The Economic Impact of Merging the University of Nebraska-Lincoln's College of Architecture and the College of Fine & Performing Arts

Produced for Architectural Firms and Architects of Nebraska

Goss & Associates

Ernest Goss, Ph.D., Principal Investigator
and Jeffrey Milewski, B.A., M.S., Senior Research Economist

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The Economic Impact of Merging the University of Nebraska-Lincoln's College of Architecture and The College of Fine & Performing Arts

Overview

The Economic Impact of Merging the University of Nebraska-Lincoln's College of Architecture and The College of Fine & Performing Arts

The State of Nebraska has a very strong, vibrant and growing architecture industry. The University of Nebraska-Lincoln's (UNL) College of Architecture has been a valuable component in supporting the industry and making the state a competitive place to practice architecture.

Almost 100 architecture firms, including some of the nation's largest firms, are headquartered in Nebraska and rely on a consistent supply of high-quality architecture graduates.

As evidence of the vital importance of Nebraska's architectural services industry, HDR, the nation's ninth largest architecture firm, recently announced that it is investing as much as $85 million in a new headquarters building in Omaha. With 875 employees in Nebraska. HDR's plans are based on the expectation that Nebraska will continue to provide exceptional graduates to continue to grow the architecture industry in the state. Furthermore, the 62 percent of firms with 1-4 workers in the state depend on architecture graduates for growth.

A proposal has been advanced to merge UNL's College of Architecture with the College of Fine & Performing Arts. It is argued by opponents of the merger that such a combination would risk the quality and reputation of architecture graduates in future years.

Advocates of the merger advance budgetary or cost savings reasons as the prime rationale for the merger. The proposal would eliminate a dean position and some administrative staff that would overlap in a combined college. Opponents of the merger argue that while cost savings are important, the long-term cost savings from this type of expense reduction are questionable, and do not outweigh the risk of potentially weakening the standing of the architecture program and the jobs it creates for the State of Nebraska.

The goal of the present study is to evaluate the impact of the proposed merger on the State of Nebraska and on its economic competitiveness.

Executive Summary

The Economic Impact of Merging the University of Nebraska-Lincoln's College of Architecture and The College of Fine & Performing Arts

I. Architectural services is a building block of the Nebraska economy.

- Nebraska, relative to the U.S. and to the region,[1] has more than its expected share of architectural services jobs:
  - Among West North Central States' (WNC) metropolitan areas, Omaha ranks number one in the relative size of its architectural services industry, and is the top exporter of architectural services in the region.
  - Nebraska is one of 17 states in the U.S. that export architectural services to other states. The remaining 33 states are net importers of architectural services.
  - Data indicate that Omaha is the top metropolitan area in the region in terms of exporting architectural services to other areas of the nation and region.
  - Data indicate that proximity to a college of architecture is paramount in maintaining and growing this industry.
- In 2013, it is estimated that Missouri and Nebraska, two states with separate colleges of architecture, exported architectural services to other states.
  - Iowa, Minnesota, North Dakota and South Dakota, states with merged architecture programs, were net importers of architectural services.
  - Only Kansas, with separate architecture colleges, imported architectural services. Kansas's two programs located within two hours drive from Kansas City, Missouri, are likely providing architects for the Missouri economy.
- Both Nebraska's share of firms and jobs grew after the 2008 financial crisis, indicating that Nebraska's architecture industry is more resilient compared to other states.
- Over the period 2003-13, Nebraska's share of total regional architectural service firms expanded.
- Over the period 2003-13, Nebraska's share of regional architectural service firms with 1-9 employees expanded.

Data indicate that proximity to a college of architecture is paramount in maintaining and growing this industry.

Of the nation's 20 largest architecture firms, two are headquartered in Omaha, thus supporting and demanding a strong educational program for architects.

[1]Throughout this study, the region is the U.S. Census Bureau's West North Central States (WNC) which include Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota. The region is one of nine geographic divisions of the United States that is officially designated by the U.S. Census Bureau.

Executive Summary

- Of the nation's 20 largest architecture firms, two are headquartered in Omaha, thus supporting and demanding a strong educational program for architects.[2]
  - HDR and Leo A Daly Architects are headquartered in Nebraska, and are the 9th and 17th ranked architecturalfirms in the nation, respectively, based on architectural revenues.
  - All top 20 architectural services firms are located in only nine states.
  - HDR just announced plans to invest approximately $85 million in a new headquarters building in Nebraska.
- Due to Nebraska's favorable concentration of architectural services jobs, the state is currently exporting architectural services to other states.
- The average hourly salary for Nebraska architects is more than double the average for all workers in the state.
- After significant loss of architecturaljobs during the 2008-09 recession, Nebraska and the U.S. have begun to regain those lost jobs.

Due to Nebraska's favorable concentration of architectural services jobs, the state is currently exporting architectural services to other states.

[2]Rankings are based on architectural revenues. Retrieved on May 1, 2015: http://archrecord.construction.com/practice/top300/2014/top300-architecture-firms-1.asp

Executive Summary

II. Separate colleges of architecture have out-performed architecture programs merged into other schools or colleges.

- There are currently 123 universities with 154 accredited architecture programs in the U.S. Of these programs, only 16, or 10.4 percent, include fine and performing arts.
- In terms of 2013-14 cost per full-time equivalent, UNL's College of Architecture was approximately nine percent lower than that for the Hixon-Lied College Fine and Performing Arts.
- In terms of student enrollments, separate colleges and schools of architecture outperformed programs integrated or merged into other programs.
    - Of the top 20 architectural programs in the U.S. all but two are separate colleges or schools of architecture.
- The University of Minnesota's percentage of graduates in architecture:
    - Dropped from 2.9 percent before its merger in 2006 to 2.2 percent in 2014.
    - During this same period of time, UNL's share of overall degrees in architecture remained virtually unchanged.

Of the top 20, architectural programs in the U.S. all but two are separate colleges or schools of architecture.

III. Estimated economic impacts of merging the two units.

- Each additional 10 architecture graduates in Nebraska increases employment in the state's architectural services industry by 10 workers.
- Almost 71 percent of the nation's 2013 architecture graduates were in states with a separate college of architecture.
- It is estimated that each of Nebraska's top 20 architecture firms adds approximately 484 net architecture industry jobs above that of a non-top 20 firm.
- 13 of the U.S. top 20 architecture firms are headquartered in the 19 states with standalone architecture colleges while the remaining 7 are headquartered in states with merged programs.
- There are no top 20 architecture firms headquartered in the five states without an architecture degree program.

Almost 71 percent of the nation's 2013 architecture graduates were in states with a separate college of architecture.

Executive Summary

- It is estimated that merging the UNL architecture program will generate an annual loss to the State of Nebraska of:
  - 161 architecture jobs and a further reduction of 255 non-architecture jobs for a total annual loss of 316 jobs.
  - Salaries and wages of $15.8 million.
  - State and local government tax collections of $1.3 million.
  - A total economic output loss of $38.9 million.
- To the extent tuition reflects cost differences, the merger of the two UNL colleges would not reduce costs.

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It is estimated that the proposed merger will generate an annual economic output loss of $38.9 million to the state.

Merging the UNL architecture program will generate an ***annual loss*** of 161 architecture jobs and 255 non-architecture jobs for a total annual loss of 316 jobs.

Section 1 - Architecture: Building the Nebraska Economy

Chapter Highlights

- Of the nation's 20 largest architecture firms, two are headquartered in Omaha, thus supporting a strong educational program for architects.
- Over the period 2003-13, Nebraska's share of total regional architectural services firms expanded.
- Over the period 2003-13, Nebraska's share of regional architectural services firms with 1-9 employees expanded.
- Nebraska, relative to the U.S. and to the region,[3] has more than its expected share of architectural services jobs.
    - Among West North Central States' (WNC) metropolitan areas, Omaha ranks number one in the relative size of its architectural services industry.
    - Nebraska is one of 17 states in the U.S. that export architectural services to other states. The remaining 33 states are net importers of architectural services.
    - Data indicate that proximity to a college of architecture is paramount in maintaining and growing this industry.

Among West North Central States' (WNC) metropolitan areas, Omaha ranks number one in the relative size of its architectural services industry.

- The average hourly salary for Nebraska architects is more than double that for all workers in the state.
- After a significant loss of architectural jobs during the 2008-09 recession, Nebraska and the U.S. have begun to regain those lost jobs.

[3]Throughout this study, the region is the U.S. Census Bureau's West North Central States (WNC) which include Iowa, Kansas, Minnesota, Missouri, Nebraska, North Dakota and South Dakota.

Introduction

One of the justifications of the merger is to reduce administrative costs. The positions that would likely be eliminated would be the College of Architecture Dean and the Dean's support staff, such as secretaries. Any positions that aren't specifically tied to the area of study would also be vulnerable to being eliminated as well. For example, student recruitment positions from both colleges might be consolidated. However, those making the decision should understand that many of these functions are specialized to the architecture industry and would represent a challenge to maintain expansion plans for degree programs at UNL.

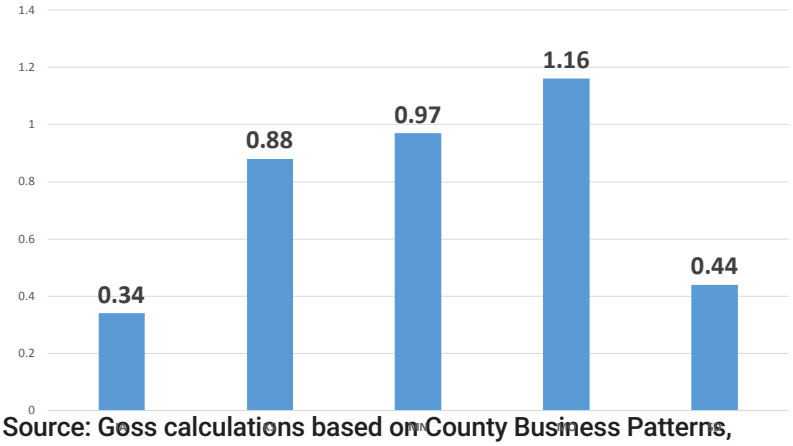
Opponents to the merger assert that a combined school could also lead to decreased enrollment in architecture studies. This could lead to future job losses in high-paying architecture positions located in Nebraska. The location quotient of the architecture industry in Nebraska provides insight into the importance of the industry to the state. Locations quotients provide a way to quantify the concentration of a particular industry in a certain region compared to a larger reference region.[4]

The Exporting of Architectural Services

Figure 1.1 shows location quotients for WNC states with the base region being the United States. A number above 1.00 indicates that the architecture industry is more concentrated than the United States average. High location quotients indicate that the industry is exporting goods or services and thus bringing net new money into the state. Nebraska's location quotient of 1.06 indicates that Nebraska has a higher concentration of architecture jobs than the U.S. and is exporting architectural services outside of the state.

[4]A detailed discussion of location quotients is provided in Appendix A.

Figure 1.1: Location quotients based on employment in architectural services in WNC states, 2013 (compared to U.S.)



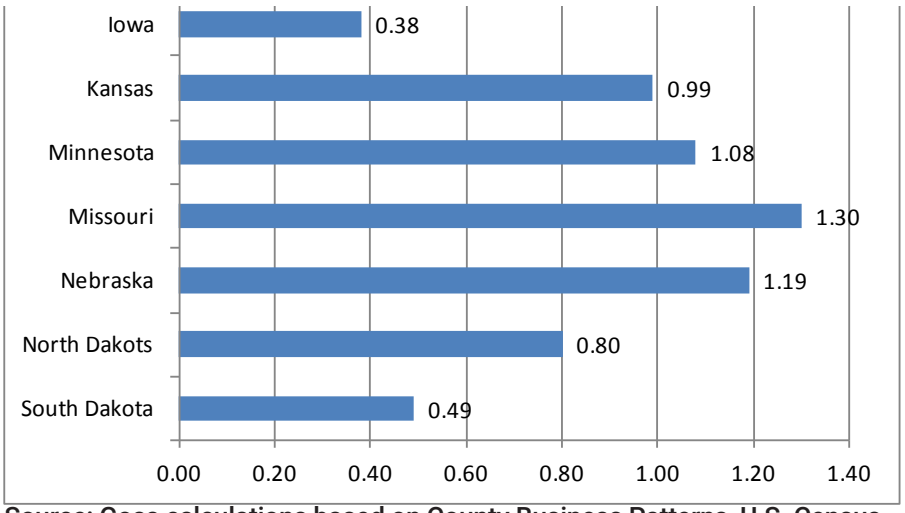
Source: Goss calculations based on County Business Patterns, U.S. Census Bureau

Among the WNC states, Nebraska has the second highest location quotient, second only to Missouri, which has two major metropolitan cities and is supplied architects by two colleges of architecture at Kansas State University and the University of Kansas.

Data in Figure 1.1 fails to take into account the degree to which Nebraska is exporting architectural products and services to the region rather than the nation, and the degree to which the region is the most appropriate comparison area. Figure 1.2 shows the location quotients of WNC states in reference to the region, not the United States. Nebraska's LQ of 1.19 is significantly higher than the 1.06 when using the United States as a reference, instead of the 1.19 when using the region as a reference, indicating that Nebraska is a leader in the region and the nation.

Among the WNC states, Nebraska has the second-highest location quotient, second only to Missouri, which has two major metropolitan cities and is supplied architects by two colleges of architecture at Kansas State University and the University of Kansas. A location quotient above 1.00 indicates that architectural jobs are of greater importance to the state's economic development.

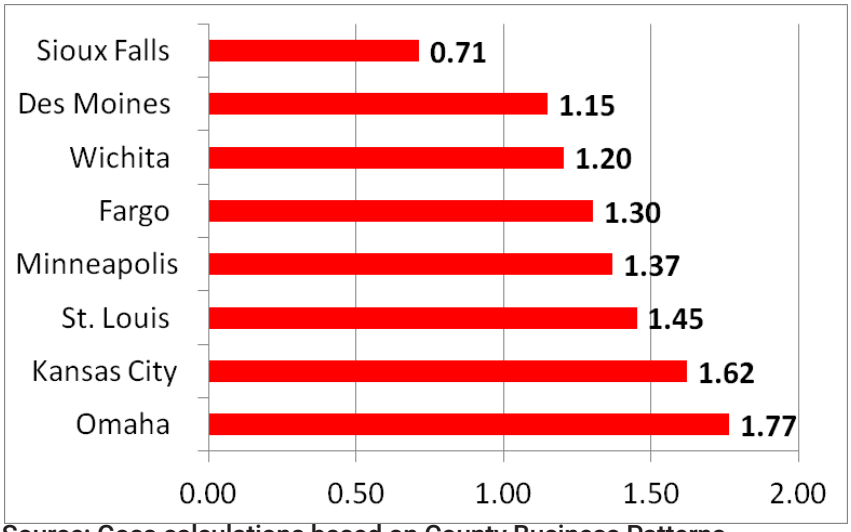
Figure 1.2: Location quotients for the WNC states, 2013 (compaed to region)



Source: Goss calculations based on County Business Patterns, U.S. Census Bureau

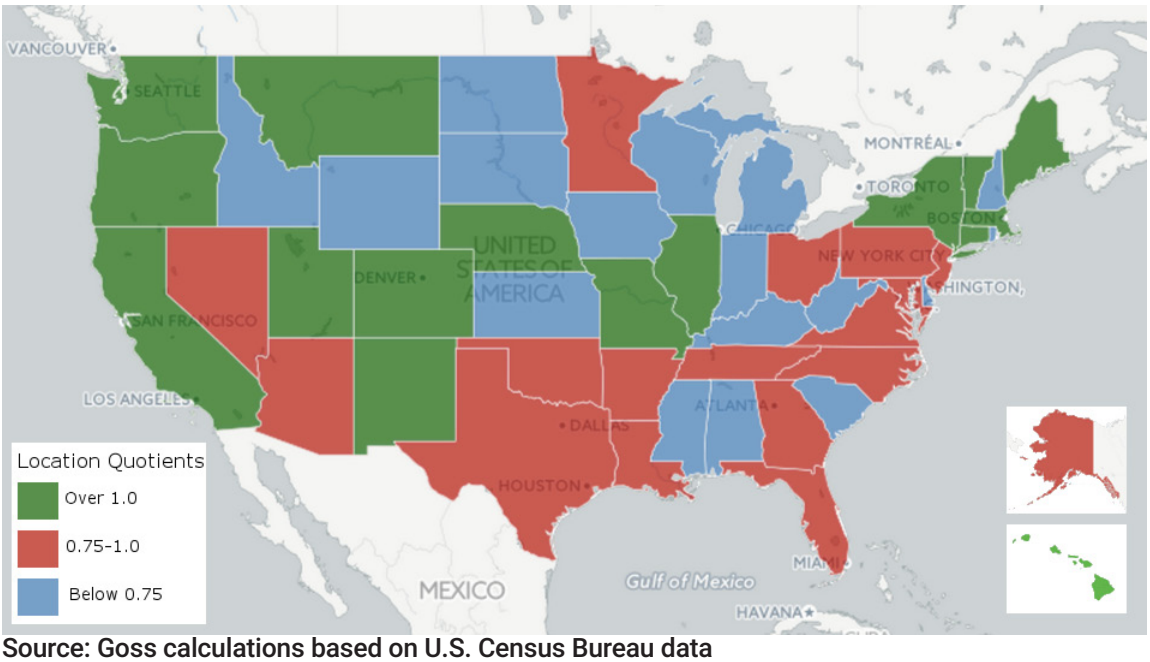
Figures 1.3 and 1.4 compare location quotients by metropolitan area and state, respectively. Both figures show the extent to which Nebraska is exporting architectural services to other areas of the region and nation. Metropolitan LQs indicate that Omaha is the top metro exporter of architectural services in the WNC region.

Figure 1.3: Location quotients for NWC metropolitan statistical areas, 2013



Source: Goss calculations based on County Business Patterns, U.S. Census Bureau

Figure 1.4: Location quotients for architectural services industry by state, 2013



Source: Goss calculations based on U.S. Census Bureau data

Table 1.1 lists estimated exports and imports of architectural services for each WNC state for 2012. As listed, only two WNC states, Missouri and Nebraska, exported architectural services in 2012. Each state with a separate college of architecture, except for Kansas, was estimated to exported architectural services in 2012.

As listed, only two WNC states, Missouri and Nebraska, exported architectural services in 2012.

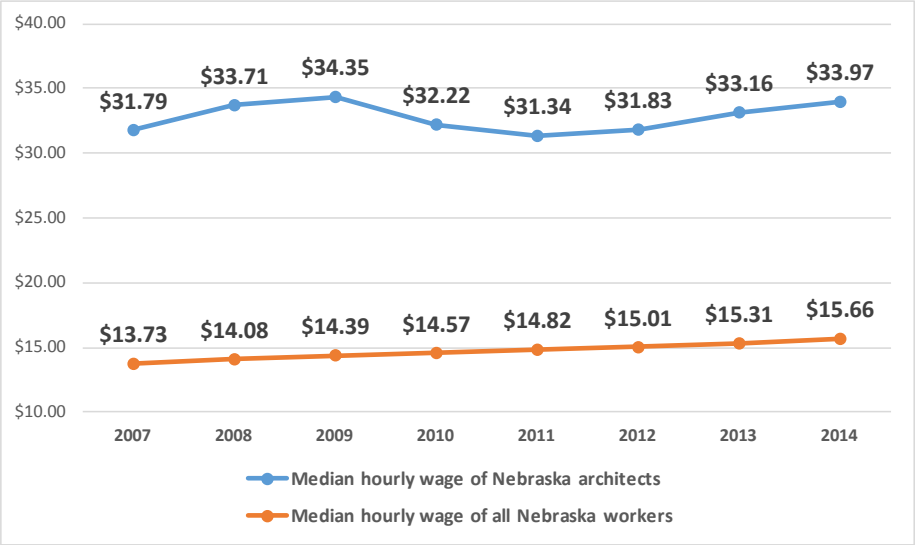
Table 1.1: Estimated export or import of architectural services to other states, 2012

County	Net Exports	Net Imports
Iowa	$0	$51,972,579
Kansas	$0	$9,189,098
Minnesota	$0	$2,479,776
Missouri	$12,938,737	$0
Nebraska	$5,035,611	$0
North Dakota	$0	$22,143,400
South Dakota	$0	$44,525,869

Source: Based on 2012 location quotients and $62.5 billion of architectural services revenue

Figure 1.5 shows the hourly wages of architects and all workers in Nebraska. Architecture is a sophisticated and creative industry that produces high-wage jobs. Nebraska has three large architectural firms, in addition to a high share of small firms, that demand a steady source of graduates. Architecture wages are over twice that of wages of all workers in Nebraska. From 2007 to 2014, wages for architects increased by 6.9 percent. For the same period, wage growth for all workers was 14.1 percent. Architecture wage growth was lower compared to all workers because of the financial crisis of 2008, which had a larger negative impact on the architectural services industry.

Figure 1.5: Median hourly wage for architects and all workers in Nebraska



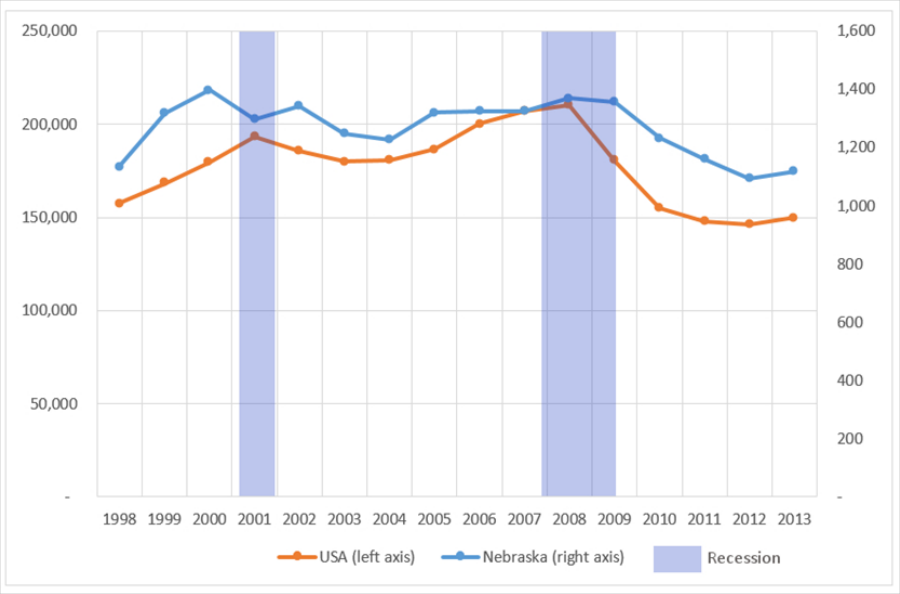
Source: Goss calculations based on County Business Patterns, U.S. Census Bureau

As evidence of the strength of the industry in Nebraska, HDR is increasing their commitment to growing in the state, having announced plans to build a new headquarters in Omaha investing approximately $85 million in a new headquarters building.[5] The three largest architectural firms in Nebraska are HDR, Leo A Daly Architects, and DLR Group. These firms seek to hire College of Architecture graduates, having a vested interest in the number and quality of graduates coming from the College of Architecture at UNL. HDR has approximately 875 employees working from the Omaha headquarters.[6] Of the nation's 20 largest architecture firms, two are headquartered in Omaha, HDR and Leo A Daly.

However, smaller architecture firms depend heavily on recent graduates to grow their business. In 2013 for example, 77.9 percent of Nebraska architectural services firms employed between one and nine workers.

Figure 1.6 profiles U.S. and Nebraska architectural services jobs from 1998 to 2013, showing the degree to which the industry was affected by the 2001 and 2007-09 recessions.

Figure 1.6: Number of jobs in architectural services for the U.S. and Nebraska, 1998-2013 (Source: Census, County Business Patterns)



Source: Goss calculations based on County Business Patterns, U.S. Census Bureau

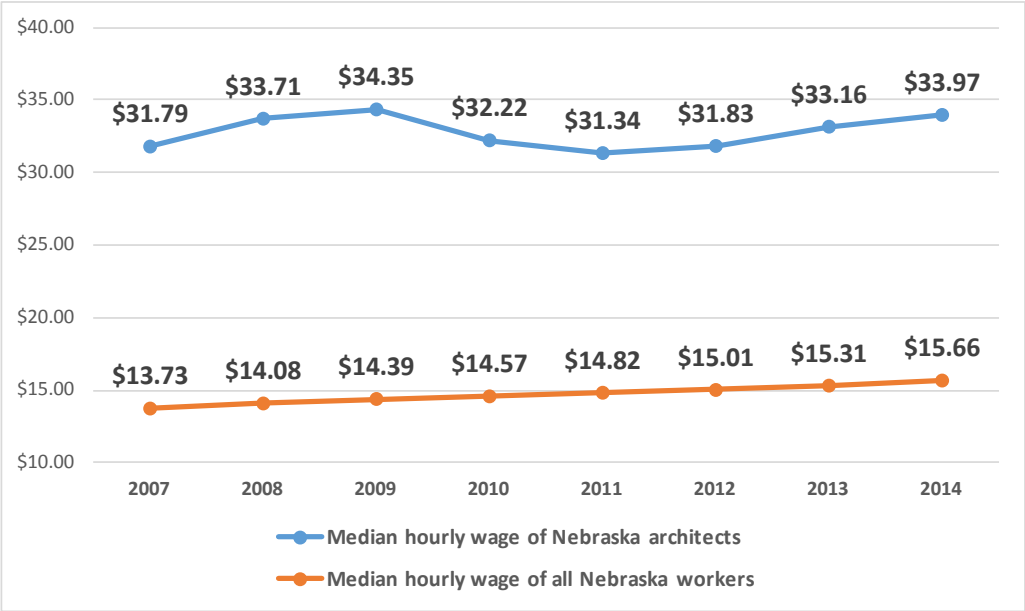
However, smaller architecture firms depend heavily on recent graduates to grow their business. In 2013 for example, 77.9 percent of Nebraska architectural services firms employed between one and nine workers.

[5]http://www.omaha.com/money/hdr-to-build-new-world-hq-in-omaha-old-civic/article_be00f70a-c9b9-50d4-91ef-5d413875d091.html, retrieved April 30, 2015.

[6]In 2014, HDR ranked number seven and Leo A Daly ranked number 19. http://www.archdaily.com/533836/top-300-us-architecture-firms/, retrieved April 30, 2015.

Figure 1.7 depicts the share of architectural service jobs and the share of firms that the State of Nebraska comprises. Over this ten-year span, there is a positive trend, indicating that Nebraska's architecture industry is becoming more competitive compared to the rest of the United States. Both Nebraska's share of firms and jobs grew after the 2008 financial crisis, indicating that Nebraska's architecture industry is more resilient compared to other states during downturns in the economy.

Figure 1.7: Nebraska's share of U.S. architectural services jobs and firms, 2004-2013



Source: Goss calculations based on County Business Patterns, U.S. Census Bureau

Impact of Adding Architectural Services Jobs

Table 1.2 shows the economic impact of adding 10 new architectural services jobs to Nebraska. These 10 jobs would include architects and clerical staff, as well as paraprofessionals. As listed, each job in architectural services supports another job outside this industry with the average salary for all 20 jobs at $50,013, which is well above Nebraska's average salary of $40,080.[7]

Table 1.2: Economic impact of 10 new architectural services jobs in Nebraska	
Number of architectural services jobs	10
Number of new jobs outside architectural services industry (spillover jobs)	10
Wages & salaries	$981,007
Average salary for all jobs (Architectural services and others)	$50,013
State & local taxes	$81,020
Sales or total impact of 10 new architectural services jobs	$2,417,224
Source: Implan Multiplier System	

[7]Source: U.S. Bureau of Labor Statistics, 2014. http://www.bls.gov/oes/current/oes_ne.htm#00-0000

Summary

This chapter has demonstrated the importance of the architectural services industry to the state of Nebraska. Not only does the industry pay significantly higher salaries than the state average, each architectural services job supports an additional job outside this industry. The average pay for all jobs supported by the architectural services industry is approximately $50,013, which is well above the average Nebraska salary for all jobs of $41,080.

However, Nebraska's success in growing its architectural services sector, and selling architectural services outside the state, depends on a leading architecture program. Furthermore, it will be demonstrated in the next section that leading programs tend to exist in separate colleges of architecture headed by a dean with a degree in architecture.

Not only does the industry pay significantly higher salaries than the state average, each architectural services job supports an additional job outside this industry.

Section 2 - Performance comparisons: Separate colleges of architecture vs. merged programs

Chapter Highlights

Of the top 20 undergraduate architectural programs in the U.S., only two schools were merged with arts programs.

- Of the top 10 graduate architectural programs in the U.S. only one was merged with an arts program.
- The University of Minnesota reconfigured the structure of its architecture and design program with its merger in 2006. However, it should be noted that the structure of the new program did not include arts and performing arts as proposed for the UNL merger. Even so:
  - The percent of architecture graduates at the University of Minnesota dropped from 2.9 percent before the merger to 2.2 percent in 2014.
  - During this same period of time, UNL's share of degrees granted in architecture actually rose.
- The architecture colleges at Kansas State and the University of Kansas are serving Kansas City, Missouri
  - The University of Kansas's architecture college is located 42 miles from Kansas City.
  - Kansas State University's architecture college is located 121 miles from Kansas City
  - With two colleges of architecture serving the metropolitan area, two of the nation's top 20 architectural services firms are headquartered in Kansas City.
- This proposed institutional structure for UNL's architectural program more closely resembles schools such as North Dakota State and South Dakota State where the dean is not an architect.

The Future Impact of Architecture

With the increasing national attention paid to the nation's dearth of infrastructure investment, it is easily projected that growth for the architecture services industry will be significantly above that of the past decade.

> " Many of the pressing challenges we face as a nation have an architecture component. The abysmal state of our infrastructure. Ongoing growth of sprawling, automobile-dependent residential and commercial areas with little regard for environmental and social costs. Near abandonment of low- and moderate-income urban populations and neighborhoods. The degraded quality of public buildings. The shortage of affordable housing near the places where people work. Homelessness. Extreme weather. Architecture and design—aren't they essential parts of tackling these issues?" Tom Vonier, FAIA; President-Elect of the America Institute of Architects, in ARCHITECTURE Magazine – May 20, 2015.

The University of Minnesota Experience

In July of 2006, the University of Minnesota merged the College of Architecture and Landscape Architecture (CALA) with the College of Design, Housing, and Apparel. Generally, the architecture students thought the college should have stayed separate, whereas students from design, housing, and apparel were glad to be associated under a combined college.[8] In a larger combined college, architecture students don't see value in being associated with studies like apparel design and retail merchandising.

However, it should be noted that the University of Minnesota did not merge its architecture program with arts or performing arts programs but instead combined its architecture program with its design programs.

[8] http://www.mndaily.com/2006/11/08/new-university-college-unites-disparate-fields

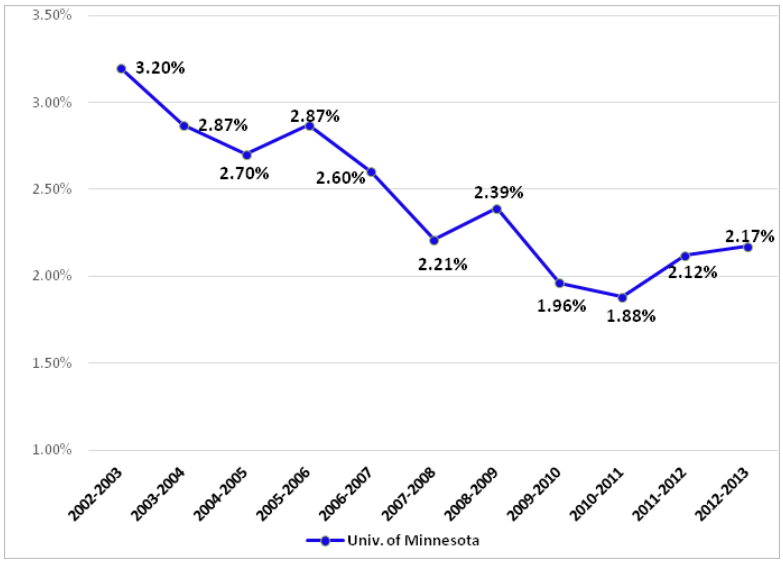
Since the merger, the percentage of degrees at the University of Minnesota awarded in architecture has steadily declined. Before the merger, from 2002 to 2006, architecture averaged 2.9 percent of total degrees awarded. From 2006 to 2013, architecture degrees made up an average of 2.2 percent of all degrees awarded by the university. During the same time periods, the University of Nebraska saw the proportion of architecture degrees awarded averaged 2.0 percent from 2002 to 2006 and 2.3 percent from 2006 to 2013.

The degree to which the University of Minnesota was affected is more significant than the downward trend, which can be expected to be common among all schools. Figure 2.1 shows the percentage of total degrees awarded in architecture for 2002 through 2013.

Rankings Comparison

Recent rankings by DesignIntelligence for the top-ranked architecture programs are listed in Table 2.1.[9] Of the schools in the top ten rankings for both undergraduate and graduate programs, only two schools, Cornell University and Virginia Tech, have architecture schools that operate among fine arts. All of the other schools have a unit focused on architecture or a combination of mostly architecture with a design or urban planning compliment. Furthermore, at Cornell's College of Architecture, Art, and Planning and Virginia Tech's College of Architecture and Urban Studies, the architecture programs are of first priority, being led by deans with expertise in architecture.

Figure 2.1: Percentage of total degrees awarded in architecture, 2002-2013



Source: Common Data Set

Since the merger, the percentage of degrees at the University of Minnesota awarded in architecture has steadily declined.

[9] http://www.di.net/articles/america-s-best-architecture-schools-2014/

Table 2.1: Architecture rankings for undergraduate and graduate programs, 2014			
Undergraduate Programs Top 10			
Rank	School	Location of architecture program	Associated with fine or performing arts?
1	Cal Poly San Luis Obispo	College of Architecture and Environmental Design	No
2	Cornell University	College of Architecture, Art, and Planning	Yes
3	Rice University	School of Architecture	No
4	University of Texas at Austin	School of Architecture	No
5	Virginia Tech	College of Architecture and Urban Studies	Yes
6	Syracuse University	School of Architecture	No
7	University of Southern California	School of Architecture	No
8	Auburn University	College of Architecture, Design and Construction	No
9	Southern California Institute of Architecture	Independent architecture school	No
10	Rhode Island School of Design	Division of Architecture and Design	No
Graduate Programs Top 10			
1	Harvard University	Graduate School of Design	No
2	Yale University	School of Architecture	No
3	Columbia University	Graduate School of Architecture, Planning and Preservation	No
4	MIT	School of Architecture + Planning	No
5	Cornell University	College of Architecture, Art, and Planning	Yes
6	Rice University	School of Architecture	No
7	University of Michigan	College of Architecture and Urban Planning	No
8	Kansas State University	College of Architecture, Planning and Design	No
9	UC Berkeley	College of Environmental Design	No
10	University of Texas at Austin	School of Architecture	No
Source: DesignIntelligence http://www.di.net/articles/america-s-best-architecture-schools-2014/			

The rankings suggest that top architecture programs operate independently, or are associated with technically-related fields like design and planning.

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Additionally, out of all the programs ranked, the dean position is held by a person with expertise in architecture in all cases except two, the Rhode Island School of Design and UC Berkeley. At the Rhode Island School of Design, the dean of the Division of Architecture and Design has expertise in design. At UC Berkeley the dean of the College of Environmental Design has expertise in urban planning. Both fields are technically-related to architecture much more so than fine or performing arts. The proposed merged college at UNL would be led by a dean with expertise in performing arts,[10] which would not be consistent with top architecture programs throughout the U.S.

The DesignIntelligence ranking methodology provides insight into the types of skills valued by employers in recently-hired architecture graduates. The survey selects professional practice leaders who have experience in hiring and supervising recent graduates. The survey centers on the question, "In your firm's hiring experience in the past five years, which of the following schools are best preparing students for success in the profession?" The rankings indicate that this question is best answered with graduates in mind from schools that view their architecture program as a top priority in an independent unit, or being complimented by technically-related field such as design and planning.

[10] http://www.omaha.com/news/unl-to-combine-its-colleges-of-architecture-fine-arts/article_b7859e53-4611-5961-b1f6-d39c1d6f62b4.html?mode=jqm

Architecture Schools in Contiguous and West North Central Region

Table 2.2 shows the types of architecture programs in WNC states. Like Nebraska, the architecture programs at Kansas University and Kansas State are located within a college of architecture, offering a similar mix of academic programs. Iowa, North Dakota, and South Dakota offer programs within an architecture department through a college that offers a less-focused range of studies. South Dakota's program is not accredited.

Minnesota offers an architecture program through a school of architecture in their College of Design. The College of Design offers a several programs focused on architecture, with a dean whose expertise is in architecture, and whose research focus is on urban planning and business. Washington University in St. Louis has a unique setup, offering architectural programs through a college of architecture, with its own dean, within a larger school called the Fox School of Design & Visual Arts.

In Table 2.2, the expertise of each school's dean is listed. A concern of the merger is losing the voice of dean, particularly related to architecture. As evidenced by leadership at comparable schools in the region and top schools in the rankings, it is essential that the position of dean is filled by a professional with first-hand understanding of the needs of the architecture profession in order to represent the interests of students and faculty.

The proposed merged college at UNL would initially be led by a non-architect dean. It was announced by the University of Nebraska-Lincoln that Charles O'Connor would become dean of the Hixson-Lied College of Fine and Performing Arts on July 1, University of Nebraska-Lincoln. Professor O'Connor holds an M.F.A. (Master of Fine Arts).[11]

The overall importance, in terms of enrollment numbers and programs offered as a ratio to the total enrollments and programs, would be diminished, with fine and performing arts making up a significant percentage of the composition of the college. UNL's proposed institutional structure more closely resembles schools such as North Dakota and South Dakota, where the dean is not an architect. It is a chief concern that the proposed college would not be able to attract top architectural leadership talent in the dean position in the future.

Table 2.2: Architecture programs in WNC region, 2015

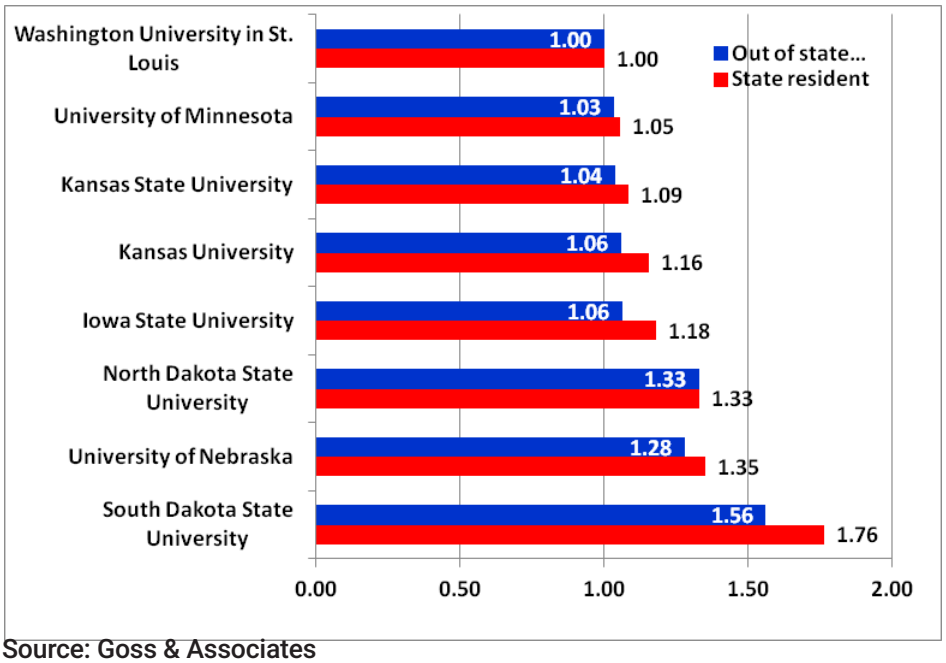
WNC States	Architectural Schools	Dean's expertise
Iowa	Iowa State University Department of Architecture in the College of Design	Architecture
Kansas (1)	University of Kansas School of Architecture, Design & Planning	Architecture
Kansas (2)	Kansas State University College of Architecture, Planning and Design	Architecture
Minnesota	University of Minnesota School of Architecture in the College of Design	Architecture
Missouri	Washington University in St. Louis College of Architecture within the School of Design & Visual Arts	Architecture
Nebraska	University of Nebraska, College of Architecture	Landscape Architecture
North Dakota	North Dakota State University Department of Architecture and Landscape Architecture in the College of Arts, Humanities, and Social Sciences	Sociology
South Dakota	South Dakota State University Department of Architecture in the College of Arts & Sciences (not accredited)	Psychology

Source: Individual universities' websites

[11] http://www.omaha.com/news/unl-to-combine-its-colleges-of-architecture-fine-arts/article_b7859e53-4611-5961-b1f6-d39c1d6f62b4.html?mode=jqm

Almost 500 students were enrolled in the UNL College of Architecture in the most recent semester. In a scenario where these students paid tuition under the College of Fine and Performing Arts, loss of revenue is due to tuition based on the colleges availability of resources specific to their instruction. Based on Fall 2014 enrollment, the University of Nebraska brought in an additional $52,142 from College of Architecture students. Matching program costs to tuition rates is an important tool for ensuring that an architecture program has the flexibility to fund needed resources that best serve the students and faculty.

Figure 22: Ratio of tuition of architecture students to general student



Source: Goss & Associates

The Merger of the College of Architecture With the College of Fine & Performing Arts: A Student's Viewpoint

Below are quotes from a former UNL College of Architecture undergraduate student, who is now a Master of Architecture (M.Arch) student at a different school. This individual requested to be quoted anonymously and asked that the current school not be named.

"One of the factors of why I chose to leave UNL and go elsewhere for graduate school definitely was the proposed merger. We were told at the end of my junior year of the merger, so I asked myself why stay at a school where everything is up in the air and could possibly lose some focus on architecture, when I could attend a highly respected and established school elsewhere. I was nervous of the merger, thinking architecture would lose the stronghold and prestige it currently had at UNL?"

"I was attracted to my current school because of its independent status as a college of architecture. Having our own dean who is inherently focused on architecture instead of arts across the board is huge, because the dean is excited about architecture. My current school's dean was always attending and participating in architecture events such as mid reviews and final critiques."

"My biggest concern about the merger is losing our voice as dean. Having a design professional, whether architect, landscape architect, interior designer, urban planner, their voice is incredibly important when fighting for our college."

"I am worried the new college between Hixson-Lied and Architecture will be unsuccessful at ever recruiting a top architecture professional to lead them."

A Student's Viewpoint

- I asked myself why stay at a school where everything is up in the air and could possibly lose some focus on architecture, when I could attend a highly respected and established school elsewhere?
- I was nervous of the merger, thinking architecture would lose the stronghold and prestige it currently had at UNL.
- I was attracted to my current school because of its independent status as a college of architecture.
- Having our own dean who is inherently focused on architecture instead of arts across the board is huge.

Source: Interview with UNL student transferred out.

Summary

This section has demonstrated the importance of a separate college of architecture to the success of the program and also to the growth of architectural services jobs. Likewise, empirical data show the significance of having a dean of the college that has a background and degree in architecture, design, or urban planning.

Two universities in the region have colleges with led by deans with a background outside of architecture, design or urban planning. One university, North Dakota State University, has a dean with a background in sociology and this has, at least partially, contributed to the state's lack of architectural services growth. The other state, South Dakota, has dean with a background in psychology and an unaccredited architecture program, both of which have stymied growth in the state's architectural services industry.

Section 3 - The Economic Impact of the Merger of the College of Architecture With the College of Fine & Performing Arts

Chapter Highlights

Of the nation's 20 largest architecture firms, two are headquartered in Omaha, thus supporting a strong educational program for architects.

- Almost 71 percent of the nation's 2013 architecture graduates were in states with a separate college of architecture.
- 13 of the U.S. top 20 architecture firms are headquartered in the 20 states with standalone architecture colleges while the remaining 7 are headquartered within the 25 states with merged programs.
- There are no top 20 architecture firms headquartered in the 5 states with no architecture program.
- Each 10 additional architecture graduates in Nebraska increases employment in the state's architectural services industry by approximately 10.
- Having two top 20 architecture firms adds a net 484 industry jobs, other factors unchanged.
- On average, Nebraska would be expected to lose approximately 161 architectural services jobs without a standalone college of architecture.
- It is estimated that merging the UNL architecture program will generate an annual loss of:
  - 161 architecture jobs and a further reduction of 255 non-architecture jobs for a total loss of approximately 316 jobs.
  - Salaries and wages of $15.8 million.
  - State and local governments tax collections of $1.3 million.
  - A total economic output loss of $38.9 million.
- Comparative tuition data indicate that the merger will likely not generate costs savings.

Introduction

As presented in Section 1, Nebraska and Omaha have a much higher concentration of architecture services jobs and firms than neighboring states and the U.S. The question becomes, what would be the impact of merging the two schools on this concentration and on the number of architectural service jobs? Additionally, what would be the spillover impacts or impacts on non-architectural services jobs.[12]

Table 3.1 compares states with and without standalone architecture colleges. As listed, states with a college of architecture had higher location quotients for architectural services, or higher concentrations of architectural services jobs. Furthermore, states with architecture colleges are more likely to have a top 20 architecture firm located within its boundaries than states with merged programs, or no architecture program.

Table 3.1: Comparison of states with and without architecture colleges, 2013

	States with architecture college	States with merged program	State with no architecture program
Number of states	20	25	5
Number of architecture graduates	7,347	3,031	0
Median location quotient	0.921	0.900	0.446
Architecture graduates per 1,000,000 population	29.127	29.646	0
Number of top 20 architecture firms	13	7	0

Source: U.S. Census Bureau and http://archrecord.construction.com/practice/top300/2014/top300-architecture-firms-1.asp

Data in Table 3.1 point to a clear impact of a college of architecture on the concentration of architectural service jobs and on the number of top 20 architectural services firms.

The first question to be answered is, does the existence of a separate college or school of architecture influence the concentration of such jobs and if so, how much? To answer this question, Equation (3.1) will be estimated:

$$LQ = \beta_1 + \beta_2 * Grad + \beta_3 * PopDen + \beta_4 * Enroll + \beta_5 * Firms + \beta_6 * School \qquad (3.1)$$ [13]

Estimates of Equation (3.1) which are presented in Appendix B show that as hypothesized, the number of architecture graduates has a positive impact on a state's location quotient. Furthermore, the existence of a school of architecture, as opposed to a merged college, has a positive impact on a state's location quotient.

Furthermore, the existence of a school of architecture, as opposed to a merged college, has a positive impact on a state's location quotient.

[12]For example, a spillover job would be a worker employed in a company supplying computers to the architecture services industry.

[13]LQ is the location quotient of the state for architecture services industry, Grad is the number of architecture graduates, Popden equals the state population density, Enroll is the state's enrollment in post-secondary education, Firms is the number of top 20 architecture firms in the state and School is a variable indicating whether the state's architecture program is a separate school or college.

Table 3.2 shows how a change in a factor listed in Equation 3.1 influences the number of workers in architecture services industry. As presented, an increase of 20 in architecture graduates each year, increases the number of workers employed in architectural services by 19. The existence of a top 20 architectural services firms adds 242 jobs over and above that in a state without a top 20 architecture firm. Additionally, estimates indicate that a merged architectural program results in 161 fewer architectural services jobs in a state.

Table 3.2: Impact of factors on number of workers employed in Nebraska's architecture services industry

Factor	Change in factor	Change in number of workers in state architecture service industry
Architecture graduates	+20	+19 jobs
Number of top architecture firms	Replacement of top 20 firm with a non-ranked firm	-242 jobs
Structure of architecture program	Merged college	-161 jobs

Source: Estimation of Equation (3.1)

Table 3.3 lists the economic impact of losing 161 jobs in the architecture industry in Nebraska (in 2015 dollars) from the loss of a college of architecture via merger. A reduction of 161 jobs leads to a further reduction of nearly 155 jobs due to indirect and induced effects, resulting in a total job loss of nearly 316 jobs. Lost salaries and wages would equal $15.8 million and the state and local governments would forego $1.3 million in taxes. Total economic output would be reduced by $38.9 million for 2015 alone. Subsequent year losses would be higher as a result of inflation.

Table 3.3: Economic impact of merger of the UNL architecture program on Nebraska, 2015 (in 2015 dollars)

(loss of architectural jobs)	(161.0)
Jobs lost (Spillover)	(154.8)
Total jobs lost	(315.8)
Total output	($38,917,308)
Total state and local taxes	($1,304,418)
Total wages and salaries	($15,794,214)

Goss & Associates estimates using IMPLAN multiplier system

Table 3.4 lists the 10 industries receiving the largest negative economic impacts from a merger. As presented and unsurprising, architectural and engineering services industry experienced the largest negative impact. As listed, food services and drinking places ranked second in terms of the loss of jobs at 20.4.

Table 3.4: Top ten industries affected by the loss of 161 architecture jobs in Nebraska, 2015 (in 2015 dollars)

Industry	Jobs	Wages & salaries	Output
Architectural, engineering, and related services	-164.6	(12,440,462)	$ (22,014,023)
Imputed rental activity for owner-occupied dwellings	-20.4	$ (328,854)	$ (1,039,678)
Food services and drinking places	-2.8	$ (133,549)	$ (959,917)
Monetary authorities and depository credit intermediation activities	-2.8	$ (185,950)	$ (884,570)
Insurance carriers	-5.6	$ (458,075)	$ (783,500)
Offices of physicians, dentists, and other health practitioners	-5.3	$ (312,603)	$ (703,975)
Private hospitals	-4.2	$ (278,771)	$ (588,152)
Non-depository credit intermediation and related activities	-5.6	$ (66,936)	$ (579,340)
Real estate establishments	-3.8	$ (270,929)	$ (515,550)
Other industries	-100.7	$ (1,318,085)	(10,848,603)
Total impacts	-315.8	-$15,794,214	-$38,917,308

Source: Goss & Associates using Implan Multiplier System

Advocates of the merger argue that the combination will generate cost savings. However, many of positions in the College of Architecture are unique or specific to the College. For example, admissions personnel in the College of Architecture differ in terms of training and job content from their counterparts in the College of Fine & Performing Arts.

Assuming that tuition differentials reflect cost differences, Table 3.5 presents the architecture college tuition per dollar of tuition for general university students for universities in the region with architecture programs. For example, the University of Nebraska charges its architecture students tuition of $1.35 for every $1.00 of tuition for general undergraduate students.

As presented, there is almost no difference in the ratio of tuitions between colleges of architecture and merged programs. Additionally, two of the three states with merged programs had the highest ratio, undermining the claim of cost savings with a merger.

For example, the University of Nebraska charges its architecture students tuition of $1.35 for every $1.00 of tuition for general undergraduate students.

Table 3.5: Architecture tuition per dollar of general student

Separate college	School	Ratio of architecture tuition to general tuition
Yes	University of Nebraska	$1.35
Yes	Kansas University	$1.16
Yes	Kansas State University	$1.09
	Median	$1.16
No	South Dakota State University	$1.76
No	North Dakota State University	$1.33
No	Iowa State University	$1.18
No	University of Minnesota	$1.05
No	Washington University in St. Louis	$1.00
	Median	$1.18

Sources: Undergraduate catalog for specific institution

Summary

This section of the study has estimated the impact of the merger of the UNL College of Architecture and the College of Fine & Performing Arts . As presented in the preceding tables, the merger would produce significant economic losses for the state of Nebraska in terms of jobs, sales, wages and salaries and state and local tax collections. Furthermore, data indicate that there would be little or no cost savings from the merger.

Appendix A: Location Quotients

Economists use location quotient (LQ) as a prime method of quantifying how concentrated a particular industry, cluster, occupation, or demographic group is in a region as compared to the nation or region. It reveals to policymakers and economists what makes a particular region "unique" in comparison to the national or regional average.

Industry LQ is a way of quantifying how "concentrated" an industry is in a region compared to a larger geographic area, such as the region or nation. The basic uses of industry LQs are to:

- determine which industries make the regional economy unique.
- identify the "export orientation" of an industry.
- identify emerging export industries that bring money into the region.
- identify endangered export industries that with their loss could erode the region's economic base.

Mathematically, LQ is a ratio that compares a region to a larger reference region according to some characteristic or asset. For example, the Nebraska architectural services industry represents 0.135 percent of total Nebraska private jobs. Architectural services jobs throughout the county represent 0.127 percent of total private U.S. jobs. Throughout the WNC states region, architectural services jobs make up 0.113 percent of total WNC jobs. The Nebraska LQs based on the region and the U.S for 2013 are:

Nebraska's LQ in both the regional and the U.S. indicates that Nebraska architectural services jobs are more concentrated in Nebraska than they are for the U.S and for the region. Taking this one step further, why is Nebraska more heavily concentrated in architectural services jobs than the rest of the U.S. and region? The three potential reasons are:

1. Nebraska residents are more disposed to the purchase of architectural services. That is Nebraskans have more of a "taste" for architectural services.
2. Nebraska is producing architectural services for other areas of the nation and region.
3. Nebraska's architectural services is more labor intensive than the nation and region

In this study it is assumed that differential LQs result from (2) above.

Economic developers and government officials should pay particular attention to these industries not only for the jobs they provide, but also for their multiplier effect—the jobs they create in other dependent industries such as retail trade and food services. An occupational LQ as opposed to an industry LQ is simply a more workforce-oriented way of examining industry trends.

$$\text{Regional LQ (Nebraska architectural services)} = 0.135 / 0.113 = 1.19 \quad \text{(A1)}$$

$$\text{U.S. LQ (Nebraska architectural services)} = 0.135 / 0.127 = 1.06 \quad \text{(A2)}$$

Appendix B: Statistical Analysis

Table B.1: Estimation of Equation (3.1)				
SUMMARY OUTPUT				
Location Quotient				
Regression Statistics				
Multiple R	0.655			
R Square	0.429			
Adjusted R Square	0.364			
Standard Error	0.281			
Observations	50			
ANOVA				
	df	SS	MS	F
Regression	5	2.601154	0.520231	6.603288
Residual	44	3.466479	0.078784	
Total	49	6.067633		
	Coefficients	Standard Error	t Stat	P-value
Intercept	0.8705	0.0596	14.6061	0.0000
Graduates	0.0009	0.0004	2.5137	0.0157
Population density	-0.0001	0.0002	-0.7193	0.4758
Enrollment	-0.0007	0.0002	-3.4002	0.0014
Top 20 firms	0.2298	0.0555	4.1406	0.0002
Separate College/School	0.1528	0.1012	1.5099	0.1382
Source: Estimation of Equation (3.1)				

Appendix C - Multiplier System Overview

When employees of Nebraska's architectural services industry spend their salaries within the community, that spending filters through the local economy, causing increased overall spending greater than the initial spending. The impact of this re-spending is known as the multiplier effect. Economic impacts that take place outside the local economy, for example employee dollars spent in Des Moines or Kansas City, are called leakages and reduce the multiplier and overall impacts. They are excluded when estimating regional economic impacts.

While the direct effects of institutional spending can be measured by a straightforward methodology, the indirect and induced effects of spending must be estimated using regional multipliers. Community characteristics that affect leakages, and consequently the multiplier include:

Location. Distance to suppliers affects the willingness to purchase locally. For example, if Omaha firms are unable to provide supplies at competitive prices, and there are alternative suppliers in Kansas City that are more price-competitive, then firms in the architectural services industry will be more likely to spend outside the community. This results in greater leakages, lower multipliers and smaller impacts.

Population size. A larger population provides more opportunities for companies and workers to purchase locally. Larger population areas are associated with fewer leakages and larger multipliers. Thus, in general, architectural services flowing into Omaha will have larger impacts than the same level of dollars flowing into more rural areas of Nebraska.

Clustering. A community will gain more if the inputs required by local industries for production match local resources and are purchased locally. Thus, over time, as new firms are created to match the requirements of the architectural services industry, leakages will be fewer, resulting in larger multipliers and impacts. This issue is at the heart of economic development, amplifying the impacts of the clustering of architecture-related firms.

As a result of architectural services industry firm location in and near large metropolitan cities with architectural needs, financial impacts are sizeable, with those impacts growing the architectural service industry expands.

As the architectural services industry increases in size, institutions become more proficient and focused on meeting its needs. Furthermore, suppliers unique to architectural services firms are more likely to locate in close proximity to architectural services industry firms. This not only expands income and jobs in Lincoln, it increases the size of multipliers related to the architectural services industry.

IMPLAN multipliers used in this study

The Forestry Service of the U.S. Department of Agriculture developed the IMPLAN multipliers in the 1980s (U.S. Forest Service, 1985).[14] For very populous areas, IMPLAN divides the economy into approximately 500 industrial sectors. Industries that do not exist in the region are automatically eliminated during user construction of the model (e.g. coal mining in Omaha). IMPLAN uses an industry-based methodology to derive its input-out coefficients and multipliers. Primary sources for data are County Business Patterns data and Bureau of Economic Analysis data.

[14] IMPLAN (Impact Analyses and Planning) is computer software consisting of procedures for estimating local input-output models .It is one of the most widely-used and accepted tools for impact assessment. The U.S. Forestry Service, in cooperation with the Federal Emergency Management Agency and the U.S. Department of the Interior's Bureau of Land Management, originally developed IMPLAN to assist in land and resource management planning. Since 1993, the Minnesota IMPLAN Group Inc. in Stillwater, Minnesota, with exclusive licensing and distribution rights, has continued development and maintenance of the IMPLAN system. Goss & Associates is a licensed user of IMPLAN.

Researchers have used IMPLAN to estimate the impact of changes in military spending on the Washington State economy (Hughes, et. al, 1991).[15] IMPLAN and RIMS (Regional Input-Output Modeling System) are two of the most widely used multiplier models. IMPLAN has been compared to other multiplier systems and found to produce reliable estimates (Richman and Schwer, 1993). Likewise, Crihfield and Campbell (1991), in estimating the impacts of opening an automobile assembly plant, concluded that IMPLAN's outcomes are, on balance, somewhat more accurate than RIMS.

IMPLAN multipliers possess the following advantages over other I-O Multiplier Systems:

1. Price changes are accounted for in the creation of the multipliers.
2. Employment increases or decreases are assumed to produce immediate in or out-migration.
3. Multipliers are produced at reasonable costs by third party vendors. In this case, the Minnesota Implan Group produces the multiplier system used in this study.

[15]Data and software: Minnesota IMPLAN Group, Inc., IMPLAN System (data and software), 1725 Tower Drive West, Suite 140, Stillwater, MN 55082 www.implan.com

Appendix D - Investigator Biographies

Ernie Goss is the Jack MacAllister Chair in Regional Economics at Creighton University and is the initial director for Creighton's Institute for Economic Inquiry. He is also principal of the Goss Institute in Denver, Colorado. Goss received his Ph.D. in Economics from The University of Tennessee in 1983 and is a former faculty research fellow at NASA's Marshall Space Flight Center. He was a visiting scholar with the Congressional Budget Office for 2003-04, and has testified before the U.S. Congress, the Kansas Legislature, and the Nebraska Legislature. In the fall of 2005, the Nebraska Attorney General appointed Goss to head a task force examining gasoline pricing in the state.

He has published more than 100 research studies focusing primarily on economic forecasting and on the statistical analysis of business and economic data. His book Changing Attitudes Toward Economic Reform During the Yeltsin Era was published by Praeger Press in 2003, and his book Governing Fortune: Casino Gambling in America was published by the University of Michigan Press in March 2007.

He is editor of Economic Trends, an economics newsletter published monthly with more than 11,000 subscribers, produces a monthly business conditions index for the nine-state Mid-American region and conducts a survey of bank CEOs in ten U.S. states. Survey and index results are cited each month in approximately 100 newspapers and citations have included the New York Times, Wall Street Journal, Investors Business Daily, The Christian Science Monitor, Chicago Sun Times and other national and regional newspapers and magazines. Each month 75-100 radio stations carry his Regional Economic Report.

Ernie Goss, Ph.D.
MacAllister Chair Creighton University
Creighton University
Omaha, NE 68178
www.outlook-economic.com
egoss@gossandassociates.com

Jeffrey Milewski is a senior research economist at Goss & Associates. He received his master's degree in political economy from the London School of Economics and Political Science in 2013. He completed his bachelor's degree at Creighton University in 2007, having studied economics and finance. Milewski also has experience working in finance, and as an entrepreneur. Recently, he has co-authored impact studies on a range of topics such as highway expansion, property-casualty insurance markets, and national sporting events.