

**The Economic Impact of
New Mexico State University's
Main Campus
and
Doña Ana Branch Community College
on Doña Ana County, New Mexico
Fiscal Year 2004-2005
A Preliminary Analysis**

Prepared by

Anthony V. Popp

and

James Peach

Department of Economics and International Business

New Mexico State University

Las Cruces, NM 88003

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Introduction:

The Main Campus of New Mexico State University (NMSU) and Doña Ana Branch Community College (DABCC) play a vital role in the economy of southern New Mexico in general and Doña Ana County, New Mexico in particular. The purpose of this report is to provide a preliminary assessment of the economic impact of NMSU's Main Campus and DABCC on Doña Ana County. It is anticipated that a more in-depth analysis will be prepared later in calendar year 2005.

In 2002, the latest year for which data are available, the Total Personal Income (TPI) of Doña Ana County's 178,593 residents was \$3.7 billion (U.S. Department of Commerce, Bureau of Economic Analysis, REIS, February 5, 2005). It is likely that Doña Ana County's TPI was about \$4.1 billion for calendar year 2004, but the data have not yet been released. The combined operating budgets for NMSU's Main Campus and DABCC for fiscal year 2004-2005 amount to \$478 million (New Mexico Commission on Higher Education) or about 12 percent of TPI in the county. But such figures, by themselves, are not adequate measures of the impact of the two campuses on the local economy.

Each dollar spent by NMSU's Main Campus and DABCC has what is known as a multiplier effect. That is, a dollar in initial spending has more than a dollar's total impact on the local economy. In this report, local income, output, and employment multipliers provided by the U.S. Department of Commerce are used to assess the income effects of spending by the two campuses.

The local employment effects of the two campuses will also be examined. In late 2004, the New Mexico Department of Labor reported a total of 75,700 jobs in Doña Ana

County (New Mexico Department of Labor, December 2004). NMSU's Main Campus and DABCC combined employ 5,352 faculty and staff with a payroll of \$233,291,215 and 3,156 student employees with a payroll of \$22,286,556. The combined payroll of \$255,577,771 is approximately 11.6 percent of the \$2.3 billion (U.S. Department of Commerce, Bureau of Economic Analysis, REIS) received in compensation by Doña Ana County's employees in 2002.

Method:

The analysis in this report relies heavily on the use of multipliers. The multiplier process suggests that new expenditures have a greater economic impact on an area than the initial effect of the expenditure. If, for example, a tourist from another state spends a dollar in the local economy, then a local resident receives a dollar of income. In turn, the local resident will spend some of that additional dollar of income on locally produced goods and services. The second round of spending is not as large as the first because some of the income received by the local resident will be saved, some will be paid in taxes, and some will be spent on goods and services produced outside the local area. Economists refer to the reduction in spending in the second round as a leakage. Nevertheless, the impact of the initial dollar of spending will be some multiple of the amount of the initial spending.

Although most university economic impact studies involve the use of multipliers of various kinds, there is no uniformity in how these multipliers are applied in particular cases and there is no generally accepted methodology. Examples of the variety of approaches taken in applying multiplier analysis to assess the economic impact of universities include studies of the economic impact of : [1] eight research universities in

Massachusetts (ACIUM 2003), [2] the University of Georgia System on local communities (Humphreys 2005), [3] the University of New Mexico on the economy of the State of New Mexico (BBER 2004), [4] the University of California, Davis on several California counties (Sedway Group 2004), and [5] Tarleton State University (Ali Jafri et al. 2000). In addition, there are numerous summary studies such as those by NASCULGC (1997 and 2001).

The first task in assessing the economic impact of new spending is to obtain good estimates of the multipliers. This is not an easy process since the multipliers are likely to vary by industry, geographic area, and the size of the local economy. Fortunately, the U.S. Department of Commerce (Bureau of Economic Analysis) produces industry specific multipliers for counties and multi-county regions that are among the most commonly used and highly regarded. These multipliers are known as the RIMS II multipliers. The RIMS II multipliers will be used throughout this analysis.

Other sources of multipliers include those provided in the IMPLAN modeling system (Lindall and Olson 2004). It is anticipated that the IMPLAN multipliers, along with the RIMS II multipliers, will be used in a more comprehensive study of the impact of NMSU's Main Campus and DABCC at a later date. Other university impact studies (Sedway Group, Inc. 2004) have reported that, at the county level, the IMPLAN and RIMS II multipliers produce similar results.

The second task is to examine the budget documents of NMSU's Main Campus and DABCC and to place the planned expenditures of the two institutions into economically meaningful categories.

The official budgets of NMSU's Main Campus and DABCC are reported in the documents titled "Operating Budget" of the respective institutions. These documents are submitted by the Board of Regents of NMSU to the New Mexico Commission on Higher Education (CHE) and the New Mexico Department of Finance and Administration (DFA) and must be approved by all three bodies. The budgets used for this study are the proposed budgets for the 2004-2005 academic year. While the numbers used may not be the actual amounts of money spent, they represent the latest impact possible, and the differences between the proposed and actual amounts will be relatively small.

The budgets are not constructed for the purpose of conducting an economic impact study. The budgets are constructed under the reporting rules and regulations of the State of New Mexico. The budgets allow for the tracking of various spending categories for each of the departments, offices, and programs in each of the institutions. The budgets also track interdepartmental and interoffice charges and expenses. The information provided in Table 1 is the result of the consolidation of the different accounts in the budgets and the elimination of cross charges. The expenditures of the two institutions were placed into seven major categories (Table 1) that provide the starting point for the economic impact study.

Slightly less than half of the total budgets of the institutions go to faculty and staff salaries and fringe benefits. About thirteen percent of the budgets are provided to students in the form of salaries or financial aid. Another fifteen percent is accounted for by capital expenditures and equipment. The remaining expenditures go to travel, other supplies and expenses, and utilities. The total expenditures for the two institutions are \$478,294,112.

Table 1			
Proposed Budgets of New Mexico State University's Main Campus and Doña Ana Branch Community College			
Expenditure Category	Main Campus	DABCC	Total
Faculty/Staff Salaries and Fringes	\$214,632,603	\$18,658,612	\$233,291,215
Student Salaries and Fringes	21,228,211	1,058,345	22,286,556
Student Aid	33,135,641	6,547,442	39,683,083
Travel	8,378,746	526,401	8,905,147
Utilities	11,190,690	503,000	11,693,690
Other Supplies and Expenses	85,699,939	3,688,864	89,388,803
Capital and Equipment	68,680,893	4,364,725	73,045,618
Totals	\$442,946,723	\$35,347,389	\$478,294,112
Source: Calculations by authors from operating budgets.			

Expenditures That Impact the Local Economy

The expenditures listed in Table 1 do not represent direct impacts on the local economy. The multiplier analysis only uses those expenditures that are made in the local economy and, then, provides estimates of the total impact of those expenditures. NMSU buys goods and services from companies in Doña Ana County, from the rest of the state, from other states, and, in some instances, from other parts of the world. Some of the employees do not live and work in Doña Ana County, but are working in other parts of the state. Each of the categories of spending listed above must be adjusted to determine the amount spent in Doña Ana County.

NMSU's Main Campus and DABCC revenues are derived from State of New Mexico appropriated funds; federal contracts and appropriations; tuition and fees paid by students; gifts and other sources. It could be argued that the effect of taxes paid by

individuals in the area should be subtracted from the total of expenditures since they represent a drain from the local economy. This has not been done because Doña Ana County accounts for only about ten percent of the state's population and economic activity. It is also assumed that the functions performed by the two institutions would have to be performed, if not in Doña Ana County, then elsewhere, and taxes would still have to be paid. Therefore the spending by the two institutions in Doña Ana County is assumed to be a net addition to final demand.

To determine the proportions of expenditures made in Doña Ana County by the two institutions, a number of surveys would normally be administered. Surveys of the spending habits of the faculty and staff would provide information on how much these two groups would spend in the area. Student spending is not necessarily correlated with their earnings and so a survey of student spending patterns would provide a better estimate of expenditures by students. Lastly, a survey of expenditures for goods and services by NMSU's Main Campus and DABCC would determine how much was spent directly in Doña Ana County. Given the time constraints of this study, these surveys have not been done. However, such surveys were conducted for an NMSU impact study in 1991 (Popp 1991). While the distribution of expenditures certainly has changed since that time period, many of the assumptions used in the 1991 study are used here.

Spending by Faculty and Staff - Not all faculty and staff work in Doña Ana County. There are researchers, agricultural extension agents, and other staff disbursed throughout the state. Some of the larger research projects are not in Doña Ana County. Information provided by the Office of Institutional Research indicates that 93 percent of the faculty and staff employed by the two institutions live in Doña Ana County.

Therefore, 93 percent of the faculty and staff salaries are allocated to spending in the county. Not all of the salaries allocated to Doña Ana County represent spending. Faculty and staff pay taxes, save, and buy goods and services outside of the county. The 1991 survey indicated that about 60 percent of the salaries received represent spending in the county, and that percentage is used in this study.

Spending by Students: To calculate the impact of the presence of the university, spending by students must be estimated. In 1991 it was estimated that each student spent approximately \$495 per month (on a twelve-month basis) in the local economy. This amount was closely related to the monthly average expenditure of \$721, which was used by The Office of Student Financial Aid and Scholarship Services using federal guidelines. The Financial Aid Office number is higher because it includes tuition and fees but does not include entertainment expenditures. The surveys suggested that about 69 percent of the amount estimated by the Financial Aid Office should be classified as student spending. The Financial Aid Office has provided the expenditure numbers used in the past year. For in-state undergraduates going to school for nine months, the estimate is \$1505 per month. In this study, 69 percent of this amount, or \$1038.50, is used as an estimate of monthly spending by students.

The headcount for the number of students attending in 2003-2004 is also used in this study. Since enrollment has increased during the 2004-2005 academic year, these assumptions imply a conservative estimate of the spending by students. The Office of Institutional Research provided the authors with the number of students (unduplicated head count) attending the Main Campus and DABCC for 2003-2004 and the semester in which they were enrolled. A total of 20,406 students attended during that academic year

resulting in 177,749 student months. The number of student months times the estimated monthly expenditure produces the estimated expenditures of students.

Spending on Goods and Services and Capital Outlay and Travel – The 1991 survey of spending by the Main Campus and DABCC indicated that approximately 25 percent of all spending on goods and services and capital outlay was done locally. Whether that percent has changed is unknown and to estimate that percentage for 2004-2005 would require another survey of the voucher system of the university. The 25 percent figure is used for this study. That same 1991 survey indicated that 30 percent of all travel expenditures was for travel in the county. This percent will used for this study.

Spending not considered in this Study – Other spending takes place in the county due to the presence of the university that is not considered in this preliminary study. One of the largest omitted categories is spending by visitors to the university. The surveys conducted for the 1991 study indicated that visitors to faculty, staff, and students totaled about 100,000 individuals who spent over \$8,000,000. This does not include all the activities that draw individuals to the campus. The Pan American Center hosts a number of events throughout the year, some being athletic events with the majority of attendees being members of the university community. Some sports (e.g., football) draw fans from outside the local community. Other events, such as performances of big-name entertainers, also draw attendees from outside of the area. In addition, Corbett Center hosts numerous university-sponsored events which also draw individuals from outside the university.

Direct Spending by the NMSU's Main Campus and DABCC

Given the assumptions described above, it is possible to determine the direct expenditures of NMSU's Main Campus and DABCC in the local area (Table 2). The percentage of faculty and staff living in Doña Ana County is 93 percent, and they spend approximately 60 percent of their salaries in the county. Given the \$233,291,215 in salaries paid to faculty and staff residing in Doña Ana County, the total amount of expenditures from faculty and staff is \$130,176,498.

To obtain an estimate of the total spending by students, the number of student months was calculated and multiplied by the monthly expenditure level of \$1038.50. The total of student months was estimated to be 177,749. This results in an estimate of student spending of \$184,592,337.

As in the 1991 study, it is assumed that 25 percent of all spending on goods and services and capital outlay and 30 percent of all travel were done locally. It is also assumed that all of the utility spending is done locally. This resulted in expenditures in the county of \$2,671,544 for travel, \$11,693,690 for utilities, \$22,347,201 for other supplies and expenses, and \$18,261,404 for capital outlay and equipment.

Total direct expenditures for NMSU's Main Campus and DABCC are estimated to be \$369,472,674. This is a relatively conservative estimate because of the other expenditures that are not included due to lack of information.

Table 2			
Direct Expenditures			
New Mexico State University's Main Campus and DABCC			
Category	Main Campus	DABCC	Totals
Faculty/Staff Spending	\$119,764,992	\$10,411,506	\$130,176,498
Student Spending	147,112,871	37,479,465	184,592,337
Travel	2,513,624	157,920	2,671,544
Utilities	11,190,690	503,000	11,693,690
Other Supplies & Expenses	21,424,985	922,216	22,347,201
Capital/Equipment	17,170,223	1,091,181	18,261,404
Totals	\$319,177,385	\$50,565,288	\$369,472,674
Source: Author calculations			

Impact of Spending

The next step in the process is to estimate the impact of this spending on Doña Ana County. To determine the impact on the county, each spending category is multiplied by the appropriate RIMS II multipliers. If the surveys had been done, the application of the appropriate RIMS II multiplier for each spending category could be applied easily. Since the surveys were not done, average multipliers for typical spending patterns by major categories were applied. The multipliers used in this study are provided in Table 3. The amount spent in each category (direct expenditures from Table 2) is multiplied by the output multiplier to get the overall impact on the county. The output number calculated is similar to a gross state product and represents final sales of goods and services in the county. The direct expenditures (Table 2) in each category are multiplied by the corresponding earnings multiplier to calculate the earnings generated by each of the types of spending. The direct expenditures in each category (Table 2) are also multiplied by the corresponding employment multiplier (Table 3) to provide an estimate of the number of jobs generated by NMSU's Main Campus and DABCC direct spending.

Table 3			
Output, Earnings, and Employment Multipliers			
By Category of Spending			
Category	Output	Earnings	Employment
Faculty/Staff Spending	1.5399	.4403	21.9218
Student Spending	1.5888	.4656	28.4755
Travel	1.5635	.4098	20.4361
Utilities	1.3937	.2866	7.4742
Other Supplies and Expenses	1.5164	.4348	18.4169
Capital/Equipment	1.6600	.4987	17.8701
Source: Bureau of Economic Analysis and author calculations			

The economic impact of spending by NMSU's Main Campus and DABCC is presented in Table 4. The \$369,472,674 of spending by the Main Campus and DABCC, by faculty and staff, and by students generates \$578,414,775 in gross output (also known as final sales), \$166,532,640 in earnings, and 8,401 additional jobs in the county.

Table 4			
Output, Earnings, and Employment Effects			
Of Spending by			
NMSU's Main Campus and DABCC			
Category	Output (\$)	Earnings (\$)	Employment (Number of Jobs)
Faculty/Staff Spending	200,458,789	57,316,712	2,667
Student Spending	293,280,304	85,946,192	4,912
Travel	4,176,959	1,094,799	51
Utilities	16,297,496	3,351,412	81
Other Supplies & Expenses	33,887,295	9,716,563	385
Capital/Equipment	30,313,931	9,106,962	305
Total	578,414,775	166,532,640	8,401
Source: Author calculations.			

Total Impact on Doña Ana County

The total earnings that are generated by NMSU's Main Campus and DABCC are equal to the additional earnings generated through the multiplier process plus the earnings received by the members of the university community. This amount is \$390,592,767 and represents 16.7 percent of earnings in Doña Ana County. The total number of jobs that are generated by NMSU's Main Campus and DABCC is equal to the additional jobs generated through the multiplier process plus the number of jobs generated directly by the institutions. The total number of jobs is 16,909, which represents 22.3 percent of all jobs in the county. Table 5 indicates the direct, indirect, and total effects of NMSU's Main Campus and DABCC on Doña Ana County.

Table 5 Total Economic Impact of NMSU's Main Campus and DABCC on Doña Ana County			
	Spending (\$)	Earnings (\$)	Employment (Number of Jobs)
Direct	369,472,674	224,060,128	8,508
Indirect	208,942,101	166,532,640	8,401
Total Impact	578,414,775	390,592,767	16,909

Conclusions

NMSU's Main Campus and DABCC play a vital role in the economy of southern New Mexico and, in particular, Doña Ana County. The estimates provided in this report are preliminary and may be revised later in 2005. NMSU's Main Campus and DABCC are responsible for approximately 16.9 percent of the earnings and 22.3 percent of the jobs in Doña Ana County.

NMSU has a much bigger impact on the county than these numbers indicate. One of the reasons for the continued growth in Las Cruces is the presence of the university. The presence of a university is one of the main determinants in the location decisions of retirees and companies. One could also argue that the dollar impact of a university is only one measure of the impact of the university. Cultural activities of the university, the impact of research and technology transfer to businesses, the increase in earnings of the graduates, and the volunteer activities of the faculty, staff, and students are difficult to quantify, but are important contributions to the quality of life of those living in Doña Ana County.

References:

- Ali Jafri, S. Hussain, Jay D. Dudley and David Buland. 2000. *Economic Impact of Tarleton State University*. Stephenville, TX: Tarleton State University.
(www.tarleton.edu/main/executivesummary.html)
- Association of Independent Colleges and Universities of Massachusetts (ACIUM). 2003. *Engines of Economic Growth: The Economic Impact of Boston's Eight Research Universities on the Metropolitan Boston Area*. Boston: ACIUM
(<http://www.masscolleges.org/Economic/default.asp>).
- Bureau of Business and Economic Research, University of New Mexico. 2004. *The Economic Impact of the University of New Mexico on the State of New Mexico*. Albuquerque, NM: University of New Mexico.
- Humphreys, Jeffrey M. 2005. *The Economic Impact of University of Georgia System Institutions on Their Regional Economies in FY2004*. International Capital Partnership Program (ICAPP) of the University of Georgia.
(http://www.icapp.org/pubs/impact/economic_impact_fy04.pdf)
- Lindall, Scott A. and Douglas C. Olson. No date. *The IMPLAN Input-Output System*. (www.implan.com) Downloaded: November, 2004.
- National Association of State Universities and Land Grant Colleges (NASULGC). 1997. *Value Added: The Economic Impact of Public Universities*. (www.nasulgc.org)
- National Association of State Universities and Land Grant Colleges (NASULGC). 2001. *Shaping the Future: The Economic Impact of Public Universities*. (www.nasulgc.org)
- New Mexico Commission on Higher Education. No date. *Budgets of the State Educational Institutions, Fiscal Year 2004-12005*. (New Mexico State University –Main Campus and New Mexico State University –Doña Ana Branch Community College). Santa Fe: New Mexico Commission on Higher Education.
- New Mexico Department of Labor. 2004. *New Mexico Labor Market Report*, (Vol. 33, No. 11, December 31). Albuquerque: New Mexico Department of Labor.
(www.dol.state.nm.us)
- Popp, Anthony V. 1991. *The Socio-Economic Impact of New Mexico State University and the Doña Ana Branch Community College on Doña Ana County, Fiscal Year 1990-1991*. New Mexico State University: Department of Economics, mimeo.
- Sedway Group, Inc. 2004. *A Study of the Economic Impact of The University of California, Davis: Fiscal Year 2001-2002*.

U. S. Department of Commerce, Bureau of Economic Analysis. 1997. *Regional Multipliers: A User Handbook for the Regional Input-Output Modeling System*. U.S. Washington, DC: Government Printing Office.

U. S. Department of Commerce, Bureau of Economic Analysis. 2005. *Regional Economic Information System (REIS)*. (www.bea.gov).