The correlation and the effect economic factors have on Mississippi community college

enrollment

By

Joshua Gerald Carroll

A Dissertation
Submitted to the Faculty of
Mississippi State University
in Partial Fulfillment of the Requirements
for the Degree of Doctor of Philosophy
in Community College Leadership
in the Department of Leadership and Foundations

Mississippi State, Mississippi

May 2015

UMI Number: 3700100

UMI

Dissertation Publishing

ProQuest®

The correlation and the effect economic factors have on Mississippi community college

enrollment

By

Joshua Gerald Carroll

Approved:

_____
Stephanie B. King
(Major Professor)

_____
Arthur D. Stumpf
(Committee Member)

_____
William M. Wiseman
(Committee Member)

_____
James E. Davis
(Committee Member/Graduate Coordinator)

_____
Richard L. Blackbourn
Dean
College of Education

Name: Joshua Gerald Carroll

Date of Degree: May 8, 2015

Institution: Mississippi State University

Major Field: Community College Leadership

Major Professor: Stephanie B. King

Title of Study: The correlation and the effect economic factors have on Mississippi
                   community college enrollment

Pages in Study: 64

Candidate for Degree of Doctor of Philosophy

The purpose of this study is to determine how economic factors correlate with and have an effect on enrollment at community colleges and provide benchmark enrollment strategies for use by community colleges in the future. A cluster sampling of 22 branch campus locations at 9 community colleges in Mississippi and their respective counties was selected. The independent variables used were median household income, percentage of persons below the poverty level, and unemployment rates.

A statistical correlation and regression was conducted to determine if economic factors (median household income, percentage of persons below the poverty level, and unemployment by county) had any correlation or an effect on the decrease or increase in enrollment at the respective community college campus. The correlation and statistical effect based on the regression model used demonstrated that median household income and poverty levels had the strongest correlation and the most statistically significant effect on community college enrollment in Mississippi. Unemployment had a very weak correlation and no statistically significant effect on the sample for community college enrollment for Mississippi during this period. There were some exceptions in which

certain community college campuses and their respective county unemployment rates had a very high effect on enrollment for that specific campus and that specific period.

There were 6 phone interviews conducted following the analysis of the datasets to determine any internal or external causes to enrollment decreases and increases during this period. 4 of the 6 colleges responded. Of the colleges that responded, 2 saw increases and 2 saw decreases. The predominant enrollment factor denoted by the interviewee was retention and cohesive interdepartmental focus toward recruitment, which resulted in increased enrollment. Of the colleges that saw decreases and were interviewed, it was noted that enrollment personnel were not prepared for the enrollment decrease and could have been.

Target markets with higher income and lower poverty levels perform better during harsh periods of challenge for enrollment at community colleges. Increased retention and interdepartmental cohesion produces better preparation for challenging periods of declining enrollment.

DEDICATION

I would like to give overall credit to my Lord and Savior, Jesus Christ, for giving the inspiration to seek out an occupational field where I can "study to be quiet, do my own business and work with my own hands" (I Thess. 4:11 King James Version). The following list of individuals and organizations and their noted efforts have made this project successful. My loving wife, Stephanie Rose Carroll, has submitted faithfully to my entire working career. My children, Isaac, Nathaniel, Mark, Mercedes, Rebekah, Peter and Jonathan, have made it a constant reminder to set a stellar example of provider, friend and helper. My parents, Chuck and Becky (Deceased, 2004) Carroll (Hinds CC graduates and father, MSU alumni), taught me God's Word and gave me the kinds of tools necessary to support my family and my occupational goals. My stepmother, Jean Carroll, has loved and cared for my father during this time providing more stability to my career. My Father and Mother in-law, Mr. and Mrs. Gregory and Eusebia Grant of Diamondhead, MS sacrificed their time and resources to make this degree possible. My grandparents, Charles and Clara Carroll (both deceased) and William (deceased) and Elsie Bartholomew supported me and encouraged me to pursue MSU as a place of alma mater (especially, 1LT William A. Bartholomew, graduate of Mississippi State University and Mississippi Delta Community College) and for future success. Dr. Shannon Carroll (Holmes CC, 1990), William Carroll (Holmes CC, 1995), Caleb Carroll (Holmes CC, 1998) and Kevin Connell (Holmes CC, 1996) roughed me up and kept me

(class of 2000), Northwest Mississippi Community College (Employed 2010-2014) and

East Mississippi Community College (2014 to Present).

ACKNOWLEDGEMENTS

TABLE OF CONTENTS

LIST OF TABLES

LIST OF FIGURES

CHAPTER I

INTRODUCTION

Prior studies have revealed a constant trend toward the correlation of economic

factors and enrollment in higher education (Pennington et al., 2002). One study in

particular conducted in the 1990's looked at the national economic factors and compared

them to community college enrollment. The most dominating factors were

Unemployment Rate, Gross Domestic Product (GDP), Dollars Disposable Income, and

Personal Consumption Expenditures (Pennington et al., 2002).

In 2008, American community colleges had one of their highest enrollment

periods in United States history, as shown in Figure 1 (Phillipe & Mullin, 2011). The

boost in enrollment was due largely in part from the recession and rise in unemployment

in the new millennium (Phillipe & Mullin, 2011).

Fall headcount credit enrollment in community colleges: 2000 to 2010

Source: AACC analysis of IPEDS fall enrollment files and AACC 2009 and 2010 fall enrollment surveys
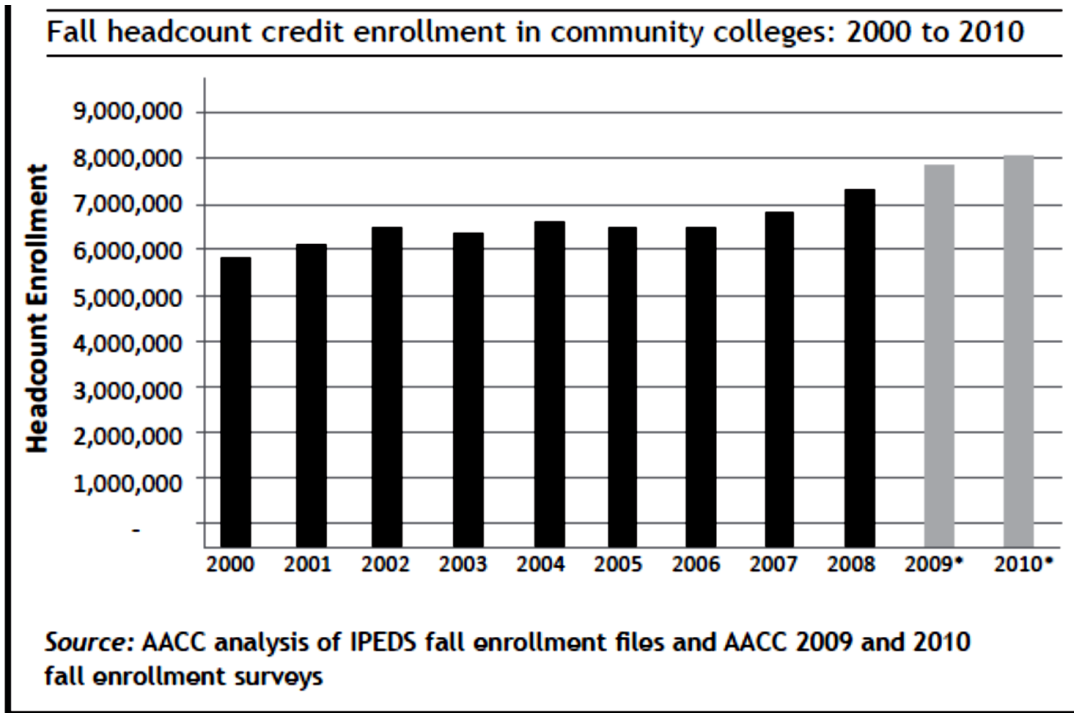
Figure 1.   Fall headcount credit enrollment 2000-2010.

However, the United States GDP for 2008 was at its lowest point during this recessionary period as depicted from the trading economics graph in Figure 2 (Trading Economics, 2014).
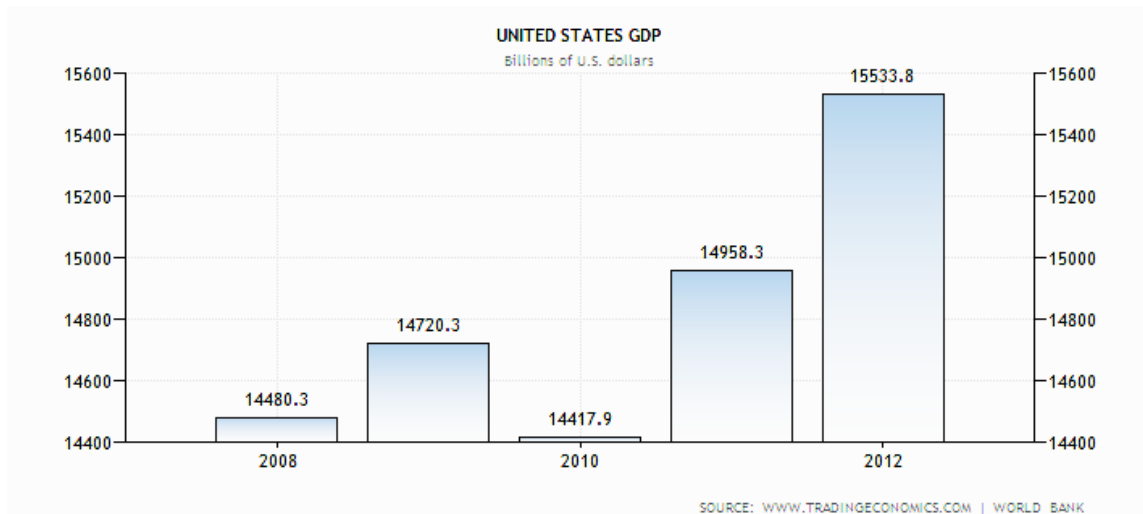
Figure 2.   United States GDP.

Community college practitioners have worried that the growth of community college enrollment would trend down. Recently, enrollment has declined due to lack of funding during an economic crisis. The changes to funding for the Pell Grant, which typically supports the middle to low income students, have created a prolific change in the country's ability to provide qualified workers in a recessive economy (Whissemore, 2012).

Recent enrollment figures from 2010 to 2012 among Mississippi community colleges show the student populations are on a steady decline (Mississippi Community College Board [MCCB], 2013). Students enrolled at branch campuses make up 44 percent of the community college population in the state as of fall 2012 (MCCB, 2013). Table 1 is a compilation of enrollment figures developed from data provided by the departments of institutional research at each respective institution. The table includes information for the branch campuses at nine different community colleges; the six other community colleges in Mississippi do not have official branch campuses. The

highlighted portions in the table indicate campuses that saw an increase in enrollment, and the non-highlighted portions indicate campuses that saw a decrease in enrollment. One of the major factors assumed to be responsible for this decline is the lack of funding and changes in federal funding eligibility for students (Katsinas et al., 2008).

Table 1

Mississippi Community College Branch Campus and Off-Campus Instructional Site Enrollment Figures for fall 2010-fall 2012

	Enrollment Analysis		
	Enrollment for three years		
	Fall 2010	**Fall 2011**	**Fall 2012**
A			
A1	951	841	816
A2	628	627	591
B			
B1	3824	3475	3277
B2	296	284	229
B3	67	42	33
C			
C1	3060	2949	3093
C2	927	1006	767
C3	2545	2580	2087
C4	964	885	908
C5	784	798	714
D			
D1	1561	1484	1444
D2	3505	3622	3641
E			
E1	2423	2180	1763

Table 1 (Continued)

	Fall 2010	Fall 2011	Fall 2012
F			
F1	3938	4378	4433
F2	345	366	421
F3	3791	3480	3498
G			
G1	226	202	220
G2	178	176	158
H			
H1	3401	3199	3175
H2	1428	1366	1287
I			
I1	1803	1700	1526
I2	220	206	181

Statement of the Problem

The decline in enrollment at Mississippi community colleges has presented a new challenge to community college administrations. Identified factors that have contributed to this decline and the information that could assist the community college system in their recruitment efforts would provide an opportunity for these administrations with the ability to recover despite the decline.

Purpose

The purpose of this research study is to determine the correlation and the effect economic factors have on Mississippi community college enrollment. Using a statistical correlation and regression on the datasets retrieved as well as a set of qualitative phone interviews, the research will determine what the effects are economic factors such as, income, unemployment and poverty have on enrollment and what enrollment tactics or

5

strategies are needed to help improve the decline in Mississippi community college enrollment.

Research Questions

The following research questions will be used in the study:

1. How do county unemployment rates correlate with and affect branch campus enrollment?

2. How does county median household income correlate with and affect branch campus enrollment?

3. How do county percentages of people below the poverty level correlate with and affect branch campus enrollment?

4. Which branch campuses have seen the most increase in enrollment during this period and what economic factors correlate with this increase?

5. What were the benchmark initiatives, marketing strategies and achieved goals in enrollment during this period?

Definition of Terms

Median household income: The median is the middle value in a group of numbers ranked in order of size (The Economist Online Newspaper, 2014). In reference to the median household income, it is the middle value of income as ranked by all household incomes in the geographic area.

Percentage below the poverty level or poverty rate: For instance, the poverty rate refers to the number of households whose income is less than three times what is needed to provide an adequate diet (The Economist Online Newspaper, 2014).

Strategic enrollment management: The quality of academic programs can only be developed and maintained in a stable enrollment environment, and stable enrollments are only possible through sound planning, development, and management of academic programs (Dolence, 1995).

Target Market: The target market is one or more specific groups of potential consumers toward which an organization directs its marketing program (Kerin, Hartley, & Rudelius, 2013, p.10). In the college environment, this primarily refers to a market identified for recruitment.

Unemployment rate: The number of people of working age without a job is usually expressed as an unemployment rate, a percentage of the workforce (The Economist Online Newspaper, 2014).

Theoretical Framework

The theory to be used in this study is the Jackson Combined Model of College Choice, which was developed by Gregory Jackson in 1982. This theory indicates there are three stages an individual experiences when choosing to go to college or not (Demetris et al., 2007). These three stages include preference, exclusion and evaluation. The theory presents the concept of preference, resulting from academic achievement, as having the highest level of influence on a secondary student's decision on whether or not to move to the post-secondary level (Demetris et al., 2007). Exclusions occur when resources are either made readily available or extended due to application and admissions procedures. This process causes the potential student to eliminate the colleges not making the resources available in the most timely and efficient manner (Demetris et al., 2007). Evaluation is the stage in which the potential student produces the rating scheme

to determine the potential colleges that have the best fit overall, due to price, academic program ranking and/or extracurricular offerings (Jackson, 1986). As applied in this study, this theory holds that the independent variables (county unemployment rates, median household income, and percentages of people below the poverty level) are expected to influence the dependent variable, enrollment, because studies have proven that certain economic factors affect enrollment positively in correlation to one another (Pennington et al., 2002).

Overview of Methodology

A cluster sampling was taken from the entire list of community college campuses (both main campus and branch campus) and instructional sites across the state of Mississippi. This cluster was comprised of the 22 Mississippi community college branch campus locations, with a small number of instructional sites, and the respective counties they service. Only branch campuses were selected for this study in order to specifically identify the relationship between the enrollment on those types of campuses and economic factors. Most main campuses' enrollments may be influenced by the number of students attracted to the campus by athletics, clubs, residential living and the social atmosphere; however, the branch campuses typically are just for instruction and learning venues. These influencers do play a role, however, in the culture created by the college as a whole and add value to the marketing and recruitment effort of the college. The independent variables will be median household income, percentage of persons below the poverty level, and unemployment rates for each respective county. The dependent variable will be the enrollment changes for each year.

Datasets were gathered in June 2014 and was requested from each community

college department of institutional effectiveness. These datasets depict the enrollment

increases/decreases from fall 2010, fall 2011 and fall 2012 as shown in Table 1. The data

for unemployment have been previously gathered during July 2014 from the U.S.

Department of Labor. The data for median household income and persons below the

poverty level were gathered from the U.S. Census bureau. A statistical regression

analysis was conducted to determine if economic factors (i.e., median household income,

percent of persons below the poverty level, and unemployment rates by county) had any

correlation or statistically significant effect to the decrease/increase in enrollment at the

respective community college.

Enrollment personnel from a sample of campuses with both increases and/or

decreases were interviewed to determine what initiatives, marketing strategies or

identifiable goals were achieved or implemented during this period. Participants were

selected by looking at campuses that had larger enrollments historically. Four campuses

participated in the qualitative portion of the research. Two of them had increases and two

of them had decreases in their enrollment during this period. The director of institutional

effectiveness for each institution was contacted and a respective member of the

administration was interviewed if not the director themselves. Participants were asked to

identify three key areas of interest: new initiatives employed, marketing strategies

developed and quantifiable goals achieved during this period. Results were analyzed to

determine benchmarks that emerged from the data.

9

Delimitations

1.   The campuses being studied are only the branch campus locations and

instructional sites with a significant amount of enrollment numbers.

2.   The period of time analyzed is only the fall semesters and only from 2010-

2012 due to ease of access to data.

Significance

It is important for research to be conducted on the local economy in order for

researchers and practitioners to identify ways that the community colleges can best serve

their communities. By looking at economic factors such as median household income,

unemployment and percentage of persons below the poverty level, one can understand if

a relationship exists between the local economy and community college enrollments.

Where this correlation exists, the community college can determine where to emphasize

its recruitment initiatives, as well as its capital improvements.

This study pinpointed economic factors affecting enrollment that may allow

recruitment officers and administrators the opportunity to identify the target markets,

strengthen on campus programs or develop other successful strategies that will stabilize

enrollment growth at the community college. Since the fall of 2012, community colleges

across the state of Mississippi have seen fluctuations in the enrollment figures at their

campuses. If economic factors such as unemployment rates, percentage of persons below

the poverty level, and median household income are analyzed, then practitioners may be

able to determine successful target markets and unsuccessful target markets as well as

implement on campus programs attracting students to the college, but not excluding any

options for open access to all that want to attend. For example if the median household

income is low, the unemployment rate is high, and the percentage of persons below the poverty level is high while enrollment is declining, then it is possible that due to changes in the Pell grant funding, this particular county and respective campus has depended on the Pell grant recipient students to support their enrollment numbers. In essence the administration would need to target non-Pell grant recipient students when the grant is funding less potential students to go to college. However, if the median household income is high, the unemployment is low, and the percentage of persons below the poverty level are low while enrollment is increasing, then it is possible that more students who can pay their own way are attending this campus. This information can be very helpful to enrollment officers at schools whose enrollment is decreasing. This could present a new benchmark strategy for practitioners to employ at all levels.

This analysis will provide administrative leadership personnel imperative information, including relevant economic factors, needed to make wise, prudent decisions for a community college's long term success. One leadership dilemma is related to a community's decrease in economic health. Reports have shown just how burdened American community colleges are by the drop in enrollment (Juszkiewicz, 2014). Since the fall of 2010, community colleges have seen an annual decrease in enrollment of 3% or higher on the national average. This statistic is only an average, where certain community colleges are seeing a greater decrease than others. This decrease, however, is a major challenge approaching every administration at the community college level across the country (Juszkiewicz, 2014). This study will focus on determining whether economic factors affect community college enrollment on branch campuses.

CHAPTER II

REVIEW OF RELATED LITERATURE

Enrollment

After a number of years of enrollment growth at the nation's community colleges,

total headcount enrollments leveled off in fall 2011 from the previous year (Phillipe &

Mullin, 2011). While the number of enrollments decreased in fall 2011 compared with

fall 2010, the number of community college students receiving Pell grants increased by

17% during the first quarter of the program, from just over 1.7 million students in the first

quarter of 2010 to approximately 20 million students in 2011. This indicates that the

slight drop in enrollments may not be due to students being in better financial conditions

(Phillipe & Mullin, 2011).

According to research conducted from the Education Policy Research Center at

the University of Alabama, there were five changes made to the Pell Grant starting the

fall 2012. These changes progressively have influenced the drop in enrollment at

community colleges in Mississippi as well as in other states (Katsinas et al., 2012).

Community college administrators need a way to analyze their environments and

discover new ways to increase and sustain positive long term enrollment growth.

Economic factors such as unemployment, percentage of persons below the poverty level,

and median household income may show some correlation with enrollment levels. It is

reported that there has been a three percent or higher decrease in community college

enrollment on the national average since the fall of 2010 (Juszkiewicz 2014). This statistic is only an average, where certain community colleges are seeing a higher decrease than others (Juszkiewicz, 2014).

The challenge for community college administrators is to achieve enrollment numbers that fund the college's strategic plans and endeavors. Recruitment and retention are predominantly the two terms used to control these numbers; however, in recent years the term strategic enrollment management has defined the scope of recruitment and retention encompassing other areas of administration such as, financial aid and admissions. Benchmark strategies for recruiting are best practices proven over time to have positively affected recruitment numbers at multiple institutions. Some of the most proven marketing tactics employed were "branding" ("Executive Summary," 2014, p. 3). Social media has also caused an enormous amount of exposure for colleges and universities and proven to be effective in reaching the recruit's personal decision making criteria for college choice ("Executive Summary," 2014, p. 3). Under the new strategic enrollment management model, colleges and universities are synergistically employing multiple departments in the process because career centers and faculty account for areas of on campus recruiting resources ("Executive Summary," 2014, p. 3).

Targeted schools and markets within schools have accounted for one of the most successful strategies employed by recruiting departments ("Executive Summary," 2014, p. 4). A target market is a defined group within a group of people by diverse similarities such as income levels and demographics. Target markets provide a cost benefit opportunity with recruitment. This is possible because recruitment resources can isolate the areas that have the bigger return on investment. Conducting historical data analysis

13

on certain groups that have shown higher enrollment numbers in that specific target

group would provide insight into which groups to target in the future. This can also help

assist recruitment officers with the opportunity to reach markets that fit this target market

not attained in the past. If other institutions offer opportunities, such as a more pleasant

campus life, closer to home commuting options and online options that are not offered at

the recruiting institution, a missed market is drifting into the future of another more

competitive institution. The biggest pressure for community colleges in terms of

enrollment is the threat of for-profit institutions and 4-year universities. The figure below

describes how these new competitors are capturing certain populations affecting

community college enrollment (Community College Executive Forum, Education

Advisory Board [EAB], 2014).

New Competitors Capture Bread and Butter Populations

Figure 3. New Competitors Capture Bread and Butter Populations (Community College Executive Forum, EAB, 2014).

The Jackson Combined Model of College Choice (Jackson, 1986) indicates there are three stages an individual experiences when choosing to go to college: preference, exclusion and evaluation. The figure below was compiled to provide a picture of this model:
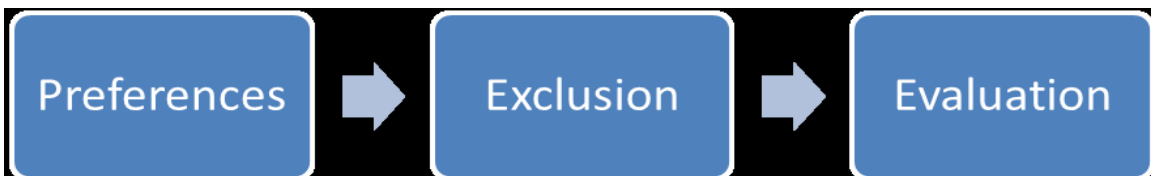
Figure 4. Adapted from the Jackson Combined Model (Walton, 2014).

Especially important to this study is the exclusion phase, during which students determine if sufficient resources are available to them so that they can attend a given college. In 1982, the study was conducted at Harvard University as a technical report in order to better define a theoretical framework by which practitioners can work from to create better ways to identify what variables or factors play role in the college choice of a high school graduate going to college (Jackson, 1986). The study compounded on past research that helped to identify 13 critical variables that affect college choice and 10 non-critical variables that affect college choice. Assessments were taken on any changes for students from 1972 to 1980 (Jackson, 1986). Income levels of the household had one of the highest effects on the choice of college by high school graduates. The higher the household income typically resulted in a higher likelihood or expectation for the graduate to attend college (Jackson, 1986). One of the adaptations of the college choice model is listed in the figure below:
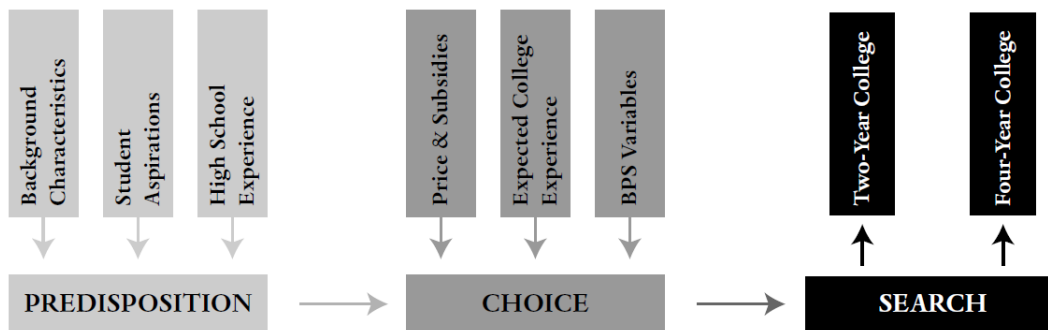
Figure 5.   Comprehensive college choice model (Stokes & Somers, 2014).

This model that uses the Jackson combined model as some of its theoretical framework defines how predisposition and choice are motivated by three factors. The statistical analysis by these two professors resulted in the findings of thirty-two variables that statistically significantly affect the choice for students to attend college (Stokes & Somers, 2014).

Benchmark strategies for recruiting helped in deriving a list of five questions to survey participating community colleges for this research with either a decrease or an increase in enrollment. The questions were derivatives from each of the following topics: campus relationships, realistic goals, carefully targeted schools, the "right" people recruited and communications about the process to enroll (Collins, 2014).

Income

GDP is important as a measure for income because it describes how the buying and selling of goods within the state are allowing income stability and growth. Mississippi's total income of $1.004 billion is nearly equal to its GDP, which was 95.47 billion dollars (*Mississippi Personal Income,* 2012).

The trend in real GDP in Mississippi is somewhat similar to what occurred for the United States. As demonstrated in Figure 3, Mississippi experienced a decrease in real GDP from 2008 to 2009 due to the economic recession. Real GDP then began to increase in 2010, experiencing a growth rate of almost 6% from 2010 to 2012 (*Mississippi GDP,* 2012*).*
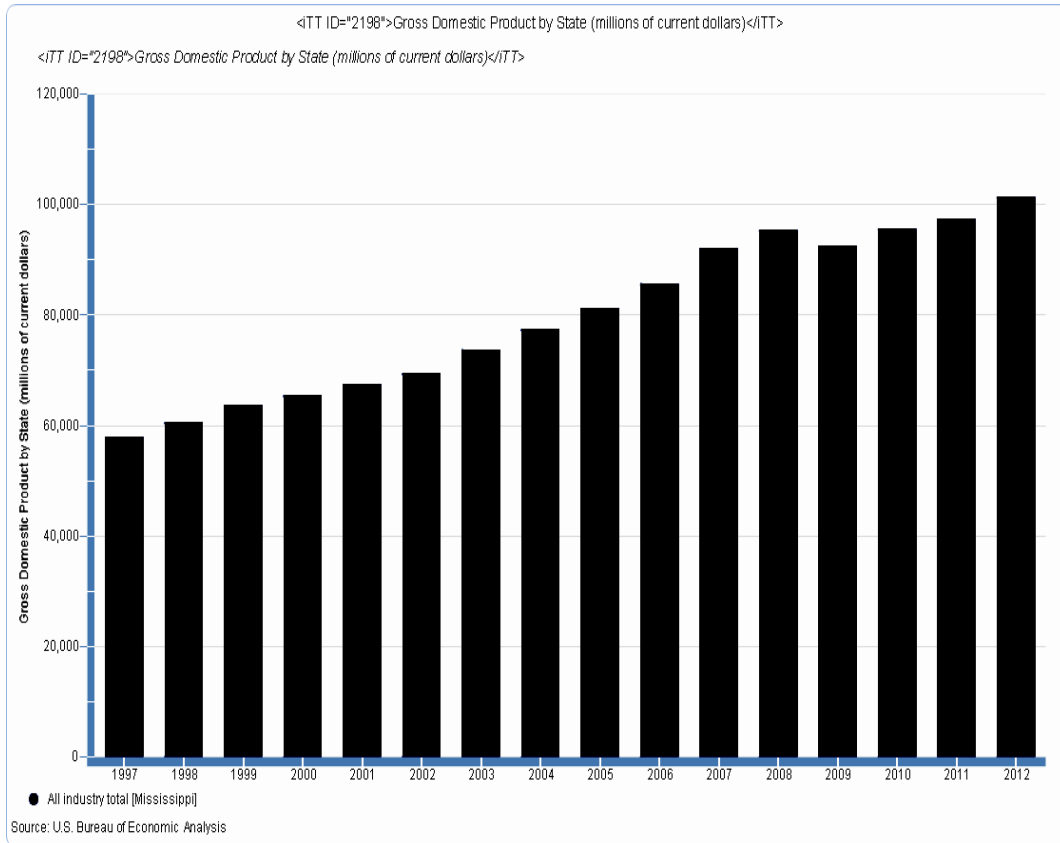
Figure 6.   Mississippi Gross Domestic Product 1997 to 2012.

Mississippi's median household income for 2013 was $38,882 (*Mississippi Median Household Income,* 2013*).* The GIS data map in Figure 4 demonstrates levels of median household income. The shaded portions reflect relatively lower areas of income and lighter areas or unshaded areas reflect a higher level of income above the median household income.

The dark shaded map reflects the areas where there is a low average median household income.

Figure 7.   Median household income. MS fall 2014 on GIS data map.

Empirical studies have been conducted to not only look at household incomes, but also household wealth, to include the equity in a house (Lovenheim, 2011). Findings have shown that an increase of equity in housing assets to a household have statistical correlation to higher achievement in schools. Higher achievement in schools has a positive statistical correlation to the high school graduate choosing to go to college. This fact provides more evidence that the higher SES household typically has a higher level of college attendance (Lovenheim, 2011).

Research was conducted in Virginia and South Carolina with a study of economic factors affecting enrollment at community colleges. This research found that there was a large effect size and a strong positive statistical correlation with income, especially in

19

South Carolina, which has similar demographic breakdowns to Mississippi (Rivers, 2010).

As indicated by the Jackson Combined Model of College Choice (Jackson, 1986), during the exclusion phase, students determine if sufficient resources are available for them to attend a given college. A study was conducted in 2012 explaining the reasons why more households are delaying the entry into college out of high school (Wells & Lynch, 2012). This study examined the roles of student planning, family income, parental education and parental occupation as factors explaining the socioeconomic gap when students decide to delay going to college. The results of the study concluded household family income impacts the resources available to students in order for them to attend college. Studies show that low socio-economic status (SES) students make up a larger percentage of the population of students who delay enrollment in higher education, and students who enroll immediately after high school graduation tend to be from families with higher SES (Wells & Lynch, 2012). Further studies from this research should indicate factors that control parental education and occupation while using income to analyze the effects on the reasons why a student would delay entry into college (Wells & Lynch, 2012).

GDP is important as a measure for income because it describes how the buying and selling of goods within the state are allowing income stability and growth. Mississippi's total income of $1.004 billion is nearly equal to its GDP, which was 95.47 billion dollars (*Mississippi Personal Income,* 2012).

Unemployment

Fluctuations in unemployment historically have demonstrated a direct correlation and a direct effect on college enrollment. A study conducted in 2013 researched the effects unemployment rate changes have specifically on the demand for community college enrollment (Hillman & Orians, 2013). The methods utilized for the research were a fixed effects panel data technique to measure the elasticity of demand. The results found that community college enrollment's demand is counter-cyclical to changes in the local unemployment rates. Basically, community college enrollment tends to raise during periods of high local unemployment rates, which also depicted weak economic conditions locally (Hillman & Orians, 2013). The statistics determined that one percentage point change in unemployment resulted in a very similar opposite percentage point in community college enrollment, while looking at a national dataset from the years 1990 to 2009 (Hillman & Orians, 2013). Further implications were discussed when metropolitan versus micropolitan areas were observed in the study (Hillman & Orians, 2013).

The unemployment rate for Mississippi was 9.2% in 2012, which was slightly higher than the unemployment rate for the United States [MS unemployment rate Local Area Unemployment Statistics (LAUS), 2012]. The unemployment rate for Mississippi was at 10.7% in 2010 and dropped over a 3-year period to 9.2%. This is an indication of how, as the unemployment rate decreases for the state, there could be some possible fluctuation in the enrollment at the community college (MS unemployment rate LAUS, 2012).
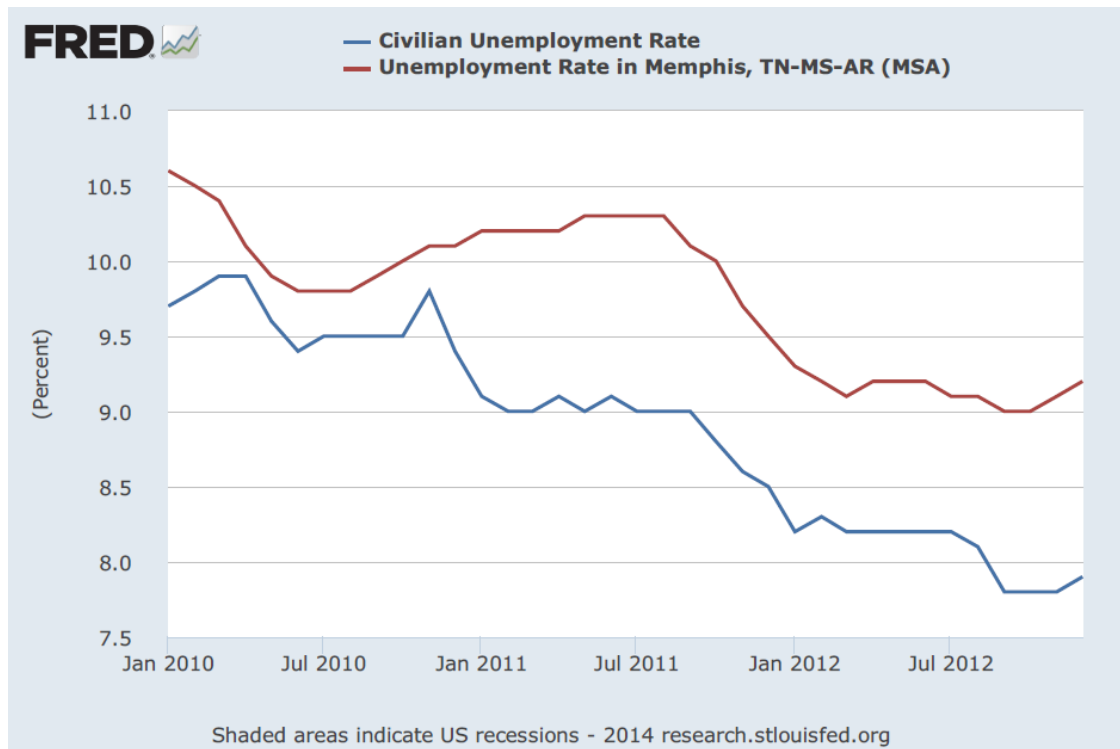
Figure 8.   MS unemployment rate 2010 to 2012.

As highlighted earlier in the income section a study was conducted in Virginia and South Carolina similar to this study determining the effects economic factors have on enrollment. Unemployment, however, did not give a strong positive or strong negative correlation at all for these states. Unemployment rates were not statistically significant to determine any effect these conditions had on enrollment looking at the period 2001-2008 (Rivers, 2010). In agreement with this analysis was a study conducted by Carl Sundberg College, Illinios in 1998. This study researched over a 20-year period the effects unemployment rate changes had on the enrollment of the college. The methods used were Pearson's correlation coefficient to determine either a strong or weak positive/negative relationship between enrollment and unemployment rate changes. The

results found that there was no correlation or statistical significance between college enrollment and low unemployment. Further implications determined that studies needed to prove whether certain academic or vocational programs within the college benefit from this economic condition or not (Sundberg, 1998).

Poverty

The statistics highlight that community colleges face a real challenge considering the poverty rate of the country compared to the state: 29% of students nationwide have household incomes below $20,000, 79% work full or part time in addition to taking classes, and 35 percent are parents or have dependents (17% are single parents), according the National Center for Education Statistics (Gonzalez, 2011). Mississippi has 22.3% of its population below the poverty level for 2013, which is equal to 667, 039 for 2013 (MS percentage of persons below the poverty level, 2013).

High poverty levels have a positive correlation to academic achievement (Martorell et al., 2011). This study was to determine the effects that failing placement test scores to assess remediation levels when enrolling in college have on college enrollment (Martorell et al., 2011). The methods utilized administrative data from Texas schools and employed a regression discontinuity method in order to assess the different effects on enrollment due to placement testing. The results showed that enrollment was not affected by the placement testing conducted, however, some subgroups, especially economically disadvantaged populations were indicative of a higher likelihood to be discouraged from going to college due to remediation (Martorell et al., 2011). Developmental education, also known as remedial education, has been a part of the community college's mission since the 1970's (Cohen & Brawer, 2008). Placement

exams have been put in place to determine the incoming student's academic level when entry exams such as American College Test (ACT) do not exist. Failing a placement exam can sometimes be not only a deterrent to a student further pursuing entry into the college, but can also be a precursor to a student deciding not to enroll in the first place (Martorell et al., 2011).

A study was conducted to determine the effect of a community college promise scholarship offered in 2008 on enrollment and access (Pluntha & Penny, 2013). The purpose of the study was to demonstrate how a free scholarship would impact the decision for low income students to attend college, place in their field of study and the ability to stay past the first year of college (Pluntha & Penny, 2013). The method used was a mixed methods case study design, where a local high school with predominantly African-American and low income households were attending. A full paid scholarship was offered to go to college upon graduation. The results found that a good majority of the graduates applied and entered college; however, a large number of the students, especially low achievers required remediation in order to stay enrolled. Although the findings support the promise scholarship programs proves to assist the underrepresented groups, further implications of the study determined that social support services and academic remediation would need to be provided for these students to succeed and graduate (Pluntha & Penny, 2013). This study further defines the challenges faced by community colleges to service poverty stricken areas of the country. This in turn provides insight into the correlation and the effect poverty has on enrollment at community colleges.

CHAPTER III

METHODS

Design

This research study used a mixed methods research model consisting of a quantitative and qualitative portion of research. The quantitative portion was a cross-section, correlational research method. A cluster sampling was taken from the list of community college campuses and instructional sites across the state of Mississippi. This cluster was comprised of the 22 branch campus locations and the respective counties they serve. The independent variables utilized were median household income, percent of persons below the poverty level and unemployment rates for each respective county. The dependent variable was the percentage changes for each year in enrollment. The qualitative portion followed the quantitative with interviews of selected enrollment personnel at a sample of six campuses. This research identifies any initiatives, marketing strategies or goals achieved during this period.

Research Questions

1. How do county unemployment rates correlate with and affect branch campus enrollment?

2. How does county median household income correlate with and affect branch campus enrollment?

3.   How do county percentages of people below the poverty level correlate

with and affect branch campus enrollment?

4.   Which branch campuses have seen the most increase in enrollment during

this period and what economic factors correlate with this increase?

5.   What were the benchmark initiatives, marketing strategies and achieved

goals in enrollment during this period?

Research Sites

The locations where the data was gathered were based on the Southern

Association of Colleges and Schools (SACS) defined term of a branch campus in

Mississippi. Twenty-two locations were selected in the study. These locations and their

respective counties comprised the geographic areas being researched. Interview

participants were selected from these branch campus locations and their respective

enrollment divisions.

Participants

The phone interviews resulted in four participants from community colleges

whose campuses were similar in size. These individuals were selected enrollment

personnel or institutional effectiveness research personnel designated by the director of

institutional effectiveness at each respective college.

Materials

Data have been gathered from each department of institutional effectiveness.

These data depict the enrollment increases/decreases from fall 2010, fall 2011 and fall

2012. Also, data maps from the Environmental Systems Research Institute (ESRI) with

26

their Geographic Information Systems (GIS) online website were employed to depict the picture of economic factors in a geographic region. The U.S. Census Bureau, U.S. Department of Labor and Statistics and the U.S. Bureau of Economic Analysis provided the necessary resources to pull all data for the economic factors within the period being studied. The interview questions were paraphrased and made relative to the community colleges within Mississippi (Collins, 2014). The interview questions are listed below:

1. What campus relationships were built, developed, managed and maintained during this period?

2. What goals were set during this period, and did they seem realistic?

3. Did the college enrollment department choose your target high schools carefully?

4. Do you feel the recruitment sent the right people to the campus?

5. Did the enrollment department communicate with the students about the enrollment process?

Procedures for Data Collection

Each set of data highlighting campus enrollments was collected via request through the MCCB and the respective community college's department of institutional effectiveness. An informed consent form was approved through the Mississippi State University's (MSU) Institutional Review Board (IRB) department for the interviewee. The original IRB application included a face to face interview, however, due to timing constraints the IRB office approved a procedural modification for the interviews to be conducted via the telephone. The data gathered for unemployment rates were taken from the U.S. Department of Labor and Statistics website that generates a historical graph via

pdf format allowing the researcher the ability to see unemployment rates at certain periods of time. The data gathered for median household income and percentage of persons below the poverty level were retrieved from the U.S. Census bureau's website. Interviews were conducted with enrollment personnel at the community colleges or designated personnel by the departments of institutional effectiveness. These interviews only included six selected institutions with four participating. The information from these interviews were compiled and ranked by consistency and uniqueness.

Procedures for Data Analysis

Pearson's coefficient of correlation and a linear regression for each independent variable and its effect on the dependent variable was conducted to highlight how they are related. The statistics also included one line graph demonstrating the effect each independent variable had on the dependent variable as well as a scatterplot that showed the linear nature of the dataset. For example, the percentage of persons below the poverty level was compared to the changes in enrollment for county and respective branch campus to determine how closely enrollment correlated to the economic factor. After the correlation was conducted comparing each economic factor to enrollments during this period, the tables were filtered to depict the colleges with higher enrollment.

Phone interviews were conducted with four participating colleges. The questions for the interviews allowed the researcher to gather qualitative information for closely connected words, phrases or strategies that provided ideas for more effective ways to improve enrollment during a decline. A chart was created with these words and phrases used during the interviews. They each were ranked into which ones were most relevant to improve strategic enrollment management at other institutions.

28

CHAPTER IV

RESULTS

This research study used a mixed methods research. Table 1, which provides the

enrollment for each college from 2010 to 2012 within the fall semester, was utilized to

define the correlation and estimated regression quantitatively between economic factors

within the local county that feeds its respective branch campus.

In Table 1 the grey highlighted rows depicted the campuses that saw increases

during the period 2010 to 2012. Below demonstrates by county with its respective college

campus it feeds, the average median household income, percentage below the poverty

level and the unemployment rate for each year analyzed by college.

Table 2

Mississippi County Listing (economic factors for fall 2010-fall 2012)

College	County	2012 Avg. Median Income	2012 % below poverty level	Unemploy % Fall 2010	Unemploy % Fall 2011	Unemploy % Fall 2012
A	Alpha	$27,486	28.60%	10.50%	9.90%	10.75%
A	Uniform	$37,977	22.30%	10%	9.70%	9.10%
B	Delta	$31,228	24.30%	18.80%	17.50%	20.10%
B	Oscar	$37,508	25.70%	12.25%	10.50%	11.35%
B	Romeo	$35,340	20.90%	13.40%	11.80%	14.30%
B	Sierra	$29,430	34.20%	13%	10.90%	10.90%
C	Charlie	$24,078	35.80%	16%	12.70%	18%
C	Kilo	$38,152	24.20%	9.75%	9.00%	9.50%
C	Tengo	$57,593	11.40%	7.10%	6.40%	6.40%
C	Victor	$40,876	23.00%	11.30%	10.60%	11.60%
D	Hotel	$35,912	22.40%	12.35%	10.55%	11.35%
D	Papa	$60,195	13.60%	7.70%	7.00%	7.40%
E	November	$41,242	18.30%	10.55%	9.50%	9.80%
F	Golf	$46,263	17.60%	13.35%	11.80%	11.15%
F	Juliet	$43,593	18.20%	9.75%	9.50%	9.45%
F	Lima	$49,750	15.40%	11.25%	10.80%	11.20%
G	Beta	$32,846	19.40%	12.90%	10.50%	9.75%
H	Echo	$58,851	10.20%	7.70%	7.10%	6.70%
H	Mike	$42,688	23.50%	10.70%	9.30%	8.80%
H	X-ray	$32,343	19.80%	12.70%	11%	11.60%
I	Foxtrot	$35,459	27.50%	10.70%	9.85%	9.75%
I	India	$43,727	19.70%	10.20%	9.50%	7.20%

This research study used a mixed methods research model consisting of a quantitative and qualitative portion of research. The quantitative portion was a cross-section, correlational research method. A cluster sampling was taken from the list of community college campuses and instructional sites across the state of Mississippi. This cluster was comprised of the 22 branch campus locations and the respective counties they

serve. The independent variables utilized were median household income, percentage of

persons below the poverty level and unemployment rates for each respective county. The

dependent variable was the change for each year in enrollment. The qualitative portion

followed the quantitative with interviews of selected enrollment personnel at a sample of

six campuses. This research identified any initiatives, marketing strategies or goals

achieved during this period.

Question 1

The first research question that the study was to define is "how do county

unemployment rates correlate with and affect branch campus enrollment?" The table

below filtered the counties based on fall 2012's unemployment rates which counties had

the highest unemployment rates. The grey highlighted counties are mostly in the lower

half of the ranking; this provides a picture of evidence that the lower the unemployment

rates could have a positive impact on enrollment which is also reflected in the national

studies. This table alone does not provide a statistically proven model on which to base

the answer to this question.

Table 3

Mississippi County Listing (Ranked on Unemployment % based on fall 2012 – lowest to highest)

College	County	Unemploy % Fall 2010	Unemploy % Fall 2011	Unemploy % Fall 2012
C1	Tengo	7.10%	6.40%	6.40%
H1	Echo	7.70%	7.10%	6.70%
I2	India	10.20%	9.50%	7.20%
D2	Papa	7.70%	7.00%	7.40%
H2	Mike	10.70%	9.30%	8.80%
A2	Uniform	10%	9.70%	9.10%
F1	Juliet	9.75%	9.50%	9.45%
C3	Kilo	9.75%	9.00%	9.50%
G1	Beta	12.90%	10.50%	9.75%
I1	Foxtrot	10.70%	9.85%	9.75%
E1	November	10.55%	9.50%	9.80%
A1	Alpha	10.50%	9.90%	10.75%
B1	Sierra	13%	10.90%	10.90%
F2	Golf	13.35%	11.80%	11.15%
F3	Lima	11.25%	10.80%	11.20%
B1	Oscar	12.25%	10.50%	11.35%
D1	Hotel	12.35%	10.55%	11.35%
C5	Victor	11.30%	10.60%	11.60%
H2	X-ray	12.70%	11%	11.60%
B1	Romeo	13.40%	11.80%	14.30%
C2	Charlie	16%	12.70%	18%
B1	Delta	18.80%	17.50%	20.10%

In order to determine the correlation and the effect each economic factor had on enrollment, each statistic where there was an increase was coded with a "1" and each statistic with a decrease was coded with a "0". This measure simply allowed the researcher the ability to assess whether the economic factor caused an increase or

decrease in enrollment or to see the correlation. The study did not intend to pinpoint the exact effect statistically the treatment had on the dependent variable.

A Pearson's r correlation was computed to assess the relationship between unemployment and community college enrollment. There was a weak negative correlation between the two variables, $r = -.233$, $n = 22$, $p = .296$.

After the correlation was defined by the Pearson's R correlation, a linear regression was calculated to test how statistically significant the effect unemployment had on enrollment. The results demonstrated that there was not a statistically significant effect unemployment had on enrollment during this period at the $p < .05$ level where (F [1, 20] = 1.153), $p = .296$. Although unemployment for this period could not explain much of the change in enrollment, the statistics did however, demonstrate the relationship is helpful to research other economic factors for relationships causing change in enrollment. Figure 9 below shows just how much unemployment affected increases in the enrollment for this period.
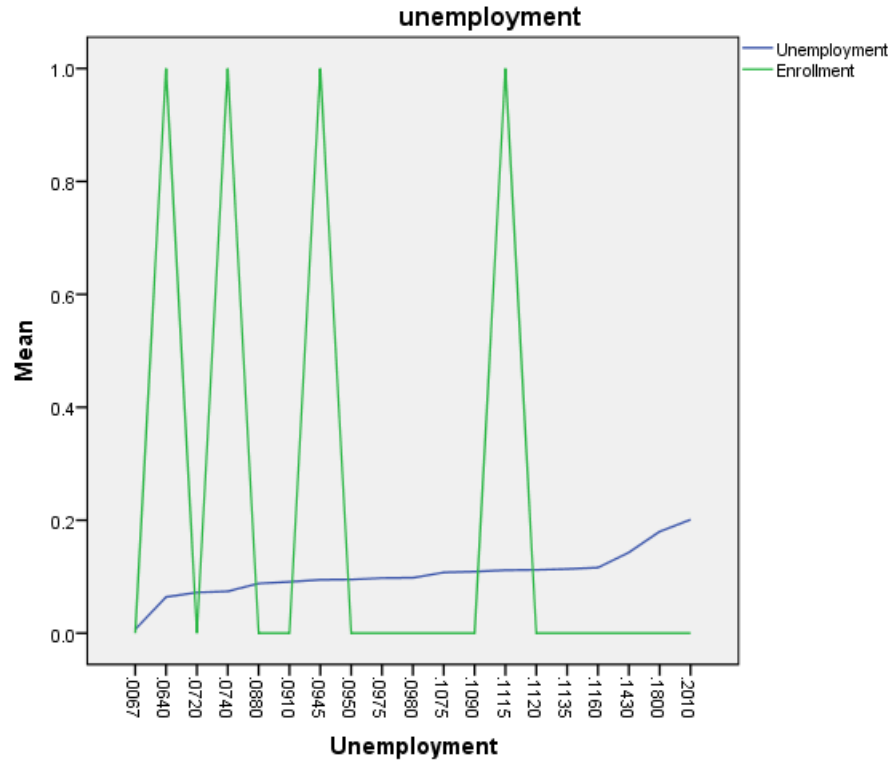
Figure 9.   Regression line graph showing unemployment's effect on enrollment in a linear format.

Another graph utilized during the regression analysis was the normal P-P Plot of regression standardized residual. This scatter plot also demonstrates the relationship between the variables. The lower the unemployment rates the higher the enrollment.
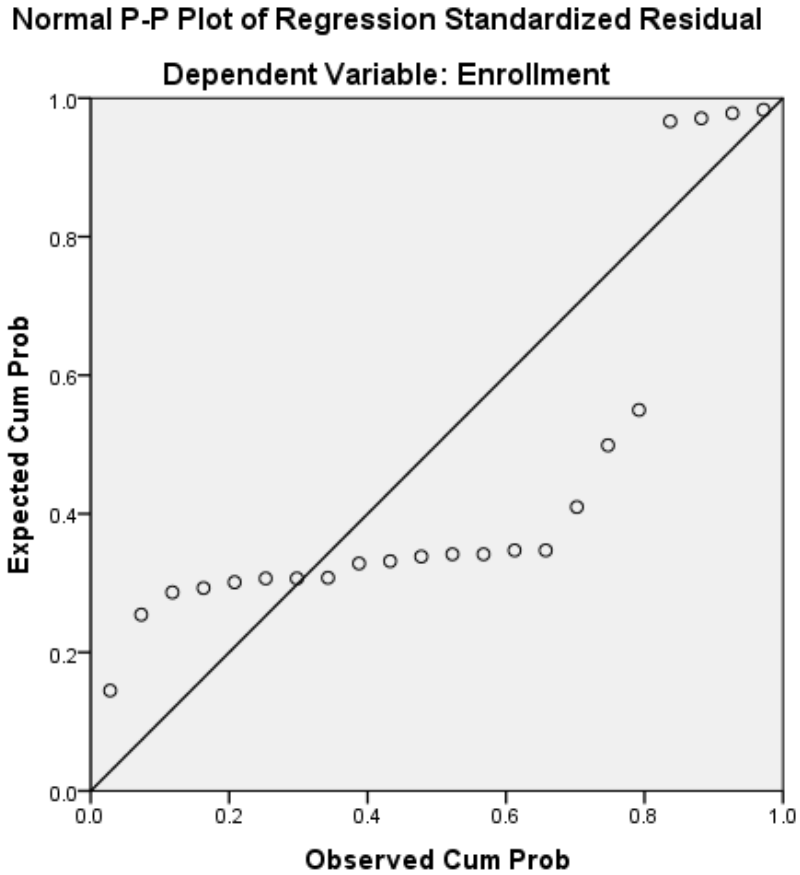
Figure 10. Normal P-P Plot of Regression Standardized Residual unemployment vs. enrollment.

Question 2

The second research question that the study was to define is "how does county median household income correlate with and affect branch campus enrollment?" The table below filtered the counties based on fall 2012's median household income. As you begin to see the grey highlighted counties depict the higher income levels, this provides a picture of evidence that the higher median household income could have a positive impact on enrollment.

Table 4

Mississippi County Listing (Average Median Household Income)

College	County	2012 Avg. Median Income
A1	Alpha	$27,486
A2	Uniform	$37,977
B1	Delta	$31,228
B1	Oscar	$37,508
B1	Romeo	$35,340
B1	Sierra	$29,430
C2	Charlie	$24,078
C3	Kilo	$38,152
C1	Tengo	$57,593
C5	Victor	$40,876
D1	Hotel	$35,912
D2	Papa	$60,195
E1	November	$41,242
F2	Golf	$46,263
F1	Juliet	$43,593
F3	Lima	$49,750
G1	Beta	$32,846
H1	Echo	$58,851
H2	Mike	$42,688
H2	X-ray	$32,343
I1	Foxtrot	$35,459
I2	India	$43,727

In order to determine the correlation and the effect median household income had on enrollment, where there was an increase in enrollment the datum was coded with a "1" and each datum with a decrease was coded with a "0". This measure simply allowed the researcher the ability to assess whether the economic factor caused an increase or decrease in enrollment or to see the correlation.

A Pearson's r correlation was computed to assess the relationship between median household income and community college enrollment. There was a strong positive correlation between the two variables, $r = .580$, $n = 22$, $p = .005$.

After the correlation was defined by the Pearson's r correlation, a linear regression was calculated to test how statistically significant the effect median household income has on enrollment. The results demonstrated that there was a statistically significant effect median household income had on enrollment during this period at the $p < .05$ level where ($F [1, 22] = 10.121$), $p = .005$. Median household income can explain nearly 1/3 of the effect it has on enrollment with $r^2 = .336$. The graph below shows positive effect median household income has on increases in the enrollment for this period.
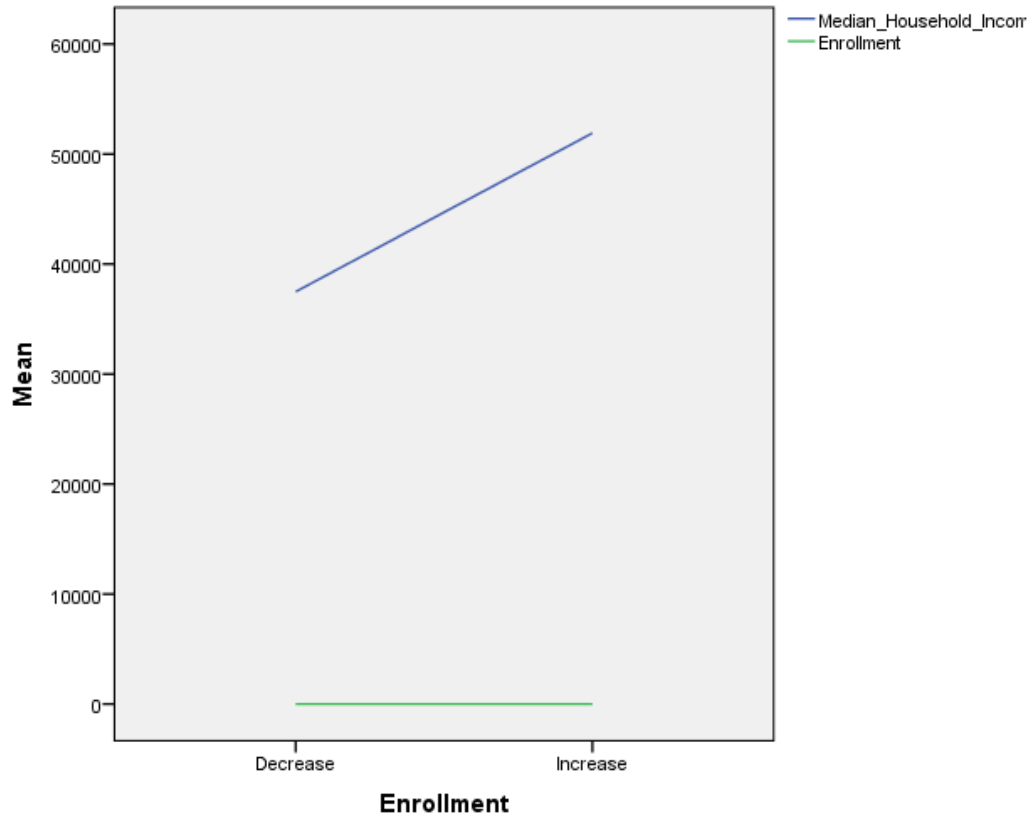
Figure 11.   Line graph depicting the linear effect median household income has on enrollment.

The normal P-P Plot of regression standardized residual is used on this analysis as well. This scatter plot also demonstrates the relationship between the variables. The higher the median household income is, the higher the enrollment.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Enrollment
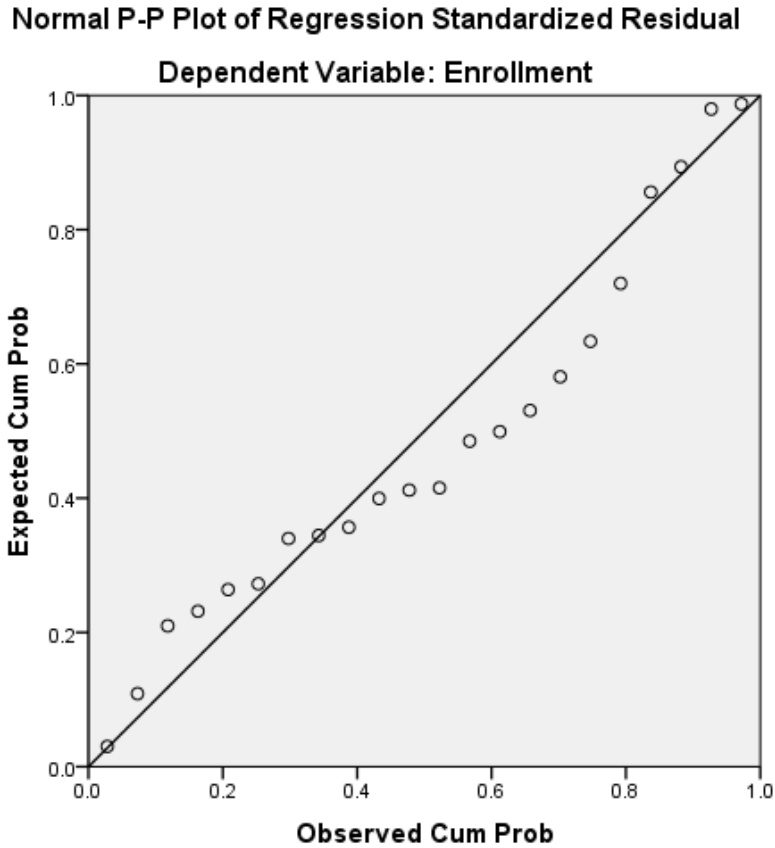
Figure 12.   Normal P-P Plot Regression Standardized Residual for median household income vs. enrollment

Question 3

The third research question that the study was to define is "how do county percentages below the poverty level correlate with and affect branch campus enrollment?" The table below filtered the counties based on fall 2012's percentage below the poverty level. The grey highlighted counties depict the increases in enrollment for the period. This provides a picture of evidence that the lower percentage below the poverty level could have a positive impact on enrollment.

Table 5

Mississippi County Listing (Persons below the Poverty level)

College	County	2012 % below poverty level
A1	Alpha	28.60%
A2	Uniform	22.30%
B1	Delta	24.30%
B1	Oscar	25.70%
B1	Romeo	20.90%
B1	Sierra	34.20%
C2	Charlie	35.80%
C3	Kilo	24.20%
C1	Tengo	11.40%
C5	Victor	23.00%
D1	Hotel	22.40%
D2	Papa	13.60%
E1	November	18.30%
F2	Golf	17.60%
F1	Juliet	18.20%
F3	Lima	15.40%
G1	Beta	19.40%
H1	Echo	10.20%
H2	Mike	23.50%
H2	X-ray	19.80%
I1	Foxtrot	27.50%
I2	India	19.70%

In order to determine the correlation and the effect persons below the poverty level had on enrollment, where there was an increase in enrollment the datum was coded with a "1" and each datum with a decrease was coded with a "0". This measure simply allowed the researcher the ability to assess whether the economic factor caused an increase or decrease in enrollment or to see the correlation.

A Pearson's r correlation was computed to assess the relationship between persons below the poverty level and community college enrollment. There was a strong negative correlation between the two variables, $r = -.483$, $n = 22$, $p = .011$.

After the correlation was defined by the Pearson's r correlation, a linear regression was calculated to test how statistically significant the effect persons below the poverty level has on enrollment. The results demonstrated that there was a statistically significant effect persons below the poverty level had on enrollment during this period at the $p < .05$ level where ($F [1, 20] = 6.079$), $p = .023$. Persons below the poverty level can explain nearly 1/4 of the effect it has on enrollment with $r^2 = .233$. The graph below shows the negative effect persons below the poverty level has on increases in the enrollment for this period.
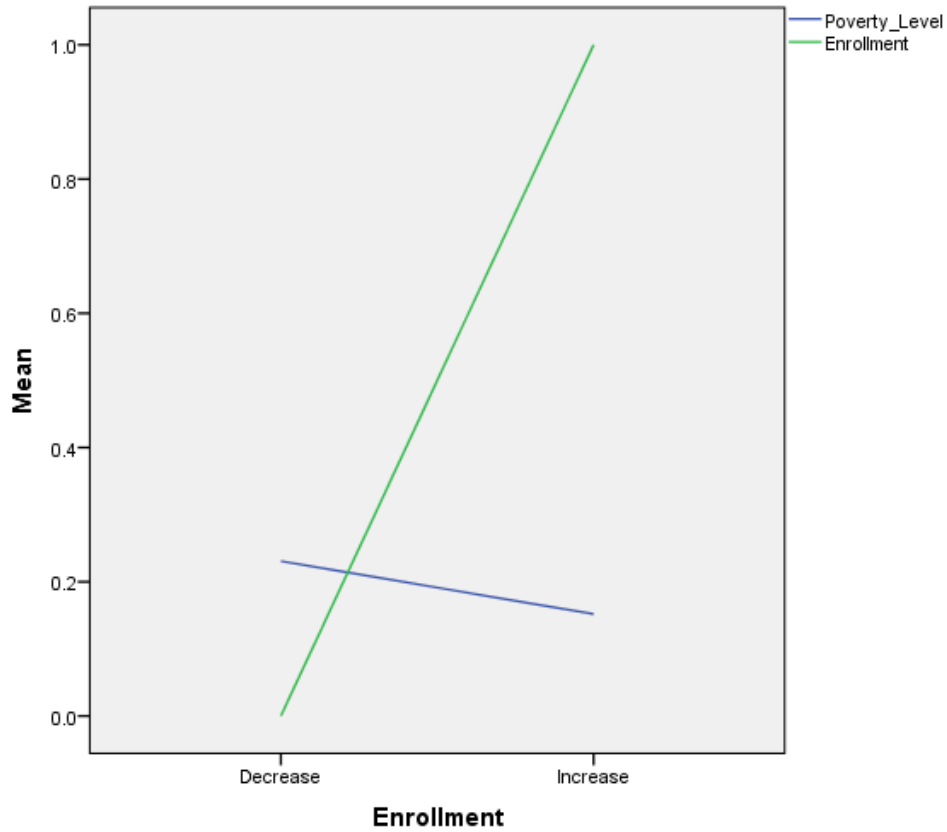
Figure 13. Line graph output for percentage below the poverty level vs. enrollment.

The normal P-P Plot of regression standardized residual is used on this analysis as well. This scatter plot also demonstrates the relationship between the variables. The higher the poverty level is, the lower the enrollment.

Normal P-P Plot of Regression Standardized Residual

Dependent Variable: Enrollment
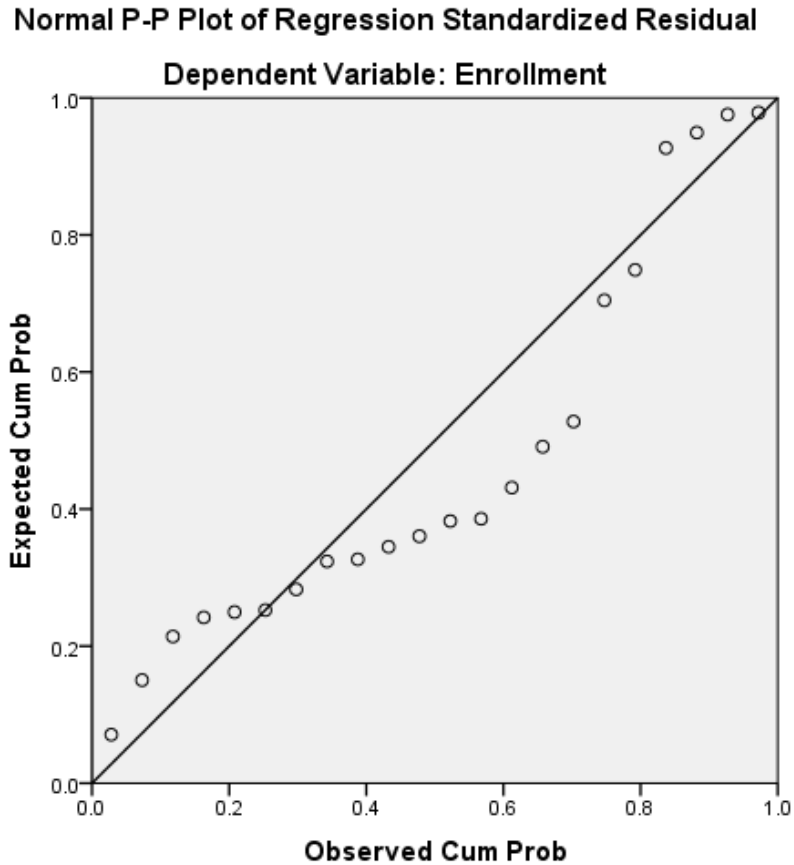
Figure 14. Normal P-Plot of Regression Standardized Residual percentage of persons below the poverty level vs. enrollment.

Question 4

The fourth question asked "which branch campuses have seen the most increase in enrollment during this period and what economic factors correlate with this increase?" We have answered this question for the most part by simply seeing the effects of each economic factor on enrollment for this period. Obviously the level of income on households within the district has the strongest correlation. Juliet, Golf, Papa and Tengo

counties saw the most increase which puts F1, F2, C1 and D2 at the top for increases in enrollment during this period according to Table 1.

Question 5

The last question asked "what were the benchmark initiatives, marketing strategies and achieved goals in enrollment during this period?" This question was answered in a qualitative researched manner. A smaller sampling of the community college campuses were taken for this part of the study. Three campuses that saw an increase and three campuses that saw a decrease were chosen based on their respective sizes and were used to conduct a short three to four question phone interview with enrollment or institutional research personnel most knowledgeable on enrollment during this period. Only four campuses were able to be contacted during the research period. Surprisingly, two campuses saw decreases and two campuses saw increases. All four campuses were close in size, respectively, which provided an idea of enrollment trends for this period. The interview questions were taken from a best practices recruiting strategy matrix and made relative to the community colleges within Mississippi (Collins, 2014). The interview questions are listed below:

1. What campus relationships were built, developed, managed and maintained during this period?

2. What goals were set during this period, and did they seem realistic?

3. Did the college enrollment department choose your target high schools carefully?

4. Do you feel the recruitment sent the right people to the campus?

5.   Did the enrollment department communicate with the students about the

        enrollment process?

Each of these questions was organized so that following the interviews, key words and phrases could be displayed and interpreted easily. The grey highlighted cells depict responses from colleges that saw increases. The table below shows the results from the qualitative interviews:

Improving retention efforts prior to the declining enrollment period proved to have the greatest success among campuses that saw an increase. The goal setting agendas for recruitment were not as much of a priority for campuses with increases as well as issues of determining target markets. Also the establishment of a pure recruiting department whose sole responsibility was to recruit prior to the declining period produced the best results. Surprisingly, the responses from campuses that saw a decrease repetitively at both campuses denoted no real setup of a recruitment department with initiatives for the entire district.

Table 6

Interviewed words and phrases.

Q1	Q2	Q3	Q4	Q5
Strengthen interdepartmental communication	all campuses had target goals	No target enrollment goals noted due to open enrollment	open enrollment causes there to be no discrimination	schools with decreases had no established enrollment department or lacked enrollment officers for the period prior to this one
synergistic strategies focused on retention	Not all goals were achieved	schools with decrease did not have any target goals set for this prior to this period		of schools with increases enrollment departments were networked with all organizations on the campus causing synergy internally
All new hires trained to provide better internal networking				
No retention effort established by schools with decrease enrollment				

CHAPTER V

SUMMARY, CONCLUSION AND RECOMMENDATIONS FOR

FUTURE RESEARCH

Introduction

Looking at a summary of the study, the conclusions derived and recommendations

for future research is the purpose of this chapter. For each research question, this

summary provides a purpose for each question the study intended to answer and the way

the results met these intentions. A conclusion is provided at the end of each research

question. The final summation looks at the advantages of future research in this area.

The following research questions were analyzed:

1. How do county unemployment rates correlate with and affect branch

    campus enrollment?

2. How does county median household income correlate with and affect

    branch campus enrollment?

3. How do county percentages of people below the poverty level correlate

    with and affect branch campus enrollment?

4. Which branch campuses have seen the most increase in enrollment during

    this period and what economic factors correlate with this increase?

5. What were the benchmark initiatives, marketing strategies and achieved

    goals in enrollment during this period?

Summary of the Findings and Conclusions

Below is a list of the summations and conclusions based on the results of the study where economic factors affect community college enrollment:

Question 1: How do county unemployment rates correlate with and affect branch campus enrollment?

The unemployment rates at the county had a very negligent effect on enrollment for these community colleges in Mississippi for this period of fall 2011 to fall 2012. The correlation demonstrated a weak and negative correlation. The statistics at the national level also depicted the picture that unemployment rates had the least effect on enrollment for community colleges for this period compared to income and poverty levels. Even though statistically unemployment had a weak correlation with no statistical significance, community colleges such as B college were affected greatly by the measure of unemployment. This college's campuses had one of the largest percentages of decrease in enrollment over the period and the four counties in the district feeding these counties had some of the highest unemployment rates with Delta County having the highest unemployment rate in the state for 2012. The county with the least effect from unemployment which still saw a decrease in its respective community college's enrollment was Echo County. The unemployment rate was the 2nd lowest rate in the counties surveyed with 6.7% unemployed and only a 6.4% decrease in enrollment. Both B1 and H1 campuses are very similar in their capacity to service 3,000+ students. However, the ability to keep this capacity maintained is a larger challenge for B1 campus due to the changes in unemployment for the counties they service.

Conclusion #1: Unemployment has a weak and negative correlation with community college enrollment with no real statistical significance; however, some colleges see bigger effects from enrollment than the effects of income and poverty level.

Question 2: How does county median household income correlate with and affect branch campus enrollment?

According to the regression model and Pearson's correlation coefficient, median household income had the most effect on enrollment for the selected community colleges and the counties they service. Median household income displayed a very positive correlation with enrollment meaning that the higher the enrollment increase or the least amount of decrease was found where median household income was higher. Also, where median household income was lower there was a higher likelihood the community college enrollment saw a decrease. The regression model demonstrated that median household income had a moderate effect on enrollment and the model proved to be statistically significant. Income also proved to be the highest economic factor attributing to increases in enrollment in community colleges at the national level.

Obviously, B1 campus had the greatest challenge during this time with both Delta and Sierra counties ranked in the bottom five counties for median household income while also having the highest percentage of decrease in enrollment for this period. H1 campus also had the second highest median household income but still saw a small percentage of decrease. This was a very surprising statistic and causes the college to have to assess other factors relating to its decrease.

Conclusion #2: Median household income proves to have the most effect on enrollment at community colleges in Mississippi and the national level. Its correlation is

49

strong and positive making it a good predictor for enrollment changes at the community college level.

Question 3: How do county percentages of people below the poverty level correlate with and affect branch campus enrollment?

Percentage of people below the poverty level and enrollment had a statistical correlation using Pearson's correlation coefficient that was negative and strong. This means that the higher the percentage of people below the poverty level more likely resulted in a decrease in enrollment. It also means the opposite effect had a higher likelihood where the lower the percentage below the poverty level resulted in a higher likelihood of an increase in enrollment. There were some examples that stood out for example, H1 campus had the lowest percentage of people below the poverty level, but still resulted in a small percentage of decrease in enrollment for this period. A1 campus had the third highest level of persons below the poverty level for Alpha County but saw a very small decrease in enrollment. The regression model proved statistically significant and demonstrated that poverty had the more moderate ability to explain changes in enrollment for community colleges.

Conclusion #3: Percentage below the poverty level can be used as a good factor that moderately determines whether a community college's enrollment will experience an increase or decrease.

Question 4: Which branch campuses have seen the most increase in enrollment during this period and what economic factors correlate with this increase?

From Fall 2010 to Fall 2012, F college was the only community college as a whole that saw a total aggregate increase during this period. However, 4 of the 22

campuses surveyed saw an increase. Still the F1 campus had the greatest percentage of increase of all branch campuses and instructional sites surveyed. D2 campus saw the second highest increase in enrollment. The third highest campus enrollment for the larger branch campuses was C1. F2 campus saw the fourth highest increase in enrollment but was also one of the smaller campuses surveyed. In terms of economic factors playing a role in the increase for these campuses, these four campuses ranked higher in having the lowest percentage of people below the poverty level. The F3 campus and H1 campus were the only other counties that demonstrated lower percentages below the poverty level. The second highest factor was median household income because each of these campuses ranked in the top six campuses for high median household income within the counties they service. I2 campus, F3 campus and H1 campus were the only campuses with comparable median household incomes. Unemployment rates had the least effect as denoted earlier, however all four campuses that saw an increase in enrollment were ranked in the top 50 % of low unemployment rates for the counties they service. C1 campus saw the third largest increase but had the lowest unemployment of the counties surveyed.

Conclusion #4: The lower the percentage below the poverty level, the higher median household income and lower unemployment rates will provide a higher likelihood of a community college to see an increase in enrollment.

Question 5: What were the benchmark initiatives, marketing strategies and achieved goals in enrollment during this period?

The qualitative portion of the study provided the answer to this question. Six community colleges were contacted to participate in a phone interview. Four of the

community colleges were able to participate. Surprisingly, two colleges had seen an increase and two had seen a decrease. All four college campuses were comparable in size and gave a very holistic view into the challenges each campus has faced during this period. Retention was the prevailing success point that was gathered from the interviews. More successful initiatives were denoted by attempting to establish programs that retained students than better recruitment strategies. The campuses that saw increases demonstrated the implementation of better honors programs and social networks connecting students to more faculty and administration. The overarching premise for campuses that saw an increase and participated in the interview were two to three years of equipping faculty and staff about the fact that at some point the increase in enrollment would soon drop off. The two campuses that saw an increase commented about how much each department worked with one another to create more synergistic efforts toward retaining the students brought on board by the recession and continuing to recruit with effective targeted cohorts each year following the recession. The campuses that participated in the survey that saw a decrease demonstrated the lack of preparation prior to this period as well as a much unorganized recruitment department. One campus highlights the fact that certain portions of the district were not even being recruited properly during the period prior to the decline in enrollment.

Conclusion #5: In order to sustain productivity for community college campuses during a decline, the campus has to have future plans for cohesive retention efforts inter-departmentally years in advance before the declining period.

Implications for Practice

The current study can serve as a model for community college and university departments of institutional effectiveness. This information should allow each community college to expound on the statistics and look into targeted demographics or income levels within their district and create the marketing initiatives that allow them to service each area of the district effectively. This study could allow the colleges to equip each new recruit with a better idea of what program they are best suited to participate in rather than lofty goals and wish lists outside of their educational attainment. The ideas for retention strategies and more cohesive interdepartmental relationships should spawn certain community colleges to encourage their faculty and staff administrations to seek these types of relationships if not already being employed. Finally, every community college would benefit having as a part of their five year strategic plan a focus toward the potential of declines in enrollment and the preventative measures necessary to accomplish success at all levels.

Limitations of the Study

After conducting the research, limitations became obvious. The number of selected colleges to interview and survey were too small. This caused there to only be a few colleges to respond to the interviews. The datasets gathered needed to look at five years holistically; also covering 2009 and 2013 in order to give a better picture of the increase in enrollment prior to the surveyed period and one year after the period where some colleges began to see an increase. The economic data used for the quantitative data only analyzed the year 2012 and no other consecutive periods.

Recommendations

The future research relating to the effects and correlation of economic factors on enrollment would be most helpful for every community college by conducting a county profile of the counties in their district. After looking at their county profiles, a simple assessment of programs the college offers and determining which programs best fit the target markets within the district. After this assessment, a diligent attempt to develop marketing strategies that might reach these markets within their district could prove beneficial. The marketing strategies needed to be employed to markets where decreases in enrollment are likely could prove to provide a success point regardless of the economic factors that normalize a decline in enrollment. The Mississippi Community College System would also benefit from a list of benchmark retention efforts by different administrations and departments at any community college within the state over its history. The System would also benefit from a retention study of community colleges across the country with similar challenging economic conditions. Finally, the study identified that the social culture of the community college campus, whether a main campus or branch campus has a marketable value for recruitment and retention. Such programs such as athletics and the marketable value these programs have to the attractiveness of the college is an element of information untapped by this study and would prove to be a successful area of research for the Mississippi Community College System.

Summary

This chapter captured the research findings so that each question was holistically explained with great detail. The discussions and conclusions were based solely on the

data and information provided by the nine participating community colleges. The

statistics and analysis were conducted entirely by the researcher. Implications for

practice and recommendations for researchers interested in future research relating to the

effects of economic factors on community college enrollment were analyzed.

REFERENCES

Collins, M. (2014, October). *Best practices for college recruiting*. Retrieved from

https://www.naceweb.org/knowledge/recruiting/college-best-practices.aspx

Community College Executive Forum, Education Advisory Board. (2014). *Excellence in*

community college marketing: Recruiting students amid a growing competition.

Abstract retrieved from http://www.eab.com/research-and-insights/community-

college-executive-forum/white-papers/excellence-in-community-college-

marketing

Demetris, V., Alkis, T., & Yioula, M. (2007, September). A contemporary higher

education student-choice model for developed countries. *Journal of Business*

Research, 60(9), 979-989.

Dolence, M. G. *Strategic enrollment management: A primer for campus administrators*.

Washington D.C.: American Association of Collegiate Registrars and Admissions

Officers, 1993

The Economist Online Newspaper, Definitions A-Z. (2014). Retrieved from

http://www.economist.com/economics-a-to-z/u#node-21529395

National Association of Colleges and Employers. (2014). *Recruiting benchmarks survey*

report: Key measures for university recruiting. Retrieved from

http://www.naceweb.org/uploadedFiles/Content/static-assets/downloads/executive

-summary/2014-recruiting-benchmarks-survey-executive-summary.pdf

Gonzalez, J. (2011, September 4), Antipoverty group works with community colleges to

    graduate more students. *The Chronicle of Higher Education*, 58(3), A22-A23.

Hillman, N., & Orians, E. (2013). Community colleges and labor market conditions: How

    does enrollment demand change relative to local unemployment rates? *Research*

    in Higher Education, 54(7), 765.

Jackson, G. (1986). *Workable, comprehensive models of college choice. Final and*

    technical report. Cambridge, MA: Harvard University Press.

Juszkiewicz, J. (2014, January). *Recent national community college enrollment and*

    award completion data. Washington, DC: American Association of Community

    Colleges.

Katsinas, S., Davis, J., Friedel, J., Koh, J., & Grant, P. (2013). *The impact of new Pell*

    Grant restrictions on community colleges: A three state study of Alabama,

    Arkansas, and Mississippi. Retrieved from http://uaedpolicy.ua.edu/

    uploads/2/1/3/2/21326282/new_three_state_study_.pdf

Kerin, R. A., Hartley, S. W., & Rudelius, W. (2013). *Marketing* (11th ed.). (p. 10). New

    York, NY: McGraw-Hill.

Lovenheim, M. (2011). The effect of liquid housing wealth on college enrollment.

    Journal of Labor Economics, 29(4), 741-771.

Marriott, F.H.C. (2002, May). *A dictionary of statistical terms* (5th ed.). Retrieved from

    http://stats.oecd.org/glossary/detail.asp?ID=3754

Martorell, P., McFarland, I., & Xue, Y. (2011). Does failing a placement exam

    discourage underprepared students from going to college? *National Poverty*

    Center Working Paper Series, 11(14), 1-30.

MCCB, Mississippi Community College Board. (2013). *Annual report fiscal year 2013*

    Mississippi GDP. Retrieved from

    http://www.sbcjc.cc.ms.us/pdfs/pb/FY2013AnnualReport.pdf

Mississippi Median Household Income. (2013). Retrieved from

    http://www.census.gov/quickfacts/table/INC110213/00

Mississippi Median Household Income, GIS. (2014). Retrieved from

    http://www.esri.com/software/arcgis/arcgisonline

Mississippi Total Income. (n.d.). Retrieved from

    http://www.bea.gov/iTable/index_regional.cfm

Mississippi Unemployment Rate FRED, 2010-12. (n.d.) Retrieved from

    http://research.stlouisfed.org/fred2/tags/series?t=population

Mississippi Unemployment Rate LAUS, 2012. (n.d.) Retrieved from

    http://www.bls.gov/web/laus/laumstrk.htm

Mullin, C., & Phillipe, K. (2011, December). *Fall 2011: Estimated headcount enrollment*
and Pell Grant trends. Washington, DC: American Association of Community
Colleges.

Pennington, K., McGinty, D., & Williams, M. (2002) Community college enrollment as a
function of economic indicators. *Community College Journal of Research and*
Practice, *26*(5), 431-437.

Phillippe, K., & Mullin, C. (2011, February) *Community college estimated growth: fall*
2010. Washington, DC: American Association of Community Colleges.

Pluntha, E. & Penny, G. (2013). The effect of a community college promises Scholarship on access and success. *Community College Journal of Research and Practice*, *37*(10), 723-734.

Rivers, H. (2010). *An analysis of economic variables affecting enrollments in the South Carolina technical college system and Virginia community college system* (Doctoral Dissertation). Retrieved from http://scholarcommons.sc.edu/etd/395

Stokes, T, & Somers, P. (2009). Who Enrolls in Two Year Colleges? A national study of price response. *Journal of Student Financial Aid, 39*(1), 1-15.

Sundberg, L. (1998). *How community colleges can increase enrollments during times of low unemployment*. Retrieved from http://files.eric.ed.gov/fulltext/ED418739.pdf

Trading Economics. (2014, November). [Table]. *Trading Economics | 300.000 Indicators From 196 Countries*. Retrieved from http://www.tradingeconomics.com/country-list/news

Wallace-Hulecki, L. (2009, February). Reframing strategic enrollment management from the academic lens: Theory in practice (part 2). Retrieved from http://www.semworks.net/papers/wp_Reframing-Strategic-Enrollment-Management-from-the-Academic-Lens_part2.pdf

Walton, A. (2014). *Factors that influence a high school student's college choice in a rural area in Mississippi* (Unpublished doctoral dissertation). Mississippi State University, Starkville, MS.

Wells, R., & Lynch, C. (2012). Delayed college entry and the socioeconomic gap: Examining the roles of student plans, family income, parental education, and parental occupation. *Journal of Higher Education, 83*(5), 671-694.

Whissemore, T. (2012, September 6). Reflecting on Pell Grant's 40 years. Retrieved from

    http://www.ccdaily.com/Pages/Campus-Issues/Reflecting-on-Pell-Grants-40-

    years.aspx

APPENDIX A

MACJC APPROVAL LETTER

From: Debra West [mailto:dwest@mccb.edu]
Sent: Friday, December 05, 2014 8:53 AM
To: Joshua Carroll
Cc: Debra West
Subject: RE: application forms

Joshua,

Congratulations! You have been given the green light to proceed with your research. I will forward a copy of your signed approval form for your records after the next MACJC meeting in January. Until that time, please consider this email documentation of your approval. In your communication with the colleges, you will want to reference that you received MACJC approval to conduct this study on 12/5/2014. Please note that some institutions may have their own internal approval processes. I'm attaching a contact list of the Institutional Research Officers at the colleges. These folks will serve as your initial point of contacts at the colleges.

Let me know if you have any questions. Best of luck with your research!

Debra

Joshua Carroll

Department Chair - I acknowledge that this research is in keeping with the standards set by our department and our institutional IRB or its equivalent. I also certify that the Principal Investigator has met all the departmental and institutional requirements for approval of this research.

_____   11/14/15
Signature of Department Chair   Date

MACJC Chair - I acknowledge on behalf of the MACJC Presidents' Association that this research has been reviewed and has subsequently received the following recommendation by consensus of the Association membership:

☑ Approved   ☐ Tabled for Further Review   ☐ Not Approved
☐ Approved with Stipulations:

_____   12/5/2014
Signature of MACJC Chair   Date

Figure A1.   MACJC approval letter

APPENDIX B

IRB RESEARCH APPROVAL LETTER

Protocol Title: Effects of economic factors on enrollment in the Mississippi Community College System

Protocol Number: 14-376

Principal Investigator: Mr. Joshua Carroll

Date of Determination: 11/24/2014

Qualifying Exempt Category: 45 CFR 46.101(b)(2) and 46.101(b)(4)

Attachments: Stamped informed consent in separate email

Dear Mr. Carroll:

The Human Research Protection Program has determined the above referenced project exempt from IRB review. Your approval is contingent on permission from the MACJC President's Association. Once you have received their permission/approval, please forward a copy to our office. At that time, you can begin your research.

Please note the following:

- Retain a copy of this correspondence for your records.

- An approval stamp is required on all informed consents. You must use the stamped consent form for obtaining

- Only the MSU staff and students named on the application are approved as MSU investigators and/or key personnel for this study.

- You do not need to submit an application for annual continuing review; however, a new application must be submitted if the study is ongoing after 5 years from the date of approval. (SOP 01-03 Administrative Review of Applications)

- Any modifications to the project must be reviewed and approved by the HRPP prior to implementation. Any failure to adhere to the approved protocol could result in suspension or termination of your project.

- Per university requirement, all research-related records (e.g. application materials, letters of support, signed consent forms, etc.) must be retained and available for audit for a period of at least 3 years after the research has ended.

- It is the responsibility of the investigator to promptly report events that may represent unanticipated problems involving risks to subjects or others.

This determination is issued under the Mississippi State University's OHRP Federalwide Assurance #FWA00000203. All forms and procedures can be found on the HRPP website: www.orc.msstate.edu.

Thank you for your cooperation and good luck to you in conducting this research project. If you have questions or concerns, please contact me at nmorse@orc.msstate.edu or call 662-325-5220.

Finally, we would greatly appreciate your feedback on the HRPP approval process. Please take a few minutes to complete our survey at https://www.surveymonkey.com/s/YZC7QQD.

Sincerely,

Nicole Morse, CIP
IRB Compliance Administrator

cc: Stephanie King (Advisor)

Figure B1.   IRB research approval letter