AN ECONOMIC IMPACT STUDY
OF COOSA VALLEY TECHNICAL COLLEGE

by

FORREST CRAIG MCDANIEL

(Under the Direction of Clifton L. Smith)

Abstract

This study utilized the Ryan short-cut model to determine the economic impact of Coosa Valley Technical College on its service area during the 2004 fiscal year. The college serves Floyd, Gordon, and Polk counties in Northwest Georgia and is a unit of the Georgia Department of Technical and Adult Education.

The Ryan short-cut model was selected after a review of the work of Caffrey and Isaacs, the Ryan New Jersey model, and CC Benefits Inc. The study replicated an economic impact study conducted by Seybert for Barton County Community College in 2003. The Ryan short-cut is a cash flow model that utilized a multiplier to estimate the impact of the college’s budget on the community it served.

Utilizing data gathered from within the college and from national surveys, the study estimated that Coosa Valley Technical College had a total tangible economic impact of $36,851,912 on its service area during the 2004 fiscal year. The study further estimated that a total of 1,031 full-time jobs were created by the college’s total direct economic impact of $14,740,765. This number of jobs combined with the number of full-time employees of the
college (204) yielded a total of 1,235 jobs attributable to Coosa Valley Technical College. The college’s return on investment for each tax dollar spent during the year was $2.71.

The study concluded that beyond the economic benefits derived from the college’s presence, there were also non-economic benefits which include the enrollees, graduates and successful placements of students on jobs, as well as the value of its services to business and industry.

The Ryan short-cut model was deemed to be an appropriate model for other Georgia technical college administrators who wish to determine the impact of their institutions on the counties served by their schools. It is recommended that further research be conducted regarding the impact that a Georgia technical college has on human capital. It is also recommended that additional studies of economic impact models should be conducted in an effort to develop a model that more clearly states the value of the non-economic benefits of a Georgia technical college.

INDEX WORDS: economic impact, multiplier, Ryan short-cut model, return on investment, total tangible economic impact.
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Chapter 1

The Purpose

This chapter is concerned with the purpose of the study. Specifically, this chapter contains seven sections: (1) background of the purpose, (2) statement of the purpose, (3) research questions, (4) conceptual framework, (5) assumptions of the study, (6) limitations of the study, and (7) definitions of terms.

Background of the Purpose

Georgia’s elected leaders and policy makers are faced each legislative session with the task of allocating a limited state budget to thirty-eight state agencies. The University System of Georgia, Georgia State Department of Education, and Georgia Department of Technical and Adult Education are three education agencies which account for over one half of Georgia’s budget expenses each year. Attempting to gain a greater portion of the budget is a competitive venture for each agency.

Appearing before the governor or committees of the Georgia General Assembly to request funding for new facilities or funds for new programs requires more than anecdotal evidence. Budget writers and policy makers can justify a decision to erect a new building or fund new initiatives when presented with sound financial data that indicates that past funds have been spent in a manner that returned the investment to the taxpayers of Georgia.

The Terry College of Business Economic Impact Study on the Athens Metropolitan Statistical Area (MSA) for the University of Georgia estimated the university had a total economic impact in excess of 966 million dollars for fiscal year 1998 (Humphreys, Clements,
Lowe, & Sapp, 1999). Georgia’s Department of Technical and Adult Education (GDTAE) operates thirty-four technical colleges that serve all of Georgia’s 159 counties. This system has no annual process of determining the economic impact of its colleges.

GDTAE has as its primary mission to contribute to the economic, education, and community development of Georgia by providing education, continuing education, and customized business and industry training (GDTAE, 2005b). The technical colleges also partner with the Georgia Quick Start program to provide customized training for new businesses coming into the state or existing industries that are expanding. Manufacturing leaders from across Georgia participating in a Traditional Manufacturer Focus Group in June 2005 stated as goals that “Quick Start should be expanded,” and that “more students should be enrolling in technical colleges” (GDTAE, 2005c).

Georgia’s technical colleges experienced double-digit enrollment growth during the period of time between 1990 and 2003 and trained 159,835 students in credit programs in 2004, a record for the agency (GDTAE, 2004). As enrollments have grown, so has the number of students who receive financial assistance through Georgia’s lottery funded financial aid program, HOPE. HOPE, the acronym for Helping Outstanding Pupils Educationally, provides tuition and fee assistance to Georgia residents enrolled in a technical diploma program or to university system or technical college students enrolled in degree programs.

The rapid enrollment growth challenged the state’s ability to meet its obligation to fully fund the amount calculated by using the FTE-based funding formula. In addition, the huge enrollment growth in the technical college system, combined with similar growth in the university system, caused alarm to policy makers who were responsible for managing the HOPE program. In 2003, Governor Sonny Perdue commissioned a study to determine that changes
should be made to the lottery funded program to insure its future viability. Among the recommendations made by the HOPE Commission and approved by the Georgia General Assembly, was to place a cap on the number of hours for which a technical college student could receive assistance through the HOPE grant. College administrators anticipated the result of the HOPE limitation would be a decline in college enrollments and subsequently a reduction in tuition revenue and formula funding.

The system experienced a 156% growth in enrollment from 1993 to 2003 which spurred requests for new facilities all across the state’s system of technical colleges (GDTAE, 2003). During the period from 1992 to 2002, GDTAE received over eight hundred million dollars in capital outlay funds for the construction of new classrooms, labs, conference centers, technology centers, and libraries (GDTAE, 2005a). In 2002, with the election of Georgia’s first Republican governor in 147 years, a new approach was taken toward the funding of capital outlay projects of the state’s technical colleges. The capital outlay allocation for the 2003 fiscal year dropped to $28,310,000 for new construction, down from $88,000,000 in 2001, and below the average of $60,000,000 over the five year period from 1997 to 2001 (GDTAE, 2005a).

Coosa Valley Technical College is one of thirty-four technical colleges governed by GDTAE. The mission of the college reflects that of GDTAE in that it is primarily focused on providing occupational education and workforce development for the citizens of its service area. The college serves Floyd, Gordon, and Polk counties in northwest Georgia, counties with a combined population of 173,355 (U.S. Census Bureau, 2000a, 2000b, 2000c).

Coosa Valley Technical College, founded in 1962, saw a 183% growth in credit enrollment during the period from 1994 to 2004 (Coosa Valley Technical College, 2005a). The college increased its capacity to provide services by opening branch campuses in Gordon and
Polk counties and new facilities on its main campus in Floyd County. Each year the Coosa Valley Technical College administration prepares a capital outlay request that is presented to a committee of the State Board of Technical and Adult Education. Each of the thirty-four technical colleges follows the same procedure. Projects are ranked by the committee and subsequently become the capital outlay budget request that is presented to the Governor each year to consider for funding. Similarly, Coosa Valley Technical College submits requests for approval to begin new credit programs to the State Board of Technical and Adult Education. The justification required for board approval receives more favorable consideration when it contains information related to the impact the new program will make on its service area.

The dilemma facing the administrators of Coosa Valley Technical College and their peers across the system was that of being able to clearly state the value of the technical college to board committees and other policy makers who are making decisions about appropriating state dollars. Clearly presenting economic data to decision makers about budget allocations, capital outlay funding, and financial assistance for students requires a thoughtful analysis of the return to the community for funds expended on the operation of the college. It is critical that the college be viewed in the most positive manner when requesting a building that will provide capacity for new programs. It is also imperative that the economic value of the technical college be clearly stated when threats arise to reduce operating budgets or financial aid opportunities for students.

In order to state the economic impact of the college, a reliable and accepted model was identified and selected. Over the past three decades, institutions of higher learning have relied almost exclusively on adaptations of the Caffrey and Isaacs model when attempting to determine the economic impact of their institutions. This model was developed in 1971 under the direction
of the American Council on Education. This seminal approach to estimating the economic impact of a college relied on “linear cash flow formulas, including only what can be readily counted or added and omitting qualitative issues” (Caffrey & Isaacs, 1971, p. 4).

The Ryan short-cut model is a derivative of the Caffrey and Isaacs economic impact model (Ryan, 1983). The impetus for its development was the desire to estimate the impact of a college on its service area without requiring the use of complex models and cumbersome surveys that typically generated low response rates.

This study describes Coosa Valley Technical College and provides a description of the school’s operating results for the 2004 fiscal year. A review is presented that details the various impact studies that have been conducted by and for other technical and community colleges. An economic impact analysis of Coosa Valley Technical College was conducted using data from the school’s 2004 fiscal year of operation. The analysis utilized the Ryan short-cut model which has been the instrument used by institutions similar to Coosa Valley Technical College, including the economic study conducted by Barton County Community College on its seven-county service area for the 2002-2003 fiscal year (Seybert, 2003).

**Statement of the Purpose**

The purpose of this study was to determine the economic impact of Coosa Valley Technical College on its three-county service area during the 2004 fiscal year. In order to clearly state the economic impact of the college for the 2004 fiscal year, the Ryan short-cut model was selected. The model is conservative in nature and is accepted by the higher education community (Seybert, 2003).

**Research Questions**

The following research questions provided objectives for the study:
1. What was the total economic impact of Coosa Valley Technical College during the 2004 fiscal year?

2. How many jobs were created due to the presence of Coosa Valley Technical College during the 2004 fiscal year?

3. What return on investment did Coosa Valley Technical College deliver during the 2004 fiscal year?

4. Are there identifiable non-economic benefits that can be attributed to the college’s presence in Floyd, Gordon, and Polk counties?

5. Is the Ryan short-cut model appropriate for other technical colleges in Georgia as they seek to determine their impact on the counties they serve?

Conceptual Framework

Schuyler (1998) analyzed economic impact studies conducted by or for nineteen community colleges. The analysis was intended to answer four questions.

1. Who typically conducts the analysis?

2. How is the service area defined for the analysis, and what services are included in the assessment?

3. What types of models and variables are used in conducting the analysis?

4. What is the motivation for conducting the analysis?

Eighteen of the 19 economic impact studies reviewed utilized cash-flow models (Schuyler, 1998). These models addressed the economic impact of the college on its service region in the following areas:

1. Monetary contribution of the community college to the community.

2. The number of jobs attributable to the presence of the community college.
3. Increase in personal income of residents due to the college’s presence, and
4. Increase in local business sales resulting from the existence of the college.

The cash flow concept of determining the economic impact of a college on its service area has been the predominantly accepted approach since the development of the Caffrey and Isaacs model in 1971. Elliott, Levin, and Meisel (1988) referred to the Caffrey and Isaacs manual, funded and sanctioned by the American Council on Education, as a “methodological landmark” for economic impact studies.

The Ryan short-cut model is a derivative of the Caffrey and Isaacs model (Ryan, 1983). Ryan’s first adaptation of the Caffrey and Isaacs model was used to determine the economic impact of the community college system on the state of New Jersey and of an individual community college on its service area. The model was further refined and condensed for a presentation at the National Council for Resource Development in 1992 (Seybert, 2003). This model is known as the Ryan short-cut model and measures the total expenditures made by the institution, the total expenditures by students, and the total expenditures by visitors from outside the area coming to the campus. The sum of these expenditures is multiplied by a number selected by the researcher that is dictated by the size and demographic nature of the college’s service area (Ryan, 1983).

While it appeared that Coosa Valley Technical College was meeting its mission of providing quality occupational education programs and services, the college lacked a method of analyzing the economic impact that it made on the communities it served. The development of such an analysis will assist the college as it makes its request for funding through the Georgia General Assembly, State Board of Technical and Adult Education, and other resource providers.
Assumptions

1. There are identifiable economic and non-economic impacts made by Coosa Valley Technical College on the communities it serves.

2. Coosa Valley Technical College’s performance each year toward meeting its mission of workforce development can be identified and has a positive impact on Floyd, Gordon, and Polk Counties.

3. Developing a model that will adequately reveal Coosa Valley Technical College’s economic/non-economic impact on its service area will assist other technical colleges in Georgia in developing models appropriate for similar use stating their impact on the communities they serve.

Limitations

1. The results of this study are unique to Coosa Valley Technical College’s service area, the period of time evaluated, and performance during that time period.

2. The study did not account for the socio-economic impacts of improved health care, reduced crime rates, reduced welfare, and reduced unemployment compensation costs as benefits of participation in higher education.

3. The role of Coosa Valley Technical College in attracting new industries to the communities it serves is stated, but no attempt was made to assign an economic dollar value to this activity.

Definitions

1. Service area: The three counties in northwest Georgia that are designated by the Georgia Department of Technical and Adult Education as being served by Coosa Valley Technical College. These counties are Floyd, Gordon, and Polk.
2. Multiplier: The percent of cash dollars spent in the local business community that is then re-spent within the business community in the successive rounds of spending (Ryan, 1983).

3. Leakage: The amount of college expenditures that leave the service area (Caffrey & Isaacs, 1971).

4. Full-time student: a student enrolled for twelve or more credit hours per quarter.

5. Part-time student: a student enrolled for less than twelve credit hours per quarter.

6. Non-economic benefits: services or activities unique to Coosa Valley Technical College that contribute to the economic development of the communities served by the school or to individuals served by the school.

Summary

This study will describe Coosa Valley Technical College, one of the college’s within DTAE, the college’s history, and an analysis of the college’s operating results for the 2004 fiscal year. A review will be presented that details the various impact studies that have been used by other technical and community colleges. A description of economic impact models will be discussed beginning with the Caffrey and Isaac’s model, developed in 1971.

Finally, an economic impact analysis of Coosa Valley Technical College will be conducted using data from the school’s 2004 fiscal year of operation. The analysis will replicate an economic impact study conducted by Barton County Community College utilizing the Ryan short-cut model.
Chapter 2

Review of Literature

A review of the literature was undertaken to establish a need for the study and to assist in determining the appropriate research methodology. This chapter contains three sections: (1) historical development of the Georgia technical college system, (2) development and description of Coosa Valley Technical College, and (3) economic impact models appropriate for community and technical colleges.

Historical Development of the Georgia Technical College System

In 1983, Georgia Governor Joe Frank Harris appointed the Vocational Education Task Force to study the governance of postsecondary technical education in the state (DTAE, 2001). At the time, there existed an assortment of institutions that included two state residential vocational technical schools and 25 area vocational technical schools. Of these, eighteen were governed by local K-12 districts and seven were governed by local boards separate from the secondary system (GDTAE, 2001). All state funds came to the technical schools through the State Department of Education and that agency served as the managing entity of the postsecondary schools.

In 1983, as the result of the Vocational Education Task Force’s recommendation, Governor Harris issued an Executive Order establishing a coordinating board, naming it the State Board of Postsecondary Vocational Education (GDTAE, 2001). The board consisted of ten members, including two from the State Board of Education, two from the Board of Regents of the University System, the Commissioner of the Department of Industry and Trade, the State
Superintendent of Schools, the Chancellor of the University System, and three representatives of business and industry appointed by the governor (State of Georgia, 1983).

The mission of the Board was to plan for, coordinate, and evaluate the state’s public vocational-technical education institutions and programs in a manner which met the needs of the citizens, business, and industry to the highest possible degree and in the most cost effective and efficient manner and which best facilitated the economic development of the state board (Board of Postsecondary Vocational Education, 1984). Governor Joe Frank Harris swore the Board into duty on January 17, 1984, at the state capital in Atlanta, Georgia. Governor Harris challenged the Board to provide leadership and to foster cooperation between the Board of Postsecondary Vocational Education and Boards of Education and Regents (State Board of Postsecondary Vocational Education, 1984). Dr. Kenneth H. Breeden was named Executive Director of the new Board.

In 1985, the Georgia General Assembly passed the Quality Basic Education Act (House Bill 487) which created a new state agency, “to manage and govern all aspects of postsecondary vocational technical education at the state level,” (GDTAE, 2001, p. 16). In 1988, the State Board of Postsecondary Vocational Education became the Department of Technical and Adult Education (GDTAE). Dr. Kenneth Breeden was named Commissioner of the GDTAE. That same year the state’s adult literacy programs were transferred to GDTAE. For the first time in Georgia’s history a state agency was dedicated solely to workforce development with the services of technical education, literacy, and economic development functioning under one entity.

With the creation of the agency, efforts were made to insure the consistency and quality of the technical schools on a statewide basis. The Georgia General Assembly passed legislation
which provided specific guidelines for transferring the schools from local to state governance. By the end of 1988, eleven technical institutes had converted to state management. Efforts were also underway to develop statewide curriculum standards for the purpose of insuring that programs and credits were consistent and interchangeable among all the schools within the agency (GDTAE, 2001)

By 1991, twelve more technical institutes had converted to state governance and three new schools were opened. That same year, the agency, working with representatives from business and industry, began efforts to focus on preparing students by utilizing classroom instruction, on-site instruction, and on-the-job training. This effort, Work Based Learning Initiatives, was followed in 1992 with legislation that allowed the services of the Quick Start program to include existing industries (GDTAE, 2001).

In 1993, the technical institutes began seeing the benefits of the Georgia Lottery. The lottery, passed by Georgia voters in 1992, made proceeds available for the HOPE program. HOPE, the acronym for Helping Outstanding Pupils Educationally, provided scholarships to pay tuition, mandatory fees, and a book allowance for eligible students. In addition, during 1993 each technical institute in Georgia received a one-time allocation of five hundred thousand dollars to upgrade technology equipment from lottery proceeds (GDTAE, 2003).

In 1996, Sandersville Technical Institute opened; and by the end of 1997, Atlanta and Savannah Technical Institutes had converted to state governance. The system of technical institutes served 81,355 students in diploma, degree, and certificate programs in 1997, a 171% increase in enrollment since its creation in 1987 by the Georgia General Assembly. By the year 2000, enrollment would grow to 101,194 students in credit program (GDTAE, 2003).
In 2000, the Georgia General Assembly passed the A+ Education Reform Act of 2000 (House Bill 1187). This legislation contained provisions that allowed Georgia’s technical institutes to change their names to technical colleges. Governor Roy Barnes stated, “The term technical college more accurately reflects the quality and levels of services provided by these institutions” (GDTAE, 2000). The legislation also created a funding formula based on enrollment and removed the two program limit on the number of awards a student could receive under the lottery funded HOPE program. In addition, the bill allowed Georgia technical college students to receive funds for tuition, fees, and books without regard to whether or not they were eligible to receive financial assistance through PELL Grants.

Legislatively, the year 2000 was the most productive in the agency’s history, according to then Commissioner Breeden (Raudonis, 2000), who stated, “There is no doubt that this year is the best ever for technical education in Georgia” (p. 1). The Agency received $26 million in new operating funds and an additional $100 million for capital outlay.

By 2004, the technical college system in Georgia consisted of thirty-four technical colleges with multiple campuses and four university system colleges with technical divisions, totaling 65 delivery sites throughout the state (GDTAE, 2004). The system has responsibility for associate degree, diploma, and technical certificate of credit programs through the Technical Education division; customized training, continuing education classes, and Quick Start training through the Economic Development Division; and Adult Basic Education and General Educational Development preparation through the Office of Adult Literacy.

In 2004, the system’s total operating budget was $488,339,823. There were 159,835 total people served in the credit programs, 144,107 served in the adult literacy programs, and 85,431 served in the business and industry programs throughout the system in 2004 (GDTAE, 2004).
Development and Description of Coosa Valley Technical College

Coosa Valley Technical College is one of thirty-four colleges governed by the Georgia Department of Technical and Adult Education. The college serves Floyd, Gordon, and Polk counties. The college is accredited by the Commission on Occupational Education.

Formalized postsecondary vocational education classes began in Rome, Georgia, in 1946 as an effort to provide training for veterans returning from WWII. Program offerings in the early years were focused on preparing veterans to complete their high school diploma and prepare to re-enter the job market. A machinist program, a practical nursing program, and an automobile training program provided occupation-specific training. The veteran program was eliminated in 1961. Floyd County supported two bond issues that raised $250,000 and the amount was matched by the State of Georgia to construct a vocational school named Coosa Valley Vocational-Technical School. The school opened in 1962 with 150 students. The programs offered were Business Education, Electronics, Mechanical Engineering, Automotive Mechanics, Machine Shop, Heating and Air Conditioning, Electrical Appliance Servicing, and Practical Nursing. Classes were offered both day and evening (Coosa Valley Technical College, 2004b).

By 1967, the school had expanded its course offerings to sixteen. Programs were categorized under the instructional areas of technical, business education, and trades. The school also had undertaken the mission of providing customized training programs for area businesses and had employed a Coordinator of Industrial Training. This individual also had responsibility for working with new industries that were receiving services by the Georgia Quick Start program. This program had been created by the Georgia General Assembly in 1967 as an economic development incentive to lure new industries into Georgia (Coosa Valley Technical College, 2004b).
In 1968, an additional building was constructed that allowed for the expansion of the Data Processing Technology program and for an expansion of the administrative offices. Coosa Valley Area Vocational School had an annual budget at that time of just over one million dollars. The school had responsibility for providing industry training and services to Floyd, Gordon, and Polk counties (Coosa Valley Technical College, 2005b).

The Vietnam War and the creation of the Manpower Development Training Act (MDTA) generated new funding sources for the school, and by the mid 1970’s credit enrollment had grown to over six hundred students. The Comprehensive Employment Training Act (CETA) replaced MDTA and had as its focus transitioning chronically unemployed or disadvantaged citizens into unsubsidized employment. Coosa Valley Technical Institute became a partner in this effort and received operating grants that provided education assistance to thousands of students in class size training and also on an individual referral basis (Coosa Valley Technical College, 2005b).

As the communities in Floyd, Gordon, Bartow, and Polk counties focused on bringing new industries to create job opportunities for their citizens, the demand for skilled workers increased. Coosa Valley Technical Institute, participating with the local chambers of commerce as partners in the industrial recruitment process, quickly began to outgrow its facilities.

Facility Growth

In 1980, an Allied Health Building was constructed on the Floyd County Campus that also contained administrative space for Student Services (Coosa Valley Technical College, 2005b). In 1992, the school received funding for construction of an administrative building which was completed in early 1995. The 33,000 square feet facility was designed to bring all four divisions of the school, Instruction, Student Services, Economic Development, and
Administrative Services, under one roof. The building was named the J.D. Powell Education Center in honor of the long-time director and president of the school, James Derward Powell.

In 1994, the school’s first satellite campus was requested for Calhoun, Georgia, located in Gordon County. Having a technical college presence to train the area’s work force was so important to community leaders that a pledge was made to raise one million dollars locally to go toward the construction of the building. The goal was exceeded and the State of Georgia allocated $3.7 million in the 1995 budget. Phase I of the Gordon County Campus opened fall quarter 1997 with 300 students, and plans were quickly put in place to construct Phase II. In 1997, Phase II was funded with a $3.3 million allocation from the Georgia General Assembly. This facility was completed in 2001.

The state of Georgia responded to the Polk County community with the construction of a satellite campus that opened spring 2000, at a cost of $3.2 million. In 2002, a $2.4 million renovation was completed on the Floyd County Campus and a $12.9 million Allied Health building was opened on that campus in 2004. Also, completed in 2004 was an Economic Development facility on the Polk County Campus.

The school received over $30 million in capital outlay funds for new construction and renovation during the ten year period of 1992 to 2002 (GDTAE, 2005a). The facility master plan calls for construction of Phase III of the Gordon County Campus and extensive renovation of a facility on the Floyd County Campus for the purpose of offering Culinary Arts and hospitality programs.

Programs of Study

Coosa Valley Technical College offers a variety of programs of study including credit, non-credit, and services to special populations which include counseling, career guidance, and
supportive services. The college utilizes state, federal, and local funds to provide services and partners with public and private entities to best meet the needs of its students.

**Credit Programs.** Coosa Valley Technical College’s instructional programs are grouped into departments – Business Technologies, Health Technologies, Industrial Technologies, and Personal/Public Service Technologies. The college offers associate degree of applied technology, diploma, or technical certificates of credit on all three campuses. The college offers a total of 131 credit programs. Programs vary in length from fifteen credit hours to 147 credit hours. The college operates on a quarter basis with each quarter consisting of 52 days (Coosa Valley Technical College, 2004b).

**Non-Credit Programs.** Through the college’s Office of Economic Development, training services are offered to existing businesses and industries on a non-credit, fee-paid basis. These courses are offered on a clock hour basis and in many situations are customized to meet the specific needs of a company. Courses have been offered in the following areas:

- Safety/Employee Awareness, Total Quality Improvement, Organizational Development, Supervision Development, and Multi-craft Mechanical/Electrical Systems Maintenance. Courses range from two to 140 clock hours in length and are offered either at the company location or at the most convenient of the college’s campuses (Coosa Valley Technical College, 2004a).

The college offers Continuing Education courses to the citizens of Floyd, Gordon, and Polk counties. These courses typically are no longer than 24 hours in length and focus primarily on various software applications or business practices. These courses are non-credit and are not covered by the HOPE grant.
Quick Start. The college serves as a co-provider of the Georgia Quick Start program for new or expanding industries. The Quick Start program is funded by the Georgia General Assembly each year and operated through the Office of Economic Development of the Department of Technical and Adult Education. New or expanding industries that are creating more than fifteen new jobs qualify for free training services through Quick Start. The purpose of the program is to enable an industry to develop a trained workforce as quickly as possible for the new or expanded operation (Coosa Valley Technical College, 2004a).

The Quick Start program develops customized industry and process specific training programs that include company orientation, blue print reading, precision measurement, machining, welding, forklift operations, safety, quality, automated manufacturing, and employee involvement including team skills training (Coosa Valley Technical College, 2004a).

Adult Education Program. The Adult Education program provides programs in adult reading, writing skills, science, social studies, literature, mathematics, preparation for the General Educational Development (GED) tests, and English as a Second Language (ESL) in Floyd, Gordon, and Polk counties. These services are provided in learning centers located on the college’s three campuses and a fourth in Cedartown, Georgia, in Polk County. English as a Second Language is offered in partnership with the Sarah Hightower Regional Library in Rome (Coosa Valley Technical College, 2004a). Literacy and GED classes are also conducted at five correctional facilities in the three counties the college serves.

The Adult Education program has collaborative agreements with the five high school systems in the three-county area as well as the Calhoun/Gordon Council for a Literate Community, the Rome/Floyd County Alliance for a Literate Workforce, and the Polk County Council for Children and Families (Coosa Valley Technical College, 2004a).
The college is an official GED Testing Center and offers tests on a regularly scheduled basis in Floyd, Gordon, and Polk counties.

_Special Populations Programs._ Coosa Valley Technical College contracts with the federal government to provide assistance to displaced or unemployed workers. The college also provides the following services to special populations of students through the New Connections to Work Program and Georgia Fatherhood Program.

1. **Workforce Investment Act (WIA).** WIA is a federally funded program that provides financial assistance, career counseling, and guidance for displaced workers and unemployed low-income adults. WIA pays for all student costs not covered by the HOPE program and pays a weekly stipend of up to $150 per week to each sponsored student.

2. **New Connections to Work.** New Connections to Work is a comprehensive training and employment program that provides support services and assistance to the following populations:
   - Single parents with custody or joint custody of minor children, homemakers in transition who are separated, divorced, widowed, and seeking updated skills training.
   - Clients from the Georgia Department of Family and Children Services and other agencies who are in need of education, training, and/or employment to achieve self sufficiency.
   - Students in search of skills training in non-traditional, higher paid employment fields.
   - Individuals, agencies, businesses, and industries seeking customized workforce preparation and training.
• Services include: assessment of achievement, aptitude, and interest; academic and career advisement; individual career plans and referral to other supportive service agencies. The program services are free to participants (Coosa Valley Technical College, 2004a).

3. Georgia Fatherhood Program. The Georgia Fatherhood Program works in collaboration with Child Support Enforcement and the Department of Human Services to assist non-custodial parents in becoming actively involved in their children’s lives. The program provides life management and skills workshops, effective parenting classes, job readiness, job retention activities, and self-esteem activities. Participants are encouraged to attain occupational skills and education that will help in finding employment that will improve the quality of life for their children.

Economic Impact Models Appropriate for Community and Technical Colleges

The attempt to gauge the economic impact of a college has been an issue of concern for higher education administrators for decades. The basic objective of an economic impact study is relatively straightforward – to measure the increase in a region’s economic activity attributable to the presence of the college or university (Elliott, Levin & Meisel, 1988).

Prior to 1971, research that attempted to measure the impact of higher education took one of two approaches. One was to identify the effect on human capital and the other was the economic impact the institution had on a defined community (Ryan, 1983).

The human capital approach has been problematic for researchers who sought to identify a measurable effect of college participation or individuals. Pascarella (1999) stated that the nature of community colleges and the characteristics and enrollment patterns of the students they serve make the study of community colleges’ impacts extremely challenging. Grubb (2002)
viewed community colleges as the postsecondary institutions used disproportionately by disadvantaged groups to gain access to employment. He questioned whether the economic benefits to these groups were substantial or how they compared with non-disadvantaged groups.

Schuyler’s (1998) review of nineteen economic impact studies by community colleges found that only six focused on the issue of human capital and stated that estimates of human capital contributions to lifetime earnings of students had not gained the widespread adoption that the cash flow models have gained.

While early researchers Eckhaus (1962), Bensen (1963), and Banner (1968) sought to identify the positive impact of a college on the community it served and, specifically the benefits to individual students, the literature indicated no body of research that was widely accepted by the higher education community.

Caffrey and Isaacs Model

In 1966, at a meeting of the American Council on Education Commission on Administrative Affairs, plans were begun to undertake a comprehensive economic impact study of a college or university on its community. One of the motivating factors for such a study was the belief that “data concerning the economic character of a college would be useful in the occasional struggles that occur between institutions and those persons concerned with taxes or other economic factors in the local economy, in development of plans for the expansion of a college or university, in land use studies, and in appeals to local business and industry to support higher education” (Caffrey & Isaacs, 1971).

The Caffrey and Isaacs (1971) model has been labeled a “how to” manual for economic impact studies (Elliott, Levin, & Meisel, 1988). Caffrey and Isaacs explained their study as “a generalized approach designed to enable almost any institution to conduct a useful economic
impact study for itself with a reasonable investment of resources” (p. 3). The Caffrey and Isaacs model is an analysis of 45 models that contained a total of 78 measurable variables.

The model developed by Caffrey and Isaacs concentrated on estimation of the aggregate demand in the community resulting in expenditures by four entities:

1. The college as a corporation.
2. Faculty and staff as private individuals.
3. Students as private individuals.
4. Visitors as private individuals. (Caffrey & Isaacs, 1971)

The model included only expenditures by the institution being evaluated, not revenues. The focus of the Caffrey and Isaacs model identified who is spending, how much they are spending, what goods and services they are buying, and where the spending is being done. The researchers explicitly stated two limitations of their model. The first was that the model was limited to use in estimation of short term economic impact. It was not designed to determine the ultimate economic impact of the college on the community it serves (Caffrey & Isaacs, 1971).

The second limitation is that the model was designed to understate the economic impacts of the college. In an attempt to build credibility for their work, the authors stated, “It seems better to err on the side of too little than too much, particularly when a public relations function is being served and it is impractical to account for all the real expenditures of every individual and group associated with the college” (Caffrey & Isaacs, 1971, p. 4).

A simple expenditure model illustrated in the Caffrey and Isaacs handbook (Fig. 1) shows wages being paid to faculty and staff and these wages plus the dollars of students and visitors being spent in the local community.
A more realistic and sophisticated model (Fig. 2) takes into consideration three additional movements of dollars to the original model shown in Figure 1. These additions as stated by Caffrey and Isaacs (p. 5) were:

1. The portion of total payments made to local businesses, governments, and the portion made elsewhere.
2. The portion of total expenditures for secondary goods and services made locally by community businesses, governments, and the portion made elsewhere.
3. The increase in local aggregate demand resulting from the affect of expenditures as they circulate through the local economy.
This model includes two concepts that have become components of all college economic impact studies conducted since the writing of the Caffrey and Isaacs (1971) handbook. The first concept is that of leakage. Leakage occurs when local firms purchase secondary goods and services for resale from other areas (p.5). The amount of leakage is hard to assess but can be estimated by the size of the area being assessed for impact and the quality and quantity of supplies in the area.

The second concept is that of the multiplier effect. The multiplier is defined by Ryan (1983) as “the percent of cash dollars spent in the local business community that is then re-spent within the business community in the successive rounds of spending” (p. 29). Caffrey and Isaacs described the use of multipliers for income and employment calculators as a recycling process of dollars with diminishing increments of value at each stage of transaction.

The selection of a multiplier is arbitrary and, therefore, controversial because its size directly affects the dimensions of a college’s economic impact on its community (Ryan, 1983). The size of the multiplier chosen for an economic impact study should be directly related to the
size of the geographic unit covered, the diversity of its commercial and industrial activities, and
the size of the population (Caffrey & Isaacs, 1971). The range of the size of the multiplier is
detailed by Caffrey and Isaacs in an example of seven geographic areas ranging from a small,
semi-rural town to an entire state. A multiplier of 1.2 was used for the small town indicating that
many of the goods and services purchased would be purchased outside of the college’s service
area. The implication is that the economic impact of dollars from a college’s budget would have
minimal impact in this small community and that the leakage would be substantial.

The multiplier for an entire state can be set in a range from 2.5 to 3.0 indicating that the
potential for goods and services to be purchased within the much larger geographic area existed.
In discussing the appropriate range to be used when selecting a multiplier, Caffrey and Isaacs
(1971) recommend the use of a conservative number to avoid harming the credibility of the
study.

Weiss and Gooding (1966) differentiated between local and statewide multipliers. They
recommended a range from 1.2 to 2.3 for local multipliers and 1.2 to 4.0 for statewide
multipliers. Salley (1976), echoing Caffrey and Isaacs, called for the use of a conservative
multiplier to offset criticisms of the impact study.

The Caffrey and Isaacs (1971) model in its complete form appears to be at odds with the
stated intention of its researchers to remain uncomplicated. The model (Fig. 3) shows a complex
set of relationships and an attempt to capture the flow of funds through the college’s entire realm
of exposure.
As stated earlier, there are a total of 78 different variables that are analyzed in 45 models that make up the Caffrey and Isaacs framework. In addressing the magnitude of their work, the researchers acknowledged that the models represented a reasonable compromise between accuracy and depth of analysis required (p. 42). They further acknowledged that future researchers may want to limit the scope of their study due to the difficulty of obtaining data, or omit altogether models that do not provide data relevant to the college’s study focus.
Ryan New Jersey Model

In 1983, Ryan developed, implemented, and evaluated a local economic model, a statewide economic impact statement, and a handbook to assist campus personnel in local economic impact calculations. The focus of Ryan’s study was the community college system of New Jersey and specifically Brookdale Community College (Ryan, 1983).

In stating the significance of this study, Ryan (1983) said, “Economic impact statements prepared in a careful, thorough, and systematic manner are becoming a necessary weapon in the college arsenal as it does battle with legislators over public appropriations” (p. 3).

Ryan reviewed economic impact studies that had been conducted for twenty-three community colleges. These studies exclusively relied on the Caffrey and Isaacs (1971) Handbook. Ryan (1983) acknowledged the Caffrey and Isaacs model as the eminent handbook for economic impact studies but found for his purposes several of the models were inappropriate or only marginally appropriate for use by community colleges. Ryan also decided that the reliability on surveys in the Caffrey and Isaacs model yielded inconsistent and incomplete data. He also found fault with the mathematical complexity of the concepts in the models and the difficulty in clarifying the area to be assessed for expenditure impacts.

In choosing the appropriate models for his study, Ryan (1983) assembled a committee of stakeholders in the New Jersey Community College system. Each model in the Caffrey and Isaac handbook was judged on the following basis:

1. Was the item relevant to community colleges?
2. Were the data available?
3. How much time would be needed to gather the information?
4. Was the item of little meaning or magnitude? (p. 53)
Ryan selected only seven of the Caffrey and Isaacs models for the study and these along with five additional models were adapted to fit the characteristics of the New Jersey system.

Two multipliers were selected for the study, 2.0 for the counties and 2.5 for the state. Ryan (p. 92) acknowledged that the 2.0 multiplier might be liberal due to the amount of leakage that could occur to New York and Philadelphia. Ryan justified the use of the 2.0 multiplier due to the fact that it represented a nationally recognized standard multiplier for geographic areas smaller than a state (Ryan, 1983).

To compile the data necessary to calculate each college’s impact on its community, and subsequently the state of New Jersey, a Direct Economic Impact Survey was given to each college. Included as a part of the survey were specific instructions as to the appropriate source of the data, such as the annual audit, personnel records, or financial aid office.

Ryan’s formula for determining the economic impact of Brookdale Community College was as follows:

\[
\text{Total in-county expenditures by the college.} \\
\quad \text{Plus} \\
\text{Total employee expenditures in-county.} \\
\quad \text{Plus} \\
\text{Total student expenditures in-county.} \\
\quad \text{Times} \\
\text{The 2.0 multiplier recommended by Caffrey and Isaacs} \\
\quad \text{Equals} \\
\text{Total Estimated Economic Impact (Ryan, 1983, p. 137).}
\]
To determine the economic impact of the community college system on the state of New Jersey, Ryan (1983) added the total of each college employee expenditure and student expenditure and used a multiplier of 2.5. The total economic impact of the system was estimated to be $822,054,857.50 on an initial investment of $52 million (p. 153).

From an employment perspective, the college system employed 6,205 people. The direct expenditures of the employees were calculated at $300 million and resulted in the creation of another 21,000 jobs in New Jersey (Ryan, 1983). Ryan stated as limitations to the study the fact that there was no effort to measure the effect of the college on the quality of life on their communities and also there was a built-in understatement in the study because of the selection of conservative multipliers.

The Ryan-New Jersey model was utilized in an economic impact study conducted by Utah Valley Community College for the 1989-90 year. A comparison study for the same college was done for the 1993-94 school year. The Utah study followed the guidelines developed by Ryan’s study. A multiplier of 2.0 was utilized in the initial study and an even more conservative multiplier of 1.7626 was used in the 1993-94 study (Brown & Heaney, 1997).

Ryan Short-Cut Model

The Ryan New Jersey model was modified in 1992 to a shorter version that did not rely on surveys and utilized accessible nationally produced data to substitute for complex mathematical computations. The model, entitled the Ryan short-cut model, was presented in a paper at the 1992 annual meeting of the National Council for Resource Development (Ryan, 1992).
Barton County Community College utilized the Ryan short-cut model to conduct a study of the college on its seven-county service area for the 2001-2002 fiscal year. The basic formula used by the college was:

Total expenditures by the institution.

Plus

Total expenditures by employees.

Plus

Total expenditures by students.

Plus

Total expenditures by out of area campus visitors.

Times

A multiplier (1.9 for the seven-county area) to account for additional business volume generated.

Equals

Total Economic Impact (Seybert, 2003).

In addition, the Ryan model, borrowing from Caffrey and Isaacs 1971 handbook, allows for the calculation of the number of full-time jobs that could be attributed to the economic activity generated by an institution of higher education. Economists estimate that seven full-time jobs are created for every $100,000 added directly to an economy (Caffrey & Isaacs, 1971).

Barton County Community College selected a conservative multiplier of 1.9 for the study due to the rural nature of the seven counties it served (Seybert, 2003). In selecting the conservative multiplier, the college alluded to the leakage of expenditures outside the area in order to purchase goods and services that were not available locally.
The economic impact of Barton County Community College for 2001-2002, using the Ryan short-cut model was estimated to be:

<table>
<thead>
<tr>
<th>Expenditure Type</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td>Institutional Expenditures</td>
<td>$ 2,926,214</td>
</tr>
<tr>
<td>Employee Expenditures</td>
<td>$ 2,762,121</td>
</tr>
<tr>
<td>Student Expenditures</td>
<td>$16,239,660</td>
</tr>
<tr>
<td>Visitor Expenditures</td>
<td>$ 144,000</td>
</tr>
<tr>
<td>Total Direct Economic Impact</td>
<td>$22,071,995</td>
</tr>
</tbody>
</table>

The application of the 1.9 multiplier produced a Total Tangible Economic Impact of $41,936,791. The college’s annual budget for 2001-2002 was $12,267,718 yielding a $3.42 return to the taxpayers for every dollar spent (Seybert, 2003).

Using the estimation that seven full-time jobs are created for every $100,000 added directly to an economy (Caffrey & Isaacs, 1971), a total of 1,545 new jobs were created in the college’s service area. This number added to the college’s full-time employment of 288 showed the total employment impact to be 1,833 jobs.

**Christophersen and Robison Model**

In 1999, the Association of Community College Trustees (ACCT) contracted with two researchers, Christophersen and Robison, to develop a comprehensive model for assessing the impact of community colleges. The goal of the ACCT was to develop a model that went beyond the standard computation of the simple multiplier effects stemming from the annual operations of the colleges (Christophersen & Robison, 2002). The economic calculations utilized by Caffrey and Isaacs (1971) and Ryan (1983, 1992) were to be included as a part of the model but were
intended to be only a small part. The model focused more on external social benefits such as reduced crime, improved health, and reduced welfare and unemployment which translate into avoided costs to taxpayers.

The ACCT effort led to the creation of CC Benefits Inc. a company that contracts with two-year technical and community colleges to provide socio-economic impact studies. CC Benefits Inc. has conducted impact analysis studies for over two hundred technical and community colleges since its creation (Christophersen & Robison, 2002).

The analysis is comprehensive and much emphasis is placed on identifying and reporting the positive externalities (Christophersen & Robison, 2002) that result from the presence of the college in a community. The variables in the Socioeconomic Impact model developed by CC Benefits Inc. are earnings, crime, health, welfare, and unemployment. Broad assumptions are made for each of these variables based on education level attained through the college. The researchers state that a broad review of literature adds credibility to the probability estimates (Christophersen and Robison, 2002). The report generated by CC Benefits Inc. for client colleges provides extensive benefit data in four areas: regional economic benefits, higher earnings captured by exiting students, a broad collection of social benefits, and a return to taxpayers for their college support.

A study conducted by Tri-County Technical College in Iowa revealed a 16 percent return on investment for taxpayers, a 35 percent increase in earnings for graduates, and improved healthcare and less job absenteeism for employers. The community could expect to see reduced crime and lower unemployment due to the presence of the college. Benefits to students would include average earnings of $128 more per year for each credit completed (Tri-County Technical College, 2004).
A 2003 CC Benefits Inc. study conducted for West Central Technical College in Georgia indicated an 8.5 percent return on annual taxpayer investment and reduced welfare, unemployment, illness, and incarceration resulting in a savings of over one million dollars per year (Christophersen & Robison, 2003). Drawing from national data, the company estimated that there would be thirty fewer incarcerations, each creating a savings of $331,400 and a combined savings of five hundred million dollars due to the reduced number of people drawing unemployment and welfare benefits. Again using national statistics that estimated the incidence of illness according to the level of education attainment, the study revealed that college graduates would have 2,624 fewer sick days which would result in a savings to area employers of $228,000 per year. The total economic impact of the college annually was calculated to be 60 million dollars.

A study conducted by CC Benefits Inc. for St. Charles Community College in 2003 estimated a total economic impact of $352 million dollars and reduced social costs of 68 million dollars through improved health and reduced welfare, unemployment, and crime (St. Charles Community College, 2004). The report calculated a 12 percent return on investment for each state and local dollar spent on the college’s operation.

Metropolitan Community College, in conjunction with the Nebraska Community College Association, hired CC Benefits Inc. to conduct a study of the college’s economic impact on its service area for the 2002 year. The college asserted that due to findings of CC Benefits Inc. the college was a good investment for taxpayers, students, and the area served by the college. The study found that the costs related to smoking, alcohol abuse, welfare dependency, or incarceration was reduced by $5.7 million per year (Metropolitan Community College, 2004). The report stated that the presence of the college created a “brain gain” due to the fact that 95
percent of its graduates stayed in the area upon graduating. Another finding stated by the study was that students had received around four million credit hours of instruction since 1974 and that instruction added $442.6 million to the economy state. This impact was equivalent to the creation of 13,100 jobs (Metropolitan Community College, 2004).

Comparison of Economic Impact Models

The common goal of economic impact studies is to determine and report the positive factors that result from the presence of a college on a designated area. The seminal approach to accomplish this was developed by Caffrey and Isaacs (1971).

Their effort, while comprehensive in its design, has been perceived by later researchers to be complex and cumbersome. Ryan’s efforts in 1983 and 1992 borrowed from Caffrey and Isaacs but sought to be more user friendly. The Caffrey and Isaacs (1971) model and the Ryan (1983, 1992) models have major similarities. The models go to great lengths to understate their findings in order to maintain credibility for the college. They also rely on the use of multipliers to measure the extent that tax dollars circulate through a school’s service area. As a part of this analysis, the studies also account for the amount of spending that goes outside the area being studied due to leakage.

The most common theme between the Caffrey and Isaacs (1971) model and the Ryan (1983, 1992) studies is that they focus only on the economic impacts of the college on a region. There are no efforts made to gauge the social benefits or impact on human development.

The socioeconomic studies conducted by CC Benefits Inc. address economic impacts of the college but also make an effort to address the human and social results as well. Attention is paid to the flow of the budget dollar through the college’s service area, but equal weight is given to measuring the dollars savings due to reduced illness, welfare dependency, crime, and
unemployment costs. The analysis of these social costs is calculated by comparing data from national studies to the age, sex, and gender of enrollees’ level of academic achievement.

The review of the literature revealed that as a college determines the need to conduct a study that measures its impact on its service area, it also must select a model or procedure that best fits the college and will yield results that can be stated in a meaningful manner for legislators, policy makers, and other stakeholders. There is no apparent guideline to assist researchers in choosing a particular model. There is an abundance of literature available from other colleges and universities that have conducted impact studies. A common message in each study reviewed was an assertion that the tax dollars spent on a particular college was a wise investment for a state or community.

Summary

The purpose of the literature review for this study was to establish a need for the study and to assist in determining the appropriate research methodology. Regarding the need for the study, the following was concluded from the literature and research review.

1. As institutions of higher education seek to state their case for stable or increased funding, much more is needed than anecdotal statements. The literature review revealed researchers as far back as 1962 who attempted to identify positive impacts associated with the presence of a college in a community. While it would appear obvious that the most meaningful finding would be one that showed an impact of the college on the lives and well being of its students, there does not appear to be a credible study that accomplishes that.

2. Coosa Valley Technical College can provide evidence that it is meeting its mission of providing quality programs that assist in developing the workforce of Floyd, Gordon,
and Polk counties. The college has shown considerable growth in enrollment and has expanded its programs into Gordon and Polk counties with the addition of new satellite campuses during the past decade. As competition increases for higher education dollars, specifically in the areas of capital outlay, financial aid assistance for students, and new programs, the college must look to develop a tool that will also assess the economic impact the college has on its service area.

In order to do this, the college must look at the approach taken by other institutions of higher education. The review of the literature indicated that the seminal work of Caffrey and Isaacs (1971) has become the foundation for almost every economic impact study conducted by colleges and universities. From their work evolved the models developed by Ryan (1983) for the New Jersey Community College System and Brookdale Community College. This work was further refined and presented at the National Council for Resource Development in 1992 as the Ryan short-cut model.

Regarding the appropriate research methodology, the following was concluded:

1. It is evident that attempts by college and university leaders to determine the effect their institutions have on the communities they serve rely heavily on formal impact studies. The two primary approaches are the human capital approach and the economic impact method. There does not appear to be a method or model that adequately addresses the human capital approach nor one that is widely accepted as being credible by higher education researchers. The most accepted approach of determining the impact of the college on its service area is to conduct a study using an accepted economic impact model.
2. The Ryan short-cut model utilized by Seybert to determine the economic impact of Barton County Community College on its service area is the most appropriate model for use by Coosa Valley Technical College. This model is a derivative of the Caffrey and Isaacs model (1971). It is less cumbersome than the Caffrey and Isaacs model and relies on data that is accessible from within the college and from nationally published research.

Another reason for selecting the Ryan short-cut model is that the results generated by the model can be easily understood by those not familiar with the terms used by those in higher education. The conservative nature of the model is insured with the selection of a reasonable multiplier and the stated limitation of only focusing on the economic impact of the college. While it is assumed that the college plays a role in the economic development of its region and has a positive effect on the lives of its students, no effort is made to quantify that impact.

Therefore, as a result of the review of literature, it was evident that as other institutions of higher education had sought to determine their impact on the communities they serve, the first choice to be made is selecting a model that will deliver understandable data. The Ryan short-cut model has proven to satisfy researchers who have utilized it to determine the economic impact of colleges that are similar to Coosa Valley Technical College. In addition, the Ryan short-cut model for determining economic impact is appropriate due to the fact that it is conservative by design, utilizes accessible data, and delivers findings that can be reported in an understandable manner.
Chapter 3

Research Methodology

In this chapter, the research methodology used to determine the economic impact of Coosa Valley Technical College on Floyd, Gordon, and Polk counties during the 2004 fiscal year is described. Specially, this chapter contains six sections: (1) statement of the purpose, (2) research questions, (3) economic model and multiplier, (4) data sources, (5) collection of data, and (6) analysis of the data.

Statement of the Purpose

The purpose of this study was to determine the economic impact of Coosa Valley Technical College on its three-county service area during the 2004 fiscal year. In order to clearly state the economic impact of the college for the 2004 fiscal year, the Ryan short-cut model was selected. The model is conservative in nature and is accepted by the higher education community.

Research Questions

The following research questions provided objectives for the study:

1. What was the total economic impact of Coosa Valley Technical College during the 2004 fiscal year?

2. How many jobs were created due to the presence of Coosa Valley Technical College during the 2004 fiscal year?

3. What return on investment did Coosa Valley Technical College deliver during the 2004 fiscal year?
4. Are there identifiable non-economic benefits that can be attributed to the college’s presence in Floyd, Gordon, and Polk counties?
5. Is the Ryan short-cut model appropriate for other technical colleges in Georgia as they seek to determine their impact on the counties they serve?

_Economic Model and Multiplier_

A review of the literature related to economic impact studies of various types of colleges and universities indicated that institutions select the model that best fit its goals. The basic objective of an economic impact study is relatively straightforward – to measure increase in a region’s economic activity attributable to the presence of the college or university (Elliott, Levin, & Meisel, 1988).

The literature review revealed only two economic impact studies conducted for Georgia technical colleges. Brooks (1996) used the Caffrey and Isaacs (1971) economic impact model to determine the impact of Walker Technical Institute on the college’s service area. West Central Technical College employed CC Benefits Inc. to determine the socioeconomic benefits the college brought to the region it served (Christophersen & Robison, 2003).

A close review of the approaches used by the two colleges leads to a decision that a more conservative model is appropriate for a technical college. The Caffrey and Isaacs (1971) model, as reviewed earlier, relies on the computation of data using 45 models and 78 different variables. The model relies heavily on survey data and has been judged by subsequent researchers to be more appropriate for large colleges and universities.

The model developed by CC Benefits Inc. (Christophersen & Robison, 2003) makes the effort to assess not only the fiscal benefits of a college’s budget on a region but also the economic impact of reduced social costs in the areas of crime, welfare, healthcare, and
unemployment benefits. Economists call these indirect benefits, “positive externalities” (Christophersen & Robison, 2003), and they are defined as public benefits to society which result from individuals attaining various levels of education. The process uses nationally published statistics from the U.S. Department of Labor, Centers for Disease Control and Prevention, National Center for Health Statistics, National Institute on Drug Abuse, and the National Institute on Alcohol Abuse and Alcoholism. This data is compared to the level of education attainment of college attendees to estimate the reduced costs to society that are assumed attributable to education.

Socioeconomic data is interesting and might be considered as a component of a broad analysis of the effect of higher education on a community. The extent to which the national data can be applied to a technical college with a defined service area and unique program offerings goes beyond the economic impact analysis desired for this study.

The Caffrey and Isaacs Economic Impact model has been considered the authoritative guide for higher education institutions that wish to determine the economic impact on their surrounding community (Dean, 1991). The model was developed primarily for four-year colleges and universities. Subsequent researchers using the Caffrey and Isaacs model found it to be cumbersome and inappropriate for use by community and technical colleges. The model developed by Ryan (1983) to determine the impact of Brookdale Community College in its service area and the community college system on the state of New Jersey, delivered results that were more relevant using data that was easier to obtain.

The Ryan New Jersey model was modified in 1992. The condensed version of the Ryan New Jersey model was titled the Ryan short-cut model due to the fact that it did not rely on
surveys and cumbersome calculations of data. Rather, it utilized accessible college financial data such as the annual budgets, audit report, personnel records, and student demographic data.

The Ryan short-cut model (1992) was used for the study of Coosa Valley Technical College’s economic impact because it provided a financial representation of the impact of a college on its community using accessible data pertaining to the institution, staff, faculty, and students. The methodology used by Barton County Community College (Seybert, 2003) in assessing impact on the region it served was replicated for this study. The Ryan short-cut model was used to collect data on four major sets of expenditures generated by Coosa Valley Technical College’s institutional, employee, student, and visitors. The sum of this data provided the “direct tangible economic benefit” of the college (Seybert, 2003).

The indirect economic impact of the college results from the additional business value generated by the direct expenditures being multiplied by a number that was selected based on the size of the impact area as well as the availability of goods and services required by the college. Weiss & Gooding (1966) recommended a multiplier ranging from 1.9 to 2.3 for impact studies focusing on geographical areas the size of counties and 1.2 to 4.0 for statewide multipliers. Seybert (2003) selected a very conservative multiplier of 1.9 for the Barton County Community College study due to the rural nature of the seven counties served by the college. Also a factor is the percentage of employees who reside in the college’s service area. For Barton County Community College, 70.9% of the employees reside in one of the college’s seven-county service areas (Seybert, 2003).

Coosa Valley Technical College’s personnel records indicate that 83.7% of the college’s full- and part-time employees reside in either Floyd, Gordon, or Polk County. This indicates a likelihood that a large percentage of discretionary income is spent in the region.
The Barton County Community College study went to great lengths to state the college’s impact in a conservative manner. The 1.9 multiplier is among the lowest of any college impact studies reviewed during the literature review.

For the purpose of the study of Coosa Valley Technical College, a multiplier of 2.5 was chosen. This 2.5 multiplier was selected due to the high percentage (83.7) of the college’s employees who live in the school’s service area and the availability of shopping, entertainment, and sports activities for which the employees’ discretionary income could be spent in the school’s service area.

The Ryan short-cut model is conservative by nature in that it takes into consideration only five major components of the institution’s tangible economic impact. It does not make the effort to measure the impact of the college on local bank’s credit base, the increase of property taxes collected by local and state governments due to the college related expenditures, or employee investments in local properties.

The basic formula of the model used in this study was:

Total expenditures by the institution.

Plus

Total expenditures by employees.

Plus

Total expenditures by students.

Plus

Total expenditures by campus visitors.

Times
A multiplier of 2.5 for the three-county service area to account for additional business volume generated Indirect Economic Impact (Seybert, 2003).

Data Sources

Upon review of the Ryan short-cut model utilized by Seybert (2003) for the economic impact study conducted for Barton County Community College, a list of data available from within Coosa Valley Technical College was compiled. Data obtained from within the college included:

- This fiscal year 2003-2004 budget.
- A list of expenditure for the 2003-2004 fiscal year categorized by locale of vendor.
- A list of full-time and part-time employees for the year categorized by county of residence.
- The Budget Component Rules Form.
- 2004 Cumulative Credit Enrollment Report by campus.

External data included:

- U.S. Census Bureau DP-4 Profile of Selected Housing Characteristics: 2000 for Floyd County, Georgia.
- U.S. Census Bureau DP-4 Profile of Selected Housing Characteristics: 2000 for Gordon County, Georgia.
• U.S. Census Bureau DP-4 Profile of Selected Housing Characteristics: 2000 for Polk County, Georgia.
• U.S. Census Bureau 2000 State and County Quickfacts for Floyd County, Georgia.
• U.S. Census Bureau 2000 State and County Quickfacts for Gordon County, Georgia.
• U.S. Census Bureau 2000 State and County Quickfacts for Polk County, Georgia.

The utilization of the external data coincided with the economic impact study conducted by Barton County Community College.

Collection of Data

An Economic Impact Survey form (Appendix A, Seybert, 2003) was used to record the data in the following areas: institutional expenditures, employee expenditures, student expenditures, and visitor expenditures. The source of data and the manner in which the data was calculated followed directions provided by the Ryan short-cut model (1992) and Barton County Community College (Seybert, 2003).

The directions for completing the Economic Impact Survey are as follows:

Institutional Expenditures – Information Required

• Item 1 – Total college expenditures. The source of this information is the 2003-2004 audit. The figure used should include all expenditures except for salaries and fringe benefits.
• Item 2 – Percentage of college expenditures in Item 1 that was spent in the college’s service area and the percentage spent in the State of Georgia. The source of this information is a report titled, FY04 Vendors By County produced by the college’s Administrative Services office.

Employee Expenditures – Information Required

• Item 3 – Total number of college employees. This information is obtained from the Administrative Services Office Payroll Technician.

• Item 4 – College employees who live in service area, in Georgia, and outside of Georgia. This information is obtained from the Administrative Services Office Payroll Technician.

• Item 5 – Total disposable income available to college employees. The source of this information is the Administrative Services Office Payroll Technician. It is calculated by subtracting all payroll taxes and employee benefits from gross wages paid for the fiscal year.

• Item 6 – Rental expenditures. The source of this data is the median gross rent from the U.S. Census Bureau, Census 2000, Table DP-4, Profile of Selected Housing Characteristics 2000.

• Item 7 – Percentage in service area who rent. The source of this data is the 2000 Census of Housing, Table DP-1, Profile of General Demographic Characteristics 2000. This information is listed by county and the data for each county should be added to calculate the rent for the entire service area.
Student Expenditures – Information Required

- Item 8 – Total number of full-time students. This information is available from the Integrated Postsecondary Education Data System (IPEDS) Data Feed Back Report, 2005 (National Center for Education Statistics, 2005).

- Item 9 – Total number of part-time students. This information is available from the Integrated Postsecondary Education Data System (IPEDS) Data Feed Back Report, 2005.

- Item 10 – Number of students who live in on-campus housing. The college has no on-campus housing.

- Item 11 – Average annual room and board expenditures for students who live in on-campus housing. The college has no on-campus housing.

- Item 12 – Average annual room and board expenditures for full-time students who do not live in on-campus housing. This information is available from the college’s financial aid office and is provided on the Budget Component Rules Form.

- Item 13 – Average annual non-housing education-related expenditures by full-time students. This information is available from the college’s financial aid office and is provided on the Budget Component Rules Form.

- Item 14 – Average annual non-housing education-related expenditures by part-time students. This information is available from the college’s financial aid office and is provided on the Budget Component Rules Form.

- Item 15 – Visitor expenditures. This includes expenditures for lodging, meals, and incidentals by visitors coming from outside the service area.
Item 16 – Total local taxes received. This information is available from institutional records and includes total tuition and fees paid by students.

Item 17 – Total state and federal taxes received. This includes all state and federal taxes received. This data is available from the fiscal year 2003-2004 audit report.

Analysis of Data

Once the Economic Impact Survey (Appendix A) was completed, the data were calculated using the Economic Impact Study Worksheet (Appendix B). The key for calculating each item on the worksheet is:

\[ W = \text{Denotes the response on the Economic Impact Study Worksheet} \]

Example: \[ W18 = \text{Number of full-time students} \]

\[ SQ = \text{Denotes the number of the question on the form used to record the data.} \]

Example: \[ SQ8 – \text{Total number of full-time students fall 2003.} \]

Calculations of the data on the Economic Impact Survey Worksheet provide results which reveal the college’s impact on its service area. Key elements of this survey were the computation of the total institutional expenditures, total employee expenditures, total student expenditures, and total visitor expenditures. The sum of these four calculations, multiplied by the multiplier of 2.5 revealed the estimated economic impact on the college’s service area. The total indirect economic impact on the area was calculated by subtracting the total direct economic impact from the total estimated economic impact on the area.

The calculation of full-time jobs related to institutional spending used by Seybert (2003) in the Barton County Community College economic impact study relied on the Caffrey and Isaacs (1971) estimation that seven full-time jobs are created in a region for every $100,000
added directly to an economy. Thus the total direct economic impact of Coosa Valley Technical College multiplied by .00007 yielded the number of jobs created in the college’s service area due to the institution’s direct expenditures in the region. This figure added to the college’s full-time employment for the 2003-2004 year represents the total number of jobs directly attributable to the college’s expenditures. The total of jobs created was calculated as follows:

Total Direct Economic Impact x .00007 = estimated full-time jobs created by CVTC.

Plus

Full-time employees.

Equals

Estimated Full-time Employment Impact.

Summary

College and university leaders seeking to build a case for stable or increased funding turn to economic impact studies in order to state the fiscal effect their institutions have on the region the college serves. In order to build a case that is credible and understandable for legislators and policy makers, a conservative approach has been suggested by researchers.

The handbook developed by Caffrey and Isaacs (1971) was the model most researchers view as the seminal work for modern data impact studies. CC Benefits Inc. work has focused on the reduced social costs that can be attributed to a college’s presence in a region.

Ryan (1983) greatly condensed the Caffrey and Isaacs model for a study of the New Jersey system of community colleges and Brookdale Community College in particular. Ryan (1992) modified his earlier model into a design that did not rely on surveys of students, staff, or
faculty but relied on financial data available within the college or from published national
sources.

Seybert (2003) utilized the Ryan short-cut model to determine the economic impact of
Barton County Community College on its seven-county service area. This model is being
replicated to determine the economic impact of Coosa Valley Technical College on its three-
county service area for the 2004 fiscal year.
Chapter 4

Results of the Study

This chapter will reveal the results of the study. Included will be an analysis of each of the five research questions and a summary of the findings.

Coosa Valley Technical College is one of thirty-four technical colleges governed by the Georgia Department of Technical and Adult Education. The mission of the college reflects that of DTAE in that it is primarily focused on providing occupational education and workforce development for the citizens of its service area. The college serves Floyd, Gordon, and Polk counties in northwest Georgia, counties with a combined population of 173,355 (U.S. Census Bureau, 2000a, 2000b, 2000c).

The college, as well as the system, has experienced significant growth in enrollment and, subsequently, requests for new facilities. The dilemma facing technical educators in Georgia is that of being able to clearly state the value of the technical colleges to policy makers who are making decisions about appropriating state dollars for new facilities or the HOPE programs. Coosa Valley Technical College prepares an annual report that details the many services it provides to its service area including training for new and expanding industry, its credit program’s performance, and the many federally-funded programs it offers. The college appeared to be meeting its mission of providing workforce development and occupational education to the citizens of Floyd, Gordon, and Polk counties based on the results and activities highlighted in its 2004 Annual Report.
What the college lacked was a method of determining the economic impact of the college on its service area. A review of literature relating to the economic and non-economic impacts of colleges on the communities they serve was conducted to select a model or combination of models most appropriate for Coosa Valley Technical College to determine its impact on its service area. The selection of the appropriate model that was conservative in its analysis and that adequately assesses the impact of a non-transfer, non-residential technical college with the narrow mission of workforce development was critical in the development of this study.

Analysis of the Research Questions

A review of a number of economic impact studies conducted by and for various universities, four-year colleges, community, and technical colleges led to the selection of the Ryan short-cut model. The model uses a formula that captures data relating to institutional, employee, student, and visitor expenditures in the college’s service area. The sum of the expenditures in the categories was identified as the direct economic impact of the college on its region of service. This figure was then multiplied by a number (2.5) chosen by the researcher based on a review of the research of Ryan (1983, 1992), Caffrey & Isaacs (1971), and Weiss & Gooding (1966) and their recommendations for selecting a proper multiplier based on the demographics of a college’s service area. The demographics of Coosa Valley Technical College’s service area include ample shopping, entertainment, and sports on which the college’s employees can spend their discretionary income.

The 2.5 multiplier, once multiplied by the direct economic impact of the college, produced the total direct economic impact of the college for the period of time being studied.

Data was recorded on a form entitled the Coosa Valley Technical College Economic Impact Survey (Appendix A). The data was calculated on the Economic Impact Study Worksheet.
Research Question Number One

What was the total economic impact of Coosa Valley Technical College during the 2004 fiscal year?

Compiling the data called for in the Coosa Valley Technical College Economic Impact Survey and subsequently completing the calculations contained in the Economic Impact Study Worksheet, led to a finding that the college had a total tangible economic impact of $36,851,912 on its service area during the 2004 fiscal year. The compilation of the data, their sources, and required calculations are detailed in the following CVTC Economic Impact Survey for Academic Year 2003-2004.

COOSA VALLEY TECHNICAL COLLEGE
ECONOMIC IMPACT SURVEY
ACADEMIC YEAR 2003-2004

Institutional Expenditures

1. Total college expenditures $6,243,542

2. Percentage of college expenditures
   a. In Service Area 28.49 %
   b. In Georgia 42.45 %

Information for item one was obtained from the college’s FY 2004 audit report. It includes all expenditures made to vendors for items such as equipment, supplies, utilities, services, and other items but does not include salaries, wages, or fringe benefits paid to employees.
Information for item two was obtained from the college’s administrative services office in a report of vendors categorized by county within the college service area and those vendors outside the service area but inside Georgia.

**Employee Expenditures**

3. Total number of college employees

<table>
<thead>
<tr>
<th></th>
<th>Number</th>
<th>%</th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Full-time</td>
<td>204</td>
<td>44.8</td>
</tr>
<tr>
<td>b. Part-time</td>
<td>251</td>
<td>55.2</td>
</tr>
<tr>
<td>c. Total</td>
<td>455</td>
<td></td>
</tr>
</tbody>
</table>

4. College employees who live in service area, in Georgia, outside of Georgia.

<table>
<thead>
<tr>
<th></th>
<th>Full-time</th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>a. Service Area</td>
<td>171</td>
<td>28</td>
<td>5</td>
</tr>
<tr>
<td>b. State</td>
<td>210</td>
<td>35</td>
<td>6</td>
</tr>
</tbody>
</table>

5. Total disposable income available to college employees $5,435,235

6. Rental expenditures

<table>
<thead>
<tr>
<th></th>
<th>Monthly</th>
<th>Annual</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>$48,481</td>
<td>$581,772</td>
</tr>
</tbody>
</table>

7. Percentage in service area who rent 26.4 %

Information for items three, four, and five was obtained from the Office of Administrative Services personnel records. The Direct Expenditures of Employees is determined by calculating the total disposable income of employees by subtracting all taxes and fringe benefits from the college’s total payroll.

The percentage of total disposable income spent by employees on non-housing items was calculated. Added to this amount were the in-county expenditures of non-resident full-time employees which were estimated at a conservative $1,000 per year per employee.
For items six and seven, the information for calculating the housing rental expenditures of resident, full-time employees were calculated from data contained in the U.S. Census Bureau: 2000, Profile of General Demographic Characteristics: 2000, and Profile of Selected Housing Characteristics: 2000 for each county. Pay rates for mortgage and interest for full-time employees were considered investments and not included as a part of employees’ expenditures. Expenditures for part-time employees who were not residents of the three-county service area are not included.

**Student Expenditures**

8. Total number of full-time students fall 2003  
   ![Number](1,099)

Information for item eight was taken from the 2005 IPEDS Data Feed Back Report. A full-time student is defined as one being enrolled for 12 or more credit hours.

9. Total number of part-time students fall 2003  
   ![Number](1,656)

Information for item nine was taken from the 2005 IPEDS Data Feed Back Report. A part-time student is defined as one being enrolled for less than 12 credit hours.

10. Number of students who live in on-campus housing (i.e. dormitories, etc.)  
    ![Number](0)

The college has no dormitories and does not provide housing for students.

11. Average annual room and board expenditures for students who live in on-campus housing (i.e. dormitories, etc.)  
    ![Number](0)

The college has no dormitories and does not provide housing for students.

12. Average annual room and board expenditures for full-time students who do not live in on-campus housing  
    ![Number](\$1,600)
Information for item 12 was obtained from the college’s financial aid office and is contained in the Budget Component Rules Form.

13. Average annual non-housing education-related expenditures by full-time students $4,260

Information for item 13 was obtained from the college’s financial aid office and is contained in the Budget Component Rules Form.

14. Average annual non-housing education-related expenditures by part-time students $2,536

Information for item 14 was obtained from the college’s financial aid office and is contained in the Budget Component Rules Form.

15. Visitor expenditures

<table>
<thead>
<tr>
<th>From Outside Service Area</th>
<th>From Outside Georgia</th>
</tr>
</thead>
<tbody>
<tr>
<td>$240,000</td>
<td></td>
</tr>
</tbody>
</table>

Information for item 15 is an estimate of the amount that a visitor to one of the three campuses would spend on lodging, meals, and incidentals. Only visitors coming from outside of the college’s service area are calculated. Due to inconsistent record keeping of this information, a very conservative figure is used for the estimate. The figure includes construction workers, contractors, and seminar and workshop participants.

**Tax Data**

16. Total state taxes received $12,578,159

Information for item 16 comes from the college’s 2004 Audit Report.

17. Total federal taxes received $1,026,277
Information for item 17 comes from the college’s 2004 Audit Report.

The Economic Impact Study Worksheet below provides for the calculation of data in four categories: Institutional Expenditures, Employee Expenditures, Student Expenditures, and Total Visitor Expenditures from outside the college’s service area.

**Economic Impact Study Worksheet**

<table>
<thead>
<tr>
<th>Data Elements</th>
<th>Data Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Total institutional expenditures</td>
<td>SQ #1</td>
<td>$6,243,542</td>
</tr>
<tr>
<td>W2 % Expenditures in service area</td>
<td>SQ #2a</td>
<td>28.4%</td>
</tr>
<tr>
<td>W3 Total institutional expenditures in service area</td>
<td>W1 x W2</td>
<td>$1,773,166</td>
</tr>
<tr>
<td><strong>Employee Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W4 Employees disposable income</td>
<td>SQ #5</td>
<td>$5,435,235</td>
</tr>
<tr>
<td>W5 Total institutional employees</td>
<td>SQ #3c</td>
<td>455</td>
</tr>
<tr>
<td>W6 Total institutional employees in area</td>
<td>SQ #4a</td>
<td>381</td>
</tr>
<tr>
<td>W7 Percent employees in area</td>
<td>W6/W5</td>
<td>83.7%</td>
</tr>
<tr>
<td>W8 Percent non-housing expenditures for area</td>
<td>See Note 1</td>
<td>67.0%</td>
</tr>
<tr>
<td>W9 Percent of service area resident’s expenditures in area</td>
<td>See Note 2</td>
<td>59.0%</td>
</tr>
<tr>
<td>W10 Disposable income of in-area employees spent in-county on non-housing items</td>
<td>W4 x W7 x W8 x W9</td>
<td>$1,798,335</td>
</tr>
<tr>
<td>W11 Total full-time employees</td>
<td>SQ 3a</td>
<td>204</td>
</tr>
<tr>
<td>W12 Full-time employees in service area</td>
<td>SQ 4a</td>
<td>171</td>
</tr>
<tr>
<td>W13 Non-housing expenditures of full-time, out of service area employees</td>
<td>(W11 – W12) x 1,000</td>
<td>$33,000</td>
</tr>
<tr>
<td>W14 Percent service area residents who rent</td>
<td>See Note 3</td>
<td>26.4%</td>
</tr>
<tr>
<td>W15 Average annual area rent</td>
<td>See Note 3</td>
<td>$5,682</td>
</tr>
<tr>
<td>W16 Rental expenditures of full-time employees</td>
<td>W12 x W14 x W15</td>
<td>$256,508</td>
</tr>
<tr>
<td>W17 Total employee expenditures</td>
<td>W10 + W13 + W16</td>
<td>$2,087,843</td>
</tr>
<tr>
<td><strong>Student Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>-------------------------</td>
<td>--</td>
<td></td>
</tr>
<tr>
<td>W18 Number of full-time students</td>
<td>SQ #8</td>
<td>1,099</td>
</tr>
<tr>
<td>W19 Number of part-time students</td>
<td>SQ #9</td>
<td>1,656</td>
</tr>
<tr>
<td>W20 Number of students in on-campus housing</td>
<td>SQ #10</td>
<td>0</td>
</tr>
<tr>
<td>W21 Average annual room and board expenses in on-campus housing</td>
<td>SQ #11</td>
<td>0</td>
</tr>
<tr>
<td>W22 Annual room and board expenditures for all students in on-campus housing</td>
<td>W20 x W21</td>
<td>0</td>
</tr>
<tr>
<td>W23 Average annual room and board expense for full-time students who do not live in on-campus housing</td>
<td>SQ #12</td>
<td>$1,600</td>
</tr>
<tr>
<td>W24 Number of full-time students who do not live in on-campus housing</td>
<td>W18 – W20</td>
<td>1,099</td>
</tr>
<tr>
<td>W25 Annual room and board expenditures for all full-time students not living in on-campus housing</td>
<td>W24 x W23</td>
<td>$1,758,400</td>
</tr>
<tr>
<td>W26 Average annual non-housing, education-related expenditures for full-time students</td>
<td>SQ #13</td>
<td>$4,260</td>
</tr>
<tr>
<td>W27 Average annual non-housing, education-related expenditures for part-time students</td>
<td>SQ #14</td>
<td>$2,536</td>
</tr>
<tr>
<td>W28 Total non-housing, education-related expenditures full-time students</td>
<td>W18 x W26</td>
<td>$4,681,740</td>
</tr>
<tr>
<td>W29 Total non-housing, education-related expenditures for part-time students</td>
<td>W19 x W27</td>
<td>$4,199,616</td>
</tr>
<tr>
<td>W30 Total Students’ Expenditures</td>
<td>W22 + W25 + W28 + W29</td>
<td>$10,639,756</td>
</tr>
<tr>
<td>W31 Total Visitors Expenditures from outside area</td>
<td>SQ #15</td>
<td>$240,000</td>
</tr>
<tr>
<td>W32 Total Direct Economic Impact on Area</td>
<td>W3 + W17 + W30 + W31</td>
<td>$14,740,765</td>
</tr>
<tr>
<td>W33 Multiplier</td>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>W34 Total estimated economic impact on area</td>
<td>W32 x W33</td>
<td>$36,851,912</td>
</tr>
<tr>
<td>W35 Total indirect economic impact on area</td>
<td>W34 – W32</td>
<td>$22,111,147</td>
</tr>
<tr>
<td>W36 Full-time jobs related to college in area</td>
<td>W32 x .00007</td>
<td>1,031</td>
</tr>
<tr>
<td>W37 Total full-time employment related to college</td>
<td>W11 + W36</td>
<td>1,235</td>
</tr>
<tr>
<td>W38 Total federal taxes received</td>
<td>SQ #16</td>
<td>$1,026,277</td>
</tr>
<tr>
<td>W39 Total state taxes received</td>
<td>SQ #17</td>
<td>$12,578,159</td>
</tr>
</tbody>
</table>
The economic impact of Coosa Valley Technical College on the college’s service area for the 2004 fiscal year was estimated to be:

- **Institutional Expenditures**: $1,773,166
- **Employee Expenditures**: $2,087,843
- **Student Expenditures**: $10,639,756
- **Visitor Expenditures**: $240,000

**Total Direct Economic Impact**: $14,740,765

Coosa Valley Technical College accounted for $14,740,765 of the economy of the college’s service area. This impact was the direct result of spending by the college’s employees, students, and visitors from outside the service area.

The direct spending was multiplied by a multiplier of 2.5 to produce a Total Tangible Economic Impact of $36,851,912.

In summary, a total estimated value of $36,851,912 was generated in Floyd, Gordon, and Polk Counties in 2004 by the expenditures related to Coosa Valley Technical College employees, students, and visitors to the campuses from outside the service area.

*Research Question Number Two*
How many jobs were created due to the presence of Coosa Valley Technical College during the 2004 fiscal year?

Coosa Valley Technical College contributed a significant number of full-time jobs to its service area. Using the estimation put forth by Caffrey and Isaacs (1971) that seven full-time jobs are created for every $100,000 added directly to an economy, a total of 1,031 full-time jobs were created in 2004 by the Total Direct Economic Impact of $14,740,765.

This number of jobs, combined with the number of full-time employees of the college (204), yields a total of 1,235 jobs attributable to Coosa Valley Technical College in fiscal year 2004.

Research Question Number Three

What return on investment did Coosa Valley Technical College deliver during the 2004 fiscal year?

Coosa Valley Technical College received $13,604,436 in total taxpayer support in 2003-2004. The ratio of Coosa Valley Technical College’s total tangible economic impact to taxpayer support is: $36,851,912/13,604,436.

This translates to a return on investment of $2.71 for every one dollar spent by taxpayers for the operation of Coosa Valley Technical College.

Research Question Number Four

Are there identifiable non-economic benefits that can be attributed to the college’s presence in Floyd, Gordon, and Polk counties?

The review of literature addressed the approach of CC Benefits Inc. toward determining the socioeconomic benefits of a community or technical college. These benefits are found in the reduced costs to a community in the area of unemployment insurance, crime, healthcare, and
welfare (Christophersen & Robison, 2003). The reductions are tied to levels of education attainment by demographic groups categorized by age, race, and gender.

The calculation of this data requires reliance on national studies and the assumption that the application of the data will be credible regardless of the demographic environment of the college being analyzed. Schuyler (1998) reviewed nineteen economic impact analyses of community colleges and found that eighteen of the nineteen used the cash flow economic model, one of which was the earlier model developed by Ryan (1983). The effort to develop a research-based model that focuses on non-economic benefits of a technical college is problematic in that Georgia’s technical colleges do not have a system that consistently tracks student leavers sufficiently to make credible statements regarding coursework participation and later social benefits. There are other identifiable benefits that are derived from Coosa Valley Technical College. The college’s annual report highlights accomplishments that cannot be translated into economic benefits but nevertheless are indications that the school is meeting its mission of workforce development.

In the 2004 fiscal year, 10,821 students were served by the college in its credit and non-credit offerings. Credit enrolled accounted for 5,665 of the total and of this number 720 graduated from degree, diploma, or technical certificate of credit programs. Of the graduates, 724 went to work in the field they were trained for, in a related field, or continued their education. The college plays a significant role in the economic development of the three counties it serves. Customized training programs were provided to thirty-one companies in the service area with 1,547 total employees being trained. The Georgia Quick Start program, in conjunction with the college, provided training for ten new or expanding companies during the year. These companies included F&P Georgia, Florida Tile Incorporated, HON Industries,

The college became a licensed Work Keys Center, a certified OSHA Training Center, and provided job fairs and technical career forums for parents of high school and middle school students. Continuing education classes provided self improvement opportunities for 414 area residents in over forty different topics.

Through a collaborative agreement with the Georgia Department of Labor and the Coosa Valley Regional Development Commission, the college provided re-training opportunities for over two hundred displaced workers from forty-three companies in northwest Georgia.

The college’s Business Expansion Center provided entrepreneurial opportunities for ten businesses during the year. The Center, created through a partnership with the Appalachian Regional Commission, ended its third year of operation having created over one hundred jobs for the area.

The Adult Education program provided services to 3,042 clients ranging in age from 16 to 86. The program saw 484 students receive their GED diploma and 1,746 individuals saw documentable gain in literacy as defined by the state of Georgia. Workplace literacy programs were offered in Floyd, Gordon, and Polk counties. Family Learning Centers for parents and their children, age birth to four years, were operated in Floyd and Polk counties.

The New Connections to Work program provided Job Readiness and Life Skills workshops, support groups, survival skills for women seminars, and many other support services to 450 students. Of this number, 115 enrolled in credit occupation programs at Coosa Valley Technical College.
The Georgia Fatherhood program provided counseling and support services to 128 non-custodial parents during the year. Fifty-five of these individuals enrolled in GED classes or credit occupational programs. Seventy-one percent of the group paid child support and six graduated from Coosa Valley Technical College.

Other accomplishments of Coosa Valley Technical College during the year included:

- The Polk County Family Learning Center was nominated to receive the Georgia Economic Developer’s Association Terrific Education Award.
- The college began a cooperative initiative with area high schools titled Project REAL (Relevant Education And Life) with the focus of increasing the number of high school students who enroll at Coosa Valley Technical College.
- The college director of the Service Industry Academy received the Rick Perkins Award which designates the outstanding instructor from within Georgia’s Technical College System.
- The college was audited by the Georgia Department of Audits and received no findings or points.

These accomplishments, detailed in the college’s Annual Report for 2003-2004, indicate that the college is involved in its community and participating in the workforce development activities expected of a Georgia technical college. The annual report makes no attempt of stating the college’s impact on its service area in terms of an economic measurement.

Research Question Number Five

Is the Ryan short-cut model appropriate for other technical colleges in Georgia as they seek to determine their impact on the counties they serve?
The thirty-four colleges governed by the Georgia Department of Technical and Adult Education each have a designated service area consisting of whole counties. Collectively the colleges serve all of Georgia’s 159 counties.

The colleges are similar in their mission, the procedures by which they receive and manage state resources, and deliver credit and non-credit educational programs. While the colleges are a part of a state system and the presidents of the college all report directly to a commissioner, it is the local community that benefits most from the presence of the college.

Each of the colleges has the ability to assist new or expanding businesses with the services of the Georgia Quick Start program and offer literacy and GED preparation for its citizens. New programs can be added to meet regional workforce needs and partnerships created that focus on special populations such as displaced workers, high school students, or non-custodial parents.

It is when the college’s leadership attempts to build a case for funding new programs or a new facility that data portraying the college’s economic impact is lacking. A motivating factor for the effort that led to the development of the Caffrey and Isaacs (1971) model was the belief that “data concerning the economic character of a college would be useful in the occasional struggles that occur between institutions and those persons concerned with taxes or other economic factors in the local economy, in development of plans for the expansion of a college or university, in land use studies, and in appeals to local business and industry to support higher education” (Caffrey & Isaacs, 1971, p. xi).

The Ryan short-cut model will be an appropriate tool for technical colleges as they seek to more clearly tell the story of their impact on their service area for the following reasons:
1. It relies on data that is available within the college or from national reports such as the 2000 U.S. Census.

2. It is conservative in its approach to stating the college’s impact on its service area.

3. It provides a calculation that shows the return on investment of taxpayer dollars.

4. Borrowing from the Caffrey and Isaacs (1971) model, it provides a calculation that reveals the number of jobs created due to the presence of the college.

Each of Georgia’s technical colleges prepares an annual report that includes the accomplishments of the school in the areas of economic development, technical education program results, adult education, and services to special populations. The missing component of being able to state the college’s impact on its service area can be remedied with the addition of the findings of the Ryan short-cut model.

Summary

The Ryan short-cut model was utilized to determine the economic impact of Coosa Valley Technical College on its service areas of Floyd, Gordon, and Polk counties. The model estimated the college’s impact by measuring spending by the institution, employees, students, and visitors to the campus from outside the service area. The model calculated the college’s Total Direct Economic Impact, Total Tangible Economic Impact, Full-time Jobs Created, and Return on Investment.

The results of the analysis revealed that the college had a Total Estimated Economic Impact of $36,851,912, created 1,235 jobs and provided a return on investment of $2.71 for each dollar spent by taxpayers.
Incorporating the findings of the Ryan short-cut model into *Coosa Valley Technical College’s Annual Report* will provide a clear picture of the college’s impact on its service area. This information will assist the college as it seeks to state its case for capital outlay funding, new program funding, or gifts to the college’s foundation.

The approach can be utilized by other Georgia technical college leaders as they seek to better portray the impact of their colleges on the areas they serve.
Chapter 5
Summary, Findings, Conclusions, and Recommendations

This chapter begins with a summation of the study, including the background of the purpose, research procedures, and analysis of the data. Secondly, the findings of the study are reported. Thirdly, conclusions for the study are presented based on the findings. Finally, recommendations for use of the study by GDTAE and Coosa Valley Technical College and recommendations for further study are discussed.

Coosa Valley Technical College and the other thirty-three colleges that fall under the Georgia Department of Technical and Adult Education are faced with the challenge of making a convincing case as they compete each year for capital outlay funds, approval to offer new programs, and lottery funds through the HOPE scholarship and grant programs. Coosa Valley Technical College is able to make a statement that it meets its mission by reporting annually the accomplishment of its programs and services but falls short of stating the estimated economic impact of the school on its service areas.

The University System of Georgia also competes for higher education funding through the Georgia General Assembly. Through the services of the Terry College of Business, an Economic Impact Study estimated the University of Georgia had a total economic impact in excess of 966 million dollars for fiscal year 1998 (Humphreys, Clements, Lowe, & Sapp, 1999). Neither GDTAE nor individual technical colleges have systematically attempted to determine their economic impact.
The ability to state the economic impact that a college has on its service area is not new. The American Council on Education Commission undertook the effort of developing a model that would provide for such studies by stating, “Data concerning the economic character of a college would be useful in the occasional struggle that occurs between institutions and those persons concerned with taxes or other economic factors in the local economy, in development of plans for the expansion of a college or university in land-use studies, and in appeals to local business and industry to support higher education” (Caffrey & Isaacs, 1971, p. xi).

It was the desire to state the economic impact of the college to assist Coosa Valley Technical College in the “occasional struggle” that was the motivation for this study.

Statement of the Purpose

The purpose of this study was to determine the economic impact of Coosa Valley Technical College on its three-county service area during the 2004 fiscal year. In order to clearly state the economic impact of the college for the 2004 fiscal year, the Ryan short-cut model was selected. The model was conservative in nature and is accepted by the higher education community.

Research Procedures

The selection of the Ryan short-cut model for Coosa Valley Technical College was made after comparing it with applications of the Caffrey and Isaacs model (1971), Ryan New Jersey model (1992), and various applications of the model used by CC Benefits Inc. The Ryan short-cut model was used by Seybert to determine the estimated economic impact of Barton County Community College on its service area during the 2001-2002 fiscal year.

The model is a cash flow model that uses data obtained from within the college and from state and federal sources. The data was compiled on the Coosa Valley Technical College
Economic Impact Survey (Appendix A). The data are categorized in four areas: institutional expenditures, employee expenditures, student expenditures, and visitor expenditures.

After the data were compiled, the Economic Impact Study Worksheet was used for calculating the Total Institutional Expenditures, Total Employee Expenditures, Total Student Expenditures, and Total Visitor Expenditures. The sum of these four calculations yielded the Total Direct Economic Impact on the area. This number was multiplied by the 2.5 multiplier to determine the total tangible impact of the college on its service area.

The model allows the validation of the number of jobs created by the college’s presence by borrowing a computation from the Caffrey and Isaacs model. This computation estimates that seven jobs are created for every $100,000 that is spent by the college.

The college’s return on investment is calculated by dividing the college’s Total Tangible Economic Impact by the Total Taxpayer Support.

Analysis of Data

The Ryan short-cut model provides for data collection in four categories: Institutional Expenditures, Employee Expenditures, Student Expenditures and Visitor Expenditures from outside the college’s service area. The sum of the four categories produces the total direct economic impact on the college’s service area.

For Coosa Valley Technical College the Total Direct Economic Impact was calculated as follows:
Institutional Expenditures $1,773,166
Employee Expenditures $2,087,843
Student Expenditures $10,639,756
Visitor Expenditures $240,000
Total Direct Economic Impact $14,740,765

A multiplier of 2.5 was selected for Coosa Valley Technical College. The number multiplied by the Total Direct Economic Impact produced the Total Tangible Economic Impact of the college on its service area. This calculation is shown as follows:

Total Direct Economic Impact $14,740,765
Multiplier 2.5
Total Tangible Economic Impact $36,851,912

The calculation for determining the number of full-time jobs created that is related to the college’s presence was made by multiplying the Total Direct Economic Impact of the college by .00007. This calculation was first offered as a component of the Caffrey and Isaacs model.

For Coosa Valley Technical College this calculation is shown as follows:

Total Direct Economic Impact $14,740,765
Multiplier .00007
Full-time Jobs Created 1,031
This number added to the full-time employees of Coosa Valley Technical College reveals the Total Full-time Employment Related to the College for 2004. This calculation is shown as follows:

- Total Full-time Jobs Related to the College: 1,031
- Total Full-time College Employees: 204
- Total Full-time Employment Related to the College: 1,235

The calculation to determine the Total Return on Investment of total dollars paid into the school was made by adding the total state and federal contributions to the college’s 2004 budget and dividing that sum by the total estimated economic impact on the area. This calculation is shown as follows:

- Total Federal Contributions to Budget: $1,026,277
- Total State Contributions to Budget: $12,578,159
- Total Taxpayer Investment: $13,604,436
- Total Estimated Economic Impact: $36,851,912
- Return on Taxpayer Investment (36,851,912 ÷ 13,604,436): $2.71

The return on taxpayer investment is calculated to $2.71 for every tax dollar spent.

*Findings of the Study*

The following are the findings as analyzed from the research questions formulated for the study.
Research Question Number One

What was the total economic impact of Coosa Valley Technical College during the 2004 fiscal year?

Coosa Valley Technical College had a total tangible economic impact of $36,851,912 on its service area during the 2004 fiscal year. With this information the college will now have the ability to make funding requests that are backed by more than anecdotal statements regarding the value of its presence in Floyd, Gordon, and Polk counties.

Research Question Number Two

How many jobs were created due to the presence of Coosa Valley Technical College during the 2004 fiscal year?

Using the estimation that seven full-time jobs are created for every $100,000 added directly to an economy, a total of 1,031 full-time jobs were created in 2004 by the Total Direct Economic Impact of $14,740,765. This number of jobs combined with the number of full-time employees of the college (204) yields a total of 1,235 jobs attributable to Coosa Valley Technical College in fiscal year 2004. This number is truly impressive in a region of the state that has a total population of less than 180,000 people.

Research Question Number Three

What return on investment did Coosa Valley Technical College deliver during the 2004 fiscal year?

The college’s return on investment for each tax dollar spent during 2004 was $2.71. This amount was calculated by dividing the total tangible economic impact of $36,851,912 by the total of state and federal dollars budgeted for 2004. The college’s ability to announce such a significant return on investment of tax dollars will assist in gaining support from the business
community for the legislative agenda as well as possible support when asking for gifts to the college’s foundation.

Research Question Number Four

Are there identifiable non-economic benefits that can be attributed to the college’s presence in Floyd, Gordon, and Polk counties?

The college’s annual report highlights the outcomes of each of the major divisions of the college. During the 2004 fiscal year, the college served 10,821 students; and of this number 720 graduated from degree, diploma, or technical certificate of credit programs. Through the Division of Economic Development Services, the school provided Quick Start training to ten companies, and another thirty-one companies received customized training on a fee-paid basis. The Adult Education program provided services to 3,042 clients with 484 students receiving a GED.

The college provided services to 450 students in the New Connections to Work Program and another 128 students were served in the Georgia Fatherhood Program. Through the efforts of the Business Expansion Center, ten companies were provided entrepreneurial support during the year.

While these results portray the school as being involved in its community and participating in the workforce development activities expected of a technical college, no attempt is made to label them as having made an economic impact.

Research Question Number Five

Is the Ryan short-cut model appropriate for other technical colleges in Georgia as they seek to determine their impact on the counties they serve?
The Ryan short-cut model is ideally suited for other Georgia technical colleges as they attempt to determine their value on the communities they serve. Each technical college is faced with the challenge of competing with other colleges for capital outlay funding and the opportunity to add new programs.

Although the Georgia technical college system has earned a national reputation for the role it plays in workforce development, there is not a mechanism in place to state the impact of the agency or the individual colleges beyond the annual report or anecdotal evidence found in news releases.

With the lack of sound research that supports the impact on human capital, a technical college must look to a model that addresses its economic impact on the region it serves.

The review of a number of these models led to the decision to utilize the Ryan short-cut model for Coosa Valley Technical College. It will be appropriate for other colleges as well.

**Conclusions**

Based upon the findings reported in this study, the following conclusions have been drawn.

1. Coosa Valley Technical College made a substantial impact on its service area during the 2004 fiscal year. This impact can be stated in terms of the Total Tangible Economic Impact ($36,851,912), number of Full-time Jobs Created (1,235) and the return on investment of the tax dollars spent ($2.71).

2. There are benefits attributable to the presence of the college that cannot be stated in economic terms. These benefits can be described in the college’s annual report and include enrollments, number of graduates, Quick Start training projects, contract training clients, Adult
Education enrollments, the number of GED recipients, and the number of clients served through the Georgia Fatherhood, New Connections, and Workforce Investment Act programs.

3. The Ryan short-cut model is an appropriate tool for technical colleges to use in estimating the economic impact of their presence on the communities they serve. The model is conservative by design, utilizes data easily accessible by the college, and allows for the findings to be presented in a clear and understandable manner.

Recommendations

Recommendations are presented in two sections: (1) utilization of this study by GDTAE and Coosa Valley Technical College and (2) recommendations for further research.

Utilization of the study by GDTAE and Coosa Valley Technical College. The following recommendations are made:

1. Other Georgia technical college administrations should utilize the Ryan short-cut model to determine the economic impact of their colleges on their service areas.

2. The Georgia Department of Technical and Adult Education should consider conducting a statewide economic impact study.

3. The Ryan short-cut model should be utilized each year by Coosa Valley Technical College and its results incorporated into the college’s annual report.

Recommendations for further research.

1. Further research should be conducted regarding the impact that a Georgia technical college has on human capital.

2. Additional studies of economic impact models should be conducted to refine the development of a model that more clearly states the value of the non-economic benefits of a Georgia technical college.
References


Georgia Department of Technical and Adult Education. (2000). Governor Barnes’ five-city tour unveils Georgia’s technical colleges (Press Release). *We’re going to COLLEGE ... you can too!* Atlanta, GA: Author.


Georgia Department of Technical and Adult Education. (2005c). [Minutes of Traditional Manufacturing Focus Group of June 30, 2005].


Appendix A

Coosa Valley Technical College
Economic Impact Survey
Academic Year 2003-2004

Institution: __________________________________________

Counties in Service Area: __________________________________

Name: __________________________________________

Information Required – Institutional Expenditures

1. Total college expenditures ____________________________

2. Percentage of college expenditures
   a. In Service Area ____________________________%
   b. In Georgia ____________________________%

Information Required – Employee Expenditures

3. Total number of college employees
   a. Full-time ____________________________
   b. Part-time ____________________________
   c. Total ____________________________

4. College employees who live in service area, state, out of state.
   a. Service Area ____________________________
   b. State ____________________________
   c. Out of State ____________________________

5. Total disposable income available to college employees ____________________________

6. Rental expenditures
   Monthly ____________________________
   Annual ____________________________

7. Percentage in service area who rent ____________________________%
Information Required – Student Expenditures

8. Total number of full-time students fall 2003

9. Total number of part-time students fall 2003

10. Number of students who live in on-campus housing (i.e. dormitories, etc.)

11. Average annual room and board expenditures for students who live in on-campus housing (i.e. dormitories, etc.)

12. Average annual room and board expenditures for full-time students who do not live in on-campus housing

13. Average annual non-housing education-related expenditures by full-time students

14. Average annual non-housing education-related expenditures by part-time students

15. Visitor expenditures

Information Required – Tax Data

16. Total local taxes received (city, county, etc.)

17. Total state and federal taxes received
## Appendix B
Economic Impact Study Worksheet

<table>
<thead>
<tr>
<th>Data Elements</th>
<th>Data Source</th>
<th>Amount</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Institutional Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W1 Total institutional expenditures</td>
<td>SQ #1</td>
<td></td>
</tr>
<tr>
<td>W2 % Expenditures in service area</td>
<td>SQ #2a</td>
<td></td>
</tr>
<tr>
<td>W3 Total institutional expenditures in service area</td>
<td>W1 x W2</td>
<td></td>
</tr>
<tr>
<td><strong>Employee Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W4 Employees disposable income</td>
<td>SQ #5</td>
<td></td>
</tr>
<tr>
<td>W5 Total institutional employees</td>
<td>SQ #3c</td>
<td></td>
</tr>
<tr>
<td>W6 Total institutional employees in area</td>
<td>SQ #4b</td>
<td></td>
</tr>
<tr>
<td>W7 Percent employees in area</td>
<td>W6/W5</td>
<td></td>
</tr>
<tr>
<td>W8 Percent non-housing expenditures for area</td>
<td>See Note 1</td>
<td></td>
</tr>
<tr>
<td>W9 Percent of service area resident’s expenditures in area</td>
<td>See Note 2</td>
<td></td>
</tr>
<tr>
<td>W10 Disposable income of in-area employees spent in-county on non-housing items</td>
<td>W4 x W7 x W8 x W9</td>
<td></td>
</tr>
<tr>
<td>W11 Total full-time employees</td>
<td>SQ 3a</td>
<td></td>
</tr>
<tr>
<td>W12 Full-time employees in service area</td>
<td>SQ 4a</td>
<td></td>
</tr>
<tr>
<td>W13 Non-housing expenditures of full-time, out of service area employees</td>
<td>(W11 – W12) x 1,000</td>
<td></td>
</tr>
<tr>
<td>W14 Percent service area residents who rent</td>
<td>See Note 3</td>
<td></td>
</tr>
<tr>
<td>W15 Average annual area rent</td>
<td>See Note 3</td>
<td></td>
</tr>
<tr>
<td>W16 Rental expenditures of full-time employees in service area</td>
<td>W12 x W14 x W15</td>
<td></td>
</tr>
<tr>
<td>W17 Total employee expenditures</td>
<td>W10 + W13 + W16</td>
<td></td>
</tr>
<tr>
<td><strong>Student Expenditures</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W18 Number of full-time students</td>
<td>SQ #8</td>
<td></td>
</tr>
<tr>
<td>W19 Number of part-time students</td>
<td>SQ #9</td>
<td></td>
</tr>
<tr>
<td>W20 Number of students in on-campus housing</td>
<td>SQ #10</td>
<td></td>
</tr>
<tr>
<td>W21 Average annual room and board expenses in on-campus housing</td>
<td>SQ #11</td>
<td></td>
</tr>
<tr>
<td>W22 Annual room and board expenditures for all students in on-campus housing</td>
<td>W20 x W21</td>
<td></td>
</tr>
<tr>
<td>Data Elements</td>
<td>Data Source</td>
<td>Amount</td>
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<tr>
<td>---------------</td>
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<td>--------</td>
</tr>
<tr>
<td>W23</td>
<td>SQ #12</td>
<td></td>
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<tr>
<td>W24</td>
<td>W18 – W20</td>
<td></td>
</tr>
<tr>
<td>W25</td>
<td>W24 x W23</td>
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<tr>
<td>W26</td>
<td>SQ #13</td>
<td></td>
</tr>
<tr>
<td>W27</td>
<td>SQ #14</td>
<td></td>
</tr>
<tr>
<td>W28</td>
<td>W18 x W26</td>
<td></td>
</tr>
<tr>
<td>W29</td>
<td>W19 x W27</td>
<td></td>
</tr>
<tr>
<td>W30</td>
<td>W22 + W25 + W28 + W29</td>
<td></td>
</tr>
<tr>
<td>W31</td>
<td>SQ #15</td>
<td></td>
</tr>
<tr>
<td>W32</td>
<td>W3 + W17 + W30 + W31</td>
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</tr>
<tr>
<td>W33</td>
<td></td>
<td></td>
</tr>
<tr>
<td>W34</td>
<td>W32 x W33</td>
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</tr>
<tr>
<td>W35</td>
<td>W34 – W32</td>
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<tr>
<td>W36</td>
<td>W32 x .00007</td>
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<tr>
<td>W37</td>
<td>W11 + W36</td>
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<tr>
<td>W38</td>
<td>SQ #16</td>
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<tr>
<td>W39</td>
<td>SQ #17</td>
<td></td>
</tr>
<tr>
<td>W40</td>
<td>W38 + W39</td>
<td></td>
</tr>
<tr>
<td>W41</td>
<td>W34/W40</td>
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</tbody>
</table>

Notes:
SQ – Survey Questions
W – Response (data element) on this worksheet
2. Calculated as the ratio of retail sales to effective buying income in *Sales Survey of Buying Power “Population, Retail Sales, Effective Buying Income”* by county spent and by county of residence