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UNMC Economic Impact Study

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University of Nebraska Medical Center Economic Impact Study

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**Center for Public Affairs Research
University of Nebraska at Omaha**

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University of Nebraska Medical Center

Economic Impact Study

Executive Summary

The University of Nebraska Medical Center (UNMC) has a major impact upon the economy of the state of Nebraska. More than a learning and research center, UNMC is a major employer and business enterprise.

Wages and salaries paid by UNMC and the spending of faculty, staff, students, and visitors have a significant impact on Nebraska's economy and on state and local tax receipts. Moreover, through its research activities and other programs such as the bone marrow and liver transplantation programs, the economic vitality of the state is increased.

There are additional impacts from the activities of UNMC. Spending by UNMC and its employees, students, and visitors results in other spending. Although this multiplier effect can only be estimated, data in this report represent a conservative estimate of UNMC's impact.

Other influences of UNMC are not readily quantifiable. Improved levels of health care in the state, volunteer time of UNMC employees in providing indigent care, and the involvement of UNMC staff members in civic, community, religious, and other activities are intangibles that add to the state's quality of life and attractiveness.

Highlights

Highlights from the report include:

- UNMC operates programs on four campuses with a total fall 1991 enrollment of 2,631 students.
- In fiscal year 1991-92, 5,593 persons were employed by UNMC, with a full-time equivalent of 4,931 persons. Given multiple impacts, the total employment impact of UNMC was 9,862 persons.
- UNMC expenditures came to \$337.1 million in fiscal year 1990-91. About 55 percent of the total spending was for wages, salaries, and benefits (\$185.7 million). The remaining expenditures were for operations and capital outlays.
- UNMC receives most of its funding from patient revenues, tuition, and fees (55.1 percent). Less than 20 percent comes from the state general fund, while grants, contracts, revolving funds, and trust funds provide the remainder.
- The total spending impact of UNMC on the state in fiscal year 1990-91 was \$521.6 million dollars.
- Most of the spending impact resulted from direct and indirect expenditures of students, faculty, and staff, amounting to \$348.6 million. Operating expenditures accounted for \$168.8 million, and visitors added \$4.3 million.
- Inpatients at University Hospital numbered 10,935 in fiscal year 1990-91, with 2,112 patients from outside of Nebraska.

- The total state tax impact of UNMC was \$17.9 million in fiscal year 1990-91. The total local tax impact was \$8.4 million.
- State sales tax receipts originating from spending by UNMC employees, visitors, and students totaled \$3.2 million in fiscal year 1990-91, and income tax revenues came to \$4.0 million. Local sales taxes were \$ 1.0 million over the same period and local property taxes came to \$5.3 million.
- Since their beginning, the bone marrow and liver transplant programs have had 1,156 discharges. As a result of these activities \$139.7 million has either been brought into the state or kept from leaving.
- Between fall of 1986 and fall of 1991 enrollment grew by 443 students (20.2 percent).
- During that same period 947 FTE employees were added (28.2 percent).
- Expenditures grew from \$203.4 million in fiscal year 1986-87 to \$337.1 million in fiscal year 1990-91 for an increase of 65.7 percent.
- During this period patient revenues grew 90.1 percent and revenues from the state general fund grew 38.6 percent. Patient revenues increased in its relative share of revenues, while the state general fund dropped.

University of Nebraska Medical Center

Economic Impact Study

This report examines the economic impact of the University of Nebraska Medical Center (UNMC) on the state of Nebraska. The impact of the Medical Center reaches far beyond its primary functions of teaching, research, and public service, making the measurement of such an institution a complicated task.

Most of UNMC's activity is in Omaha, but it also maintains a major presence in Lincoln, with the dental college, nursing program, and family practice clinic, and in Scottsbluff and Kearney. Through its Center for Continuing Education and its clinical programs, UNMC's influence reaches far beyond Lincoln and Omaha. In recent years, UNMC has added new programs to reach into rural Nebraska.

UNMC is a hub of learning and research with an annual enrollment of more than 2,000 students. Besides providing health care professionals for the state and educational opportunities to its citizens, UNMC also manages a large hospital and maintains a sizable research organization. Such activities as its cancer research and transplantation programs, link together research and patient care. Through its outreach activities and telecommunication, information and technology are transferred throughout the state.

Although UNMC's contributions to the state's economy is not part of its mission, its economic impact should not be ignored. UNMC is a major business enterprise. The most obvious impact of the University of Nebraska Medical Center can be estimated by the incomes it generates and the jobs it provides. The total economic impact, however, consists of a chain of effects that ripple through the state economy.

This report is based on data supplied by UNMC staff from their administrative records. When these data were insufficient, estimates were produced. Assumptions used in the report are presented in the appendix.

Basic and Nonbasic Industries

To better evaluate the total economic impact of UNMC, the distinction between basic and nonbasic industries must be understood. Basic industries export goods and services outside the state and bring in new income. Activities of basic industries, therefore, have multiple effects on an area, as new income is spent and respent. For example a food processing plant that exports most of its products to the rest of the country is a basic industry. Cities and states try to attract and promote growth of basic industries as an economic development strategy.

A nonbasic industry is one that produces goods and services that are consumed locally. Examples include real estate agencies and convenience food stores. Nonbasic industries depend on basic industries to export products that attract new money into the area. The health of nonbasic industries, therefore, is directly related to the health of basic industries in the area.

Most businesses have both basic and nonbasic aspects. The extent to which a business is basic determines the overall size of its impact. At first glance, UNMC may be thought of as primarily a nonbasic industry. That is taxes and tuition collected throughout the state are redistributed to Omaha and Lincoln, with no net effect on the number of jobs and the total income for the state. If we assume that the state has decided to operate a medical center, it makes little difference to the state's economy where it is located. One area of the state will gain revenues, while the remaining areas of the state will lose tax dollars.

However, UNMC receives only a portion of its revenues from state tax dollars. The majority of its revenues come from other sources including patient revenue and research funds. Bone

marrow and liver transplants clearly attract revenues from outside the state, but other aspects of UNMC provide programs for Nebraskans that keep money (including taxes) within the state, preventing an outflow to other parts of the country. Clearly, the University of Nebraska Medical Center should be considered primarily a basic industry; one which attracts and keeps jobs in the state.

The Multiplier Concept

A major assumption in this report involves the concept of a multiplier. It is generally recognized that each dollar spent in an area has a larger effect on that area than the original dollar. This is called the multiplier effect. The multiplier can only be estimated statistically and not measured directly. The size of the multiplier varies among areas at any point in time as well as over a period of time for one area. The larger and more self sufficient a community is, the larger the multiplier. Leakages outside an area reduce the multiplier, while spending in the area increases the multiplier.

The Nebraska Department of Economic Development has prepared multipliers for economic sectors within the state. Because of its uniqueness, UNMC does not fit comfortably in any of the categories. The two closest categories would be postsecondary educational institutions or hospital services. However, most of the institutions in these categories serve local or regional markets or do not offer unique services. UNMC, on the other hand, serves a statewide and national market and provides services that cannot be found elsewhere in the state.

For the above reasons, we will assume that the spending multiplier for UNMC is 2.25 and the employment multiplier is 2.0. Both of these are somewhat higher than two categories mentioned above, but are conservative when compared to other nonbasic industries.

Current Activities of UNMC

Enrollment

Table 1 presents the enrollment of UNMC. UNMC operates on four campuses throughout the state: Omaha, Lincoln, Scottsbluff, and Kearney. Enrollment on these four campuses totals 2,631 students. Full-time equivalent (FTE) enrollment amounts to 2,342 students.

Table 1. University of Nebraska Medical Center Fall 1991 Total Enrollment

	Unduplicated Enrollment
UNMC campus	1,929
UNL campus	466
Scottsbluff campus	97
UNK campus	139
Total	2,631
Full-time equivalent enrollment	2,342

Source: UNMC Administrative Records

Employment

As table 2 shows, UNMC is a major Nebraska employer with an employment of nearly 5,600 persons in FY 1991-92. UNMC employed 4,152 individuals on a full-time basis and 890 on a part-time basis. An additional 551 persons were temporary employees. In FY 1991-92, UNMC's budgeted FTE employment totaled 4,931 persons; 4,717 were employed at the Omaha campus.

Table 2. University of Nebraska Medical Center Total Employment, FY 1991-1992

	Total Employees	Omaha Employees
Full-time	4,152	3,947
Part-time	890	793
Temporary full-time	39	39
Temporary part-time and other	512	465
Total	5,593	5,244
Total budgeted FTE employment	4,930.78	4,716.98

Source: UNMC Administrative Records

Revenues

The University of Nebraska Medical Center is funded from a variety of sources (table 3). It receives income from the state general fund, from tuition, from patient revenues and other charges and fees, from the federal government, and from trust funds.

Total funding in FY 1990-91 amounted to \$337.1 million. Table 3 shows that the largest source of funding was patient revenue (including professional fees). In 1990-91, patient revenue totaled \$178.9 million, accounting for 53.1 percent of UNMC's funding.

The state general fund was the second largest source and provided 19.8 percent (\$66.8 million) of UNMC funding. If the University Hospital and Clinics are removed from the budget, the state general fund would be the largest funding source for instructional and other nonhospital functions, accounting for 40 percent of these activities.

Another important source of revenues for UNMC in 1990-91 was the sale of goods and services (other than patient revenue). These revolving funds include auxiliary enterprises and accounted for \$34.9 million, representing 10.3 percent of the budget.

Trust funds provided \$30.0 million or 8.9 percent of the funding. Federal funds came to \$14.5 million, representing 4.3 percent of total revenues. Federal funds come from the federal government in the form of grants and contracts.

The two remaining funding categories are tuition and fees and other cash funds. Tuition and fees amounted to \$6.7 million and other cash funds totaled \$5.4 million. In relation to the entire budget, they represented 2.0 percent and 1.6 percent respectively.

It is important to remember our earlier discussion of basic and nonbasic industries. Most of the funding, from sources other than the state general fund, flows to UNMC because of its existence. If there was no University of Nebraska Medical Center, these funds would likely go elsewhere, and some state needs would be left unmet.

Expenditures

Table 3 also looks at expenditures. Personnel services was the largest expense category for UNMC, accounting for \$185.7 million (55.1 percent) of total spending in 1990-91. The majority of personnel expenditures comprised salaries and wages (\$161.1 million), with benefits adding the remainder.

Operating expenses was the second largest expenditure category, accounting for \$133.0 million or 39.5 percent of the total expenditures. The final expenditure item, capital outlays, was \$18.4 million or 5.5 percent of the total.

Table 3. University of Nebraska Medical Center Expenditures and Funding Sources, FY 1990-91

	Thousands of Dollars	Percent of Total
Expenditures:		
Personnel services		
Salaries & wages	\$161,091	47.8
Benefits	24,600	7.3
Operating expenses	133,004	39.5
Capital outlays	18,387	5.5
Total expenditures	\$337,082	100.0
Sources of Funding:		
State general fund	\$66,757	19.8
Tuition and fees	6,697	2.0
Patient revenue (including professional fees)	178,894	53.1
Other cash funds	5,373	1.6
Federal funds (grants, contracts, and letters of credit)	14,500	4.3
Revolving funds (auxiliary enterprises and stores)	34,861	10.3
Trust funds	30,000	8.9
Total funding	\$337,082	100.0

Source: UNMC Administrative Records

Research and Service

Research Activities

In addition to teaching, research and service form the major activities of an institution such as UNMC. Much of the research at UNMC focuses on cancer and cancer-related areas. In FY 1990-91, total research expenditures came to \$24.7 million. External research awarded to UNMC amounted to \$18.2 million, the majority of which went to cancer research (\$11.6 million or 64 percent). Ninety faculty are engaged in basic cancer research, and several basic research activities interface with the major clinical cancer research programs on campus. Bone marrow transplantation is a major example of clinical cancer research. UNMC's effort in bone marrow transplan-

tation includes major research elements in virtually all of the scientific and clinical disciplines related to marrow transplantation. Currently there are eight major areas of investigation.

Transplantation Activities

The bone marrow transplantation program has recently been designated as a marrow transplant center for Eastern Cooperative Oncology Group and has been an approved bone marrow transplant center for the Childrens Cancer Study Group since 1988. In addition, many national insurance companies have established Centers of Excellence for transplantation. Centers of Excellence are programs developed by insurance companies to insure that high technology, high cost, leading edge medical procedures performed on their insureds are done at centers that provide the best care available, with the best results, at a competitive rate. Usually, an insurance company will recognize four or five centers nationally and will steer their patients to those centers. UNMC is recognized as a Center of Excellence in Transplantation by eight companies, with two additional companies sending patients to UNMC, and two other companies in the process of establishing a network.

Although the revenues and expenditures associated with transplantation activities are contained in the totals presented earlier, these activities are singled out to show the economic impact of basic and clinical research at UNMC. In addition, the transplantation activities are an example of the synergy that is generated from a program that combines research, education, and technology transfer.

The bone marrow transplant program began in April 1983, and the liver transplant program began in July 1985. Between FY 1985-86 and FY 1990-91 these activities have brought in \$110.2 million from outside the state and kept \$29.5 million from leaving the state (table 4). The direct impact of transplantation activities over this six year period has been \$139.7 million. To put this number in perspective, transplantation activities have brought in an amount equal to approximately 45 percent of the state general funds received during this period.

Table 4 also shows that, in FY 1990-91, transplantation activities accounted for \$38.3 million — \$8.6 million from Nebraska and \$29.7 million from outside Nebraska. Dollars received for transplantation activities in FY 1990-91 represent the equivalent of 57 percent of the state general fund revenues.

Indigent Care

The University Hospital's care for the indigent is another indication of a contribution made by UNMC that goes beyond its traditional mission. Inpatient indigent care provided by University Hospital represents 24.0 percent of all inpatient indigent care in Douglas County (Douglas County Health Department). This represents nearly twice the Douglas County market share enjoyed by the Medical Center. Indigent health care is a problem facing all communities, and it is becoming more and more difficult for hospitals to absorb indigent care costs.

In addition to inpatient care, UNMC provides outpatient indigent care through community-based clinics and programs such as the Maternal Care Program. The amount of outpatient indigent care provided by UNMC or other organizations in Douglas County has not been measured. Therefore, it is not possible to determine the relative importance of UNMC's outpatient indigent care. Furthermore, physicians and other faculty and staff from UNMC volunteer their time to treat indigent patients. They also volunteer their time for other civic, community, and religious activities, providing a valuable service for their communities.

Service to Rural Nebraska

Even though most of UNMC's activities are housed in Omaha and Lincoln, many service and research activities are available for rural Nebraska. Following is a brief description of several of these programs.

Table 4. University of Nebraska Medical Center Transplant Programs Impact, FY 1985-86 to FY 1990-91

	Actual Receipts						Total
	FY 1985-86	FY 1986-87	FY 1987-88	FY 1988-89	FY 1989-90	FY 1990-91	
------(Millions)-----							
From Nebraska:							
Bone marrow transplants	\$2,440	\$2,301	\$2,743	\$1,203	\$4,352	\$6,346	\$19,385
Liver transplants	944	438	1,937	1,703	2,862	2,249	10,133
Total transplants	3,384	2,739	4,680	2,906	7,214	8,595	29,518
From Outside Nebraska:							
Bone marrow transplants	1,648	4,575	6,384	10,947	14,393	15,451	53,398
Liver transplants	1,463	5,158	7,363	14,474	14,028	14,292	56,778
Total transplants	3,111	9,733	13,747	25,421	28,421	29,743	110,176
Totals:							
Bone marrow transplants	4,088	6,876	9,127	12,150	18,745	21,797	72,783
Liver transplants	2,407	5,596	9,300	16,177	16,890	16,541	66,911
Total transplants	6,495	12,472	18,427	28,327	35,635	38,338	139,694
Discharges							
	FY 1985-86	FY 1986-87	FY 1987-88	FY 1988-89	FY 1989-90	FY 1990-91	Total
From Nebraska:							
Bone marrow transplants	32	21	23	12	34	45	167
Liver transplants	11	7	13	8	17	20	76
Total transplants	43	28	36	20	51	65	243
From Outside Nebraska:							
Bone marrow transplants	25	50	57	74	137	130	473
Liver transplants	20	47	66	98	108	101	440
Total transplants	45	97	123	172	245	231	913
Totals:							
Bone marrow transplants	57	71	80	86	171	175	640
Liver transplants	31	54	79	106	125	121	516
Total transplants	88	125	159	192	296	296	1,156

Source: UNMC Administrative Records

Rural Health Education Network (RHEN). RHEN is a partnership between UNMC and health care professionals, health care organizations, and government and civic groups throughout Nebraska. A hub and spoke network has been adopted as the primary model for interactions between UNMC and the communities that will provide the teaching sites for RHEN students and faculty. The RHEN teaching programs will emphasize interdisciplinary primary care in rural settings.

The Rural Health Opportunities Program (RHOP). RHOP is an advanced admission program for rural students. Because of declining numbers of rural applicants and because students from rural areas are more likely to return there to practice, UNMC has begun a new program to attract rural students to health professions who might not otherwise consider these careers because of cost, uncertainty, and length of training.

Nebraska Center for Rural Health Research. This center is one of seven national centers for rural health research. It is organized as a multi-campus center located at UNMC and conducts research and disseminates finding which will enhance public policy decisions related to the delivery of health services in Rural America.

S.T.A.R.T. Health Services. S.T.A.R.T. Health Services focuses on the important role that communities and regions can play in determining the future of their own health services economy. UNMC is collaborating with UNO to offer strategic planning and technical assistance to rural communities. The program helps communities develop an action plan.

Synapse: Health Resources On-Line. UNMC has developed Synapse Information Network to provide timely health information to health professional throughout the state. It provides electronic access to UNMC health professionals and databases. Synapse communication and modems are provided free of charge, and there currently are 100 sites on line. Through Synapse users are offered:

- Information access via the UNMC Library of Medicine and Nebraska Department of Health Information Network,
- Electronic mail connecting physicians at UNMC and throughout the region, and
- Doctor's Office Management System—a computer program allowing rural physicians to follow the care of patients referred to UNMC.

Total Impact of UNMC on Nebraska

Employment

As mentioned earlier, full-time equivalent employment at UNMC in FY 1991-92 was 4,931 persons. Assuming 5.0 percent of UNMC's employees live outside Nebraska, this means that 4,685 of its employees reside in Nebraska (U.S. Census bureau 1986). Using a multiplier of 2.0 indicates that these 4,685 Nebraskans would generate employment for an additional 4,685 Nebraskans. The total employment impact of UNMC, therefore, comes to 9,370 persons (table 5).

Wages and Salaries

Table 5 also measures the impact of wages and salaries. Using the same assumptions as above, 95.0 percent of the \$161.1 million in wages and salaries paid by UNMC would be earned by

Table 5. University of Nebraska Medical Center Summary of Employment and Wage and Salary Impacts, FY 1990-91

	Employees (number)	Wages and Salaries (millions)
Direct impact	4,685	\$153.0
Indirect impact	4,685	191.3
Total impact	9,370	\$344.3

Sources: Tables 2 and 3.

Assumptions:

- 1) 95 percent of UNMC's employees reside in Nebraska.
- 2) Employment multiplier is 2.0.
- 3) Spending and income multiplier is 2.25.

Nebraska residents. With a multiplier of 2.25, this \$153.0 million would generate an additional \$191.3 million, bringing the total impact on wages and salaries to \$344.3 million.

Spending

To estimate the spending impacts of UNMC, four separate components must be measured. First, UNMC's direct payroll is the major component of the spending impact. Second, much of the operating expenditures remain in Nebraska. Third, students enrolled at UNMC are important spending sources. Finally, UNMC attracts persons from outside Nebraska who come to visit friends and relatives who are patients in the hospital. Spending impacts can be found in table 6.

Estimates of spending by faculty and staff take into account only salaries and wages from UNMC. Many faculty and staff generate income from other sources and have spouses who work in the state. Therefore, the total spending figures would likely be higher than what can be attributed to wages and salaries paid by UNMC.

Based on the most current Current Expenditure Survey by the U.S. Bureau of Labor Statistics, 89 percent of a household's income is spent (1991). Applying this to wages and salaries of \$153.0 million, leaves us with spending of \$136.2 million. Again assuming a multiplier of 2.25, total spending generated by wages and salaries received by faculty and staff amounted to \$306.5 million.

Students enrolled at UNMC also make expenditures in Nebraska in addition to tuition and fees. There is no current survey of student spending. However, adjusting an earlier survey by the Bureau of Business Research to account for inflation, brings student spending to \$18.7 million (Deichert 1979 and Deichert and Pursell 1987). The total spending impact of students would be \$42.1 million.

UNMC spent \$150.1 million in operating expenses and capital outlays. Some items impact the state's economy more than others because they are produced or distributed within the state. For instance when UNMC purchases food supplies from a distributor in Omaha, it has a greater impact on the state than if purchases are made outside the state. UNMC has implemented a stockless inventory program opening up opportunities for Nebraska vendors. Between July 1990 and December 1991, UNMC had contractual arrangements with 2,728 Nebraska vendors.

Table 6. University of Nebraska Medical Center Summary of Spending Impacts, FY 1990-91

	Expenditures by Faculty and Staff (millions)	Expenditures by Students (millions)	Operating Expenditures (millions)	Expenditures by Visitors (millions)	Total Spending (millions)
Direct impact	\$136.2	\$18.7	\$75.0	\$1.9	\$231.8
Indirect impact	170.2	23.4	93.8	2.4	289.7
Total impact	\$306.4	\$42.1	\$168.7	\$4.3	\$521.5

Sources: Tables 2 and 3.

Assumptions:

- 1) Expenditures are 89 percent of household income.
- 2) Spending multiplier is 2.25.
- 3) Students spend \$8,000 per year.
- 4) 2,112 non-Nebraska patients stay 12.3 days and have visitors who spend \$75 per day.
- 5) 50 percent of the operating expenses remain in Nebraska.

To calculate the spending impact of operating expenses, assumptions must be made concerning the portion of expenditures made within the state. Based on information provided by UNMC, it appears that we can assume that at least 50 percent of UNMC's operating and capital expenditures remain in the state. Of the \$150.1 million in operating and capital expenditures, \$75.0 million is assumed to be added directly into the state's spending stream. Applying the multiplier, this spending generated a total spending impact of \$168.8 million.

The University of Nebraska Medical Center attracts visitors from all over the nation. Many of these persons are patients or visitors of patients of the University Hospital, some of them attend programs conducted by UNMC, others visit faculty, staff, or students, and some have business with UNMC. The only reliable data that are available for visitors, however, are the number and length of stay of inpatients.

In FY 1990-91, the University Hospital had 10,935 inpatients, of which 2,112, were from outside Nebraska. These patients had an average length of stay of 12.3 days. Using a conservative estimate of spending associated with an inpatient from outside Nebraska at \$75 per day, direct visitor expenditures would be \$1.9 million. After including the multiplier of 2.25, total spending would be \$4.3 million.

Taxes

Although UNMC is tax exempt, many of the activities and expenditures related to its operation generate tax revenue. For example, wages and salaries are taxed by the state. Retail purchases by employees, students, and visitors generate sales tax revenues for both the state and cities, and employees pay property taxes (either directly for homeowners or indirectly for renters). Table 7 presents these taxes.

To calculate the state income tax, we used the average wages and salaries per FTE of \$32,379. Based on the 1990 Census we know that approximately 74 percent of all persons aged 25 to 64 are married and the average family size is slightly over 3 persons (U.S. Census Bureau 1991). Using these numbers and standard deductions, 1990 state income tax paid by a married person

Table 7. University of Nebraska Medical Center Taxes Paid by Faculty, Staff, Students and Visitors FY 1990-91

State Taxes:	
Sales taxes:	
Taxable spending by UNMC faculty, staff, students, and visitors	\$ 63.8 million
Sales tax rate	5.0 percent
State sales tax receipts	\$3.2 million
Income taxes:	
Wages and salaries paid per FTE	\$32,379
State income tax receipts	\$4.0 million
Local Taxes:	
Property taxes:	
Housing spending by UNMC faculty, staff, and students	\$26.7 million
Percent of housing spending paid for property taxes	20.0 percent
Local property taxes	\$5.3 million
Sales taxes:	
Taxable spending by UNMC faculty, staff, students, and visitors	\$ 63.8 million
Sales tax rate (assuming all spending was made in Omaha and Lincoln)	1.5 percent
Local sales tax receipts	\$1.0 million

Source: Table 6.

Assumptions:

- 1) 40 percent of household expenditures are taxed.
- 2) All taxable purchases are made in Lincoln and Omaha.
- 3) Housing accounts for 17 percent of all household expenditures.
- 4) Property taxes comprise 20 percent of all housing costs.

with exemptions would be \$740 and by a single person would be \$1,144 (Nebraska Department of Revenue 1991). State income taxes paid by UNMC faculty and staff based average wages would be \$4.0 million.

Even though no estimates of taxable spending are available, using the Current Expenditure Survey, it appears that approximately 40 percent of total expenditures made by all households in Nebraska would be taxable. Using this figure faculty, staff, students, and visitors would have taxable spending of \$63.8 million, which would generate sales taxes of \$3.1 million.

In addition to state taxes, local governments will collect property taxes and sales taxes. Local property taxes amounted to \$5.3 million in fiscal year 1990-91. Local sales taxes totaled \$1.0 million.

Table 8 looks at the total tax impact that can be attributed to the presence of UNMC and includes both direct and indirect impacts. Total state tax impact in fiscal 1990-91 came to \$17.9 million. At the local level, the total tax impact amounted to \$8.4 million.

Comparison to Fiscal Year 1986-87

A previous study measured the economic impact of UNMC based on information from fiscal year 1986-87 (Deichert and Pursell 1987). Table 9 reviews changes in enrollment and employment between this current study and the previous study. Between fall 1986 and fall 1991, UNMC

Table 8. University of Nebraska Medical Center Total State and Local Tax Impact, FY 1990-91

State Tax Impact:	
Direct state taxes paid by UNMC faculty, staff, students, and visitors	\$ 7.2 million
Indirect state taxes generated by UNMC faculty, staff, students, and visitors	\$ 9.0 million
Indirect state taxes generated by UNMC operating and capital spending	\$ 1.7 million
Total state tax impact	\$17.9 million
Local Tax Impact:	
Direct local taxes paid by UNMC faculty, staff, students, and visitors	\$ 6.3 million
Indirect local taxes generated by UNMC faculty, staff, students, and visitors	\$ 7.9 million
Indirect local taxes generated by UNMC operating and capital spending	\$ 0.5 million
Total local tax impact	\$ 8.4 million

Table 9. University of Nebraska Medical Center Comparison of Enrollment and Employment, FY 1986-87 and FY 1991-92

	FY 1991-92	FY 1986-87	Percent Change
Fall Enrollment:			
Unduplicated total enrollment	2,631	2,188	20.2
Full-time equivalent enrollment	2,342	1,818	28.8
Employment:			
Total	5,593	4,364	28.2
Total budgeted FTE employment	4,931	3,984	23.8

Source: UNMC Administrative Records

enrolled 443 more students representing an increase of 20.2 percent. On a full-time equivalent basis, enrollment was up 28.8 percent.

On the employment side, UNMC added 1,229 more employees for an increase of 28.2 percent. However, on an FTE basis, employment grew somewhat less at a rate of 23.8 percent.

Table 10 compares expenditures and funding sources during the time period. Total expenditures expanded 65.7 percent, with capital outlays growing most rapidly, followed by benefits. As far as funding is concerned, patient revenue grew most rapidly (90.1 percent). As a result of variations in the rates of growth of the funding sources, patient revenue increased its share of funding to above 50 percent, and the state general fund dropped below 20 percent.

Table 10. University of Nebraska Medical Center Comparison of Expenditures and Funding Sources, FY 1986-87 and FY 1990-91

	FY 1990-91		FY 1986-87		Percent Change
	Thousands of Dollars	Percent of Total	Thousands of Dollars	Percent of Total	
Expenditures:					
Personnel services					
Salaries & wages	\$161,091	47.8	\$101,781	50.0	58.3
Benefits	24,600	7.3	12,561	6.2	95.8
Operating expenses	133,004	39.5	80,490	39.6	65.2
Capital outlays	18,387	5.5	8,647	4.2	112.6
Total expenditures	\$337,082	100.0	\$203,479	100.0	65.7
Sources of Funding:					
State general fund	\$66,757	19.8	\$48,168	23.7	38.6
Tuition and fees	6,697	2.0	4,867	2.4	37.6
Patient revenue (including professional fees)	178,894	53.1	94,113	46.3	90.1
Other cash funds	5,373	1.6	4,613	2.3	16.5
Federal funds (grants, contracts, and letters of credit)	14,500	4.3	10,600	5.2	36.8
Revolving funds (auxiliary enterprises and stores)	34,861	10.3	23,118	11.4	50.8
Trust funds	30,000	8.9	18,000	8.8	66.7
Total funding	\$337,082	100.0	\$203,479	100.0	65.7

Source: UNMC Administrative Records

Appendix

Background Data and Assumptions

1. The average wage or salary per employee is \$32,379 ($\$159,659,000 / 4,931$).
2. Expenditures of faculty and staff are 89 percent of household income, and students spend \$8,000 per year.
3. 95 percent of UNMC's employees reside in Nebraska.
4. Taxable spending is 40 percent of all household spending, and housing is 17 percent of all household spending.
5. Approximately 74 percent of all Nebraskans aged 25 to 64 are married and the average size of a married couple family is 3 persons.
6. Based on an income of \$32,379 and using standard deductions, the state income tax for single taxpayers is \$1,144, and for married taxpayers with one child, it is \$740.
7. All taxable purchases by faculty, staff, students, and visitors are made in Omaha and Lincoln.
8. Property taxes account for 20 percent of all housing expenditures.
9. The employment multiplier is 2.0 and the spending and income multiplier is 2.25.
10. Half of UNMC's operating expenses remain in Nebraska.
11. Non-Nebraska patients stay an average of 12.3 days and have visitors who spend \$75 per day.

References

- Deichert, Jerome A. *Economic Impact of the University of Nebraska-Lincoln on the Lincoln Area Economy*. Nebraska Economic and Business Reports, No. 24, Bureau of Business Research, University of Nebraska-Lincoln, October 1979.
- Deichert, Jerome A., and Donald E. Pursell. *University of Nebraska Medical Center Impact Study*. Bureau of Business Research, University of Nebraska-Lincoln, March 1987.
- Douglas County Health Department, unpublished, 1991.
- Nebraska Department of Revenue. "1991 Nebraska Income Tax Booklet," 1991
- University of Nebraska Medical Center. *Administrative REcords 1990-1991*.
- U.S. Bureau of Labor Statistics. *Current Expenditure Survey*. Washington DC, 1991
- U.S. Census Bureau. "Place of Work Destinations." Unpublished, 1986.
- U.S. Census Bureau. STF1A, 1990. Unpublished, 1991.

