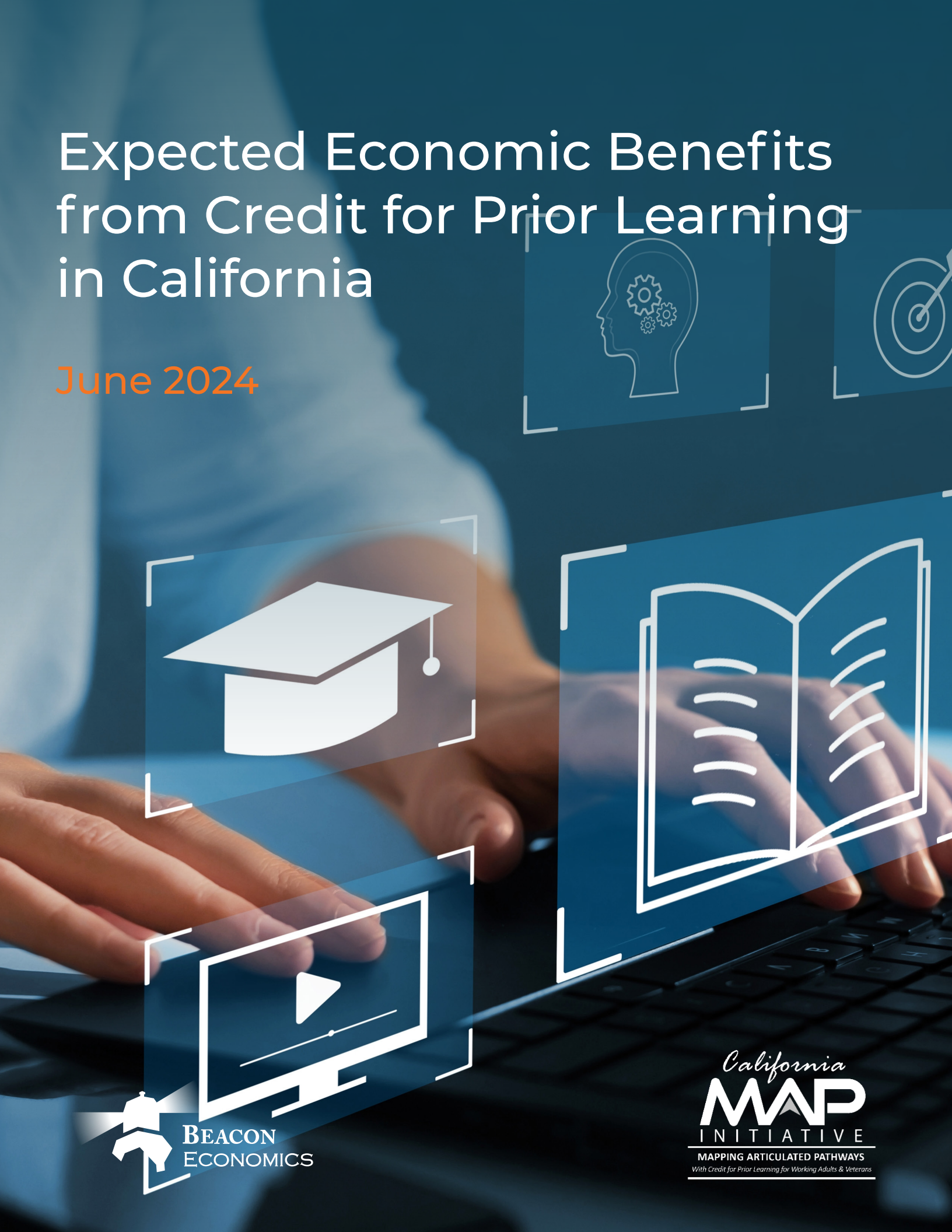
Expected Economic Benefits from Credit for Prior Learning in California

June 2024

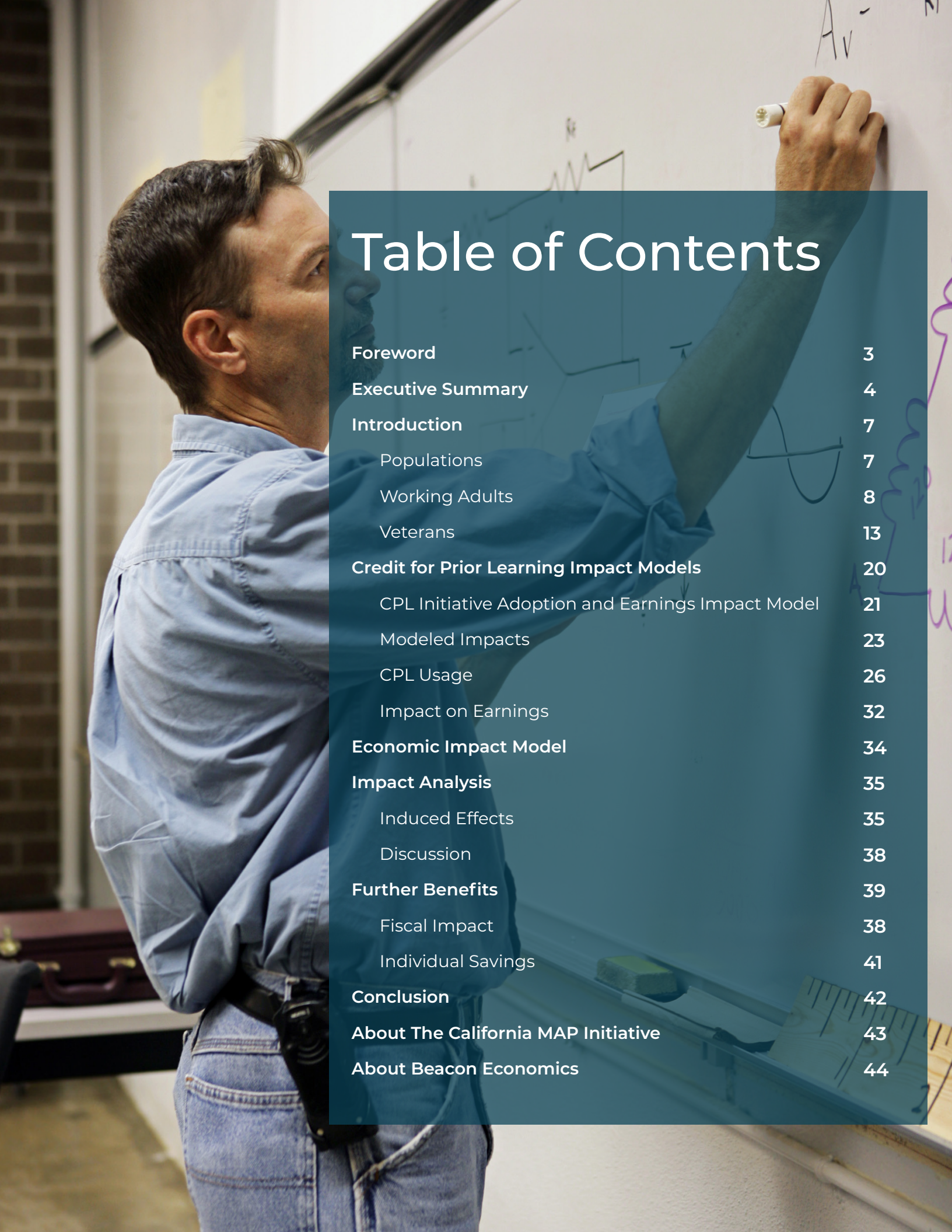


Beacon Economics

California MAP Initiative

Mapping Articulated Pathways

With Credit for Prior Learning for Working Adults & Veterans



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Foreword

I am excited to present the findings of this groundbreaking economic impact study commissioned by the California MAP Initiative. This study provides compelling evidence of the transformative economic and social potential of Credit for Prior Learning (CPL) in addressing the critical challenges facing higher education and workforce development in our state.

Demographic trends are indicating a six percent decline in enrollment among traditional-age students by 2030. At the same time, we have an unprecedented opportunity to reverse that enrollment loss by leveraging CPL to increase access to higher education for some of the 6.8 million working adults in California who do not have a college credential.

This is why CPL is so critical to the success of Vision 2030, which is focused on increasing economic and social mobility for all Californians. To make CPL opportunities equitably available at all of our 116 colleges, we are investing resources to build capacity and expertise college by college, relying on our faculty discipline experts while utilizing technology to collaborate and bring CPL to our students before they enroll. By offering credit for industry certifications, military training, portfolio review, standardized assessments, and credit by exam, we can create more accessible and efficient pathways to credential attainment at all levels.

Enrollment will grow as we attract students who would not otherwise attend were it not for an offer of CPL based on their prior learning. Completion and retention rates will increase as students are vested in the college, and total units per student will increase while unnecessary units decrease, providing a funding boost and saving wasted state apportionment. Students will be able to achieve higher credentials without requiring additional resources or accruing debt.

The goal of this study is to estimate the preserved benefits (for later use), savings (to the student and state), and positive economic impact associated with CPL and college credential attainment. The hope is that by quantifying the significant economic impact, our colleges and communities will see the opportunity and support the effort to boost equitable access, strengthen the relationships between the academy and industry, prepare the workforce of the future, and optimize the power of our investments in military benefits and financial aid.

It's not often that we are presented with a solution that leverages existing structures, costs little to implement, optimizes existing funding, supports upward mobility, and generates significant positive economic outcomes. CPL is that solution, and the time is right to make it a reality in California and beyond.

Samuel Lee
Chief Ambassador, California MAP Initiative

California MAP INITIATIVE
MAPPING ARTICULATED PATHWAYS
With Credit for Prior Learning for Working Adults & Veterans

Executive Summary

In this economic assessment, we calculate the expected economic and fiscal benefits for working adults and veterans who are provided college credit in recognition of knowledge and skills gained outside of traditional academic settings. Known as Credit for Prior Learning (CPL), these credits allow students to reduce the number of courses they are required to take to obtain a higher education degree or certificate, promoting access to higher education and efficient upward mobility and career advancement.

Beacon Economics was commissioned by the California Mapping Articulated Pathways (MAP) Initiative to monetize the benefits of offering CPL to Californians with work experience, certification, licensure, portfolios, standardized exams, and/or military training. We analyze the impacts of providing CPL leading to degree attainment. Specifically, we examine 15 units of CPL, equivalent to one semester, and 30 units, equivalent to two semesters.

Research indicates that adult learners who receive CPL are awarded 15 units on average, which is also the tipping point at which significant CPL-induced outcome improvements are accrued[1]. The 30-unit threshold represents a year of saved study, benefits, and expenses—the time needed to close the gap between the 36 months of GI Bill education benefits available and the typical 48 months needed to complete a bachelor's degree. In either scenario, CPL can make the difference between dropping out for lack of funds (or taking on student debt) and having the time and resources to attain a credential and career improvement. Both 15 and 30-unit increments result in substantial economic impact, and we conservatively estimated a per-unit value from one-thirtieth of the 30-unit impact.

We start by estimating the size and characteristics of the population that should benefit from CPL. We then calculate its increase in earnings as a result of obtaining a higher education degree and an increase in household spending. Finally, we look at how this spending leads to higher tax revenue and spillover economic effects. We also incorporate savings that the population enjoys from paying less in living costs, tuition, and school-related costs. In our modeling process, we opted for conservative estimates whenever assumptions were necessary, which suggests our results are likely conservative estimates of potential outcomes. These benefits and savings illustrate the wide breadth of economic impacts stemming from CPL for students and the state economy.

The results are substantial. Spread over a 20-year period, we estimate that nearly 6.5 million non-veteran working Californian adults and 110,000 California veterans would take advantage of 15 units of CPL leading to degree and career attainment. These populations increase to more than 7.3 million working adults and 135,000 veterans if 30 units of CPL are offered. This analysis is constrained to Californians ages 25 to 54 years old. The increase in annual economic output resulting from working adults after receiving 15 units of CPL is $44 billion, and $67 billion for 30 units. For California veterans, the annual economic output generated is $630 million in the 15-unit scenario and $960 million in the 30-unit scenario.

Aggregate Increase in Output

CPL Magnitude	Working Adults	Veterans
15 Credits	$44B	$0.63B
30 Credits	$67B	$0.96B

Dividing by the population of those who take advantage of CPL, we approximate the earnings benefits to individual students. It has long been established that higher educational attainment leads to higher income. However, we do not attribute all of the expected increase to CPL, because students are only receiving a portion of the credits needed to graduate. As the table below illustrates, these effects add up to a meaningful amount over 20 years of work.

Average Increased Output Over 20 Years Per Student

CPL Magnitude	Working Adults	Veterans
1 Credit	$4,734	$6,067
15 Credits	$115k	$135k
30 Credits	$142k	$182k

[1] Klein-Collins, R., Taylor, J., Bishop, C., Bransberger, P., Lane, P., Leibrandt, S., Council for Adult and Experiential Learning (CAEL), ... Western Interstate Commission for Higher Education (WICHE). (2020). The PLA Boost: Results from a 72-Institution Targeted Study of Prior Learning Assessment and Adult Student Outcomes. Council for Adult and Experiential Learning.

Awarding college credits boosts the likelihood of graduation, but it also saves students tuition payments and debt, school attendance costs, and time. For veterans, eligible for Post-9/11 GI Bill benifits, these costs are covered for up to 36 months. As a result, veterans exhibit almost double the savings as working adults.

Average CPL-Induced Savings Per Student

CPL Magnitude	Working Adults	Veterans
15 Credits	$14,653	$26,115
30 Credits	$28,936	$51,905

Lastly, all levels of government benefit from this higher economic activity through an increase in tax revenue. Although this initiative is focused on California, the federal government sees the largest tax benefit of $4.17 billion in the case of 15 credits and $6.35 billion for 30 credits. The State of California experiences a notable fiscal advantage from the two populations of $2.04 billion from 15 credits and $3.19 billion from 30 credits.

Annual Average of Induced Tax Revenue (Aggregate)

CPL Magnitude	Working Adults			Veterans		
	Federal	State	Local & Other	Federal	State	Local & Other
15 Credits	$3.65B	$2.01B	$1.25B	$52.7M	$29.8M	$18M
30 Credits	$5.55B	$3.14B	$1.91B	$80.0M	$45.2M	$27.5M

Significant savings for students would also arise as a result of expanded CPL opportunities. Most directly, students would be able to forgo paying for a semester or a year of higher education. This not only reduces the cost of the degree, but also increases the likelihood of completion (as the financial pressure caused by studying and not working is lessened) and could even encourage attainment of a higher degree. Veterans specifically would be able to save up to a year of their Post-9/11 GI Bill educational benefits. Note that some studies indicate that 25% of veterans report dropping out due to expiration of benefits.[2] Leveraging offers of 15 to 30 units of CPL, veterans could delay using their 36-month military education benefits and instead rely upon state and federal financial aid and the College Promise program while enrolled at a California Community College to complete an associate degree. They could transfer to a four-year university and earn a bachelor's or potentially even a master's degree while relying solely on their preserved 36-month military education benefits, a revolutionary transformation from the status quo where up to a quarter of such students drop out without a degree because of constraints.

If CPL opportunities across California were maximized, the potential positive economic effects would be significant. These efforts would increase access to higher education, reduce time to degree completion, and lower the overall cost of education for students. By recognizing and validating the tangible knowledge and skills gained through prior experiences, which are aligned with college coursework and requirements, CPL can enable individuals to accelerate their educational journey, enter the workforce sooner, and contribute to the economy faster, and reduce the burdensome student debt that has grown in recent decades.

Introduction

Populations

The populations analyzed for the impacts of broader Credit for Prior Learning (CPL) opportunities are those most likely to take advantage of CPL opportunities to return to school or pursue further education. Two populations of interest identified in this study are working adults and military veterans.

Neither group of interest resembles the prototypical or traditional college student – members are not freshly out of high school, but they do have full-time experience, whether in the workforce or in the United States Armed Forces. For most traditional college students, CPL – often in the form of advanced placement or high school articulated classes – serves a dual purpose. First, credit earned can reduce the costs, both temporal and financial, associated with pursuing a college degree. Second, and primarily for high performing students, CPL earned during high school serves as a signal to universities of their abilities as students. However, for working adults and veterans, CPL would more often function in the first role, even if the experience that contributes to an adult student's CPL also strengthens their application.

There is a reasonable expectation that older workers would be less likely to take advantage of CPL opportunities to pursue further education, for several key reasons. Workers over the age of 54 are more likely to be well-established in their careers, with enough experience that at least partially negates a lack of higher education. All else being equal, they earn more than their younger colleagues. For these more established workers, the opportunity cost of pursuing higher education, even if discounted through CPL or other benefits, is greater as they must forgo greater earnings than younger workers. Furthermore, they would have less time to recoup the benefits[2] of higher education as they have fewer years remaining in the labor force, which means the benefits of a degree are not as great as for their younger colleagues.

Thus, the key groups of interest are working adults and veterans between the ages of 25 and 54 in California. They represent a significant population, totaling approximately 15.9 million working adults and 424,000 military veterans in the 2022 U.S. Census American Community Survey.

[2] Jepsen, C., & Montgomery, M. (2012). Back to school: An application of human capital theory for mature workers. Economics of Education Review, 31(1), 168–178. https://doi.org/10.1016/j.econedurev.2011.10.005

Working Adults

Unsurprisingly, California's large population means there is a large pool of potential new students among the working adults of the state. There are nearly 16 million working adults between the age of 25 and 54 in California, evenly split between men and women. The massive scale of potential CPL usage would transform not just the economy of California, but the nation as well.

Table 1. Educational Attainment of Adults Age 25-54

Highest Degree Attained	Population	Percent
Less than high school	2,175,537	13.7%
High school or equivalent	3,299,315	20.7%
Some college, no degree	2,972,024	18.7%
Associate's degree	1,161,306	7.3%
Bachelor's degree	3,928,532	24.7%
Master's degree	1,681,543	10.6%
Graduate or professional degree	687,275	4.3%
Total	**15,905,532**	

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

California's advanced and productive economy, with its marquee knowledge industries such as information technology, belies a more educationally diverse workforce. Although the state's rate of highly educated workers is greater than that of the nation, approximately 53% of California's working adult population do not possess a higher education degree. Furthermore, a significant portion of these, almost three million people, have attended college but did not earn a degree. These workers may stand to benefit the most from an expanded CPL initiative. The pool of potential students is even larger than just those with a high school degree or some college, as adults with an associate's or bachelor's degree can return to school to pursue a higher degree.

Table 2. Adult Employment by Educational Attainment

Educational Attainment	Employed		Unemployed/Not In Labor Force	
	Population	Percent	Population	Percent
Less than high school	1,518,913	69.8%	656,624	30.2%
High school or equivalent	2,542,440	77.1%	756,875	22.9%
Some college, no degree	2,458,760	82.7%	513,264	17.3%
Associate's degree	984,345	84.8%	176,961	15.2%
Bachelor's degree	3,521,210	89.6%	407,322	10.4%
Master's degree	1,543,721	91.8%	137,822	8.2%
Graduate or professional degree	648,596	94.4%	38,679	5.6%
Total	**13,217,985**	**83.1%**	**2,687,547**	**16.9%**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

The employment rate for working adults increases with higher education attainment, from about 77% for those with a high school diploma or equivalent to just under 90% for those with a four-year degree or higher. Although they comprise 53% of the population, those without higher education degrees (the first three educational categories) account for 72% of the unemployed or labor force non-participant population. There are approximately 1.5 million adults with a high school diploma or associate's degree who are currently unemployed or not in the labor force and could be eligible for CPL to pursue further education. Expanding the workforce by educating and upskilling these adults could reduce labor shortages and improve the economic well-being of these workers. Note that although they may not currently be employed or participate in the labor force, these adults may still have had work experience and job training that could qualify for CPL.

Table 3. Adult Employment Status by Educational Attainment

Educational Attainment	Full-Time		Part-Time or Seasonal	
	Population	Percent	Population	Percent
Less than high school	1,002,120	66.0%	516,793	34.0%
High school or equivalent	1,812,762	71.3%	729,678	28.7%
Some college, no degree	1,740,644	70.8%	718,116	29.2%
Associate's degree	700,251	71.1%	284,094	28.9%
Bachelor's degree	2,715,859	77.1%	805,351	22.9%
Master's degree	1,225,290	79.4%	318,431	20.6%
Graduate or professional degree	519,341	80.1%	129,255	19.9%
Total	**9,716,267**	**73.5%**	**3,501,718**	**26.5%**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

Among employed adults, there is a similar pattern of full-time employment rising with education. While about one-quarter of all working adults in California are employed part-time or seasonally, close to 30% of those without higher education degrees are employed in this capacity. As with general employment rates, improving workers' educational attainment is associated with increasing movement from part-time to full-time employment, and increasing contributions to the state economy. There are nearly two million part-time workers with high school diplomas or associate's degrees who would be best positioned to take advantage of CPL opportunities, pursue further education, and gain full-time employment in place of part-time or seasonal employment.

Table 4. Average Adult Income by Education

Highest Degree Attained	Annual Income
Less than high school	$24,966
High school or equivalent	$34,184
Some college, no degree	$46,051
Associate's degree	$50,539
Bachelor's degree	$86,732
Master's degree	$115,806
Graduate or professional degree	$157,035
Total	**$63,251**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.
Note: The average is only of those with incomes, which excludes unemployed or labor force non-participant adults. Income is defined as labor or self-employment earnings, and excludes earnings from investments, government transfers, or other sources of income.

Those with a bachelor's or advanced degree earn substantially more than the statewide average earnings. The differences in average income between educational levels are relatively low between high school diplomas, some college, and associate's degree holders, but are comparatively very high between those and a bachelor's degree holders. Higher degrees also lead to substantially higher income. Note, however, that these earnings are across all ages 25-54. There is a long-term trend of increasing educational attainment by successive generations. This implies that workers with lower education tend to be older, and, due to the effect of experience on earnings, earn more than their younger counterparts. Thus, the true "value" of a degree is greater than would be represented directly through comparing averages.

Table 5. Average Adult Income by Education and Employment Status

Highest Degree Attained	Full-Time	Part-Time or Seasonal
Less than high school	$43,209	$21,314
High school or equivalent	$52,765	$23,482
Some college, no degree	$67,286	$27,494
Associate's degree	$71,137	$31,249
Bachelor's degree	$111,922	$45,654
Master's degree	$143,238	$60,374
Graduate or professional degree	$187,608	$81,186
Total	**$90,857**	**$35,199**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics. Income is defined as labor or self-employment earnings, and excludes earnings from investments, government transfers, or other sources of income.

The differences between full-time workers of varying education levels are stark as well. Full-time employment is defined as a minimum of 35 hours of work per week for at least 48 weeks out of the year, which leaves part-time or seasonal employment as any work schedule that fails to reach both of those criteria. The average part-time or seasonal worker in California works between 28-31 hours per week on average (with some minor variance between educational attainment groups) for an average of 35-38 weeks a year. These values are between 58%-70% of the full-time minimum criteria annual hours worked, yet across all educational attainment levels, average earnings for full-time workers are more than double that of part-time workers. There is also an earnings premium for full-time status, most likely due to the differences in salaried occupations compared to hourly jobs.

Therefore, there is empirical evidence that the value of higher education degrees on earnings manifests itself at three stages: increased rate of employment, increased rate of full-time as opposed to part-time employment, and increased earnings at both employment statuses.

Veterans

The smaller of the two groups, military veterans represent a distinct group compared to the general adult population. Two of the most noticeable differences are that veterans are overwhelmingly men and are far more likely to report having a disability than the population at large. Both factors are associated with differences in educational attainment and earnings. Veterans also have access to benefits and services that lead to their educational and employment decisions diverging from those of working adults at large. For example, all training, coursework, and certifications achieved while on active duty are documented on service members' Joint Services Transcripts (JST), which also lists the recommendations for college credit (or CPL) made by faculty reviewers convened by the American Council on Education (ACE). Unlike working adults, who have no equivalent to the JST, veterans are well positioned to receive CPL when they arrive at the college or university of their choice. Nevertheless, studies indicate that only one in four believe they received the credit they deserved[4]. While there is significant potential to increase CPL offers to veterans based on the credit recommendations listed on the JST, this population also stands to benefit from their civilian work experience, adding to the potential use of CPL towards degree attainment – which would increase the impact of and participation in higher education.

Table 6. Total Population, Age 25-54, By Sex and Veteran Status

Group	Working Adults		Veterans	
	Population	Percent	Population	Percent
Female	7,949,534	50.0%	67,319	15.9%
Male	7,955,998	50.0%	356,502	84.1%
Total	**15,905,532**		**423,821**	

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

[4] Jepsen, C., & Montgomery, M. (2012). Back to school: An application of human capital theory for mature workers. Economics of Education Review, 31(1), 168–178. https://doi.org/10.1016/j.econedurev.2011.10.005

More than five in six veterans in the target age range are men, while the working adult population is split nearly equally. Much of this discrepancy is a reflection of the population of the Armed Forces enlistees. Although women have been a growing share of the Armed Forces, the large population of veterans going back nearly three decades means that it will take many years to materially change the composition of the population. Broader differences between men and women in terms of educational attainment, employment or labor force participation, and earnings would therefore be expected to be exaggerated when analyzing the veteran population.

Table 7. Total Population, Age 25-54, By Disability and Veteran Status

Group	Working Adults		Veterans	
	Population	Percent	Population	Percent
Disabled	1,204,109	7.6%	77,955	18.4%
Not disabled	14,701,423	92.4%	345,866	81.6%
Total	**15,905,532**		**423,821**	

Source: U.S. Census American Community Survey. Analysis by Beacon Economics. "Disabled" is defined as an individual with any self-reported disability in the Survey.

The rate of reported disability among veterans is more than twice that of working adults. The higher incidence of disability affects the overall employment rate for veterans, as more severe disabilities may prevent an individual from working, and some disability benefits require an individual not to work.

Table 8. Educational Attainment of Veterans Age 25-54

Highest Degree Attained	Population	Percent
Less than high school	15,228	3.6%
High school or equivalent	77,420	18.3%
Some college, no degree	122,709	29.0%
Associate's degree	57,657	13.6%
Bachelor's degree	94,461	22.3%
Master's degree	45,709	10.8%
Graduate or professional degree	10,637	2.5%
Total	**423,821**	

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

Approximately 51% of California veterans between the ages of 25 and 54 do not possess a college degree, representing a significant body of eligible candidates for higher education. Furthermore, nearly 60,000 veterans with associate's degrees would be able to take opportunities to further their education and pursue a bachelor's degree.

Only one-third of veterans in California have a four-year college degree or higher. Compared to working adults, they have a lower rate of bachelor's degree attainment, underscoring the potential an expanded CPL initiative could have on improving veteran educational attainment and economic well-being.

Table 9. Veteran Employment by Educational Attainment

Educational Attainment	Employed		Unemployed/Not In Labor Force	
	Population	Percent	Population	Percent
Less than high school	10,624	69.8%	4,604	30.2%
High school or equivalent	64,363	83.1%	13,057	16.9%
Some college, no degree	100,556	81.9%	22,153	18.1%
Associate's degree	47,983	83.2%	9,674	16.8%
Bachelor's degree	83,527	88.4%	10,934	11.6%
Master's degree	42,139	92.2%	3,570	7.8%
Graduate or professional degree	9,373	88.1%	1,264	11.9%
Total	**358,565**	**84.6%**	**65,256**	**15.4%**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

Veterans in California have high rates of employment, with nearly 85% being employed. There is an evident trend in the employment rate corresponding to education. Those without a high school degree are most likely to be unemployed or not in the labor force, and those with a four-year college degree have employment rates approximately 5 percentage points higher than those without at least a bachelor's degree. This demonstrates the potential effect educational attainment can have on improving veterans' employment in California. The three educational attainment groups with the most potential to take advantage of an expanded CPL initiative are those with a high school diploma, associate's degree, or some college and no degree. All have employment rates of about 83%, lower than the average for veterans and those with a bachelor's degree. This group of approximately 45,000 unemployed (or labor force non-participant) veterans could benefit from higher education attainment, resulting in increased earnings and increased likelihood of employment.

Table 10. Veteran Employment Status by Educational Attainment

Educational Attainment	Full-Time		Part-Time or Seasonal	
	Population	Percent	Population	Percent
Less than high school	7,352	69.2%	3,272	30.8%
High school or equivalent	50,182	78.0%	14,181	22.0%
Some college, no degree	78,270	77.8%	22,286	22.2%
Associate's degree	38,324	79.9%	9,659	20.1%
Bachelor's degree	67,918	81.3%	15,609	18.7%
Master's degree	35,994	85.4%	6,145	14.6%
Graduate or professional degree	7,814	83.4%	1,559	16.6%
Total	**285,854**	**79.7%**	**72,711**	**20.3%**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

As Table 10 illustrates, the rate of full-time employment increases along with educational attainment. Furthermore, compared to employed working adults, employed veterans are also more likely to be employed full-time.

Table 11a. Veteran Work Status by Disability, Men

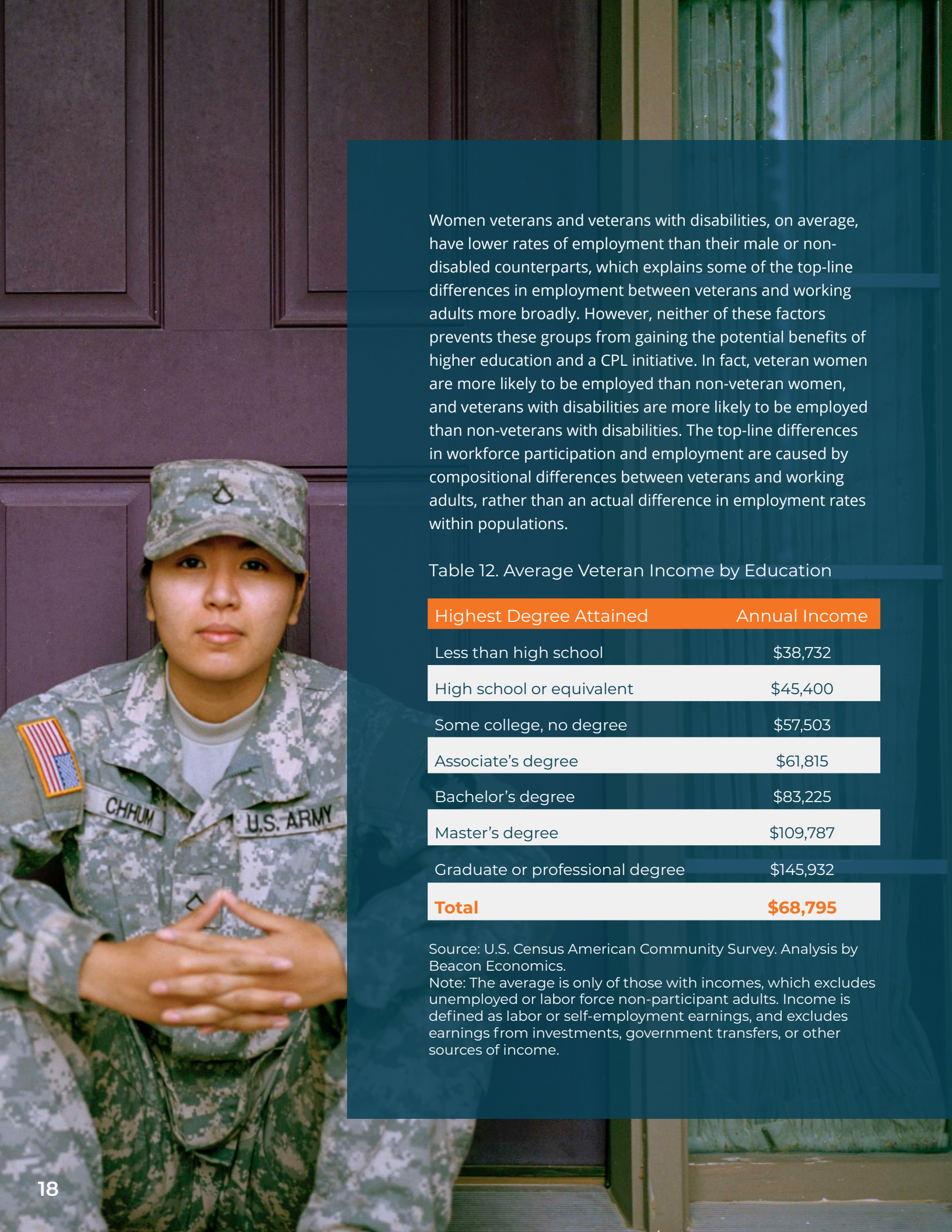
Educational Attainment	Employed		Unemployed/Not in Labor Force	
	Population	Percent	Population	Percent
Disabled	45,509	66.9%	22,513	33.1%
Not disabled	258,185	89.5%	30,295	10.5%
Total	**303,694**	**85.2%**	**52,808**	**14.8%**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.

Table 11b. Veteran Work Status by Disability, Women

Educational Attainment	Employed		Unemployed/Not in Labor Force	
	Population	Percent	Population	Percent
Disabled	6,549	65.9%	3,384	34.1%
Not disabled	48,322	84.2%	9,064	15.8%
Total	**54,871**	**81.5%**	**12,448**	**18.5%**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.



Women veterans and veterans with disabilities, on average, have lower rates of employment than their male or non-disabled counterparts, which explains some of the top-line differences in employment between veterans and working adults more broadly. However, neither of these factors prevents these groups from gaining the potential benefits of higher education and a CPL initiative. In fact, veteran women are more likely to be employed than non-veteran women, and veterans with disabilities are more likely to be employed than non-veterans with disabilities. The top-line differences in workforce participation and employment are caused by compositional differences between veterans and working adults, rather than an actual difference in employment rates within populations.

Table 12. Average Veteran Income by Education

Highest Degree Attained	Annual Income
Less than high school	$38,732
High school or equivalent	$45,400
Some college, no degree	$57,503
Associate's degree	$61,815
Bachelor's degree	$83,225
Master's degree	$109,787
Graduate or professional degree	$145,932
Total	**$68,795**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics.
Note: The average is only of those with incomes, which excludes unemployed or labor force non-participant adults. Income is defined as labor or self-employment earnings, and excludes earnings from investments, government transfers, or other sources of income.

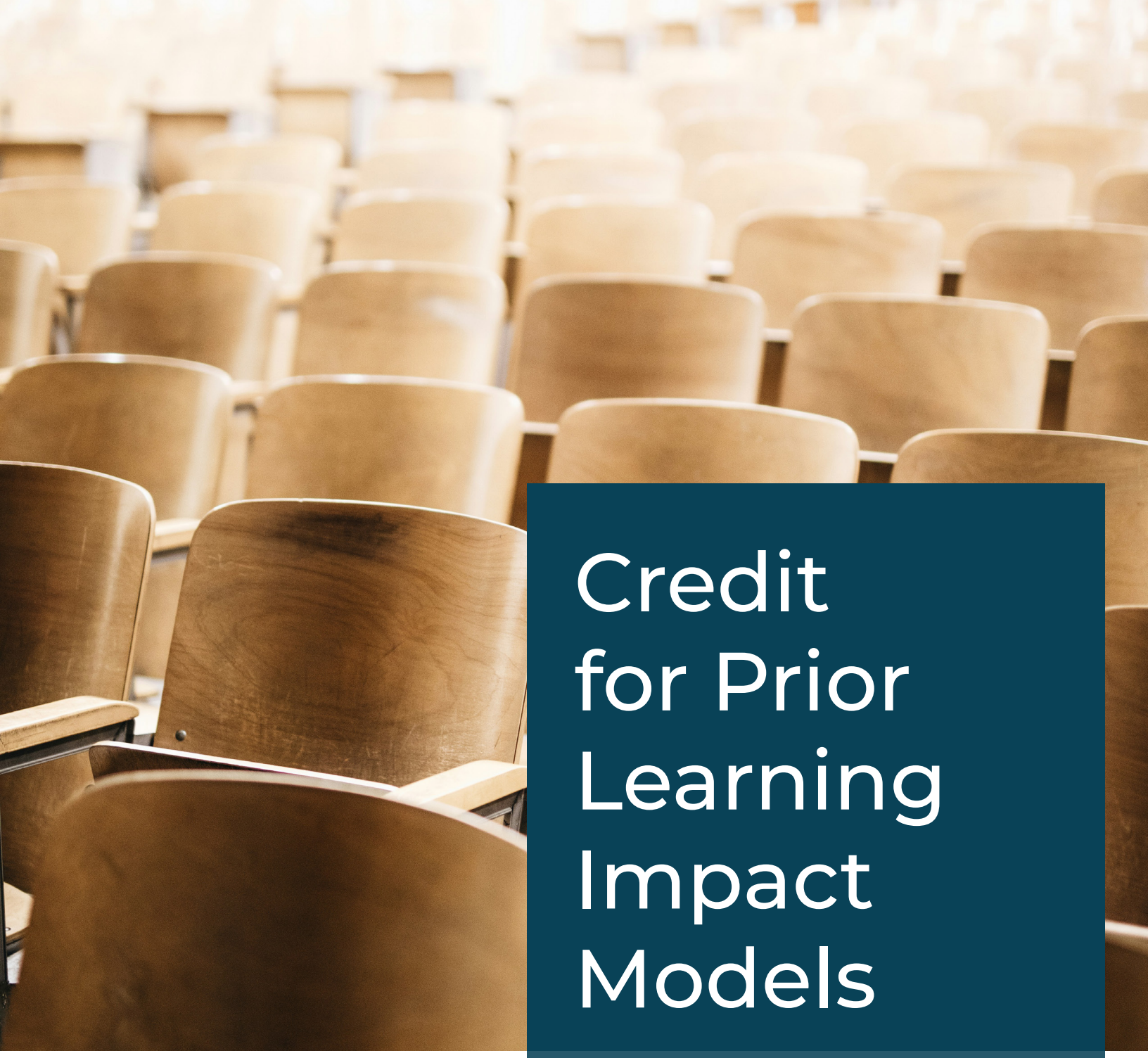
Among employed California veterans aged 25-54, average income scales positively with education, with the largest jumps in income recorded between various higher education degrees. On average, veterans earn approximately $5,000 more annually than working adults, although, as shown in Table 13, this is attributed more to a higher rate of full-time employment than by higher salaries.

Table 13. Average Veteran Income by Education and Employment Status

Highest Degree Attained	Full-Time	Part-Time or Seasonal
Less than high school	$72,661	$16,994
High school or equivalent	$61,703	$29,509
Some college, no degree	$81,153	$31,604
Associate's degree	$84,356	$34,291
Bachelor's degree	$105,266	$45,620
Master's degree	$131,451	$46,675
Graduate or professional degree	$176,056	$113,267
Total	**$92,606**	**$36,928**

Source: U.S. Census American Community Survey. Analysis by Beacon Economics. Income is defined as labor or self-employment earnings and excludes earnings from investments, government transfers, or other sources of income.

The average full-time employed veteran earns almost $2,000 more than the average full-time employed working adult. For veterans, however, the earnings return to education is less significant than for working adults. Veterans with a high school or associate's degree earn more than their counterparts with the same educational attainment when controlling for full-time employment (Table 5), ranging from $9,000 more for those with just a high school degree to approximately $13,000 more for those with some college or an associate's degree. Comparatively, full-time employed veterans with bachelor's degrees earn around $7,000 less on average than comparable working adults, with similar gaps for graduate degrees. Within the respective groups of full-time employed veterans and working adults, the earnings distribution is noticeably flatter across educational attainment for veterans than for working adults. There are two implications stemming from this phenomenon. The first is that employers may see military service as equivalent to education, competence, or productivity. The second is that, given the flatter earnings distribution across educational attainment, full-time employed veterans have less incentive to pursue bachelor's degrees or higher. This appears to be reflected in the lower rate of bachelor's degree attainment among the population of veterans compared to working adults.



Credit for Prior Learning Impact Models

Determining the economic impact of an expanded Credit for Prior Learning (CPL) initiative requires two distinct steps. The first involves modeling the return of education to earnings in order to determine the impact a CPL initiative would have on workers' education and earnings. The second consists of determining the broader economic impact that an increase in workers' aggregate earnings would have – what increases in economic activity, such as output or tax revenue, would follow growth in workers' incomes.

CPL Initiative Adoption and Earnings Impact Model

The first step in modeling the economic impact of an expanded Credit for Prior Learning (CPL) initiative for adult higher education involves understanding what the value of a degree is on a worker's earnings. Unsurprisingly, this is one of the foremost questions in labor economics. The Mincer function is at the core of labor economists' modeling the earnings returns to education. Loosely defined, the Mincer function is as follows:

$$\text{Earnings} = \text{Intercept} + \beta\_1 * \text{Years of Education} + \beta\_2 * \text{Years of Experience} + \beta\_3 * \text{Years of Experience}^2 + y * [\text{Other Factors}]$$

However, there have been as many variations of the Mincer function as there have been papers on the relationship between education and earnings. Functionally, though, the core remains constant: an individual's earnings depend on their level of education and work experience – namely that these factors function with a linear relationship between education and earnings. "Other factors" often function as controls in linear regression models, but they are often endogenous, at least somewhat, to educational decisions. For example, this can be seen in the difference in educational attainment among veterans compared to the working adult population at large.

Further research on returns to education has identified alternate ways the relationship between education and earnings function, such as the "sheepskin effect,"[5] which refers to the traditional medium upon which diplomas were printed. This posits that there is a substantially stronger effect for completing and obtaining a degree than would be implied by the simple linear relationship based on years of schooling. The expected increase in earnings between three years of post-secondary schooling and four years of having earned a degree is greater than the increase in earnings between two and three years of schooling, as would be assumed by the linear Mincer model. Empirically, the sheepskin effect can be observed in the earnings tables of the previous section, with the differences in earnings between those with associate's degrees and those with some college and no degree.

Most research has focused on traditional students and their return on higher education, but studies of non-traditional, adult, or "mature" students have similarly found benefits both in terms of earnings and employment from their completion of higher education[6], even if the effects are not equal in magnitude to that of traditional students.

For the purposes of this study, a statistical regression based on a modified Mincer equation was employed. Utilizing the U.S. Census American Community Survey PUMS (Public Use Microdata Samples) for California from 2022, the most recently available year, the effects of education on earnings, employment, and full-time employment were empirically estimated. A brief explanation of the factors utilized in each model is summarized in Table 14. Empirical estimation, rather than using values from previous literature, allows for the most relevant identification of the return to education for the populations in question.

[5] Card, D. (1999). The causal effect of education on earnings. Handbook of labor economics, 3, 1801-1863.
[6] Desjardins, R., & Lee, J. (2016). Earnings and employment benefits of adult higher education in comparative perspective: Evidence based on the OECD Survey of Adult Skills (PIAAC).

Table 14. Regression Model Summaries

Model	Regression Type	Variables	Interaction Variables
Earnings	OLS	Experience Sex Education Full-time status	Experience*Education Experience*Full-time Sex*Education Education*Full-time
Employment	Logit	Age Sex Education	Sex*Education
Full-time work	Logit	Age Sex Education	Sex*Education

Source: Analysis by Beacon Economics.

Each model was run separately for the two groups of interest, working adults and veterans. For the purposes of this study, education was modeled as a categorical variable by degree type, rather than as a discrete linear variable for years of schooling, integrating the sheepskin effect. Experience was generated as a factor of age minus 18 and education, using typical times for degree-type completion.

Ultimately, returns to education are modeled to manifest in four ways: experience-income, education-income, education-employment, and education-full-time status effects. The marginal effects differ based on the participant's previous and new level of education. The experience-income effect is experienced by those who would have pursued higher education regardless of the CPL initiative, but are now able to take advantage of faster degree competition. These per-person effects are summarized in the following tables, generally for a 30-credit CPL, with differing magnitudes for veterans and working adults.

Modeled Impacts

Table 15. Experience-Income Effects

Degree Attained	Working Adults	Veterans
Associate's	$911	$1,756
Bachelor's	$2,278	$1,677
Master's	$2,211	$3,439

Source: Analysis by Beacon Economics.

The value of a year of additional work experience (which would result from the early completion of a degree thanks to CPL) is generally limited, but still leads participants to earn more annually for the rest of their careers. These specific participants are those who would have completed further education even without a CPL initiative, so their returns to education cannot be ascribed as a benefit stemming from this program. This limits the magnitude of the financial impact of a CPL policy compared to those who are induced to pursue higher education.

Table 16. Education-Income Average Effects

Previous Ed. Attainment	Degree Attained	Working Adults	Veterans
High school	Associate's	$17,306	$12,936
Some college, no degree	Associate's	$8,664	$1,654
High school	Bachelor's	$58,963	$38,961
Some college, no degree	Bachelor's	$48,953	$27,758
Associate's	Bachelor's	$38,922	$26,183
Bachelor's	Master's	$45,412	$6,765
Master's	Doctorate	$10,064	$18,300

Source: Analysis by Beacon Economics.

The most classical and direct effect of improved educational attainment is the relationship between education and earnings. These are average values presented for a participant in their late 20s; the actual values depend on the work experience of the participant, as the return to experience differs among educational attainment levels. For example, jobs that do not require a higher education degree may place more value on work experience than those that do require a college degree, and switching over from the former to the latter may mean a worker loses some of the returns to experience but still sees an increase in earnings because of the returns to education. Based on the statistical regression analysis, it appears there are greater returns to education for working adults than for veterans. It may be that for employers, military service has a return of its own that affects earnings, which lessens the importance of education. Nevertheless, both veterans and working adults have significant returns to education, especially when a bachelor's degree is attained. California's knowledge economy rewards workers with higher education, and CPL has the potential to allow many workers to access those opportunities.

Table 17. Education-Employment Marginal Employment Effects

Previous Ed. Attainment	Degree Attained	Working Adults	Veterans
High school	Associate's	25.5%	N/A
Some college, no degree	Associate's	15.4%	N/A
High school	Bachelor's	51.1%	31.5%
Some college, no degree	Bachelor's	44.5%	29.0%
Associate's	Bachelor's	34.4%	38.0%
Bachelor's	Master's	28.4%	15.0%
Master's	Doctorate	N/A	N/A

Source: Analysis by Beacon Economics. Values should be read as percent decrease in unemployment probability.

Workers with higher degrees are more likely to be employed. Improving the educational attainment of unemployed or labor force non-participant individuals would likely increase their chance of finding employment. Given that rates of unemployment or nonparticipation vary by education level, there are differing effects in terms of unemployment reduction. The reductions in unemployment among veterans are lower than their working adult counterparts, and, controlling for age and sex, we can observe that the distribution of employment rates are flatter between educational levels for veterans than for working adults. Certain improvements in educational attainment, such as associate's degrees for veterans or doctorates for both populations, have a marginal or no effect on employment when controlling for other factors.

Table 18. Education-Full Time Marginal Employment Effects

Previous Ed. Attainment	Degree Attained	Working Adults	Veterans
High school	Associate's	N/A	15.1%
Some college, no degree	Associate's	5.2%	3.1%
High school	Bachelor's	21.7%	21.4%
Some college, no degree	Bachelor's	30.2%	10.4%
Associate's	Bachelor's	26.3%	7.5%
Bachelor's	Master's	12.5%	34.3%
Master's	Doctorate	N/A	N/A

Source: Analysis by Beacon Economics. Values should be read as the percent of current part-time workers who would find full-time employment.

In a similar mechanism to the effects of education-employment, workers with higher educational attainment are more likely to be employed full-time than workers without further education. Once again, the distribution of full-time employment rate effects appears flatter for veterans than for working adults.

CPL Usage

Empirical research into the impact of CPL availability on college enrollment, especially among working adults and veterans, is limited and tends to focus on CPL's impact on degree completion of enrolled students. Furthermore, given inconsistencies between the amount of CPL available and the type of CPL awarded (military, industry certification, portfolio, credit by exam, standardized assessment), comparisons between various case studies are further limited. The literature commonly notes that CPL processes in public higher education institutions is inconsistent and often hidden behind hard to navigate petition procedures, which reduces initiative participation. Lack of awareness and transparency of CPL opportunities can be a limiting factor that minimizes CPL-induced enrollment. CPL standards are often developed by institutions locally, which leads to inconsistencies between schools and even between programs[7]. For adults seeking to further their education, it can be a daunting prospect to understand what credit they may earn, toward what kind of degree, and at which institution.

In California public higher education, the expansion and acceptance of CPL faces unique challenges. These include the decentralization of public higher education and differences in governance and mission between the three segments: California Community College (CCC), California State University (CSU), and University of California (UC). Each segment is governed differently and operates independently. Decisions to award CPL to students at the CCC may be accepted at the CSU but not in the same way at the UC, making early course-taking decisions for students and counselors uncertain at best. Furthermore, each segment is governed by a variety of separate and overlapping laws, regulations, and traditions. The 116 CCCs are governed by 72 locally elected boards of trustees. While the CCC Chancellor's Office oversees the system, the real authority is vested in the local control of the boards, which are themselves governed by the California Education Code (law), Title 5 Code of Regulations, federal laws and regulations, and case law.

CPL awarded at a CCC can only be approved by local discipline faculty at each college. While this ensures that CPL is appropriately documented and merited, it also leads to inconsistencies in CPL opportunities from college to college. Fortunately, CCC faculty leadership in the Statewide Academic Senate, in partnership with the CCC Chancellor's Office and the California MAP Initiative, strongly advocates for the equitable expansion of CPL at local colleges. Nevertheless, the work to develop capacity, procedures, and opportunities for students must be built one college at a time. Working under the auspices of the CCC Chancellor's Office, the California MAP Initiative offers a shared platform to create and store CPL opportunities and make them transparently available to students and colleges. They also convene multi-college faculty reviewers to make statewide CPL recommendations in a variety of disciplines and lead efforts to align CPL procedures with CSU and UC partners. Through these and other efforts, the CCC system relies upon faculty and takes a collaborative approach to expanding and offering CPL statewide. Complimentary California initiatives such as the creation of a Common Course Numbering system, the modernization of eTranscript California, the expansion of apprenticeships, and the buildout of Program Pathways Mapper will greatly support the expansion, visibility, and portability of CPL opportunities for working adults and veterans.

[7] Ganzglass, E. (2014). Scaling" Stackable Credentials": Implications for Implementation and Policy. Center for Postsecondary and Economic Success.

Community college consortiums in other states have also worked toward creating a standard handbook of available CPL and coursework equivalents in an effort to streamline the process.

The U.S. Department of Labor's Trade Adjustment Assistance Community College and Career Training (TAACCCT) program awarded grants to hundreds of community colleges to improve opportunities for working adults to receive training and education for in-demand skills, partnering with employers to develop programs of study and create CPL assessments as part of those grants. It is an imperfect comparison, as the TAACCCT program was geared toward specific in-demand skills training, but the Colorado Community College System (CCCS) used the opportunity created by the TAACCCT grant to standardize its CPL policy across its member schools. Data collected over eight years following the implementation of CPL standardization revealed that nearly 18% of all students (including traditional community college students) received at least some CPL[8]. A true figure is possibly higher, as usage of CPL increased over time, and data collection was incomplete for the final two years. Nevertheless, this participation is significant. While the effect of a well-advertised, standardized and streamlined CPL initiative on adult college enrollment is unknown, those who would have pursued higher education even in the absence of CPL would still stand to

[8] McKay, H. A., & Douglas, D. (2020). Credit for prior learning in the community college: A case from Colorado. Recognition of prior learning in the 21st century. Western Interstate Commission for Higher Education.

benefit. Additionally, Pikes Peak State College, another member of CCCS and located in Colorado Springs – which is home to Fort Carson U.S. Army Base, the North American Aerospace Defense Command (NORAD), several U.S. Space Force bases, and tens of thousands of veterans – had some of the highest usages of CCCS's CPL opportunities. Program evaluators ascribe this high participation to the alignment of CPL standards to military training. Additionally, veterans have support networks that non-veterans may lack, allowing knowledge of CPL opportunities to be shared more effectively among them.

Identifying CPL's direct impact on degree completion is also relatively difficult to isolate, given that students who presently pursue CPL opportunities are likely to already be more deeply involved in their education and more aware of such opportunities. Receiving CPL, especially through a credit-by-exam, is often correlated with other factors that help make a student successful. For example, students who received credit for passing subject-specific College Level Examination Program (CLEP) exams had degree completion rates that were 53 (for associate's degrees) and 24 (for bachelor's degrees) percentage points higher than their non-CPL-earning classmates[9]. However, these rates are not directly comparable since they are different populations of students. Other studies of CPL similarly find significant differences between these two groups in terms of graduation rates, time to complete degree, and even credits earned among non-completers[10]. Once again, these are not directly comparable, but generally demonstrate a positive correlation with college success associated with CPL usage. A comprehensive, multi-institution study on adult students with CPL opportunities found that, when compared to similar students based on propensity score matching, students who received CPL had a 17% higher degree completion rate.[11] Furthermore, although these students received an average of 15 credits through CPL, they proceeded to take an average of 17.6 additional credits in coursework, which points toward higher retention and/or that students were induced into pursuing even more educational opportunities. Even though the usage of CPL was limited across the student body, those who did take advantage of it were able to improve their educational experience significantly. This underscores the importance of expanding such opportunities further.

[9] Falkenstern, C. (2020). Credit by Examination: Recognizing Learning and Supporting Adult Learners. Recognition of Prior Learning in the 21st Century. Western Interstate Commission for Higher Education.
[10] Starr-Glass, D. (2016). The thoughtful assessment of prior learning: Hastening, ensuring and enhancing graduation. PLA Inside Out: An International Journal on Theory, Research and Practice in Prior Learning Assessment, (5).
[11] Klein-Collins, R., Taylor, J., Bishop, C., Bransberger, P., Lane, P., & Leibrandt, S. (2020). The PLA Boost: Results from a 72-Institution Targeted Study of Prior Learning Assessment and Adult Student Outcomes. Revised. Council for Adult and Experiential Learning.

For the purposes of this study, we used the following table of usage estimates. Greater CPL credits led to higher usage as the reduction in the cost, both financial and temporal, of pursuing higher education increases the likelihood of participation. Furthermore, the secondary channel of use – namely improved degree completions resulting from CPL availability – is included within this usage rate.

Table 19. CPL Usage Among Eligible Populations by CPL Credits

Previous Ed. Attainment	Degree Attained	1 Credit	15 Credits	30 Credits
High school	Associate's	0.7%	10.0%	15.0%
Some college	Associate's	0.7%	10.0%	15.0%
High school	Bachelor's	0.5%	7.5%	11.0%
Some college	Bachelor's	0.3%	5.0%	7.5%
Associate's	Bachelor's	0.2%	2.5%	4.0%
Bachelor's	Master's	0.1%	1.5%	2.5%
Master's	Doctorate	N/A	0.5%	1.0%

Source: Analysis by Beacon Economics.

It is assumed that usage rates are constant between the annual "intake" class – those who become eligible to claim CPL in a given year, such as recent veterans who completed their service or working adults who have had multiple years in the workplace and undergone job training – and the current "pool" of eligible workers who are several years beyond when they would have been considered part of the intake. However, it is not assumed that this pool takes up the benefits of CPL immediately, rather their pursuit of higher education is smoothed over the analysis window of 20 years. The annual usage is also assumed to include those who would have pursued higher education even in the absence of CPL but have not completed their degree. Effectively, the usage rate models new degree completions.

Table 20. Modelled 20-Year Sum of Impacted Population

Degree Attained	Working Adults			Veterans		
	CPL-User	15 Credits Induced	30 Credits Induced	CPL-User	15 Credits Induced	30 Credits Induced
Associate's	776,582	989,614	1,484,422	25,530	29,594	44,391
Bachelor's	3,151,288	669,331	995,380	27,487	19,724	29,483
Master's	731,590	95,103	158,505	4,633	1,747	2,912
Doctorate	N/A	11,072	22,143	N/A	247	494
Total (30 Credits)		**7,319,910**			**134,930**	

Source: Analysis by Beacon Economics.

Over the 20-year analysis window, it is modeled that a significant population of both working adults and veterans would take advantage of CPL. These participants can be split into two groups. Those who are "CPL users" are students who would have pursued and earned a degree regardless of whether or not CPL was available. The second group, the "CPL-induced" students, are those who attend an institute of higher learning because CPL is available, as well as students who may not have completed a degree but are now able to thanks to CPL. The "CPL user" group makes up the majority of participants, and its participation is not affected by the number of CPL credits. Rationally, these participants would take advantage of even one credit. The CPL-induced group is affected by the number of credits awarded, as this has a direct impact on their decision whether or not to pursue a degree or whether they are able to complete their degree.

Note that these sums are spread over 20 years. The average 30-credit induced community college attendance of working adults would be approximately 74,000 per year. California's community college system educated approximately 1.9 million students in the 2022-2023 academic year[12] amid long-term falling enrollment[13], meaning that the rise in enrollment can likely be absorbed without requiring significant new resources. The modeled impacts of CPL on those pursuing graduate degrees – master's and doctorate students – are more indirect than for associate's and bachelor's students. While these programs are more specialized, and therefore less likely to award relevant CPL, students in the programs may use CPL in pursuit of the prerequisite degree. The time and financial savings the student receive while pursuing a bachelor's degree would still allow them to enter the labor market after their graduate studies sooner than they would have otherwise (for CPL-user students), or even encourage them to pursue graduate studies (for CPL-induced students).

[12] California Community Colleges DataMart, retrieved from https://datamart.cccco.edu/Students/Student_Headcount_Term_Annual.aspx
[13] Burke, M. (2022, November 18). California community colleges eye a different future amid pandemic disruption. EdSource. https://edsource.org/2022/california-community-colleges-eye-a-different-future-amid-pandemic-disruption/681483

Impact on Earnings

Table 21. Average Gain in Annual Earnings By Student

CPL Magnitude	Working Adults	Veterans
15 Credits	$9,087	$7,744
30 Credits	$12,230	$9,559

Source: Analysis by Beacon Economics. Values reflect annualized impacts across participants.

Per-student earnings gains among both veterans and working adults are significant, especially when considering the baseline income many of these participants could have expected otherwise (as shown in Tables 4 and 12). Note that these per-student effects are lower than most of those shown in the education-income effect (Table 16), as a significant plurality (and for the 15-credit scenario, the majority) of students only see the impact of the experience-income effect. Understandably, those who were already planning to pursue higher education (in a world without CPL) would have a higher rate of CPL usage than the rest of the eligible population. Furthermore, gains to income are not a one-time event; students reap these benefits every year they work, meaning that, over time, their gains become very significant.

Table 22. Gains in Aggregate Earnings Among All Participants

CPL Magnitude	Working Adults		Veterans	
	Annual Average	20-Year Sum	Annual Average	20-Year Sum
15 Credits	$58.83B	$1.18T	$849M	$16.98B
30 Credits	$64.02B	$1.79T	$1.29B	$25.80B

Source: Analysis by Beacon Economics.

Given the size of the target populations, as well as the multiplicative effects of increased earnings over time, it is unsurprising to see these sizable impacts over the 20-year analysis window. Of course, not all participants are guaranteed to remain in California, so the economic impact of such earnings is distributed somewhat throughout the rest of the country.

Table 23. Average Gain in Annual Earnings by Student and Degree

Degree	Working Adults		Veterans	
	15 Credits	30 Credits	15 Credits	30 Credits
Associate's	$7,496	$8,883	$3,237	$3,935
Bachelor's	$10,700	$14,977	$12,835	$16,053
Master's	$4,795	$7,611	$6,962	$10,028
Doctorate	$25,256	$25,256	$62,195	$49,418

Source: Analysis by Beacon Economics.

Average gains in annual earnings for participants vary based on the degree attained and on the amount of CPL modeled. The latter occurs because greater CPL offered increases the proportion of students who are induced into attending and completing a degree, These effects are experienced year over year, meaning that throughout a participant's working life, the worker stands to earn significantly more than without the availability of CPL.

Economic Impact Model

To analyze the broader economic and fiscal impacts of a proposed Credit for Prior Learning (CPL) initiative and its impact on increasing aggregate incomes, this study employed IMPLAN (Impact for Planning), a state-of-the-art multi-regional input-output (MRIO) modeling system that estimates how certain expenditures correlate and affect other industries in the economy to generate total economic and fiscal impacts. IMPLAN typically categorizes economic impacts into three types of effects:

- Direct effect is the additional output of goods and/or services resulting from immediate spending from applicable expenditures.
- Indirect effect is the additional output of goods and/or services generated by business-to-business interaction with suppliers of direct purchases.
- Induced effect is the additional output of goods and/or services resulting from increased spending by individuals who receive labor income because of applicable expenditures.

However, given how the impacts of the initiative are manifested – namely, increases in the labor income of participants – only induced effects are observed. Such effects can be referred to as "ripple" or "multiplier" effects as individuals spend part of their increased earnings that subsequently flow through the economy. The following metrics were utilized to report the impacts of the increased earnings, and therefore spending, of participants:

- Output refers to the total value of production generated by applicable expenditures, including intermediate inputs (goods and services used in the production of other production inputs).
- Tax Revenue refers to the additional taxes collected by federal, state, and local governments, as well as any special districts resulting from increased incomes, spending, and output.

Impact Analysis

Induced Effects

Utilizing Credit for Prior Learning (CPL) can unlock untapped talent, driving an increase in economic output and boosting the socioeconomic potential of these skilled workers. In short, the broader effects of an expanded CPL initiative are primarily manifested through greater output associated with increased earnings.

Table 24. Average Increased Output Over 20 Years Per Student

CPL Magnitude	Working Adults	Veterans
1 Credit	$4,734	$6,067
15 Credits	$115k	$135k
30 Credits	$142k	$182k

Source: Bureau of Economic Analysis, IMPLAN. Analysis by Beacon Economics.

As CPL recipients spend part of their increased earnings in the economy, the ripple effect leads to increased overall output. Note that this 20-year sum of output per student is less than the student's 20-year sum of increased earnings. This is due to several factors that IMPLAN integrates into its modeling system.

First, not all increased earnings are spent within the 20-year analysis window, as individuals save part of their earnings for retirement or other purposes. Second, income taxes effectively remove some of the money from the economy and transfer it to the government, where spending and effects are not modeled by IMPLAN. Economic output is generally limited when the input to the IMPLAN model is individuals' earnings, as individuals tend to spend their earnings on purchases that have relatively small multipliers, such as rent or mortgages and health care. Multipliers are typically greater when the inputs to IMPLAN are capital projects and business-to-business transactions. Nevertheless, as shown in the table below, the economic output impact of a CPL program becomes fairly significant when aggregated.

Table 25. Aggregate Increase in Output

CPL Magnitude	Working Adults		Veterans	
	Annual Average	20-Year Sum	Annual Average	20-Year Sum
15 Credits	$44B	$876B	$0.63B	$12.7B
30 Credits	$67B	$1,334B	$0.96B	$19.2B

Source: Bureau of Economic Analysis, IMPLAN. Analysis by Beacon Economics.

The impact to economic output becomes significant when aggregated across participants. For example, the annual increase in economic output from working adults of $44B, in the 15-credit scenario, is larger than the GDP of the state of Vermont ($43B). The increased annual economic output of working adults in the 30-credit scenario is the same size as the entire GDP of Alaska.[14]

For a more detailed look, Table 25 shows the economic output generated for each group by the degree type, population group, and the number of credits offered. Bachelor's degrees generate the highest output because they are the most commonly obtained. The table also reports the number of jobs supported by the additional economic activity generated. These are not the jobs that CPL recipients obtain, but rather additional jobs that are supported by the increased economic activity they generate. They include full-time, part-time, and seasonal employment positions. The employment income and bonuses that these workers receive are reported in the Labor Income column.

> *"The increased annual economic output of working adults in the 30-credit scenario is the same size as the entire GDP of Alaska.*

[14] Bureau of Economic Analysis: https://www.bea.gov/data/gdp/gdp-state

Table 26. Aggregate Annual Increase in Output

Degree, Population, Credits	Jobs Supported	Labor Income (M)	Output (M)
Associate, Working Adults, 15	46,870	$33,305	$99,300
Associate, Working Adults, 30	70,615	$50,179	$149,609
Associate, Veterans, 15	630	$449	$1,339
Associate, Veterans, 30	965	$687	$2,050
Bachelor, Working Adults, 15	144,935	$102,993	$307,078
Bachelor, Working Adults, 30	218,335	$155,152	$462,590
Bachelor, Veterans, 15	2,145	$1,523	$4,541
Bachelor, Veterans, 30	3,215	$2,285	$6,812
Master, Working Adults, 15	14,000	$9,948	$29,661
Master, Working Adults, 30	23,820	$16,925	$50,463
Master, Veterans, 15	155	$111	$332
Master, Veterans, 30	265	$189	$564
PhD, Working Adults, 15	985	$699	$2,083
PhD, Working Adults, 30	1,965	$1,397	$4,166
PhD, Veterans, 15	55	$38	$114
PhD, Veterans, 30	85	$61	$182

Source: Bureau of Economic Analysis, IMPLAN. Analysis by Beacon Economics.

Discussion

For a full understanding of the economic impacts, it is important to note several key factors affecting the analysis. First, while the increase in earnings for CPL recipients is likely accurate, the broader economy does not necessarily gain the entirety of the increase in aggregate earnings. While a more educated workforce is likely to lead to significant job creation, not all jobs (and therefore associated earnings) that CPL recipients will be employed in are going to be new. Some participants will be competing with workers who already have degrees. Thus, only a portion of the increase in aggregate earnings is a true increase, and a portion is instead shifted from workers who are not affected by CPL. However, the benefit to individual participants, and any associated savings, is still accurately described.

Second, cross-border leakage occurs as individuals move out of California. Most are not expected to leave the state, but there is likely a significant group of program participants who may earn a degree and then leave the state at some point over the 20-year analysis window. While this is accounted for in the impact study step of the analysis, there are also differences in the earnings changes that participants can expect in the rest of the nation compared to California. California's earnings are generally elevated compared to the rest of the country, across educational attainment levels, so the impact of education on earnings for movers may diverge from the estimates of the model.

Finally, the models also assume that the new degrees earned from the CPL program, as well as the jobs that participants become employed in, reflect the general mix of degrees and careers among veterans or working adults who already have degrees. It is assumed there is no difference between career preferences and competencies of those who receive CPL and those who pursue higher education presently. This is likely this is not entirely reflective of reality, as people who choose to forgo college education at 18 years old may have different preferences for careers than those who were traditional college students. However, it would be difficult to create models for various industries, as small sample sizes would harm the statistical power of regression models and make most resulting values relatively questionable.

There is a large population of adults in California with associate degrees, which makes it possible to make an econometrically sound determination of its impact on earnings. However, the sample size of, for example, electricians in California with associate degrees is far smaller, which means determining the value of such a degree for an electrician in California would be less statistically sound. Furthermore, some students choose to use higher education as an opportunity to change careers, which would require highly calibrated and specific models to represent flows between occupations or industries. Over-parameterizing a regression model with a limited sample size harms the predictive power of that model. Thus, assuming program participants reflect their respective populations at large before and after attending institutes of higher education allows for the most econometrically sound analysis with the fewest model calibrations and assumptions.

Further Benefits

Fiscal Impact

A result of increased economic output stemming from higher earnings is greater revenues for governments at all levels where taxes are levied. More directly, this is manifested through the collection of income tax, which applies to both the federal government and the State of California. Both the increased earnings for CPL recipients and the earnings of those whose jobs are supported by increased spending contribute to increased revenues.

A second major source of tax revenue resulting from increased earnings is sales tax, as some portion of people's increased earnings go toward the purchase of various goods and services that are taxed. The State of California levies a 7.25% sales tax rate, and local jurisdictions, such as counties, cities and towns, may implement additional taxes for general revenue or specific purposes, such as local transit or hospital districts.

Effects on other taxes, which may be directly or indirectly affected by rising earnings, such as California's alcoholic beverage excise tax or property taxes, are modeled by IMPLAN whenever appropriate. Finally, individuals' savings on tuition and other educational expenses collectively decrease the need for subsidized student loans, which reduces overall government expenditures on education.

Table 27. 20-Year Sum of Induced Tax Revenue, Per Person Effect

CPL Magnitude	Working Adults			Veterans		
	Federal	State	Local & Other	Federal	State	Local & Other
15 Credits	$11,277	$6,379	$3,871	$9,610	$5,436	$3,298
30 Credits	$15,177	$8,585	$5,210	$11,862	$6,710	$4,072

Source: Bureau of Economic Analysis, IMPLAN. Analysis by Beacon Economics.

The additional tax revenues associated with increased economic output resulting from greater earnings are significant. These figures do not include taxes paid by; these are merely taxes induced by the economic activity that their increased earnings induce.

Table 28. Annual Average of Induced Tax Revenue (Aggregate)

CPL Magnitude	Working Adults			Veterans		
	Federal	State	Local & Other	Federal	State	Local & Other
15 Credits	$3.65B	$2.01B	$1.25B	$52.7M	$29.8M	$18M
30 Credits	$5.55B	$3.14B	$1.91B	$80.0M	$45.2M	$27.5M

Source: Bureau of Economic Analysis, IMPLAN. Analysis by Beacon Economics.

Aggregated across recipients, there is a significant fiscal impact stemming from an increase in output. IMPLAN models a several-billion-dollar increase in federal, state, and local tax revenue in a 30-Credit for Prior Learning (CPL) scenario. This tax revenue only further demonstrates the benefits that a CPL initiative would have for the State of California and its communities, in addition to the benefit of a more educated workforce. There are further fiscal benefits that are not modeled by IMPLAN, such as a reduction in public assistance use among CPL recipients and their families as they report higher earnings.
Additionally, the state saves $6,788 per student year from apportionment savings.

Individual Savings

For CPL recipients, the post-graduation benefits are self-evident, as demonstrated in earlier sections of this report. However, recipients also amass benefits independent of the impact of a higher education degree. These other benefits are primarily savings, namely on tuition, housing, and educational materials. The prospect of completing a degree a semester or a year earlier does not merely mean a student can begin working sooner; it means students can forgo a significant amount of spending.

Table 29. Average CPL-Induced Savings Per Student

CPL Magnitude	Working Adults	Veterans
15 Credits	$14,653	$26,115
30 Credits	$28,936	$51,905

Source: Survey of California public and private school costs, analysis by Beacon Economics.

For working adults, this manifests in a straightforward way, as most of them pay for their education out of their own pockets or take out loans. Some may take advantage of scholarships, grants, or support from their employers. Nevertheless, CPL opportunities can enable working adults to further their education for a lower price. As tuition for California community colleges is capped at $46 per credit, savings are greater for bachelor's and master's students than for community college students.

For veterans, those who are eligible for Post-9/11 GI Bill benefits typically do not pay for their education out of their own pockets. The Post-9/11 GI Bill provides benefits for veterans in the form of tuition payments (typically all of the tuition and fees of a public institution and up to $27,120 at private institutions per year), a Monthly Housing Allowance (depending on the local cost of living, as high as $4,644 in San Francisco and San Mateo County), and up to $1,000 in books and supplies. For veterans, saving these benefits through CPL means that they are able to use them further down the line. Post-9/11 GI Bill provides up to 36 months of educational benefits. While academic program years typically do not last a full calendar year, saving an academic year or semester through CPL means a veteran can use those remaining benefits to pursue their education even further. For example, a veteran who may have used up their entire Post- 9/11 GI Bill educational benefits to pay for a bachelor's degree now saves a year with CPL and can choose to use their remaining benefit toward a master's degree. Given that a significant proportion of veterans exhaust their Post-9/11 GI Bill educational benefits, leading them to drop out before completing their degrees, CPL is expected to increase degree completions and allow veterans to pursue further education. These savings preserve benefits for later use and, given the substantial value of the benefits, can help transform veterans' educational decisions.

Conclusion

This study underscores the potential economic and fiscal benefits of Credit for Prior Learning (CPL) opportunities in California. The results indicate significant positive impacts, including increased access to higher education, reduced time to degree completion, and lower overall education costs for students. By recognizing and validating the knowledge and skills gained through prior learning, CPL enables individuals to accelerate their educational journey, enter the workforce sooner, and contribute to the economy faster. Furthermore, the recognition of the value of prior learning can help working adults and veterans feel they belong on a college campus and are valued members of the learning community on campus. By fostering an environment where working adults are welcomed to return to school, the state can bridge skills shortages and help meet the needs of employers and industries. Colleges and universities can expand their student bodies, improving their reach to include adults and veterans who may not otherwise have been able to attend, and reap the institutional benefits of higher degree completion rates.

The economic benefits projected from these efforts are substantial. The increase in annual economic output resulting from working adults is $44 billion after receiving 15 units and $67 billion for 30 units. For veterans, the yearly economic output generated is $630 million in the 15-unit scenario and $960 million in the 30-unit scenario.

Looking ahead, increasing CPL opportunities has the potential to significantly transform the economic landscape of California. By fostering a more educated and skilled workforce, CPL opportunities could catalyze innovation, drive economic growth, and enhance the overall prosperity of the state. As we consider the future, it is evident that CPL holds promise for unlocking a brighter and more prosperous tomorrow for California and its residents.

About The California MAP Initiative

The California MAP Initiative works on behalf of the California Community College Chancellor's Office to improve higher education access and attainment for working adults, veterans, military service members, and all students with extra-collegiate learning by maximizing Credit for Prior Learning (CPL) in California's 116 Community Colleges and beyond.

The goal is to make it routine to receive up to a year of college credit in recognition of training, certification, and documented experience--all to increase equitable college access; enhance wellness, improve retention; speed completion (save time and reduce debt); improve transfer; boost career attainment; and strengthen higher education and workplace relationships. This year, the Initiative is scaling to serve all CCCs by bridging gaps in technology, culture, procedure, and capacity, which have long prevented working adults and veterans from receiving the credit they deserve. The Initiative is supported by state and federal funds and offers all services at no cost to participating institutions.

Learn more at https://map.rccd.edu
View the Inventory of Approved CPL Opportunities at https://mapcplarticulations.azurewebsites.net/

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About Beacon Economics

Founded in 2006, Beacon Economics, an LLC and certified Small Business Enterprise with the state of California, is an independent research and consulting firm dedicated to delivering accurate, insightful, and objectively based economic analysis. Employing unique proprietary models, vast databases, and sophisticated data processing, the company's specialized practice areas include sustainable growth and development, real estate market analysis, economic forecasting, industry analysis, economic policy analysis, and economic impact studies. Beacon Economics equips its clients with the data and analysis they need to understand the significance of on-the-ground realities and to make informed business and policy decisions.

Learn more at beaconecon.com

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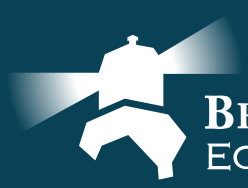

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