

The Economic Impact of the University of Nevada, Las Vegas on Southern Nevada

2010

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Prepared for

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Executive Summary

Founded in 1957, the University of Nevada, Las Vegas (UNLV) is the only graduate and research institution in Southern Nevada. This report quantifies the university's economic impact within the local economy. As one of the ten largest employers in Clark County, the university employed 3,222 individuals in December of 2009. UNLV also contributes to the local economy via its expenditures on local businesses in support of its operations. We estimate that the university spent approximately \$83 million in Southern Nevada during fiscal year 2009. UNLV also provides economic activity in Southern Nevada via the expenditures of its students and visitors on local goods and services.

The primary impacts of UNLV to the Southern Nevada economy are summarized in the table below. In total, UNLV's primary quantitative economic impact is estimated at nearly \$525 million.

Total Estimated Primary Impact of UNLV*		
University Employment		3,222 jobs
University Employee Wages	\$	256 million
University Demand for Goods and Services	\$	83 million
Student Demand for Goods and Services	\$	154 million
Visitor Economic Activity	\$	32 million
Total Primary Economic Activity	\$	525 million
*Fiscal Year 2009		

In addition, the university's direct impacts provide spinoff impacts that ripple through the local economy. Spinoff impacts are the result of additional rounds of

spending which take place after the direct spending has occurred. We employ a structural model of Clark County’s economy developed by Regional Economic Models, Inc. (REMI) to calculate these spinoff impacts. The table below summarizes the total quantitative impacts of UNLV on the Southern Nevada economy. We estimate that UNLV generated a total of \$1,148 million¹ to the Southern Nevada economy during 2009. UNLV’s state appropriations amounted to \$197 million in 2009. Hence, UNLV’s Economic Impact Ratio (EIR) for 2009 is 5.8.² In other words, for every dollar of state appropriation funds the university generated an additional \$5.8 in economic activity to the Southern Nevada community. UNLV’s EIR was 3.8 in 1993 and 4.0 in 2004. This increase over time is also a reflection of the maturity of UNLV as a research university. In addition, we find that each dollar of student spending generates approximately 2.19 dollars of economic activity for Southern Nevada.

Total Estimated Economic Impact of UNLV					
	Primary 2009	+	Spinoff 2009-2050	=	Total 2009-2050*
Employment	3,222	+	9,912	=	13,134 jobs
Gross Regional Product	\$ 525	+	\$ 9,730	=	\$10,255 million

* Cumulative impact for entire period.

¹ This figure is obtained by summing the primary impact (\$525 million) and the spinoff impacts (\$623 million).

² The Economic Impact Ratio is defined as the Total Economic Impact divided by State Appropriations. This should not be interpreted as an annual return rate. See section III.

We also find that, by the year 2050, UNLV will supply the valley with at least 13,134 jobs and roughly almost \$10.3 billion in economic activity. These estimates reflect a full accounting of magnifying effects. These estimates are, nonetheless, conservative as they do not include the numerous qualitative benefits the university imparts to the Las Vegas economy.

Given that these estimates represent a lower bound of the total economic impact, we conclude that UNLV plays a fundamental part of the Southern Nevada economy. As the only major university in a rapidly diversifying economy, moreover, the university will no doubt contribute to the region's future well-being and provide resources in helping the community reach its full potential.

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THE ECONOMIC IMPACT OF UNLV

I. Introduction

Founded in 1957, the University of Nevada, Las Vegas (UNLV) is the only graduate and research institution in Southern Nevada. It is also the largest institution in the Nevada System of Higher Education, with full-time equivalency enrollment over 50 percent higher than the next largest member, the University of Nevada, Reno. During fall semester 2009, 16,496 undergraduate students and 3,976 graduate and professional students enrolled at UNLV. These students were advised and taught by 1,998 academic and administrative faculty supported by 1,194 classified staff.³ This university community accounted for approximately 0.16 percent of Clark County's population in 2009.

UNLV is clearly a vital part of the Southern Nevada economy. This report, conducted by the Center for Business and Economic Research (CBER), quantifies the university's economic impact within the local economy. A traditional economic impact analysis is used to assess how the local economy would suffer if the university were removed as a participant. The university's economic activity is entered into economic modeling software, which carefully traces the ways the university contributes to jobs, expenditures, and income in Southern Nevada. These estimated quantitative effects are also supplemented by less tangible qualitative impacts, discussed at the end of this report.

This report first addresses the quantifiable (in dollar terms) impact that UNLV has on the surrounding community. We measure this impact in two steps. First,

³ The university payroll also includes 30 postdoctoral positions not included in this tally.

there is a *primary impact*, defined as UNLV's direct financial contribution to local economic activity. This includes university employment and expenditures, student expenditures, and expenditures by other university-related visitors, such as parents, alumni, and patrons.

We then estimate *spinoff impacts*, defined as UNLV's effect as it daisy-chains through the local economy. Each time a dollar from UNLV's primary economic activity is re-spent, a spinoff effect is generated. For example, university employees spend their paychecks at local businesses for housing, groceries, and clothing. Local business employees then spend those dollars again for their own housing, groceries, and clothing, and so on.

Finally, we argue that UNLV's true impact is larger than the quantifiable numbers that we present because the numbers do not include the difficult-to-define qualitative impacts. These qualitative impacts include community-wide benefits resulting from the university's cultural events, regional and national connections, and research and technology applications. Qualitative impacts lead to a better quality of life for local residents, either through direct interaction with the university or indirectly through the expansion of the economy brought on by the university. They are, therefore, important components of the university's impact on the local community and are discussed at the end of the report.

Recently, a study by Siegfried et al. (2008) has provided a number of criticisms of university impact studies.⁴ Our analysis addresses several of these criticisms. First, our calculation of primary impacts avoids double counting by only

⁴ Siegfried, John J., Allen R. Sanderson, and Peter McHenry. 2008. "The Economic Impact of Colleges and Universities." *Change Magazine*. March/April 2008.

using expenditures by students and visitors that would not otherwise have come to the area. See section IV. Second, our estimation of spinoff impacts does not use the simple multiplier approach. Rather, we use a dynamic input-output model, which leads to a more realistic expenditure multiplier. See section V.

The report is organized as follows. Section II describes the role of a university in supporting state and local economies. Section III reviews previous university impact studies in an effort to contextualize the current study. Sections IV and V characterize the quantitative impact of UNLV on the Clark County economy. Section VI addresses the limitations of our methodology. Section VII summarizes the results of the study and concludes.

II. The Role of a University in a State and Local Economy

Research universities play key roles in the economic well-being of citizens by: (1) creating new industries, (2) helping transplant new industries in new areas, (3) diversifying old industries into new ones, and (4) upgrading mature industries. The changing global economic environment places increasing importance on Nevada universities' roles in meeting key development missions.

III. Previous University Impact Studies

It is now a well-known fact that universities provide a significant boost of economic activity to their surrounding communities. A large body of studies has investigated the impact that universities make on states and local communities throughout the U.S. Carstensen, McMillen, and Arik (2003) provide a thorough

review of previous university impact studies.⁵ These economic impact studies have shown that state appropriation funds represent an investment which provides high returns to the state, local communities, and taxpayers. Pavlakovich et al. (2005) find that, during fiscal year 2004, the University of Arizona generated \$2.1 billion in economic activity to Pima County, and a total of \$2.2 billion to the state of Arizona's economy.⁶ These figures suggest that every dollar of state appropriation funds generated \$7.2 to the Arizona economy in 2004.

We can define the Economic Impact Ratio (EIR) of a university as the ratio of total economic impact, in dollar terms, to the amount of state appropriation funds received by the university. The EIR represents the total amount of economic activity generated by every \$1 of state funding.⁷ The University of Arizona's EIR for 2004 is therefore 7.2.

⁵ Carstensen, Fred V., Stan McMillen, and Murat Arik. 2003. *The Economic Impact of Continuing Operations of the University of Connecticut*. Storrs, Connecticut: The University of Connecticut.

⁶ Pavlakovich-Kochi, Vera, Alberta H. Charney, Lora Mwaniki-Lyman, and Sushila Umashankar. 2005. *The University of Arizona Economic and Tax Revenue Impacts Fiscal Year 2004*. Tuscon, Arizona: The University of Arizona.

⁷ Recent criticism of university-impact studies by Siegfried et al. (2008) has been directed at this measure. First we note that the EIR should not be interpreted as an annual rate of return on a state's investment in higher education. The EIR merely relates the total economic impact of a university to the funding received from the state. Second, the use of the EIR in this study is intended for comparative purposes only. In other words, it allows one to compare the current UNLV impact study to other university-impact studies while controlling for the differences in state appropriations.

Table 1: Economic Impact Ratios (EIR) for Selected Institutions

<i>Author (s)</i>	<i>University</i>	<i>Area of Impact</i>	<i>Study Year</i>	<i>State Appropriations (millions)</i>	<i>Total Economic Impact in Fiscal Year (millions)</i>	<i>Economic Impact Ratioⁱ</i>
Gazel, R.	University of Nevada, Las Vegas	Southern Nevada	1993	120	460	3.8
Office of Budgets and Institutional Analysis	Colorado State University	Colorado	2000	127	1,200	9.4
University Relations, University of Washington	University of Washington	Washington	2001	414	6,000	14.5
Carstensen, F., S. McMillen, and M. Arik	University of Connecticut System	Connecticut	2002	339	2,783	8.2
L. William Seidman Research Institute	Arizona State University	Arizona	2002	328	2,133	6.5
Schwer, K., J. Crispin-Little, and P. Perlick	Southern Utah State University	Utah	2003	26	126	4.8
University Center for Economic Development	University of Nevada, Reno	Nevada	2003	128	804	6.3
Evenson, B., K. Schwer, and J. Tennert	University of Nevada, Las Vegas	Southern Nevada	2004	147	597	4.0
Pavalakovich-Kochi, V., A. Charney, L. Mwaniki-Lyman, and S. Umashankar	University of Arizona	Arizona	2004	317	2,300	7.2
Tra, C., K. Schwer, and L. Bretthorst	University of Nevada, Las Vegas	Southern Nevada	2006	176	791	4.5
Hammes, D.	University of Hawaii System	Hawaii	2006	575	4,098 ⁱⁱ	7.1

Notes: ⁱ The Economic Impact Ratio is defined as the Total Economic Impact divided by State Appropriations. This represents the total amount of economic activity generated by every \$1 of state funding. ⁱⁱ The total economic impact for the University of Hawaii was obtained as the sum of university-related expenditures and local business sales generated by the university and its activities.

Table 1 reports EIR estimates for a selected number of public universities. EIR estimates vary across universities. The large flagship research universities (i.e.,

the University of Washington and the University of Arizona) tend to have a higher EIR compared to the smaller teaching institutions (UNLV and Southern Utah State). It is also important to note that the larger research institutions also tend to receive more state appropriation funds compared to the smaller institutions. The University of Washington's impact on the state's economy during 2001 reveals an EIR of 14.5. Other research universities with high EIRs are Colorado State with an EIR of 9.4 in 2000, and the University of Connecticut which had an 8.2 EIR in 2002.

UNLV had an EIR of 4 in 2004. This implies that every dollar of state appropriations funds received by the university generated an additional 3 dollars to the Southern Nevada economy. It is also interesting to note that UNLV's EIR in 2004 was smaller than that of Southern Utah State University in 2003, which is a nearby regional institution. This may be due to the fact that Southern Utah State generates a proportionally larger amount of visitor activity as a result of hosting the Utah Summer Games and the Utah Shakespearean Festival.

IV. Primary Impacts

The first task of the study is to assess the primary impacts of UNLV on the Southern Nevada economy. These primary economic impacts will result from the local jobs created by the university, as well as the university's expenditures on local goods and services, and the expenditures of its students and visitors on local goods

and services. These primary impacts are measured using university information on fiscal year 2009 (FY 2009) economic activity.⁸

A. University Expenditures

More than two-thirds of UNLV's total operating expenses for FY 09 were devoted to employee compensation and benefits (see Figure 1). As one of the ten largest employers in Clark County, the university employed 3,222 individuals in December of 2009. This total includes academic and administrative faculty, as well as postdoctoral scholars and classified staff.⁹ The annual wage bill (not including benefits) for the 3,222 university employees was approximately \$250 million in 2009. Following the assumptions of previous economic impact studies done for UNLV (1994 and 2005) we count all university jobs as employment losses in the primary impact of UNLV on the local economy.¹⁰ The intuition behind this assumption is that most of the university employment will be lost to the local economy because employees would either seek jobs in other regions or drop out of the labor market.

In addition to being one of the largest employers in Clark County, UNLV also contributes to the local economy via its expenditures on local businesses in support of its operations. These expenditures will also be lost to the local economy if UNLV were to close. During FY 2009, UNLV spent a total of \$97.3 million on utilities,

⁸ CBER would like to thank Rhett Vertrees and the Thomas and Mack Center, Karla Kirk and the UNLV Controller's Office, and UNLV Institutional Analysis and Planning for their assistance during the data-collection process.

⁹ These figures exclude student employees. This avoids double counting the impact of student expenditures on the local economy.

¹⁰ This procedure may slightly overestimate total primary impacts. However, this should not be a concern for two reasons. First, our impact estimates are extremely conservative and should be viewed as lower-bound estimates of UNLV's true value to the Southern Nevada economy. Second, the economic modeling software used to estimate total impact will shift some employment and wages into other local industries anyway to balance out the fact that the average university income is relatively high in this area.

services, and equipment supplies. These expenditures represent approximately one-fifth of the university's total spending during FY 2009 (see Figure 1). We again follow the previous UNLV impact studies by assuming that 85 percent of the university's spending on goods and services, \$83 million, remains in the Southern Nevada economy.

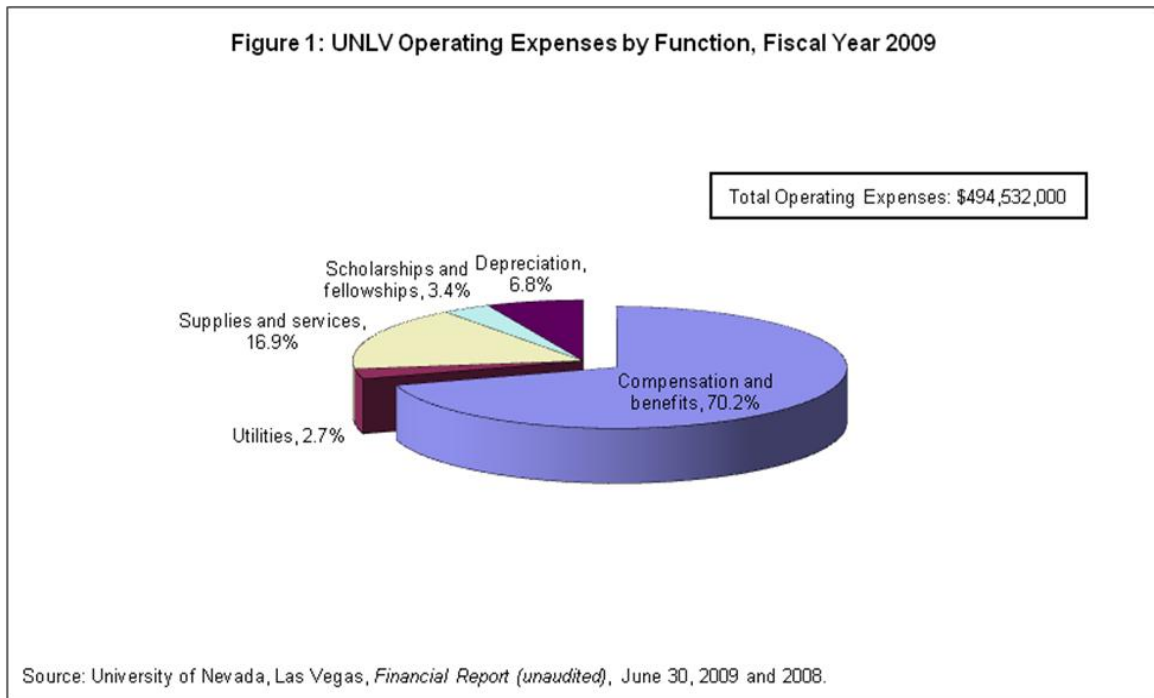
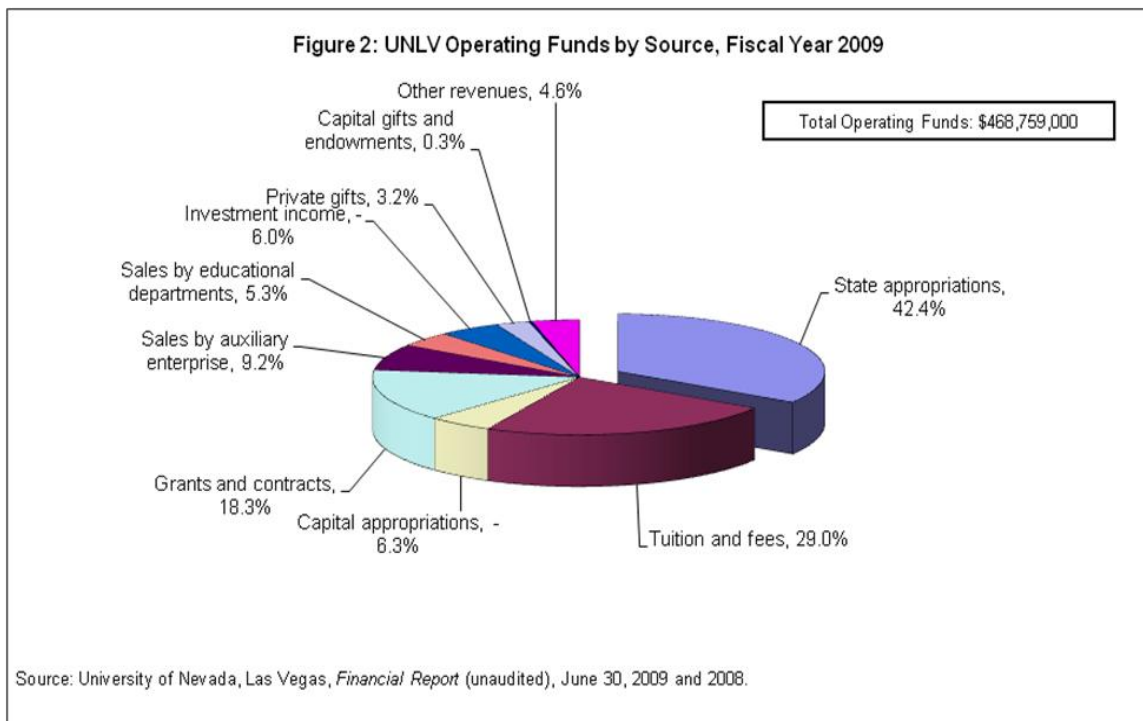


Figure 2 provides a breakdown of UNLV's operating funds by source. The university's total operating funds for FY 2009 are estimated at \$469 million. Nearly 42 percent, \$197 million, of these funds originate from state appropriations. This suggests that for every dollar spent by Nevada taxpayers on higher education funding, UNLV generated approximately \$1.38 from additional sources.



B. Student Expenditures

Student enrollment at UNLV is higher than at any other university, public or private, in the state of Nevada. These students have a significant impact on Clark County through their demand for goods and services. Only the expenditures of students who would pursue an education outside of Clark County in the absence of UNLV may be counted toward the primary impact—otherwise, if students stayed in the valley, their expenditures would not be lost to the economy. Since UNLV is the only university in the Las Vegas area, we estimate that most students would go

elsewhere. Using residency status (assuming all nonresident students would go elsewhere), test scores (assuming all top resident students would go elsewhere), and professional school status (assuming all dental and law students would go elsewhere), we estimate that approximately 42 percent of UNLV's students would leave Clark County if UNLV did not exist. Student expenditures lost to the local economy, therefore, are estimated by multiplying the number of students we estimate would leave (9,829) by the average annual student expenditure on basic necessities.¹¹

C. Visitor Expenditures

Attendees of special events at the university might not have participated in the local economy to the same extent without the draw of UNLV events. Economic activity generated by visitors to university events accounts for an additional \$32 million in benefits.¹² In 2009, Cox Pavilion, Sam Boyd Stadium, and the Thomas and Mack Center hosted 196 sports games, concerts, and other types of entertainment. Nearly 1,020,078 people, many of whom live outside the Las Vegas Valley, attended these events. The primary impact only includes visitor spending that would be lost in the absence of UNLV because the visitors would not have come otherwise and the events would not be held elsewhere in Clark County. We assume that such visitors accounted for 15 percent (153,012) of all event attendees in 2009. Therefore, visitor economic activity is estimated by multiplying this total by average

¹¹ Average expenditures are computed for undergraduate, graduate, and professional students. The average student expenditure is derived using data from Student Financial Services. It includes spending in the categories of *room and board*, *books*, *transportation*, and *personal*. Based on the nature of these categories and the likelihood that average expenditure estimates are low, our analysis assumes that students spend at least this amount on locally produced goods and services.

¹² Our estimate of visitor expenditures does not include gambling activities. Hence, the estimate we obtain should be viewed as a conservative estimate of the visitors' impact on the Southern Nevada economy.

per-visitor, per-trip spending as reported by the Las Vegas Convention and Visitors Authority, \$285.07.¹³

D. Total Primary Impact

The primary impacts of UNLV to the Southern Nevada economy are summarized in Table 2. In total, UNLV’s primary quantitative economic impact is estimated at nearly \$525 million. This is approximately equivalent to the entire gross domestic product of the country of Suriname.

Table 2: Total Estimated Primary Impact of UNLV*		
University Employment		3,222 jobs
University Employee Wages	\$	256 million
University Demand for Goods and Services	\$	83 million
Student Demand for Goods and Services	\$	154 million
Visitor Economic Activity	\$	32 million
Total Primary Economic Activity	\$	525 million
*Fiscal Year 2009		

V. Spinoff Impacts

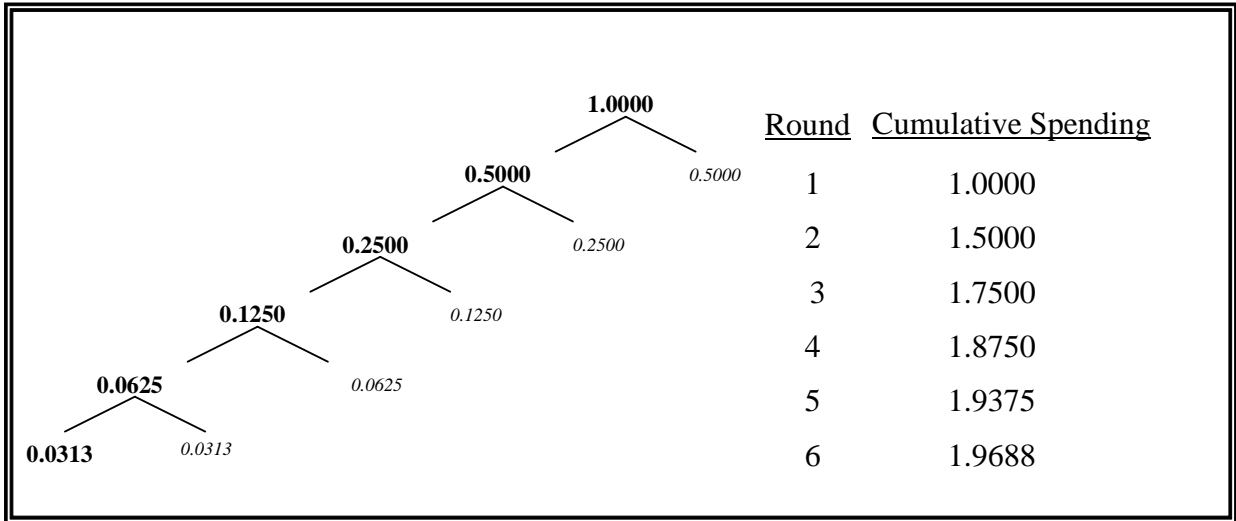
All primary impacts have spinoff impacts that multiply their effects substantially. Spinoff impacts are the result of additional rounds of spending which take place after the direct spending has occurred. For example, wages paid to a university employee may be used to purchase groceries. Thus, the same money that

¹³ We subtract spending on shows and entertainment from LVCVA’s estimate of average visitor spending in this analysis since these expenditures are included in university revenues. For these visitors’ retail spending and spending on food and beverages, it is assumed 50 percent of the spending is for locally produced goods and services.

supports the university employee's job may also support the job of a grocery-store employee. The grocery-store employee will, in turn, spend money on other goods and services in the community, creating more jobs and wages. As the money goes through multiple rounds of spending, the spinoff impact is created in a daisy-chain effect.

Not all successive spending ripples through the local economy, fractions are leaked to other economies as residents purchase imported goods. Therefore, the amount counted in all subsequent rounds of spending for this analysis depends on the average propensity of local residents to consume local goods and services. Figure 3 shows economic effects of successive spending when the propensity to consume locally is 0.5—that is, when, for every dollar spent in the local economy, half is used to purchase local goods and services and the other half is saved or spent on imports. An initial dollar is spent in the local economy in the first round, 50 cents is spent in the second round, 25 cents in the third round, and so forth. After six rounds of spending, an additional \$0.97 of spinoff expenditure has been generated in the local economy by the \$1 primary impact—that is, the initial expenditure of \$1 results in a total expenditure of \$1.97.

Figure 3: Illustrative Example of Spinoff Expenditures Generation



The extremely simple example in Figure 3 is for illustrative purposes only. The actual estimation of spinoff effects for a real economy is necessarily complicated, depending on how money filters through the various components of an economy. Thus, we employ a structural model of Clark County's economy developed by Regional Economic Models, Inc. (REMI) to calculate these spinoff impacts. This input-output model takes the numerous complex interactions of an economy into account in following the primary impact as it flows through the system creating spinoff impacts.

UNLV's primary impacts are used as inputs in the REMI model, which filters them through the model of the Clark County economy and outputs the resulting effects. Essentially, the REMI model addresses the question: If UNLV shut down in 2009, how would this impact our community? We derive the spinoff impacts of the university over time from the REMI results.

The REMI model was chosen over other economic models because it has several desirable features. First, the REMI model contains over 100 economic and demographic relationships carefully constructed to represent regional economies and includes equations to account for migration and trade between regions.¹⁴ These relationships are constructed utilizing the latest economic theory and empirical understanding.

Second, REMI is able to calculate how the impacts filter through the economy over an extended period of time.¹⁵ This is important for understanding the true economic impact of the university; for example, the loss of educated workers may have a delayed impact, only being fully realized as firms replace their work forces over several years. Other impact modeling frameworks fail to address this issue.

Finally, the REMI model is extremely flexible in its modeling capabilities, allowing us to tailor the model to the specific needs of the university in this report. For example, the closure of a university has a unique effect on the surrounding area because lack of education will lead to productivity losses to local industry. The 1994 UNLV impact study did not address these extra effects. We model this unique aspect of the university “firm” by assuming productivity losses compound at a rate of 0.25 percent per year after an initial negative shock of 2 percent, which we feel is a conservative estimate of the projected productivity effects. In short, this adjustment picks up the full benefits of a university’s support of local growth and development.

¹⁴ The data used to construct the model begin in 1969.

¹⁵ Note that Figure 3 gives no indication of how long each round of spending takes to complete.

Figures 4 through 6 show UNLV's spinoff impacts on employment, personal income, and gross regional product (GRP) (expenditures) over time. In all cases, the effect is negative and significant. The model predicts that the initial spinoff impact of UNLV on employment will result in the loss of 1,670 jobs. Initial spinoff losses in total wage and salary disbursement of about \$173 million, however, signify low average annual wages in these jobs. The implication of this result, that spinoff jobs are primarily in lower-paying service industries, makes very good sense.

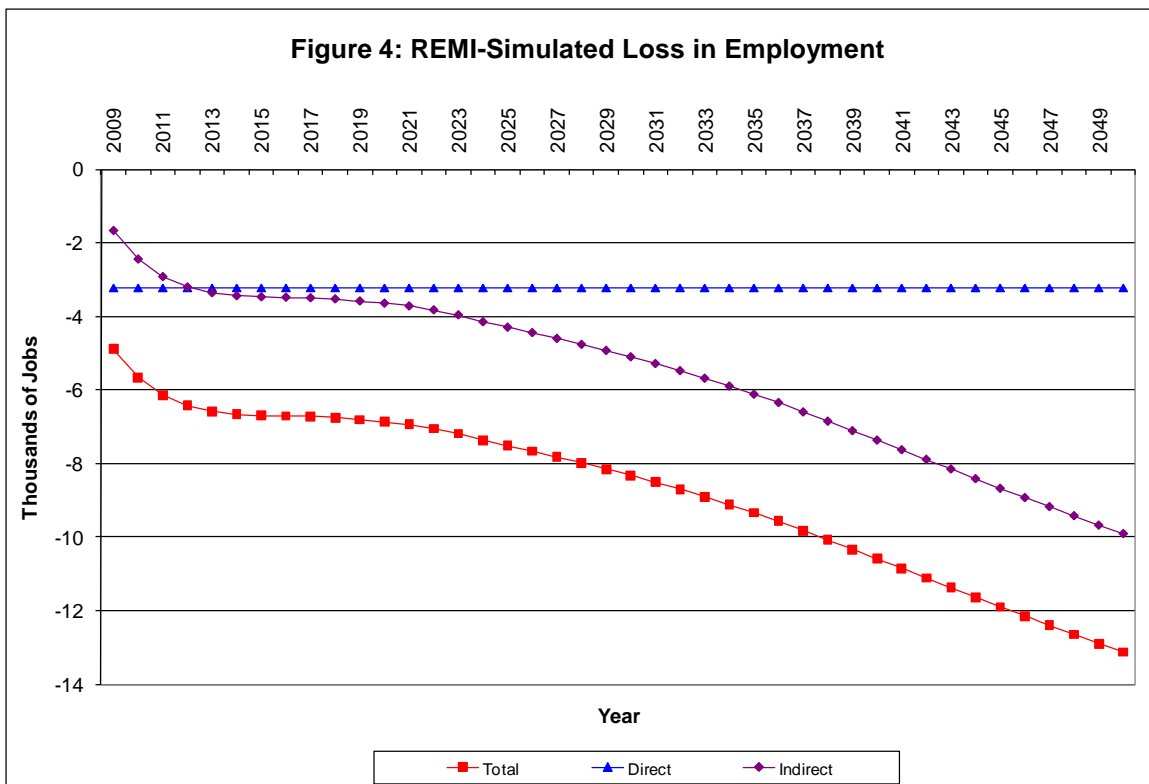


Figure 5: REMI-Simulated Loss in Wage and Salary Disbursement

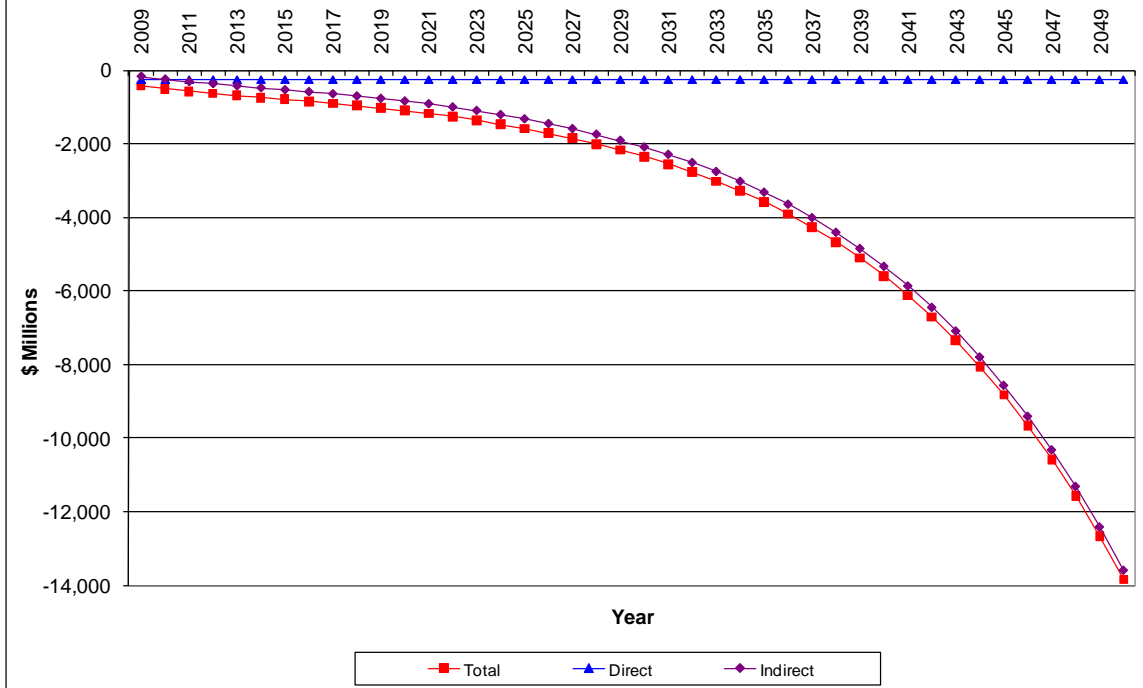
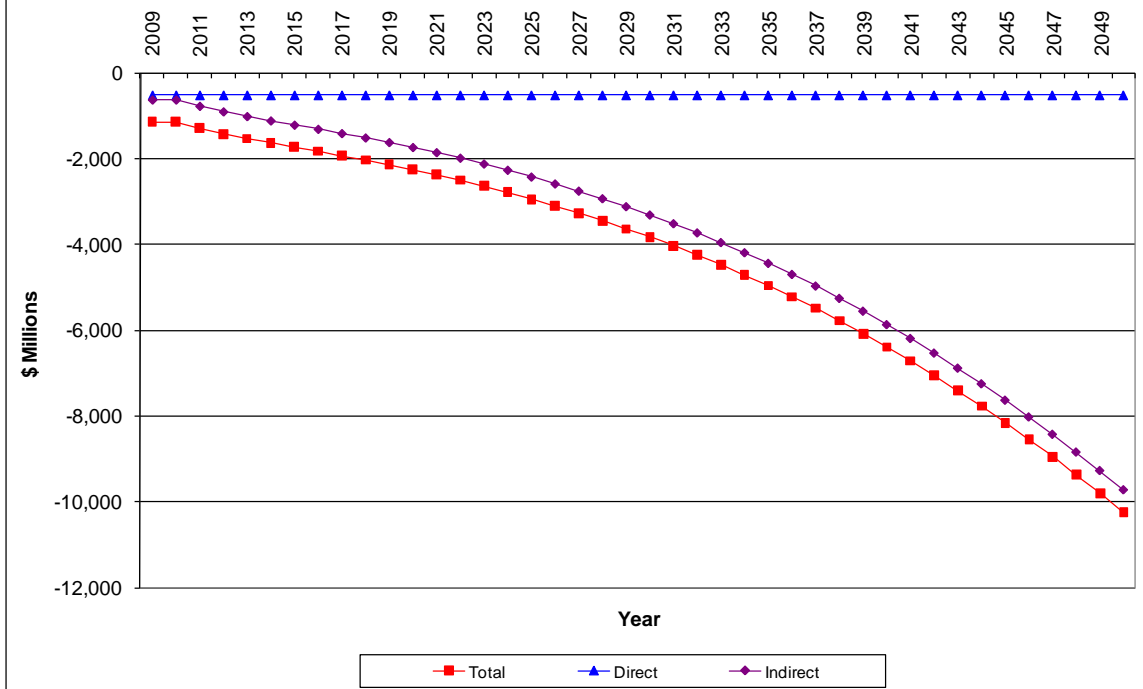


Figure 6: REMI-Simulated Loss in Gross Regional Product



One can use the initial, i.e. short-run, spinoff economic impact to estimate the local economic multiplier resulting from \$1 of student expenditures. The multiplier is given by the sum of primary impacts and short-run spinoff impacts, divided by the primary spinoff impacts, which equals (525 million + 623 million) / 525 million = 2.19. This implies that each dollar of student spending generates approximately 2.19 dollars of economic activity for Clark County.

UNLV's long-run impact on spinoff employment is substantial; if the university were to have closed in 2009, we estimate a total spinoff loss of 9,912 non-UNLV jobs by 2050, nearly 6 times the primary employment impact. The resulting wage and salary losses would amount to \$13,595 million. The impact of UNLV on Clark County's GRP also grows over time, from \$623 million in the first year to \$9.7 billion by 2050. The total short- and long-run impacts on employment, income, and GRP are summarized in Table 3.

Table 3: Total Estimated Spinoff Impact of UNLV		
Short-Run Impacts*		
Clark County Employment (non-UNLV)		1,670 jobs
Wage and Salary Disbursement	\$	173 million
Gross Regional Product	\$	623 million
Long-Run Impacts**		
Clark County Employment (non-UNLV)		9,912 jobs
Wage and Salary Disbursement	\$	13,595 million
Gross Regional Product	\$	9,724 million
*For 2009 (if Clark County loses UNLV in 2009)		
**For 2009-2050 (if Clark County loses UNLV in 2009)		

VI. Qualitative Impacts

In addition to quantifiable benefits, UNLV also confers Southern Nevada with a multitude of qualitative benefits that cannot be included in a traditional (quantitative) economic impact estimate. Although a complete analysis of these types of benefits is beyond the scope of this study (contingent valuation methods and primary data collection would be required), the existence and importance of these benefits are widely acknowledged in the literature.

Although not specific to UNLV, the literature discussing qualitative effects of a university is large. Caffrey and Isaacs' instruction manual, *Estimating the Impact of a College or University on the Local Economy*, is often cited for its insightful discussion of qualitative impacts.¹⁶ The reader is also referred to Rogers' paper, "The Role of the Research University in the Spinoff of High Technology Companies,"¹⁷ and Goldstein and Luger's paper, "What is the Role of Public Universities in Regional Economic Development?"¹⁸ Several commonly cited qualitative benefits from these and other studies are shown in Table 4. All in all, qualitative factors represent important economic benefits, though we have not included them in our estimates. Thus, the final numbers presented in this report must be viewed as a conservative lower bound.

¹⁶ Caffrey, John and Herbert H. Isaacs. 1971. *Estimating the Impact of a College or University on the Local Economy*. Washington, D.C.: American Council on Education.

¹⁷ Rogers, E.M. 1986. "The Role of the Research University in the Spinoff of High Technology Companies." *Technovation*, 4: 169-181.

¹⁸ Goldstein, Harvey and Michael Luger. 1997. "What is the Role of Public Universities in Regional Economic Development?" in Bingham, Robert and Meir, Robert (editors), *Dilemmas of Urban Economic Development*. Thousand Oaks, California: Sage Publications, p. 104.

Table 4: Possible Qualitative Impacts of UNLV
<ul style="list-style-type: none"> • Enhanced participation in political processes • Increased demographic mobility • Increased local services • Larger supply and demand for cultural goods • Greater participation in educational advancement opportunities • Increased technology transfer and development in local industry • Better quality of life

VII. Summary of Total Quantitative Impacts and Conclusions

Table 5 summarizes the total quantitative impacts of UNLV on the Southern Nevada economy. We estimate that UNLV generated a total of \$1,148 million¹⁹ to the Southern Nevada economy during the year 2009. UNLV's state appropriations amounted to \$197 million in 2009. Hence, UNLV's Economic Impact Ratio (EIR) for 2006 is 5.8.²⁰ In other words, for every dollar of state appropriation funds the university generated an additional \$5.8 in economic activity to the Southern Nevada community. UNLV's EIR was 3.8 in 1993 and 4.0 in 2004. See Table 1. This increase over time is also a reflection of the maturity of UNLV as a research university.

¹⁹ This figure is obtained by summing the primary impact (\$525 million) and the short-term spinoff impacts (\$623 million).

²⁰ The Economic Impact Ratio is defined as the Total Economic Impact divided by State Appropriations.

Table 5: Total Estimated Economic Impact of UNLV					
	Primary 2009	+	Spinoff 2009-2050	=	Total 2009-2050*
Employment	3,222	+	9,912	=	13,134 jobs
Gross Regional Product	\$ 525	+	\$ 9,730	=	\$10,255 million

* Cummulative impact for entire period.

We also find that, by the year 2050, UNLV will supply the valley with at least 13,134 jobs and almost \$10.3 billion in economic activity. These estimates reflect a full accounting of magnifying effects. These estimates are, nonetheless, conservative as they do not include the numerous qualitative benefits the university imparts to the Las Vegas economy.

Given that these estimates represent a lower bound of the total economic impact, we conclude that UNLV plays a fundamental part of the Southern Nevada economy. As the only major university in a rapidly diversifying economy, moreover, the university will no doubt contribute to the region's future well-being and provide resources in helping the community reach its full potential.

