

Economic Impact Analysis

**HEALTH CARE &
HIGHER EDUCATION SECTORS
SPRINGFIELD, MISSOURI,
METROPOLITAN AREA**

Prepared for
**The Springfield Area Chamber of Commerce
and the City of Springfield, Missouri**

August 2006

DEVELOPMENT STRATEGIES®

CONSULTANTS IN REAL ESTATE, ECONOMIC, AND COMMUNITY DEVELOPMENT
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REAL ESTATE APPRAISAL

August 22, 2006

Mr. Greg Williams
Senior Vice President for Economic Development
Springfield Area Chamber of Commerce
202 S. John Q. Hammons Parkway
Springfield, Missouri 65806

Dear Mr. Williams:

Development Strategies is pleased to submit this report on the economic impact of two major economic sectors in metropolitan Springfield: higher education and health care. The analysis is the result of (1) a review of standard economic statistics obtained from state and federal sources and (2) a survey conducted of nine colleges and universities in Springfield and the two large medical centers in Springfield, St. John's and Cox. The survey sought information on these institutions' spending and revenue patterns in Metro Springfield, on their students and patients, and on the number of volunteers and the hours they donate.

Collectively, these sectors are quite large in the diverse economic environment of the Springfield area. Private sector jobs in health care and higher education make up more than 15% of the region's economy. Throw in the public sector jobs, primarily from Missouri State University, and the scale climbs to almost 20%. Moreover, health care has a very strong "location quotient" compared to the national economy, indicating that it is a crucial sector for attracting income to Metro Springfield. Such a measure for higher education, unfortunately, cannot be adequately determined but, with almost 40,600 students, the higher education sector certainly contributes greatly to Springfield's ability to attract out-of-town dollars to the regional economy.

While those are impressive impacts themselves, this report also describes the multiplier effects of health care and higher education spending. All the institutions take in revenues, much of it from patients and students from out of town. And they all spend money to operate—for payrolls, supplies, services, capital improvements, etc. These expenditures become income, or revenue, for employees and other businesses who, in turn, spend that money to support their households and businesses. The re-spending effects "ripple" through Metro Springfield and their scale can be estimated with multipliers that were obtained from the U.S. Department of Commerce, Bureau of Economic Analysis (BEA). BEA tracks economic activity in every county in the nation and is able to determine the economic relationships between economic sectors and geographic areas. One outcome is a set of multipliers for the Springfield metropolitan area.

Collectively, the 11 institutions responding to the survey spend more than \$2.15 billion per year. Not all of that money is spent in Metro Springfield; some "leaks" out and has no impact on the Springfield economy. Based on the survey, about 57% of all operating expenditures and 82% of payroll expenditures are paid directly into the regional economy. Subsequent rounds of re-spending, of course, cause additional leakage of that "original" spending, eventually dwindling to zero over time. But the multiplier effects create more

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income and spending the Springfield area economy than simply the direct effects of the colleges and medical centers.

That \$2.15 billion in spending, therefore, triggers an estimated. . .

- \$3.3 billion in additional economic activity in the five-county metropolitan area;
- \$1.1 billion in additional household income for the Springfield area labor force; and
- 38,500 jobs throughout the region, both full and part time, in addition to the approximately 26,200 employed by the survey respondents. Together, these 64,700 jobs in metropolitan Springfield account for about one-quarter of the region's economy.

The largest 49 employers tracked by the Greater Springfield Chamber of Commerce have a total of almost 62,000 employees (http://business4springfield.com/publications/major_employers.htm), so the ripple effects from higher education and health care are essentially equivalent to this impressive list. Indeed, Cox-Health and St. John's Health System lead the list of largest employers while Missouri State University is 8th. Others on that list that participated in the economic impact survey are Drury University (38th), Ozarks Technical Community College (41st), and Southwest Baptist University (48th).

As Missouri's third largest metropolitan economy, Metro Springfield contributes strongly to the diversity of jobs and tax base that benefit the state. Higher education and health care help to support about a fourth of the region's economy which, itself, is equivalent to the entire job base of Cole County, where Jefferson City is located.

It has been a pleasure to work with you on this assignment. We look forward to Springfield's continued economic expansion as it capitalizes on these two robust sectors.

Respectfully submitted on behalf of
DEVELOPMENT STRATEGIES, INC.

Robert M. Lewis, AICP, CEcD
Principal and Chief Economist

Table of Contents

EXECUTIVE SUMMARY	1
1.0 BACKGROUND AND METHODOLOGY.....	3
2.0 ECONOMIC SCALE OF THE TWO SECTORS IN METRO SPRINGFIELD.....	5
2.1 EMPLOYMENT	5
2.2 PERSONAL INCOME	7
2.3 NATIONAL AND STATE PROJECTIONS OF EMPLOYMENT	9
<i>Higher Education: U.S.</i>	9
<i>Health Care: U.S.</i>	10
<i>Missouri and Ozark Region Projections</i>	10
3.0 SURVEY OF HEALTH CARE AND HIGHER EDUCATION SERVICE PROVIDERS	12
3.1 NUMBERS OF STUDENTS OR PATIENTS	13
<i>Higher Education</i>	13
<i>Health Care</i>	13
3.2 EMPLOYEES AND PAYROLL	14
<i>Higher Education</i>	14
<i>Health Care</i>	15
3.3 VOLUNTEERS.....	16
<i>Higher Education</i>	16
<i>Health Care</i>	17
3.4 NON-PAYROLL OPERATING EXPENDITURES.....	17
<i>Higher Education</i>	17
<i>Health Care</i>	18
3.5 CAPITAL EXPENDITURES	18
<i>Higher Education</i>	18
<i>Health Care</i>	19
3.6 SOURCES OF REVENUE	19
<i>Higher Education</i>	20
<i>Health Care</i>	20
4.0 MULTIPLIER ECONOMIC IMPACTS OF THE SERVICE PROVIDERS.....	21
4.1 HIGHER EDUCATION.....	21
4.2 HEALTH CARE.....	22
APPENDIX A: LARGEST EMPLOYERS IN METROPOLITAN AREA SPRINGFIELD.....	24
APPENDIX B: QUESTIONNAIRE SENT TO HOSPITALS AND MEDICAL CENTERS.....	26
APPENDIX C: QUESTIONNAIRE SENT TO COLLEGES AND UNIVERSITIES.....	30

EXECUTIVE SUMMARY

Private sector jobs in the educational and health care sectors of the Springfield metropolitan economy made up 15.2% of all private, non-farm jobs in the five-county region in 2004, higher than in Missouri as a whole (14.5%) and the nation (14.2%). Add in public sector jobs in these sectors, especially those at Missouri State University,¹ and it is clear these two major economic sectors play an above-average role in supporting the Metro Springfield economy.

Because of the obvious scale represented by health care and education in Metro Springfield, the Springfield Area Chamber of Commerce, in conjunction with the City of Springfield, asked Development Strategies to conduct a formal economic impact analysis of the two sectors on the Metro Springfield area. Actually, the education analysis is limited to higher education because of the presence of several colleges and universities in Springfield while the health care analysis is limited to the major hospital networks in the area.

The intent was to identify the direct and multiplier impacts of these sectors in terms of jobs created and income generated by and within them. The key to an economic impact analysis is the amount of spending generated by the subject institutions, especially the spending that takes place directly in the Springfield area economy. To obtain such spending information, and related economic factors, specific to Metro Springfield, a survey was conducted of all the colleges, universities, and hospitals

Aggregate results from the survey responses are discussed in this report. Those results are then utilized to determine multiplier effects which illustrate, essentially, three key impacts on the Metro Springfield economy:

1. The **increase in economic activity**, or “gross domestic product,” triggered by the spending of the subject institutions. This is called the “output” multiplier.
2. The **increase in personal income** for Springfield area households that results from spending and re-spending of dollars in the metro economy. This is called the “earnings” multiplier.
3. The **increase in jobs in the metro economy** supported by the multiplier effects that are triggered by the institutions. This is called the “employment” multiplier.

Unfortunately, good secondary data from economic development agencies at the state and federal levels is quite limited for the higher education sector, although it is more informative in the health care sector. Analysis of the available data indicates, nonetheless, that health care is a “net export industry” for Metro Springfield (when compared to the Missouri state economy), both in terms of job creation and, even more powerfully, in personal income generation. That is, health care brings in more revenues from outside locations than the regional market, itself, could support.

Higher education, despite the presence of such large institutions as Missouri State University and Drury University along with about a dozen other institutions of higher education, does not exhibit such strengths, although it has to be admitted that the data are quite limited. Higher education, in other words, is no more “important” to the economy of Metro Springfield than it is to the state as a whole.

Both sectors, however, promise rapid and strong rates of employment growth. The Ozark region of the state, in which the Springfield metropolitan area is located², is projected to have the highest rate of job

¹ Public education and health care jobs are difficult to decipher in the available regional employment data. If, however, just the 3,700 jobs at MSU and 1,050 jobs at Ozarks Community College are added to the private sector jobs in health care and education, these sectors would make up over one-sixth of all jobs in the metro area.

² The five counties of Green, Polk, Dallas, Webster, and Christian make up the metro area. The Ozark region also adds Stone and Taney Counties.

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

growth among ten regions in Missouri over the next ten years. Within that context, health care jobs would increase by over 50% and higher education jobs by over 25% in the region, compared to a 19% growth in jobs overall. The state as a whole would add 10.5% more jobs overall while the nation would add 13.0%.

Using financial data provided by the CoxHealth and St. John’s Health System and by nine colleges and universities in Metro Springfield (Missouri State University, Drury University, Central Bible College, Cox College of Nursing and Health Sciences, Evangel University, Ozarks Technical Community College, Southwest Baptist University, University of Phoenix, and Vatterott College), a metropolitan area economic impact model was created to demonstrate multiplier effects on the five-county area. Summary results of these impacts are shown on Table E-1.

Table E-1: Combined Annual Economic Impact of Medical Centers and Higher Education on the Springfield Metropolitan Area (millions of current dollars)				
	Capital Improvements	Operating Expenditures	Employee Compensation	Total
	\$145.1	\$884.0	\$1,124.8	\$2,153.9
Multipliers				
Output	1.92	1.93	1.17	1.53
Earnings	0.63	0.71	0.34	0.51
Employment	18.89	24.56	12.48	17.87
ECONOMIC IMPACT IN METRO ECONOMY				
Output	\$278.6	\$1,705.0	\$1,319.1	\$3,302.7
Earnings	\$91.5	\$629.8	\$382.5	\$1,103.8
Employment (weighted annual average jobs)	2,740	21,710	14,040	38,490

The first set of numbers across the top of the table shows that, together, the 11 institutions spend about \$145.1 million per year for capital improvements, \$884.0 million for operating expenditures other than payroll, and \$1,124.8 million for payroll.

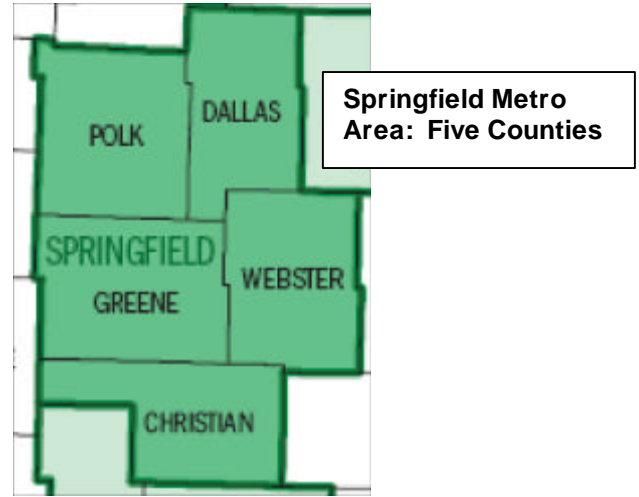
The multipliers are specific to the five-county metropolitan area. Effectively, they indicate how much growth in the economy will result from the noted expenditures. The multipliers already take into consideration the effects of “leakage” of spending from the metro economy, so they create a finite amount of growth that can occur. What is not known, however, is the speed at which this triggered growth takes place. The velocity of change is a function of the strength and vibrancy of the local and national economies, not of the relationship of the health and higher education sectors to other sectors—which is what the multipliers indicate.

Thus, output (or economic activity or Metro Springfield’s contribution to the nation’s gross domestic product) will increase by \$3,302.7 million (just over \$3.3 billion) in the regional economy as a result of the spending by these institutions. Earnings of Springfield area households will capture \$1,103.8 million of this, thus supporting additional household expenditures. And 38,490 jobs (full and part time) in the Springfield area are in some way supported by this added economic activity in addition to the 26,200 jobs in the nine colleges and universities and two medical centers participating in the survey. This total of 64,690 jobs represents a quarter of all jobs in the metro area, which is not surprising in light of the scale of both sectors and their ability to both attract “new” dollars into Metro Springfield while employing a large part of the local labor market which spends and re-spends its earnings in the region.

1.0 BACKGROUND AND METHODOLOGY

The sum of private sector jobs in the educational and health care sectors of the Springfield metropolitan economy made up 15.2 percent of all private, non-farm jobs in the five-county region in 2004.³ The equivalent percentage for the entire state of Missouri was 14.5 percent, and for the U.S. as a whole was 14.2 percent. Clearly, these two major economic sectors play an above-average role in supporting the Metro Springfield economy.

The health care sector individually makes up 13.5 percent of private sector jobs while private sector education jobs make up 1.7 percent. But this is before adding in *public* sector educational or health care jobs, such as those at Missouri State University, which are not separately tracked by government economic statistics.⁴ MSU reports that it has roughly 3,700 jobs itself, which alone matches all private sector education jobs in Metro Springfield. Moreover, these MSU jobs make up more than half of all state government jobs located in the Springfield metro area.



Because of the obvious scale represented by health care and education in Metro Springfield, the Springfield Area Chamber of Commerce, in conjunction with the City of Springfield, asked Development Strategies to conduct a formal economic impact analysis of the two sectors on the Metro Springfield area. Actually, the education analysis is limited to higher education because of the presence of several colleges and universities in Springfield while the health care analysis is limited to the major hospital networks in the area.

The intent was to identify the direct impacts of these sectors in terms of jobs created and income generated by and within them. But the intent was also to determine multiplier effects—that is, the spending and re-spending effects as money passes through the various institutions and their employees and is re-spent elsewhere in the Springfield area economy. To determine multiplier effects, mathematical multiplier coefficients were obtained from the U.S. Department of Commerce’s Regional Input-Output Multiplier System (RIMS-II) which determines the multiplier relationships between a vast array of economic sectors in and between every county in the U.S. For the current analysis, multipliers were obtained for the Springfield metropolitan area, or the combination of multipliers for the five counties. Thus, the multiplier results shown herein are for the entire metropolitan area and not for any sub-jurisdiction.

The key to an economic impact analysis is the amount of spending generated by the subject institutions, especially the spending that takes place directly in the Springfield area economy. Moreover, valuable information can derive from knowledge of employment, places of residence (where employees spend their wages), and sources of patients and students. Thus, a questionnaire was sent to all the colleges, universities, and hospitals in the area asking for key input data, including:

³ Latest comprehensive data are for 2004. The metro area consists of Greene, Christian, Dallas, Polk, and Webster Counties. Metro areas are standard geographic areas for economic analysis in the U.S. While the “markets” or “spheres of influence” of universities and medical centers extend well beyond these borders, metropolitan areas are defined, for the most part, by labor markets. Thus, the workers at universities and medical centers are concentrated in the metro area even though the services they provide may be less concentrated. Source of the data is the Regional Economic Information System (REIS) of the U.S. Dept. of Commerce, Bureau of Economic Analysis.

⁴ State colleges and universities are included in the state government line item in economics statistics. At smaller level geographies, even like metropolitan areas, it is impossible to segregate state college and university statistics from overall state government statistics.

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

- Numbers of students and patients/clients and where they generally reside (i.e., inside or outside of the metro area).
- Number of employees (full time, part time, and contract) where they generally reside.
- Payroll for these employees.
- Number of volunteers (including boards, committees, and any other volunteers) and the number of volunteer hours donated to the institution.
- Operating expenditures other than payroll with an estimate of how much is directly spent inside and outside the Metro Springfield area.
- Capital expenditures over a three-year period to determine the level of cash investments being made.
- Sources of revenue by major category (e.g., student tuition, government reimbursements, insurance, grants, etc.).

Aggregate results from the survey responses are discussed in this report. Those results are then utilized to determine multiplier effects which illustrate, essentially, three key impacts on the Metro Springfield economy:

1. The **increase in economic activity**, or “gross domestic product,” triggered by the spending of the subject institutions. This is called the “output” multiplier.
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3. The **increase in jobs in the metro economy** supported by the multiplier effects that are triggered by the institutions. This is called the “employment” multiplier.

Multipliers for the Springfield area are finite. That is, a dollar spent by, say, Drury University, is partially spent in Metro Springfield and partially spent elsewhere. The amount spent elsewhere is “leaked” out of the area, but the amount spent inside the region is re-spent. Some of that amount, however, is also leaked and the rest, though smaller amount, stays within the region, a process that continues through the various cycles of re-spending. Eventually, none of the original dollar is left, thus creating a finite multiplier. Meanwhile, of course, that dollar created some multiple of itself in income and spending within the Springfield area.

By way of illustration, the “health services” output multiplier for the Springfield metro area is 1.92. This means that every \$1.00 spent by a typical health care institution generates another \$1.92 in income and spending in the metro area. The same multiplier for metro Kansas City, by way of comparison, is somewhat higher at 2.36 because Kansas City is a larger economic center. In both cases, however, the original dollar eventually dwindles to zero as successive rounds of leakage take place.

This study first analyzes available economic data from federal and state sources to place the educational and health sectors in a larger context. Then the results of the survey of educational and health care institutions are presented. The final chapter describes the multiplier effects of these two sectors in Metro Springfield based on the survey findings.

2.0 ECONOMIC SCALE OF THE TWO SECTORS IN METRO SPRINGFIELD

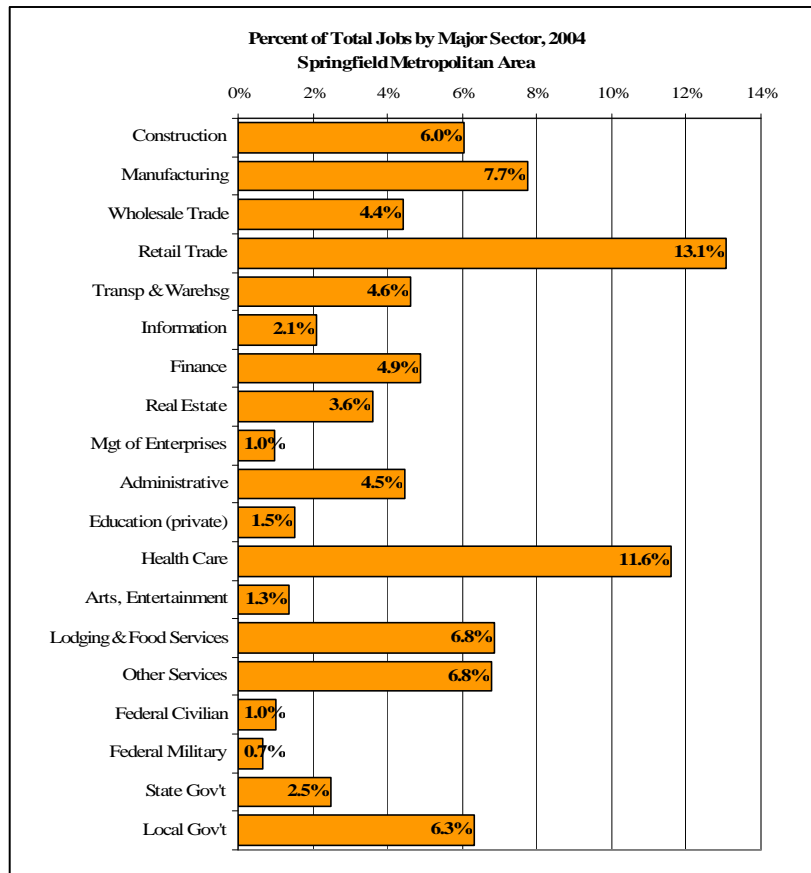
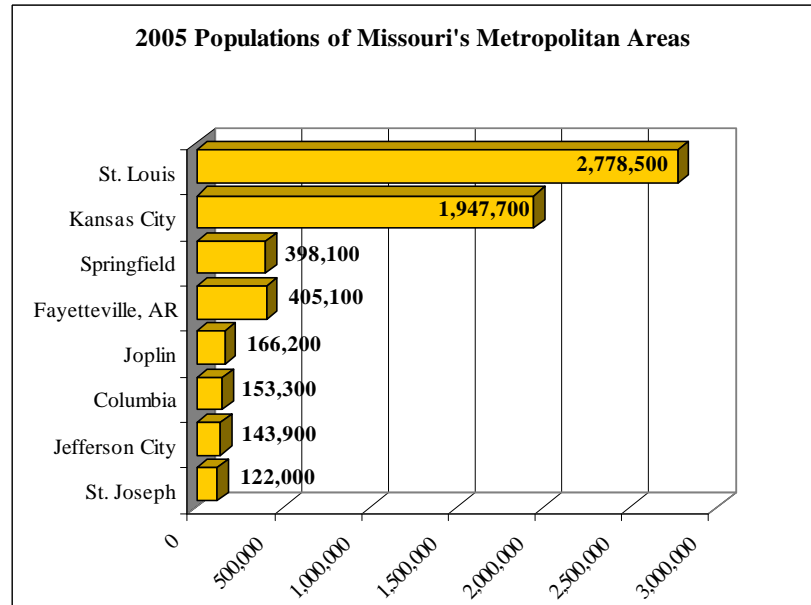
The Springfield metropolitan area is one of eight that include at least one Missouri county and one of seven where the primary central city is located in Missouri. At present, Springfield is the third most populated of these eight MSAs with nearly 400,000 residents estimated by the U.S. Census Bureau as of 2005. This makes it about the same size as the Fayetteville metro area just to the south.

2.1 EMPLOYMENT

Jobs in metropolitan Springfield totaled 247,700 in 2004 according to the U.S. Department of Commerce. This is a *total* job count, including wage and salary workers plus sole proprietors. Wage and salary workers in 2004 made up 77.5% of all employment, slightly lower than the state level of 80.7% and the national level of 81.6%.

The primary reason for this smaller proportion was the relatively high percentage of farming operations in the metro area which typically do not hire wage and salary workers. Farm employment made up 3.5% of total jobs in the metro area in 2004 compared to 3.3% in the state as a whole and just 1.7% in the nation as a whole.

The health care sector made up the second largest percentage of jobs in the Springfield area in 2004 (11.6%), as illustrated on the graph to the right. Over one in ten jobs were in the health care and social assistance sector.



Higher education jobs are not as obvious a contributor to the local economy mostly because economic data record-keeping in the United States does not separate public education from private education nor higher

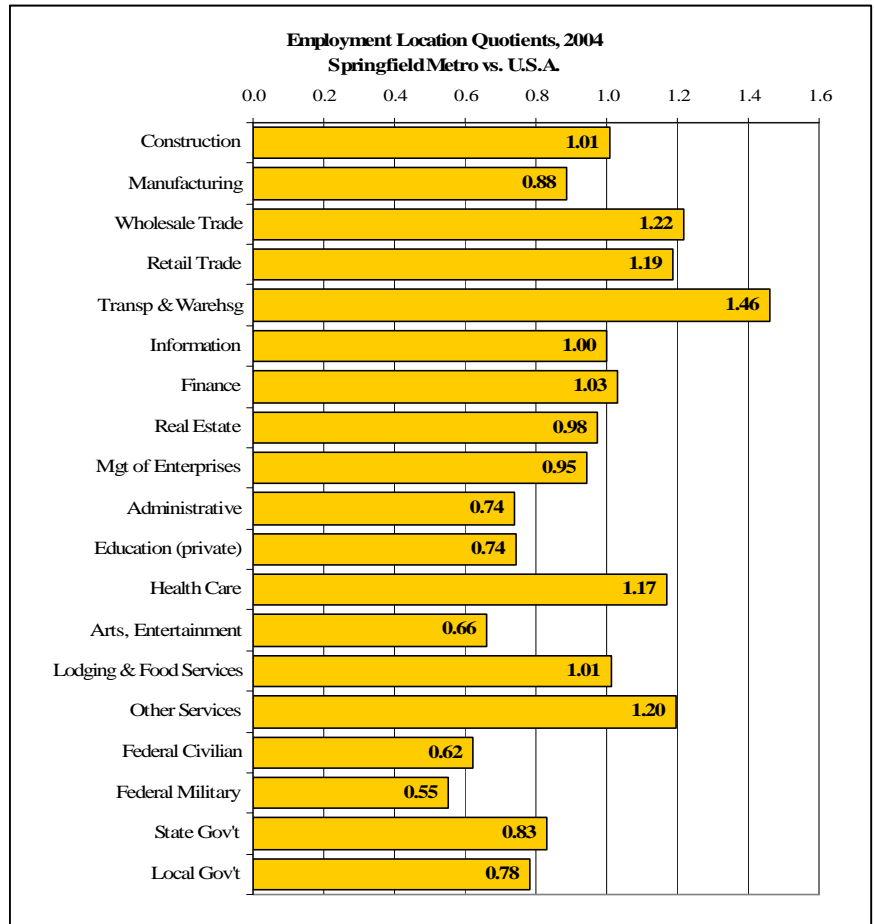
ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

education from all other kinds of schools.⁵ Thus, *private* education made up a relatively small 1.5% share of total jobs but local government, which includes public schools including local public community colleges, made up 6.3% of all jobs. Of the 3,727 jobs noted in the economic data that are in private education in the metro area, 1,236 (one third) are attributable to the five private colleges and universities responding to the economic impact survey.⁶

In Springfield, however, the largest *higher educational* institution by job count is Missouri State University which employs 62% of the people working for the seven higher education institutions responding to the survey. As a state university, jobs at MSU are considered state government jobs in the official economic statistics. The survey response for MSU indicated that it supports some 3,700 full and part time jobs, or about 60% of all state government jobs in the region.

The largest job sector in Metro Springfield is retailing with 13.1% of all jobs, followed by health care, then by manufacturing with 7.7%. The adjacent graph shows how these sectors relate to the entire United States distribution of jobs with a measurement called the *location quotient*, or “LQ.” The LQ is derived by dividing the percent of total jobs represented by a specific sector in the Springfield area by the percent represented by the same sector in the country as a whole.

Thus, if a certain sector employs ten percent of all jobs in a region and ten percent in the country, the region’s LQ is 1.0. LQs of greater than 1.0 typically indicate sectors that are more “export oriented” for the region, meaning that they attract more outside dollars to re-circulate in the regional economy. LQs of less than 1.0 typically indicate sectors that are more “support oriented” for the region, meaning they support local needs rather than attract significant amounts of outside spending.



The transportation and warehousing sector has the largest location quotient in Metro Springfield, suggesting this as Springfield’s most important single export sector. Essentially, transportation and warehousing in the metro area is almost 1.5 times as important to the local economy than to the nation overall and marks

⁵ This and related poor data on non-manufacturing sectors, in particular, remains a weakness in the economic data bases of the nation but is being addressed by the states and the federal government in order to better reflect the shift of the American economy from a dominance by manufacturing in the 1930s when the record keeping systems were created to the knowledge and idea-based economy of the 21st Century.

⁶ Southwest Baptist University, University of Phoenix, Cox College of Nursing, Central Bible College, and Vatterott College. Four private institutions that were sent questionnaires did not respond.

Springfield as a crucial hub for the movement of goods. A closely related sector, wholesale trade, has the second highest LQ in Metro Springfield at 1.22.

Health care has the fifth highest of the major sectors shown on the graph with 1.17. This denotes health care as a “net importer” of dollars for Metro Springfield—in other words, it serves a market that extends beyond the metro area’s borders.⁷ Thus, it is an important sector for re-capturing dollars that are “leaked” from the region during the multiplier process described in Section 2.

Education, again, is harder to pinpoint. Private education alone has a location quotient of 0.74, indicating that this sector exists principally to serve the local market. Indeed, most public and private education through high school is designed to do just that—serve local needs—rather than to attract students from outside the area. This LQ, of course, includes the several private higher education institutions in Springfield such as Vatterott College or Southwest Baptist University.

Higher education, on the other hand, is much more concentrated in larger institutions that serve broad markets and not just the local area. This is less true for community colleges than for four-year institutions. Moreover, state universities are primarily intended to serve a statewide market (even though also attracting some proportion of out-of-state students) while private universities may intentionally serve a national or international market. Thus, even as large an institution as Missouri State University has most of its “market” probably within the state of Missouri. But it is also not restricted to a market within the Springfield area alone, so it is far more capable of attracting students (and their dollars) from well outside the Springfield area.

But it is hard to segregate such information from the standard economic data. Even the state government LQ in Springfield is just 0.83, suggesting overall that Springfield is not a major source of state government jobs. This is not surprising, of course, since the state capital is in its own metro area. But separating the LQ of, say, state jobs at MSU from other state jobs is a difficult task, though an estimate can be made, as follows. Using the 2004 employment data and the job counts provided by MSU in the recent survey, it appears that MSU makes up 60% of all state jobs in Metro Springfield. Thus, if the 0.83 state government location quotient can be “weighted” as 60% MSU and 40% other state jobs, then MSU has 1.5 times more influence on that LQ than other state jobs.

2.2 PERSONAL INCOME

Using the same source of information as for employment, personal income in metropolitan Springfield totaled almost \$10.6 billion in 2004. This is a *total* personal income, including wage and salary income plus income from all other sources like interest, dividends, and transfer payments. Income from earnings (i.e., from employment) in 2004 made up 75.9% of all income, slightly lower than the state level of 77.1% and the national level of 78.0%.

⁷ This is something of a simplification, of course. The federal military LQ is well under 1.0 but this doesn’t necessarily mean that it serves only the local market. Indeed, all sectors serve external markets to some degree, but a LQ greater than 1.0, like health care, indicates a relatively greater ability to attract customers or patients from outside the metro area. The military LQ of 0.55, however, suggests that Springfield sends more military dollars, in the form of taxes, to the federal government that it receives in return in the form of jobs and economic activity.

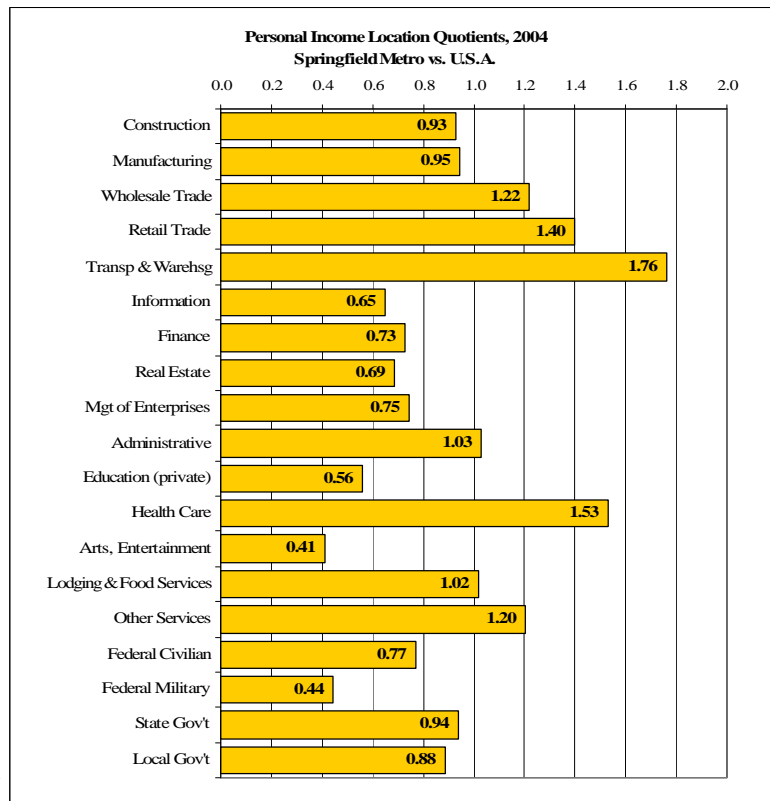
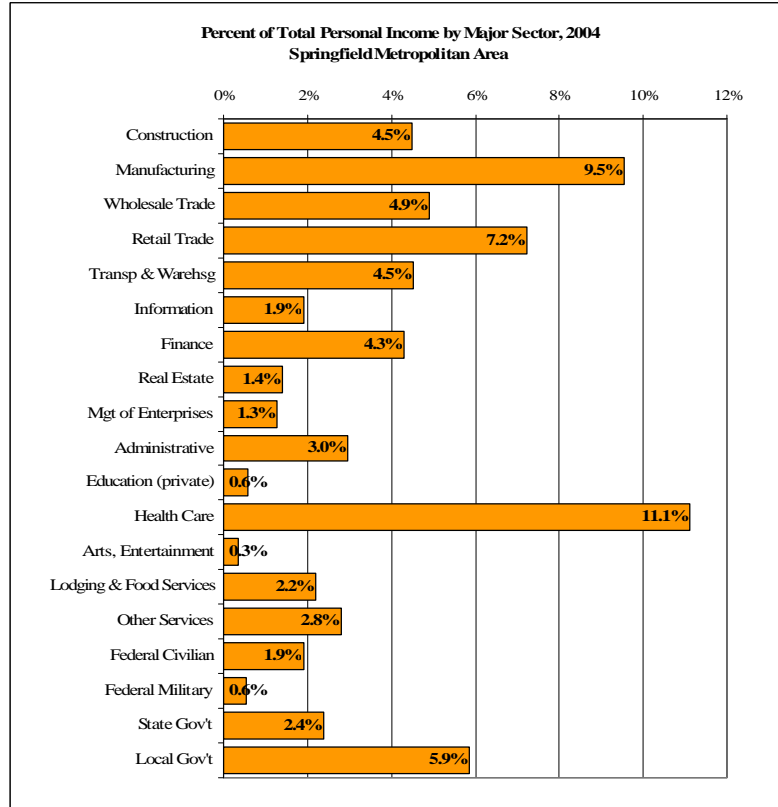
ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

The health care sector made up the largest percentage of personal income in the Springfield area in 2004 (11.1%), as illustrated on the graph to the right, compared to the second largest percent of jobs as described earlier (11.6%). Again, however, higher education jobs are not as obvious a contributor to the local economy. Private education made up a relatively small 0.6% share of total personal income, compared to its 1.5% share of jobs.

An implication of these findings is that health care pays an above average wage while private education pays a below average wage. Indeed, average income per health care worker in 2004 was \$40,800 compared to just \$16,400 for the average worker in private education.⁸

In Springfield, as noted earlier, the largest *higher educational* institution by job count is Missouri State University. As a state university, jobs at MSU are considered state government jobs. The survey found that MSU pays about \$34,400 per job (including all positions as well as full time, part time, and contract positions). The graph, above, shows that state government, in general, represents 2.4% of the region's income, virtually the same as the earlier graph showing that state government makes up 2.5% of the region's jobs. An average state government job in the Springfield metro area paid \$40,900 in 2004.

The second graph on the previous page shows the location quotients ("LQ") by personal income relative to the entire



⁸ Many such jobs, especially in higher education, tend to be part time or contract positions which are not intended to pay a full annual salary. This can bring down the average paid to all private education workers even though the average full time salary may be much higher. A further implication is, therefore, that the health care sector may employ a far higher proportion of full time workers than the private education sector.

United States. Once again, the transportation and warehousing sector has the largest location quotient in Metro Springfield, reinforcing this as Springfield’s most important single export sector. Health care, however, moves up from the fifth highest in terms of employment to second highest in terms of income produced for the metropolitan economy. This denotes health care not only as a “net importer” of dollars for Metro Springfield, but also as a crucial producer of dollars that are recycled throughout the economy.

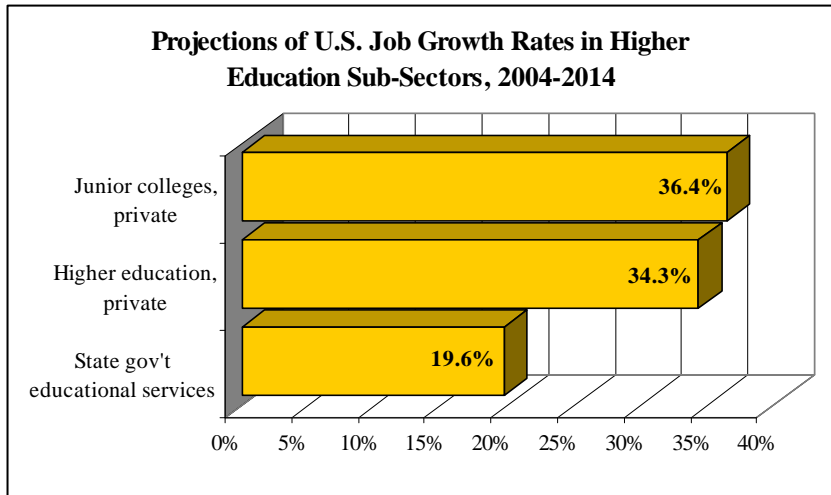
Education, again, is harder to pinpoint. Private education alone has a personal income location quotient of 0.56, lower than its employment LQ of 0.74, reinforcing that this sector exists principally to serve the local market. On the other hand, state government’s income LQ is 0.94, which is higher than its employment LQ of 0.83. With the high concentration of state government jobs in higher education, these findings suggest that Missouri State University has a very strong and positive influence on attracting income to metropolitan Springfield.

2.3 NATIONAL AND STATE PROJECTIONS OF EMPLOYMENT

While data at smaller geographic levels can be difficult to obtain in adequate detail, national data is frequently more comprehensive. This section highlights the latest available projections of jobs in education and health care for the entire United States as provided on a bi-annual basis by the U.S. Department of Labor. The latest projections cover the period 2004 to 2014 (released in early 2006). They can be valuable in understanding the rate of growth expected in these sectors; they do not necessarily translate to similar rates of growth in the Springfield area, but can be informative as to the potential growth and, therefore, the future impact of these sectors on the Metro Springfield economy.

HIGHER EDUCATION: U.S.

Three sub-sectors are included in the projections that relate directly to the higher education sector, as shown on the graph to the right. For the U.S. as a whole, the major sector of *educational services* is projected to add 46% more jobs between 2004 and 2014. That sector includes more than just higher education, however, with the three sub-sectors shown to the right have slower growth rates.



Still, jobs in private junior colleges are projected to grow by more than a third. Likewise with jobs in private higher education in general. State government educational services are expected to grow more slowly, adding one-fifth more employment over ten years.

All of these growth rates exceed the projection for net increases in all jobs in the country between 2004 and 2014. Total growth is anticipated to be 13.0% over ten years, just slightly below the projected rate of population growth for the U.S.

HEALTH CARE: U.S.

In sharp contrast, the health care sector has 27 subsectors in the data that related to health and social assistance. The overall health care and social assistance sector is projected to grow in the U.S. by 30.3% between 2004 and 2014. Sixteen of the subsectors shown to the right are projected to grow more rapidly than that, led by home health care services which is expected to see job expansion by almost 70% over ten years. It appears that labor analysts are anticipating that more and more services will be demanded in the home as more and more technology enables medical care to be provided efficiently in the home.

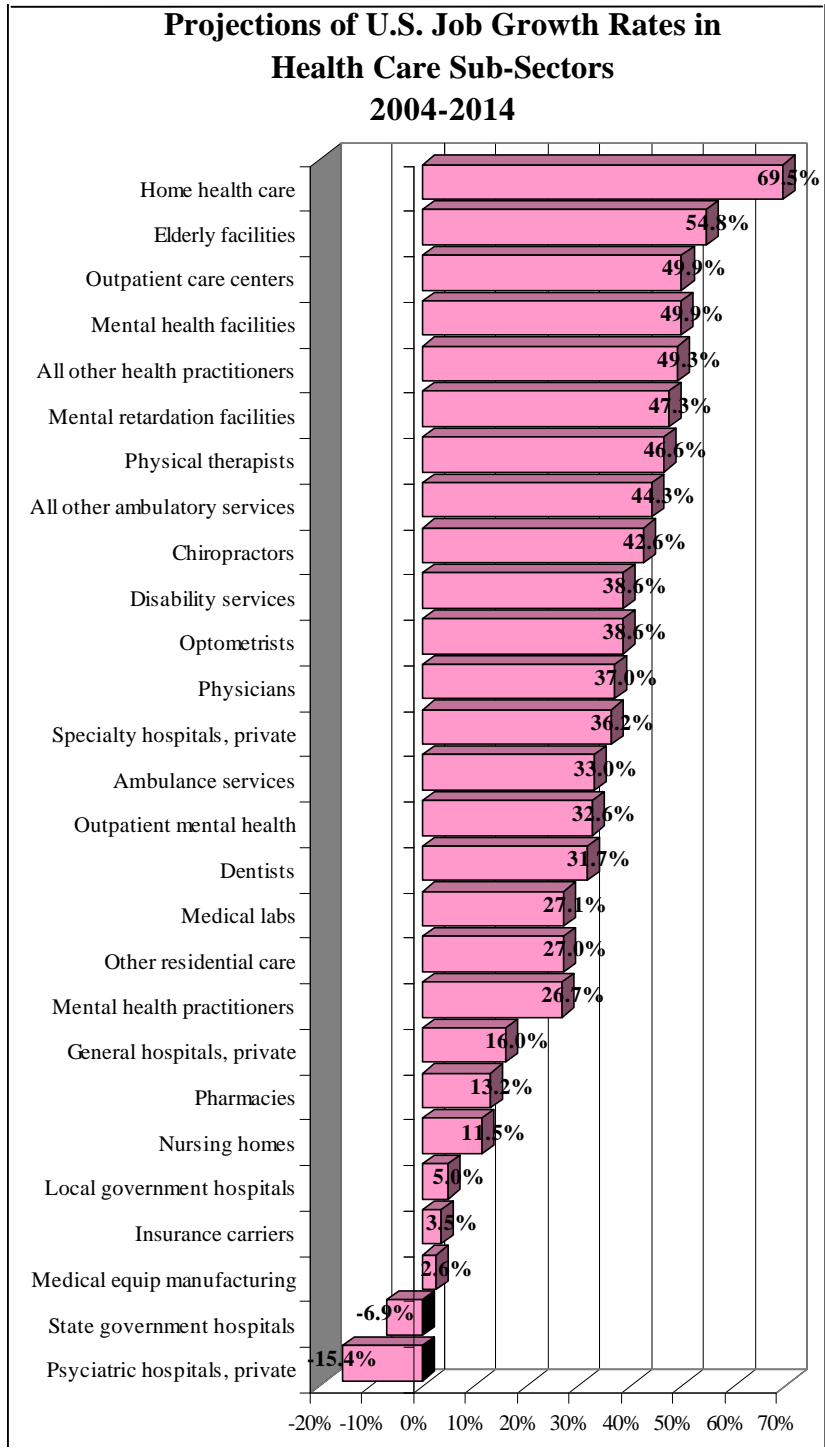
Two of the related sectors are projected to decline in employment: state government hospitals and psychiatric hospitals. Local government hospitals are projected to grow just 5.0%. As an increasing amount of health care is provided in the private sector and in the home, there will be less demand placed on public facilities.

MISSOURI AND OZARK REGION PROJECTIONS

Data for the state and the southwest part of Missouri are not as detailed as at the national level, but the projections that are available from the Missouri Department of Economic Development (MODED) are instructive nonetheless. However, the state projections are for the period of 2002

to 2012 because they are based on the previously released national projections. State projections to 2014 should be available late in 2006. Moreover, state projections tend to combine subsectors to adjust for too few workers in some subsectors where the projection statistics are much less reliable.

As a start, the overall rate of job growth in Missouri between 2002 and 2012 is projected to be 10.5%. The Ozark region of the state, which includes, but is two counties larger than, the Springfield metropolitan area, would grow 19.4%, the fastest of the ten economic regions in the state, as shown below.

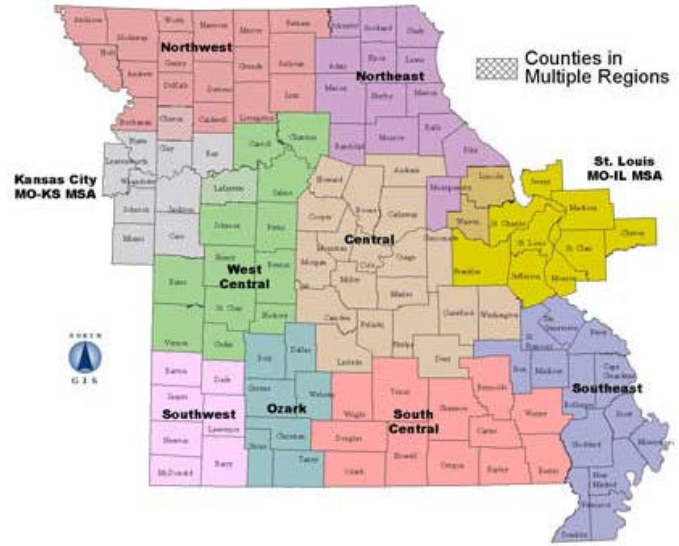


ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

- *Ambulatory health care services* are projected to grow by 35.3% over ten years in Missouri and a massive 60.4% in the Ozark region of the state. While not directly comparable, the “all other ambulatory services subsector of the national economy is projected to grow by 44.3%.

- *Community care facilities for the elderly* are projected to grow in Missouri by 35.1% compared to 54.8% nationally. The Ozark region would expand such jobs 27.0%.

- *General medical and surgical private hospitals* are projected to add 10.4% more jobs over ten years in Missouri compared to 16.0% nationally. The Ozark region does not have projections provided by MODED in this subsector.



- *Home health care services* is a sector for which MODED does not provide a statewide growth rate, but the Ozark region would expand by 60.4% over ten years, the fastest of the ten regions. The U.S. rate of growth in this sector is projected to be 69.5%, the highest of all the health care subsectors.
- *Medical and diagnostics laboratories* are projected to add 35.8% more jobs over ten years in Missouri, much faster than the national rate of 27.1%. Jobs in this subsector are projected to expand by 60.5% in the Ozark region of the state.
- *Nursing and residential care facilities* are projected to add 22.4% more jobs in ten years in Missouri, double the 11.5% rate anticipated for the country as a whole. Jobs in the Ozark region would increase by 27.0%.
- *Offices of other health care practitioners* are expected to expand by 38.0% in Missouri over ten years, somewhat slower than the national rate of 49.3%. In the Ozark region, growth would be 60.5%.
- Jobs in *dentists' offices* are anticipated to grow by 35.8% over ten years, a little quicker than the 31.7% rate for the entire U.S. Dentists are expected to add 60.4% more jobs in the Ozark region.
- *Offices of physicians* are projected to add 32.6% more jobs in Missouri while the U.S. rate of growth would be 37.0%. The growth rate in the Ozark region is projected at 60.4%.
- *Outpatient care centers* in Missouri would expand by a whopping 69.3% more jobs (reflecting continued growth in outpatient technology and medical care) while the U.S. rate would be 49.9%. The rate in the Ozark region would be 60.3%.

Employment projections in higher education in Missouri, like in the U.S., are contained in a much more limited set of subsectors.

- *Educational services* are projected to add 16.2% more jobs over ten years in the state compared to 19.6% in the nation. Growth in the Ozark region, in some contrast, would be at a pace of 25.5%.
- *Private higher education* in Missouri is projected to add 15.9% more jobs in response to growth in demand for such services over ten years. Growth in the U.S. is projected at 34.3% while in the Ozark region of the state growth would be 25.5%.
- *Junior colleges* are projected to add 23.1% more jobs in Missouri over ten years compared to 36.4% in the whole country. MODED does not provide junior college projections for the Ozark region.

3.0 SURVEY OF HEALTH CARE AND HIGHER EDUCATION SERVICE PROVIDERS

Partly because of the relatively few details available from standard economic statistics and partly because of a general recognition of the scale of the higher education and health care sectors in Metro Springfield, a survey was conducted of the major institutions of these sectors in order to determine more specifically their economic impacts on the metro area. Questionnaires were sent to Springfield area colleges and universities, hospitals and medical centers, and independent physicians offices and related clinics. A poor response rate from the physicians and clinics, however, prevents an analysis of that component of the health care sector, although extrapolations are made in the following analysis as a guide to understanding overall probable impacts.

Responses to the survey that are analyzed in this report were received from:⁹

1. Central Bible College
2. Cox College of Nursing & Health Sciences
3. Drury University
4. Evangel University
5. Missouri State University
6. Ozarks Technical College
7. Southwest Baptist University
8. University of Phoenix
9. Vatterott College
10. Cox Health
11. St. John's Health System

Five major sets of questions were asked of each institution for the latest fiscal year:

1. Numbers of students or patients
2. Employees and volunteers
3. Major sources of revenues
4. Payroll expenditures
5. Other operating expenditures
6. Capital improvements expenditures (over three fiscal years—last, current, next)

It is the expenditures that are the key inputs to the economic impact model. Expenditures made by these institutions become income to the people or businesses to whom the expenditures are made. These are called “direct impacts” because they are made directly by the subject institutions. As the recipients of this income make expenditures to support their households and businesses, there are “indirect impacts” created, or multiplier effects, as these households and businesses also spend money to support their operations.

The multiplier effects triggered by the respondents to the survey are described in Section 4.0. This section focuses on the survey responses alone in order to better understand the scale and economic importance of the two sectors as represented by the ten respondents.

⁹ Copies of the questionnaires sent to these institutions are in the Appendix.

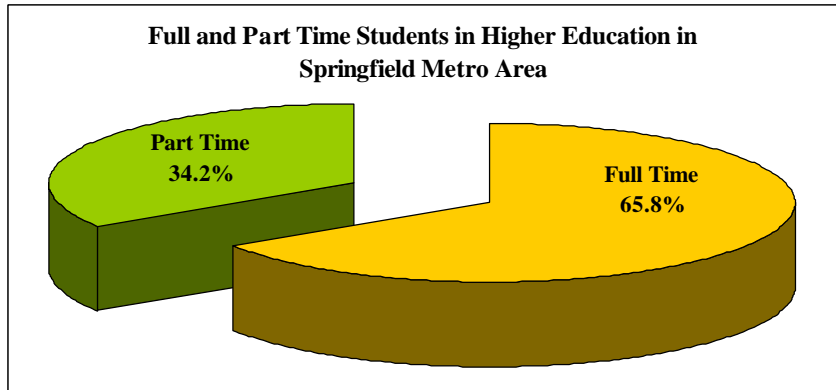
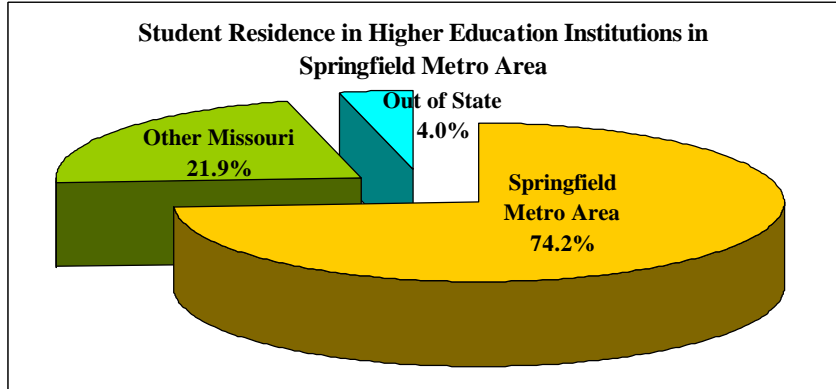
3.1 NUMBERS OF STUDENTS OR PATIENTS

Students and patients constitute the direct “markets” that are served by the respondent institutions. Generally speaking, their numbers are an important indicator of each institution’s economic scale. More students or more patients served means a larger “business firm” and, therefore, larger operating and capital expenditures to support the metropolitan economy.

HIGHER EDUCATION

Full and part time students served by the nine responding colleges and universities total 40,600 with a range from 250 to 20,580. Students who are current residents of the metro area, including those who may be from another part of the world, make up three quarters (74.2%) higher education students. Those living in other parts of Missouri make up 21.9% while those living out of state constitute 4.0% of the total student population.

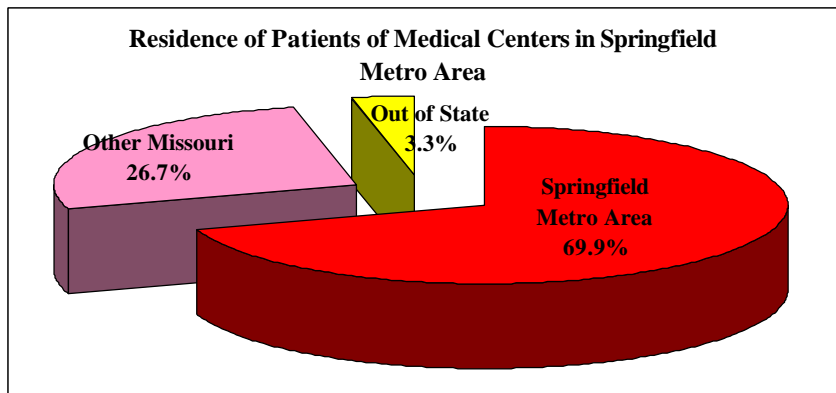
The 29,600 higher education students living in the metro area make up about seven percent of the population of the metro area. The percentage of the population may actually be a little bit higher because four colleges did not respond to the survey.



Full time students among the responding institutions make up two thirds of all students while part timers make up one third.

HEALTH CARE

In-patients and out-patients served by the two responding medical centers totaled 874,000 in the last year. People who are current residents of the metro area make up seven out of ten (69.9%) patients. Those living in other parts of Missouri make up just over one quarter of all patients (26.7%) while those living out of state constitute 3.3% of all patients.



ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

The 611,250 patients living in the metro area make up about 1.5 times of the population of the metro area. On average, that is, a Springfield metro area resident is a patient at one of the two responding medical centers 1.5 times per year. It is clear, therefore, that medical centers count “patients” as separate visitors each time they arrive for service. This is especially noteworthy among out-patients who, if undergoing a series of treatments over time, are counted each time they visit the medical center. Out-patient visits make up more than nine out of ten (93.7%) medical center patients while in-patient visits make up just 6.3%.

In-patients, however, stay for longer periods of time than out-patients. Respondents were asked to indicate the average length of stay of in-patients. The weighted average among all in-patients at the two medical centers is 4.93 days. Multiplying total in-patients (55,300) by the average length of stay yields total demand for in-patient services of some 272,800 patient days per year, or about 750 patient years. If it is assumed that each out-patient visit (818,700 out-patients per year) requires a single day of services, then total patient days served by the two medical centers is 1,091,500, or about 2,990 patient years.

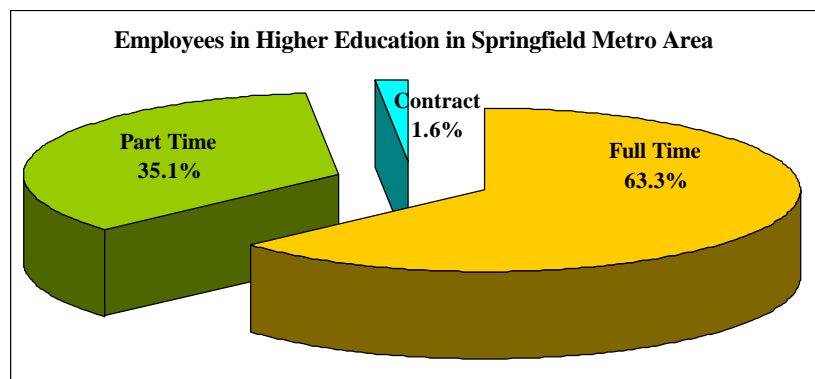
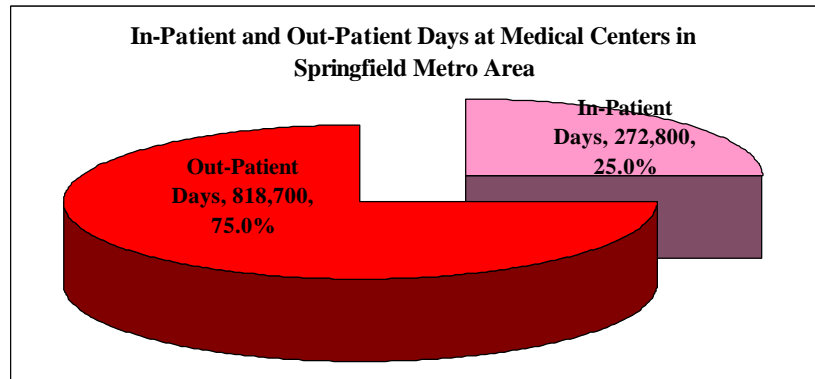
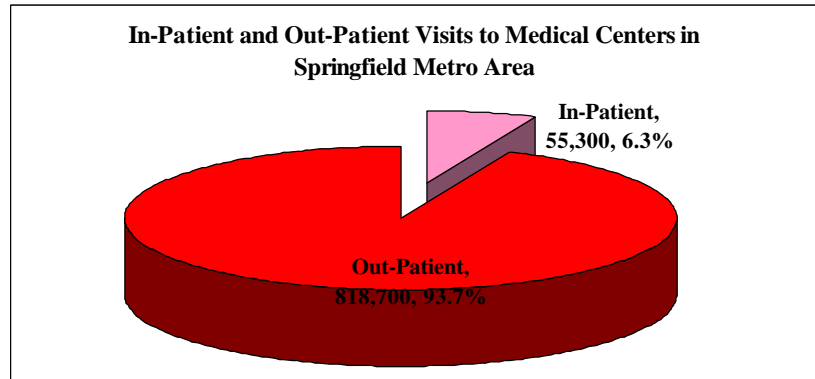
3.2 EMPLOYEES AND PAYROLL

Employees constitute the primary “person power” that provides the services to students and patients served by the respondent institutions. Employment, therefore, is an important indicator of each institution’s economic scale. More employees served means a larger “business firm” and, therefore, larger operating and personnel expenditures to support the metropolitan economy.

HIGHER EDUCATION

Full time, part time/seasonal, and contract employees total 6,780 at the respondent colleges and universities with a range from 57 to 3,724. Nearly two thirds (63.3%) work full time while just over a third (35.1%) work part time. The remaining 1.6% of higher education workers are considered contract employees.

Eight out of ten (81.3%) of these employees are residents of the

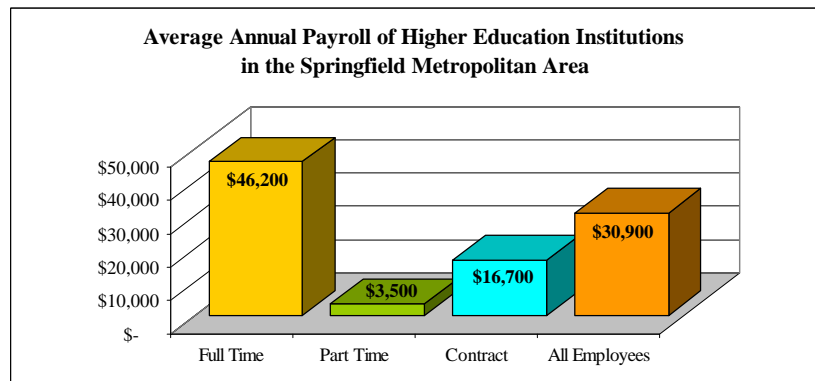
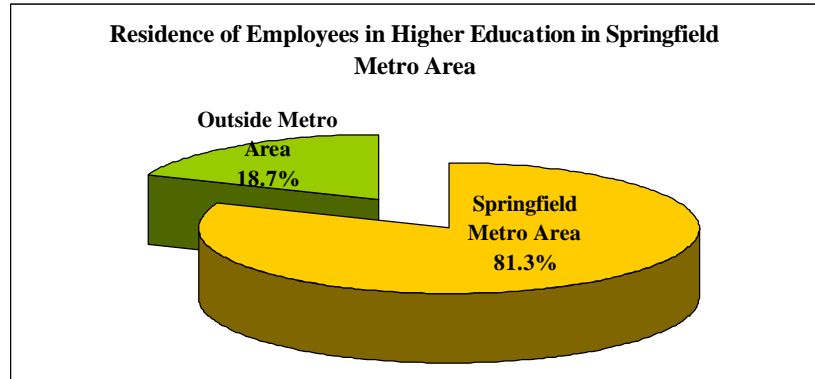


ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

Springfield metropolitan area. The other 18.7% reside outside the metro area.

Seven of the nine responding higher education institutions provided information on their payroll expenditures. These seven, however, represent 98.3% of all employees, so the payroll data are considered reliable for this survey. Total payroll for the 6,360 employees represented in the sample was \$206.2 million in the last fiscal year. The overall average wage or salary at these four institutions, therefore, was about \$30,900.

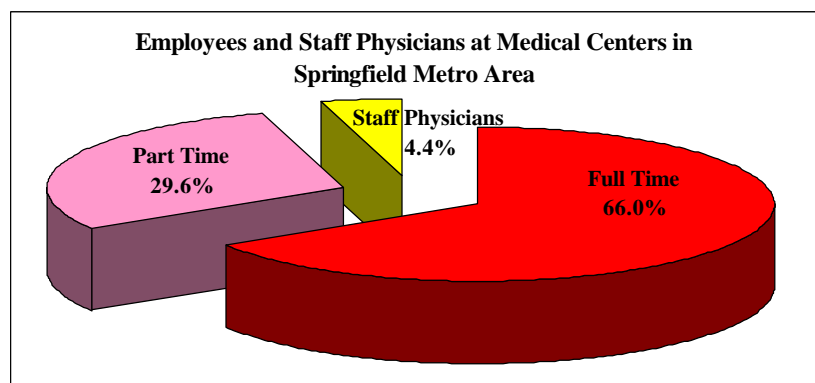
Full time employees average \$46,200 in wages and salaries per year, part timers average just \$3,500, and contract employees average \$16,700.



Average earnings in the overall private education sector, as noted in Section 2.0, were about \$16,400 in 2004 based on nationally collected statistics. The average in state government, where the bulk of higher education employment in Springfield is categorized, was \$40,900. That the overall average from the survey results is in between these points suggests that higher education in Metro Springfield is a strong mix of both private and public employment. It also suggests that educational institutions generally pay something below average. Indeed, using federal data for the Springfield metro area, average earnings for all workers were about \$32,400 in 2004. While full time workers in higher education earn about 40% more than this economy-wide average, this sector also appears to be one with a high percentage of non-full time workers, thus forcing overall average wages well below the workforce as a whole.

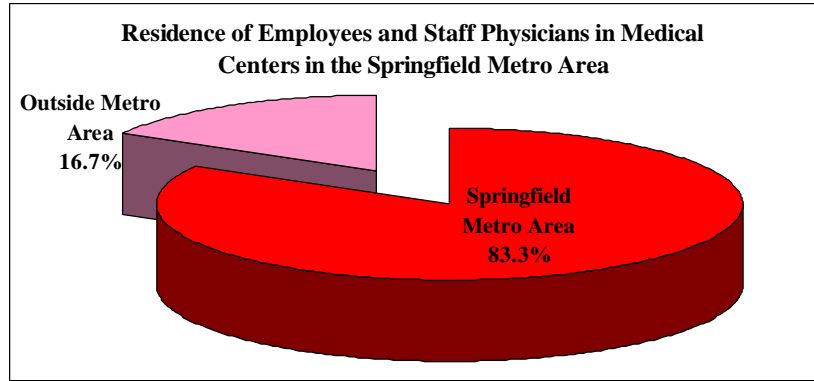
HEALTH CARE

Full time, part time/seasonal, and contract employees total 18,600 at the two respondent medical centers plus an additional 850 physicians on staff who are not counted as employees of the medical centers. Of this total of 19,450 workers at the medical centers, two thirds (66.0%) are full time employees, three out of ten (29.6%) are part time employees, and 4.4% are non-employee staff physicians. Neither of the two medical centers indicate having any contract employees.

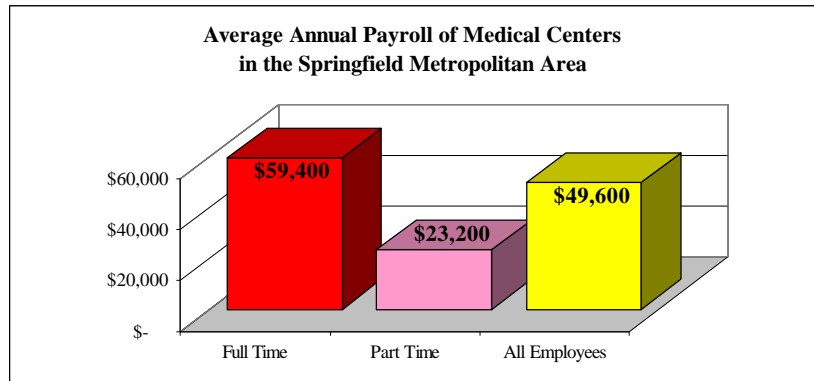


More than eight out of ten (83.3%) of these employees and physicians are residents of the Springfield metropolitan area. The other 16.7% reside outside the metro area.

Only one of the responding medical centers provided information on its payroll expenditures for its full and part time employees (staff physicians' wages were not requested of any respondent). While the name of that one institution will not be revealed for confidentiality reasons, the average payroll of \$49,600 suggests a total payroll of \$922.2 million for both institutions if it is assumed that the average is the same for both. Full time employees average \$59,400 in wages and salaries per year and part timers average \$23,200.



Average earnings in the overall health care and social assistance sector, as noted in Section 2.0, were about \$40,800 in 2004 based on nationally collected statistics. That the overall average from the survey results is about \$9,000 higher than this average suggests that medical centers in Metro Springfield pay more than the average for the sector and that the sector is likely made up of a much wider variety of health



and social assistance service providers. Indeed, data on income, alone, from the national database indicate that the health care sector consists of workers in four sub-sectors: ambulatory health services, hospitals, nursing homes, and social assistance providers. The medical centers responding to the economic impact survey most likely fit the definition of “hospitals” the closest, suggesting that average wages in the other three sub-sectors is less than at the hospitals in order to bring down the overall average earnings in the entire sector.

3.3 VOLUNTEERS

Volunteers¹⁰ contribute to the “person power” that provides the services to students and patients served by the respondent institutions. These numbers, too, are an important indicator of each institution’s economic scale. More volunteers served can signify a larger “business firm” and, therefore, larger operating and personnel expenditures to support the metropolitan economy.

HIGHER EDUCATION

Seven of the colleges and universities reported having some form of board of directors or related oversight group. Collectively, there are 123 such directors serving the seven institutions, 57 of whom live in the metropolitan area (46%).

¹⁰ Volunteers often provide a significant number of service hours at not-for-profit institutions. These include members of the boards of directors, committee members, and people who help to provide services directly to patients. Thus, counting them and the number of hours that they volunteer helps to more fully describe the economic impact of the respondent institutions.

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

The fact that about half of these director-type volunteers reside outside the metro area perhaps contributes to an on-going outside perspective of the opportunities afforded by the Springfield economy. Boards that are heavily weighted toward local residents can tend not to look outward often enough. But boards with ample membership from outside the region will likely benefit from objective analysis of macro-economic opportunities in the broader world that the colleges and universities can address and invest in.

One reason that there are seemingly so many non-residents on these boards may be that these schools see themselves as serving an audience that extends well beyond the metropolitan area. Indeed, Ozarks Technical College reports that all of its board members live in the metro area, perhaps reflecting its commitment to directly serve residents of the metropolitan area. Similarly, all of the board members of Cox College of Nursing and Health Sciences are metro area residents, a factor that is consistent with the high proportion of local medical center board membership (see below). The other higher education institutions have a broader geographic composition to their boards owing, perhaps, to their need and commitment to serve much broader geographic areas. Drury University, for instance, has 63% board representation from outside the metro area.

The higher education respondents estimate that these “director” volunteers contribute a total of 1,960 hours of their time per year, or about 17 hours per board member.

The colleges and universities further report that a collective total of 440 other volunteers contribute time to advance the purposes of the institutions. These 440 other people donate an estimated 7,885 hours per year for committee and related work, about 18 hours per volunteer.

HEALTH CARE

The two responding medical centers report a total of 55 members of the boards of directors, 50 of whom reside in the metropolitan area (91%). As noted in the discussion on location quotients, the health care sector serves predominantly the regional market, so it makes sense that its institutions will want a dominant board representation from the regional market. These board members contribute an estimated total of some 2,000 hours of their time each year, or an average of 36.4 hours each.

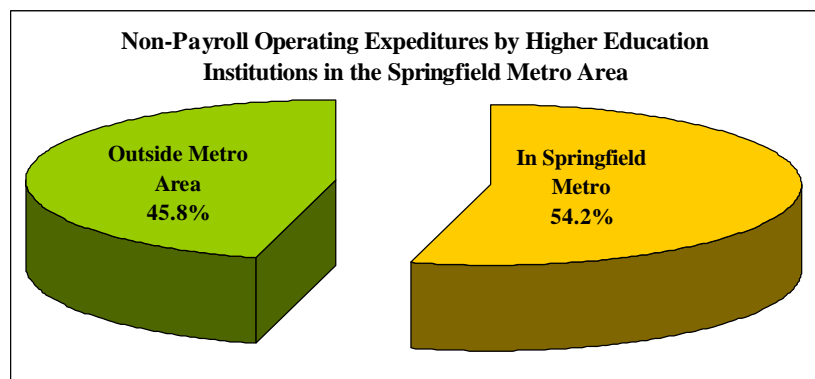
The medical centers are far more aggressive in attracting non-board volunteers than the colleges and universities. The two medical centers alone report that they received volunteer support from 2,650 non-board members who donate 291,250 hours per year for an average of 110 hours each, or roughly 2¾ full time work weeks.

3.4 NON-PAYROLL OPERATING EXPENDITURES

Payroll expenditures for employees are critical triggers to the regional economy because they provide the resources for employees to support their households. But business firms also have non-payroll expenditures to support their operations, some of which they spend directly in the regional economy to trigger even more multiplier effects.

HIGHER EDUCATION

The seven colleges and universities reporting financial information indicate that, collectively, they spend about \$128.5 million annually to support their operations outside of payroll costs (which are, themselves, \$206.2 million, as discussed earlier). Almost three quarters



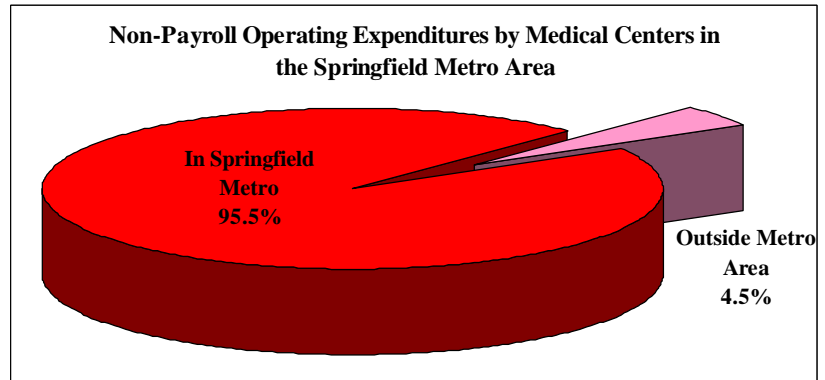
ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

(73.9%) of these expenses take place within the metropolitan area, thus immediately triggering re-spending effects in the regional economy. The other one quarter is paid to vendors, etc., outside of the metro area, thus causing “leakage” with no multiplier effects in the Metro Springfield area.

Operating expenditures per employee of the seven responding college and universities average \$15,700 per year, although the range is from \$10,500 to \$71,900. On a per student basis, the overall average operating expenditure is \$2,800 per year with a range from \$1,500 to \$7,100.

HEALTH CARE

The two medical centers report that, collectively, they spend about \$754 million annually to support their operations outside of payroll costs (which are, themselves, \$922 million, as discussed earlier). This level of operating expenditure is some eight times that of higher education, again indicating the crucial value of the health care sector in triggering multiplier effects in the metropolitan area.

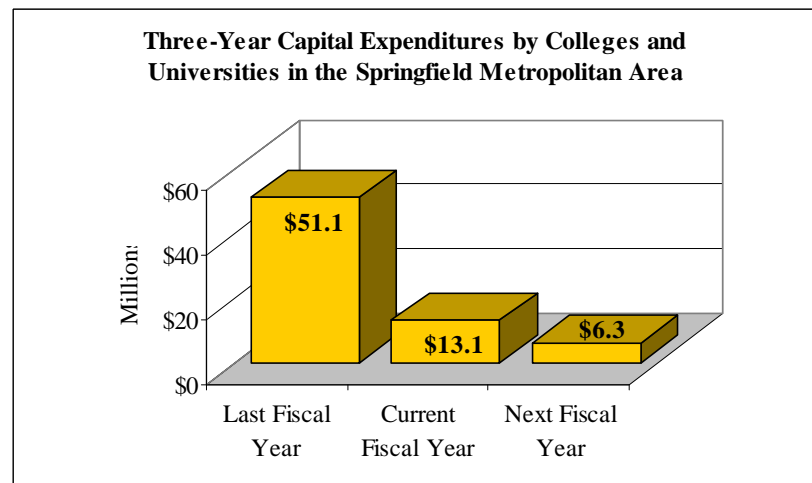


Also in some contrast to higher education, the medical centers spend over 95% of their non-payroll dollars inside the Springfield metro area, compared to 73.9% by the colleges and universities. The other 4.5% is paid to vendors, etc., outside of the metro area, thus causing “leakage” with no multiplier effects in the Metro Springfield area.

Operating expenditures per employee of the two responding medical centers average \$40,600 per year, and they average \$900 per patient, including both in- and out-patients.

3.5 CAPITAL EXPENDITURES

Capital expenditures for long-term physical improvements to property and equipment are important components of any business organization. Capital expenditures, of course, also trigger multiplier impacts in the economy to the extent to which the money is spent locally. For the economic impact survey, respondents were asked to provide their capital expenditures for their current fiscal year as well as for the prior and the next fiscal years.



HIGHER EDUCATION

Seven of the colleges and universities reported capital improvements spending over the three years requested. Together, these seven spent some \$51.1 million in the last fiscal year but are spending much less at \$13.1 million this fiscal year. They anticipate spending even less next fiscal year at \$6.3 million.

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

The biggest capital improvements expenditures are by, not surprisingly, Missouri State University which, unfortunately, reported such expenditures for the last fiscal year but not for either the current or next fiscal years. This almost entirely explains why there is such a large statistical decrease in reported spending in those two years. Even so, MSU accounts for half of such spending by all five institutions over the three-year time frame even without data for two of those years.

The respondents indicated the following as the types of capital expenditures being made:

New and expanded classrooms	Chapel construction
Updated office space	Land purchase
Updated lighting	Upgraded air conditioning
Campus renovation	New computer servers
New phone system	An intermodal facility
Rights of way purchases	New water chillers
Sound system improvements	

Taken together for the three years, the \$68.1 million in capital spending by the five institutions represents about \$10,500 per employee and \$1,760 per student. Also using the three year spending of \$68.1 million, this is equivalent to 21¢ in capital expenditures over three years for every dollar in current payroll and operations expenditures.

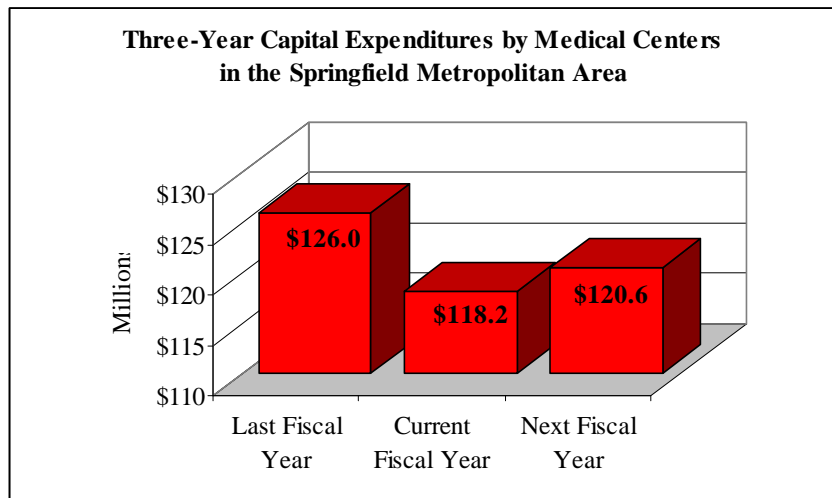
HEALTH CARE

The two medical centers spend a great deal more on capital improvements than the colleges and universities—and in more consistent amounts year-to-year. Together, they spent some \$126.0 million in the last fiscal year, are spending \$118.2 million in the current fiscal year, and plan to spend \$120.6 million in the coming fiscal year.

The two institutions report that capital spending is for such items as master facility planning, extensive renovations to keep pace with technology and functional space needs, building and equipment expansions, and improvements to information systems.

Taken together for the three years, the \$365 million in capital spending by the two medical centers represents \$19,800 per employee and \$400 per patient. Also using the three year spending of \$365 million, this is

equivalent to 22¢ in capital expenditures over three years for every dollar in current payroll and operations expenditures—a ratio which is remarkable similar to that for higher education.



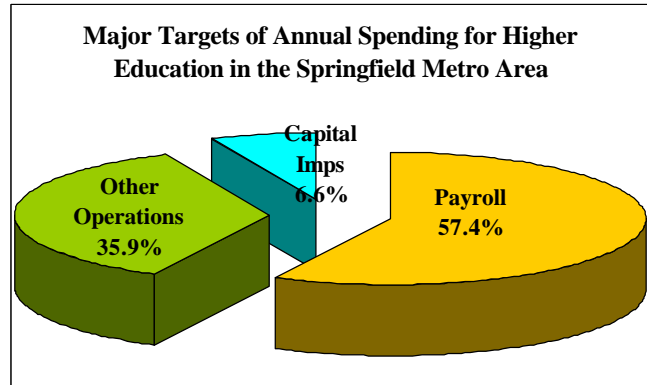
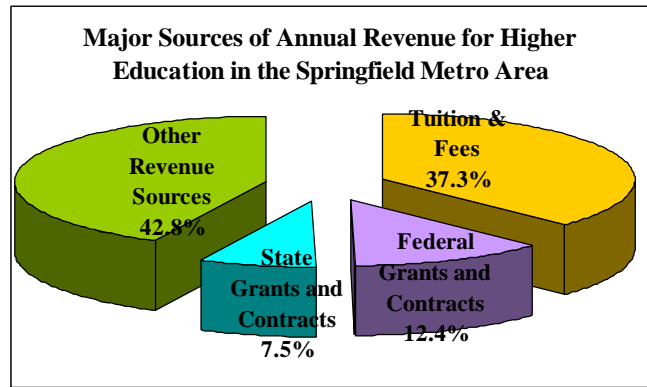
3.6 SOURCES OF REVENUE

While revenues are not necessarily important in determine multiplier effects (it's the spending that triggers further spending), revenues are obviously necessary in order to have the resources to spend. Moreover, it is valuable to know the major sources of such revenues which can be an indicator of the ability of an economic sector to attract dollars from outside the region.

HIGHER EDUCATION

The seven colleges and universities reporting financial data have combined annual revenues of \$372.2 million. This compares to \$358.2 million in combined payroll, operations, and capital expenditures (assuming capital spending typically averages one third of the three year totals provided on the survey). On average, then, the reported financial data indicate that higher education institutions in Metro Springfield are not spending beyond their means.

Collectively, the seven institutions obtain over a third of their revenues from tuition and fees—even though they are institutions of higher learning catering to a market consisting of college students, tuition and fees make up a seemingly small component of total revenue. Indeed, the largest source of revenues is “other” at 42.8% although, in fairness, only Missouri State University’s revenues are so dependent on “other” sources. The other five institutions derive 45% of their revenues from tuition and fees and 21.2% from other. But the scale of MSU skews the collective data substantially. Income from federal and state governments for higher education amounts to about 19.9% of all revenues. Average revenues per employee are \$55,200 per year, and per student are \$9,250.

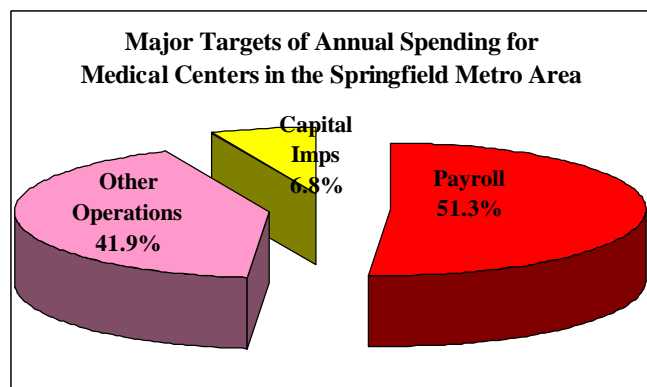
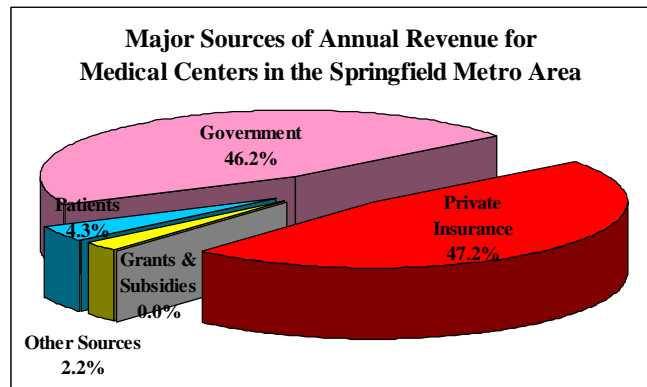


HEALTH CARE

The two medical centers have combined annual revenues of \$2,347.8 million. This compares to \$1,797.9 million in combined payroll, operations, and capital expenditures (assuming capital spending typically averages one third of the three year totals provided on the survey). On average, then, the reported financial data indicate that medical centers in Metro Springfield are not spending beyond their means.

Collectively, the two institutions obtain almost half of their revenues from private insurance (47.2%) and almost another half (46.2%) from government reimbursement programs (e.g., Medicare). This leaves only 6.5% coming from other sources, the largest of which is directly from patients (4.3%) while “other revenues” make up 2.2%. Grants and subsidies make up a negligible amount of medical center income.

Average revenues per employee are \$126,300 per year, and per patient are \$2,700.



4.0 MULTIPLIER ECONOMIC IMPACTS OF THE SERVICE PROVIDERS

Economic impacts from a quantitative perspective are determined by multiplying the annual spending of the higher education and health care institutions by a set of multipliers that determine three primary impacts:

4. The **increase in economic activity**, or “gross domestic product,” triggered by the spending of the subject institutions. This is called the “output” multiplier.
5. The **increase in personal income** for Springfield area households that results from spending and re-spending of dollars in the metro economy. This is called the “earnings” multiplier.
6. The **increase in jobs in the metro economy** supported by the multiplier effects that are triggered by the institutions. This is called the “employment” multiplier.

The spending inputs to the model come directly from the survey results described in Section 3.0.

4.1 HIGHER EDUCATION

While only seven of the nine respondent colleges and universities provided spending data, the model incorporates all nine by assuming that the three without spending data would have expenditures equivalent to the average per student spending (capital and other operations) or the average per employee payroll of the other five institutions. This still does not cover all of the colleges and universities in Metro Springfield. There are an additional five, for example, that were sent questionnaires but did not respond. Thus, the following analysis is relatively conservative because it does not include every institution of higher education in the Springfield area—just those that responded to the survey.

Table 4-1 shows the results of the multiplier effects:

- The numbers across the top reflect the spending data as described herein, including assumptions for those institutions that responded to the survey but did not provide financial information. For instance, the nine respondents are assumed to spend an average of about \$22.7 million per year on capital improvements, \$123.6 million in operational expenditures, and \$192.6 million on payroll for total annual spending of \$338.9 million.
- The next set of numbers includes the three multipliers for each of the spending categories.
 - Multipliers for capital improvements are assumed equivalent to the multipliers for the “construction” industry in metropolitan Springfield. For instance, capital expenditures of \$22.7 million are multiplied by 1.92 to determine the output impact on the Metro Springfield economy caused by capital spending.
 - Multipliers for operational expenditures are those of the “educational services” sector in Metro Springfield.
 - Multipliers for payroll expenditures are those for the “household” sector in Metro Springfield because payroll is directly inserted into the Springfield economy by employee households.
 - The total multipliers are weighted averages of the above based on actual impacts.
- The third set of numbers constitutes the overall economic impacts for each spending category. These impacts are then summed to determine overall annual impacts triggered by the higher education sector.
 - Overall spending of \$355.9 million by the colleges and universities increases economic output in the entire region by \$540.0 million each year in addition to the direct spending by the institutions.

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

- As a result of the direct spending of \$355.9 million per year, earnings of Springfield area households increase by \$183.0 million in addition to the direct payroll amounts for employees of the institutions.
- Total spending of \$355.9 million and its ripple effects through the metropolitan economy supports 6,710 jobs (full and part time) in addition to the 6,780 positions at the nine institutions.

Table 4-1: Annual Economic Impact of Higher Education Institutions on the Springfield Metropolitan Area (millions of current dollars)				
	Capital Improvements	Operating Expenditures	Employee Compensation	Total
	\$23.5	\$129.9	\$202.6	\$355.9
Multipliers				
Output	1.92	1.98	1.17	1.52
Earnings	0.63	0.76	0.34	0.51
Employment	18.9	28.8	12.5	18.9
ECONOMIC IMPACT IN METRO ECONOMY				
Output	\$45.1	\$257.4	\$237.6	\$540.0
Earnings	\$14.8	\$99.3	\$68.9	\$183.0
Employment (weighted annual average jobs)	440	3,740	2,530	6,710
Multiplier Definitions:				
Output:	Total dollar change in the metro economy due to expenditures by the nine colleges and universities responding to the survey.			
Earnings:	Total dollar change in earnings of households in the metro economy due to expenditures by the eight colleges and universities responding to the survey.			
Employment:	Total change in the number of jobs in the metro economy per \$1,000,000 of spending by the eight colleges and universities responding to the survey.			

4.2 HEALTH CARE

Multiplier impacts in this sector of the Springfield economy are based solely on the detailed responses of the two medical centers responding to the survey—Cox Health and St. John’s Health System. While questionnaires were sent also to a large number of clinics and physicians’ offices, responses rates and data quality were so poor that the results could not be used in this analysis. Like the higher education sector, therefore, the following findings are conservative since they do not reflect the entirety of health care providers in Metro Springfield.

Table 4-2 shows the results of the multiplier effects:

- The numbers across the top reflect the spending data as described herein. For instance, the two respondents are assumed to spend an average of about \$121.6 million per year on capital improvements, \$754.1 million in operational expenditures, and \$922.2 million on payroll for total annual spending of \$1,797.9 million (i.e., almost \$1.8 billion).
- The next set of numbers includes the three multipliers for each of the spending categories.
 - Multipliers for capital improvements are assumed equivalent to the multipliers for the “construction” industry in metropolitan Springfield.

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

- Multipliers for operational expenditures are the results of “weighting” three separate sets of multipliers for three health care sectors provided by the federal government. The weightings are as follows:
 - 20% of the multiplier values in the “ambulatory health care services sector;
 - 75% of the multiplier values in the “hospitals and nursing and residential care facilities” sector; and
 - 5% of the multiplier values in the “social assistance” sector.
- Multipliers for payroll expenditures are those for the “household” sector in Metro Springfield because payroll is directly inserted into the Springfield economy by employee households.
- The total multipliers are weighted averages of the above based on actual impacts.
- The third set of numbers constitutes the overall economic impacts for each spending category. These impacts are then summed to determine overall annual impacts triggered by the higher education sector.
 - Overall spending of \$1,797.9 million by the two medical centers increases economic output in the entire region by \$2,762.7 million each year in addition to the direct spending by the two institutions.
 - As a result of the direct spending of \$1,797.9 million per year, earnings of Springfield area households increase by \$920.8 million in addition to the direct payroll amounts for employees of the two institutions.
 - Total spending of \$1,797.9 million and its ripple effects through the metropolitan economy supports 31,780 jobs (full and part time) in addition to the 18,600 positions at the two institutions.

Table 4-2: Annual Economic Impact of Medical Centers on the Springfield Metropolitan Area (millions of current dollars)				
	Capital Improvements	Operating Expenditures	Employee Compensation	Total
	\$121.6	\$754.1	\$922.2	\$1,797.9
Multipliers				
Output	1.92	1.92	1.17	1.54
Earnings	0.63	0.70	0.34	0.51
Employment	18.94	23.8	12.5	17.7
ECONOMIC IMPACT IN METRO ECONOMY				
Output	\$233.6	\$1,447.6	\$1,081.5	\$2,762.7
Earnings	\$76.7	\$530.5	\$313.6	\$920.8
Employment (weighted annual average jobs)	2,300	17,970	11,510	31,780
Multiplier Definitions:				
Output:	Total dollar change in the metro economy due to expenditures by the two medical centers responding to the survey.			
Earnings:	Total dollar change in earnings of households in the metro economy due to expenditures by the two medical centers responding to the survey.			
Employment:	Total change in the number of jobs in the metro economy per \$1,000,000 of spending by the two medical centers responding to the survey.			

APPENDIX A: LARGEST EMPLOYERS IN METROPOLITAN AREA SPRINGFIELD

1	CoxHealth	health care	8,815
2	St. John's Health System	health care	8,000
3	Wal-Mart Stores	retail	4,120
4	Springfield Public Schools	education	3,000
5	Bass Pro Shops / Tracker Marine	headquarters	2,615
6	United States Government	government	2,540
7	State of Missouri	government	2,385
8	Missouri State University	education	2,130
9	Chase Card Services	customer service	1,595
10	Citizens Memorial Healthcare	health care	1,580
11	City of Springfield	government	1,535
12	O'Reilly Auto Parts	headquarters	1,500
13	General Council of the Assemblies of God	headquarters	1,140
14	Kraft Foods	manufacturing	1,120
15	Burlington Northern Santa Fe Railroad	transportation	1,050
16	City Utilities of Springfield	utility	965
17	Hutchens Industries	manufacturing	950
18	Willow Brook Foods	manufacturing	850
19	SRC Holdings	manufacturing	800
20	Associated Wholesale Grocers	distribution	790
21	American National Property & Casualty	insurance	780
22	Loren Cook Company	manufacturing	725
23	Paul Mueller Company	manufacturing	715
24	Greene County	government	675
25	Prime	transportation	675
26	Great Southern Bank	finance	595
27	Republic R-3 School District	education	570
28	Ozark R-6 School District	education	560
29	Doctors Hospital of Springfield	health care	550
30	Regal-Beloit (formerly General Electric)	manufacturing	530
31	Nixa R-2 School District	education	555
32	AT&T (formerly SBC)	communications	500
33	Carlisle Power Transmission (formerly Dayco)	manufacturing	500
34	Burrell Behavioral Health (affiliate of CoxHealth)	health care	500
35	Aaron's Automotive / PROformance	manufacturing	490

ECONOMIC IMPACTS OF THE HEALTH & HIGHER EDUCATION SECTORS

36	Positronic Industries	manufacturing	480
37	Lowe's Stores	retail	475
38	Drury University	education	460
39	MCI Worldcom	call center	420
40	Dillons Food Stores	retail	405
41	Ozarks Technical Community College	education	380
42	Northrop Grumman Interconnect Technologies	manufacturing	365
43	Bolivar R-1 School District	education	355
44	John Q. Hammons Company	headquarters	350
45	Reckitt Benckiser	manufacturing	335
46	Springfield News-Leader	publishing	320
47	Solo Cup	manufacturing	315
48	Southwest Baptist University	education	310
49	Logan-Rogersville R-8 School District	education	300

SOURCE: Springfield Area Chamber of Commerce, December 2005. Numbers may vary from findings of this report because of different data collection techniques and because the Chamber of Commerce converts all employment to "full time equivalent" (FTE) while the survey results from the report do not.



APPENDIX B: QUESTIONNAIRE SENT TO HOSPITALS AND MEDICAL CENTERS

ECONOMIC IMPACT SURVEY: MEDICAL CENTERS

We request your assistance in an important research effort that will help the Springfield Area to better understand the value of the health care and higher education sectors in the Metro Springfield economy. So that we can better support the continued growth of these sectors, the City of Springfield and the Springfield Area Chamber of Commerce are working together to document the economic impacts and contributions of our universities, colleges, hospitals, pharmacies and other health care establishments. We are working with a private economic research firm, Development Strategies, to perform the analysis.

To accomplish this, we need your help. The accompanying questionnaire requests information about your medical center's or hospital's employment, operations, and capital spending. Your questionnaire has been tailored for pharmacies. These data are the critical inputs to the economic impact model, which will calculate (1) the two sectors' (health care and higher education) contributions to the "gross regional product;" (2) the amount of additional income for Springfield area households that they create; and (3) the number of jobs that health care and higher education support both directly and indirectly. In addition, the model will help to determine the size of the local tax base that these sectors support.

We understand that the information we are requesting is sensitive, and we assure you that it will be held in strictest confidence; only our consultants will have access to the individual responses and **neither they nor we will not release any information for an individual institution or firm**. The survey results will be combined and only aggregate data will serve as the foundation for the economic impact analysis.

One of the important areas that the survey explores is how much that your establishment spends directly in the Springfield metro area (see map on next page) versus being spent outside of the area. We realize that you may not track your activities in this way, but **ask for your best estimate** – either as a dollar value or a percentage of the total. The breakdown of local versus non-local spending is vital to an accurate determination of the local economic impact.

We appreciate your completing the survey and returning it, via postage-paid U.S. mail, **by January 31st**. Just fold it in half and tape it closed as shown on the back page. If you have any questions about the survey or the larger research effort, please do not hesitate to call Greg Williams at the Chamber of Commerce (417-862-5567) or Bob Lewis of Development Strategies (314-421-2800). We will be glad to share the results of the analysis with you when the process is complete.

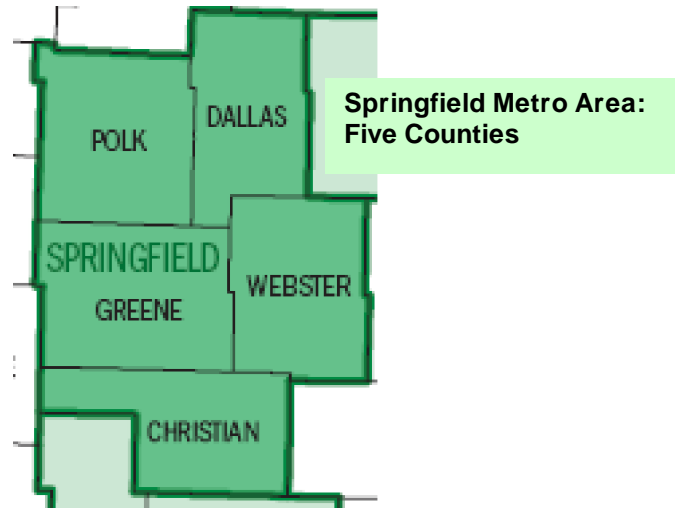
Thank you very much for your help.

Springfield Area Chamber of Commerce
202 S. John Q. Hammons Parkway, Springfield, MO 65806
Phone: (417) 862-5567
www.springfieldchamber.com

DEVELOPMENT STRATEGIES, INC.
10 South Broadway, St. Louis, MO 63102
Phone: (314) 421-2800
www.development-strategies.com

ECONOMIC IMPACT SURVEY

Hospitals and Medical Centers in the Springfield Metropolitan Area



Person completing this survey (optional):

Contact information (to call for clarification of responses, if necessary)

Phone: () _____

Email: _____

PATIENTS

Number of patients at your Springfield area facility in last fiscal year:

	Number	Average Length of Stay	Percent who reside in . . .		
			Springfield Metro	Other Missouri	Outside of Missouri
In-Patients		days	%	%	%
Out-Patients			%	%	%

EMPLOYEES, STAFF, & VOLUNTEERS

Number of employees and related at your Springfield area facility in last fiscal year:

	Number	Percent who reside in Springfield Metro	Total Annual Payroll
Physicians on staff (who are not employees)		%	
Full time employees		%	\$
Part time or seasonal employees		%	\$
Contract employees		%	\$

Number of unpaid volunteers serving your institution in last fiscal year:

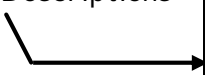
	Number	Percent who reside in Springfield Metro	Estimated number of hours contributed annually
Board of Directors		%	
All Other Volunteers		%	

**ALL OTHER OPERATING EXPENDITURES
(excluding payroll & capital improvements)**

Total annual expenses in last completed fiscal year <i>excluding payroll and capital improvements</i>	\$		
	Percent expended in . . .		
	Springfield Metro	Other Missouri	Outside of Missouri
	%	%	%

CAPITAL IMPROVEMENTS SPENDING

Total Spent on Major Capital Improvements (over \$10,000) per year
Include construction, renovation, equipment, etc.

	Last Fiscal Year	This Fiscal Year	Next Fiscal Year
Amount	\$	\$	\$
Brief Descriptions 			

TOTAL REVENUES IN LAST FISCAL YEAR

Total annual revenues in last completed fiscal year	\$		
Sources of revenues:			
A. Patient care			
a. out-of-pocket	\$	Or	%
b. government reimbursement	\$	Or	%
c. private insurance	\$	Or	%
d. Other patient care revenues	\$	Or	%
B. Other Revenues			
a. grants and subsidies	\$	Or	%
b. sales (cafeteria, parking, gift shop, etc.)	\$	Or	%

Thank you very much! Please fold and tape closed, then drop it in the U.S. Mail. We will send an acknowledgement when we receive the questionnaire. And we will provide you with summary results of the survey.

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St. Louis, MO 63102-1743



APPENDIX C: QUESTIONNAIRE SENT TO COLLEGES AND UNIVERSITIES

ECONOMIC IMPACT SURVEY: COLLEGES AND UNIVERSITIES

We request your assistance in an important research effort that will help the Springfield Area to better understand the value of the health care and higher education sectors in the Metro Springfield economy. So that we can better support the continued growth of these sectors, the City of Springfield and the Springfield Area Chamber of Commerce are working together to document the economic impacts and contributions of our universities, colleges, hospitals, pharmacies and other health care establishments. We are working with a private economic research firm, Development Strategies, to perform the analysis.

To accomplish this, we need your help. The accompanying questionnaire requests information about your institution's employment, operations, and capital spending. Your questionnaire has been tailored for colleges and universities. These data are the critical inputs to the economic impact model, which will calculate (1) the two sectors' (health care and higher education) contributions to the "gross regional product;" (2) the amount of additional income for Springfield area households that they create; and (3) the number of jobs that health care and higher education support both directly and indirectly. In addition, the model will help to determine the size of the local tax base that these sectors support.

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One of the important areas that the survey explores is how much that your establishment spends directly in the Springfield metro area (see map on next page) versus being spent outside of the area. We realize that you may not track your activities in this way, but **ask for your best estimate** – either as a dollar value or a percentage of the total. The breakdown of local versus non-local spending is vital to an accurate determination of the local economic impact.

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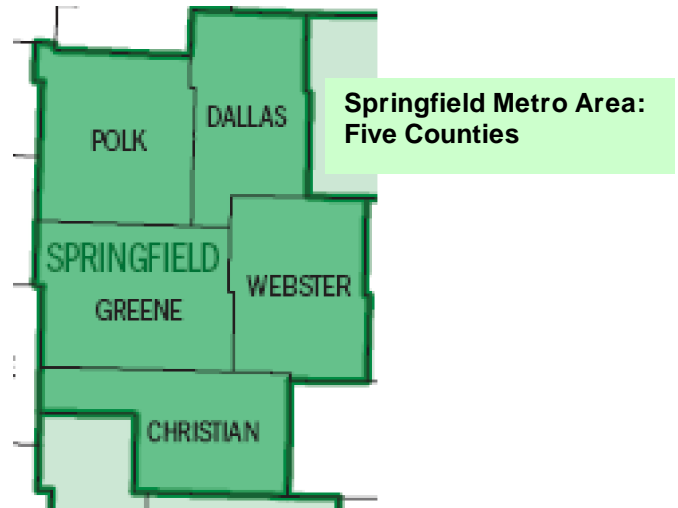
Thank you very much for your help.

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ECONOMIC IMPACT SURVEY

Colleges and Universities in the Springfield Metropolitan Area



Person completing this survey (optional):

Contact information (to call for clarification of responses, if necessary)

Phone: () _____

Email: _____

STUDENTS

Number of students at your Springfield area facility, annualized:

	Number	Percent who reside in . . .		
		Springfield Metro	Other Missouri	Outside of Missouri
Full time		%	%	%
Part time		%	%	%

EMPLOYEES, STAFF, & VOLUNTEERS

Number of full time, part time, and contract employees at your Springfield area facility in last fiscal year:

	Number	Percent who reside in Springfield Metro	Total Annual Payroll
Full time employees		%	\$
Part time or seasonal employees		%	\$
Contract employees		%	\$

Number of unpaid volunteers serving your institution in last fiscal year:

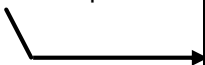
	Number	Percent who reside in Springfield Metro	Estimated number of hours contributed annually
Board of Directors		%	
All Other Volunteers		%	

**ALL OTHER OPERATING EXPENDITURES
(excluding payroll & capital improvements)**

Total annual expenses in last completed fiscal year <i>excluding payroll and capital improvements</i>	\$		
	Percent expended in . . .		
	Springfield Metro	Other Missouri	Outside of Missouri
	%	%	%

CAPITAL IMPROVEMENTS SPENDING

Total Spent on Major Capital Improvements (over \$10,000) per year
Include construction, renovation, equipment, etc.

	Last Fiscal Year	This Fiscal Year	Next Fiscal Year
Amount	\$	\$	\$
Brief Descriptions 			

TOTAL REVENUES IN LAST FISCAL YEAR

Total annual revenues in last completed fiscal year	\$		
Sources of revenues:			
C. Tuition and fees (net of scholarships)			
a. from students in Springfield metro area	\$	Or	%
b. from students elsewhere in Missouri	\$	Or	%
c. from students outside Missouri	\$	Or	%
D. Federal grants and contracts	\$	Or	%
E. State and local grants and contracts	\$	Or	%
F. Other	\$	Or	%

Thank you very much! Please fold and tape closed, then drop it in the U.S. Mail. We will send an acknowledgement when we receive the questionnaire. And we will provide you with summary results of the survey.

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