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**Self-Employment Assistance Program
Net Impact Study**
Legislative Report



**Employment
Security
Department**
WASHINGTON STATE

Self-Employment Assistance Program Net Impact Study

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Executive summary

Background

The purpose of the Self-Employment Assistance Program (SEAP) is to assist eligible unemployed individuals in creating new businesses and job opportunities across Washington state. Unemployment insurance claimants, identified as likely to exhaust their regular unemployment benefits, are notified of the opportunity to enroll in SEAP training while continuing to receive their unemployment benefits.

To be eligible for SEAP, an unemployed individual must be eligible for unemployment benefits, and identified as likely to exhaust regular unemployment benefits through a profiling system established by the Employment Security Department (ESD).

While enrolled in SEAP, participants are eligible to receive their regular unemployment benefits, but are not eligible for additional benefits beyond those they would have normally received had they not enrolled in the program. Additionally, SEAP participants are exempt from requirements to be available for work, search for work and accept work.

Our findings suggest that participation in SEAP reduces the amount of unemployment benefits received per year, increases the likelihood that businesses owned by SEAP participants survive when compared with non-participants and shows a varying effect on participants' reported business income.

Study design

In this report, we look at the effects of SEAP training on participants' self-employment, wage and unemployment benefits. We include data relating to business income, covered employment wages, unemployment benefits and demographic characteristics of SEAP-eligible claimants from 2007 through 2012. All data used came from existing data sources at ESD and the Department of Revenue (DOR).

We used two statistical techniques – fixed effects regression models and survival models – to determine the effects of participation in SEAP. To look at the effect of SEAP participation on self-employment, we specified a fixed effects model looking at: the likelihood of reporting business income in any year after SEAP participation; and, the annual average of reported gross business income after SEAP participation. Additionally, we specified a fixed effects model to estimate the effects of SEAP on average annual wages and unemployment benefits received after SEAP training ends.

Our survival model defines “business survival” as the number of consecutive years an individual reported at least one dollar of gross business income. The goal of the survival models is to determine whether SEAP participation increases the likelihood that an individual's business will “survive” through the end of 2014 from any point in time after SEAP training ends.

Key findings

Effects of SEAP on likelihood of reporting business income varies

Overall, our models show that SEAP participation had no effect on the amount of reported gross business income. However, for low income earners, Native Americans, individuals without a high school diploma, individuals with a disability and people who came from construction occupations, participation in SEAP increased the amount of gross business income ever reported.

For example, women who participate in the SEAP program are 56.2 percent more likely to report business income than eligible female non-participants after their training ends. Native Americans who participate in the SEAP program are 77.6 percent more likely to report gross business income after exiting the program than Native Americans who did not participate in the program. In addition, SEAP participants without a high school diploma are 77.0 percent more likely to report business income after exiting training than non-participants without a high school diploma.

Effects of SEAP on wages earned in covered employment varies

Our models estimate that Hispanic SEAP participants will earn 56 percent less per year in covered employment than their non-participant counterparts. On the other hand, we estimate that SEAP participants classified as low income earners will earn almost two times more per year after exiting SEAP than their non-participant counterparts. Likewise, we estimate that SEAP participants drawn from food service and preparation occupations will earn 153 percent more per year after exiting the program than their non-participant counterparts.

SEAP participant businesses are more likely to survive through 2014

In comparing SEAP participants who reported business income with non-participants who reported business income in any year after they filed their SEAP-eligible unemployment claims, our model indicates that businesses owned by participants were 13.1 percent more likely to survive than businesses owned by eligible non-participants.

SEAP reduces the amount of unemployment benefits paid to participants

Our estimates indicate that SEAP reduces the amount of unemployment benefits received per year by the full sample of participants. The model shows that SEAP participants received about \$2,850 less in unemployment benefits per year after they exit the program compared to non-participants.

Self-Employment Assistance Program Net Impact Study

Introduction

In the fall of 1989, Washington was one of two states that participated in an experimental demonstration of self-employment assistance programs targeting unemployed workers.¹ The Washington state Self-Employment and Enterprise Development (SEED) pilot project was a federally sponsored program designed to test the impact of targeted business support and training for claimants receiving unemployment benefits. The program lasted from 1989 through 1991. During this time, the Washington state SEED pilot project was offered at six sites where a total of 755 claimants received program services.

In a report prepared for the U.S. Department of Labor (DOL), researchers from Abt Associates, Inc. found that the Washington state SEED program participants who successfully completed their training were much more likely to become self-employed and to receive over \$1,600 a year in self-employment earnings.² The success of the pilot program helped to pave the way for federal legislation in 1993 that temporarily authorized states to use self-employment assistance programs as an alternative way to deliver unemployment benefits. In 1999, Congress permanently authorized self-employment assistance programs.

The Self-Employment Assistance Program (SEAP)

In 2007, building on the success of federally funded self-employment assistance programs in the state and across the country, the Washington State Legislature passed Substitute Senate Bill 5653 (SSB 5653) establishing the Self-Employment Assistance Program (SEAP). The purpose of SEAP is to assist eligible unemployed individuals in creating new businesses and job opportunities across Washington state. Unemployment insurance claimants identified as likely to exhaust their regular unemployment benefits are notified of the opportunity to enroll in SEAP-approved training while continuing to receive their unemployment benefits.

SSB 5653 took effect January 1, 2008, and was scheduled to expire July 1, 2012.³ However, during the 2012 session the Legislature extended SEAP with the passage of Senate Bill 6289 (SB 6289). In addition to amending the program to continue beyond July 1, 2012, SB 6289 also changed program eligibility requirements to include claimants deemed eligible for another Unemployment Insurance program, Commissioner-Approved Training (CAT).⁴

¹ Benus, Jacob M. Terry R. Johnson, Michelle Wood, Meelima Grover, and Theodore Shen. 1995. *Self-Employment Programs: A New Reemployment Strategy, Final Report on the UI Self-Employment Demonstration*. UI Occasional Paper no. 95-4, Washington, D.C.: U.S. Department of Labor.

² Benus et al. 1995

³ RCW 50.20.250

⁴ For more information regarding CAT, see: <https://esd.wa.gov/jobs-and-training/commissioner-approved-training>

While enrolled in SEAP, participants are eligible to receive their regular unemployment benefits, but are not eligible for additional benefits beyond those they would have normally received had they not enrolled in the program. Additionally, SEAP participants are exempt from requirements to be available for work, search for work and accept work.⁵

Requirements

In order to be considered for SEAP, an individual must be eligible for unemployment benefits, be identified as likely to exhaust regular unemployment benefits through a profiling system established by the Employment Security Department (ESD), and must enroll in a self-employment assistance program that is approved by the Commissioner of Employment Security. ESD notifies all potentially eligible claimants by mail after they apply for unemployment benefits and file their first weekly claim.

Worker profiling system

The profiling system established by ESD gives claimants a profile score from 0 to 100 that is based on labor market and applicant-specific information gathered during the initial claim process. This information includes, but is not limited to: education level, county of residence, primary occupation, statewide unemployment rate and the claimant's unemployment weekly benefit amount.

Approved SEAP training programs and providers

Currently, there are 31 counties across the state with at least one approved training provider.⁶ There are seven approved training providers who operate statewide. Some approved training programs are not available to all applicants because of specific eligibility requirements. These are at the discretion of the provider and SEAP participants are encouraged to review the specific eligibility requirements of each provider once they have found a preferred program.

Approved self-employment training programs include:

- Entrepreneurial training.
- Business counseling.
- Technical assistance.
- Requirement to engage in activities relating to the establishment of a business and becoming self-employed.

Maintaining eligibility

To maintain eligibility for unemployment benefits while in SEAP training, participants must show that they are making satisfactory progress. To keep track of this, ESD mails each participant a Satisfactory Progress Report form every six weeks. The Satisfactory Progress Report form requires a training provider's signature confirming participant enrollment, attendance and active participation. If applicable, the training provider must also confirm that each participant is passing certification examinations within the time frame established under their approved training plan.⁷

⁵ RCW 50.20.010 and RCW 50.20.080

⁶ For a list of all providers: <https://esd.wa.gov/jobs-and-training/SEAP-approved-providers>

⁷ WAC 192-270-065

Study design

In this study, we analyze the effects of SEAP training on participants' self-employment, wage and unemployment benefits. The data used in this analysis includes information relating to business income, covered employment wages, unemployment benefits and demographic characteristics of SEAP-eligible claimants from 2007 through 2012. All data used came from existing data sources at ESD and the Department of Revenue (DOR).

We measure the variables included in this analysis for each individual in our sample during the four years prior to their SEAP-eligible unemployment claims. We then gather follow-up data for each individual in our sample through the end of 2014. For example, the analysis period is from 2004 through 2014 for SEAP-eligible claimants who filed for unemployment benefits in 2008. For SEAP-eligible claimants who filed for unemployment benefits in 2012, the analysis period is from 2008 through 2014. Data that follows the same individuals over time is called panel data.⁸

Data sources

The wage data we use in this study come from ESD's unemployment insurance wage file, which contains information on wages and hours worked that employers report for all of their employees who are covered by the UI system. The wage file also includes data we use to identify the industrial classification of each individual's primary employer during each year for which we have data, as well as the county in which each individual's primary employer is located.⁹

The data we use to measure unemployment benefit payments and the demographic characteristics of individuals in our sample come from the initial intake, continued claim, non-monetary issue and worker profile tables in ESD's unemployment benefits database. The data in these tables include the following demographic information for each individual in our sample: gender; age; ethnicity; level of formal education; union membership status; citizenship status; veteran status; and, occupational classification. These tables also include each individual's worker profile score, which we use to identify SEAP-eligible claimants, as well as information that identifies claimants who were approved for SEAP participation during each calendar year.¹⁰

The Washington State Department of Revenue (DOR) provided us with excise tax return data and business licensing system data. The DOR's business licensing data contains the names of registered businesses and business owners in Washington state, as well as the physical location of all registered businesses. The DOR's tax return data includes reported gross business income from taxable business activities for the purposes of assessing state business and occupation taxes, state sales and use taxes, and local, city or county sales and use taxes. Finally, the DOR's business license application file provides information on all governing persons, owners and spouses who are affiliated with registered businesses in Washington state.

⁸ There are 14 SEAP participants in our sample who were approved for participation on claims with an effective date in 2007. For these individuals, the analysis period is from 2003 through 2014.

⁹ We define the primary employer as the employer from whom each individual received his or her highest gross wages in a given calendar year.

¹⁰ The threshold for SEAP-qualifying worker profile scores has changed over time: in 2008 it was 36 or higher; 2009 – 37 or higher; 2010 – 35 or higher; 2011 – 30 or higher; 2012 – 32 or higher; 2013 – 33 or higher; 2014 – 35 or higher; and as of 2015, it is 37 or higher.

Using each individual's Social Security Number (SSN), we match individuals in our sample who opened a business in Washington state to a unique business identifier (UBI) in the DOR's business licensing system. We then use the UBI to link businesses owned by individuals in our sample to tax registration numbers contained in the DOR's tax return data by line file. Using information contained in the returns by line file, we then calculate the annual gross business income for each business owned by an individual in our sample.

Only owners of businesses classified as sole proprietorships, corporations with hired employees, or that have liquor, lottery or private investigator licenses are required to provide their SSNs, which means there may be individuals in our sample who own a business we are unable to identify. As a result, it is possible that we under-report the number of individuals in our sample who own a business and receive business income.

Participant and non-participant business ownership before the advent of SEAP

SEAP first took effect January 1, 2008, while the data provided by DOR includes reported business income from calendar year 2003 through 2014. Consequently, we do not have complete follow-up information for SEAP participants approved in 2014 and 2015, and we have only one complete year of follow-up information for participants approved in calendar year 2013. Because we lack sufficient follow-up information on those who filed a SEAP-eligible claim from 2013 through 2015, we limit our sample to those who filed a SEAP-eligible claim from 2008 through 2012.

The question we address in this report is: "Do SEAP participants experience better outcomes than non-participants because of participation in the program, or are their outcomes attributable to things unrelated to training?" We may observe that participants are more likely to open a new business than non-participants who filed a SEAP-eligible unemployment claim. This difference could be the result of training SEAP participants received while in the program; however, it could also be the result of differences between participants and non-participants that are unrelated to SEAP training.

Differences between participants and non-participants that are unrelated to training, that might affect the likelihood of opening a business, include personal motivation, prior work history or socioeconomic background. For example, if participants are more motivated to be business owners, then the fact they are more likely to open a business may be due to personal motivation and not to training received under the auspices of SEAP.

Figure 1 shows the number and percentages of SEAP participants and eligible non-participants in our sample who reported at least one dollar of business income to DOR during the five years prior to the advent of SEAP. Our sample includes 247,814 individuals who had a qualifying profile score and did not participate in SEAP, or who were approved for the program from 2008 through 2012. There are 2,333 individuals approved for SEAP and 245,404 eligible non-participants in our sample.

Both male and female SEAP participants were more than three times more likely to report business income than were eligible non-participants in our sample prior to the advent of SEAP. As shown in *Figure 1*, 12,561 (5.1 percent) of the total sample reported at least one dollar of gross business income in the five years prior to the advent of SEAP. Of the 2,333

SEAP participants in our sample, 16.5 percent reported business income, while only 5.0 percent of the 245,404 eligible non-participants reported gross business income in the five years prior to the advent of SEAP.

Figure 1. Participants and non-participants who reported business income prior to the advent of SEAP*
Washington state, 2003 through 2007

Sources: Employment Security Department/LMPA; Washington State Department of Revenue

SEAP-eligible claimants	Total	Participants	Non-participants
All eligible claimants	247,814	2,333	245,404
Number with prior business	12,561	384	12,177
Percentage with prior	5.1%	16.5%	5.0%
Eligible male claimants	156,309	1,272	155,037
Number with prior business	8,114	216	7,898
Percentage with prior	5.2%	17.0%	5.1%
Eligible female claimants	91,505	1,061	90,444
Number with prior business	4,447	168	4,279
Percentage with prior	4.9%	15.8%	4.7%

*These data only include people who were approved for SEAP, or who had a qualifying worker profile score, on unemployment claims filed from 2007 through 2012. We eliminated as outliers a total of 6,207 individuals (2.4 percent) from our sample because they were three standard deviations above the sample means for gross business income, wages or unemployment benefits received.

SEAP participants were more likely to report business income prior to the advent of SEAP than were eligible non-participants.

Figure 2 shows the average annual business income reported by SEAP participants and eligible non-participants in our sample. In addition to being more likely to report business income, SEAP participants in our sample report a higher annual average of business income than eligible non-participants during the five years prior to the advent of SEAP. Male participants reported an annual average of business income that is nearly two times higher than eligible male non-participants during the five years prior to the advent of SEAP. Female participants reported an annual average of business income that is 60 percent higher than female non-participants during the five years prior to the advent of SEAP.

Figure 2. Average annual business income for participants and non-participants prior to the advent of SEAP*
Washington state, 2003 through 2007

Sources: Employment Security Department/LMPA; Washington State Department of Revenue

SEAP-eligible claimants	Group	Average	Standard deviation	Median	Minimum	Maximum
All eligible claimants	Non-participants	\$2,233	\$23,685	\$0	\$0	\$773,087
	Participants	\$4,037	\$36,757	\$0	\$0	\$776,597
All eligible females	Non-participants	\$2,125	\$23,688	\$0	\$0	\$762,181
	Participants	\$3,408	\$35,130	\$0	\$0	\$753,598
All eligible males	Non-participants	\$2,297	\$23,684	\$0	\$0	\$773,087
	Participants	\$4,570	\$38,087	\$0	\$0	\$776,597

*These data only include people who were approved for SEAP, or who had a qualifying worker profile score, on unemployment claims filed from 2007 through 2012. We eliminated as outliers a total of 6,207 individuals (2.4 percent) from our sample because they were three standard deviations above the sample means for gross business income, wages or unemployment benefits received.

SEAP participants had higher averages for annual business income than eligible non-participants prior to the advent of SEAP.

Demographic characteristics of SEAP participants and eligible non-participants

Figures 3 through *5* present demographic information for participants and eligible non-participants in our sample. As shown in *Figure 3*, females represent a larger portion of SEAP participants than of eligible non-participants. People who report being White, non-Hispanic and those who report being Black, non-Hispanic comprise a larger portion of SEAP participants than of eligible non-participants. Veterans also comprise a larger portion of SEAP participants than of eligible non-participants among those in the years we've analyzed.

Individuals classified as disabled comprise a larger portion of SEAP participants than eligible non-participants, as do U.S. citizens and non-union members. In addition, people who are not classified as low income earners according to Engrossed Substitute House Bill 1906 (2009), Sec. 4 (2)(b)(i), comprise a larger portion of SEAP participants than eligible non-participants.¹¹

SEAP participants were also four years older on average than eligible non-participants and more likely to have a primary employer located in King County than were eligible non-participants. Finally, SEAP participants were more likely to be college graduates than were non-participants at the time they filed their SEAP-eligible unemployment claim.

¹¹ Low income earners are those who earn an hourly wage that is equal to, or less than 130 percent of the state minimum wage during their base year. The base year hourly wage rate thresholds for individuals in our sample are as follows: 2006 = \$9.92; 2007 = \$10.31; 2008 = \$10.49; 2009 and 2010 = \$11.12; and 2011 = \$11.27.

Figure 3. Demographic characteristics of participants and non-participants reported on their SEAP-eligible unemployment claims*

Washington state, 2007 through 2012

Source: Employment Security Department/LMPA

Demographic variables	Non-participants				Participants			
	Females		Males		Females		Males	
Gender								
	36.8%	90,410	63.2%	154,994	45.5%	1,061	54.5%	1,272
Ethnicity	Females		Males		Females		Males	
American Indian or Alaskan native	2.0%	1,774	1.7%	2,674	1.6%	17	1.3%	17
Asian or Pacific Islander	9.0%	8,125	7.4%	11,445	4.0%	42	5.7%	72
Black non-Hispanic	5.0%	4,536	4.9%	7,520	8.7%	92	5.9%	75
Hispanic	8.0%	7,227	8.1%	12,528	2.3%	24	4.1%	52
White non-Hispanic	71.8%	64,946	73.4%	113,822	77.8%	825	76.4%	972
Unknown	4.2%	3,836	4.5%	7,048	5.7%	61	6.6%	84
Veteran status	Females		Males		Females		Males	
Non-veteran	97.5%	88,166	84.6%	131,176	96.9%	1,028	80.4%	1,023
Veteran	2.5%	2,278	15.4%	23,861	3.1%	33	19.6%	249
Disability status	Females		Males		Females		Males	
Not disabled	95.5%	86,384	94.6%	146,628	94.0%	997	93.2%	1,185
Disabled	4.5%	4,060	5.4%	8,409	6.0%	64	6.8%	87
Citizenship status	Females		Males		Females		Males	
Non-citizen	5.0%	4,562	5.1%	7,836	2.2%	23	2.8%	35
Citizen	95.0%	85,882	94.9%	147,201	97.8%	1,038	97.2%	1,237
Average age	Females		Males		Females		Males	
	43	33,321	42	97,919	47	49,867	46	58,512
Union status	Females		Males		Females		Males	
Non-member	99.4%	89,919	98.3%	152,448	99.5%	1,056	98.4%	1,251
Member	0.2%	208	1.3%	1,953	0.1%	1	0.7%	9
Unknown	0.4%	317	0.4%	620	0.4%	4	0.9%	12
Low earner status	Females		Males		Females		Males	
No	84.8%	76,724	89.5%	138,681	96.5%	1,024	97.1%	1,235
Yes	12.3%	11,116	7.0%	10,806	1.8%	19	1.3%	16
Unknown	2.9%	2,605	3.6%	5,550	1.7%	18	1.7%	21
Region	Females		Males		Females		Males	
East	19.9%	17,989	17.0%	26,372	13.1%	139	10.2%	130
King	30.9%	27,911	29.8%	46,186	36.0%	382	35.1%	447
Pierce	6.9%	6,195	7.7%	12,000	7.7%	82	8.2%	104
Snohomish	11.1%	10,075	10.4%	16,124	8.2%	87	11.0%	140
Spokane	6.9%	6,250	8.2%	12,636	6.9%	73	7.0%	89
West	18.6%	16,832	19.8%	30,666	22.2%	236	19.5%	248
Out of state	2.1%	1,890	2.7%	4,124	0.9%	9	1.6%	20
Unknown	3.7%	3,310	4.5%	6,915	5.0%	53	7.4%	94
Education level	Females		Males		Females		Males	
Less than high school diploma	6.9%	6,204	9.9%	15,380	0.8%	8	1.7%	22
High school diploma	27.1%	24,465	33.9%	52,496	11.6%	123	14.6%	186
Some college, no degree	19.1%	17,311	15.6%	24,170	16.6%	176	17.7%	225
AA or AS degree	14.9%	13,467	13.6%	21,101	13.8%	146	14.4%	183
Bachelor's degree or above	29.3%	26,491	23.6%	36,573	56.2%	596	49.4%	628

*These data only include people who were approved for SEAP, or who had a qualifying worker profile score, on unemployment claims filed from 2007 through 2012. We eliminated as outliers a total of 6,207 individuals (2.4 percent) from our sample because they were three standard deviations above the sample means for gross business income, wages or unemployment benefits received.

SEAP participants are more likely to be college graduates than are eligible non-participants.

Figure 4 shows the occupational classification for SEAP participants and eligible non-participants reported on their SEAP-eligible unemployment claim, as well as the industrial classification of their primary employers. Though other occupation and industry groups are over and under-represented among SEAP participants, two things in particular stand out in these data: 1) SEAP participants are more likely to be drawn from management, business and financial occupations than are eligible non-participants; 2) SEAP participants are more likely to be drawn from professional, scientific and technical industries than are eligible non-participants.

Figure 4. Industry and occupation of participants/non-participants reported on their SEAP-eligible unemployment claims*
Washington state, 2007 through 2012
Source: Employment Security Department/LMPA

Prior employment variables	Non-participants				Participants			
	Females		Males		Females		Males	
Occupation								
Management, business and financial	30.8%	27,821	22.0%	34,170	42.3%	449	37.9%	482
Computer, engineering and science	6.6%	5,978	13.7%	21,163	10.6%	112	21.8%	277
Educ., legal, community svc., arts and media	7.3%	6,611	3.7%	5,659	17.4%	185	7.9%	101
Healthcare practitioners and technical	1.2%	1,040	0.3%	419	2.2%	23	0.9%	12
Service	9.9%	8,936	5.8%	8,992	3.9%	41	2.4%	31
Sales and related	7.3%	6,557	6.7%	10,356	7.0%	74	8.2%	104
Office and administrative support	26.2%	23,705	6.0%	9,240	14.1%	150	3.3%	42
Farming, fishing and forestry	1.9%	1,727	4.0%	6,263	0.0%	-	0.9%	11
Construction and extraction	0.5%	461	8.6%	13,287	0.2%	2	3.7%	47
Installation, maintenance and repair	0.5%	434	6.2%	9,628	0.7%	7	3.8%	48
Production	6.9%	6,223	17.9%	27,690	1.3%	14	7.3%	93
Transportation and material moving	0.8%	760	4.8%	7,426	0.3%	3	1.5%	19
Military specific	0.2%	190	0.5%	744	0.1%	1	0.4%	5
Unknown	0.0%	9	0.0%	16	0.0%	-	0.0%	-
Industry								
Agriculture, forestry, fishing and hunting	1.6%	1,411	3.5%	5,380	0.0%	-	0.5%	6
Mining, quarrying and oil and gas extraction	0.1%	45	0.2%	341	0.0%	-	0.0%	-
Utilities	0.4%	317	0.4%	558	0.4%	4	0.2%	2
Construction	2.8%	2,496	11.7%	18,124	2.5%	26	8.4%	107
Manufacturing	13.4%	12,138	23.6%	36,604	6.9%	73	14.7%	187
Wholesale trade	4.7%	4,242	6.2%	9,550	4.1%	43	7.0%	89
Retail trade	7.5%	6,765	6.7%	10,325	5.3%	56	7.0%	89
Transportation and warehousing	1.2%	1,040	2.0%	3,054	1.5%	16	1.8%	23
Information	5.3%	4,812	4.8%	7,364	5.9%	63	7.8%	99
Finance and insurance	9.4%	8,520	3.1%	4,744	7.3%	77	5.2%	66
Real estate, rental and leasing	3.1%	2,822	1.7%	2,698	3.7%	39	2.3%	29
Professional, scientific and technical	11.0%	9,922	8.7%	13,535	16.9%	179	17.4%	221
Management of companies and enterprises	0.4%	344	0.3%	465	0.5%	5	0.2%	2
Admin. support & waste mgmt. & remediation	10.1%	9,144	10.6%	16,496	7.5%	79	6.1%	78
Educational services	2.9%	2,623	1.3%	2,031	7.1%	75	2.7%	34
Healthcare and social assistance	10.8%	9,741	2.1%	3,178	12.2%	129	2.7%	34
Arts, entertainment and recreation	1.6%	1,429	1.4%	2,093	1.9%	20	1.0%	13
Accommodation and food services	2.4%	2,144	1.5%	2,310	1.1%	12	1.3%	16
Other services except public administration	4.4%	3,961	3.4%	5,225	5.4%	57	3.5%	45
Public administration	4.3%	3,853	3.3%	5,070	6.3%	67	4.5%	57
Unknown	3.0%	2,686	3.8%	5,907	3.9%	41	5.9%	75

*These data only include people who were approved for SEAP, or who had a qualifying worker profile score, on unemployment claims filed from 2007 through 2012. We eliminated as outliers a total of 6,207 individuals (2.4 percent) from our sample because they were three standard deviations above the sample means for gross business income, wages or unemployment benefits received.

SEAP participants are more likely to be drawn from management, business and financial occupations than are eligible non-participants.

Figure 5 shows the average annual wages, hours worked, unemployment benefits received, number of benefit weeks and the number of unemployment claims filed for participants and non-participants in our sample during the four years prior to filing their SEAP-eligible unemployment claims. What stands out in these data is the fact that both male and female SEAP participants earned more on average and worked more hours in covered employment than did eligible non-participants in our sample.

Male participants earned an average of \$16,536 more per year than their non-participant counterparts, while female participants earned an average of \$12,012 per year more than their non-participant counterparts during the four years prior to their SEAP-eligible unemployment claims. Likewise, male participants worked an average of 77 hours more per year than did their non-participant counterparts during the four years prior to filing their SEAP-eligible unemployment claims. Female participants worked an average of 59 hours more per year than did their non-participant counterparts prior to filing their SEAP-eligible unemployment claims.

On average, male participants received \$318 less per year than did their non-participant counterparts during the four years prior to filing their SEAP-eligible unemployment claim. In contrast, female participants received \$148 more per year than did their non-participant counterparts during the four years prior to filing their SEAP-eligible unemployment claim. Since female participants earned more on average than did non-participant females, this difference is not surprising. Unemployment insurance claimants who earn more generally qualify for higher maximum unemployment benefit amounts, and the difference in weeks claimed between female participants and non-participants is less than one week on average (0.3 weeks). Thus, the difference in unemployment benefits received between female participants and non-participants is likely explained by the higher average wages reported by participant females.

Figure 5. Employment and unemployment behavior of participants and non-participants prior to their SEAP-eligible unemployment claims*
 Washington state, 2003 through 2011
 Source: Employment Security Department/LMPA

Wage, employment and unemployment variables	Non-participants		Participants	
Average annual wages	Females	Males	Females	Males
Four years prior	\$44,698	\$50,287	\$56,180	\$66,094
Three years prior	\$46,288	\$51,645	\$58,074	\$68,068
Two years prior	\$47,499	\$52,518	\$59,471	\$68,543
One year prior	\$47,295	\$52,861	\$60,101	\$70,749
Average annual hours worked	Females	Males	Females	Males
Four years prior	1,590	1,637	1,640	1,682
Three years prior	1,619	1,660	1,650	1,736
Two years prior	1,622	1,646	1,676	1,712
One year prior	1,603	1,642	1,704	1,762
Average annual unemployment benefits	Females	Males	Females	Males
Four years prior	\$582	\$833	\$673	\$673
Three years prior	\$722	\$1,125	\$1,031	\$844
Two years prior	\$1,030	\$1,620	\$1,192	\$1,250
One year prior	\$1,262	\$1,783	\$1,292	\$1,321
Average annual unemployment benefit weeks	Females	Males	Females	Males
Four years prior	1.8	2.2	1.6	1.7
Three years prior	2.3	3.0	2.4	2.0
Two years prior	3.2	4.2	2.8	2.9
One year prior	4.0	4.7	3.1	3.2
Unemployment claims filed	Females	Males	Females	Males
Number who filed an unemployment claim	26,389	58,539	298	372
Percentage who filed an unemployment claim	28.8%	37.5%	28.1%	29.2%

*These data only include people who were approved for SEAP, or who had a qualifying worker profile score, on unemployment claims filed from 2007 through 2012. We eliminated as outliers a total of 6,207 individuals (2.4 percent) from our sample because they were three standard deviations above the sample means for gross business income, wages or unemployment benefits received.

Participants had higher annual wage averages than did non-participants during the four years prior to their SEAP-eligible unemployment claims.

Models for measuring the net impact of SEAP

The characteristics of SEAP participants and eligible non-participants in our sample indicate that participants are different from non-participants in ways that may introduce bias into our net impact estimates. For example, the data on reported business income prior to the advent of SEAP indicates participants were more inclined to open and operate a business prior to entering the program. This means that any differences between participants and eligible non-participants we observe after participants exit training could be the result of unmeasured characteristics, such as motivation to open a business, and not of training itself.

SEAP participants are also more likely to be college graduates, more likely to be drawn from management, business and financial occupations, and are more likely to be drawn from professional, scientific and technical industries. These differences between participants and eligible non-participants indicate prior education and work history influence the decision to participate in SEAP. Insofar as education and work history also

influence the skills an individual possesses, they may also contribute to differences between participants and non-participants on other unmeasured variables, such as business aptitude, that influence outcomes like gross business income after training ends.

Recall that our data follows the same individuals over time, which makes it panel data. The advantage of panel data is that it enables us to estimate the effect of unmeasured variables that do not change over time, but that also influence self-employment outcomes, wages and unemployment benefits received. Models that estimate the effects of unmeasured variables that do not change over time are called fixed effects models. Fixed effects models also enable analysts to estimate the effects of measurable variables that influence the outcomes of interest and that change over time.

To determine the effect of SEAP participation on self-employment, we specified a fixed effects model for two outcomes: the likelihood of reporting business income in any year after SEAP participation; and, the annual average of reported gross business income after SEAP participation. Additionally, we specify a fixed effects model to estimate the effects of SEAP on average annual wages and unemployment benefits received after SEAP training ends.

We also include an additional analysis of SEAP's effect on a third self-employment outcome: business survival. We define business survival as the number of consecutive years in which an individual reported at least one dollar of gross business income. The models we use to estimate SEAP's effect on this additional self-employment outcome are called survival models.

Note that our sample for the survival models only include SEAP participants and eligible non-participants who reported business income in any year after their SEAP-eligible unemployment claim. Note also that an individual business can have multiple spells of survival in our data. For example, a business can report two consecutive years of gross business income, report no business income for a year, and then report three more consecutive years of gross business income. In this example, the business would have two survival spells in our data—one that lasted two years and one that lasted three years.

The goal of our survival models is to determine whether SEAP participation increases the likelihood that an individual's business will "survive" through the end of 2014 from any point in time after SEAP training ends. To the extent SEAP increases the likelihood of business survival, we should observe that participant-owned businesses report longer periods of consecutive years in which they report gross business income and fewer periods in which they reported no business income.

Returning to the previous example, assume we observe a business that reported two survival spells, one that lasted two years and one that lasted three years. Further assume that this business belongs to an eligible non-participant in our sample. If SEAP has a positive impact on business survival, we would expect a similar participant-owned business to report at least one dollar of gross business income during all six follow-up years. In this example, we would conclude that SEAP increases the likelihood of surviving until the end of our analysis period.

SEAP net impact results for self-employment outcomes

In this section, we present our net impact results on post-training self-employment outcomes. We first report the results of models we specified to estimate the effects of SEAP on the likelihood of reporting business income after exiting training. We then report our results for models estimating the effects of SEAP participation on business survival. Finally, we present the results of our net impact models estimating the effects of SEAP on post-training gross business income levels.

The effects of SEAP on the likelihood of reporting business income

Figure 6 presents the results of our fixed effects model estimating the impact SEAP has on the likelihood of reporting business income after training ends. Recall that our fixed effects models control for unmeasured, time-invariant factors that influence the likelihood of opening a business. The estimates for gender, ethnicity, education and prior business income are interaction coefficients. This means they separately estimate the effect SEAP training has on these subgroups when compared to non-participants drawn from the same subgroup. Positive estimates indicate that SEAP training benefits these groups when compared to non-participants drawn from the same group.

After controlling for these factors, our estimates suggest the full sample of SEAP participants is no more likely to report any gross business income than eligible non-participants after exiting the program. However, certain subsets of SEAP participants do appear more likely to report gross business income as a result of their training.

For example, women who participate in the SEAP program are 56.2 percent more likely to report business income than eligible female non-participants after their training ends. Native Americans who participate in the SEAP program are 77.6 percent more likely to report gross business income after exiting the program than Native Americans who did not participate in the program. In addition, SEAP participants without a high school diploma are 77.0 percent more likely to report business income after exiting training than non-participants without a high school diploma.

Finally, our estimates suggest that people who reported business income prior to the advent of SEAP were less likely to report business income after exiting SEAP, once we control for unmeasured, time-constant variables in our fixed effect models. We estimate that every thousand dollars of self-employment income generated by an individual prior to the advent of SEAP reduces the likelihood of reporting business income after participants exit training.

We suspect the inverse relationship between prior business income and the likelihood of reporting business income after training ends is due to the fact that people with prior self-employment experience have more knowledge of business operations prior to their SEAP training. As a consequence, SEAP training is less likely to provide new information that will contribute to opening a new business for people with prior business experience.

However, people who have no prior business ownership experience may benefit more from the training they receive in SEAP, because training likely provides knowledge and skills they previously did not possess. This result suggests that SEAP participation yields greater benefits to first time business owners than it yields to participants with previous business ownership experience.

Figure 6. The effect of SEAP participation on the likelihood of reporting business income for selected subgroups¹
 Washington state, 2003 through 2014
 Sources: Employment Security Department/LMPA; Washington State Department of Revenue

Selected subgroup	Estimate	z-value	Effect on reporting business income
SEAP participants (full sample)	0.0%	-0.006	No Effect
Female participants	56.2%	3.51 ²	Positive
Native American participants	77.6%	3.94 ²	Positive
Participants with no high school diploma	77.0%	5.24 ²	Positive
Participants with prior business income	-0.003%	-8.50 ²	Negative

¹ For ease of interpretation, we transform estimates for categorical variables in this table using the following formula: $e^{\beta}/(1 + e^{\beta})$. We transform the estimate for prior business income using the following formula: $e^{(1000*\beta)} - 1$.

² Results are statistically significant.

Our estimates suggest women, Native Americans and those with no high school diploma who participated in SEAP were more likely to report business income than eligible non-participants drawn from the same subgroups.

The effects of SEAP on business survival

Recall that for our survival models we are only comparing SEAP participants who reported business income with non-participants who reported business income in any year after they filed their SEAP-eligible unemployment claims. Also, recall that the outcome we are analyzing with this model is the number of consecutive years in which individuals in our sample reported at least one dollar of gross business income. Thus, in the context of this study a greater number of consecutive years in which a business reports at least some business income indicates a longer survival spell.

The sample for our survival models contains 564 SEAP participants who reported business income after their SEAP-eligible unemployment claims and who had a total of 645 different business survival spells. The sample includes 15,996 eligible non-participants who reported business income after their SEAP-eligible claim and who had a total of 18,086 business survival spells.

Because the sample size is much smaller for the survival models, it is necessary to reduce the number of categories into which we group participants and non-participants for several control variables we include in the model. For education status, we grouped people into two categories: college graduates and non-college graduates. We also grouped people into two categories for the ethnicity variable: White and non-white. We also grouped people into two categories based on the location of their employer at the time they filed their SEAP-eligible unemployment claim: King, Pierce and Snohomish counties; and, all other counties.

For the occupational classification variable, we grouped individuals in our sample into three categories: management, business, science and arts occupations; sales and office occupations; and, all other occupations. For the industrial classification of an individual's primary employer prior to filing his or her SEAP-eligible unemployment claim, we grouped individuals into two categories: professional, scientific, and technical services industries; and, all other industries. Note that we only measure the control variables we include in the survival model at the time each individual filed his or her SEAP-eligible unemployment claim. Thus, the control variables do not change over time.

Figure 7 presents the results of our final business survival model. Only the variables with a statistically significant impact on business survival are presented in the figure. Note that a positive estimate indicates that a variable increases the likelihood of business survival.

The estimate for SEAP participation indicates that businesses owned by participants are 13.1 percent more likely to survive until the end of our analysis period than businesses owned by eligible non-participants. SEAP training has a different impact on the likelihood of business survival for people who were previously in sales occupations. The businesses of SEAP participants who were previously in sales occupations are 30 percent less likely to survive than businesses of non-participants who were drawn from sales occupations. After controlling for the differential effects SEAP has on people drawn from sales occupations, however, our estimates indicate that SEAP participation does improve the likelihood of business survival for the rest of the sample.

Figure 7. The effects of selected variables on the likelihood of business survival¹
Washington state, 2008 through 2014

Sources: Employment Security Department/LMPA; Washington State Department of Revenue

Variables affecting business survival	Estimate	Z-value	Effect on business survival
SEAP participation (all businesses)	13.1%	2.457 ²	Positive
Prior gross business income (\$1,000)	0.1%	11.213 ²	Positive
Non-college graduate	-6.7%	-4.004 ²	Negative
Low earner status (unknown)	-17.4%	-4.698 ²	Negative
Low earner status (yes)	-10.5%	-2.779 ²	Negative
Age at time of SEAP claim	1.1%	15.345 ²	Positive
Citizen status (yes)	-9.6%	-2.775 ²	Negative
Union status (yes)	24.9%	2.137 ²	Positive
Veteran status (yes)	-5.9%	-2.36 ²	Negative
Non-management occupations (except sales)	6.5%	3.153 ²	Positive
SEAP participation* sales occupations	-30.0%	-3.084 ²	Negative

¹ This model assumes the underlying hazard function follows a Weibull distribution. The model scale is less than one, indicating that the longer a business continuously reports gross income, the less likely it is to "fail" at any given point in time. Note that the estimates presented in this figure are transformed for ease of interpretation using the following formula: $(e^{\beta}) - 1$. For categorical variables, the estimates indicate the likelihood of business survival compared to individuals in a reference category. The reference category for each categorical variable presented in this figure are: 1) college graduates (education level); 2) individuals not deemed low earners (low earner status); 3) non-citizens (citizenship status); 4) non-union members (union membership status); 5) non-veterans (veteran status); and, 6) management, business and financial occupations (occupational classification). There are 586 businesses, or 3.1 percent of the sample, for which we are unable to determine whether or not the owner was a low income earner due to missing data.

² Results are statistically significant.

The survival model results indicate SEAP participant businesses are 13 percent more likely to survive until the end of the analysis period than businesses owned by eligible non-participants in our sample.

The effects of SEAP on gross business income

Figure 8 reports the results of our model estimating the effects of SEAP on the amount of gross business income participants report after training ends. After accounting for observed time-invariant factors, unobserved time-invariant factors and observed factors that vary over time, our estimates suggest that SEAP participation has no net effect on post-training gross business income, overall. However, there are some subgroups of participants more likely to experience increased gross business income that is attributable to SEAP participation.

For example, we estimate that Native American SEAP participants will generate \$25,977 more business income per year than Native American non-participants. We also estimate that SEAP participants who have a background in the construction trades generate \$18,462 more in gross business income per year than non-participants drawn from construction occupations. Our estimates indicate low income SEAP participants generate \$25,977 more in gross business income per year than non-participants who are classified as low income earners. In addition, we find that SEAP participants with no high school diploma report \$16,456 more in gross business income than non-participants with the same level of formal education.

Figure 8. The effect of SEAP participation on levels of business income for selected subgroups¹
Washington state, 2003 through 2014
Sources: Employment Security Department/LMPA; Washington State Department of Revenue

Selected subgroup	Estimate	t-value	Effect on gross business income
SEAP participants (full sample)	-\$6,087	-1	No Effect
Low income participants	\$25,977	6.64 ²	Positive
Native American participants	\$20,247	5.06 ²	Positive
Participants with no high school diploma	\$16,456	3.95 ²	Positive
Participants from construction occupations	\$18,452	5.46 ²	Positive

¹ The estimates for low income status, ethnicity, education level and occupational classification are interaction coefficients. This means they separately estimate the effect SEAP training has on these subgroups when compared to non-participants drawn from the same subgroup. A positive estimate indicates SEAP training benefits these groups when compared to non-participants drawn from the same group.

² Results are statistically significant.

SEAP participation did not have a statistically significant effect on annual gross business income for all participants. However, certain subgroups of workers did benefit from SEAP participation.

The effects of SEAP on wages in covered employment

In this section, we present the net impact estimates of SEAP participation on the wages participants earned in covered employment. To begin, we perform a logarithmic transformation (log) of the wage data. We used the log of our wage data because this type of data tends to be highly skewed. By logging the wage data, we are able to improve the precision of our estimates. Hence, the estimates listed in *Figure 9* refer to the expected percentage change in covered wages associated with membership in each of the listed categories.

As shown in *Figure 9*, there is no effect of SEAP training on logged wages in covered employment for the entire sample of SEAP participants. The estimate indicates an 84 percent increase in annual wages that is attributable to their SEAP training. However, the estimate is not statistically significant, meaning we cannot conclude that the effect of SEAP training is greater than zero.

Despite the fact SEAP has no effect on wages for the full sample of participants, there are subgroups of participants for whom SEAP participation does impact wage levels. For instance, we estimate that Hispanic SEAP participants will earn 56 percent less per year in covered employment than their non-participant counterparts. On the other hand, we estimate

that SEAP participants classified as low income earners will earn almost two times more per year after exiting SEAP than their non-participant counterparts. Likewise, we estimate that SEAP participants drawn from food service and preparation occupations will earn 153 percent more per year after exiting the program than their non-participant counterparts.

Figure 9. The effect of SEAP participation on annual wages in covered employment for selected subgroups¹
Washington state, 2003 through 2014
Sources: Employment Security Department/LMPA; Washington State Department of Revenue

Selected subgroup	Estimate	T-value	Effect on logged wages
SEAP participants (full sample)	84%	1.25	No Effect
Hispanic participants	-56%	-3.35 ²	Negative
Low income participants	189%	3.32 ²	Positive
Participants from food service occupations	153%	1.73 ²	Positive

¹ The estimates for ethnicity, low income status and occupational classification are interaction coefficients. This means they separately estimate the effect SEAP training has on these subgroups when compared to non-participants drawn from the same subgroup. A positive estimate indicates that SEAP training benefits these groups when compared to non-participants drawn from the same group. The estimates in our model return the effect of each variable on the natural logarithm of wages. For ease of interpretation, we transformed these coefficients using the following formula: $(e^{\beta}) - 1$.

² Results are statistically significant.

The effect of SEAP participation on annual wages in covered employment is not statistically different from zero. However, some subgroups are expected to experience wage gains (or losses) from participation in the SEAP program.

The effects of SEAP on unemployment benefits received

In this section, we present the net impact estimates of SEAP participation on unemployment benefits received after exiting the program. In other words, we assess whether SEAP participation increases, or decreases, the dollar amount of unemployment benefits a participant is likely to receive.

As shown in *Figure 10*, we estimate that, net of observed and unobserved factors, SEAP participants receive about \$2,850 less in unemployment benefits per year after they exit the program when compared to non-participants. Further, this reduction in payments extends to all demographic subgroups of SEAP participants. While SEAP participation does not appear to improve employment and wage outcomes for many subgroups of participants, it does appear to reduce the amount of unemployment received by all SEAP participants.

Figure 10. The effect of SEAP participation on unemployment benefits received
Washington state, 2003 through 2014
Source: Employment Security Department/LMPA

Selected variable	Estimate	T-value	Effect on unemployment benefits received
SEAP participation (full sample)	-\$2,848	-5.32*	Negative

*Results are statistically significant.

On average, SEAP participation reduces the amount of unemployment benefits received per year.