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ABSTRACT

Direct and indirect contributions of nine Arkansas universities to the economic well-being of the state, as well as the expected rate of return from support of higher education, were assessed. In-state expenditures by the universities and local expenditures by university staff and students were measured. A major impact was the value of business property, real estate, and inventory in Arkansas attributable to the presence of the universities. Another impact was the expansion of banks' credit base due to deposits from the universities, university staff, and students. Business volume attributable to selected Arkansas universities was estimated to be over $940 million in fiscal year 1983, or 3 percent of the state's total business volume. Local business property and inventory committed to university-related business amounted to over $175 million, or 9 percent of the total property and inventory in the state. Money deposited by Arkansas universities and their staffs and students expanded bank credit in the state by over $85 million. Almost $21 million of local business volume was generated by campuses enterprises (e.g., bookstores and food services). The universities also created tax revenues for the state, 36,000 jobs, and $400 million in personal income. (SW)

HIGHER EDUCATION'S ECONOMIC IMPACT IN ARKANSAS

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INTRODUCTION

Since Harvard was established in 1636 there has been a recognizable interdependence between the economy and higher education. Changes in the economy at both national and local levels affect the enrollments, curricula, and the financial well-being of colleges and universities. Higher education contributes to the growth of human resources and provides services to business and industry. By their presence alone, institutions of higher education are important economic as well as social and cultural assets to the state.

Colleges and universities channel resources into the state which otherwise might be invested elsewhere. Students and institutions receive various forms of student aid, tax-supported loans and scholarships, alumni contributions, and corporate and philanthropic gifts, grants and endowments, all of which may originate all or in part from outside the state. Higher education institutions disburse these funds within the state as salaries, tax revenues, and payments for goods and services from area businesses.

Colleges and universities also provide services and facilities for businesses, as well as for agriculture and government. Their faculty serve as researchers, consultants, testers, trainers, advisors, board members, staff for continuing education programs, and seminar and conference leaders. They also benefit society by offering improved understanding of technical, medical, social, and cultural events. Colleges and universities produce jobs, consume goods and services, build and own property, and deposit and invest money in the state.

Many studies have been and are being done nationwide to measure, both in quantitative and qualitative terms, this impact of individual institutions on the economies of their respective communities (Erwin & Miller, 1982; Felicetti, 1984). In Arkansas, "The Economic Impact of the University on the Fayetteville Community" (Vorsanger, 1975) described the effect the University of Arkansas had on the city of Fayetteville. Another Arkansas study, "Higher Education and Arkansas: The Future of the State and Her People" (Chamberlin, 1983) explored economic and quality of life incentives for pursuing higher education in Arkansas. "The Economic Impact of ASU on the Jonesboro Area" (Hoyt, 1985) estimated the impact of expenditures by Arkansas State University employees and students in Jonesboro and surrounding Craighead county.

The availability of such studies can be of substantial value to college and university officials, and to those persons who make decisions in developing policies having to do with support for higher education.

It was the objective of this study to gather and present such information as was available to add to the current body of knowledge concerning these questions critical to the future of higher education in Arkansas.

1. What do Arkansas' institutions of higher education contribute directly or indirectly to the economic well-being of the state in terms of payrolls generated, purchases of goods and services, capital assets acquired, taxes, and other contributions?

2. What is the expected economic rate of return per dollar of funds invested in higher education in Arkansas?

The Economic Impact of Higher Education in Arkansas (Kennedy, 1984) investigated the economic assets--business, government, and individual--related to Arkansas' four-year institutions of higher learning based on the model developed by John Caffrey and Herbert Isaacs for the American Council on Education (1971).

The institutions surveyed were Arkansas State University (Jonesboro), Arkansas Tech University (Russellville), Henderson State University (Arkadelphia), Southern Arkansas University (Magnolia), the four University of Arkansas branches (Fayetteville, Little Rock, Monticello, and Pine Bluff), and the University of Central Arkansas (Conway).

FINDINGS

SUMMARY OF UNIVERSITY-RELATED IMPACTS

Source	Amount	Per Student FTE
*Business Volume	$947,671,875	$20,280
*Business Property	$178,177,524	$3,757
*Bank Credit Base	$87,099,435	$1,864
*College-Generated Volume	$20,813,034	$445
*Government Revenues	$4,571,354	$98
*Jobs	36,831	0.8*
*Personal Income	$404,152,662	$8,649
*Durable Goods	$18,591,024	$398

*For every 10 students, 8 jobs were created.

SUMMARY OF ECONOMIC MULTIPLIERS	
*Business Volume	2.37
*Employment	4.16
*Personal Income	2.88

Business volume related to nine major Arkansas universities was estimated to be over $940 million in fiscal year 1983, which represented three percent of the state's total business volume that year. Of this amount nearly $400 million was contributed by the expenditures of these colleges while over $240 million was attributed to purchases within the state by businesses in support of these expenditures. Business volume stimulated in Arkansas by the expenditure of university-related income by individuals other than faculty, staff, or students amounted to almost $300 million. For illustrative purposes, it could be stated that this impact amounted to over $20,000 of annual business generated per full-time student.

Arkansas universities impacted also on the property and inventories which were necessary to generate this business volume. More than $175 million in business property and inventory was related to the universities in this study which represented nine percent of the total business property and inventory in the state. For each full-time student, nearly $4,000 worth of business property and inventory resulted from college-related influences.

The expansion of the bank-credit base in Arkansas due to university-related deposits was over $85 million. Close to $21 million of business volume was generated by campus food services and bookstores.

The share of government revenues attributed to the presence of Arkansas universities was over $4.5 million which was a very low estimate due to the unavailability of some information needed for the model measuring this impact. Still, for each full-time student, almost $100 was collected in the form of taxes or other revenues by the state.

Over 36,00 jobs and $400 million in personal income were attributed to the presence of Arkansas universities. In addition, over $18 million worth of durable goods were purchased with income from college-related jobs and business activities. For every ten students, eight jobs were created. Each student created nearly $9,000 in additional income for local individuals and purchased almost $400 worth of durable goods.

For every dollar of university-related expenditures as institutions, by faculty, staff, students, and visitors, an estimated $2.37 of business volume was created in the state. In other words, the multiplier effect of university-related expenditures in Arkansas was estimated to be 2.37 for 1982-83. There were 36,831 jobs attributable to the presence of the universities in Arkansas. Of these, 8,843 were direct employees and 27,988 were induced by university-related expenditures, which yielded an employment multiplier of 4.16. For each person employed directly by the universities, three more persons were employed as a result of university-related expenditures.

Total personal income generated from jobs attributable, directly and indirectly, to Arkansas's universities amounted to $404,152,662. Of that figure, indirect income was $263,891,098 while direct income was $140,261,564, an income multiplier effect of 2.88. For each dollar expended by the universities $2.88 was generated in personal income.

Business impact

This section measured the volume of in-state expenditures by the universities along with the local expenditures by university faculty, staff, and students. Their salaries and wages were spent in Arkansas for rent, mortgage payments, goods and services, savings, necessities, and other costs. In addition, the universities attracted out-of-state visitors to various functions who spent money locally. These expenditures impacted on municipalities as well as the state.

Another major impact was the value of business property, real-estate, and inventory in Arkansas attributable to the presence of the universities. A third impact was the expansion of banks' credit bases due to deposits from the universities, faculty, staff, and students. Also, the universities provided services such as bookstores and food services for their students.

Each of these effects in listed. They have increased impacts statewide through the multiplier effect. That is, when a university purchases desks and chairs for a classroom or office, a salesperson earns a commission, the manufacturer sells a product; and indirectly, the suppliers of the materials used in the manufacture of the furniture realize a profit from their investment.

Business Volume

Business volume related to selected Arkansas universities was estimated to be over $940 million in fiscal 1983, three percent of the state's total business volume that year of approximately $31 billion. Within counties, the impact ranged from lows of 1.5 and 4 percent to highs of 16 to 19 percent. The others hovered around the ten percent range. Little Rock and Pine Bluff are in the two most populous counties in Arkansas. The businesses there do not necessarily depend on the local universities for their existence. In Monticello, Jonesboro, Fayetteville, and Conway the local universities' impacts are much larger relative to community activities, and the businesses are much more dependent on the presence of the schools in these locales. This impact amounted to $20,280 of annual business generated per full-time student.

TABLE 1. COLLEGE-RELATED LOCAL BUSINESS VOLUME

$$BV_{CR} = (E_L)_{CR} + (P_{LB})_{CR} + (BV_I)_{CR}$$

TOTAL $947,671,875 = $399,897,924 + $247,897,701 + $299,876,250

BV_{CR}, college-related local business volume, was the sum of college-related local expenditures, $(E_L)_{CR}$; purchases from local sources by local businesses in support of their college-related business volume, $(P_{LB})_{CR}$; and local business volume stimulated by the expenditure of college-related income by local individuals other than faculty, staff, or students, $(BV_I)_{CR}$.

Business Property

Arkansas' universities impacted not only upon business volume, but also on the property and inventories necessary to generate such volume. The more than $175 million in business property and inventory related to the nine universities in this study represented nine percent of the close to two billion dollars in total property and inventory in the state. For each full-time student who attended one of these universities, $3,757 worth of business property and inventory resulted from college-related influences.

TABLE 2. VALUE OF LOCAL BUSINESS PROPERTY COMMITTED TO COLLEGE-RELATED BUSINESS

$$(PR_B)_{CR} = (RP_B)_{CR} + (I_B)_{CR}$$

TOTAL $178,177,524 = $64,456,899 + $113,720,625

$(PR_B)_{CR}$, the value of local business property committed to college-related business, was the sum of the value of local business real property committed to college-related business, $(RP_B)_{CR}$, and the value of local business inventory committed to college-related business, $(I_B)_{CR}$.

Bank Credit

Banks are allowed by the Federal Reserve System to loan money based on a percentage of their deposits. The money deposited by Arkansas universities and their faculty, staff, and students increased the funds available for loan, impacting businesses throughout the state, although more so in the local communities. The expansion of this bank credit in Arkansas due to university-related deposits was over $85 million.

TABLE 3. EXPANSION OF THE LOCAL BANKS' CREDIT BASE RESULTING FROM COLLEGE-RELATED DEPOSITS

$$CB = (1-d) \times (D_c + (D_f \times F) + (D_s \times S) + (cbv \times BV_{CR}))$$

TOTAL $87,099,435 = (1-0.03) x ($1,011,556 + ($1847 x 8843)
+ ($800 x 46,731) + (0.037 x $947,671,875))

(CB), expansion of the local banks' credit base resulting from college-related deposits, was defined functionally above. The elements included local time-deposit and demand-deposit reserve requirements, (d), average deposits of the college in local banks, D_c, average deposits of each faculty and staff person in local banks, D_f, average deposits of each student in local banks, D_s, the total number of faculty and staff, (F), the total number of students, (S), the cash-to-business-volume ratio, (cbv), and college-related local business volume, BV_{CR}.

College-Generated Business Volume

Universities operate campus enterprises which compete, in a sense, with existing or potential local private businesses. It should be noted, however, that if the universities were not present this business would not exist. As an indication of the magnitude of this market, food services and bookstore sales were available to measure. Just under $21 million of local business volume was generated due to the presence of these enterprises.

TABLE 4. LOCAL BUSINESS VOLUME GENERATED BECAUSE OF THE EXISTENCE OF COLLEGE ENTERPRISES

$$(BV_U)_C = (I_{BV})_{C1} + (I_{BV})_{C2}$$

TOTAL $20,813,034 = $11,440,826 + $9,372,208

$(BV_U)_C$, local business volume generated because of the existence of college enterprises, was the sum of receipts for food services, $(I_{BV})_{C1}$, and bookstore sales, $(I_{BV})_{C2}$.

Government Impact

The impact on state government was the second major area of interest in this study. Most important were the tax revenues attributed to the presence of Arkansas universities. These revenues included real-estate taxes, personal property taxes, and sales taxes received from faculty, staff, and students of the college and from local businesses on property allocated to their college-related sales. Certain federal funds were returned to the state on a per capita basis. The presence of over 4,000 public school children of college-related individuals contributed to this revenue sharing.

Government Revenues

The share of government revenues attributed to the presence of Arkansas universities was over $4.5 million. This figure was quite low due to the unavailability of some information needed for the model. Nevertheless, for each fulltime student attending one of the universities, almost $100 was collected in the form of taxes or other revenues by the state.

TABLE 5. COLLEGE-RELATED REVENUES RECEIVED BY LOCAL GOVERNMENTS

$$R_{CR} = (R_{RE})_{CR} + (R_{NRE})_{CR} + (R_A)_{CR}$$

TOTAL $4,571,354 = $2,335,494 + $1,737,915 + $497,945

R_{CR}, college-related revenues received by local governments, was the sum of college-related real-estate taxes paid to local governments, $(R_{RE})_{CR}$, college-related property taxes, other than real-estate, paid to local governments, $(R_{NRE})_{CR}$, and federal aid to local governments allocated to the presence of the college, $(R_A)_{CR}$.

Individual Impact

Individuals are also affected by the existence of Arkansas universities. Notable among these are jobs created and the resulting personal income. Over 36,000 jobs and $400 million in personal income were attributed to the presence of these schools. In addition, over $18 million worth of durable goods were purchased with income from college-related jobs and business activities. For every ten students, eight jobs were created. Each student created $8,649 in additional income for local individuals, having purchased $398 worth of durable goods in the process.

TABLE 6. NUMBER OF LOCAL JOBS ATTRIBUTABLE TO THE PRESENCE OF THE COLLEGE

$$J_L = F + (j \times (EL)_{CR})$$

TOTAL 36,831 = 8,843 + (0.00007 x $399,897,924)

J_L, the number of local jobs attributed to the presence of the college, was defined above. The variables used were the total number of faculty and staff, (F), the number of full-time jobs per dollar of direct expenditures in the local environment, (j), and college-related local expenditures, $(E_L)_{CR}$.

TABLE 7. PERSONAL INCOME OF LOCAL INDIVIDUALS FROM COLLEGE-RELATED JOBS AND BUSINESS ACTIVITIES

$$PI_{CR} = (f_L \times W_F) + (p \times (E_L)_{CR})$$

TOTAL $404,152,662 = (1.00 x $140,261,564) + (0.66 x $399,897,924)

PI_{CR}, personal income of local individuals from college-related jobs and business activities, was the sum of two products. The first product was the proportion of faculty and staff who resided locally, f_L, and the gross compensation to faculty and staff, W_F. The second product was the payrolls and profits per dollar of local direct expenditures, (p), and college-related local expenditures, $(E_L)_{CR}$.

TABLE 8. DURABLE GOODS PROCURED WITH INCOME FROM COLLEGE-RELATED JOBS AND BUSINESS ACTIVITIES

$$DG_{CR} = i \times PI_{CR}$$

TOTAL $18,591,024 = 0.046 X $404,152.662

DG_{CR}, durable goods procured with income from college-related jobs and business activities, was the product of the proportion of total income typically used to purchase durable goods, (i), and personal income of local individuals from college-related jobs and business activities, PI_{CR}.

CONCLUSIONS

Two questions were posed initially in this study. They referred to direct and indirect contributions of Arkansas' universities to the economic well-being of the state, as well as the expected rate of return from investments committed to higher education. The contributions and returns seem to speak for themselves: University-related business volume amounted to well over $900 million. Local business property committed to university-related business amounted to over $175 million. University-related deposits expanded Arkansas' banks' credit base by over $85 million. Just under $21 million worth of business volume was generated by college enterprises competing with local enterprises.

Local governments in Arkansas received over $4.5 million in university-related revenues. Over 36,000 jobs were attributable to the presence of these universities. $400 million in personal income came from university-related jobs and business activities. Over $18 million in durable goods were procured with this income.

Each dollar invested in higher education returned $2.37 in business volume and $2.88 in personal income. For each person employed directly by the universities, three more persons were employed because of university-related expenditures.

It must be noted that the figures above underestimated the true picture. Not included are the community colleges, the medical school, private colleges, and agricultural research and extension programs. The model itself, by the admission of the authors, was conservative in design. Not all of the information needed for the models was available so some of the totals were less than they might have been. In some cases estimates were made. Each time, a conservative figure was recorded. The usury law in effect in 1982 may well have had a depressing effect on the totals (Johnson, 1983). Since its repeal in the fall general election of that year the figures probably have increased. Nevertheless, it seems clear that state higher education has had a tremendous impact on the economy of Arkansas. The presence of the state universities has increased business volume, the availability of jobs, and personal income.

IMPLICATIONS

There are long-range economic effects due to the presence of Arkansas' four-year universities. For each dollar spent by them for wages, services, goods, and other procurements, there will be many individuals, institutions, and businesses who will benefit directly or indirectly from the original expenditures.

In the state or community, disbursements from the universities in the form of salaries may be spent for rent, mortgage payments, food, services, durable goods, or deposited in savings accounts. Although businesses and banks are obvious beneficiaries, many others also benefit. The savings deposits allow the banks to make more funds available for the financing of homes, cars, major appliances, and other high-cost items. Increased values and property sales result in increased taxes and a broadened base for government services.

To be fair, one must also consider the possible drawbacks resulting from the presence of a university. Fire and police protection, utilities and sanitation services, and road maintenance may or may not be provided by the institution. If not, they may represent an added burden rather than a benefit. Likewise, although university personnel bring in additional benefits, they also bring in additional children who add to school responsibilities.

Despite these disadvantages, offsetting them are substantial monetary and nonmonetary returns from higher education (Chamberlin, 1983). Included in these returns are increased lifetime earnings, job satisfaction, personal satisfaction, and service to society. It is likely that higher education more than pays for itself in the monetary returns investigated here, alone. The emotional, moral, and aesthetic returns are undoubtedly even more valuable to both society and the individual. The inescapable conclusion seems clear: The dividends of higher education are well worth the investment.

This study examined only some of the economic benefits of higher education. As mentioned above, there are many more economic, social and cultural benefits accruing to both society and individuals (Chamberlin, 1983). Among these are educational services such as continuing education, seminars and lectures, research services such as libraries, and public events such as sports, speakers, concerts, films, art exhibits, symphonies, plays, and museums. Unfortunately, these features are difficult to measure in a manner meaningful to the readers of these studies. Since the economic benefits of higher education represent only one aspect of higher education's worth, it would be a valuable contribution for future researchers to address this issue of quality of life measures in higher education.

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