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A STUDY TO DETERMINE THE ECONOMIC VALUE
OF THE COLLEGE OF EASTERN UTAH
TO CARBON COUNTY
by
Jerry L. Murray

A thesis submitted in partial fulfillment
of the requirements for the degree
of
MASTER OF BUSINESS ADMINISTRATION

Approved:

UTAH STATE UNIVERSITY
Logan, Utah

1967

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Jerry L. Murray

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ABSTRACT

A Study to Determine the Economic Value
of the College of Eastern Utah
to Carbon County

by

Jerry L. Murray, Master of Business Administration
Utah State University, 1967

Major Professor: Dr. Reed Durtschi
Department: Economics

The purpose of this study was to determine the economic impact of the College of Eastern Utah on Carbon County. The amount of income that accrued to County households, due to the College's presence in the County, was used as a measure of this impact.

The College expenditure flow to the County was \$61,610. Faculty salaries amounted to \$318,309, during the 1964-1965 fiscal year. Student expenditure flow to the County was estimated at \$636,254.

Retail trade and service margins were calculated and applied to the College and student expenditure flow. This calculation indicated an income flow of \$122,339, to the County. Wages and salaries paid by the College in the amount of \$318,309, was considered as first round income. The total income flow to the County, due to the presence of the College, was \$440,648.

Relating this amount to job equivalents by dividing the average non-agricultural wage in Carbon County into \$440,648, there were 93 jobs created in the County. This is 2.0 per cent of all non-agricultural jobs in the County.

(61 pages)

INTRODUCTION

Objective and Methodology

The College of Eastern Utah is a fundamental factor in the economy of Carbon County, Utah. Private businesses and individuals derive income from the College, its students and its employees.

The objective of this study is to determine the economic impact of the College of Eastern Utah on Carbon County. The amount of income accruing to Carbon County's households, due to the College's presence in the County, provides one measure of this impact.

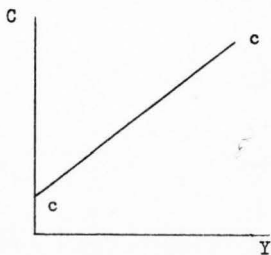
A logical way to achieve this objective is to develop a model to estimate the income for residents of Carbon County generated by the College. It is quite obvious that little can be gained through an economic analysis that is not based upon an analytical approach. Just to say the College of Eastern Utah contributes a substantial amount of income to the County adds nothing to present knowledge.

A model is a simplified statement of theory so constructed as to show a relationship between different variables. An example of a very simple model would be the relationship between income and consumption. When income increases, there is a demonstrable direct relationship with consumption.

In using a model an attempt is made to use what we know or what we think we know to help make realistic predictions. The validity of the information derived by a model, of course, is dependent upon what we assume and the accuracy of the data used in the model.

Graphs or mathematic equations are often used to gain a better

understanding of the relationship of variables. If the relationship between the variables is hard to explain, the variables are often expressed as being functionally related. Income and consumption can be expressed as $C = F(Y)$, or it can be expressed graphically as



Where C is the level of consumption, that will result at any given level of Y or income. The slope of cc is the marginal propensity to consume.¹

The model

Income, in a given area, is created by many factors. In national income accounting, the primary factors contributing to the national income are government spending, expenditures made by consumers, business investments and net exports of goods and services. An increase in any one of these sectors will increase the national income. This is usually expressed in the equation $Y = C + I + (X - M) + G$. C is consumer spending; I is business investment; X is exports; M is imports; and G is government spending. Y is the national income or the nation's spending for currently produced goods and services in one year.

Since we are primarily concerned with Carbon County's income, this

¹The Marginal Propensity to Consume is the extra amount that people will want to spend on consumption if given an extra dollar of income.

national model can be used on the County level. By substituting net county product for "Y", the following equation can be established on a County level: $NCP = C, R$. NCP is the County income; C is the College contribution made to the County's income and R is the income derived by County residents from all other factors such as the government, local businesses, consumers and net exports. Since the Study is limited to the College's contribution, the equation can be simplified to $NCPc = C$. NCPc is the income generated as the result of the College's presence in the County.

One notable aspect of this model is the income multiplier. The multiplier is the ratio between the total change in income and an initial change in income. It is based upon the fact that expenditures of one person flow to another as income. Part of this additional income received is used for consumption and part is held as savings or lost through leakages. These leakages are in the form of taxes and purchases of goods outside the basic boundaries (in this case the County).

In an open economy, such as Carbon County, these leakages are substantial. To illustrate this, it might be assumed that a firm in Carbon County sells goods in the amount of \$100. It typically uses a portion of this money to purchase goods and services from outside County boundaries. No income accrues to County residents as a result of out-of-County purchases. However, a portion of the Carbon County businesses' spending goes to pay wages to employees as well as supplying the firm a profit. These profits and wages become income to County residents. A portion of the wages and profits received by County residents is used to purchase consumer goods. For example, assume that the profit and the wages paid to residents by the firm amounts to \$25. Also assume that

this amount of \$25 is net of taxes and a savings deduction by a local credit union. The \$25 we will designate as first round income. The remaining \$75 is lost to leakages such as cost of goods purchased outside the County, savings and taxes. Repetition of this simple illustration would produce the second round income and if repeated enough, the full multiplier effect could be computed by adding each additional round. In this example, the income was increased by 1.33 times.²

A simplification of this same example is shown in Table 1. The first round income, as shown by this illustration, contains a large proportion of the income generated by any expenditure. Due to the relative insignificance of additional rounds, and the lack of data, time and money to collect information from Carbon County households, the first round income was used for the analysis of this study. This results, of course, in a conservative estimate of County income generated through the College.

Table 1. Hypothetical income multiplier for an open economy

Round	Expenditure in area	Leakages ^a	Cumulative income
-	\$100	-	-
1	25	\$75	\$25
2	6.25	18.75	31.25
3	1.56	4.69	32.81
4	.39	1.17	33.20
5	.16	.29	33.30

^aLeakages include such things as cost of goods that will flow out of the county, federal and state taxes, and savings.

²The calculation for determining the multiplier is as follows: Total leakage is \$75. The formula for the multiplier is $\frac{1}{1-b}$. "b" is the marginal propensity to consume. Therefore, $\frac{1}{1-.25} = 1.33$.

The salaries and wages paid by the College are also considered first round income for purposes of this study. By this it is meant that all wages and salaries obtained from the College have direct impact on the net county product. Therefore, if \$100 is paid in wages, the net county product will increase by \$100.

In order to obtain the amount of income flowing to Carbon County, due to the College, the amounts and sources of student and College expenditures were tabulated or estimated. The College expenditures and faculty salaries were tabulated from the College records. A sample survey was conducted to obtain amounts of and purposes of student expenditures.

The first round income accruing to the net county product was estimated by applying average retail and service margins to student and College expenditure flows. The margins were derived from average profit ratios and payroll-sales ratios of the major expenditure flows. By applying these two ratios, it was possible to distinguish between the cost of goods which left the County and the amount of income, profit and wages, that remained in the County.

The basic model used in this study is illustrated by Table 2. All data in this table are hypothetical. However, it shows income accruing to the County. The figure, \$415,000, is the dollar measure of the College's impact on the County sought in this study.

Table 2. Example of the method used for estimating the first round income accruing to Carbon County because of the College's presence in the County.^a

Category	Expenditure & Salary	Total Margin ^b	First Round Income ^c
College	\$ 60,000	25%	\$ 15,000
Students	400,000	25%	100,000
Salaries paid by College ^d	<u>300,000</u>	-	<u>300,000</u>
Total	\$760,000		\$415,000

^aAll figures are hypothetical

^bThe total margin is the profit-sales ratio plus the payroll-sales ratio of the various expenditure flows.

^cFirst round income is obtained by multiplying the amount by total margins.

^dRatios are not applied to salaries since they are considered first round income.

Some aspects of the economic base study approach were incorporated into this study. Generally, the economic base study is a tool used to analyze the economic background of a city with the objective of predicting its future economic conditions. In this approach, employees of the community, under observation, are classified into two groups - the base group and the non-base group. The base group produces goods and services which are exported outside the local community; therefore, they support the population of the community by dollars that flow into the area due to the exports. The non-base group produces the goods and services which fulfill the needs and desires of the consumers living within the local community.³

³Ralph W. Pfouts, (Ed.) The Techniques of Urban Economic Analysis. (West Trenton, New Jersey: Chandler-Davis Publishing Company, 1960), p. 99.

It should be pointed out that this technique is based upon the assumption that a community is not highly diversified. Therefore, it exports goods which cause a cash inflow to the community. These dollars created by exports are used to import goods and services not produced within the community boundaries. Thus, the amount exported plays an important role in the growth of the basic community.

Carbon County, like most economies, is not highly diversified. Therefore, they transfer goods and services from one geographical region to another based upon the "law of comparative advantage".⁴ In Carbon County's case, it has specialized somewhat on the production of coal and agricultural goods which they export. In turn, the County imports hardware and food goods. As a consequence, nearly all the goods consumed in the County are imported. These imported goods and services are of primary importance to this study. To illustrate their importance, perhaps the status of the student and the College should be considered further.

It has been assumed in several related studies, that students are tourist-like residents. Hence, the value of goods purchased by, and the services rendered to the students, are actually exports. Consequently, any business catering to students is considered, in whole or in part, a key base group.⁵ Therefore, any purchase made by a student in Carbon County can be considered an export, causing dollars to flow into the County. Thus, the net county product will increase. This same idea

⁴David Ricards, Principles of Political Economy and Taxation, Chap. 7, London: J. M. Dent & Sons, Ltd., 1948.

⁵Richard B. Andrews, "Mechanics of the Urban Economic Base Special Problems of Base Identification," Land Economics XXX (1954). p. 260-263.

is also applicable to purchases made by the College.

Having considered College and student expenditures, let us now consider the impact of students holding jobs in Carbon County. Since the students are non-residents, the County is actually importing labor by hiring students. The base study approach suggests a negative adjustment should be instigated due to imported labor.⁶

It would appear, however, that income earned in Carbon County by students would not constitute a decrease to the net county product. Students who are working in Carbon County are being paid for performing a service that adds an economic value to a good or service. If this economic value is expressed in dollars, it offsets the money paid to the students in wages.

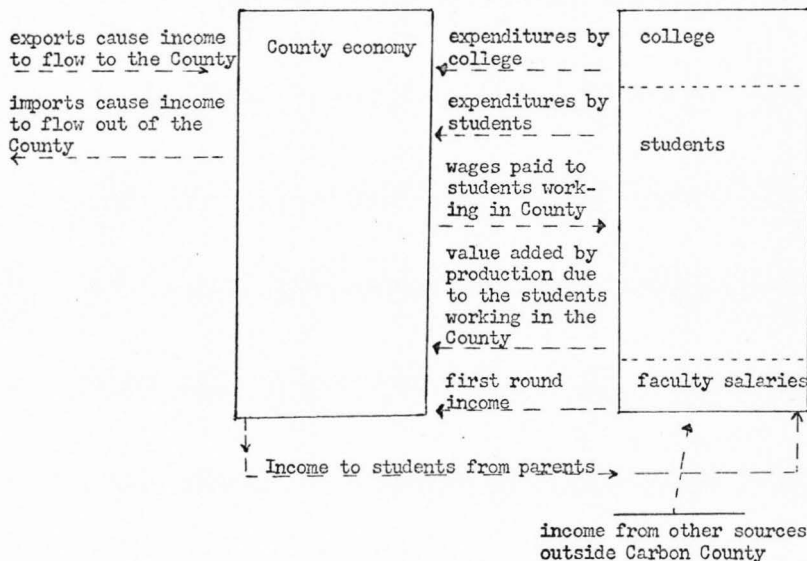
For example, suppose that a student (imported labor) is hired by a firm located within the County boundaries. The firm purchases raw material and partly finished goods from other firms, increases their value by further processing, partly due to the efforts of the students, and then sells them. The amount by which the firm and the student increases the value of the materials purchased from other firms, is the difference between the total value of production and the cost of the material before processing them. This difference is called the value added by production. It is the value added that contributes to the net county product. It is assumed in this example that the contribution to the value added by the student just offsets the amount of income paid in wages to the student.

This analysis is based upon the fact that in a competitive industry,

⁶Ibid.

a firm hires workers up to the point where the value of the marginal revenue product⁷ just equals the wages paid an additional worker. Therefore, if the firm is maximizing profit, the amount paid for the imported wages equals the economic value added by the worker to the goods and services produced.

At this point we can explain the income and expenditure flows between the County and the College by the following diagram:



All flows were previously considered with the exception of the student income coming from parents who live in Carbon County. As can be seen by the diagram, this will decrease the net county product. This is due to

⁷Additional units produced by marginal worker multiplied by the price of output.

the fact that the parents probably would have purchased currently produced goods and services in the County with the money they gave the students. For purposes of this study, this amount of income flowing out of the County will be disregarded. This is based upon the assumption that nearly all the students attending the College of Eastern Utah would go to College regardless of the existence of the College at Price, and that their parents would continue to support them with money. Since the College is not responsible for this reduction to the net county product, it would be unfair to consider it as a reduction to the net county product in this study.

Related studies. Some significant research done in the area of student expenditures are as follows:

In 1953, the United States Department of Education made a study on the "Cost of Attending College". The study covered 110 colleges located in 41 states with results coming from a sample of 15,316. The major findings were as follows:

1. The mean expenditure for college students (undergraduates) was \$1,300. (1952-1953)
2. The mean income for male and female students was \$1,547 and \$1,324 respectively.
3. The mean expenditure for male and female students was \$1,462 and \$1,274 respectively.⁸

In 1953, John W. Alexander conducted the study entitled "An Economic Base Study of Madison, Wisconsin." This study was to determine Madison's prospects for prosperity, growth and stability. In the study, it was

⁸Ernest V. Hollis, Costs of Attending College, U. S. Department of Health Education, and Welfare, Office of Education, Government Printing Office, Washington, D. C., (1957)

necessary to estimate the contribution made by the University to the economy of Madison. It was estimated that the University provided 3,900 basic jobs (\$10,000,000) to the city's economy. This was approximately equal to the number of basic jobs produced by one of the leading manufacturing companies in the area.⁹

In 1964, Jesse R. Dansie conducted a study on the "Student Income and Spending Patterns at Utah State University." Some of his major findings are as follows:

1. The mean expenditure by all students was \$1,821 per school year (1963-1964).
2. The mean expenditure for male and female students was \$1,544 and \$1,165 respectively.
3. Total expenditure for 6,300 students attending Utah State University was estimated at \$11,472,000, with \$9,859,500 being spent in Cache County.
4. Sources of income for female students were: parents - 48.8 per cent; summer employment - 30.6 per cent; employment while attending college - 11.5 per cent; and loans - 2.7 per cent. Single male students obtained income from the following sources: parents - 21.0 per cent; summer employment - 50.5 per cent; other income - 10.0 per cent; scholarships - 8.9 per cent; and employment while attending college - 2.9 per cent.¹⁰

⁹John W. Alexander, An Economic Base Study of Madison, Wisconsin, Commerce Paper, Vol. 1 No. 4 Madison, Wisconsin: University of Wisconsin, School of Commerce, Bureau of Business Research and Service, 1953.

¹⁰Jesse R. Dansie, Student Income and Spending Patterns at Utah State University, Master of Business Administration Thesis, Utah State University, (1964)

Joseph Markowski, in 1964, covered the "Contribution of the Out-of-State Student to the Economy of Utah." He estimated that the mean expenditure per school year for single students was \$1,447; and for married students, it was \$3,215. Using an economic base study approach, he estimated that the out-of-state students generated \$12,229,630 as first round income for the State. By using employment as a unit of measurement, he estimated that 3,370 basic jobs were created in Utah because out-of-state students purchased goods and services in Utah.¹¹

Scope of Study

Time

Data for this study was gathered during the fiscal year, July 1, 1964 to July 1, 1965.

1. A pilot study was administered February, 1965, to test the questionnaire.
2. In April, 1965, after a revision of the questionnaire, it was sent to the students attending the College.
3. The tabulation of College records was made for the fiscal year, 1964, the salaries of the faculty and the College purchases from Carbon County's businesses were obtained after July 1, 1965, for the fiscal year, 1964.

Geographical area

This study was limited to the geographical boundaries of Carbon County. The County is located in the northeastern section of Utah, surrounded by Duchesne, Emery, Uintah, Utah, Sampaete and Grand Counties.

¹¹ Joseph Thomas Markowski, The Economic Contribution of the Out-of-State Students to the Economy of Utah, Master of Business Administration Thesis, Utah State University, (1964)

It covers 1,470¹² square miles with a population of 19,200.¹³ Its major industries are mining and farming and it has an average work force of 6,000.¹⁴

Carbon County is Utah's major producer of coal. Non-agricultural employment is 4,500, and has decreased by .9 per cent from 1953 to 1964.¹⁵ The decrease in employment has occurred largely from coal mining. First, because of the decline in the demand for coal. The increased use of natural gas by industry and households seems to explain this shift in demand. Secondly, because of the increased use of automatic mining equipment. Both have forced a large number of miners to seek employment elsewhere.

Carbon County has four communities with a population exceeding 1,000. Price, the County Seat is the largest with a population of 6,802. In 1960, the population of the urban areas was 9,761, and the rural area was 11,374.¹⁶

The College of Eastern Utah, located in Price, is one of the three junior colleges located in Utah, and is a branch of the University of Utah. Daytime enrollment Spring quarter of 1965 was 462 full-time and 40 part-time students.¹⁷ Fall and Winter quarters' full-time daytime

¹²Commercial Atlas and Marketing Guide, Ossining, New York: McNally and Company, (January, 1964). p. 444-445.

¹³Ibid.

¹⁴Ibid.

¹⁵Ibid.

¹⁶Ibid.

¹⁷According to the College standards, a student who is enrolled for 10 credit hours, is a full-time student.

enrollments were 569, and 549 respectively.¹⁸ It was estimated that the average full-time enrollment at the College during the 1964-1965 school year was 527.

¹⁸This information was obtained from the College Registrar Office.

COLLECTION OF DATA

Salaries - First Round Income

The amount paid in salaries by the College was obtained from the College Comptroller. Salaries paid by the College were classified into the following groups: administration, general institution, instruction, library, plant operation and others. Since this information was obtained at the end of the fiscal year, 1965, all figures were in totals making the tabulation very simple.

College Expenditures

Amounts and sources of goods and services purchased by the College during the fiscal year 1964-1965 were gathered from the College's purchasing records. Each invoice and check was examined to determine the amount and purpose of each expenditure. The checks had been stapled to the invoice and filed according to whether the expenditure had been made by the bookstore, dormitories, studentbody or general fund. The data gathered included only those expenditures made in Carbon County. From this was derived the first round income. Once this information was gathered, it was divided into five major expenditure categories: manufacturing, construction, retailing, services and others. Classification of the College expenditures were made according to the "Standard Industrial Classification Manual."¹⁹

¹⁹Bureau of the Budget, Standard Industrial Classification Manual, Executive Office of the President, Washington, D. C., 1957.

Student Income and Expenditures

Student income and expenditures were estimated from the result of a sample survey.

Sampling procedures

A pilot survey was conducted at Utah State University to determine whether questions asked on the questionnaire were interpreted correctly. Fifty students were asked to fill in the required information and to make any suggestions or comments which would clarify ambiguous questions. Due to the suggestions and comments obtained through the pilot study, the questionnaire was revised to its present structure. An example of the questionnaire can be found in Appendix A.

Three broad areas were covered by the questionnaire. Questions 1 through 6 asked for sex, marital status, whether they were enrolled in college fall quarter, number of credit hours currently carrying, year in college, and residency. Questions 7 and 8 asked for sources of income earned in and outside the County. Question 9 required information on the student expenditures made in and outside Carbon County during the 1964-1965 school year and a breakdown of these expenditures in nine major groups.

In April, 1965, the questionnaire accompanied by a letter of introduction was sent to the President of the College of Eastern Utah. An attempt was made to place a questionnaire in the hands of each student attending the College by giving them to teachers, who in turn, distributed them to the students. Altogether 430 (93.1 per cent) questionnaires were placed with the students - 290 (62.8 per cent) were returned.²⁰

²⁰Per cent is based on the Spring enrollment of 462 full-time students.

One hundred forty-three of the returned questionnaires were eliminated from the study for the following reasons: (1) In numerous cases, the respondent had only filled in information relating to sex, marital status, class and credit hours, and had not completed questions pertaining to "sources of income" or "types of expenditures". (2) Another common practice was to write in such things as, "as much as needed" in response to the question, "approximately what additional (income) will you receive from the following sources." Some of the blanks were filled in with obviously misleading figures. For example, one male student had estimated expenditures in excess of \$100,000 - the entire amount being spent for recreation. (3) Questionnaires were also eliminated if the respondent indicated that he had not enrolled in school during Winter quarter, or if he was taking less than ten credit hours.

Of the 147 questionnaires used, some were only partially completed. In some cases, the income section had been completed, but the expenditure section was blank or visa versa. Where the one section was filled in and the other one not, the completed section was used in the tabulation. Consequently, the number of respondents used in the study for income and expenditures are not the same. Table 3 shows the number of usable questionnaires received from the student groups according to the income and expenditure sections.

Table 3. The number and per cent of usable questionnaires obtained from the survey according to sex and marital status 1964-1965

	<u>Income</u>		<u>Expenditures</u>	
	No. of obs.	Per cent of total	No. of obs.	Per cent of total
Married students ^a	19	17.8	18	13.7
Single students				
Male	55	51.5	64	48.9
Female	33	<u>30.8</u>	<u>49</u>	<u>37.4</u>
Total	107		131	100.0

^aNo information was obtained from the College on how many of the married students were male and female.

As shown in Table 3, 131 or 27.5 per cent of the respondents answered the questions concerning amount of expenditures. Only 107 or 23.2 per cent of the universe responded to the questions pertaining to income. Contributing to this low response rate was the fact that many of the students lived at home and had no idea of the amount their parents contributed to their income.

Representativeness. To establish the representativeness of the sample results, both income and expenditures sample results were used. Table 4 gives a comparison of the universe (527 students) to the accepted sample respondents by marital status and sex. Even though the comparison is not exact in all categories, there was no signifi-

cant difference at the .01 level using the Chi Square Test.²¹

Table 4. Comparison of the number and per cent of full-time students enrolled at the College of Eastern Utah to the number and per cent of the acceptable responses to the sample by marital status and sex 1964 - 1965^a

Student groups	<u>Expenditures</u>			
	Number in ^b universe	Per cent of universe	Number in sample	Per cent of sample
Married students	99	18.8	18	13.7
Single students	428	81.2	113	86.3
Male	287	54.5	64	48.9
Female	<u>141</u>	<u>26.8</u>	<u>49</u>	<u>37.4</u>
Total	527	100.0	131	100.0

Student groups	<u>Income</u>			
	Number in ^b universe	Per cent of universe	Number in sample	Per cent of sample
Married students	99	18.8	19	17.8
Single students	428	81.2	88	82.2
Male	287	54.5	55	51.4
Female	<u>141</u>	<u>26.8</u>	<u>33</u>	<u>30.8</u>
Total	527	100.0	107	100.0

^aIt was found that 19.9 per cent (21 * 107) of the students responding to the questions pertaining to income were non-residents of Carbon County. Of the students responding to the questions pertaining to expenditures, there were 22.4 per cent (32 * 131) non-residents of the County. According to the Enrollment Analysis put out by the Utah Coordinating Council of Higher Education, Table 5a, 25.1 per cent (143 * 569) of the students attending the College Fall quarter of 1964 were non-residents of Carbon County. This gives evidence of representativeness of the sample survey.

^bEstimated enrollment

²¹The results of the Chi Square Test are as follows: Chi Square for expenditures is 8.35. Chi Square for income is 2.15 with two degrees of freedom. The value of X² at the .01 level is 9.21.

Sample reliability. The method used to determine the statistical accuracy of the sample was the confidence interval. Where the sample size was less than 30, the student "t" test was used to find the interval. A 95 per cent confidence level was sought. It is with 95 per cent confidence that the various sample intervals shown in Table 5 contain the true universe mean, based upon the assumption that the sample is a normal distribution.

Table 5. The mean, standard error of the mean and confidence interval of student income and expenditure by marital status and sex 1964-1965

<u>Income earned outside Carbon County</u>				
Student groups	Number of obs.	mean	Standard error of the mean	Confidence interval
Married students ^a	19	\$1,731	502	\$677 - 2,708
Single students				
Male	55	938	89	764 - 1,112
Female	33	787	92	607 - 967
<u>Expenditures made in Carbon County</u>				
Married students ^a	18	\$2,621	408	\$1,960 - 3,682
Single students				
Male	64	1,270	64	1,145 - 1,395
Female	49	1,039	60	921 - 1,157

Source: Data obtained from the questionnaire.

^aThe Student "t" test was used to find the confidence interval degrees of freedom 18 and 17 respectively.

Tabulation of questionnaires. The questionnaires were edited and coded to an IBM sheet. The data was then punched on IBM cards and an

analysis was made. The mean, the standard deviation, and the standard error of the mean were computed by the machine. The "F" test was applied by the machine. Included in this test were class in college, marital status, and sex. There was no significant difference at the .05 level, however, it is quite obvious that there would be a significant difference between the married, single male and single female students' income and expenditures because of the nature of required expenditures by each. Married students would require food and clothing for at least two people. The single male would spend more for entertainment than a single female. Even though the "F" test indicated that there was no significant difference, these three groups were used to estimate student income and expenditures.

PRESENTATION AND ANALYSIS OF DATA

Salaries

The College of Eastern Utah paid out \$339,916 in salaries and wages during the 1964-1965 fiscal year. The number employed at the College during the year ranged from 95 to 110 persons. Of this number, 42 were working full time; the remainder were working for wages as part-time help. ²² Table 6 shows a breakdown of salaries and wages paid during the year.

Table 6. Amount and per cent of wages and salaries paid to faculty and employees at the College of Eastern Utah 1964-1965

Departments	Dollar amount	Per cent of total
Administration	\$ 26,562	7.8
General Institution	12,310	3.6
Instruction	226,483	66.6
Library	10,812	3.2
Plant Operations	31,069	9.1
Organized Services	10,550	3.1
Instruction Services	8,291	2.4
Book Store	1,165	.3
Cafeteria	10,476	3.2
Dormitories	1,019	.3
Cosmetology	<u>1,179</u>	<u>.4</u>
Total	\$339,916	100.0

Source: College records

²² Information received from College Comptroller

Instruction represented the largest category in salaries and wages amounting to \$226,483 or 66.6 per cent of the total. Plant operations was next with \$31,069 or 9.1 per cent, followed by administration at \$26,562 or 7.8 per cent. The lowest category was dormitories at \$1,919 or .3 per cent.

College Expenditures

Expenditures made in Carbon County by the College during the 1964-1965 fiscal year amounted to \$61,125. Table 7 gives the major expenditure categories.

Purchases made from manufacturing establishments amounted to \$2,438 or 3.9 per cent of the total. According to the classification made by the Standard Industrial Classification Manual, this category includes those businesses which are producing mechanical or chemical transformations of inorganic or organic material into completely new products. Such businesses are usually described as plants or factories which are using power-driven machines.²³ Purchases made by the College in this category were primarily from printing companies.

Construction was also a small part of the College expenditures, amounting to \$2,108 or 3.5 per cent. The expenditures for construction would probably vary from year to year depending on the building program of the College. For example, in December, 1966, a building project of significant size was given the go-ahead by the Utah State Building Board for the College of Eastern Utah. This project will cost \$227,250.²⁴

²³Bureau of the Budget, Standard Industrial Classification Manual, Executive Office of the President, Washington, D. C., 1957, p. 73.

²⁴Utah Construction Report, Bureau of Economic and Business Research, College of Business, University of Utah, January, 1967, Vol. 10, No. 1, p.3.

Table 7. College expenditures made in the County according to the major expenditure categories 1964-1965

Categories ^a		Dollar amount	Per cent of total
Manufacturing			
Printing	\$2,438	\$ 2,438	3.9
Construction			
Contract, road	2,108	2,108	3.5
Retail Trade			
Automotive	4,489		
Building Material	6,005		
Apparel	1,009		
Food	5,866		
Home Furnishings	4,122		
Eating and drinking	296		
Miscellaneous	<u>3,015</u>	24,842	40.6
Services			
Hotel	123		
Personal Service	2,044		
Business Services	552		
Motion Pictures	200		
Legal Services	40		
Miscellaneous Repairs	278		
Recreation	2,885		
Miscellaneous	<u>788</u>	6,910	11.3
Others			
Freight	150		
Coal	6,821		
Communication	1,123		
Hospital	6,155		
Water	9,788		
Postage	850	<u>24,887</u>	<u>40.7</u>
Total		\$61,185	100.0

Source: College Purchasing Records

^aClassification was made by the "Standard Industrial Classification Manual"

The construction category includes those businesses which are engaged in contract construction under three broad types: building construction by general contractor, other construction by general contractor, and construction by special trade contractor.²⁵

Service expenditures amounted to \$6,910 or 11.3 per cent. This category includes those businesses primarily engaged in rendering a wide array of services to both individuals and other business establishments. According to the classification manual, those businesses are divided into 18 major groups.²⁶ Eight of these were used by the College.

College expenditures made to retail trade was \$24,842 or 40.6 per cent. Retail trade is described as those businesses engaged primarily in selling goods for personal, household and farm use. It also includes those establishments rendering services incidental to the sale of the goods just mentioned. The distinguishing characteristic of this category is that it buys goods for resale to the consumer. This is the major difference between the agricultural and extractive industries. For example, the farmer who sells his own produce at or near the point of production would not be classified as retail trade.²⁷ Seven of the nine major groups under retail trade were used to classify expenditures made by the College.

²⁵ Bureau of the Budget, p. 35.

²⁶ Ibid., p. 189.

²⁷ Ibid., p. 153.

All other expenditures made by the College were grouped together and labeled as "other expenditures." This amounted to \$24,887 or 40.7 per cent. Most of these expenditures were unrelated lending no means of classification under the four major categories. Such expenditures were mining, transportation, utilities and insurance. It is interesting to note that a large part of the College expenditures were made outside Carbon County. This seems to indicate that the College was able to obtain goods and services at lower prices outside the County; or it is possible that the County did not provide the goods and services that were desired.

Sources of Student Income²⁸

The mean income received in Carbon County by student groups

The mean student income from all sources in Carbon County was \$1,016. This amount accounts for all money received from jobs held by the students in Carbon County during the 1964-1965 fiscal year. However, it does not include money received from parents who are residents of Carbon County. There was no way of knowing the exact number of parents who were residents; therefore, an estimation of the income contributed by the resident parents was made. These estimates and how they were computed can be found in Appendix B. Correction was not made to the mean expenditure shown in tables 8 and 9; however, corrections were made in tables 10 and 11 and the tables shown in Appendix C. The reader should keep this in mind when considering the data. Table 6 shows the mean income received in the

²⁸ Even though the student income data were not needed for determining the first round income, it was collected and presented to make possible a comparison between Carbon College students and students at other institutions.

County according to marital status and sex. The married students' mean income was \$3,121 which is nearly six times larger than the single students' mean income. This difference stems from the large amount of income received from husband or wife working while attending school. The mean income for single males, \$665, was almost twice that received by the single female, \$392.

Table 8. Mean income received in Carbon County by students attending the College according to marital status and sex 1964-1965

Student Groups	Number of obs.	Mean income
All Students	107	\$1,016
Married Students	19	3,121
Single Students ^a	88	563
Male	55	665
Female	33	392

Source: Data from questionnaire

^aIncome received from resident parents not included.

The mean income received from sources outside the County by student groups

Table 9 shows the mean student income received from all sources outside Carbon County according to marital status and sex during the 1964-1965 fiscal year. The mean income received was \$1,032. This is \$16 more than the mean income earned in the County. The mean income for married students was \$1,731, which is only \$701 more than the single students' mean income. Again, the single male students' mean income was larger than the single females', however, not by as much as the income earned from sources in the County.

Table 9. Mean income received outside Carbon County by students attending the College according to marital status and sex 1964-1965

Student Groups	Number of obs.	Mean income
All Students	107	\$1,032
Married Students	19	1,731
Single Students ^a	88	882
Male	55	938
Female	33	787

Source: Data from questionnaire

^aIncludes income received from parents who are residents of Carbon County

It was found that the married students obtained a major portion of their income, 64.3 per cent, from sources within the boundaries of Carbon County. The single students also received or earned most of their income, 62.6 per cent, from sources within the County. The single female student received more income, 63.3 per cent, from sources within County boundaries than did the single male, 57.9 per cent. This is primarily due to the amount of income the single female County residents received from her parents.

More information about sources of income earned or received by the student groups can be found in Appendix B and C.

Total estimated student income

The total estimated income (mean income times the number of students

attending the College)²⁹ received by all students for the 1964-1965 fiscal year was \$1,106,625.³⁰ Married students earned or received 43.4 per cent of this amount; 41.6 per cent was received by the single male and 15.0 per cent by the single female.

Table 10. shows the sources and amounts of income earned in Carbon County. Data for this table was obtained from tables 20, 21 and 22 in Appendix C. The total figures are the results of summing column three of the aforementioned tables.

Table 10. Amounts and per cent of income for all students attending the College by each of the major sources received within Carbon County 1964-1965

Source of income	Amount received	Per cent of total
Parents (residents)	\$126,081	18.5
Job while attending college	226,388	33.2
Husband or wife working	180,284	26.5
Summer job	<u>148,333</u>	<u>21.8</u>
Total	\$681,086	100.0

Source: Tables 20, 21 and 22 in Appendix C

²⁹The number of students attending the College during the 1964-1965 school year was estimated at 527. This is the mean attendance during the three quarters. The number of married students, single male and single females was estimated at 99, 287 and 141 respectively.

³⁰This figure was obtained by summing the income obtained by the married, single male and single female students calculated in tables 20, 21 and 22 in Appendix C.

As shown in Table 10, \$681, 086 or 61.5 per cent was earned from sources within the County. Jobs while attending the College represented the major source of income earned in the County, amounting to \$226,388 or 33.2 per cent. Husband or wife working was next with \$180,284 or 26.5 per cent. The two lowest sources were from summer jobs with \$118,333 or 21.8 per cent; and the amount received from resident parents was estimated at \$126,081 or 18.5 per cent.

Table 11 gives the estimated income that all students received from sources outside the County during the 1964-1965 fiscal year. The total income earned or received was \$425,539 or 38.5 per cent of all income received. Summer jobs represented the highest source of income with \$208,554 or 49.0 per cent of income received outside the County. Husband or wife working accounted for \$61,953 or 14.5 per cent, followed by parents with \$49,252 or 11.6 per cent. The lowest source of income was jobs while attending college with \$21,068 or 5.0 per cent.

Table 11. Amount and per cent of income received outside the County for all students attending the College by each of the major sources 1964-1965

Sources of Income	Amount received	Per cent of total
Job while attending college	\$ 21,068	5.0
Husband or wife working	61,953	14.5
Summer job	208,554	49.0
Scholarships or grants	24,964	5.9
Parents	49,252	11.6
Loans	31,208	7.3
Other	28,540	6.7
Total	\$425,539	100.0

Source: Tables 20, 21 and 22 from Appendix C

See Appendix B and C

Totals for the various income sources were tabulated from the tables in Appendix C.

In summarizing the sources of student income, it was found that more than one half of the students' income was earned or received from sources in the County. Income received in the County amounted to \$681,086 or 61.5 per cent of all income. The remaining 38.5 per cent or \$425,539, was earned from sources outside the County. Both the married and single students earned or received a major portion of their income from sources within the boundaries of Carbon County.

Student expenditures

The mean student expenditure for all students attending the College was \$1,578 during the 1964-1965 school year.³¹

Mean and total expenditures made in and outside Carbon County by sample respondents. Table 12 gives the mean and total expenditures made in Carbon County by married, single male and single female students. A total of 18 married students who responded to the survey accounted for \$50,786 or 35.4 per cent of the total expenditures made in the County. The 113 single students who responded to the survey made up \$139,190 or 64.6 per cent of the total expenditures. The 64 single males who responded accounted for \$88,257 or 46.1 per cent. The balance, \$50,933 or 18.5 per cent, was comprised of expenditures made by the 49 responding single females. The mean expenditure of the married students was over twice as much as that of the single students. The single male students' mean expenditure, \$1,270, was \$231 over that of the single female.

³¹The mean expenditures obtained by Markowski and Dansie were \$1,816 and \$1,821 respectively. This is over \$250 more than the mean expenditure of the students attending the College of Eastern Utah. The difference is primarily due to the amount paid for tuition and the amount paid for rent. Students at the College of Eastern Utah paid less for tuition and rent than the students in the other two studies.

Table 12. Mean and total expenditures made in Carbon County by respondents attending the College according to marital status and sex 1964-1965

Student groups	Number of obs.	Mean expenditure	Total expenditure	Per cent of total
All Students	131	\$1,396	\$189,976	100.0
Married Students	18	2,821	50,786	35.4
Single Students	113	1,168	139,190	64.6
Male	64	1,270	88,257	46.1
Female	49	1,039	50,933	18.5

Source: Data obtained from questionnaire

The total expenditures in Carbon County for the 131 respondents was \$189,976. The mean expenditure within the County for all students was \$1,396.

Table 13 shows the mean and total expenditures made outside Carbon County by married, single male and single female students. The total expenditures made by the 131 respondents was \$16,700, or a mean expenditure of \$128. The 18 married students accounted for \$6,931, or 48.8 per cent of all expenditures made outside the County. The 131 single students accounted for \$9,770 or 51.2 per cent.

Table 13. Mean and total expenditures made outside the County by respondents according to marital status and sex 1964-1965

Student groups	Number of obs.	Mean expenditure	Total expenditure	Per cent of total
All students	131	\$128	\$16,701	100.0
Married students	18	385	6,931	48.8
Single students	113	86	9,770	51.2
Male	64	116	7,430	42.6
Female	49	48	2,340	8.6

Source: Data from questionnaire

Classification of total expenditures made by student groups in and outside Carbon County

Tables 14, 15 and 16 are breakdowns of student expenditures made in and outside the County. Table 14 gives the classification of all expenditures made by the married students. The first column gives the mean expenditure of the nine major groups in and outside the County. The second column is a tabulation of the total expenditures made by the 18 married student respondents to the survey. The third column is the estimated total expenditures (mean expenditure times the number of married students attending the College) made by the 99 married students.

Expenditures made in Carbon County by the 18 married students accounted for \$50,785 or 88.0 per cent of the respondents' spending. Expenditures made outside the County amounted to \$6,939 or 12.0 per cent.

Table 15 gives the breakdown of single male students' expenditures during the 1964-1965 school year. The contents of this table are presented in the same manner as in Table 14. The 64 single male respondents accounted for \$81,257 spent in Carbon County. This is 91.6 per cent of all expenditures. Their expenditures outside the County amounted to \$7,430 or 8.38 per cent of all spending.

Table 16 gives the breakdown of single female students' expenditures in and outside the County. The total expenditure made in Carbon County by the 49 single female respondents amounted to \$50,933 or 95.6 per cent of all their spending. The expenditures made outside the County by this group amounted to \$7,430 or 8.4 per cent.

The estimated expenditures shown in Tables 14, 15 and 16 are tabulated for future use. The sum of these expenditures are found in Table 17.

Table 14. Expenditures made by married students for each of the nine major groups in and outside Carbon County 1964-1965

<u>Expenditures made in Carbon County</u>				
Major groups	Mean expenditure	Total expenditures from sample	Estimated ^a married students total expenditures	Per cent of total
Food - off campus	\$ 720	\$12,954	\$ 71,247	25.5
- on campus	4	75	413	.2
Rent - off campus	404	7,265	39,957	14.3
- on campus	13	240	1,320	.5
Home furnishings	211	3,790	20,845	7.5
Clothing	148	2,670	14,685	5.3
Tuition and supplies	248	4,455	24,502	8.8
Automotive				
Car purchases	464	8,357	45,969	16.5
Gas, oil, repairs	259	4,667	25,668	9.2
Auto insurance	73	1,312	7,216	2.6
Medical care	91	1,630	8,965	3.2
Recreation	106	1,915	10,533	3.8
Others	81	1,455	8,002	2.9
Total	<u>2,821</u>	<u>50,785</u>	<u>279,322</u>	<u>100.3</u>
<u>Expenditures made outside Carbon County</u>				
Food	\$ 122	\$ 2,200	\$ 12,100	31.7
Rent	33	600	3,300	8.7
Home furnishings	12	200	1,221	3.2
Clothing	47	850	4,675	12.3
Tuition and supplies	0	0	0	.0
Automotive				
Car purchases	33	600	3,300	8.7
Gas, oil, repairs	62	1,123	6,177	16.2
Auto insurance	13	236	1,298	3.4
Medical Care	32	580	3,190	8.4
Recreation	16	295	1,623	4.3
Others	12	225	1,238	3.2
Total	<u>385</u>	<u>6,939</u>	<u>38,122</u>	<u>100.1</u>
Total expenditures		<u>\$57,724</u>	<u>\$317,444</u>	

Source: Data from questionnaire

Totals are derived for 99 married students attending the College. The mean expenditure flow was multiplied by the number of married students to arrive at an estimate expenditure for all married students.

Table 15. Expenditures made by single male students for each of the nine major groups in and outside Carbon County 1964-1965

<u>Expenditures made in Carbon County</u>				
Major groups	Mean expenditure	Total expenditures from sample	Estimated ^a Single male total expenditures	Per cent of total
Food - off campus	\$ 244	\$15,643	\$ 70,149	19.2
- on campus	32	2,019	9,055	2.5
Rent - off campus	24	1,505	6,750	1.9
- on campus	18	1,145	5,134	1.4
Home furnishings	19	1,185	5,315	1.5
Clothing	110	7,020	31,481	8.6
Tuition and supplies	242	15,456	69,310	19.0
Automotive				
Car purchases	192	12,303	55,170	15.1
Gas, oil, repairs	141	9,003	40,372	11.1
Auto insurance	48	3,074	13,785	3.8
Medical care	29	1,864	8,357	2.3
Recreation	114	7,271	32,606	9.0
Others	59	3,769	16,901	4.6
Total	<u>1,270</u>	<u>81,257</u>	<u>364,385</u>	<u>100.0</u>
<u>Expenditures made outside Carbon County</u>				
Food	\$ 22	\$ 1,415	\$ 6,346	19.0
Rent	0	0	0	.0
Home furnishings	0	0	0	.0
Clothing	7	435	1,952	5.9
Tuition and supplies	0	10	46	.1
Automotive				
Car purchases	43	2,750	12,332	37.0
Gas, oil, repairs	10	665	2,982	9.0
Auto insurance	6	360	1,613	4.8
Medical care	7	430	1,929	5.8
Recreation	15	975	4,371	13.1
Others	6	390	1,748	5.3
Total	<u>116</u>	<u>7,430</u>	<u>33,319</u>	<u>100.0</u>
Total expenditures		<u>\$88,687</u>	<u>\$397,704</u>	

Source: Data from questionnaire

^aTotals are derived for 287 single male students attending the College. The mean expenditure flows were multiplied by the number of single male students to arrive at an estimated expenditure for all single males.

Table 16. Expenditures made by single female students for each of the nine major groups in and outside Carbon County 1964-1965

<u>Expenditures made in Carbon County</u>				
Major groups	Mean expenditure	Total expenditures from sample	Estimated ^a Single female total expenditures	Per cent of total
Food - off campus	\$ 229	\$11,205	\$ 32,242	22.0
- on campus	38	1,853	5,333	3.6
Rent - off campus	18	904	2,604	1.8
- on campus	35	1,701	4,894	3.3
Home furnishings	7	363	1,045	.7
Clothing	177	8,695	25,020	17.1
Tuition and supplies	241	11,835	34,002	23.2
Automotive				
Car purchases	39	1,910	5,496	3.7
Gas, oil, repairs	82	4,005	11,524	7.9
Auto insurance	22	1,075	3,094	2.1
Medical care	58	2,849	8,198	5.6
Recreation	51	2,523	7,260	5.0
Others	41	2,015	5,797	4.0
Total	1,039	50,933	146,509	100.0
<u>Expenditures made outside Carbon County</u>				
Food	\$ 4	\$ 215	\$ 619	9.2
Rent	0	0	0	.0
Home furnishings	0	0	0	.0
Clothing	24	1,190	3,425	50.9
Tuition and supplies	0	0	0	.0
Automotive				
Car purchases	7	350	1,007	15.0
Gas, oil, repairs	0	10	28	.4
Auto insurance	0	0	0	.0
Medical care	5	265	763	10.3
Recreation	4	200	575	8.5
Others	2	110	316	4.7
Total	48	2,340	6,733	100.0
Total expenditures		<u>\$53,273</u>	<u>\$153,242</u>	

Source: Data from questionnaire, see Appendix A.

^aTotals are derived for 141 single female students attending the College. The mean expenditure flows were multiplied by the number of single female students to arrive at an estimated expenditure for all single females.

Total estimated student expenditures

Table 17 shows the estimated total expenditures in and outside Carbon County during the 1964-1965 school year. Total expenditure made in the County by all students was \$790,217 or 91.0 per cent of all expenditures. Expenditures made outside the County amounted to \$78,170 or 9.0 per cent.

"Automotive" represented the highest expenditure of \$237,030 or 27.31 per cent of all spending. Food and beverage was next with \$207,502 or 23.9 per cent followed by tuition at \$127,861 or 14.73 per cent. Clothing amounted to \$81,237, 9.4 per cent. Rent was \$63,960, 7.4 per cent, and recreation was \$56,968 or 6.6 per cent. The lowest expenditures were "others" at \$34,001, 3.9 per cent; medical care, \$31,402, 3.6 per cent; and home furnishings at \$11,348 or 1.3 per cent.

Perhaps it should be noted here that expenditures for rent are somewhat lower than might be expected. This is due to the fact that most of the students attending the College of Eastern Utah are either residents of Price or live within commuting distance. Therefore, it is likely that they were living at home and were not required to pay rent. Should the enrollment at the College increase substantially, the per cent paid for rent would be higher than 7.4 per cent or \$97 per year per student. Perhaps an extreme example would be the results found by Markowski. In his study, he found that rent amounted to approximately \$383 or 21.07 per cent of all expenditures. In his study, all students paid rent since all were from out of state.³²

³²Joseph Thomas Markowski, p. 58.

Table 17. Estimated total expenditures made in and outside County by all students according to major groups 1964-1965

Major groups	In County expenditures	Outside Co. expenditures	All expenditures	Per cent of total
Food - off campus	\$173,638	\$19,064	\$192,702	22.2
- on campus	14,800	-	14,800	1.7
Rent - off campus	49,312	3,300	52,612	6.1
- on campus	11,348	-	11,348	1.3
Home furnishings	27,205	1,221	28,426	3.3
Clothing	71,186	10,051	81,237	9.4
Tuition	127,815	46	127,861	14.7
Automotive				
Car purchases	106,635	16,639	123,274	14.2
Gas, repairs	77,564	9,187	86,751	10.0
Auto insurance	24,094	2,911	27,005	3.1
Medical care	25,521	5,881	31,402	3.6
Recreation	50,399	6,569	56,968	6.6
Others	30,700	3,301	34,001	3.9
Total	\$790,217	\$78,170	\$868,387	100.1

Source: Tables 14, 15 and 16

Flow of student expenditures

To treat students' expenditures similarly to college expenditures, the total student expenditures are categorized into manufacturing, construction, retail trade, services and others. The total student expenditure flow to the County was estimated at \$636,254 or 80.5 per cent of all expenditures made by the students during the 1964-1965 school year. Table 18 shows these expenditure flows to the County's economy. As illustrated, \$456,228 or 71.7 per cent of students' expenditure flow to the County was to retail trade. Services was next with \$125,230 or 11.7 per cent, followed by "others" with \$54,795 or 8.6 per cent. Manufacturing and construction received no identifiable expenditure flow from the students.

In summary, it was found that total estimated expenditures made by all students amounted to \$868,387 during the academic year.

An overwhelming majority of these students' expenditures were made in Carbon County. Estimated expenditure flow remaining in the County was \$790,217. After an adjustment was made for expenditure flow going to the College, (tuition and housing) the expenditure flow to the County was \$636,254 or 80.5 per cent of all expenditures. The direct impact of this expenditure flow will be estimated by applying retail and service margins. This process is presented in the conclusion section of this study.

Table 18. Flow of student expenditures to major economic categories
in Carbon County, 1964-1965

Categories		Total expenditures	Per cent of total
Manufacturing	\$ 00	\$ 0	.0
Construction	00	0	.0
Retail Trade			
Food and beverage	173,638		27.3
Home furnishings	27,205		4.3
Clothing	71,186		11.2
Car purchases	106,635		16.8
Gas, oil, repairs	<u>77,564</u>	456,228	<u>12.1</u>
Services			
Rent	49,312		7.8
Medical care	25,520		4.0
Recreation	50,399	125,231	<u>7.9</u>
Others			
Auto insurance	24,095		3.8
Others	<u>30,700</u>	<u>54,795</u>	<u>4.8</u>
Total		\$636,254	100.0

Source: Table 17

CONCLUSION

In determining the impact of student and college expenditures, it must be understood that only a relatively small proportion of every dollar spent in the County by the College and its students will remain in the County. This proportion, as previously defined, is first round income received by County residents as profit and wages. This notion is based upon the assumption that Carbon County is not a diversified economy and must import nearly all goods consumed in its boundaries. Therefore, the cost of goods will flow to the firms outside the basic boundaries who are supplying the County with goods and services.

Table 19 shows the total student and College expenditure flows to Carbon County businesses in five major categories. To determine the amount of income accruing to the net county product, profit margins and payroll-sales ratios were applied to these expenditure flows as illustrated in the table. An attempt was made to establish these ratios from information based upon a County level. However, where this information was not available, state or national averages were used.

College and student expenditures for "other" goods and services contain many unrelated expenditure flows. For example, expenditures made by the College, included in this classification, were to utilities, mining and transportation firms. It was also possible that services and retail trade were included in this category due to purchases made by students.

As can be seen, a single industry gross margin would not be representative of this category. It was for this reason that an average margin of retail trade, services, mining, utilities, and transportation was

calculated and applied to the "other" category of spending.

Table 19. First round income generated by College and student expenditures in Carbon County according to five major economic categories 1964-1965

Categories	Total expenditures by College and students	Average ^a profit to sales ratio	Average ^b payroll to sales ratio	Total Margin	1st round income to County
Manufacturing	\$ 2,438	6.6%	22.9% ^c	29.5%	\$ 718
Construction	2,108	4.6	31.6 ^d	36.2	763
Retail trade	403,506	2.5	10.1 ^e	12.6	50,742
Services	209,704	5.0	21.9 ^f	26.9	56,411
Others	<u>79,683</u>	-	-	30.0 ^g	<u>23,905</u>
Total	\$697,439				\$122,339

Source: Tables 7 and 18

^aFirst National City Bank, "Review of Corporation Profits 1965", Monthly Economic Letter, April, 1966, p. 40.

^bThese ratios were calculated by dividing the total sales of the major categories by the amount paid in wages to that category during a given year. For example, the payroll-sales ratio for manufacturing on the national level was 22.9 per cent (\$115,509 ÷ 502,678 million).

^cU. S. Department of Commerce, A Supplement of the Survey of Current Business, (Washington, D. C.: U. S. Government Printing Office, 1965) p. 97 and 147.

^dUtah Economic Business Review, Bureau of Economic and Business Research, College of Business, University of Utah, 1964, Vol. 24. Nos. 2,6,7,8,10, 11, and 12.

^eU. S. Bureau of the Census, Census of Business, 1963, Retail Trade Utah, BC-63-S446, U.S. Government Printing Office, Washington, D. C., 1965, p. 46-22.

^fU. S. Bureau of the Census, Census of Business 1963, Selected Services; Utah, BC63-S446 Government Printing Office, Washington, D. C., 1965, p. 45-23.

^gU. S. Department of Commerce, A Supplement of the Survey of Current Business, (Washington, D. C.: U. S. Government Printing Office, 1965) p. 97 and 145; and First National City Bank, "Review of Corporation Profits 1965", Monthly Economic Letter, April, 1966, p. 40. This ratio is an average of the profit margins and payroll-sales ratio of retail trade, services, mining, utilities and transportation.

In computing this average margin, the profit margins and payroll ratios of the five expenditure flows were averaged.

The total margin for retail trade and service firms was previously computed as 12.6 per cent and 26.9 per cent respectively. (See Table 19) The Monthly Economic Letter reported profit margins nationally for mining as 11.0 per cent; transportation as 7.5 per cent; and utilities as 14.2 per cent during 1965.³³ Payroll sale ratios were estimated nationally at 29.9 per cent (\$4,314 million ÷ \$14,423 million) for mining; 44.3 per cent (\$17,217 million ÷ \$38,836 million) for transportation; and 17.8 per cent (\$4,564 million ÷ \$25,695 million) for utilities.³⁴ The mean ratio obtained from these five categories was 30.0 per cent.

The largest source of first round income was generated by expenditures made to services, \$56,411, followed by retail trade, \$50,742. Other expenditures was next with \$23,905. The first round income generated through expenditures to construction, \$763, and manufacturing, \$718, were much less in significance.

Considering all the expenditure flows, it was estimated that \$122,339 of first round income accrued to the County residents due to the College and student expenditures. To this was added salaries paid directly to County residents by the College in the amount of \$318,309,³⁵ making a total of \$440,648. According to these estimates, approximately \$440,648

³³Monthly Economic Letter, p. 40.

³⁴U. S. Department of Commerce, A Supplement of the Survey of Current Business, (Washington, D. C.: U. S. Government Printing Office, 1965), p. 97 and 145.

³⁵This is the amount paid by the College in wages and salaries less the estimated amount paid to students working for the College. The \$318,309 is considered first round income (\$339,916 - \$21,525 = \$318,309) Total amount paid by the College was \$339,916. The estimated amount paid to the students was \$21,607 (\$41 mean income of the 107 respondents multiplied by 527 total enrollment at College).

of first round income was added to Carbon County's net county product, due to the College's presence in the County during 1964-1965 fiscal year. This is 1.1 per cent of the total County personal income for 1964. (\$440,684 + \$31,110,000)³⁶

To make this figure more meaningful, it might be converted to County job equivalents. This is computed by dividing the first round income by the County's average non-agricultural wage. The purpose of this computation is to show how many jobs the \$440,648 is equal to, excluding the jobs held by the students working for the College. On the basis of the average yearly non-agricultural wage in Carbon County for 1965, the College, its students and staff generated first round income equivalent to the income received by 93 average non-agricultural workers employed in the County (440,648 ÷ \$4,740).³⁷ This is 2.0 per cent of the County's 4,672 non-agricultural workforce for 1965.³⁸

The question that probably will be asked is whether this amount of income is significant to Carbon County's economy. It would appear that it is significant; however, it is realized that the County's economy would not come to a standstill should the College, its students and faculty be moved from the County. Nevertheless, it would cause a substantial drop in the amount of income earned in the County. This would probably be more than the impact estimated by the study. This would be due to the multiplier's reverse effect upon the economy. Nearly every

³⁶Bureau of Economic and Business Research College of Business, Personal Income in Utah Counties, University of Utah, April, 1966, Vol. 26 #3, p.4.

³⁷Utah Department of Employment, 1965, p. B-1. The average non-agricultural wage was \$4,740.

³⁸Ibid.

type of business would experience a decrease in sales, either directly or indirectly due to the College. Indirect effects such as a decrease in population would be felt by the entire County. By removing a company the size of the College from any area definitely would be a substantial loss to an economy similar to Carbon County.

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APPENDIX A

PLEASE FILL IN THE REQUIRED INFORMATION

1. Sex Male () Female ()
2. Marital Status Single () Married ()
3. Were you enrolled in college fall quarter? Yes () No ()
4. How many credit hours are you carrying? _____ (Spring quarter)
5. Year in college Freshman () Sophomore () Other ()
6. Permanent resident of which State _____ County _____
7. Approximately how much money (income) will you earn between June 1, 1964, and June 1, 1965, from the following sources?

	Within Carbon County	Outside Carbon County
--	-------------------------	--------------------------

- | | | |
|--|----------|----------|
| a. From job while attending college. \$ _____
Employed by college Yes ()
No () | \$ _____ | \$ _____ |
| b. Job held by spouse while you are
attending college \$ _____
Employed by college Yes ()
No () | \$ _____ | \$ _____ |
| c. Summer employment \$ _____ | \$ _____ | \$ _____ |
8. Approximately what additional money (income) will you receive from the following sources?

a. Scholarships or grants-in-aid \$ _____	c. Loans \$ _____
b. Parents or relatives \$ _____	d. Other \$ _____
 9. Approximately how many dollars will you spend during the 1964-1965 school year (fall, winter, spring quarters) for goods and services listed below? Make estimates for spring quarter. If married, include expenditures of spouse and children.

	Within Carbon County	Outside Carbon County
--	-------------------------	--------------------------

- | | | |
|--|----------|----------|
| a. Food and beverage - purchased
off campus (If you are living
at home, estimate dollar amount
of food your parents supplied
you during this school year) . .
purchased on campus | \$ _____ | \$ _____ |
| | \$ _____ | \$ _____ |

b. Rent - off campus	\$ _____	\$ _____
on campus	\$ _____	\$ _____
c. Home furnishings (Appliances, rugs, lamps, dishes, etc.)	\$ _____	\$ _____
d. Clothing, footwear, and accessories	\$ _____	\$ _____
e. Tuition, fees, books and other school supplies	\$ _____	\$ _____
f. Automotive		
New or used car purchase . .	\$ _____	\$ _____
Supplies, gas, oil, tires, repairs	\$ _____	\$ _____
Auto insurance	\$ _____	\$ _____
g. Medical and dental care (Drugs and hospital)	\$ _____	\$ _____
h. Recreation and entertainment .	\$ _____	\$ _____
i. Others - all other goods and services	\$ _____	\$ _____

APPENDIX B

Data of income received from parents who were residents of Carbon County.

Income received from parents living in Carbon County as reported by 55 single male respondents.

<u>Mean income from resident and non- resident parents</u>	<u>Total number of single male students</u>	<u>Estimated income received by all male students</u>
\$322.00	\$287.00	\$92,314
Non-resident students	10	18 per cent
Resident students	<u>45</u>	<u>82</u> per cent
Total respondents	55	100

Amount of income received by all single male students from resident parents ($\$92,314 \times 82$ per cent) \$ 75,597

Income received from parents living in Carbon County as reported by 33 single female respondents.

<u>Mean income from resident and non-resident parents</u>	<u>Total number of single female students</u>	<u>Estimated income received by all female students</u>
\$537.00	\$141.00	\$75,725
Non-resident students	11	33 per cent
Resident students	<u>22</u>	<u>67</u> per cent
Total respondents	33	100

Amount of income received by all female students from resident parents ($\$75,725 \times 67$ per cent) \$ 50,484

Total estimated income received from resident parents . . . \$126,081

These estimates were based upon the assumption that the sample married students were not considered here, since there was no means of proving that their parents were residents of Carbon County. Furthermore, there were only two married student respondents that indicated they had received income from their parents.

APPENDIX C

Table 20. Income received in and outside Carbon County by married students according to each of the major sources 1964-1965

<u>Income received in Carbon County</u>				
Sources of income	Mean income	Total expenditures from sample	Total estimated income	Per cent of total
Job while attending college	\$ 948	\$18,005	\$ 93,815	30.4
Husband or wife working	1,821	34,601	180,284	57.7
Summer job	353	<u>6,700</u>	<u>34,911</u>	<u>11.3</u>
Total		\$59,186	\$309,010	100.0
<u>Income received outside Carbon County</u>				
Job while attending college	\$ 81	\$ 1,541	\$ 8,024	4.7
Husband or wife working	626	11,889	61,953	36.2
Summer job	550	10,840	56,482	33.0
Scholarship	97	1,851	9,645	5.6
Parents	74	1,400	7,294	4.2
Loans	253	4,800	25,010	14.6
Others	29	<u>560</u>	<u>2,918</u>	<u>1.7</u>
Total		\$32,881	\$171,326	100.0

Source: Data from questionnaire, See Appendix A

Table 21. Income received in and outside Carbon County by single male students according to each of the major sources 1964-1965

<u>Income received in Carbon County</u>				
Sources of income	Mean income	Total expenditures from sample	Total estimated income	Per cent of total
Parents (residents)	-	-	\$ 75,597	28.4
Job while attending college	\$ 327	\$17,960	93,720	35.2
Husband or wife working	0	0	0	.0
Summer job	338	<u>18,600</u>	<u>97,058</u>	<u>36.4</u>
Total		\$36,600	\$266,375	100.0
<u>Income received outside Carbon County</u>				
Job while attending college	\$ 45	\$ 2,500	\$ 13,044	6.7
Husband or wife working	0	0	0	.0
Summer job	488	26,850	140,108	72.3
Scholarship or grant	32	1,765	9,210	4.8
Parents ^a	322	17,691	16,717	8.6
Loans	18	983	5,129	2.7
Other	33	<u>1,825</u>	<u>9,523</u>	<u>4.9</u>
Total		\$51,614	\$193,730	100.0

Source: Data from questionnaire, see Appendix A.

^a\$92,314 less \$75,597 equals \$16,717. See Appendix B.

Table 22. Income received in and outside Carbon County by single female students according to each of the major sources 1964-1965

<u>Income received in Carbon County</u>				
Sources of income	Mean income	Total expenditures from sample	Total estimated income	Per cent of total
Parents (residents)	-	-	\$ 50,484	47.7
Job while attending college	\$ 276	\$ 9,093	38,853	36.8
Husband or wife working	0	0	0	.0
Summer job	116	<u>3,830</u>	<u>16,364</u>	<u>15.5</u>
Total		\$12,923	\$105,701	100.0
<u>Income received outside Carbon County</u>				
Job while attending college	\$ 0	\$ 0	\$ 0	.0
Husband or wife working	0	0	0	.0
Summer job	85	2,800	11,964	19.8
Scholarship or grant	43	1,430	6,110	10.1
Parents ^a	537	17,723	25,241	41.7
Loans	8	250	1,069	1.8
Others	114	<u>3,768</u>	<u>16,099</u>	<u>26.6</u>
Total		\$25,971	\$ 60,483	100.0

Source: Data from questionnaire

^a\$75,725 less \$50,484 equals \$25,241. See Appendix B.

VITA

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