IOWA COLLEGE AID

Education and Employment Outcomes for the Education and Training Voucher Program

1. INTRODUCTION

The postsecondary attainment rates for former foster care youth are drastically lower than for those who were not in foster care. In a study examining foster care youth in Iowa, Illinois, and Wisconsin, Courtney et al. (2009) found that foster care youth were five times less likely than the general population to have a two- or four-year degree. Their findings suggest that the most significant contributing factor was foster care youths' inability to pay for their education.

Financial aid results in lower tuition prices and increases the likelihood that an individual will attend college; for every $1,000 decrease in tuition, the likelihood of college enrollment increases by 3 to 4 percentage points (Leslie & Brinkman, 1987; 1988; Heller, 1997). Financial aid is especially important for lower-income students, such as former foster care youth, who have fewer resources for funding postsecondary education.

There are a number of financial support programs for former foster care youth. Federal programs include the Pell Grant and the Education and Training Voucher (ETV). Foster care youth typically qualify for the full Pell Grant amount, a maximum of $6,195 in 2019. ETV is awarded to those who age out of the foster care system and attend a postsecondary institution, with eligibility lasting until age 23. ETV recipients are eligible for a maximum of $5,000 per year for up to four years.[1]

Postsecondary education has long been recognized as providing individuals with a variety of benefits. For example, those who complete some college or earn a credential have higher earnings and lower unemployment rates (Iowa College Aid, 2019). The same holds true for former foster care youth. According to Courtney et al. (2009), former foster care youth who completed some college or a credential earned higher wages and were more likely to be employed than former foster care youth who did not complete any college. However, the same report identified that former foster care youth had overall lower employment rates than the general population. Regardless of college completion status, about 48 percent of former foster care youth in the Midwest reported employment compared to 80 percent for the general population (Courtney et al. 2009).

In 2018, 9,884 Iowa youths were living in foster care (Iowa Department of Human Services, 2018). Also in 2018, 402 foster care youths graduated from high school, at a rate of 76 percent, lower than the statewide high school graduation rate of 91 percent (Iowa Department of Education, 2018). Iowa College Aid first administered the ETV program in the 2004-05 academic year. Each year there are typically 50 to 90 first-time ETV recipients.

Here, we investigate the education and employment outcomes for former foster care youth from Iowa who were eligible for ETV. We focus on the following four research questions:

1) Are students who receive notice of eligibility for an ETV award more likely to enroll?
2) Are students who receive an ETV award more likely to persist and/or complete a postsecondary credential?
3) Are students who received an ETV award more likely to be employed?
4) Do students who received an ETV award and are employed earn higher wages than those who did not receive an ETV award?

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[1] Starting in 2019-20, the ETV program extended eligibility to receive funds for an additional year, up to 5 years, and raised the eligibility age to 26.

2. ETV IN IOWA

The Education and Training Voucher is a federal grant that assists former foster care youth, between the ages of 18 and 23, in paying for their postsecondary education. To be eligible, students must:

   a) complete both the Free Application for Federal Student Aid (FAFSA) and the Iowa Financial Aid Application (IFAA), and

   b) have exited foster care within 30 days of their 18th birthday, or been legally adopted under the Subsidized Guardianship Program at the age of 16.

Grant awards can be used to pay for tuition, fees, room and board, books, or other living expenses. The maximum award for a given academic year is $5,000.

Table 1 displays the number of recipients and average awards from the past five academic years by institutional sector. The number of ETV recipients has gradually declined, from a high of 210 in 2014-15 to a low 147 in 2018-19. The main reason for the decline in recipients is the decrease in federal funding for ETV. While the number of recipients has declined, the average award has remained fairly constant, between $3,300 and $3,400. Roughly two-thirds of ETV recipients attended a community college, receiving average awards between approximately $2,800 and $3,200.

Table 1: Number of ETV awards and average award amounts by postsecondary sector

Academic Year	Regent Universities		Private, Not-for-Profit Institutions		Community Colleges		Total*	
	Awards (N)	Average Award ($)	Awards (N)	Average Award ($)	Awards (N)	Average Award ($)	Awards (N)	Average Award ($)
2014-15	24	4,664	23	3,533	147	3,015	210	3,266
2015-16	30	3,600	9	4,107	148	3,211	199	3,329
2016-17	20	4,357	14	3,631	121	3,128	166	3,345
2017-18	23	4,647	22	3,720	121	3,155	177	3,426
2018-19	24	4,740	19	4,002	91	2,882	147	3,348

*Total includes Regent universities, private not-for-profit institutions, community colleges, private for-profit institutions, barber and cosmetology schools, and out-of-state institutions. Therefore, the Regent universities, private not-for-profits, and community colleges will not add up to total.

3. DATA

To determine education and employment outcomes associated with ETV eligibility and receipt, we used custom data sets developed by Iowa College Aid combined with federal FAFSA data, postsecondary data from the National Student Clearinghouse (NSC), and employment data from the Unemployment Insurance (UI) database through Iowa Workforce Development (IWD).

3.1 Iowa College Aid

Iowa College Aid maintains annual datasets for all applicants, designees (eligible students), and recipients for ETV. This dataset includes the status of the ETV application (ineligible, designated, paid) and amount received each term. There are a few reasons that students who were eligible for ETV might not have received funding, the most common being that the student never enrolled at a postsecondary institution. Another reason is that the student might have had all postsecondary education costs covered by other scholarships, grants, or institutional aid and not needed ETV.

Since 2004-05, the beginning of Iowa College Aid's administration of ETV, our data tracking system has evolved. Data for the ETV program prior to 2013-14 resides in the same spreadsheets as data regarding the All Iowa Foster Care Grant (AIFC), a state grant available to former foster care youth. With ETV and AIFC data existing in this form, we are unable to identify students who were eligible but not awarded the ETV grant, as they might have been eligible for AIFC instead of ETV. For any student who received a payment through either program, the data clearly identifies which of the two grants they received. Therefore, our analysis of the enrollment outcomes below is limited to those students who applied for ETV for the first time in 2013-14 or later (Section 5). When analyzing postsecondary persistence, completion, and employment outcomes, we include all available populations of ETV recipients, back to 2004-05 (Sections 6 and 7), to increase sample sizes and explore longer-term outcomes.

3.2 Free Application for Federal Student Aid (FAFSA)

Iowa College Aid is the state agency that receives all federal FAFSA data on Iowa applicants. This dataset provided us with demographic data (age, gender), data regarding families (parent education level and estimated family contribution [EFC]), as well as postsecondary information (year in college and type of degree being pursued). FAFSA data also has a flag for filers who identified themselves as "orphans, wards of the state or in foster care."

3.3 National Student Clearinghouse (NSC)

We matched the aforementioned ETV and FAFSA records to data maintained by NSC. These data allow us to track each recipient's enrollment at postsecondary institutions, both within Iowa and out of state, as well as their postsecondary degree completion.

3.4 Iowa Workforce Development (IWD)

For this project, we worked with IWD, which is the state agency that oversees Iowa's UI records. This database contains quarterly employment and earnings records. IWD cannot share individual level UI data, so we provided Social Security numbers to IWD for ETV recipients and a comparison sample (described in Section 4), and they returned the percentage of students matched to employment records and average wages.

4. METHODOLOGY

The effects of ETV eligibility or receipt were analyzed separately for:

    a) postsecondary enrollment,

    b) postsecondary progress, and

    c) employment outcomes.

For each of these outcomes, we estimate the effect of ETV by creating a similar comparison or control sample of students who did not receive ETV. This process consisted of using propensity score matching. We further explain the matching process for each of the three outcomes below.

4.1 Enrollment Analysis

To compare postsecondary enrollment rates of students notified that they were eligible for ETV to similar students who were not eligible for ETV, we identified FAFSA filers who indicated that they were orphans, wards of the state, or in foster care who first filed the FAFSA between 2013-14 and 2016-17. From that population, we identified filers who were eligible for ETV that same year. The sample of ineligible filers included those who applied for ETV but were ineligible along with those who filed the FAFSA as an orphan, ward of the state, or in foster care but did not apply for ETV. Students who were ineligible for ETV might differ from ETV-eligible students on variables such as age (ETV had an upper age limit of 23), missing the ETV application deadline, or completing the FAFSA but not the IFAA, to name a few examples.

Table 2 on the next page provides demographic data on FAFSA filers who indicated they were orphans, wards of the state, or in foster care. Data from the FAFSA includes age when the FASFA was filed, gender, whether or not they had children, EFC, and parent education level. FAFSA data also indicate postsecondary status (first-time versus returning student) and the type of degree they intend to pursue.

We first compare demographics for the full sample of first-time FAFSA filers, based on whether they were ETV-eligible. For each demographic we calculated the significance (p) of the different proportions between the ETV-eligible and ETV-ineligible filers using a two-sample proportion test. ETV-eligible filers were typically younger, more likely to be entering their first year of college, and more likely to have a zero EFC. Table 2 also compares demographics of ETV-eligible students who received funds to those who never received grant money. Roughly half of those notified that they were eligible for ETV never received payment. Those who were paid an ETV award were older, more likely to be female, and more likely to be pursuing a bachelor's degree.

As Table 2 demonstrates, there are statistically significant differences in the demographics of ETV-eligible and ETV-ineligible FAFSA filers. To account for these differences, we used propensity score matching to create similar samples. This approach assumes that ETV eligibility is based on observable characteristics, and those characteristics that influence treatment and outcomes (i.e., enrollment, persistence, graduation, employment, and wages) are accounted for in our models. We used a logistic regression model to calculate each filer's likelihood of being eligible for ETV. All demographic variables listed in Table 2 were included as controls, while ETV eligibility was the outcome variable. We then used that likelihood to pair ineligible to eligible filers at a ratio of 2-to-1, without replacement. Table 3 on the next page compares the demographics of ETV-eligible and ETV-ineligible samples after matching. There are no longer significant differences in observables between the two ($p<0.05$). Two suitable matches were not found for all ETV-eligible students, so the total N of the analytic sample in Table 3 is lower by eight students.

Table 2: Demographics of orphan, ward of the state, or foster care FAFSA filers
between 2013-14 and 2016-17, before matching

| | Orphan, Ward of State, Foster Care | | | ETV Eligible | | |
	ETV-Eligible (%)	Not ETV-Eligible (%)	p	Paid (%)	Not Paid (%)	p
Age less than 18	39.1	24.7	<.001	29.5	47.3	<.001
Female	49.5	49.6	.970	61.0	39.5	<.001
Children	1.1	0.3	.030	1.4	0.8	.538
Father College	24.1	24.2	.963	28.1	20.6	.063
Mother College	19.0	22.7	.093	21.4	16.9	.223
Zero EFC	98.2	91.0	<.001	98.1	98.4	.808
First Year	97.8	89.0	<.001	95.7	99.6	.005
Bachelor's Degree	28.9	29.5	.805	37.6	21.4	<.001
N	453	1,565		210	243	

Table 3: Matched samples of ETV-eligible and ETV-ineligible FAFSA filers

	ETV-Eligible (%)	ETV-Ineligible (%)	p
Age less than 18	39.1	40.1	.725
Female	48.8	49.2	.890
Children	0.7	0.2	.154
Father College	23.6	25.6	.426
Mother College	18.9	21.8	.219
Zero EFC	98.2	96.4	.069
First Year	98.0	98.4	.598
Bachelor's Degree	28.8	28.0	.760
N	445	890	

To estimate the effect of ETV eligibility on postsecondary enrollment, we used a logistic regression model with the dependent variable being an indicator equal to 1 if the student enrolled in postsecondary education. We also included academic year fixed effects and controls to account for differences in college enrollment and ETV eligibility across student demographics, which are the same controls used for the propensity score match and are listed in Table 3. While including high school fixed effects would have been ideal, these data were not available for this analysis.

As mentioned in Section 3.1, we are limited to analyzing enrollment rates for students who filed a FAFSA for the first time in 2013-14 through 2016-17, whereas for the subsequent outcomes we discuss below, the sample contains students who filed a FAFSA after 2004-05.

4.2 Persistence and Completion

To determine the effect of ETV on postsecondary persistence and completion, we analyzed data on 12 years of ETV cohorts, specifically those who received their first award between 2004-05 and 2015-16. Similar to Section 4.1, we used propensity score matching to identify a comparison sample with similar demographics from FAFSA filers with the orphan, ward of the state, or foster care flag. Table 4 shows the demographics of the pre-matched FAFSA populations used to create the matched sample.

Table 4: Demographics of orphan, ward of the state, or foster care FAFSA filers between 2004-05 and 2015-16, before matching

	ETV Recipient (%)	Non-Recipient (%)	p
Age less than 18	35.9	8.4	<.001
Female	60.3	60.0	.858
Children	2.2	32.9	<.001
Father College	16.2	15.9	.811
Mother College	22.9	22.3	.674
Zero EFC	90.9	59.7	<.001
First Year	96.5	71.1	<.001
Bachelor's Degree	31.9	23.9	<.001
N	913	13,157	

We again used 2-to-1 propensity score matching, without replacement, to create similar samples of recipients and non-recipients (see Table 5 on the next page). Here, we did not achieve similar samples, with a higher percentage of non-recipients being under age 18 and reporting that they are first-year students, while a lower percentage of non-recipients reported pursuing a bachelor's degree. While the proportions are different, the average age between the two samples was statistically similar. Because we include all observables in Table 5 in our analysis as control variables, we do not expect this to introduce significant bias. Acceptable matches were not found for 22 students.

Similar to the discussion in Section 4.1, we used a logistic regression model, including academic year fixed effects, on the matched samples to determine whether there was an association between receipt of an ETV award and persistence and graduation rates (at four, six, and eight years). Persistence was measured from NSC data as continuous enrollment for the first two years of postsecondary education. Graduation times were also measured from NSC data as the difference between the postsecondary graduation date and the first postsecondary enrollment record.

Table 5: Matched samples of ETV recipient and non-recipient samples

	ETV Recipient (%)	Non-Recipient (%)	p
Age less than 18	35.2	39.6	.027
Female	60.5	58.5	.321
Children	2.2	1.7	.368
Father College	16.3	17.5	.437
Mother College	22.8	23.9	.527
Zero EFC	90.8	90.1	.564
First Year	96.4	98.3	.002
Bachelor's Degree	32.2	24.9	<.001
N	891	1,782	

4.3 Employment and Wages

The matched ETV recipients and non-recipients described in Section 4.2 were paired to the UI database to determine the percentage of each sample who were employed in Iowa and their average wages. Due to data sharing restrictions on UI data, IWD was unable to share student-level data. We provided data to IWD that identified each student's gender, age category, and postsecondary attainment status, as well as their ETV award status; and IWD returned results disaggregated by those variables. After receiving aggregate UI match rates and average wages, we used proportionality tests and t-tests, respectively, to determine whether the ETV recipient and non-recipient samples had significantly different employment outcomes.

Whereas the lack of statistically similar samples is not expected to have introduced bias in the postsecondary persistence and completion models, we do expect it to have impacted our employment analysis. ETV recipients were more likely to be pursuing a bachelor's degree and less likely to be entering their first year of postsecondary education than non-recipients. Both of these likely biased our employment outcome results due to the fact that bachelor's degree holders have higher employment rates and higher average wages. In addition, returning students might be more likely to complete a credential. We discuss these issues further in Section 8.

5. ENROLLMENT RESULTS

In this section we explore the effect of ETV eligibility on postsecondary enrollment using four years of data, starting with the 2013-14 cohort. The results of the regression analysis modeling postsecondary enrollment are shown in Table 6, including the average marginal affect, or the predicted difference in postsecondary enrollment rates for ETV-eligible and ETV-ineligible FAFSA filers. We found that ETV eligibility is associated with an 8 percentage point increase in the likelihood of immediately enrolling in postsecondary education ($p < 0.01$).

Table 6 : Results of logistic regression modeling postsecondary enrollment

	Postsecondary Enrollment
ETV Eligible	1.401** (.166)
Age	1.292** (.103)
Female	1.099 (.125)
Children	2.753 (2.595)
Father College	1.123 (.158)
Mother College	1.735*** (.264)
First Year	.679 (.314)
Bachelor's Degree	1.523** (.192)
Zero EFC	.905 (.321)
AME of ETV Eligible	**.080** (.028)**
N	1,335

Note: Table displays odds ratios. The average marginal effect (AME) of the ETV Eligible coefficient is in bold. Standard errors are in parentheses.

*$p < .05$ **$p < .01$ ***$p < .001$

6. PERSISTENCE AND COMPLETION RESULTS

Here we studied the effect of receiving an ETV award. Logistic regression results modeling postsecondary persistence and completion are given in Table 7. We found that having received an ETV grant was positively associated with continuous enrollment in the first two years of postsecondary education. ETV recipients were 15.3 percentage points more likely to persist than their non-recipient counterparts. In terms of degree completion, we found that ETV recipients completed at higher rates. Within four years of college entry, ETV recipients were more likely to graduate by 3.0 percentage points. The graduation rate difference increased to 3.8 percentage points within six years of college entry and to 5.6 percentage points within eight years of postsecondary entry. All completion estimates are significant at the 5 percent level.

Table 7: Results of logistic regression modeling persistence and completion for ETV recipients

	Persisted	Graduated (4 years)	Graduated (6 years)	Graduated (8 years)
ETV Recipient	1.937***	1.404*	1.327*	1.423*
	(.169)	(.202)	(.181)	(.206)
Age	1.087	1.002	.964	.974
	(.048)	(.070)	(.062)	(.065)
Female	1.516***	1.784***	1.581**	1.745***
	(.125)	(.278)	(.221)	(.260)
Children	1.471	1.004	2.103	1.708
	(.481)	(.466)	(1.063)	(.700)
Father College	.974	1.225	1.247	1.138
	(.112)	(.237)	(.236)	(.234)
Mother College	1.250*	1.080	1.082	1.356
	(.125)	(.183)	(.175)	(.230)
First Year	.446*	.335**	.383**	.284***
	(.144)	(.105)	(.134)	(.099)
Bachelor's Degree	1.951***	1.077	1.881***	2.566***
	(.181)	(.167)	(.265)	(.385)
Zero EFC	.815	.785	.635*	.562**
	(.118)	(.172)	(.114)	(.099)
AME of ETV Receipt	**.153*****	**.030***	**.038***	**.056***
	(.019)	**(.013)**	**(.018)**	**(.023)**
N	2,673	2,273	1,742	1,287

Note: The value of N decreases for each outcome, as fewer cohorts were available for analysis as the time period required since receiving ETV increased. See notes in Table 6.

*p < .05 **p < .01 ***p < .001

7. EMPLOYMENT OUTCOMES

In addition to postsecondary outcomes for ETV students, we explored longer-term outcomes using employment rates and average wages of those who were employed.

7.1 Employment Match

To assess the effect of ETV on employment, IWD reported the aggregate number of ETV recipient and non-recipient students who returned a match to the UI database. The database used for this analysis covers only those employed in the state of Iowa. Also, it does not identify those who are self-employed, as they do not report to the UI database. Therefore, matches do not reflect out-of-state employment or self-employment, and an unemployment rate cannot be determined from these data.

In Table 8 we report Iowa employment rates for ETV recipients and non-recipients four years after postsecondary graduation or eight years after first postsecondary enrollment for those who never earned a credential. The total sample number in this table differs from the sample numbers in Table 7 due to this definition of the end of postsecondary education. These data are shown for the full samples, as well as broken down by age, gender, and whether a student attained a postsecondary credential. The significance of the difference in UI match rates is provided in Table 8, calculated using a proportionality test. We found that the samples that received an ETV award were significantly more likely to have a positive match to the UI database after four years in all but a few instances.

Table 8: UI match rates for ETV recipients and non-recipients

	Employed - Recipients (%)	N	Employed - Non-Recipients (%)	N	Match Difference	p
Age: Younger than 18	73.9	184	67.7	403	6.2	.130
Age: 18	73.5	253	67.2	451	6.3	.082
Age: Older than 18	78.6	117	63.2	223	15.4	.004
Gender: Female	73.5	343	69.5	630	4	.189
Gender: Male	76.8	211	62.4	447	14.4	<.001
Credential: Attained	79.7	158	66.7	234	13	.005
Credential: Not Attained	72.7	396	66.5	843	6.2	.029
Total	74.7	554	66.6	1,077	8.1	.001

7.2 Wage Analysis

For those who were matched to the UI database, we received average wages, restricted to the population of students who were employed all four quarters during one year. Table 9 lists the average wages, as well as standard deviations for the samples disaggregated by age, gender, postsecondary attainment status, and ETV award status four years after the end of postsecondary education. We also report the statistical significance of the differences calculated using a t-test. While, across all demographic groups, we found ETV recipients to have higher earnings than non-ETV recipients, the difference between the two groups was not statistically significant at the 5 percent level. However, wages for female ETV recipients as well as the full sample of ETV recipients were higher than non-recipients at the 10 percent significance level.

An important limitation to our analysis on wage differences is our inability to control for individual characteristics. As we discussed in Section 3.4, IWD provided Iowa College Aid with the average annual wages for ETV and non-ETV recipients, in groups rather than individually. While our propensity score match does mitigate the differences in demographic observables, the estimates are likely biased because we are not able to account for other observable and unobservable characteristics. In our other models, we control for observable characteristics through regression techniques. Because we were provided aggregate data, we are unable to perform these same regression techniques and instead must rely on less technically robust methods, such as t-tests and proportion tests that cannot account for other characteristics. Additionally, having individualized data over multiple periods of time would allow us to estimate wage growth, as opposed to the current analysis that examines wages only in certain periods of time.

Table 9: Average wages for ETV recipients and comparison sample

	Avg. Wage - Recipients ($)	S.D.	N	Avg. Wage - Non-Recipients ($)	S.D.	N	Wage Difference	p
Age: Younger than 18	28,817	19,103	86	26,932	15,231	144	1,885	.411
Age: 18	30,299	15,650	124	27,614	12,722	182	2,685	.100
Age: Older than 18	29,298	25,358	60	26,946	14,729	89	2,352	.762
Gender: Female	27,438	15,284	168	25,014	13,101	263	2,424	.080
Gender: Male	33,174	23,985	102	31,076	14,805	152	2,098	.390
Credential: Attained	37,787	24,441	92	33,642	13,743	128	4,145	.111
Credential: Not Attained	25,376	14,162	178	24,379	13,224	287	997	.442
Total	29,605	19,204	270	27,234	14,040	415	2,371	.063

8. CONCLUSIONS

We find that both being eligible for and receiving an ETV award are associated with positive and significant postsecondary and employment outcomes. Consistent with previous research on scholarship eligibility, being eligible for an ETV award increased the likelihood of enrollment by 8 percentage points. In addition, students who received an ETV award were 15 percentage points more likely to persist from year one to year two and 3 to 6 percentage points more likely to graduate.

ETV recipients experienced improved employment outcomes. Four years after completing their postsecondary education, ETV recipients were 8 percentage points more likely to be employed in Iowa, according to UI data. The positive employment outcomes are likely due to the fact that more ETV recipients earn a postsecondary credential. Without student-level data, we could not test this specifically, but college graduates in Iowa are more likely to be employed and earn higher wages on average (Iowa College Aid, 2019). We expect some bias in these results due to the fact that ETV recipients were more likely to be pursuing a bachelor's degree than non-recipients. Further research is necessary on long-term employment outcomes of ETV students, and student-level data is crucial for this analysis.

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