0.002	-1.05	-0.007	0.003	-2.54	0.011
Ind (NAICS): Finance and insurance	-0.012	0.002	-7.13	-0.020	0.002	-10.06	0.021
Ind (NAICS): Real estate, rental, leasing	0.005	0.002	2.39	0.005	0.002	1.93	0.013
Ind (NAICS): Prof, scientific, technical	-0.012	0.001	-10.19	-0.016	0.001	-12.02	0.046
Ind (NAICS): Company/enterprise mgmt.	-0.007	0.004	-1.68	-0.013	0.005	-2.77	0.004
Ind (NAICS): Admin., support, waste mgmt.	0.005	0.001	7.21	0.009	0.001	11.02	0.120
Ind (NAICS): Educational services	-0.008	0.002	-4.74	-0.014	0.002	-7.35	0.022
Ind (NAICS): Health care/social assistance	0.017	0.001	16.71	0.018	0.001	14.59	0.057
Ind (NAICS): Art, entertainment, recreation	-0.013	0.002	-6.95	-0.022	0.002	-9.76	0.016
Ind (NAICS): Accommodation, food services	0.013	0.001	12.40	0.015	0.001	12.43	0.056
Ind (NAICS): Other services (ex., pub. admin.)	0.000	0.002	0.03	0.000	0.002	0.15	0.019
Ind (NAICS): Public administration	-0.001	0.002	-0.41	-0.011	0.003	-3.80	0.010
Ind (NAICS): Unclassifiable	-0.006	0.003	-2.24	-0.001	0.003	-0.34	0.007
Ind (NAICS): Missing	0.007	0.002	4.25	-0.001	0.002	-0.53	0.024
Year and month of UI BYB, 2007:02	0.004	0.002	1.70	0.004	0.002	1.64	0.022
Year and month of UI BYB, 2007:03	0.004	0.002	1.87	0.007	0.003	2.75	0.018
Year and month of UI BYB, 2007:04	0.001	0.002	0.53	0.009	0.003	3.55	0.020
Year and month of UI BYB, 2007:05	0.003	0.002	1.05	0.013	0.003	4.82	0.016
Year and month of UI BYB, 2007:06	-0.005	0.002	-2.19	0.010	0.003	3.65	0.018
Year and month of UI BYB, 2007:07	-0.009	0.002	-5.05	0.021	0.002	10.50	0.047
Year and month of UI BYB, 2007:08	0.002	0.002	0.81	0.023	0.003	8.29	0.015
Year and month of UI BYB, 2007:09	-0.004	0.002	-1.59	0.028	0.003	11.07	0.020

Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
Year and month of UI BYB, 2007:10	-0.004	0.002	-1.66	0.029	0.002	11.79	0.021
Year and month of UI BYB, 2007:11	-0.004	0.002	-2.04	0.021	0.002	8.62	0.023
Year and month of UI BYB, 2007:12	-0.003	0.002	-2.03	0.030	0.002	15.33	0.054
Year and month of UI BYB, 2008:01	-0.006	0.002	-2.93	0.024	0.002	11.03	0.033
Year and month of UI BYB, 2008:02	-0.000	0.002	-0.06	0.033	0.002	13.36	0.022
Year and month of UI BYB, 2008:03	-0.004	0.002	-1.94	0.030	0.002	12.77	0.027
Year and month of UI BYB, 2008:04	-0.000	0.002	-0.22	0.029	0.003	11.19	0.020
Year and month of UI BYB, 2008:05	0.003	0.002	1.33	0.025	0.003	9.44	0.017
Year and month of UI BYB, 2008:06	0.009	0.002	4.66	0.031	0.002	13.99	0.035
Year and month of UI BYB, 2008:07	0.012	0.002	6.14	0.029	0.002	13.57	0.037
Year and month of UI BYB, 2008:08	0.021	0.002	10.12	0.040	0.002	16.41	0.023
Year and month of UI BYB, 2008:09	0.033	0.002	14.99	0.041	0.003	16.37	0.021
Year and month of UI BYB, 2008:10	0.030	0.002	14.70	0.038	0.002	16.02	0.027
Year and month of UI BYB, 2008:11	0.028	0.002	15.64	0.033	0.002	16.50	0.050
Year and month of UI BYB, 2008:12	0.029	0.002	17.23	0.034	0.002	17.91	0.069
Year and month of UI BYB, 2009:01	0.025	0.002	14.70	0.030	0.002	15.31	0.064
Year and month of UI BYB, 2009:02	0.035	0.002	18.60	0.040	0.002	18.75	0.037
Year and month of UI BYB, 2009:03	0.032	0.002	17.75	0.035	0.002	16.75	0.044
Year and month of UI BYB, 2009:04	0.038	0.002	18.60	0.043	0.002	18.45	0.028
Year and month of UI BYB, 2009:05	0.031	0.002	16.43	0.033	0.002	15.43	0.036
Year and month of UI BYB, 2009:06	0.027	0.002	14.47	0.031	0.002	14.32	0.039
Year and month of UI BYB, 2009:07	0.026	0.002	13.78	0.027	0.002	12.49	0.036
Year and month of UI BYB, 2009:08	0.035	0.002	17.09	0.033	0.002	14.10	0.027
(001) Alcona	0.016	0.007	2.20	0.034	0.009	3.99	0.001
(003) Alger	0.014	0.008	1.88	0.009	0.009	1.05	0.001
(005) Allegan	0.003	0.002	1.29	-0.000	0.003	-0.03	0.012
(007) Alpena	0.011	0.004	2.65	0.015	0.005	3.01	0.003
(009) Antrim	0.009	0.004	2.11	0.016	0.005	3.26	0.003
(011) Arenac	0.010	0.005	1.93	0.013	0.006	2.03	0.002
(013) Baraga	-0.019	0.008	-2.43	-0.012	0.009	-1.28	0.001
(015) Barry	0.019	0.003	6.08	0.023	0.004	6.53	0.006
(017) Bay	0.005	0.002	2.11	0.001	0.003	0.35	0.011

Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
(019) Benzie	0.020	0.006	3.62	0.020	0.006	3.13	0.002
(021) Berrien	-0.002	0.002	-0.79	-0.004	0.002	-1.50	0.013
(023) Branch	0.012	0.003	3.61	0.014	0.004	3.42	0.005
(025) Calhoun	0.029	0.002	14.35	0.032	0.002	13.56	0.014
(027) Cass	0.015	0.004	3.61	0.020	0.005	4.16	0.004
(029) Charlevoix	0.002	0.004	0.52	-0.005	0.005	-0.95	0.003
(031) Cheboygan	0.003	0.004	0.72	-0.009	0.004	-1.97	0.004
(033) Chippewa	-0.001	0.004	-0.13	-0.008	0.005	-1.68	0.003
(035) Clare	0.017	0.004	4.04	0.030	0.005	6.13	0.003
(037) Clinton	-0.011	0.003	-3.29	-0.018	0.004	-4.79	0.005
(039) Crawford	0.026	0.007	3.99	0.044	0.007	5.81	0.001
(041) Delta	0.005	0.004	1.34	-0.002	0.005	-0.42	0.004
(043) Dickinson	0.002	0.005	0.36	0.001	0.006	0.10	0.002
(045) Eaton	0.001	0.002	0.59	0.000	0.003	0.11	0.010
(047) Emmet	0.008	0.004	1.95	0.001	0.004	0.16	0.004
(049) Genesee	0.010	0.001	9.46	0.014	0.001	11.07	0.049
(051) Gladwin	0.021	0.005	4.22	0.017	0.006	3.06	0.002
(053) Gogebic	0.027	0.007	3.66	0.020	0.008	2.41	0.001
(055) Grand Traverse	0.019	0.003	6.96	0.020	0.003	6.26	0.008
(057) Gratiot	0.012	0.004	2.98	0.008	0.004	1.86	0.004
(059) Hillsdale	0.009	0.003	2.79	0.007	0.004	1.75	0.006
(061) Houghton	0.004	0.005	0.87	-0.004	0.006	-0.75	0.003
(063) Huron	-0.001	0.004	-0.21	-0.011	0.005	-2.34	0.004
(065) Ingham	0.014	0.002	8.15	0.017	0.002	9.08	0.021
(067) Ionia	0.014	0.003	4.65	0.018	0.003	5.31	0.007
(069) Iosco	0.034	0.005	7.45	0.042	0.005	8.17	0.003
(071) Iron	-0.006	0.008	-0.65	-0.023	0.010	-2.33	0.001
(073) Isabella	0.017	0.004	4.54	0.019	0.004	4.40	0.004
(075) Jackson	0.006	0.002	3.13	0.011	0.002	4.70	0.016
(077) Kalamazoo	0.010	0.002	5.53	0.011	0.002	5.47	0.018
(079) Kalkaska	0.026	0.005	5.09	0.038	0.006	6.60	0.002
(081) Kent	-0.000	0.001	-0.21	-0.000	0.001	-0.30	0.055
(083) Keweenaw	-0.007	0.017	-0.39	-0.023	0.019	-1.17	0.000

Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
(085) Lake	0.042	0.007	5.57	0.048	0.009	5.54	0.001
(087) Lapeer	0.000	0.002	0.08	-0.001	0.003	-0.36	0.012
(089) Leelanau	-0.006	0.006	-0.97	-0.012	0.007	-1.74	0.002
(091) Lenawee	0.009	0.002	3.93	0.011	0.003	4.04	0.011
(093) Livingston	-0.010	0.002	-5.43	-0.016	0.002	-7.32	0.017
(095) Luce	0.001	0.007	0.18	-0.004	0.008	-0.48	0.001
(097) Mackinac	-0.022	0.006	-3.78	-0.044	0.007	-6.58	0.002
(099) Macomb	-0.010	0.001	-12.98	-0.012	0.001	-14.28	0.098
(101) Manistee	0.017	0.005	3.46	0.006	0.006	1.09	0.002
(103) Marquette	0.006	0.004	1.84	0.004	0.004	1.00	0.005
(105) Mason	0.019	0.004	4.46	0.020	0.005	4.01	0.003
(107) Mecosta	0.024	0.004	5.81	0.025	0.005	5.31	0.004
(109) Menominee	0.006	0.006	1.00	-0.004	0.007	-0.66	0.002
(111) Midland	0.005	0.003	1.59	-0.002	0.004	-0.62	0.006
(113) Missaukee	0.025	0.006	4.26	0.023	0.007	3.49	0.002
(115) Monroe	-0.002	0.002	-1.21	-0.007	0.002	-3.00	0.015
(117) Montcalm	0.013	0.003	4.67	0.016	0.003	4.95	0.007
(119) Montmorency	0.027	0.007	3.70	0.035	0.008	4.21	0.001
(121) Muskegon	0.026	0.002	15.85	0.033	0.002	17.07	0.021
(123) Newaygo	0.018	0.003	5.58	0.023	0.004	6.39	0.006
(125) Oakland	-0.021	0.001	-28.91	-0.025	0.001	-30.05	0.104
(127) Oceana	0.016	0.004	3.96	0.020	0.005	4.48	0.004
(129) Ogemaw	0.013	0.005	2.38	0.018	0.006	2.96	0.002
(131) Ontonagon	-0.005	0.009	-0.52	-0.008	0.011	-0.69	0.001
(133) Osceola	0.017	0.005	3.67	0.016	0.005	3.02	0.003
(135) Oscoda	0.028	0.008	3.60	0.031	0.009	3.48	0.001
(137) Otsego	0.032	0.005	7.09	0.044	0.005	8.40	0.003
(139) Ottawa	0.002	0.002	1.28	-0.004	0.002	-2.07	0.025
(141) Presque Isle	-0.000	0.006	-0.08	-0.009	0.007	-1.41	0.002
(143) Roscommon	0.031	0.005	6.26	0.044	0.006	7.61	0.002
(145) Saginaw	-0.005	0.002	-2.70	-0.009	0.002	-4.31	0.020
(147) Saint Clair	0.011	0.002	6.58	0.011	0.002	6.18	0.023
(149) Saint Joseph	0.021	0.003	6.91	0.026	0.004	7.45	0.006

Appendix Table A1 Model of Receiving SNAP within One or Two Years of UI Application Regardless of Prior SNAP Receipt
(regression interval: 2007:01-2009:08, $n = 1,633,566$)

Variable description	Receive SNAP within one year (dependent var. mean = 0.251)			Receive SNAP within two years (dependent var. mean = 0.321)			Regression sample mean
	Parameter estimate	Standard error	<i>t</i> -statistic	Parameter estimate	Standard error	<i>t</i> -statistic	
(151) Sanilac	0.024	0.003	7.45	0.023	0.004	6.28	0.006
(153) Schoolcraft	0.001	0.009	0.15	0.003	0.010	0.27	0.001
(155) Shiawassee	0.006	0.003	2.13	0.008	0.003	2.69	0.008
(157) Tuscola	0.003	0.003	1.07	0.002	0.003	0.64	0.007
(159) Van Buren	0.010	0.003	3.84	0.010	0.003	3.35	0.008
(161) Washtenaw	-0.006	0.002	-3.58	-0.012	0.002	-5.86	0.020
(163) Wayne	-0.007	0.001	-13.98	-0.004	0.001	-6.29	0.208
(165) Wexford	0.028	0.004	7.51	0.033	0.004	7.83	0.004
Observations	1,633,566			1,633,566			
Adjusted <i>R</i> -square	0.4768			0.4052			
RMSE	0.3136			0.3602			

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)				
	Parameter estimate	Standard error	t -statistic	Parameter estimate	Standard error	t -statistic	Enter SNAP one year	Enter SNAP two years
Intercept	2.877	0.048	59.93	6.556	0.091	71.80		
Monetarily ineligible	0.005	0.012	0.41	-0.140	0.024	-5.87	0.197	0.183
Monetarily eligible but not a beneficiary	-0.257	0.012	-21.47	-0.472	0.023	-20.63	0.141	0.134
UI beneficiary but not an exhaustee	0.031	0.009	3.47	0.460	0.016	28.61	0.238	0.256
UI exhaustee but not an EC/EB recipient	0.052	0.014	3.75	-0.217	0.026	-8.36	0.094	0.093
EC/EB recipient	0.069	0.007	10.41	-0.026	0.012	-2.09	0.330	0.334
Weekly benefit amount (\$100)	-0.006	0.001	-5.89	-0.005	0.002	-2.54	26.59	26.99
WBA at maximum	0.003	0.017	0.17	-0.093	0.032	-2.94	0.247	0.265
Regular UI entitlement length (weeks)	-0.006	0.002	-3.46	-0.021	0.003	-6.79	24.1	24.2
Bottom third of earnings (5 qtrs.)	0.015	0.009	1.63	0.057	0.017	3.27	0.333	0.333
Middle third of earnings (5 qtrs.)	-0.009	0.007	-1.27	-0.010	0.013	-0.74	0.333	0.333
Top third of earnings (5 qtrs.)	-0.006	0.009	-0.71	-0.047	0.017	-2.83	0.333	0.333
Job separation, lack of work	0.090	0.004	21.25	0.306	0.008	40.27	0.585	0.602
Job separation, fired/discharged	-0.143	0.007	-19.04	-0.506	0.014	-34.97	0.278	0.266
Job separation, quit	-0.066	0.012	-5.49	-0.347	0.023	-15.10	0.124	0.120
Job separation, other	-0.352	0.038	-9.25	-0.687	0.074	-9.25	0.013	0.012
Months since last SNAP: no prior SNAP	2.542	0.006	410.54	4.241	0.009	449.17	0.342	0.439
Months since last SNAP: one month	-2.497	0.005	-506.66	-5.760	0.011	-513.15	0.449	0.354
Months since last SNAP: 2–6 mos.	0.749	0.015	51.57	-0.334	0.028	-11.89	0.081	0.076
Months since last SNAP: 7–12 mos.	1.233	0.018	70.02	0.817	0.033	24.80	0.056	0.056
Months since last SNAP: 13–24 mos.	1.633	0.019	88.14	1.910	0.034	56.94	0.051	0.054
Months since last SNAP: 25+ mos.	1.822	0.029	62.57	2.330	0.053	43.86	0.021	0.022
Last SNAP benefit (\$100)	-0.003	0.003	-0.93	-0.008	0.006	-1.33	2.48	2.45

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)			Enter SNAP	
	Parameter	Standard	t -statistic	Parameter	Standard	t -statistic	one year	two years
	estimate	error		estimate	error		one year	two years
Applicant, nonbeneficiary, prior UI claim	0.081	0.014	5.92	0.315	0.026	12.05	0.129	0.123
UI beneficiary, nonexhaustee, prior UI claim	0.255	0.012	20.42	0.590	0.023	25.84	0.184	0.198
UI exhaustee on prior UI claim	0.124	0.013	9.80	0.460	0.024	19.31	0.173	0.169
Age 18–24	0.153	0.010	15.20	0.376	0.019	19.82	0.170	0.168
Age 25–44	-0.043	0.004	-11.43	-0.115	0.007	-16.18	0.570	0.565
Age 45+	-0.005	0.008	-0.72	0.007	0.014	0.49	0.260	0.267
Gender, male	0.022	0.005	4.75	0.098	0.008	11.84	0.511	0.530
Gender, female	-0.023	0.005	-4.75	-0.111	0.009	-11.84	0.489	0.470
Race, white/Caucasian	-0.001	0.005	-0.22	0.041	0.009	4.85	0.506	0.512
Race, African American	0.011	0.009	1.11	-0.060	0.018	-3.31	0.201	0.195
Race, other	0.007	0.031	0.23	-0.087	0.058	-1.51	0.019	0.019
Race, unknown	-0.006	0.007	-0.90	-0.029	0.013	-2.20	0.274	0.273
Registered alien	0.018	0.032	0.57	0.102	0.059	1.73	0.019	0.020
Education, less than high school	-0.002	0.010	-0.18	-0.039	0.018	-2.12	0.166	0.163
Education, high school grad/GED	0.014	0.004	3.15	0.035	0.008	4.34	0.503	0.508
Education, some college	-0.014	0.007	-1.93	-0.018	0.014	-1.26	0.254	0.252
Education, bachelor's degree	-0.051	0.020	-2.59	-0.077	0.037	-2.09	0.045	0.045
Education, advanced degree	-0.017	0.024	-0.72	-0.095	0.045	-2.14	0.032	0.032
Education, missing/unknown	0.022	0.170	0.13	-0.327	0.323	-1.01	0.001	0.001
Job tenure, less than one year	0.015	0.006	2.71	0.077	0.011	7.33	0.456	0.445
Job tenure, 1–2 Years	-0.015	0.007	-2.03	-0.014	0.014	-1.03	0.261	0.260
Job tenure, 3–5 Years	-0.077	0.012	-6.39	-0.204	0.022	-9.13	0.116	0.118
Job tenure, 6–10 Years	-0.019	0.014	-1.35	-0.090	0.025	-3.62	0.096	0.101
Job tenure, 11 years or more	0.110	0.017	6.59	0.035	0.030	1.14	0.071	0.075
Employed at UI filing	0.409	0.066	6.24	0.644	0.120	5.36	0.004	0.005
Requests income tax withholding	-0.036	0.004	-9.03	-0.122	0.008	-16.15	0.567	0.542

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)				
	Parameter	Standard	t -statistic	Parameter	Standard	t -statistic	Enter SNAP	Enter SNAP
	estimate	error		estimate	error		one year	two years
Able, available, active issue, and disqualified	-0.068	0.017	-3.88	-0.371	0.033	-11.14	0.070	0.066
Work refusal issue and disqualified	0.168	0.074	2.26	-0.078	0.139	-0.56	0.003	0.003
Search-exempt, recalled, prior employment	-0.139	0.021	-6.72	0.284	0.037	7.67	0.059	0.064
Ind (NAICS): Agric., forestry, fishing	-0.032	0.053	-0.60	-0.221	0.100	-2.21	0.007	0.006
Ind (NAICS): mining	-0.094	0.097	-0.97	0.023	0.178	0.13	0.002	0.002
Ind (NAICS): utilities	-0.188	0.158	-1.19	-0.468	0.295	-1.59	0.001	0.001
Ind (NAICS): construction	0.086	0.016	5.42	0.293	0.028	10.28	0.075	0.082
Ind (NAICS): manufacturing	0.107	0.009	12.22	0.126	0.016	7.96	0.222	0.232
Ind (NAICS): Wholesale trade	0.085	0.024	3.62	0.059	0.044	1.36	0.032	0.033
Ind (NAICS): Retail trade	-0.034	0.012	-2.73	-0.071	0.024	-2.98	0.112	0.107
Ind (NAICS): Transportation, warehousing	-0.018	0.025	-0.72	-0.067	0.046	-1.45	0.028	0.029
Ind (NAICS): Information	0.029	0.042	0.70	-0.114	0.078	-1.45	0.010	0.010
Ind (NAICS): Finance and insurance	-0.079	0.030	-2.64	-0.144	0.056	-2.57	0.020	0.020
Ind (NAICS): Real estate, rental, leasing	-0.085	0.034	-2.46	-0.142	0.064	-2.20	0.015	0.015
Ind (NAICS): Prof., scientific, technical	0.047	0.023	2.06	0.105	0.042	2.50	0.035	0.036
Ind (NAICS): Company/enterprise mgmt.	0.155	0.082	1.90	-0.056	0.154	-0.37	0.003	0.003
Ind (NAICS): Admin., support, waste mgmt.	0.004	0.010	0.43	-0.004	0.019	-0.21	0.155	0.153
Ind (NAICS): Educational services	-0.178	0.028	-6.29	-0.287	0.054	-5.35	0.023	0.022
Ind (NAICS): Health care/social assistance	-0.154	0.014	-10.91	-0.256	0.027	-9.38	0.091	0.086
Ind (NAICS): Art, entertainment, recreation	-0.086	0.034	-2.52	-0.032	0.063	-0.50	0.016	0.016
Ind (NAICS): Accommodation, food services	-0.076	0.014	-5.56	-0.097	0.026	-3.67	0.098	0.092
Ind (NAICS): Other services (ex., public admin.)	-0.070	0.028	-2.51	-0.063	0.053	-1.18	0.022	0.022
Ind (NAICS): Public administration	-0.205	0.041	-5.01	-0.460	0.078	-5.93	0.011	0.011
Ind (NAICS): Unclassifiable	-0.054	0.048	-1.13	0.097	0.088	1.10	0.008	0.008
Ind (NAICS): Missing	0.217	0.037	5.86	0.191	0.067	2.83	0.013	0.014
Year and month of UI BYB, 2007:01	-0.089	0.026	-3.39	-0.160	0.049	-3.23	0.026	0.026
Year and month of UI BYB, 2007:02	-0.046	0.031	-1.49	-0.103	0.058	-1.77	0.019	0.019
Year and month of UI BYB, 2007:03	-0.004	0.032	-0.13	-0.011	0.061	-0.19	0.017	0.017
Year and month of UI BYB, 2007:04	-0.006	0.029	-0.20	0.197	0.055	3.59	0.021	0.021

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)			Enter SNAP	
	Parameter	Standard	t -statistic	Parameter	Standard	t -statistic	one year	two years
	estimate	error		estimate	error		one year	two years
Year and month of UI BYB, 2007:05	0.040	0.033	1.20	0.306	0.062	4.91	0.016	0.016
Year and month of UI BYB, 2007:06	-0.022	0.031	-0.69	0.441	0.058	7.55	0.018	0.018
Year and month of UI BYB, 2007:07	0.263	0.023	11.68	1.353	0.040	33.97	0.035	0.039
Year and month of UI BYB, 2007:08	-0.095	0.034	-2.84	0.454	0.063	7.26	0.016	0.016
Year and month of UI BYB, 2007:09	-0.041	0.029	-1.42	0.852	0.052	16.23	0.021	0.023
Year and month of UI BYB, 2007:10	-0.005	0.029	-0.18	0.828	0.052	15.93	0.022	0.023
Year and month of UI BYB, 2007:11	-0.077	0.028	-2.74	0.567	0.051	11.13	0.022	0.024
Year and month of UI BYB, 2007:12	0.225	0.021	10.81	1.066	0.036	29.27	0.040	0.046
Year and month of UI BYB, 2008:01	0.069	0.025	2.80	0.788	0.044	17.90	0.029	0.032
Year and month of UI BYB, 2008:02	0.133	0.029	4.55	0.767	0.052	14.63	0.021	0.023
Year and month of UI BYB, 2008:03	0.148	0.026	5.72	0.747	0.047	16.04	0.026	0.028
Year and month of UI BYB, 2008:04	0.242	0.029	8.35	0.586	0.053	11.07	0.021	0.022
Year and month of UI BYB, 2008:05	0.261	0.031	8.38	0.407	0.058	7.06	0.018	0.019
Year and month of UI BYB, 2008:06	0.425	0.023	18.72	0.339	0.042	8.15	0.034	0.036
Year and month of UI BYB, 2008:07	0.445	0.022	20.23	0.338	0.041	8.30	0.036	0.037
Year and month of UI BYB, 2008:08	0.183	0.025	7.38	0.099	0.047	2.13	0.029	0.028
Year and month of UI BYB, 2008:09	0.284	0.026	10.99	-0.080	0.049	-1.63	0.026	0.025
Year and month of UI BYB, 2008:10	0.089	0.023	3.89	-0.243	0.044	-5.59	0.034	0.033
Year and month of UI BYB, 2008:11	0.013	0.018	0.69	-0.360	0.034	-10.52	0.053	0.052
Year and month of UI BYB, 2008:12	0.023	0.017	1.37	-0.446	0.031	-14.30	0.063	0.062
Year and month of UI BYB, 2009:01	-0.115	0.017	-6.64	-0.515	0.033	-15.76	0.058	0.057
Year and month of UI BYB, 2009:02	-0.131	0.021	-6.19	-0.570	0.040	-14.17	0.039	0.038
Year and month of UI BYB, 2009:03	-0.239	0.019	-12.40	-0.729	0.037	-19.64	0.046	0.044
Year and month of UI BYB, 2009:04	-0.253	0.022	-11.26	-0.728	0.043	-16.78	0.035	0.033
Year and month of UI BYB, 2009:05	-0.323	0.021	-15.55	-0.819	0.040	-20.38	0.040	0.038
Year and month of UI BYB, 2009:06	-0.326	0.021	-15.64	-0.850	0.040	-21.12	0.041	0.038
Year and month of UI BYB, 2009:07	-0.302	0.021	-14.20	-0.828	0.041	-20.09	0.039	0.036
Year and month of UI BYB, 2009:08	-0.231	0.022	-10.49	-0.841	0.043	-19.42	0.036	0.033
(001) Alcona	-0.107	0.127	-0.84	0.108	0.232	0.47	0.001	0.001
(003) Alger	-0.091	0.135	-0.67	-0.569	0.256	-2.22	0.001	0.001
(005) Allegan	-0.047	0.041	-1.15	-0.215	0.076	-2.83	0.011	0.011
(007) Alpena	-0.114	0.074	-1.55	-0.111	0.138	-0.81	0.003	0.003

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)			Enter SNAP	
	Parameter	Standard	t -statistic	Parameter	Standard	t -statistic	one year	two years
	estimate	error		estimate	error		one year	two years
(009) Antrim	0.072	0.072	1.00	0.153	0.134	1.14	0.003	0.004
(011) Arenac	-0.153	0.090	-1.69	-0.108	0.169	-0.64	0.002	0.002
(013) Baraga	0.063	0.148	0.42	0.550	0.269	2.04	0.001	0.001
(015) Barry	-0.206	0.054	-3.79	-0.306	0.101	-3.02	0.006	0.006
(017) Bay	-0.096	0.040	-2.39	-0.256	0.076	-3.38	0.011	0.011
(019) Benzie	0.032	0.093	0.34	-0.323	0.176	-1.84	0.002	0.002
(021) Berrien	-0.053	0.035	-1.53	-0.059	0.065	-0.90	0.015	0.015
(023) Branch	-0.179	0.060	-3.01	-0.348	0.111	-3.13	0.005	0.005
(025) Calhoun	-0.027	0.031	-0.88	-0.364	0.059	-6.17	0.019	0.018
(027) Cass	-0.076	0.068	-1.12	-0.173	0.127	-1.36	0.004	0.004
(029) Charlevoix	-0.009	0.082	-0.11	-0.402	0.153	-2.63	0.003	0.003
(031) Cheboygan	-0.284	0.066	-4.29	-0.599	0.125	-4.77	0.004	0.004
(033) Chippewa	-0.210	0.076	-2.77	-0.362	0.142	-2.54	0.003	0.003
(035) Clare	-0.072	0.067	-1.07	0.029	0.125	0.23	0.004	0.004
(037) Clinton	-0.145	0.067	-2.19	-0.001	0.123	-0.01	0.004	0.004
(039) Crawford	-0.036	0.103	-0.35	-0.154	0.192	-0.80	0.002	0.002
(041) Delta	-0.065	0.073	-0.89	-0.352	0.139	-2.54	0.003	0.003
(043) Dickinson	-0.161	0.094	-1.72	-0.226	0.175	-1.29	0.002	0.002
(045) Eaton	-0.004	0.042	-0.09	-0.099	0.080	-1.25	0.010	0.010
(047) Emmet	-0.130	0.069	-1.88	-0.434	0.130	-3.35	0.004	0.004
(049) Genesee	-0.024	0.018	-1.36	-0.066	0.033	-2.00	0.055	0.054
(051) Gladwin	-0.063	0.081	-0.78	-0.442	0.154	-2.87	0.003	0.003
(053) Gogebic	-0.262	0.116	-2.25	-0.702	0.224	-3.14	0.001	0.001
(055) Grand Traverse	-0.169	0.046	-3.70	-0.433	0.086	-5.02	0.009	0.008
(057) Gratiot	-0.033	0.065	-0.51	-0.329	0.123	-2.67	0.004	0.004
(059) Hillsdale	-0.037	0.058	-0.64	-0.315	0.109	-2.90	0.005	0.005
(061) Houghton	-0.214	0.088	-2.42	-0.291	0.166	-1.75	0.002	0.002
(063) Huron	-0.140	0.076	-1.84	-0.308	0.143	-2.15	0.003	0.003
(065) Ingham	-0.078	0.026	-2.98	-0.149	0.050	-3.00	0.026	0.025
(067) Ionia	-0.020	0.052	-0.38	-0.199	0.097	-2.04	0.007	0.007
(069) Iosco	-0.031	0.072	-0.43	-0.361	0.135	-2.67	0.004	0.003
(071) Iron	-0.018	0.158	-0.11	-0.354	0.302	-1.17	0.001	0.001
(073) Isabella	-0.104	0.061	-1.72	-0.294	0.115	-2.56	0.005	0.005

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)			Enter SNAP	
	Parameter	Standard	t -statistic	Parameter	Standard	t -statistic	one year	two years
	estimate	error		estimate	error		one year	two years
(075) Jackson	0.045	0.033	1.35	0.068	0.062	1.09	0.016	0.016
(077) Kalamazoo	-0.104	0.029	-3.60	-0.156	0.055	-2.86	0.021	0.021
(079) Kalkaska	-0.148	0.081	-1.82	-0.172	0.151	-1.14	0.003	0.003
(081) Kent	-0.011	0.018	-0.60	-0.032	0.033	-0.98	0.055	0.055
(083) Keweenaw	-0.239	0.318	-0.75	-0.701	0.604	-1.16	0.000	0.000
(085) Lake	-0.073	0.114	-0.64	-0.390	0.216	-1.81	0.001	0.001
(087) Lapeer	-0.023	0.043	-0.54	-0.034	0.079	-0.43	0.010	0.010
(089) Leelanau	-0.091	0.120	-0.76	-0.219	0.223	-0.98	0.001	0.001
(091) Lenawee	-0.103	0.042	-2.44	-0.162	0.078	-2.08	0.010	0.010
(093) Livingston	0.028	0.040	0.72	0.040	0.073	0.54	0.011	0.012
(095) Luce	-0.099	0.139	-0.71	-0.317	0.263	-1.21	0.001	0.001
(097) Mackinac	0.085	0.112	0.76	-0.181	0.210	-0.86	0.001	0.001
(099) Macomb	0.080	0.015	5.45	0.190	0.027	7.05	0.078	0.081
(101) Manistee	-0.140	0.081	-1.74	-0.661	0.155	-4.27	0.003	0.003
(103) Marquette	-0.144	0.063	-2.30	-0.197	0.118	-1.68	0.005	0.005
(105) Mason	-0.220	0.069	-3.20	-0.404	0.131	-3.09	0.004	0.004
(107) Mecosta	-0.141	0.067	-2.11	-0.451	0.127	-3.54	0.004	0.004
(109) Menominee	-0.242	0.107	-2.26	-0.583	0.204	-2.85	0.002	0.002
(111) Midland	-0.116	0.053	-2.18	-0.404	0.102	-3.97	0.006	0.006
(113) Missaukee	0.024	0.095	0.25	-0.396	0.181	-2.19	0.002	0.002
(115) Monroe	-0.008	0.040	-0.19	-0.123	0.074	-1.66	0.011	0.012
(117) Montcalm	0.058	0.049	1.18	-0.090	0.091	-0.99	0.008	0.008
(119) Montmorency	0.050	0.118	0.42	-0.290	0.222	-1.31	0.001	0.001
(121) Muskegon	-0.113	0.026	-4.40	-0.299	0.049	-6.12	0.027	0.026
(123) Newaygo	0.039	0.053	0.73	-0.128	0.100	-1.29	0.006	0.006
(125) Oakland	0.102	0.015	7.01	0.323	0.027	12.04	0.080	0.082
(127) Oceana	0.025	0.064	0.40	-0.135	0.120	-1.12	0.004	0.004
(129) Ogemaw	-0.124	0.086	-1.44	-0.057	0.162	-0.35	0.002	0.002
(131) Ontonagon	-0.240	0.173	-1.38	-0.232	0.324	-0.72	0.001	0.001
(133) Osceola	-0.074	0.078	-0.94	-0.333	0.147	-2.27	0.003	0.003
(135) Oscoda	-0.003	0.126	-0.02	-0.404	0.238	-1.69	0.001	0.001
(137) Otsego	-0.186	0.072	-2.56	-0.339	0.136	-2.49	0.003	0.003
(139) Ottawa	-0.152	0.029	-5.28	-0.353	0.054	-6.53	0.022	0.021

Appendix Table A2 Model of the Number of Months until Receipt of SNAP for Those Receiving SNAP within One or Two Years of UI Application

Variable description	Months from UI to SNAP (one year)			Months from UI to SNAP (two years)			Sample mean	
	(Sample size = 410,101; $m = 2.63$)			(Sample size = 524,812; $m = 6.03$)			Enter SNAP	
	Parameter	Standard	t -statistic	Parameter	Standard	t -statistic	one year	two years
	estimate	error		estimate	error		one year	two years
(141) Presque Isle	-0.014	0.114	-0.13	-0.228	0.214	-1.06	0.001	0.001
(143) Roscommon	-0.121	0.076	-1.58	-0.192	0.144	-1.33	0.003	0.003
(145) Saginaw	-0.043	0.028	-1.53	-0.018	0.054	-0.33	0.022	0.021
(147) Saint Clair	-0.091	0.029	-3.17	-0.226	0.054	-4.21	0.021	0.022
(149) Saint Joseph	-0.015	0.051	-0.29	-0.157	0.096	-1.63	0.007	0.007
(151) Sanilac	-0.216	0.055	-3.95	-0.576	0.103	-5.60	0.006	0.006
(153) Schoolcraft	-0.208	0.156	-1.34	-0.179	0.290	-0.62	0.001	0.001
(155) Shiawassee	-0.120	0.047	-2.55	-0.161	0.088	-1.82	0.008	0.008
(157) Tuscola	-0.117	0.052	-2.23	-0.156	0.097	-1.61	0.007	0.007
(159) Van Buren	-0.029	0.045	-0.64	-0.201	0.085	-2.38	0.009	0.009
(161) Washtenaw	-0.080	0.031	-2.62	-0.120	0.058	-2.07	0.019	0.019
(163) Wayne	0.106	0.008	12.73	0.272	0.016	17.43	0.238	0.239
(165) Wexford	-0.049	0.060	-0.82	-0.344	0.113	-3.05	0.005	0.005
Observations	410,101			524,812				
Adjusted R -square	0.4225			0.3886				
RMSE	2.7202			5.7557				