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The Economic Impact of Doña Ana Community College in Doña Ana County in FY11

Doleswar Bhandari

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May 2012

Prepared by:

University of New Mexico
Bureau of Business and Economic Research
MSC06 3510, 1 University of New Mexico
Albuquerque, NM 87131
Tel: (505) 277-2216
Fax: (505) 277-7066

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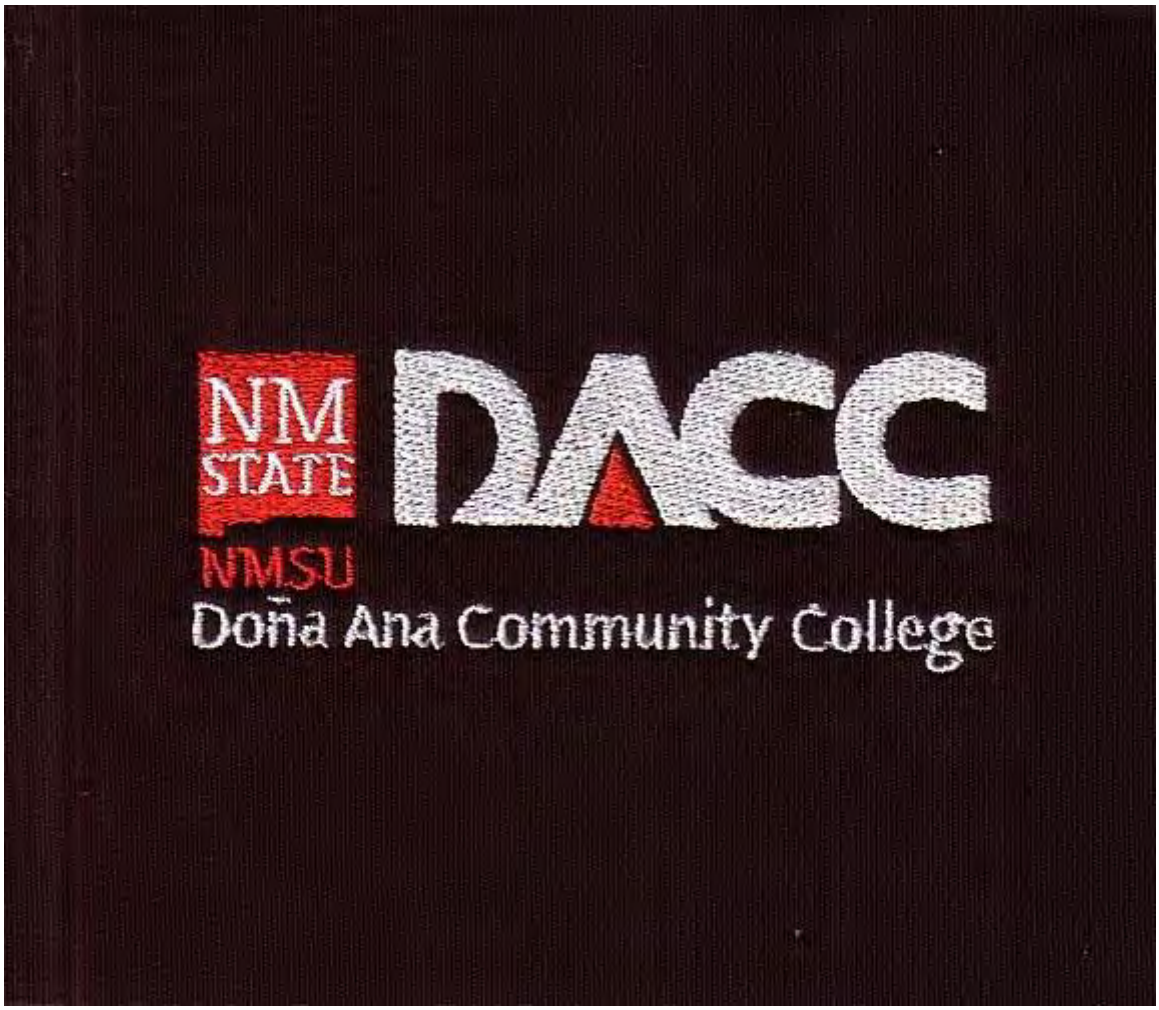

Doleswar Bhandari, Ph.D.

The University of New Mexico
Bureau of Business and Economic Research

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-Doleswar Bhandari

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EXECUTIVE SUMMARY

Doña Ana Community College (DACC) commissioned University of New Mexico's Bureau of Business and Economic Research (BBER) to analyze the economic impact of its operation on the Doña Ana County economy for fiscal year (FY) 2011. BBER estimated conventional economic impacts[1] of DACC using IMPLAN, an economic impact analysis model. The economic impacts of DACC arise from several sources including college operation and capital spending, out-of-county student spending and the additional earnings of DACC graduates and noncredit students who earn higher wages and salaries because of their education and who remain in the county after completion of their degree, certificate and training.

In addition to its educational role, DACC is fueling the Doña Ana County economy by providing jobs and income to residents that are supported by out-of-county dollars. During FY11, DACC spent more than $64 million on operation and construction activities including employee compensation ($30.9 million, 48%), purchases of goods and services ($7.2 million, 11%), aids and grants ($22.7 million, 35%) and capital projects ($3.6 million, 6%). Most (74%) of its revenue came from out-of-county sources. The total economic impact (sum of direct, indirect, and induced impacts) of the college's expenditures supports 1,189 jobs, $26.6 million in income and $76.4 million in economic output[2] (Table ES 1). During FY11, the more than 2,000 out-of-county students enrolled in DACC contributed to the county economy an estimated $30.1 million through tuition and fees, living expenses, and travel expenses. The $30.1 million flowing through the county's economy generated 399 jobs, $9 million income and $35.8 million in economic output to the county. Additionally, DACC makes substantial contributions to the Doña Ana County economy through increased earnings of its graduates and noncredit students who work and live in the county, the increased knowledge and skills of the local workforce, and the help it provides in attracting businesses and industries which results in an increase in property values throughout the surrounding area. It is estimated that in FY11, DACC graduates and noncredit[3] students earned an additional $67.6 million resulting in an additional 405 jobs with $12.8 million labor income and $40.4 million economic output in the county.

[1] The conventional approach determines impacts on the basis of export effects –incremental economic activities derived from nonlocal sources resulting from the operation of the college. This approach ignores the import substitution effects (for example, students from the Doña Ana County attending DACC would have otherwise attended another college outside the area), this study may understate actual impact. The conventional approach also ignores the cost savings associated with reduced welfare and unemployment, improved health, and reduced crime.

[2] Since the money used for construction activities was derived from general obligation bond proceeds and could have been spent elsewhere, the economic impacts created by construction activities are not included in the above estimates.

[3] DACC graduates are those who received a degree or certificate, and noncredit students are those who received a GED or customized training.

As can be seen in Table ES1, when most economic interdependencies are accounted for, DACC accounted for nearly 2,000 jobs, $48.4 million in income, and $152.5 million in economic output in Doña Ana County in FY11.

Table ES 1. Economic Impacts of DACC in FY11

DACC Operations Impacts

Impact Type	Employment[1]	Labor Income[2]	Output[3]
Direct	822	16,397,693	44,169,361
Indirect	220	5,537,953	17,523,181
Induced	147	4,649,333	14,660,182
Total	1,189	$26,584,979	$76,352,724
Student Expenditure Impacts	399	9,031,568	35,784,739
Increased Earnings Impacts	405	12,791,134	40,351,615

[1]Employment = Full-time and part-time jobs directly and indirectly supported by DACC

[2]Labor income = Total employee compensation including benefits

[3]Output = The value of expenditure directly and indirectly supported by DACC

Source: BBER Analysis using IMPLAN Version 3

UNM Bureau of Business and Economic Research, 2012

BBER calculations show that DACC directly and indirectly generated an estimated total of $1.55 million in gross receipt tax (GRT) revenues to various local governments in Doña Ana County during FY11. During the same period, $1.2 million in property taxes are estimated to have been collected as a result of DACC's activities in the region.

It should be noted that this study also identified areas of potentially significant economic impacts that could not be captured in the numbers reported above. Since complete quantification of all beneficial impacts generated by the college is not possible as some economic, social, and cultural benefits (for example: reduced crime, improved health, increased civic participation and good citizenships) are not easily measured.

The IMPLAN Version 3.0 economic impact model was used to estimate the indirect and induced impacts of DACC operation and construction activities, students' expenditures, and earnings premiums of DACC graduates and noncredit students. Data were obtained from the various departments of DACC.

1. INTRODUCTION

Doña Ana Community College (DACC) commissioned University of New Mexico's Bureau of Business and Economic Research (BBER) to analyze the economic impact of its operation and capital projects on the Doña Ana County economy for FY11.

DACC is a community college campus of New Mexico State University (NMSU). It is governed by the Board of Regents of the university through an operating agreement between the university and the three school districts in Doña Ana County. Operating expenses for the community college are paid from state-appropriated funds, a property tax within the three school districts in the county, federal career-technical education funds, special grants, and tuition paid by students.

The provisions of the Branch Community College Act of the State of New Mexico enabled NMSU and the local school districts to establish DACC at the request of the community. In 1965, Doña Ana County was designated by the New Mexico Department of Education (now the Public Education Department) as an appropriate site in Southern New Mexico for an area vocational-technical school.

In 1971, the Boards of Education in Doña Ana County requested that NMSU establish in Doña Ana County a branch community college offering postsecondary vocational-technical education. The NMSU Board of Regents approved the request in 1972, and the voters in Doña Ana County approved an operational mill levy in May 1973. The institution became an official entity on July 1, 1973 and began offering vocational training programs on September 4, 1973, as the Doña Ana County Occupational Education Branch of New Mexico State University.

The mission of the college is to be a responsive and accessible learning-centered college that provides educational opportunities to a diverse community of learners in support of workforce and economic development. To this end, DACC provides lower division credit courses necessary for the completion of selected certificates and associate degrees in academic, technical and career fields with courses applicable to baccalaureate degree completion programs at other colleges and universities. Developmental and adult basic education courses are offered at DACC to improve student success. DACC also provides noncredit, continuing education courses and opportunities for social, recreational, cultural, vocational and personal enrichment. Customized contract training for employee development is also available through the Workforce Development Center.

The college to date has produced more than 7,400 graduates in associate degree and more than 3,700 received certificates in various disciplines (Table 1.1). DACC has served more than 140,000 people through its noncredit programs including GED, community education and customized training. Noncredit programs provide a second chance for the county residents and others to obtain a high school diploma or

equivalency and open the door to literacy and increased basic skills for undereducated individuals.

Table 1.1 Number of DACC Graduates and Noncredit Students by Program Category

Program	2010/11	2009/10	2008/09	2007/08	2006/07 to 1995/96	Grand Total
Certificate*	456	221	149	134	2,809	3,769
Degrees*	781	669	595	490	4,863	7,398
Non-Credit						
Adult Basic Education (GED, ESL, etc.)	4,260	5,387	5,427	4,775	61,445	81,294
GED	279	391	250	217	4,544	5,681
Community Education	1,065	1,455	1,580	986	30,183	35,269
Customized Training	1,396	1,577	1,222	1,282	19,116	24,593

* Grand total includes DACC graduates from 1974/75 through 2010/11

Source: Office of Vice President for Business and Finance, DACC

UNM Bureau of Business and Economic Research

BBER measured DACC's impact on Doña Ana County economy by estimating the total economic activity generated across the county through DACC's various activities and operations. DACC pays wages and salaries to its employees and offers various benefits, including health insurance. The college also purchases various goods and services from local businesses within the county. Payroll expenses and purchases from local or other in-county businesses constitute what are termed the "direct economic impacts." Through such expenditures, additional economic activity is stimulated within the county. DACC's spending on goods and services, provided by local vendors, stimulates further rounds of expansion as suppliers gear up to meet the additional demand. Thus DACC purchases give rise to what are termed "indirect" impacts. As more people within the County are employed and have more disposable income as a result of DACC's construction activities and operations, their purchases similarly ripple through the economy creating "induced" impacts. Induced impacts also include DACC out-of-county students' spending on various expenditure categories including rent, food, transportation, etc. BBER included DACC graduate earnings impacts as part of induced impacts. The total economic impacts are the sum of the direct, indirect, and induced impacts. By using IMPLAN, a regional economic model widely used for estimating the economic multiplier effects, BBER was able to estimate DACC's direct, indirect, and induced economic impacts using data provided by the college regarding its FY11 operations and construction activities, student expenditures, and DACC graduates and noncredit students.

Much like other educational institutions, DACC generates additional impacts that are not easily quantified. The college contributes to the city, county, and state economies through the supply of skilled labor, including technicians, artists, designers, nurses, therapists, etc. The college also improves the quality of life of county dwellers and New Mexicans through the volunteer work of its faculty, staff, and students, as well as

through a wide variety of cultural events, workshops and seminars sponsored by DACC departments and through the access provided to important library collections.

The following sections of the report provide more detail regarding the methodology used to estimate the economic impacts of DACC on Doña Ana County, data sources, and findings.

2. METHODOLOGY

This study builds on previous studies conducted by BBER and is based on a generally accepted method of measuring the economic impact of educational institutions. The method, which can be described as an "export-base" method, recognizes that only those expenditures supported by out-of-region revenues can be considered to have a tangible impact on the region's economy because revenues generated from within a region would presumably flow to some other activity if DACC did not exist, and thus do not yield a net economic impact. As a result, DACC's contribution to the Doña Ana County economy is derived from its ability to attract revenues from outside of Doña Ana County.

2.1 Data

The operation and construction data used for this analysis was obtained from the Vice President for Business and Finance of DACC based on a BBER-designed data collection checklist. BBER then processed the data, reviewed them for reasonableness, and brought them into a usable format to incorporate into the IMPLAN model. Additionally, the time series data regarding DACC graduates from various degree, non-degree, certificate and GED programs was obtained from the Director of Marketing and Publications.

2.1.1 Sources of Revenue

DACC FY11 revenues totaled $72.1 million, of which approximately 74% came from out-of-county sources (Table 2.1). State government general fund appropriation accounted for the largest share (32%) of DACC revenues, followed by Federal Pell Grant (28%), general obligation (GO) bond proceeds (15%), and student tuition (14%).

Table 2.1. Sources of Revenues by Type, FY11

Revenue Source	In-County Revenues	Out-of-County Revenues	Total Revenue
Tuition/Fees	$6,636,817	$3,284,982	$9,921,799
State government general fund appropriation	-	$23,042,067	$23,042,067
Dona Ana County *Ad Valorem* property tax	$3,721,338	-	$3,721,338
Federal Pell Grant	-	$20,405,655	$20,405,655
Other Federal grants	-	$2,705,099	$2,705,099
Sales and sales margin of goods & services	$550,097	$272,171	$822,268
Non-governmental grants and contracts	$210,034	-	$210,034
Other revenues including gifts	$83,501	-	$83,501
General obligation bond proceeds	$7,446,216	$3,723,082	$11,169,298
Total	$18,648,003	$53,433,056	$72,081,059

Source: Office of Vice President for Business and Finance, DACC

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Since approximately $18.6 million of the DACC's revenue came from within Doña Ana County, DACC made a net contribution of approximately $53.4 million to the county economy. In other words, the DACC generated approximately $2.90 out-of-county revenue for every $1.00 in revenue received from within-county sources.

2.1.2 DACC Spending

In FY11, DACC spent just over $64.4 million on payroll (including benefits), goods and services, and capital projects. This total reflects the expenditures made both in Doña Ana County and elsewhere. Approximately, $60.8 million (94%) was spent in Doña Ana County, as shown in Table 2.2. DACC spent more than $30.8 million on employee compensation, $7.2 million on purchasing of goods and services, $22.7 million on grants and aids including Federal Pell Grant, and $3.6 million on construction activities including new construction and renovation[4].

Table 2.2 DACC Spending by Region in FY11

Items	In-County Expenditure	Out-of-County Expenditure	Total Expenditure
Employee Compensation	$30,877,237	-	$30,877,237
Goods and Services	$3,558,219	$3,678,192	$7,236,411
Grants and Aids	$22,709,907	-	$22,709,907
Construction	$3,624,057	-	$3,624,057
Total	$60,769,420	$3,678,192	$64,447,612
Percentage of Expenditure by Region	94%	6%	100%

Source: Office of Vice President for Business and Finance, DACC

UNM Bureau of Business and Economic Research

2.1.3 Total Employment and Payroll

In FY11, DACC directly employed 1,278 people as faculty (714), staff (274), student workers (230), contract workers (23), and construction[5] workers (37). According to information provided by the Vice President for Business and Finance of DACC, roughly 95% of DACC employees lived in Doña Ana County and received approximately $24.7 million in employee compensation from DACC.

2.2 Economic Impact Estimation Method

Because money spent by the college is spent again by the college's employees and local businesses, the impact of DACC on the county economy is greater than the total DACC's direct spending on payroll, goods and services and construction. The following steps were taken to estimate the direct economic impact of DACC on the Doña Ana

[4] Construction and renovation activities were funded by GO bond proceeds. BBER treated this piece separately in economic impact analysis.

[5] This is an estimate of the number employed by the construction contractors.

County. First, DACC revenue amount from out-of-county sources was estimated. Then the direct impact of in-county expenditures was estimated using the following equation:

Direct Impact = (% Out-of-County Revenues) ***X*** *(% In-County Expenditures)* ***X*** *(Total Expenditures)*

DACC provided BBER with the type of revenues from out-of-county sources. The above equation indicates that direct impacts are created by the externally funded and locally spent dollars.

IMPLAN uses a variety of data sources to estimate the total economic impacts of economic activity, where the total economic impact is comprised of the sum of direct, indirect, and induced impacts (Figure 1). **Direct impacts** occur as a result of DACC spending on salaries and wages, goods and services and construction. **Indirect impacts** occur as a result of expenditures by businesses and organizations that support DACC activities. These expenditures create demand for the goods and services of other companies, who must then purchase goods and services and hire employees to produce their products. The sum of these iterative purchases and employee hiring are termed indirect impacts. The third way in which additional economic activity occurs is through **induced impacts**, which are the result of DACC employees and indirect industry employees spending their wages and salaries on local goods and services. The spending by these employees creates further demand for goods and services for which firms must again purchase supplies and hire employees to produce. These iterations constitute induced impacts.

Dividing the total economic impact by the original direct activity (i.e. DACC spending, employment) yields an estimate of the **multipliers**, which provide a measure of economic activity generated per dollar or per employee. The economic impacts presented below are discussed in these terms.

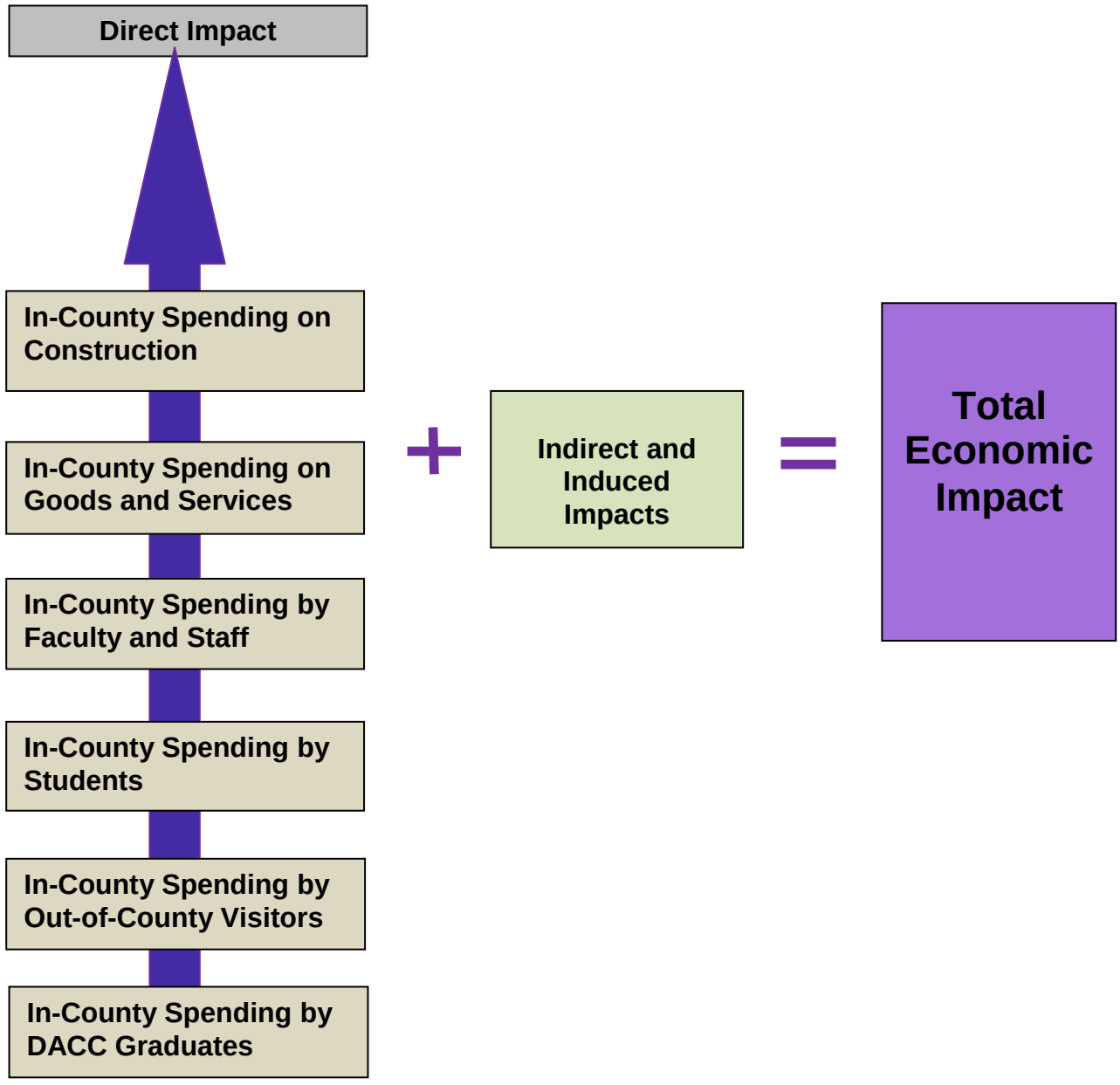


Figure 2.1 . Economic Impact Components

3. ECONOMIC IMPACTS OF D.A.C.C. ON DOÑA ANA COUNTY

DACC's economic impact is the result of the direct economic activities generated by the college. These activities include jobs generated, purchases made, wages paid by the college as well as spending generated by DACC graduates (those who remain in the county after graduation), DACC students, and visitors. Also included is construction spending for new construction and renovation projects. Table 2.2 presents the spending summary for FY11. In addition to this, in FY11 DACC students spent $30.1 million on rent, food, transportation, clothing, healthcare, books, supplies, etc. Economic impacts of DACC students spending are analyzed separately in this report.

3.1 DACC Impacts on Doña Ana County

Since DACC works as an export industry with a high capture rate, more than $53 million (74% of total revenue) of DACC revenue came from out-of-county sources and nearly 94% of the spending occurred within Doña Ana County. Therefore, most impacts are created at the local level. Table 3.1 presents the economic impacts of DACC on Doña Ana County economy that stem from expenditures within Doña Ana County on operations, out-of-county students spending, and additional earnings of DACC graduates and noncredit students.

Subsections 3.1.1, 3.1.2, 3.1.3 and 3.1.4 present the breakdown of economic impacts on the Doña Ana County economy by DACC operations, construction activities, in-county expenditure of out-of-county students, and additional earnings of DACC graduates and noncredit students, respectively.

Table 3.1 Total Economic Impacts of DACC on Doña Ana County Economy

Impact Type	Employment[1]	Labor Income[2]	Output[3]
DACC Operations Impacts	1,189	$26,584,979	$76,352,724
Student Expenditure Impacts	399	$9,031,568	$35,784,739
Increased Earnings Impacts	405	$12,791,134	$40,351,615

[1]Employment = Full-time and part-time jobs directly and indirectly supported by DACC

[2]Labor income = Total employee compensation including benefits

[3]Output = The value of expenditure directly and indirectly supported by DACC

Source: BBER Analysis using IMPLAN Version 3

UNM Bureau of Business and Economic Research, 2012

3.1.1 Operation Impacts

Table 3.2 presents the direct, indirect, induced and total economic impacts of DACC operation expenditures on Doña Ana County. Total impacts of college operations are

estimated to have been $76.4 million in economic output, with 1,189 jobs and $26.6 million in income paid to the county residents. Note that these are net impacts; BBER netted out the revenue generated from local sources and spending made outside the county. The revenues generated from in-county sources would presumably flow to some other activity if DACC did not exist and thus do not yield an economic impact.

Table 3.2. Economic Impacts of DACC Operation in Doña Ana County, FY11

Impact Type	Employment[1]	Labor Income[2]	Output[3]
Direct	822	$16,397,693	$44,169,361
Indirect	220	$5,537,953	$17,523,181
Induced	147	$4,649,333	$14,660,182
Total	1,189	$26,584,979	$76,352,724
Multiplier	1.4	1.6	1.7

[1]Employment = Full-time and part-time jobs directly and indirectly supported by DACC

[2]Labor income = Total employee compensation including benefits

[3]Output = The value of expenditure directly and indirectly supported by DACC

Source: BBER Analysis using IMPLAN Version 3

UNM Bureau of Business and Economic Research, 2012

The $44.2 million in direct output supported by out-of-county funds led to an additional $32.2 million in indirect and induced economic activity. In other words, by attracting the funds necessary to support $44.2 million in expenditures, DACC generated a total of $76.4 million in economic activity for the county in FY11. The accompanying multiplier of 1.7 indicates that a total of $1.7 was generated in the Doña Ana County economy for every $1.00 spent in the county that was supported by out-of-county revenues.

The out-of-county revenue directly supported 822 jobs and generated an additional 367 jobs due to indirect and induced economic activity, for a total of 1,189 jobs. The overall employment multiplier is 1.4, which indicates a total of 1.4 jobs were generated in the Doña Ana County economy for every job DACC generated in the county that was supported by out-of-county revenues.

The $16.4 million in income supported by out-of-county revenues resulted in more than $10.2 million in additional income through indirect and induced activity for a total of $26.6 million in labor income. The income multiplier of 1.6 indicates a total of $1.6 was generated in the county economy for every dollar DACC spent on employee compensation in Doña Ana County that was supported by out-of-county revenues.

3.1.2 Construction Impacts

Table 3.3 presents DACC's construction expenditures over time. Although there is no clear trend in construction expenditures over time, it is expected that such expenditures would increase significantly in FY12 to $18 million. On average, DACC spends annually about $9.2 million on construction activities.

Table 3.3. DACC Construction Expenditures by Fiscal Year

Year	New Construction	Renovation	Total
FY08	$8,302,696	$271,510	$8,574,206
FY09	$7,224,868	$505,781	$7,730,649
FY10	$7,378,697	$428,157	$7,806,854
FY11	$3,343,765	$280,292	$3,624,057
FY12 (Estimated)	$18,000,000	$0	$18,000,000
Total	$44,250,026	$1,485,740	$45,735,766
Annual Average	$8,850,005	$297,148	$9,147,153

Source: Office of Vice President for Business and Finance, DACC
UNM Bureau of Business and Economic Research, 2012

Since the money used for construction activities was derived from general obligation bond proceeds, BBER did not include construction impacts as a part of the total impact because bond proceeds have alternative uses. BBER assumes the net impact of bond proceeds is zero because if the public money from taxes were left with households and businesses to spend on private consumption and investment activities, it is likely to have created similar impacts.

Despite the above mentioned caveat, BBER estimated construction impacts to show how the county's economy was impacted by these activities in FY11. DACC spent more than $3.6 million on construction, which resulted in an additional 54 jobs, $1.9 million of labor income, and $5.3 million of economic output in the county (see Table 3.4). Note that although actual construction might have taken only a week or months to complete; the IMPLAN model generates construction impacts on an annual basis. The economic impact in future years can either be higher or lower based on future construction activities.

Table 3.4 Economic Impacts of DACC Construction Activities in Doña Ana County in FY11

Impact Type	Employment[1]	Labor Income[2]	Output[3]
Direct	37	$1,367,918	$3,624,048
Indirect	7	$269,071	$702,101
Induced	10	$313,102	$988,693
Total	54	$1,950,091	$5,314,842

[1]Employment = Full-time and part-time jobs directly and indirectly supported by DACC construction activities

[2]Labor income = Total employee compensation including benefits

[3]Output = The value of expenditure directly and indirectly supported by DACC construction activities

Source: BBER Analysis using IMPLAN Version 3
UNM Bureau of Business and Economic Research, 2012

3.1.3 Student and Visitor Spending Impacts

DACC draws students from out-of-county as well as out-of-state areas. In the fall of 2011, DACC attracted 2,959 out-of-county students including 981 out-of-state students. Due to lack of student spending data, BBER used New Mexico State University's students spending data[6]. In 2010, total average monthly NMSU student expenditures were estimated to be $1,365 ($629 for rent, $264 for food, $131 for transportation, $129 for books and supplies, and $212 in miscellaneous expenses). Annual expenses were estimated by multiplying monthly expenditures by the 10.9 months spent attending college. The total out-of-county student spending was estimated to be $30.1 million in FY11, of which approximately 25% was accounted for by out-of-state students.

DACC students fuel the county economy through their spending. As discussed above, the $30.1 million in DACC student spending generated additional sales and wages to other businesses and employees within the Doña Ana County. Out-of-County student spending induced $35.8 million economic output (spending), 399 jobs, and more than $9 million of labor income in Doña Ana County (Table 3.1).

The economic impact of DACC visitors is not included in this report due to the lack of data on visitors and their places of residence. However, visitation by persons who reside out-of-county to attend conferences, athletic events, alumni homecomings and reunions, etc. is likely to have a positive economic impact on the region.

3.1.4 College Graduates and Noncredit Students Impacts

Expenditures alone provide an incomplete picture of the impact of the college; DACC also provides an affordable, accessible education to hundreds of county residents and New Mexicans who would not otherwise attend a collage. One of the ways the value of a DACC education can be estimated by focusing on the higher earning power of DACC graduates and non-degree students.

From an economic perspective, the college has a profound effect on all students, regardless of the degree or certificate received. There is no doubt that college education leads to higher income. Over time the earnings premium for a college degree has become more pronounced. BBER used a five step procedure to estimate the additional earnings of DACC graduates and noncredit students. In the first step, BBER estimated the earnings by educational levels using American Community Survey data for Doña Ana County –which was available from Data Ferrett, U.S. Census Bureau website.

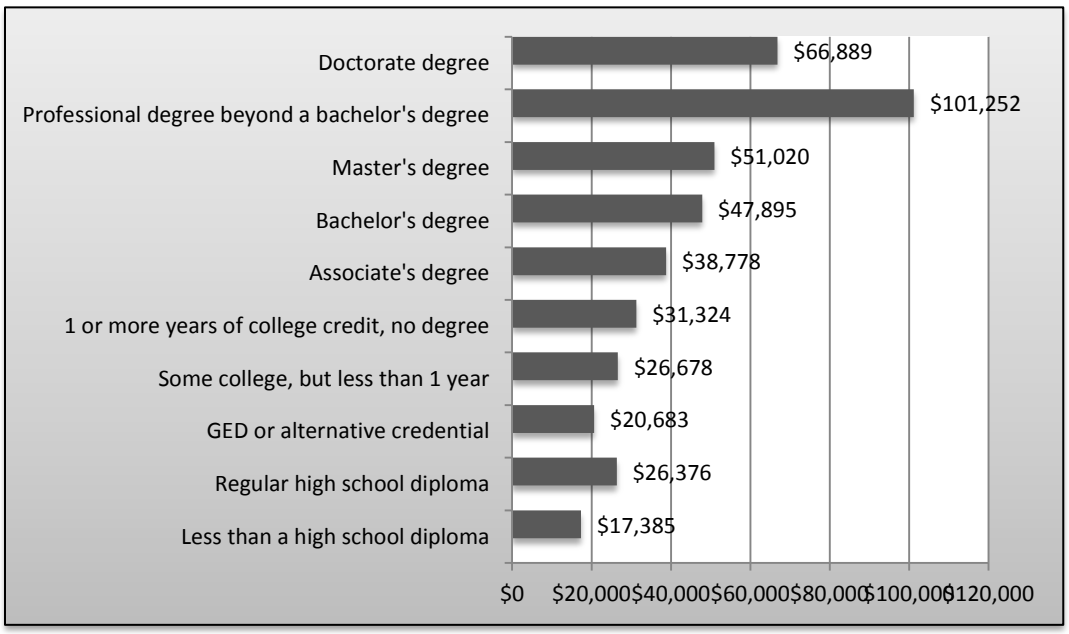
Doña Ana County median annual earnings increase from$17,385 for individuals without high school education to $26,376 for individual with a high school diploma. Median

[6] Source: James Peach and Anthony Popp "Economic Impact of New Mexico State University in 2010". Office of Policy Analysis, Arrowhead Center, New Mexico State University, Las Cruces, NM 88005

earnings continue growing to $31,324 when a person completes one or more years of college credit, and climb to $38,778 for an associate's degree.

BBER estimated that the average annual salary for an individual with an associate degree is at least $12,000 more than that of a high school graduate (see Figure 3.1 and Table 3.5).

Figure 3.1 Median Earnings by Educational Attainments in Doña Ana County



Source: American Community Survey, DataFerrett, U.S. Census Bureau.

Similarly, a person with a GED or alternative credential on average earns nearly $3,300 more than a person who has less than a high school diploma. BBER estimation shows that a person having 1 or more years of college credit had annual earnings more than $4,900 greater than high school graduate. Because of lack of data on students who completed less than 1 year or 1 or more years of college credit, BBER estimated the additional earnings of these categories by taking the average of these two categories.

In the second step, BBER estimated the number of graduates and noncredit students who settled in Doña Ana County after their graduation or training. The number of graduates and noncredit students were obtained from DACC and are presented in Table 1.1. It is challenging to estimate how many people actually live in Doña Ana County after their graduation or training. BBER used U.S. Population Migration Data from Internal Revenue Service (IRS) which are based on year to year address changes reported on individual income tax returns filed with the IRS. The overall migration rate from Dana Ana County in 2009/10 was 5.2%. This rate was used for each year to estimate the people who lived in Doña Ana County. Appendix Table B. 2 presents the estimated number of graduates and noncredit students who lived in Doña Ana County.

In the third step, BBER estimated the number of surviving graduates who live in Doña Ana County. To this end, BBER applied survival rates to different group of DACC students to estimate number of deaths of DACC students who live in Dona Ana County. DACC supplied age information on current degree/certificate and noncredit students and BBER calculated the median ages for degree/certificate and noncredit students to be 22 and 32 years old, respectively. These median ages were assumed to be representative of earlier DACC students and were given to every cohort back to1972. For example, the median age of the degree/certificate students was assumed to be 22 in 1972. The following year in 1973, this group's median age is assumed to be 23, and in 2011 this group's median age is 58. This process was also applied to cohorts graduating in between 1973 to 2010/11. The estimated death rate of this age group in Doña Ana County is estimated as 0.26% using Health Statistics Report produced by New Mexico Department of Health. This death rate was applied to each cohort as they progress through the years. Appendix Table B. 3 presents the estimates of the surviving graduates who live in Doña Ana County.

The median age of noncredit students was estimated to be 32. However, the age information for noncredit students only went back to 1992/93. For example, the median age of the noncredit students was assumed be 32 in 1992 and in 2011 this group's median age was assumed to be 50. This process was also applied to cohorts graduating in between 1992/93 to 2010/11. The estimated death rate of this group in the county is 0.25%. This death rate was applied to each cohort as they progress through the years.

In the fourth step, BBER estimated the number of DACC graduates who live and work in Dona Ana County. BBER estimated labor force participation rate and unemployment rate for Doña Ana County using American Community Survey data obtained from Data Ferrett (see Appendix Table B. 4); and used this information to estimate the number of people not in labor force as well as the number of unemployed. This number was subtracted from the number of DACC graduates and noncredit students living in Doña Ana County[7]. The data show that the labor force participation rate is positively associated with level of education; whereas, the unemployment rate is negatively associated with level of education.

In the final step, additional earnings of DACC graduates and noncredit students were estimated by multiplying the number of employed graduates and noncredit students who live in the county times additional earnings for the relevant education category. Table 3.5 presents the total additional earnings of DACC graduates and noncredit students by DACC programs. It is estimated that in FY11, $68.8 million earnings were added to Doña Ana County by DACC graduates and noncredit students.

[7] Note that a small portion of DACC graduates might have retired; however, BBER could not account for decreased post-retirement earnings (as compared with pre-retirement earnings) of DACC graduates in the analysis due to lack of data. As a result, this study may have slightly overestimated increased earnings impact.

Table 3.5 Estimated Additional Earnings of DACC Graduates and Noncredit Students

Program	Number of employed students settled in Dona Ana County	Earning Comparison with	Additional Earnings	Total Earnings
Degree	3,184	High School Diploma	$12,402	$39,484,202
Certificate	1,256	High School Diploma	$2,626	$3,297,338
GED	2,098	No High School Diploma	$3,298	$6,917,310
Customized Training	8,938	$1 hourly earnings increase	$2,000	$17,876,050
Total Additional Earnings				$67,574,900

Source: BBER estimation using DACC graduation data and American Community Survey earnings data
UNM Bureau of Business and Economic Research

The $67.6 million of additional earnings by DACC graduates and noncredit students result in an additional 405 jobs, $12.8 million of labor income, and $44.4 million of economic output in the county (Table 3.1).

3.3 DACC Tax Impact on the County

The direct, indirect, and induced economic activity associated with DACC operation and construction, students' spending, and graduates' and noncredit students' earnings generated an estimated total of $2.85 million in taxes to local governments in FY11. An estimated $1.55 million was collected as gross receipt tax and the remaining $1.3 million as property tax. An additional $1.82 million GRT was estimated to have been collected for the state. These tax estimates were generated using IMPLAN model, whereas the distribution of GRT was determined using the RP-80 report from New Mexico Taxation and Revenue Department.

APPENDIX A.
DACC Programs
Degree and Certificate Programs

Appendix A. 1 DACC Degree and Certificate Program List

Degree Program	Certificate Program
Architectual Drafting	Architectual Drafting
Architectual Technology	Architectual Technology
Arts	Automotive Technology
Associate in General Studies	Building Construction Technology
Associate of Science	Business Occupations
Automotive Technology	Business Office Technology
Building Trades	Certified Nursing Assistant
Business Occupations	Civil/Survey Technology
Business Office Technology	Computer Technology
Civil/Survey Technology	Dental Assistant
Computer Aided Drafting	Diagnostic Medical Sonography
Computer Assisted Drafting	Digital Graphics Technology
Computer Information Technology	Digital Video
Creative Media Technology	Drafting and Graphics
Criminal Justice	Electrical Apprenticeship
Criminal Justice	Electrical Lineworker
Dental Hygiene	Electronics Technology
Diagnostic Sonography	Emergency Medical Services
Digital Graphics Technology	Facilities Maintenance Technology
Drafting and Graphics	Film Crew Training
Early Childhood Education	Gernotology
Education Associate	Game Desigh
Education Paraprofessional	Graphics & Animation
Electrical Apprenticeship	Health Care Assistant
Electronics Technology	Health Information Technology Assistant
Emergency Medical Technology	Heating, Air Conditioning, & Refrigeration
Facilities Maintenance Technology	Library and Information Technology
Fashion Merchandising	Licensed Practical Nurse
Fire Science	Mechanical Drafting & Solid Modeling
Health Information Technology	Medical Billing
Heating, Air Conditioning, & Refrigeration	Medical Trans/Records
Hospitality Services	NM Common Core
Law Enforcement	Plumbing Apprenticeship
Legal Assistant	Retail Marketing & Merchandising
Library Science	Secretarial Administration
Library Technology	Water Technology
	Web Design
	Welding Technology
	Youth & Adolescent Paraprofessional

Noncredit Programs

Appendix A. 2 Adult Basic Education

ABE instructional programs and classes include basic literacy, English as a second language (at various levels), EL/Civics, GED (high school equivalency diploma), U.S. citizenship, computer literacy, practical living skills, and work readiness. Practical living skills, employment and training, and student success principles are also emphasized throughout the ABE curriculum. Student-support services include assessment, student orientations, self-paced studies, advising and referral services, student success skills, tutoring on an individual and small-group basis, and assistance with college transition.

Appendix A. 3 Community Education

Community Education is open to everyone, regardless of educational background. Courses and workshops offered are based on student interests and needs. Some courses are scheduled every semester, while others come and go depending on demand. It is also a gateway to lifelong learning. It offers a wide variety of courses and workshops for all ages including arts and crafts, business & careers, communications, community awareness, computer skills, cooking, health & fitness, music and dance, home and garden etc. Through this program, those searching for education beyond what is available in more formal degree or certificate programs may find an avenue to continue their learning. The nontraditional structure of Community Education makes it possible to respond immediately to trends by offering courses and workshops that are of current interest. Community Education provides opportunities to explore one's interests, learn and develop skills, increase effectiveness on the job, discover new hobbies and tone body and mind.

Appendix A. 4 Assistance for Entrepreneurs

The Small Business Development Center (SBDC), located at the Workforce Center, offers free, quality counseling and guidance for business owners, prospective owners, and managers. As a member of the New Mexico Small Business Development Center Network, SBDC help entrepreneurs in following areas:

- Explore business ownership opportunities in Doña Ana County or Sierra County
- Start a new business or make an established one more efficient and profitable
- Help analyze financial statements and create financial projections
- Review state and federal business tax issues
- Explore alternatives for solving problems
- Create an effective business plan
- Help improve management skills
- Access a wealth of business resources

Appendix A. 5 Customized Training

Customized classes focus on employee development and peak team performance. Every aspect of a course may be tailored to meet an organization's specific needs, including class topics and content, location, length and time. The courses may be held at the Workforce Center or at the work location. Times can be tailored to fit employee work schedules.

Customized training services have been utilized by numerous local banks and businesses, public schools, government contractors, and federal, state, and local governmental agencies. Training areas have included computer skills, management/supervision, welding, customer service, and others.

APPENDIX B.
Estimation of Additional Earnings of DACC Graduates and Noncredit Students

Appendix Table B. 1 Median Annual Earnings of Doña Ana County Residents by Age and Educational Attainment

Age group	Less than a high school diploma	Regular high school diploma	GED or alternative credential	Some college, but less than 1 year	1 or more years of college credit, no degree	Associate's degree	Bachelor's degree	Master's degree	Professional degree beyond a bachelor's degree	Doctorate degree
25-29	$12,559	$18,605	$22,545	$20,164	$19,612	$23,773	$36,823	$28,467	$65,000	-
30-34	$18,653	$24,418	$18,214	$33,921	$27,461	$28,560	$41,424	$48,304	$74,772	$72,344
35-39	$18,746	$30,532	$23,697	$18,047	$28,062	$33,104	$50,941	$57,805	$135,000	$91,667
40-44	$16,508	$24,073	$28,583	$32,982	$36,980	$37,241	$55,915	$46,979	$74,600	$60,625
45-49	$18,888	$32,348	$20,965	$31,666	$44,845	$43,199	$53,669	$47,809	$101,896	$60,000
50-54	$14,859	$30,414	$14,846	$27,611	$37,500	$50,805	$55,052	$55,363	$110,000	$82,847
55-59	$17,171	$30,968	$21,892	$28,928	$31,438	$49,499	$51,699	$55,852	$125,143	$64,326
60-64	$20,904	$14,469	$22,500	$20,650	$28,918	$54,259	$37,069	$61,765	$76,304	$40,078
65 and over	$20,560	$25,086	$10,851	$28,037	$43,333	$38,240	$50,312	$51,190	-	$105,000
Average	$17,385	$26,376	$20,683	$26,678	$31,324	$38,778	$47,895	$51,020	$101,252	$66,889

Source: BBER calculation from 2008 to 2010 American Community Survey data, (Data Ferrett, US Census Bureau).

UNM Bureau of Business and Economic Research, 2012

Appendix Table B. 2 Estimates of Graduates and Noncredit Students who Settled in Doña Ana County

Year	Degree, Certificate, GED Completed				Percentage Remain in Dona Ana Couny	Graduate Remain in Dona Ana County			
	Degree	Certificate	GED	Customized Training		Degree	Certificate	GED	Customized Training
2010-11	781	456	279	1,584	95%	740	432	264	1,502
2009-10	669	221	391	1,396	90%	601	199	351	1,255
2008-09	595	149	250	1,577	85%	507	127	213	1,344
2007-08	490	134	217	1,222	81%	396	108	175	987
2006-07	424	98	243	1,282	77%	325	75	186	982
2005-06	435	107	192	2,072	73%	316	78	139	1,504
2004-05	332	98	162	1,940	69%	228	67	111	1,335
2003-04	178	67	142	1,665	65%	116	44	93	1,086
2002-03	186	69	172	1,449	62%	115	43	106	896
2001-02	199	32	186	1,233	59%	117	19	109	723
2000-01	168	32	168	900	56%	93	18	93	500
1999-00	188	17	335	817	53%	99	9	177	430
1998-99	194	38	307	625	50%	97	19	153	312
1997-98	190	61	381	2,021	47%	90	29	180	957
1996-97	159	53	521	1,906	45%	71	24	234	856
1995-96	137	57	491	3,157	43%	58	24	209	1,343
1994-95	160	62	440	1,331	40%	65	25	177	537
1993-94	122	54	415	-	38%	47	21	159	-
1992-93	190	74	389	-	36%	69	27	141	-
1991-92	183	100	-	-	34%	63	34	-	-
1990-91	162	96	-	-	33%	53	31	-	-
1989-90	175	88	-	-	31%	54	27	-	-
1988-89	126	127	-	-	29%	37	37	-	-
1987-88	86	161	-	-	28%	24	45	-	-
1986-87	98	68	-	-	26%	26	18	-	-
1985-86	70	74	-	-	25%	17	18	-	-
1984-85	97	82	-	-	24%	23	19	-	-
1983-84	64	91	-	-	22%	14	20	-	-
1982-83	80	104	-	-	21%	17	22	-	-
1981-82	50	97	-	-	20%	10	20	-	-
1980-81	48	114	-	-	19%	9	22	-	-
1979-80	61	112	-	-	18%	11	20	-	-
1978-79	76	167	-	-	17%	13	29	-	-
1977-78	80	31	-	-	16%	13	5	-	-
1976-77	79	130	-	-	15%	12	20	-	-
1975-76	66	148	-	-	15%	10	22	-	-
1974-75	-	100	-	-	14%	-	14	-	-
Grand Total	7,398	3,769	5,681	26,177		4,556	1,810	3,273	16,548

Source: BBER estimation using DACC graduation data and IRS population migration data.
Migration data for the Dona Ana County are based on year-to-year address changes reported on individual income tax returns filed with the IRS.

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Appendix Table B. 3 Estimates of Surviving Graduates who Live in Doña Ana County

Year	Graduate Remain in Dona Ana County				Survival Rate		Estimates of Surviving Graduates who live in Dona Ana County			
	Degree	Certificate	GED	Training	Degree & Certificate	GED and Training	Degree	Certificate	GED	Training
2010-11	740	432	264	1502	100%	100%	740	432	264	1,502
2009-10	601	199	351	1255	100%	99%	600	198	350	1,248
2008-09	507	127	213	1344	99%	99%	504	126	211	1,330
2007-08	396	108	175	987	99%	98%	393	107	173	972
2006-07	325	75	186	982	99%	98%	321	74	182	962
2005-06	316	78	139	1504	99%	98%	312	77	136	1,466
2004-05	228	67	111	1335	98%	97%	225	66	108	1,295
2003-04	116	44	93	1086	98%	97%	114	43	89	1,048
2002-03	115	43	106	896	98%	96%	113	42	102	861
2001-02	117	19	109	723	98%	96%	114	18	104	691
2000-01	93	18	93	500	97%	95%	91	17	89	476
1999-00	99	9	177	430	97%	95%	96	9	167	407
1998-99	97	19	153	312	97%	94%	94	18	144	294
1997-98	90	29	180	957	97%	94%	87	28	169	896
1996-97	71	24	234	856	96%	93%	69	23	218	797
1995-96	58	24	209	1343	96%	93%	56	23	194	1,245
1994-95	65	25	177	537	96%	92%	62	24	164	495
1993-94	47	21	159	-	96%	92%	45	20	146	-
1992-93	69	27	141	-	95%	91%	66	26	129	-
1991-92	63	34	-	-	95%		60	33	-	-
1990-91	53	31	-	-	95%		50	30	-	-
1989-90	54	27	-	-	95%		51	26	-	-
1988-89	37	37	-	-	94%		35	35	-	-
1987-88	24	45	-	-	94%		22	42	-	-
1986-87	26	18	-	-	94%		24	17	-	-
1985-86	17	18	-	-	94%		16	17	-	-
1984-85	23	19	-	-	93%		21	18	-	-
1983-84	14	20	-	-	93%		13	19	-	-
1982-83	17	22	-	-	93%		16	21	-	-
1981-82	10	20	-	-	93%		9	18	-	-
1980-81	9	22	-	-	92%		8	20	-	-
1979-80	11	20	-	-	92%		10	19	-	-
1978-79	13	29	-	-	92%		12	26	-	-
1977-78	13	5	-	-	92%		12	5	-	-
1976-77	12	20	-	-	91%		11	18	-	-
1975-76	10	22	-	-	91%		9	20	-	-
1974-75	-	14	-	-	91%		-	13	-	-
Grand Total	4,556	1,810	3,273	16,548			4,481	1,768	3,138	15,986

Source: BBER estimation using DACC graduation data and median age of DACC students
UNM Bureau of Business and Economic Research

Appendix Table B. 4 Unemployment Rate and Labor Force Participation Rate for Doña Ana County

Educational Attainment	Unemployment Rate	Labor Force Participation Rate
No High School	11%	62%
HS Graduate or GED	8%	71%
Some College or Associate's	7%	77%

Source: 2008-2010 American Community Survey 3-Year Estimates
UNM Bureau of Business and Economic Research

Definitions

- Impact Analysis: estimate of the impact of dollars from outside the region on the region's economy
- Output: the total economic activity resulting from DACC operation and construction activities on a region. It is a measure of the region's domestic product created as a result of DACC activities.
- Employment: the estimated number of jobs created as a result of DACC activities
- Labor Income: all forms of employment income, including employee compensation (wages and benefits) and proprietor income.
- Employee compensation*:* wage and salary payments as well as benefits, including health and life insurance, pension payments and other non-cash compensation
- Direct Impacts: the initial, immediate economic impacts generated by DACC initial expenditures
- Indirect Impacts: the secondary impact caused by changing input needs of directly affected industries (e.g., additional input purchases to produce additional output)
- Induced Impacts: the economic impact resulting from DACC's employees spending a portion of their salary on goods and services for personal consumption