THE RELATIONSHIP BETWEEN

Educational Attainment and Reliance on Government Assistance Among Utahns



An analysis of low-income Utahns participating in the Supplemental Nutrition Assistance Program (SNAP)

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Executive Summary

Since 2013, participation in the Supplemental Nutrition Assistance Program (SNAP) decreased by more than 30% in Utah. However, approximately 184,000 low-income Utahns still received SNAP benefits in 2018, despite living in a prosperous state. What is causing some Utahns to catch the economic tide to become more self-sufficient, while others still rely on government assistance?

National research suggest postsecondary education makes an impact on becoming less reliant on government assistance, and that the return on investment of a postsecondary education is greatest for those least likely to continue their education after high school. This includes those who are from disadvantaged backgrounds and lowincome families. This study suggest the same may be true when localized to low-income Utahns, who were found to become less reliant on government assistance as their education level increased

Using administrative records of nearly 130,000 SNAP participants in Utah, this study examines the relationship between educational attainment and government assistance participation. Using various analyses, the study compared SNAP participation patterns by the different levels of educational attainment that occurred among SNAP participants in 2013. Only 1% of SNAP participants had increased their education level in 2013, and were mostly women, ages 25-34, White, and attained a bachelor's degree.

Only 1% of SNAP participants had increased their education level in 2013.

Overall, the study found with any increased level of postsecondary education, a SNAP participant experienced a shorter amount of time participating in SNAP. Individuals who attained either a certificate, associate, or bachelor's degree had the lowest odds of participating in SNAP, whereas those who had a history of SNAP participation, received a Pell Grant, or were ages 45-49 had the highest odds of participating in SNAP.

SNAP graduates of a bachelor's degree were most likely to never participate in SNAP again with



Nearly half of SNAP graduates of bachelor's degrees never participated in SNAP again.

nearly half who never returned in the five years after graduation. Bachelor's degree earners who ended up returning to SNAP still had the lowest participation out of all education levels with an average of 10 months over a five-year span.

As for individuals who exit and re-enroll in government assistance, known as churning, SNAP graduates of long-term certificates had the least churning with an average of 2.5 spells over five years, compared to 3.5 spells of a SNAP nongraduate.

Results from this study only determine the correlation of educational attainment and government assistance of SNAP participants, and do not identify causal relationships. The strong correlation, however, suggests it may be worth expanding postsecondary education opportunities for low-income Utahns. One way to accomplish this is by offering tuition assistance to participants in the SNAP Employment & Training Program.

This analysis can help policymakers understand how investing in the access to higher education may improve the quality of life for low-income Utahns. It could also be a cost-savings model for government to invest in education now to reduce participation in government assistance in the future. Reducing overall participation and churning could help lower the financial and administrative burden for government.

Offering tuition assistance through the SNAP Employment & Training Program may help reduce government reliance.

Introduction



As more studies reveal the impact of poverty on many aspects of an individual's life, policymakers have questioned how to move more individuals onto paths of self-sufficiency.

National research suggests postsecondary education is one way to do so, as it makes the largest impact for those who are least likely to attain it, such as those from disadvantaged backgrounds and low-income families (Brand & Xie, 2010; Martinez, 2019).

Accounting for the educational attainment of lowincome individuals and their outcomes over time is thus beneficial for understanding not only the impact of education on individual lives, but also its general impact on government assistance demand and society.

In this study, self-sufficiency is defined, in part, as becoming less reliant on government assistance over time. Low-income individuals often participate in government assistance such as the Supplemental Nutrition Assistance Program (SNAP).

SNAP is one of the largest assistance programs in the United States and provides benefits to lowincome households for improving their purchasing power and food security. SNAP benefits can be used to purchase food such as breads, cereals, fruits, vegetables, meats, fish, poultry, and dairy products, or to buy seeds and plants to grow food.

SNAP is a means-tested government program where participants are eligible if their income is equal to or under 130% below the federal poverty level ("A Quick Guide to SNAP Eligibility and Benefits," 2013). A decline in reliance on government assistance, such as SNAP, may indicate an individual is earning enough money to take care of their needs and no longer needs such assistance.

SNAP participants can receive benefits for as short a time as one month, or for several years during their lifetime, depending on their eligibility. What influences a SNAP participant's length of participation? Past studies of programs serving low-income individuals suggest educational attainment makes a difference with their reliance on government assistance (Irving & Loveless, 2015; London, 2004). This study examines whether the same may be true for Utah SNAP participants.

Study Overview

This study contributes to the literature of educational attainment and reliance on government services by localizing it to Utah through the research question: Are higher education levels among Utah SNAP participants associated with lower reliance on SNAP benefits? This study is the first (to the Utah Data Research Center's knowledge), to analyze Utah SNAP participants and the possible effect of educational attainment on SNAP participation over time.

With multi-agency records from the Utah Data Research Center, this study uses data of nearly 130,000 Utahns who participated in SNAP for at least one month in the baseline year of 2013. Only 1% of SNAP participants were found to have increased their education level in 2013. This 1% created the sample group of 1,391 Utah SNAP participants who graduated with a certificate, associate degree, or bachelor's degree from a Utah technical college, community college, or public university in 2013.

The remaining 126,869 Utah SNAP participants were the comparison group who did not experience an increase in their education level in 2013. Part of the comparison group already had a postsecondary award, but due to data limitations, it was unknown whether they had received the award before or after 2013. Only individuals who had a master's or doctorate degree at any time in their records were able to be removed from the comparison group. Low-income Utahns with the *highest* odds of participating in SNAP:

Past SNAP Participant Pell Grant Recipient 45-49 Years Old

Low-income Utahns with the *lowest* odds of participating in SNAP:

Bachelor's Degree Earner Associate Degree Earner Certificate Earner

This allowed for the comparison group to match the education level limit of a bachelor's degree of the sample group.

Overall, the study found those who had a history of SNAP participation, received a Pell Grant, or were ages 45-49 had the highest odds of participating in SNAP. Those who attained either a certificate, associate degree, or bachelor's degree had the lowest odds of participating in SNAP, and experienced shorter SNAP participation times. SNAP participants with bachelor's degrees had the best outcomes on average, with nearly half never participating in SNAP after graduation.

To assess the relationship of educational attainment and SNAP participation, the study's analysis is displayed in four steps:



Descriptive statistics depict the characteristics of SNAP participants who are likely to graduate and the most common postsecondary award attained.



Descriptive statistics for SNAP participation patterns over time are presented by each award level, including churning and non-return rates.



The probabilities of remaining in SNAP over time by each award level are provided through a time-to-event analysis.



The correlation between educational attainment and SNAP participation, along with other predictor variables, is assessed through a negative binomial regression.

Theoretical Background

Higher Education is Often Viewed as a Means for Economic Mobility

Individuals from disadvantaged backgrounds have the most to gain from higher education because of their low human capital at onset compared to others (Brand & Xie, 2010).

Higher education can reduce the effects of early life misfortune and help level the playing field. As explained in depth below, past research suggest individuals with more education have lower SNAP participation; certain characteristics of individuals are more likely to participate in government assistance; and the return is greatest for individuals least likely to attain a college degree (Irving & Loveless, 2015; Smith et al, 2016; Brand & Xie, 2010).

Lower Participation for Individuals with Higher Education Attainment

Nationally, individuals with lower education levels tend to have higher participation rates in government assistance (Irving & Loveless, 2015). During an average month, 41% of U.S. individuals with a high school education level or lower were SNAP participants in 2012. This was very high compared to just 6.1% of U.S. individuals with at least one year of college who were SNAP participants in the same year.

Across all major government programs, the study reported those with a high school education or lower received assistance the longest compared to those with higher education levels. For SNAP, the most common participation length was 37-48 months for 39% of its participants, which was the longest length possible for the four-year study (Irving & Loveless, 2015). The study considered only the education level of individuals prior to participating in SNAP, and did not consider their change in education levels as a SNAP participant.

Individuals who gained a postsecondary education while receiving TANF had lower rates of return to TANF.



A national study on Temporary Assistance for Needy Families (TANF), a means-tested government program similar to SNAP, reported individuals who gained a postsecondary education while receiving TANF had lower rates of return to TANF and lower rates of post-participation poverty compared to those who did not attend college.

In the two months following graduation, only 16% of the TANF recipients were still receiving assistance. The rate of return to TANF was only 9% within one year and 20% within five years of graduation (London, 2004).

At a state level, not many have conducted studies on the relationship between the participation of government assistance and educational attainment. This could be due to the lack of connected data sources of individual records.

Kentucky found higher education reduced the likelihood of individuals receiving Medicaid.

One exception is Kentucky, where researchers found higher education reduced the likelihood of individuals receiving Medicaid, a government means-tested program with income eligibility requirements similar to SNAP. With income as a determining factor of Medicaid eligibility, the study predicted attaining a college degree would significantly reduce the rate of adults eligible for Medicaid (Bollinger, 2015). Along with less educated individuals, those who are most likely to participate in SNAP include women, young adults, Black or Hispanic individuals, and those with multigenerational participation in SNAP (Smith et al., 2016).

As for gender, Canada found educational attainment had a greater impact for women than men when considering their exit rate of government assistance programs. The exit rate for women was also more sensitive to the number of children and presence of a spouse, but less sensitive to the unemployment rate (Barrett, 2000).

In Colorado, women who attended college after entering a government assistance program experienced the largest and significant gains in earnings (Turner, 2015). As for men, those with an education beyond high school were not associated with a significantly higher welfare exit rate (Barrett, 2000). This may indicate that men are less influenced by education when participating in government assistance.





Any education beyond high school was found to increase wages and reduce participation in government assistance programs.

Greatest Return for Those Least Likely to Attain a College Degree

For men and women, at any stage in life, a college completion was statistically significant in boosting their wage earnings and the return was greatest among those least likely to attain a college degree (Brand & Xie, 2010).

Any education beyond high school was found to increase wages and reduce participation in government assistance programs. Even increasing education with a technical certificate or associate degree could substantially increase earnings (Turner, 2015; Backes et al., 2015).

Increasing wages through higher education can bring more security to an individual by increasing their economic self-sufficiency. In turn, this could lead to decreased reliance on government assistance. When individuals have the monetary means to meet their own basic needs such as food and nutrition, they have little to no need for financial assistance from the government.

History of SNAP Participation in Utah



Supplemental Nutrition Assistance Program

In Utah, approximately \$312 million in SNAP benefits were redeemed by 92,000 households of nearly 230,000 individuals in fiscal year 2013. SNAP households in Utah received an average SNAP benefit of \$280 per month ("Department of Workforce Services Annual Report", 2014). From 2013 to 2018, SNAP participation decreased in Utah by more than 30%. The decline in participation was higher than the national average of 16% fewer individuals participating in SNAP during this time period (Rosenbaum et al., 2019).

Changes in SNAP participation could be due to economic conditions, policy revisions, and seasonal or unexpected events ("Americans receiving food stamps has changed," 2019). In Utah's case, the overall low SNAP participation rate is most likely due to its positive economic growth over the years with consistent high job growth and low unemployment rates ("Utah's unemployment summary," 2020). With more individuals working and increasing their income over the years, it is expected that fewer people would be in need of government assistance such as SNAP (Rosenbaum et. al, 2019).

Another reason for the decrease in participation could be Utah's policy change in October 2014 of no longer being a "pledge state". This meant the state no longer offered work sites to able-bodied adults without dependents to help them meet SNAP's work requirement. This may have caused a decrease in SNAP participation if these participants had a hard time finding employment on their own. Since Utah decided not to continue with the pledge, the state stopped receiving a \$1.1 million federal grant ("Department of Workforce Services Annual Report", 2014). <u>2013</u> 92,000 households 230,000 individuals

<u>2018</u>

76,000 households 184,000 individuals

Although participation dropped over time, 76,000 households of 184,000 individuals still received SNAP benefits in Utah in fiscal year 2018 (Cronquist, 2019). This leads to questioning the cause of some Utahns catching the economic tide to become more self-sufficient, while others still relied on government assistance, despite living in a high job growth and low unemployment state. Individuals could be experiencing personal negative circumstances such as the instability of a household, low workforce attachment, and low education levels that keep them in poverty despite living in a prosperous state (Mills et al, 2014; Martinez, 2019).

Why are some Utahns catching the economic tide to become more selfsufficient while others still rely on governent assistance?

States Offering Tuition Assistance to SNAP Participants

Some states have aimed to improve the personal circumstances of SNAP participants by increasing their education level through tuition assistance. For example, Washington State's Basic Food Employment & Training (E&T) program partnered with community colleges to cover tuition for SNAP participants not covered by a Pell Grant or any other grant or scholarship (Mohan, 2014). Washington saw the attainment of a certificate or degree as essential for SNAP participants to advance to middle-wage jobs and economic self-sufficiency (Kaz & Krauss, 2014).

Washington tracked the outcomes of its 2013 cohort and found education successfully increased employment rates and wages. Participants earned \$4,100 more on average annually than they did prior to entering the program. They were also 33% more likely to be employed than other SNAP participants who were not in the SNAP E&T program (Mohan, 2014). Although Washington tracked the outcomes of its 2013 cohort, it only tracked wages and employment outcomes, and did not analyze if participants had a shorter SNAP participation rate after graduation.

Washington, California, and Mississippi have offered tuition assistance through their SNAP E&T program.

Other states have had similar educational attainment efforts such as California's Cal Success, which was part of the state's SNAP E&T program in 2008. The program helped pay for instruction at community colleges, textbooks, supplies, and transportation. When surveyed, 90% of Cal Success participants said the program allowed them to stay in college. Unfortunately, the program only lasted for two years as federal funds were not approved beyond 2010 (Kaz & Krauss, 2014).

Mississippi is another state providing tuition assistance along with job search activities through its SNAP E&T program. It follows a similar model as Washington by partnering with community colleges to cover costs ("Tuition Assistance Program",



2018). More than 170 SNAP participants received a certificate or associate degree through its tuition assistance program in 2018. Mississippi has not reported on employment or participation outcomes of these participants ("MDHS Annual Report", 2018).

As for Utah, it has a SNAP E&T program for job searching activities, however, it does not offer any job training or tuition assistance program (E. Cockerham, personal communication, Feb. 13, 2020). This may be a missed opportunity for Utah. If Utah's peer states are offering tuition assistance and experiencing successful outcomes, it could be encouraging to try the same program in Utah.

Utah's SNAP E&T program offers job searching activities, but not tuition assistance. This may be a missed opportunity.

Additional research, such as with this study, can provide further statistical insight on the correlation between educational attainment and SNAP participation. Success from peer states and research showing outcomes can provide the best reasoning for Utah to implement a tuition assistance program. Understanding how improving education levels might influence the reliance of SNAP participants could help Utah's SNAP E&T improve its allocation of resources.

Research Design

This study used a custom dataset provided by the Utah Data Research Center, a state-managed program with cross-agency data, to answer the research question:

Are higher education levels among Utah SNAP participants associated with lower reliance on SNAP benefits?

The original data sources were three state agencies: the Utah Department of Workforce Services (Workforce Services), the Utah System of Higher Education (USHE), and the Utah System of Technical Colleges (UTech). Workforce Services provided the age, gender, intergenerational poverty status, monthly SNAP participation, self-reported education level, and veteran status. USHE and UTech provided the award level, enrollment status, graduation year, and Pell recipient status.

Sample Construction

The data spanned five calendar years from 2013 to 2018. The baseline year was 2013, as it was the most recent year available allowing for oneand five-year post-graduation analysis of SNAP participation. SNAP participants were only included if they had at least one month of participation in SNAP at any time in calendar year 2013. SNAP participation outcomes were examined from 2014 to 2018, while an individual's historical record of SNAP participation was considered anything prior to 2014.

For the postsecondary award level, only certificates, associate degrees, and bachelor's degrees were considered in the analysis. Those who enrolled in a postsecondary institution at any time from 2014 to 2018 were removed from the sample. This was to control for those who may postpone work or reduce work hours to instead spend time on their education, and therefore, may be more likely to participate in SNAP during that time period.

For age, the cohort was limited to those ages 18-49 in 2013. This was to control the change of eligibility rules after age 49 for those who are considered able-bodied adults without dependents. Race/ethnicity categories followed the standard reporting standards from federal SNAP reports (Appendix I).



Study Sample

The study sample comprised of 128,260 Utah SNAP participants split into two groups: (1) SNAP non-graduates: Individuals who participated in SNAP and did not increase their education level in 2013; and (2) SNAP graduates: Individuals who increased their education level while also participating in SNAP in 2013. Education levels include the attainment of a bachelor's degree (USHE), associate degree (USHE), certificate (USHE), long-term certificate (UTech), and shortterm certificate (UTech).

Data Analysis

Data analysis first involved descriptive analysis to identify characteristics of SNAP participants who are likely to graduate based on frequency, and the most common postsecondary award attained. Descriptive statistics were then used to determine participation patterns over time, including churning and non-return rates. To assess the relationship of educational attainment and participation in government assistance, a time-to-event analysis was used to examine differing probabilities of remaining in SNAP over time. Finally, a negative binomial regression was used to examine the relationship between educational attainment and SNAP participation, alongside other predictor variables. More analysis details are offered in the results section.

Data analysis results are presented in the order described above. Most findings are categorized by the postsecondary award attained in 2013. For simplicity, the "certificate" category grouped together the three certificate options in the written findings if they had similar outcomes. They remain as separate categories in the tables and figures. Altogether, the results suggest educational attainment is associated with reduced reliance on SNAP assistance.

Utah SNAP Participants by Educational Attainment

Table 1 presents descriptive findings regarding demographic characteristics and postsecondary educational attainment among the Utah SNAP participant sample. As seen in the table, SNAP graduates were from either a technical college (UTech), or a public university or college (USHE). More than double the SNAP graduates came from a public university or college than a technical college. A bachelor's degree was the most common award attained among all SNAP graduates, while a short-term certificate as the second most attained award.

More women than men were SNAP graduates with 57% women and 43% men attaining an award, nearly identical to the gender breakdown of non-graduates. When considering age, SNAP graduates tend to be older with 55% in the 25-34 age range. As for race and ethnicity, SNAP graduates were mostly White, followed by Hispanic and Black/ African-American.

This analysis also considered socioeconomic characteristics such as Pell recipient, veteran, and intergenerational poverty. For Pell recipients, one-half of SNAP graduates received the Pell Grant. This was expected as the Pell Grant program is based on low-income eligibility similar to SNAP's eligibility rules. As for veterans who were SNAP participants, only 2% of them graduated in 2013. Veterans may be older and already have a postsecondary education, which may account for the low percentage.

Table 1. Characteristics of 2013 SNAP Graduates andNon-Graduates

	SNAP Graduates (n=1,391)	SNAP Non-Graduates (n=126,869)
AWARD ATTAINED IN 2013		
Bachelor's Degree (USHE)	566 (40.7%)	-
Associate Degree (USHE)	244 (17.5%)	-
Certificate (USHE)	129 (9.3%)	-
Long-Term Certificate (UTech)	69 (5.0%)	-
Short-Term Certificate (UTech)	383 (27.5%)	-
No Increase in Education Level		126,869 (100%)
EDUCATION SYSTEM		
USHE	939 (67.5%)	-
UTech	452 (32.5%)	-
CENDER		
Male	597 (12 9%)	52 407 (41 3%)
Female	794 (571%)	73 298 (57.8%)
	0 (0%)	1164 (0.9%)
UIKIOWI	0 (078)	1,104 (0.976)
AGE		
Age 18-24	238 (17.1%)	27,254 (21.5%)
Age 25-34	760 (54.6%)	52,132 (41.1%)
Age 35-44	325 (23.4%)	35,423 (27.9%)
Age 45-49	68 (4.9%)	12,060 (9.5%)
RACE/ETHNICITY*		
American Indian	29 (2.1%)	4,088 (4.9%)
Asian	19 (1.4%)	1,613 (1.9%)
Black/African American	42 (3.1%)	2,924 (3.5%)
Hispanic, All Races	140 (10.2%)	13,230 (15.8%)
Multiple Races Non-White/Non-Hispanic	6 (0.5%)	44 (0.05%)
Pacific Islander	20 (1.5%)	1,473 (1.8%)
White Only	1,119 (81.4%)	60,263 (72.1%)
OTHER CHARACTERISTICS		
Intergenerational Poverty	270 (19.4%)	37,067 (29.2%)
Pell Grant Recipient	756 (54.3%)	-
Veteran	55 (1.8%)	3,000 (2.4%)

*Race/Ethnicity totals may not add up to the overall group totals since only validated race/ethnicity records were calculated for this section.

More than 19% of SNAP graduates experienced intergenerational poverty, which is defined as receiving government assistance as a child and as an adult, each for 12 months. As one of the most vulnerable SNAP participants, this finding was promising to show some individuals experiencing intergenerational poverty were still able to find a way to access a postsecondary education.

Utah SNAP Participation Over Time

The primary focus of this study is to better understand the relationship between educational attainment and reliance on SNAP assistance in Utah. This section examines the amount of time study sample participants received SNAP benefits, including the length of associated "churn spells," defined as when a household exits SNAP and then re-enrolls in the program within four months or less (Mills et al., 2014). The results are presented in Table 2.

Prior to 2014, SNAP graduates had an average of 48 months of participation, while non-graduates had 67 months. SNAP graduates of bachelor's or associate degrees had the lowest historical participation on average at 39 months and 49 months, respectively.

SNAP graduates of long-term certificates had the highest historical participation on average of 74 months, which was even higher than non-graduates.

During 2014-2018, a SNAP graduate participated for an average of 14 months, while a non-graduate participated for 20 months.

After graduation, SNAP graduates had a shorter time participating in SNAP compared to others. During 2014 to 2018, a SNAP graduate participated for an average of 14 months, while a non-graduate participated for 20 months. In the same time period, one-half of SNAP graduates participated in at least 6 months of SNAP, while one-half of non-graduates participated in at least 13 months of SNAP.

When analyzing by award, SNAP graduates of bachelor's degrees had the lowest participation rate with an average of 10 months after graduation. They were also the most likely to never participate in SNAP after graduation, with 47% never returning to SNAP. Compared to a non-graduate, the nonreturn rate to SNAP was twice as great for SNAP graduates of bachelor's degrees.

Although SNAP graduates of bachelor's degrees had the most impressive results, SNAP graduates of associate degrees and certificates also had higher non-return rates compared to non-graduates.

SNAP Participants' Educational Attainment in 2013	Group Size (n)	Avg. SNAP Months Prior to 2014	Avg. SNAP Months 2014-2018	Avg. Churn Spells 2014-2018	No Return to SNAP 2014-2018
All Awards Combined	1,391	48	14	2.68	519 (37%)
Bachelor's Degree (USHE)	566	39	10	2.74	267 (47%)
Associate Degree (USHE)	244	49	15	2.53	82 (34%)
Certificate (USHE)	129	58	16	2.69	39 (30%)
Long-Term Certificate (UTech)	69	74	18	2.47	17 (27%)
Short-Term Certificate (UTech)	383	54	16	2.8	114 (30%)
No Increase in Education Level	126,869	67	20	3.46	22,858 (23%)

Table 2. Average months, churn spells, and non-return rates of SNAP participants by educational attainment

Figure 1. Estimates of participants remaining in SNAP over time by educational attainment*

Probability of Remaining on SNAP

Time-to-Event Analysis

A time-to-event analysis with Kaplan-Meier estimates was used to compare the probability of remaining on SNAP over time based on the first exit of participants. Kaplan-Meier estimates compute the probabilities of exiting SNAP at a point of time by multiplying successive probabilities by earlier probabilities for the final estimate.

Only individuals who indicated participating in SNAP in January 2014, the first month of the analysis, were included to ensure the same start month for each record. The analysis assumes participants had the same prospects of remaining in SNAP at any time and that a decrease in reliance on government assistance occurred when participants exited SNAP at the time specified.

Findings indicate that the probability of exiting SNAP for the first time for those enrolled in January 2014, had similar rates between SNAP graduates and non-graduates over the first six months. The probability of exiting SNAP within the first six months was between 87%-96% for the majority of SNAP participants, while those with USHE certificates reached a 100% probability of exiting at six months. Those with long-term certificates had the highest probability of exiting SNAP within the first three months, followed by USHE certificate earners having the highest probability of exiting within three to six months.



The time-to-event analysis also looked at the estimates of who remained as shown in Table 3 and Figure 1. After six months, it is estimated that 7% of SNAP graduates remained on SNAP, which was slightly higher than 5% of SNAP non-graduates. After six months, the estimates of who remain are mostly zero across all groups.

With these findings alone, one may want to conclude that an increase in the level of postsecondary education makes a difference in SNAP participation. However, when analyzing SNAP participation rates prior to 2014 of both groups, the SNAP graduates were already experiencing a lower participation rate than SNAP non-graduates. Further analysis was needed to control for other confounding factors such as age, gender, and race/ ethnicity.

• •							
SNAP Participants' Educational Attainment in 2013	Group Size (n)**	1 mos	2 mos	3 mos	4 mos	5 mos	6 mos
All Awards Combined	223	60%	40%	26%	14%	9%	7%
Bachelor's Degree (USHE)	72	53%	38%	24%	18%	11%	10%
Associate Degree (USHE)	50	62%	38%	24%	12%	10%	4%
Certificate (USHE)	25	68%	36%	28%	8%	4%	0%
Long-Term Certificate (UTech)	16	44%	31%	19%	13%	13%	13%
Short-Term Certificate (UTech)	60	68%	50%	30%	13%	8%	7%
No Increase in Education Level	25,336	58%	33%	20%	12%	8%	5%

Table 3. Estimates of participants remaining in SNAP over time by educational attainment (First six months after 2013)*

NOTE: *The analysis accounts for participants' first exit and does not count them again if they later re-enrolled in SNAP. **This only includes participants who were enrolled in SNAP in January 2014 to ensure all records in this analysis had the same starting month.

Educational Attainment and SNAP Participation

Negative Binomial Regression

A negative binomial regression was used to examine the relationship between SNAP participants' educational attainment and SNAP participation, while controlling for other factors, such as demographic characteristics. Negative binomial regression was chosen over ordinal logistic or poisson regression as it accounts for differing means and variances, as well as many "zero" values and non-negative count data (Appendix I). The dependent variable was months of SNAP participation from 2014-2018.

The primary independent variables of interest are postsecondary awards. Control variables in the model include demographics (age, gender, and race/ ethnicity) and socioeconomic characteristics influencing self-sufficiency outcomes such as intergenerational poverty, veteran status, and Pell recipient (Martinez, 2019; Denning et. al, 2019). One of the independent variables, the number of pre-2014 months as a SNAP participant, was standardized to a normal distribution to bring the data to a common scale. When checking for multicollinearity, none of the variation influence factor scores for the predictor variables were higher than five.

The results are presented in Table 4. Findings suggest that any increase in the level of postsecondary education in 2013 is associated with shorter SNAP participation times. In addition, this relationship was found to be statistically significant. The top three strongest statistically significant negative associations with SNAP participation were attainments of a bachelor's degree, associate degree, and long-term certificate.

Other characteristics with a negative association to SNAP participation include attainment of a short-term certificate, USHE certificate, and being a veteran. A negative

Table 4. Negative binomial regression results (in odds ratios)examining the relationship between educational attainment andSNAP participation

Characteristics (Independent Variables)	Point Estimate	95% Confidence Intervals	
Bachelor's Degree in 2013 (USHE)	0.02***	0.01	0.02
Associate Degree in 2013 (USHE)	0.03***	0.02	0.03
Short-Term Certificate in 2013 (UTech)	0.07***	0.06	0.08
Long-Term Certificate in 2013 (UTech)	0.10***	0.09	0.12
Certificate in 2013 (USHE)	0.10***	0.09	0.12
Veteran	0.87***	0.82	0.92
Hispanic	1	0.98	1.03
White	1.11***	1.09	1.12
Intergenerational Poverty (IGP)	1.35***	1.32	1.38
Female	1.45***	1.43	1.48
Age 25-34	1.57***	1.54	1.6
 Age 35-44	1.60***	1.57	1.64
Age 45-49	1.74***	1.69	1.8
Pell Grant Recipient	3.60***	3.39	3.82
SNAP months prior to 2014	4.10***	3.91	4.31
Observations	148,118		
Pseudo R ² (McFadden)	0.75		
Dependent Variable	Future SNAP Participation (Number of months in 2014-2018)		

Statistical significance: *** p < 0.001; ** p < 0.01; * p < 0.05

association means there is an inverse relationship between two variables. In this case, when educational attainment increases, the length of SNAP participation decreases. The odds ratios of these characteristics were less than one, which means they have lower odds of participating in SNAP.

As for positive associations with SNAP participation, these characteristics included: past SNAP participation, Pell recipients, women, intergenerational poverty, and White. The odds ratios of these characteristics were greater than one, which means they have higher odds of participating in SNAP. Those with past SNAP participation and Pell Grant recipients had the highest increased odds of SNAP participation by 310% and 260%, respectively. This was followed by those who were ages 45-49, which had increased odds of participating by 74%, relative to the other age groups.

Discussion

Findings point to postsecondary education as a significant correlate of SNAP participation. Attainment of certificates, associate, and bachelor's degrees is negatively associated with reliance on government assistance for SNAP participants, while bachelor's degrees were associated with the lowest return to SNAP. This was in line with past national literature, which showed the higher the education level of an individual in general, the lower their participation rate in SNAP (Irving & Loveless, 2015).

The higher a SNAP participant's education level, the lower their average SNAP participation.

This study found the same was true for individuals who were current SNAP participants. The higher a SNAP participant's education level, the lower their average SNAP participation. Even attainment of short postsecondary awards such as a certificate or associate degree were associated with less reliance on SNAP assistance, which was in line with past literature that found similar positive outcomes for those award attainments (Turner, 2015; Backes et al., 2015).

These results may have shown a larger difference in SNAP participation between SNAP graduates and non-graduates if the data had allowed for the comparison group (non-graduates) to comprise of only individuals without any postsecondary award. However, the comparison group was made up of SNAP participants who already had a postsecondary award as of 2013, along with participants who did not have one.

It was not possible to accurately separate these individuals since the Department of Workforce Services does not list the year a SNAP participant's education level was last updated in their records. An individual with a high school education listed in their SNAP record could have an outdated education level if they never updated it from when they first enrolled in SNAP. They may have also later received a postsecondary award, but never reenrolled in SNAP to update their education record.



When considering characteristics, this study matched past literature of those most likely to participate in SNAP, including women, less educated individuals, and those with multigenerational participation in SNAP (Smith et al., 2016). This study found the same was true when looking at SNAP participation of current SNAP participants. For example, Utah women and those experiencing intergenerational poverty had higher odds of remaining in SNAP, relative to Utah men and those not experiencing intergenerational poverty.

> This study matched past literature of those most likely to participate in SNAP: women, less educated individuals, and those with multigenerational participation.

A finding that was different in this study was in race/ethnicity where White individuals had higher odds than non-White individuals of participating in SNAP. This might have been because the sample was mostly (81%) White. Also, Hispanics did not have any significant correlation with participating in SNAP in Utah. Whereas nationally, Black or Hispanic individuals were most likely to participate in SNAP (Smith et al., 2016).

Discussion

As for education levels, this study matched past findings, as it showed SNAP participants who did not change their education level had the most SNAP participation on average.

The majority of SNAP graduates were older, age 25-34. They may have had barriers stopping them from attending college soon after high school.

When considering age, the majority of SNAP graduates were older, age 25-34. They may be older because it takes them longer to graduate if they have other responsibilities or stresses at home compared to an average college student. In addition, they may have started college later if they had barriers stopping them from attending soon after high school. SNAP eligibility rules such as work requirements may have also played a role in having older SNAP graduates.

Working while attending college is shown to prolong the time to graduation for Utah students in general (Shrivastava, 2019). If SNAP participants are required to work at the same time as going to school, then they are more likely to take longer to graduate, which delays their time to become less reliant on government assistance. Policymakers may want to consider simplifying the SNAP eligibility rules and work requirements for college students so they can focus on finishing their postsecondary award sooner and without worrying about qualifying for food security.

Consider simplifying SNAP eligibility rules and work requirements for college students so they can focus on finishing their award, and not worry about food security.

Another finding that stood out was that women had higher odds of participating in SNAP, relative to men. In addition, the majority of SNAP women graduated with a certificate or associate's degree, whereas SNAP men graduated with a bachelor's degree more than any other award combined (Appendix I, Table A). Why is there a difference of



award selection between SNAP men and women? SNAP women may not be able to take on a long, demanding award due to family duties, stress at home, or lack of resources.

They may also not choose an award that would lead to a demanding occupation. Specifically, single motherhood may have an impact on the choices a woman makes on employment and educational opportunities. Further research is recommended to look at how marital status and children in the household play a role for low-income women in regards to educational attainment and occupation selection.

The odds of Pell recipients participating in SNAP were 26 times higher, relative to non-Pell recipients.

An unexpected finding was the statistically significant correlation between Pell recipients and SNAP participation. The odds of Pell recipients participating in SNAP were 26 times higher, relative to non-Pell recipients. Half of the SNAP graduates in the study were also receiving the Pell grant. An individual who received both SNAP and a Pell Grant might suggest additional financial barriers and personal circumstances than the average SNAP graduate. It could possibly reflect a strong reliance on government assistance since they are receiving benefits from more than one government program.

Discussion

Limitations

As with any study, there are some limitations to the data to be aware of when taking the findings into consideration. Since the dataset contained only information from Utah, the study could not determine if individuals had participated in SNAP while living in another state at any point in their lifetime or during the period of this study, or if they received a college education from another state, such as through an online program, anytime from 2013 to 2018.

This study could also not account for if the individual received food assistance from elsewhere, such as from the Church of Jesus Christ of Latter-Day Saints, the predominant faith in Utah that also provides food services to its members. Church assistance may have an influence on the type of Utahn who participates in SNAP or not, and therefore, using just SNAP-only data may not describe the full picture of low-income Utahns with food insecurity.

Race/ethnicity and highest education level were self-reported data provided by an individual when applying for government assistance such as SNAP at Workforce Services. The self-reported education level is what Workforce Services had on file for the individual as of January 2020. It does not track when the education level was last updated, and therefore, does not know if the record reflects the education level from 2013. This variable was only used to remove anyone who self-reported an education level higher than a bachelor's degree, such as a master's and doctorate degree.

When analyzing the award attained in 2013 for a SNAP graduate, data from USHE and UTech was used, which was taken directly from its student graduation records. For USHE, only public universities and colleges were used in this study. This means private institutions in Utah were not included such as Brigham Young University, LDS Business College, Westminster College, and Western Governors University. Out-of-state institutions were also not included.

In addition, this study did not account for the effect of an individual's access to postsecondary



education. It is likely that SNAP participants do not enroll in college at the same rate as higher income students because of the lack of access or opportunity.

The intergenerational poverty status of an individual was defined as receiving government assistance as a child and as an adult, each for 12 months. This status only applied to those born in 1971 and later as it was based on the intergenerational poverty cohort provided by Workforce Services. Anyone born prior to 1971 could have an intergenerational poverty status based on Utah's definition, but was not identified as such in this study.

Conclusion



This study answered the research question: Are higher education levels among Utah SNAP participants associated with lower reliance on SNAP benefits?

Findings support that any postsecondary award is associated with becoming less reliant on government assistance for low-income Utahns. SNAP graduates had an average of 14 months participating in SNAP, which was lower than nongraduates who had an average of 20 months over five years. SNAP graduates also had lower churning rates with 2.68 spells on average compared to 3.46 spells of non-graduates.

Although all postsecondary awards made a difference in SNAP participation, the most impactful outcomes were from those who received a bachelor's degree. They experienced the lowest SNAP participation with 10 months on average after graduation, and had the highest non-return rate with 47% never returning to SNAP after graduation. In addition, their odds of participating in SNAP decreased by 98%, relative to other award levels.

Based on these findings, Utah's SNAP E&T program may want to consider increasing access to postsecondary education for low-income Utahns by offering tuition assistance. This service is currently not offered in Utah, but is offered in some other states such as Washington and Mississippi. In addition, it may be worth considering access to not only certificates or associate degrees, as commonly seen with other SNAP E&T programs, but also allow access to bachelor's degree programs since they provide the greatest return on investment with the largest decrease in SNAP participation.

Further research is also recommended for analyzing SNAP eligibility rules and work requirements to see if they have an association with prolonging the time to graduation and becoming less reliant on government assistance.

The benefits of better understanding the relationship between educational attainment and participation in government assistance can lead to better informed policies for improving the quality of life of disadvantaged individuals. This could lead to improving society by increasing contributors to the community and workforce, and lead to cost savings for government with a reduced demand of individuals needing assistance.

Appendix I

Regression Models

A Poisson regression was also run, however, overdispersion of the data violated Poisson model assumptions, suggesting that a negative binomial model is preferred in this case, although it is worth noting that the findings were consistent across models.

Method for Race/Ethnicity Coding

For race/ethnicity, an individual of any race that also indicated "Hispanic" as the ethnicity was coded in "Hispanic, any race" and was not counted further in any of the race categories. If an individual indicated "White" and one other race, they were coded in the second race category only, and not included in the "White" category. If an individual indicated more than two races that did not include "White", then they were coded as "Multiple Races".

Statistical Packages and Software

The R software environment 3.6.3 (R Core Team, 2020) was used to analyze the data. Libraries used for the analysis included Dplyr (v0.8.1, Wickham, 2019), Ggplot2 (v3.3.0, Wickham, 2020), Lattice (v0.20-41, Sarkar, 2020), NIme (v3.1-144, Pinheiro, 2020), Plyr (v1.8.6, Wickham, 2020), Sandwich (v2.5-1, Zeileis, 2019) and Tidyverse (v1.2.1, Wickham, 2017). In addition, the time-to-event analysis used Survival (v3.1-12, Therneau, 2020), Ranger (v0.12.1, Wright, 2020), and ggfortify (v0.4.10, Horikoshi, 2020). The negative binomial regression used AER (v1.2-9, Kleiber, 2020), Car (v3.0-7, Fox, 2020), doBy (v4.6.5, Hojsgaard and Halekoh, 2020), Mass (v7.3-51.5, Ripley, 2019), and Regclass (v1.6, Petrie, 2020).

Educational Attainment by Gender

Table A: Educational Attainment of SNAP Graduates by Gender					
Educational Attainment in 2013	Men	Women			
	000 (50 000)	0.05 (00.400)			

	202 (50 0%)	265 (22 40()	
Bachelor's Graduate (USHE)	303 (50.8%)	265 (33.4%)	
Associate Graduate (USHE)	83 (13.9%)	161 (20.3%)	
Certificate Graduate (USHE)	47 (7.9%)	82 (10.3%)	
Long-Term Certificate (UTech)	26 (4.4%)	43 (5.4%)	
Short-Term Certificate (UTech)	138 (23.1%)	245 (30.9%)	
Total SNAP Graduates	597 (100.0%)	794 (100.0%)	



UDRC Disclaimer

Data for this research was accessible through Utah's state longitudinal data system database administered by the Utah Data Research Center, which includes data supplied by UDRC members. This research, including the methods, results, and conclusions neither necessarily reflect the views of, nor are endorsed by, the UDRC members. All errors are the responsibility of the author.

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