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## Impact of the Availability and Affordability of Childcare on the Economy

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Impact of the Availability and Affordability of Childcare on the Economy

Capstone submission to the Martins School of Public Policy and Administration, University of  
Kentucky

by

Valentina Taiye Osunmade and Cameron French

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## **Abstract**

Kentucky's workforce participation rates are among the lowest in the nation, thus underscoring the urgent need to strengthen and sustain its workforce (Aull, 2023).

One significant barrier for many families in the workforce is the lack of accessibility and affordability of childcare. The Child Care Assistance Program (CCAP) in Kentucky aims to alleviate this burden for low-income families. Despite the program's importance, no prior study has examined the direct impact of CCAP enrollment on workforce participation in Kentucky.

This research addresses this gap by conducting a multiple regression analysis using aggregate data from the Kentucky Center for Statistics, the US Census, and the Annie E. Casey Foundation. Our analysis reveals compelling insights into the relationship between CCAP enrollment and workforce participation, alongside other variables such as median household income and educational attainment levels.

Our findings underscore the critical role of accessible childcare in parental decision-making regarding workforce engagement. Notably, CCAP enrollment emerges as a significant factor influencing labor force participation in Kentucky, alongside other socio-economic determinants. Interestingly, gender does not appear to exert a statistically significant influence on workforce participation in our analysis.

This study contributes valuable empirical evidence to the ongoing discourse on workforce participation dynamics in Kentucky. The implications of our findings extend to policymakers, advocates, and stakeholders involved in shaping childcare support policies and initiatives aimed at fostering a more inclusive and resilient workforce in the state.

## Introduction

A robust economy must consider the needs of the nation's growing and diversifying workforce. The past decade has witnessed a significant decline in workforce participation nationwide which worsened during the COVID-19 pandemic (Schneider, 2023). In the United States, Kentucky is ranked among the ten (10) states with the lowest workforce participation rate at 57.6 percent (Aull, 2023). Its worker shortage index is estimated at 0.74 percent according to the US Chambers of Commerce (Ferguson & Lucy, 2023).

Childcare has been identified as one of the factors leading to low workforce participation in Kentucky. In its annual Kentucky Economic Report 2024, the Center for Business and Economic Research revealed results that showed that family responsibilities and the high cost of childcare are major reasons Kentuckians are choosing to leave the workforce (Childress et al., 2024). This is a salient issue that requires dire attention due to its negative impact on the economy since working families, especially women, are the most impacted of the workforce population.

According to the Bipartisan Policy Center, over 50% of parents cited childcare as a reason for not returning to work post-COVID-19 economic recovery (Smith et al., 2023). Their database indicates that Kentucky currently faces a childcare gap of 30.6% which amounts to \$2.1 to \$3.2 billion economic loss annually. They also posit that 46% of childcare facilities closed over the past 10 years in Kentucky with only 159,000 available childcare slots for Kentucky's 316,000 kids aged 0-5 (Smith et al., 2023). As childcare deficiencies constrain parents' ability to work, households are not the only group impacted. The businesses that rely on working parents as employees are also burdened.

Despite the benefit of childcare to families and the economy at large, several factors hinder accessibility to quality childcare. This includes the high cost of childcare and the lack of

childcare centers. As of 2023, the average annual cost of infant childcare in Kentucky is estimated to be about \$7,640, which is unaffordable for most low-income families that constitute part of the workforce (Pugel, 2023). Employees, especially women are likely to quit their jobs and provide care for their children. This childcare crisis is an economic concern to the state and nation as more businesses are affected by the decline in workforce participation.

The Kentucky state government has taken several measures to improve workforce participation across the Commonwealth. Many policy initiatives and programs have been put in place to cushion the impact of childcare costs and unavailability to the teeming workforce at the Federal and State levels. Among these is Kentucky's Child Care Assistance Program (CCAP) which provides support to low-income families to pay for childcare. Evaluating this program is significant to the state government, businesses, and families. It will inform decision-making towards ensuring that the resources invested in this program are being used appropriately. Additionally, it will lead to policy recommendations on what aspect of the program can be improved to create more opportunities for families to participate fully in the workforce.

This study seeks to evaluate the CCAP in Kentucky about how its accessibility has assisted employees in fully participating in the workforce. Findings from previous studies show a gap as there has not been any evaluation of CCAP and its impact on workforce participation. Hence, this study, which further emphasizes the need for an evaluation, will help address the salient policy issue of low workforce participation in Kentucky.

## **Background**

Kentucky's Child Care Assistance Program is a state-run program funded with both state and federal funds through the Child Care and Development Block Grant (CCDBG) that is intended to assist low-income parents in obtaining access to quality childcare after meeting the required eligibility. Beneficiaries must be residents of Kentucky; the child must be a U.S. Citizen

or qualified legal immigrant and be less than thirteen (13) years of age (Cash, 2022). They should also be willing to participate in a job search, maintain full-time education/training, support child protective/preventative services, participate in SNAP E&T or Kentucky Works activities (KTAP), or attend high school as a teen parent (Cash, 2022). Beneficiaries access the CCAP from a facility participating in the state's Kentucky All-Stars Rating program. The program creates guidelines for early childhood education programs that receive public funding. Providers receive a ranking of 1-5 based on criteria that get more specific the higher the ranking. Participation in the program ensures that the state is supporting childcare facilities that provide quality services to their community.

CCAP has changed and faced many shocks over the years. In 2013, the legislature was faced with budget shortfalls and increased the threshold to qualify for the program from 100% of the federal poverty level to 150% (Lord, 2013). In July and October of 2021, the state increased the reimbursement rate for providers using a combination of state funds and federal dollars allocated through the American Rescue Plan (Tennen, 2021). In early 2022, the General Assembly created new income guidelines for the CCAP program. First, they increased the initial income eligibility from 160% to 200% and the recertification eligibility from 200% of the federal poverty line to 85% of the state's median income (Cash, 2022). They also worked to address the benefits cliff by creating a three-month transition period for families exiting the program due to increased household income. Later that year, the state built upon the changes created. In July 2022, the state changed the guidelines for the initial eligibility requirements from 200% of the federal poverty line to 85% of the state's median income (Cash, 2022). In September, they expanded the transitional period from 3 to 6 months for families exiting the program (Cash, 2022).

In the 2022 legislative session, Representative Samara Heavrin filed HB 499 which created a new childcare affordability program (Barker, 2023). The program is called the

Employee Child Care Assistance Partnership (ECCAP). Through the program, the cost of childcare is shared by the employee, the employer, and the Cabinet for Health and Family Services (Barker, 2023). The state created regulations for this program that stated that the state would not provide matching funds under ECCAP for any employee who qualifies for CCAP. The rationale is that the CCAP program covers a higher rate of the individual's childcare costs compared to ECCAP (Otts, 2023).

During the COVID-19 pandemic, the Cabinet for Health and Family Services changed regulations to support employee retention for childcare providers. Through the pandemic, competition for workers escalated. Due to this, many childcare providers were losing workers due to low pay. The average annual pay for childcare workers in Kentucky at the time was around \$20,000 (Gallman, 2023). To try and solve the competition problem, the Cabinet for Health and Family Services decided that the state would begin to cover the cost of childcare for childcare workers (Hsu, 2023). This policy remains in place and has allowed thousands of children of childcare workers to receive free childcare (Hsu, 2023).

Currently, in Kentucky's 2024 Legislative Session, the General Assembly is once again considering making changes to the eligibility requirements and the reimbursement rate for childcare facilities (Ladd, 2024). Experts and advocates describe the House Majority's proposed solutions included in the biennial budget as a mixed bag (Ladd, 2024). One of the major positives is that it continues the \$2 per day increase in reimbursement rates for childcare facilities. This will ensure that the state's reimbursement rates rank in the 80th percentile, allowing 80% of Kentucky's childcare facilities to be fully reimbursed (Ladd, 2024). One of the negative pieces of the proposal is that it tightens income eligibility requirements, which would result in 10,000 kids losing access to childcare subsidies (Ladd, 2024).

## Literature Review

Although previous studies have been conducted on the impact of affordability and availability on the workforce, a gap exists as no studies have yet to evaluate CCAP. (Candice, 2017), examined the factors affecting workforce participation and healthy worker biases in U.S. women and men using 2013–2015 data from 120,928 U.S. women and men aged 22–44 years participating in the Gallup-Healthways Well-Being Index (Johnson et al., 2017). A notable finding from this study is that female employees were more likely to opt out of the workforce to provide childcare.

According to data from the Federal Reserve Bank of St. Louis, in Kentucky, only 65% of mothers of young children participate in the workforce compared to 93% of dads with young children (Federal Reserve Bank of St. Louis, 2021). Ferguson & Lucy (2022) further emphasized this finding that men have been able to return to work at faster rates than women through the economic recovery from the COVID-19 pandemic. According to research conducted by the National Women’s Law Center, between January and December 2020, 2.1 million women left the workforce (Ewing-Nelson, 2021). This mass exodus is alarming and has had a substantial impact on our economy.

Nationally, it is estimated that only 1 in 6 subsidy-eligible children receive assistance (Malik, 2023). The Annie E. Casey Foundation’s 2023 Kids Count Survey found that 53% of working-aged adults are parents, and 37% of those adults have young children (Aull, 2023). When these estimates are applied to Kentucky’s workforce, it translates to 250,000 working adults with young kids (Aull, 2023). Based on data from 2019, there are 325,900 kids under the age of 6 in Kentucky, and 126,900 of them are in households with income that makes them eligible for the CCAP program. Despite this, only around 25,000 Kentucky children participate in the program (Pugel, 2021).



Research from the Federal Reserve Bank of Atlanta found that lack of access to childcare hampers an individual's ability to fully participate in the workforce (Birken, 2017). Their data shows that women accounted for a quarter of the unanticipated losses in the workforce during the COVID-19 pandemic (Ehresman, 2022). In a recent poll, the Prichard Committee for Academic Excellence found that  $\frac{1}{3}$  of surveyed parents in Kentucky indicated their employment status changed, either by a loss of hours or because they had to leave the workforce, due to lack of access to childcare (Ladd, 2023).

The Center for American Progress estimates that in total, American families lose out on a combined \$8.3 billion in earnings due to lack of childcare (Schochet, 2023). This further buttresses the cost of this salient policy issue on the overall economy. As Kentucky continues to recover from the economic downturn caused by the COVID-19 pandemic, it is clear that policymakers need to support evidence-based solutions to revive the economy. Workers and families across Kentucky have also indicated a desire for further investment by the state government (Ladd, 2023). Therefore, evaluating the Child Care Assistance Program can help provide practical solutions to addressing low workforce participation, improve employee retention, and revive the economy. The research will enable policymakers to consider how to make changes to the Child Care Assistance Program to ensure it meets the goal of enabling more families to re-enter the workforce.

### **Data Plan**

The primary outcome that will be measured in this program evaluation is workforce participation in Kentucky. The data required in this study to determine the causal relationship with the outcome variable is publicly available and was provided to us through the Kentucky Center for Statistics. First, workforce data for the past five years (2018-2022) was obtained. From this data, we examined the trend in workforce participation over the years on a county basis and cross-referenced it with CCAP enrollment data. This data can be viewed in *Figure 1*

which was created by the Kentuckiana Works shows Kentucky's workforce participation rate versus the national average (Ehresman, 2022).

Another major data source the researchers will employ in this study is data on participation in the Child Care Assistance Program. The data provided to the researchers was aggregate-level county data for each of the years being studied. In addition, the researchers obtained data about childcare slots available in each county. This will allow the researchers to measure participation in the program over time and link CCAP enrollment to workforce participation rates over the past five years in Kentucky. This data can be viewed in *Figure 2* which shows CCAP enrollment over the years studied in this project.

Additionally, to determine the number of children in Kentucky who would qualify for the childcare subsidy under the treatment (CCAP), the researchers will leverage data from the National Census and the Annie E. Casey Foundation's Kids Count Survey. In this study, the researchers will specifically look at the number of children below the age of 5 because this age bracket is indicative of the ages of children enrolled in childcare slots. This data will also provide the researchers with the information needed to evaluate the number of families who may qualify for the Child Care Assistance Program based on income limitations and other criteria that restrict access for some families in Kentucky. The data obtained from multiple sources in this study will be analyzed using STATA.

Lastly, as part of our data collection and analysis process, only aggregate data at the county level will be used. This is to ensure that the privacy of families who participate in the Child Care Assistance Program is protected throughout the research.

### **Research Design**

For the design of this empirical study, a regression analysis using a fixed-effect model is proposed to estimate the effect of childcare affordability and availability on labor force participation in Kentucky. This requires applying a statistical model to compare CCAP County-

level participants' data obtained from the Kentucky Center for Statistics and labor force participation data obtained from the American Community Census estimates from 2018 to 2022. The sample population comprises 120 CCAP participating counties in Kentucky and participation data of program beneficiaries.

The rationale for choosing a fixed effects model is to control for time-invariant omitted variables and examine the specific effect of time-varying variables. The researchers therefore assume in this study that some of the characteristics of our target population such as the median household income level for the counties participating in the CCAP program are constant over time for the duration of this study. Given the available data, this design approach is considered ideal based on the available data and also the researcher's ability to control the effects of other fixed, unobservable (and observable) characteristics that may be influencing childcare affordability and labor outcomes (workforce participation) over time. The outcome variable for this study is workforce participation denoted as  $LFPR_{it}$  while the treatment is CCAP. Since factors such as median household income level, education level, gender, and children in poverty rate also have an impact on workforce participation, we consider them as control variables that will be fixed in this study.

### **Model Specification**

The simple regression model for this study is given as

$$LFPR_{com_{it}} = \beta_0 + \beta_1 CCAPEN + \beta_2 MedianHinc_{it} + \beta_3 childpovrate_{it} + \beta_4 Bachelorsdeg_{it} + \alpha_i + \epsilon_{it}$$

Where:

$lfpr_{com_{it}}$  - The outcome variable which is labor force or workforce participation by county from 2018 to 2022

$ccapen$  - refers to the independent variable which is those enrolled at CCAP.

$Childpovrate$  - this refers to children in poverty grouped by county fy2018-fy2022

$Bachelorsdeg$  - population with bachelor's degree or higher

Medhinc - median household income by county

$i$  – CCAP recipients at grouped according to County

$t$  - indicates the number of periods we are interested in which is 5 years from 2018 -2022

$\beta_1$ - is the coefficient of the policy variable which is CCAP over time within each group

$\alpha_i$  - is a set of dummy variables for time-invariant variables in the study

$\epsilon_{it}$  - is the error term.

### **Limitation to Study**

In estimating the effects of CCAP on workforce participation, it is important to take into account the potential limitations that may affect the accuracy of our findings. Despite these limitations, our research design is robust, and we have taken appropriate measures to ensure its generalization. The design of our research is limited by the availability of data, which affected our ability to estimate the impact of childcare affordability and availability on workforce participation. We employed a fixed effects approach, but this may have resulted in omitted variable bias as there could be other factors related to workforce participation that are not accounted for in the model. We also conducted a Variance Inflation Test (VIF) and removed some variables due to high levels of multicollinearity, which further weakened our result estimates. Additionally, we must note that our research does not consider the final policy decisions made by the Kentucky General Assembly during the 2024 Legislative Session. Although we anticipated potential changes in our research, the final changes adopted by the legislature were not taken into account.

### **Results**

The research findings indicate that access to the CCAP program does not have a significant impact on workforce participation in Kentucky at ( $p < 0.1$ ). To establish this result, we used STATA as the statistical tool to estimate our model using a fixed effect within the estimator which takes into consideration the time variation. Our dataset which comprised census data for workforce

participation rate and CCAP enrollment in Kentucky for 5 years (2018-2022) was transformed and set to panel data. This indicated that our panel was strongly balanced.

Thereafter, a robustness test was conducted to correct for heteroscedasticity in the model. We also conducted a Wu Hausman test which reveals that the fixed effects model is the best estimator that applies to our model. Upon applying the chosen model to the data, our initial findings suggest that, based on the available evidence, the Child Care Assistance Program does not exhibit a statistically significant impact on workforce participation rates during the examined years. However, it is crucial to interpret these results with caution, recognizing that they are subject to change from the inclusion of additional control variables that are known or suspected to influence workforce participation. Some of these may include the races of the participating families in CCAP. Expanding the set of control variables could capture a more comprehensive array of factors that might contribute to variations in workforce participation rates. It is imperative to emphasize that these results should be regarded as provisional, and additional scrutiny is required before drawing definitive conclusions. The inclusion of more control variables not only offers an opportunity for a more nuanced understanding of the relationship but also addresses potentially confounding factors that may currently be unaccounted for in our model.

### Tables 1 and 2- Fixed effect regression estimates

Fixed-effects (within) regression	Number of obs =	600			
Group variable: County	Number of groups =	120			
R-squared:	Obs per group:				
Within = 0.0001	min =	5			
Between = 0.6569	avg =	5.0			
Overall = 0.6081	max =	5			
corr(u_i, Xb) = 0.7846	F(2, 478) =	0.03			
	Prob > F =	0.9674			
-----					
lfpr_com	Coefficient	Std. err.	t	P> t	[95% conf. interval]
ccapen	-.0000229	.0004202	-0.05	0.956	-.0008487 .0008028
childpovrate	-.0066305	.0272907	-0.24	0.808	-.0602552 .0469941
_cons	53.46221	.6917918	77.28	0.000	52.10288 54.82154
-----					
sigma_u	8.4618308				
sigma_e	1.3100945				
rho	.97659066	(fraction of variance due to u_i)			
-----					
F test that all u_i=0: F(119, 478) = 53.58			Prob > F = 0.0000		

```

. xtreg childpovrate ccapen, fe

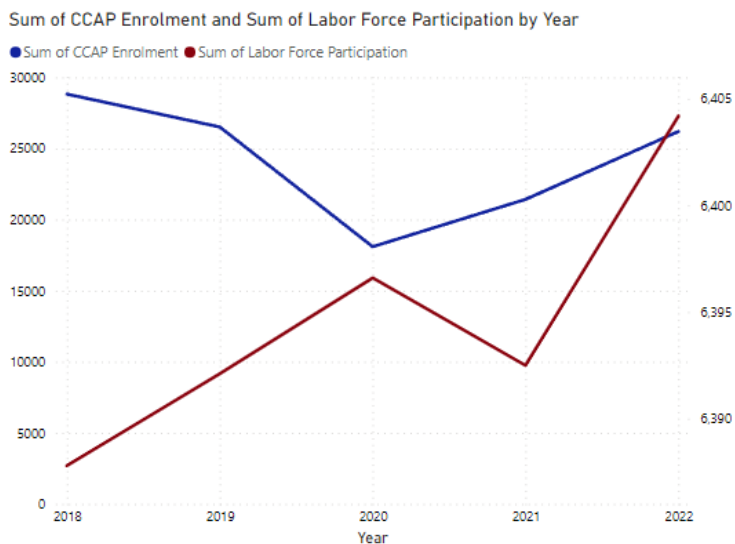
Fixed-effects (within) regression              Number of obs   =       600
Group variable: County                       Number of groups =       120

R-squared:                                   Obs per group:
  Within = 0.0158                             min =           5
  Between = 0.0366                            avg =          5.0
  Overall = 0.0314                             max =           5

corr(u_i, Xb) = -0.3159                      F(1,479)        =       7.69
                                              Prob > F         =     0.0058
-----+-----
childpovrate | Coefficient Std. err.      t    P>|t|    [95% conf. interval]
-----+-----
ccapen       |   .0019357   .000698     2.77  0.006   .0005643   .0033072
_cons       |  25.08439   .1669009   150.30 0.000   24.75644   25.41233
-----+-----
sigma_u      |  8.9028467
sigma_e      |  2.1934083
rho          |  .94277458   (fraction of variance due to u_i)
-----+-----
F test that all u_i=0: F(119, 479) = 74.15          Prob > F = 0.0000

```

From the above Tables, there is no evidence to suggest a significant relationship between CCAP enrollment, children's poverty rate, on labor force participation in Kentucky after accounting for country-specific effects. However, children's poverty rate does appear to have a significant impact on CCAP enrollment in this model. A limitation to the generalization of this finding is that the included variables in our model do not collectively explain a significant portion of the variation in the labor force participation rate across counties. We believe that other unmeasured factors such as may have a more substantial influence on labor force participation rates across counties.



The graph above illustrates the trend between CCAP enrollment on the outcome variable for the years under study in Kentucky. It shows that CCAP enrollment had declined during the Covid-19 pandemic which worsened in 2020. This was due to childcare center closures and reduced childcare funding. Some parents had involuntarily exited the workforce due to loss of job thus resulting in the inability to afford child care and a decline in workforce participation. In Kentucky, approximately 8.9% of CCAP enrollees were recorded to have left the program during the pandemic (Sarah, 2021). This is reflected in a corresponding decline in workforce participation the following year from mid-April in 2020 peaking up in 2021. However, both workforce participation and CCAP enrollment have been gradually increasing since 2021 as the economy bounces back post-COVID-19. This is spurred by policy measures by the state Cabinet such as the Employee CCAP and the federal American Rescue Plan Act (ARPA) funding of childcare in August 2021. These measures have been successful incentives in promoting workforce participation. All things being equal, we can anticipate an increase in workforce participation as more parents return to work in Kentucky with these incentives in place.

### **Policy Recommendations**

Due to the income restrictions outlined in the Child Care Assistance Program's eligibility requirements, some families are without access to the subsidy to support them in making childcare options more affordable. Research has shown that some families spend 20% of their annual income on childcare expenses, while the recommended percentage from the federal government is 7% (Solá, 2023). Experts in Kentucky have stated that based on the proposal that was passed by the State House of Representatives, 10,000 kids in Kentucky could lose access to the subsidy provided to families through the Child Care Assistance Program (Ladd, 2024). Due to these children losing access, one could infer that their parents will have to decide between spending an exorbitant amount of money on childcare or leaving the workforce. To ensure more

families have access to affordable childcare options, we propose lessening the restrictions on income eligibility.

Furthermore, to enhance workforce participation in Kentucky, we also recommend that the government expand access to quality early childhood education programs, such as pre-K education, to prepare children for school and alleviate childcare burdens for working parents.

Family-friendly workplace policies such as paid parental leave, on-site childcare facilities, and lactation support programs should be promoted, and employers of businesses encouraged to accommodate the needs of working parents.

Lastly, we recommend the strategic collaboration between the state government and stakeholders such as agencies, businesses, nonprofits, and community organizations towards developing comprehensive strategies to address the diverse needs of Kentucky's workforce thus promoting economic growth and prosperity.

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# Appendix A – IRB Exemption



Office of Research Integrity  
IRB, RDRC

XX

IRB Number:  
93094

TO: Taha Hameduddin,  
Martin School of Public Administration  
PI phone #: 8592576928  
PI E-mail: ta.ha@uky.edu

FROM: Chairperson/Vice Chairperson/Office of Research Integrity  
Nonmedical Institutional Review Board (IRB)

SUBJECT: IRB Review

DATE: 3/11/2024

On 3/11/2024, a designated official reviewed your proposal entitled:

The Impact of the Availability and Affordability of Childcare on the Business Community in Kentucky

The designated official determined that your proposal does not meet the federal definition of human subjects, “a living individual about whom an investigator conducting research obtains (1) data through intervention or interaction with the individual, or (2) identifiable private information” [45 CFR 46.102(f)], and thus does not need IRB review. This is due to the dataset being public information, and only aggregated data will be used.

Should any facts change please contact ORI as that may render the protocol eligible for IRB review and approval.

If you have any questions regarding the designated official’s decision or need additional information, please contact the Office of Research Integrity at 859-257-9428.

# Appendix B – Additional plots from data Analysis

Figure 1-2: Kentucky workforce participation versus the national average vis-à-vis CCAP enrollment

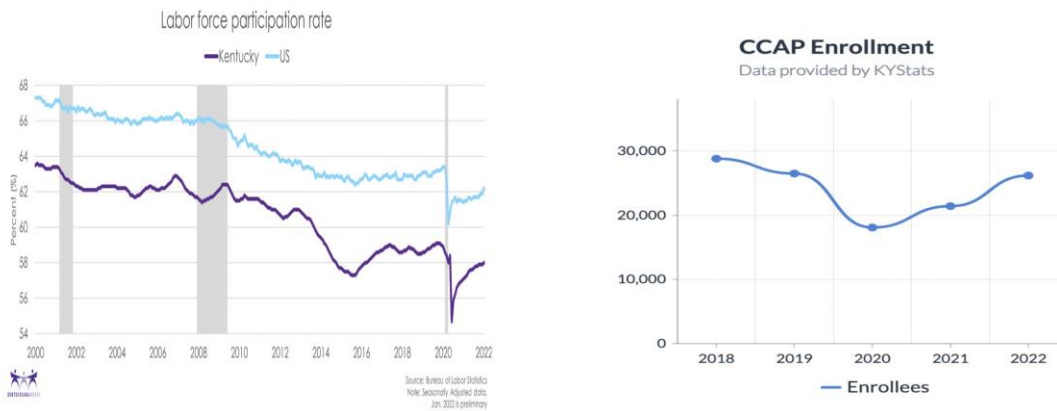


Figure 3-4: CCAP enrollment for five years of study

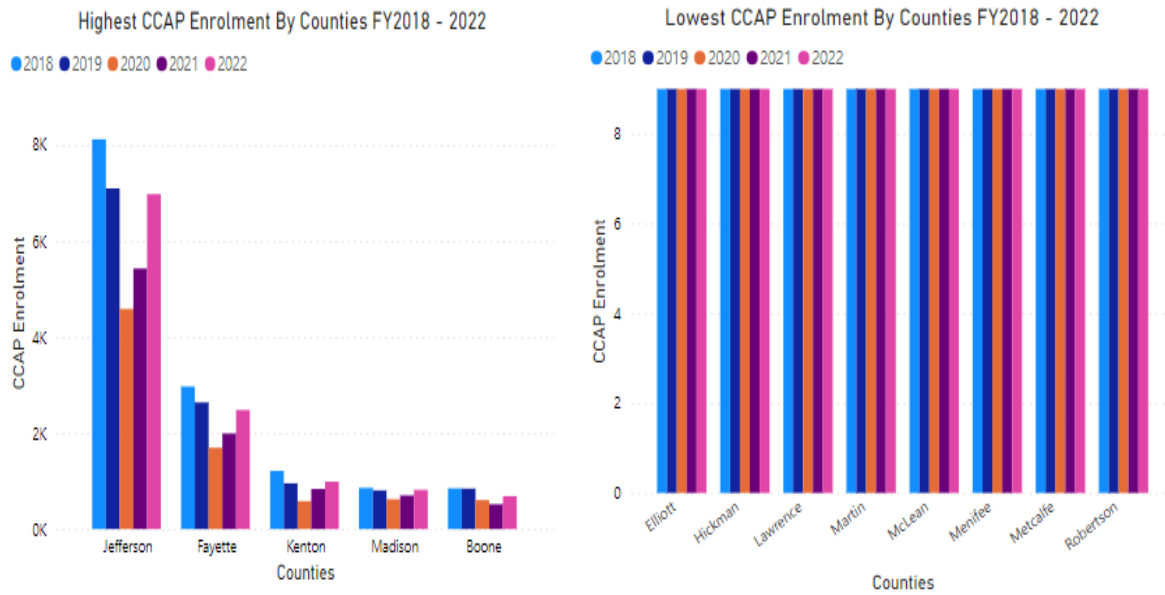


Figure 5-6: Map of CCAP Providers in Kentucky and their capacity by county

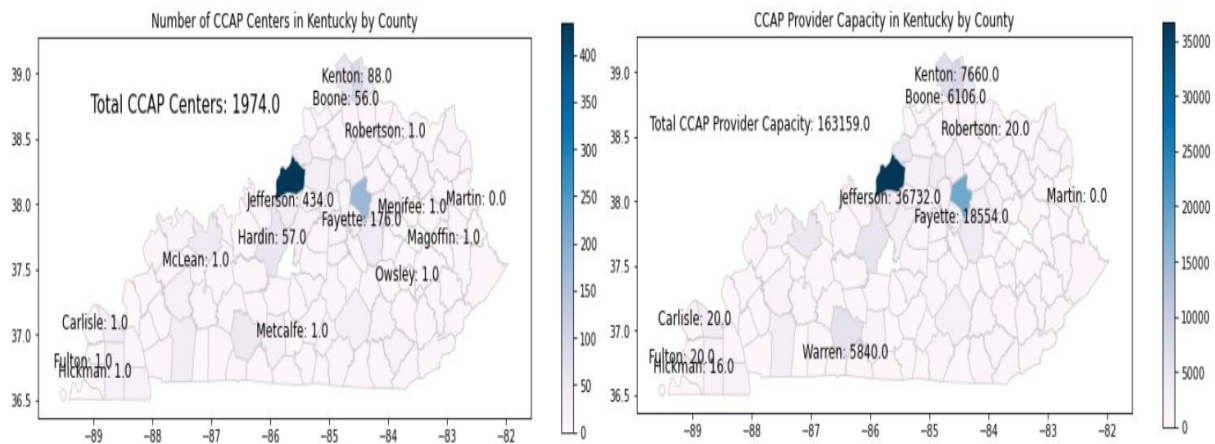


Figure 7-8: Labor force participation in Kentucky 2018-2022

