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ABSTRACT

A study was conducted by the Grants Campus of New Mexico State University to determine the campus' economic impact on its service area. Data from the 1993-94 academic year were gathered from state, county, and institutional reports, and surveys conducted of students and college employees. Economic data were analyzed on three levels: level I funds, representing sources of funds received by the college and including tuition and fees, grants, and state appropriations; level II funds, representing expenditures by the college within the local service area, such as local purchases and salaries; and level III funds, measuring various economic effects of the college on local government, business, and society. Study findings included the following: (1) in 1993-94, a one mill tax in the county generated $93,439 for the college, while level I funds amounted to $1,816,236, primarily from state and federal funding; (2) level II expenditures by the college within the county, including salaries, amounted to $2,308,778; (3) using a conservative multiplier of 1.8, it was estimated that the local business volume generated $1,951,752; and (4) approximately 116 equivalent local jobs were generated in the county because of the presence of the college, while local student income from financial aid was $679,450. (Tables of key economic indicators, a chart of economic variables with dollar amounts, and definitions of measures are appended.) (KP)

# SHORT-TERM ECONOMIC IMPACT

of

New Mexico State University at Grants

on the

Cibola County Service Area



A Report to the Citizens of

Cibola County New Mexico



Prepared by

Ron Jernigan David Leas Ida Chavez Barbara Wesley

June 1995

# SHORT-TERM ECONOMIC IMPACT OF NMSU-GRANTS ON THE CIBOLA COUNTY SERVICE AREA

## INTRODUCTION

A study of the economic impact of New Mexico State University at Grants on its Cibola County Service area was conducted during the 1994-95 academic year. Data from the 1993-94 year was used to complete the study. The study team was comprised of Ron Jernigan, Coordinator of Institutional Research and Planning; David Leas, Campus Director; and Ida Chavez, Business Manager. Barbara Wesley accomplished much of the data gathering and keyboarding. The model for the study was taken from the dissertation "A Model for Evaluating the Short-Term Economic Impact of a New Mexico Community College on its Community" (Leas, 1987). Some slight modifications to the model were required to fit the realities of the Grants Branch Campus. Data was gathered from state, county, and institutional sources, and surveys of students and college employees. A conservative multiplier of 1.8 was used for several of the calculations.

According to the Leas model, data within the study was accumulated on three levels of analysis. Level I funds are those funds attracted to the service area because of the presence of the college, including tuition and fees, and local mill levy, grants, state appropriations, and certain other funds. Level II funds compile expenditures by the college within the local service area, primarily local purchases and salaries. Level III analysis lists various specific measures of the economic impact of the college on local government, business, and society.

Cibola County supports the college with a one mill tax. In 1993-94, this tax generated $93,439. In return for this generous support, $1,816,236 was brought into the community from outside sources, primarily state and Federal funding. Expenditures by the college (including salaries) within the county amounted to $2,308,778. Using a conservative multiplier of 1.8, it is estimated that local business volume generated, due to the presence of the Branch, was $1,951,752. Approximately 116 (equivalent) local jobs were generated because of the presence of the college. Local student income (financial aid) was $679,450. The Elderhostel program alone brought to the community $133,493.

## SUMMARY OF KEY INDICATORS

### TABLE I

**Level I: Funds Received From Within the Taxation Area**

| | |
|---|---|
| Tuition and Fees | $205,861 |
| Mill Levy | 93,439 |
| Bookstore | 115,016 |
| Total | $414,316 |

### TABLE II

**Level I: Funds Received From Outside the Taxation Area**

| | |
|---|---|
| Tuition and Fees | $ 36,663 |
| Grants | 207,128 |
| State Appropriations | 1,421,000 |
| Elderhostel | 133,493 |
| GED Testing | 17,952 |
| Total | $1,816,236 |
| | |
| Throughput Funds Received by Students | $ 665,040 |
| Total Funds From Outside Taxation Area | $2,481,276 |

### TABLE III

**Level II: Expenditures By the College Within the District**

| | |
|---|---|
| Salaries | $2,015,637 |
| Purchases | 293,141 |
| Total | $2,308,778 |

TABLE IV

**Level III: Short Term Economic Impact on the Taxation Area**

| | |
|---|---|
| Real Estate Taxes Paid | $ 5,110 |
| Public School Funding | 45,561 |
| Local Utilities | 19,879 |
| Local Business Volume Generated Because of the College | $1,951,752 |

TABLE V

**Additional Economic Issues**

| | |
|---|---|
| Local Jobs Attributable to the Presence of NMSU-Grants | 116 |
| Personal Income of Local Individuals Resulting from the Presence of NMSU-Grants | $1,300,213 |
| Local Student Income Related to NMSU-Grants | $ 679,450 |
| Direct Charitable Contributions | $ 14,275 |
| Direct Contributions of Time | 2429 hrs |

Based on these figures, for every dollar of Mill Levy paid to support the college by local residents:

| | | |
|---|---|---|
| * | The District receives from outside sources | $26.56 |
| * | Money is spent by college (salaries, purchases) | $24.71 |
| * | Money paid directly to students | $ 7.12 |
| * | Local Business volume generated | $20.89 |
| * | Personal income of local individuals | $13.92 |

Attachment 1

New Mexico State University at Grants

Economic Impact of the College

on the

Cibola County Service Area

1993-94

LIST OF VARIABLES

# NMSU-GRANTS ECONOMIC IMPACT STUDY

| | |
|---|---|
| 1.Funds Received by NMSU-Grants | $2,895,592 |
| 1 = 1A + 1B + 1C | |
| | |
| Funds Received by NMSU-Grants from within its Taxation Area | 414,316 |
| 1A = 1A1 + 1A2 + 1A3 + 1A4 + 1A5 | |
| | |
| 1A1. In District Tuition And Fees | 205,861 |
| 1A1 = TTF x (TDS/TNS) | |
| | |
| | |
| 1A2. Operational Mill levy | 93,439 |
| | |
| 1A3. In District Institutional Grants | |
| | |
| 1A4. In District Non-Capitol Gifts | |
| | |
| 1A5. Funds Received through the Bookstore | 115,016 |
| | |
| 1B. Funds Received by NMSU-Grants from Sources Outside the Taxation Area | 1,816,236 |
| | |
| 1B = 1B1 + 1B2 + 1B3 + 1B4 + 1B5 + 1B6 | |
| | |
| 1B1. Out - of - District Tuition and Fees | |
| 1B1 = TTF - 1A1 | 36,663 |
| | |
| 1B2. Out-of -District Institutional Grants | 207,128 |
| | |
| 1B3. OuT - of - District Gifts | |
| | |
| 1B4. State Appropriations | 1,471,000 |
| | |
| 1B5. Elderhostel | 133,493 |
| | |
| 1B6. GED Testing Fees | 17,952 |
| | |
| | |

| | |
|---|---|
| 1C. Throughput Funds Received by Students Who Reside Within The Taxation Area | 665,040 |
| 1C = 1C1 + 1C2 + 1C3 + 1C4 + 1C5 | |
| | |
| 1C. Scholarships | 30,396 |
| | |
| 1C2. Veterans Administration Payments | 29,343 |
| | |
| VAA Chapter 34 | |
| VAB Chapter 32 | 5775 |
| VAC Chapter 30 | 21,840 |
| VAD Chapter 106 | 1728 |
| VAE Chapter 31 | |
| VAF Chapter 35 | |
| | |
| | |
| 1C3. Student Grants | 515,471 |
| | |
| 1C4. Student Loans | 89,540 |
| | |
| 1C5. Work Study Income | 10,289 |
| | |
| 1C5 = IDW x .7 | |
| | |
| | |
| Level 11 Funds expended within the Taxation Area because of the presence of NMSU-Grants | 2,308,778 |
| | |
| | |
| 11A. Salaries Paid to Faculty and Staff who reside within the Taxation Area and Throughput Funds | 2,015,637 |
| | |
| 11A = (GCF + 1C + WSR) | |
| | |
| 11B. NMSU-Grants Expenditures within the Taxation Area | 293,141 |
| | |
| | |
| | |

| | |
|---|---|
| Level 111. Short-Term Economic impact on the Taxation Area Because of the Presence of NMSU - Grants | 2,962,817 |
| | |
| 111A. NMSU-Grants Related Revenues Received by the Local Government | -113,048 |
| 111A = 111A1 + 111A2 + 111A3 + 111A4 + 111A5 - 111A6 - 111A7 - 111A8 | |
| 111A1. Real Estate Taxes paid by Full-Time Faculty and Staff to Local Government | 5,110 |
| 111A2. Public School Funding Attributable to the Presence of the Community College | 45,561 |
| 111A2 = SAS x (CCP/TSP) | |
| 111A3. Money Paid to Local Government-Owned Utilities | 19,879 |
| 111A3 = UPC + UPS | |
| 111A4. Gross Receipts Taxes Received by the Taxation Area Attaributable to the Presence of NMSU=Grants. | 54,903 |
| 111A4 = PRG x [(11B x ZPM) + (111C2 x Mi) + (111C3 x Mi)] | |
| 111A5. Proportion of Gasoline and Cigarette Taxes Received by the Taxation Area Attributable to the Presence of NMSU-Grants | 2436 |
| 111A5 = TAT x (CCH/TAH) | |
| 111A6. Real Estaate Taxes Foregone Because of the Presence of NMSU-Grants | |
| 111A6 = EVL x LML | |
| 111A7. Costs of Local Government-Provided Services Attributable to the Presence of NMSU-Grants. | -172,534 |
| 111A7 = LBG x (TPH/TRP) | |

| | |
|---|---|
| 111A8. Costs of Local Public Schools Attributable to the Presnece of NMSU-Grants | -68,403 |
| 111A8 = LOB x (CCP/TSP) | |
| | |
| 111B. NMSU-Grants Related Economic Impact on Local Business | |
| | |
| 111B1. NMSU - Grants Related Local Business Volume | 1,951,752 |
| | |
| 111B1 = 111B1a. + 111B1b. + 111B1c. | |
| | |
| 111B1a. NMSU-Grants Related Local Expenditures | 897,437 |
| | |
| 111B1a. = 111B1a.1 + 111B1a2 + 111B1a.3 | |
| | |
| 111B1a.1 = NMSU Expenditures within the Taxation Area = 111B1a.3 | 293,141 |
| | |
| 111B1a.2 Local expenditures by Faculty and Staff | 380,293 |
| | |
| 111B1a.2 = (NLR x ARL) + NLE x NEE ) + (EOT x LNE) +EEU | |
| | |
| 111B1a.3 Local annual expenditures by Non-Local Students during trips to NMSU-Grants | 43,524 |
| | |
| | |
| 111B1b. Purchases from Local Sources by Local Businesses in Support of NMSU-Grants Related Business Volume Resulting From Out-of-District Funding | 739,901 |
| | |
| 111B1b. = Mp x PIT x 111B1a. | |
| | |
| | |
| 111B1c. Local Business Volume Stimulated by the Expenditure of NMSU-Grants related Income by Local Individuals other than Faculty, Staff or Students resulting from Out-of-District Funding | 918,710 |
| | |
| 111B1c = Mi x PIT x 111B1a. | |
| | |
| | |

| | |
|---|---|
| 111B2 Expansion of Local Banks' Credit Base Attributable to NMSU-Grants Related Deposits | 274,917 |
| 111B2 = ( 1 - t ) [ TDC + ( TDF ) ( TFS )] | |
| ( 1 - t ) [DDC + ( DDF ) ( TFS ) + ( CBV ) (111B1)] | |
| 111B3 Local Business Volume Unrealized because of the operation of NMSU-Grants | |
| 111C1 Local Jobs Attributable to the Presence of NMSU-Grants | 116.05 |
| 111C1 = [ (11B + OGC ) x JPD ] + FEJ | |
| 111C2 Personal Income of Local Individuals Resulting from NMSU-Grants Related Employment and Business Activities | 1,300,213 |
| 111C2 = ( PSL x NCS ) + ( PPD x 11B ) | |
| 111C3 Local Student Income Related to NMSU | 679,450 |
| 111C3 =1C1 + 1C2 + 1C3 + 1C4 + TWI | |
| 111C4. Contributions to Local Charities Attributable to NMSU-Grants | 17,175 |
| CCC = Cash contributions by Full-time NMSU-Grants Employees | 14,275 |
| GCC = Contributions of Goods and Services by Full-time NMSU-Grants Employees to Local Charities | 2900 |
| COT = Contributions of time by Full-time NMSU-Grants Employees to Local Charities | 2429 hrs |

Attachment 2

# DEFINITION OF MEASURES

Source: Leas, D.E. (1987). A Model for Evaluating the Short-Term Economic Impact of a New Mexico Community College on its Community. Dissertation, New Mexico State University. Appendix A, Definition of Measures.

# APPENDIX A

## DEFINITION OF MEASURES

### Introduction

The model used in this study for evaluating the short-term economic impact of a New Mexico community college on its taxation area contains some elements which were synthesized from the literature and some original elements. Specific definitions for various measures were in many cases based on the literature. In order to develop uniformity of style, however, all measure definitions were converted to a common style of notation. Definitions for each of the measures used in the study and research sources are contained in this appendix.

Level I measures specify sources of funds received by the community college. Level II measures comprise a gross estimate of funds expended by or because of the institution within the taxation area. Level III measures identify specific areas and amounts of economic impact on local government, local businesses, and local individuals and charities. The amount of each measure is calculated on the basis of one year. In the present study, the period of calculation was fiscal year 1987.

## Measures Used in This Study

### Level I: Funds Received by the Community College

This level of evaluation totals the monies received over a one-year period by the community college or received by students as a result of their enrollment at the institution. Included are funds received from the taxation area and from outside the taxation area, as well as throughput funds.

$$I = IA + IB + IC$$

IA. Funds Received by the Community College from within its Taxation Area.

Some of the funds received by a community college are attracted from sources within the taxation area. The sum of these funds can be calculated using the definitions below.

$$IA = IA1 + IA2 + IA3 + IA4$$

IA1. In-District Tuition and Fees. Included here are those tuitions and fees collected from students who reside within the taxation area. This figure is calculated as follows:

$$IA1 = TTF \times TDS \div TNS$$

TTF = Total tuition and fees

TDS = Number of students living within the district

TNS = Total number of students registered over a one-year period

IA2. Operational Mill Levy. This amount is paid by the citizens of the taxation area to the community college and becomes part of the institution's operating budget. This figure is obtained directly from the institution's finance officer.

IA3. In-District Institutional Grants. If the community college receives any institutional grants from sources within the taxation area, they would be counted here. Amounts of any such grants can be provided by the finance officer.

IA4. In-District Non-Capital Gifts. Any gifts given to the institution by persons or organizations within the taxation area would be included in this variable. The finance officer will be able to supply this figure.

IB. Funds Received by the Community College from Sources Outside the Taxation Area.

The total of funds received by the community from sources outside the taxation area can be calculated using the formula below.

IB = IB1 + IB2 + IB3 + IB4

IB1. Out-of-District Tuition and Fees. This portion of tuition and fees was paid to the institution by students residing outside its taxation area. The figure is calculated as follows:

IB1 = TTF - IA1

TTF = Total tuition and fees paid into the community college over a one-year period

IA1 = Variable IA1

32 Out-of-District Institutional Grants. Grant monies received in this category will have been provided by sources located outside the taxation area. These would include federal and state grants as well as grants from private donors and corporations. The finance officer will be able to supply the total of such grants.

IB3. Out-of-District Gifts. Any gifts given to the institution by persons or organizations residing outside the taxation area would be included in this category. The institution's finance officer should be able to provide this figure.

IB4. State Appropriations. Each two-year institution in the state of New Mexico receives annually a state appropriation based on FTE, and calculated according to

IB5. Elderhostel

IB6. GED Testing

+ Any other areas of fees.

the laws governing that particular institution. This figure is readily available from the finance officer for the fiscal year under consideration.

IC. Throughput Funds Received by Students Who Reside Within the Taxation Area.

Throughput funds are funds which are received by students because of their affiliation with the community college but which technically do not pass through the community college. Throughput funds may be calculated as follows:

$$IC = IC1 + IC2 + IC3 + IC4 + IC5$$

IC1. Scholarships. All student scholarship monies received during the year by students of the institution who reside within the taxation area are included in this variable. Scholarship money which qualifies as throughput funds must originate outside the taxation area. The total of these scholarship monies can be provided by the institution's student aid officer.

IC2. Veterans Administration Payments. Many veterans are eligible to receive VA funds because of their attendance at the community college. The amount of VA payments can be provided by the institution's financial

aid officer. Payments to veterans who reside within the taxation area may be calculated according to the following formula:

VAA = Chapter 34 GI Bill funds

VAB = Chapter 32 Veterans Education Assistance Program (VEAP) funds

VAC = Chapter 30 New GI Bill funds

VAD = Chapter 106 Selective Reserve Education Assistance Program funds

VAE = Chapter 31 Disabled Veterans Program funds

VAF = Chapter 35 Spouse and/or Child of Disabled or Deceased Veteran funds

IC3. Student Grants. Many students who reside within the taxation area receive Pell grants and other grants because of their attendance at the community college. These grants represent income to the individuals involved. Only amounts received by students who reside within the taxation area will be counted. The amounts of such grants can be obtained from the financial aid officer.

IC4. Student Loans. Strictly speaking, student loans are not income. From the standpoint of the recipient, however, student loan funds represent

disposable income. Repayment occurs at a much later date. For the purposes of this study, student loans will be included as income. The aggregate amount of student loans is easily supplied by the institution's financial aid officer. Only loans originating outside the taxation area are counted in this measure.

IC5. Work-Study Income. Students earning work-study income are paid in part from institutional funds and in part from federal or state funds. The total of such funds may be supplied by the student aid officer. Work-study income which qualifies as throughput funds is calculated according to the following formula:

IC5 = IDW X .7

IDW = Work-study income received over a one-year period by students of the community college who reside within the district

.7 = Percent of work-study income supplied by outside sources

Level II: Funds Expended Within the Taxation Area Because of the Presence of the Community College.

This level of fund evaluation measures monies spent directly by the community college and its employees to recipients within the taxation area over a one-year

period. This measure is limited in that it does not include funds received indirectly by the taxation area from non institutional sources. (See Figure 9.) This level of measurement does, however, provide an indication of the direct impact of the community college on the taxation area, and may therefore be of some interest. Two measures are included: salaries of full-time and part-time faculty and staff who live within the taxation area, and total institutional expenditures within the taxation area.

IIA. Salaries Paid to Faculty and Staff Who Reside Within the Taxation Area and Throughput Funds.

Community colleges provide jobs for people who reside within the local area. Salaries of faculty and staff are the bulk of the operational expenses of most community colleges. These salaries paid to faculty and staff who reside within the taxation area represent monies received by citizens of the district. Caffrey and Isaacs (1971) suggested the inclusion of gross compensation for this calculation. This figure is available from the institution's payroll officer.

IIA = GCF + GCP + IC + WSR

GCF = Gross annual compensation of in-district faculty and staff (full-time)

GCP = Gross annual compensation of in-district faculty and staff (part-time)

IC = Measure IC, throughput funds

WSR = Amount of work-study income paid by the community college

IIB. Community College Expenditures Within the Taxation Area.

Expenditures by the community college within the taxation area are a direct return of funds to the businesses within that area. As suggested by Wallhaus and Lach (1981), this information is obtained from the institution's business records. A random sample of purchase orders is used to estimate the total amount.

Level III: Short-Term Economic Impact on the Taxation Area Because of the Presence of the Community College.

Level III impact measures estimate the amount of short-term economic impact of the community college on specific areas within the community over a one-year period. General areas evaluated in this level include the impact on local government, on local business, and on local individuals and charities (Caffrey and Isaacs, 1971). Level III variables include those variables which are most often referred to in the literature.

IIIA. Community College-Related Revenues Received by the Local Government.

The community college has various economic impacts on the local government. The sum of these impacts can be calculated according to the following formula:

IIIA = IIIA1 + IIIA2 + IIIA3 + IIIA4 + IIIA5 - IIIA6 - IIIA7 - IIIA8

IIIA1. Real Estate Taxes Paid by Full-Time Faculty and Staff to Local Government. Only taxes paid by full-time faculty and staff during the year under investigation are included in this measure because only full-time employees can be assumed to be residing in the area because of their association with the institution. Part-time employees are assumed to be in a position to reside in the taxation area anyway; hence, their taxes are not included in this measure. The value of this variable is obtained from the survey of employees.

IIIA2. Public School Funding Attributable to the Presence of the Community College. In the state of New Mexico, public schools receive a major portion of their funds from the state on the basis of students registered in the system. Public schools thus receive funds for the children of full-time employees who are registered in the

school system. Caffrey and Isaacs (1971) suggested a formula for calculating this state aid.

IIIA2 = SAS X CCP - TSP

SAS = Total annual state and federal aid to local public schools

CCP = Number of children of community college full-time faculty and staff who are attending local public schools

TSP = Total number of students attending local schools

IIIA3. Money Paid to Local Government-Owned Utilities. Money paid to local government-owned utilities by the community college and by faculty and staff represents funds received by the local government. This figure may be calculated using the following formula:

IIIA3 = UPC + UPS

UPC = Utility payments by the community college to local government-owned utilities

UPS = Utility payments by the faculty and staff to local government-owned utilities

IIIA4. Gross Receipts Taxes Received by the Taxation Area Attributable to the Presence of the Community College. Merchants must pay gross receipts taxes on the

basis of sales. A portion of these taxes is returned to the local government from the state. The portion of the taxes attributable to the presence of the community college may be calculated as follows:

IIIA4 = PGR X [(IIB X ZPM) + (IIIC2 X Mi) + (IIIC3 X Mi)]

PGR = Percent of gross receipts tax returned to the political entity

IIB = Community college expenditures within the taxation area

ZPM = Secondary portion of local multiplier

IIIC2 = Personal income of local individuals resulting from college-related employment and business activities

Mi = Local multiplier representing the degree to which income received from local business activity is re-spent locally.

IIIC3 = Local student income related to the community colleg

IIIA5. Proportion of Gasoline and Cigarette Taxes Received by the Taxation Area Attributable to the Presence of the Community College. Since full-time employees of the community college re assumed to remain in the area because of their association with the institution, some portion of gasoline and cigarette taxes received by the taxation area can be assumed to be as a result of their presence as citizens in the community. This figure may be calculated as follows:

IIIA5 = TAT X CCH ÷ TAH

TAT = Total amount of gasoline and sales taxes returned to the county during the year

CCH = Households attributable to the community college (full-time employees less households with two community college full-time employees)

TAH = Total number of taxation area households

IIIA6. Real Estate Taxes Foregone Because of the Presence of the Community College. The community college sits on non-taxable land. If the community college did not exist, this land would provide taxes for the government of the taxation area. The value of those taxes may be estimated as follows:

IIIA6 = EVL X LML

EVL = Estimated taxable value of land owned by the community college

LML = Local mill levy

IIIA7. Costs of Local Government-Provided Services Attributable to the Presence of the Community College. The local government must provide services to institutional employees and their families. The cost of these services represents a negative factor in estimating

short-term economic impact. Lucas (1982) suggested a formula for calculating this effect.

IIIA7 = LGB X TPH ÷ TRP

LGB = Local government operating budget for all municipal services

TPH = Total number of persons in local community college employee homes

TRP = Total local resident population

IIIA8. Costs of Local Public Schools Attributable to the Presence of the Community College. While the local public schools receive funding for children of community college employees who are registered in the school system, they must also spend for the education of these children. These expenses represent a cost to the community because of the presence of the community college. A formula for calculating this value is suggested by Lucas (1982).

IIIA8 = LOB X CCP ÷ TSP

LOB = Operating budget for public schools in local district(s)

CCP = Number of children of full-time community college employees who are attending school in the local district(s)

TSP = Total number of students attending local public schools

## IIIB. College-Related Economic Impact on Local Business.

The community college affects local business in a variety of ways. Because of the differing nature of these effects, it may not be appropriate to develop a summative measure; each measure might be considered individually.

### IIIB1. College-Related Local Business Volume.

Expenditures by the institution and by employees of the institution have an economic impact on local businesses. The Caffrey and Isaacs (1971) model developed the following equation for this variable:

IIIB1 = IIIB1a + IIIB1b + IIIB1c

IIIB1a = College-related local expenditures

IIIB1b = Purchases from local sources by local businesses in support of community college-related business

IIIB1c = Local business volume stimulated by the expenditure of community college-related income by local individuals other than full-time in-district faculty and staff

IIIB1a. College-Related Local Expenditures. College-related local expenditures are the sum of local expenditures by the college, local expenditures by faculty

and staff, and local expenditures by non-local students (Caffrey and Isaacs, 1971).

IIIB1a = IIIB1a.1 + IIIB1a.2 + IIIB1a.3

IIIB1a.1 = Community college expenditures within the taxation area = measure IIB

IIIB1a.2 = Local expenditures by faculty and staff

IIIB1a.2 = (NLR X ARL) + (NLE X NEE) + (EOT X LNE) + EEU

NLR = Number of faculty and staff who reside in local taxation area and who rent housing

ARL = Average rental within the taxation area

NLE = Number of faculty and staff who reside in local taxation area

NEE = Average annual non housing expenditures by local faculty and staff

EOT = Number of faculty and staff who do not reside in local taxation area

LNE = Local annual expenditures by non local faculty and staff

EEU = Annual expenditures by employees for local non government utilities

IIIB1a.3 = Local annual expenditures by non local students during trips to the campus

IIIB1b. Purchases from Local Sources by Local Businesses in Support of their Community College-Related Business Volume Resulting from Out-of-District Funding. As indicated by Caffrey and Isaacs (1971), these purchases represent additional local business activity resulting from initial purchases by the institution, by some faculty and staff, and by some students. The formula suggested by Caffrey and Isaacs (1971) is as follows:

IIIB1b = Mp X PIT X IIIB1a

Mp = Local multiplier representing the degree of purchase of local goods and services. (1.2 recommended for NMSU-A)

PIT = Proportion of out-of-district funds received by the community college to total funds received by the community college = (IB + IC) - (IA + IB + IC)

IIIB1a = College-related local expenditures

IIIB1c. Local Business Volume Stimulated by the Expenditure of Community College-Related Income by Local Individuals other than Faculty, Staff or Students Resulting from Out-of-District Funding. This Caffrey and Isaacs (1971) model estimated the indirect effects of community college-related business activity within the taxation area for that portion of expenditures which is translated into local wages and salaries.

Generally, this multiplier (Mi) is higher than Mp. On the basis of a study published by the Cos Branch, 833rd Comptroller Division, the figure of 1.49 was used for Mi in the present study. A formula for calculating this variable was suggested by Linthicum (1978).

IIIB1c = Mi X PIT X IIIB1a

Mi = Local multiplier representing the degree to which individual income received from local business activity is re-spent locally.

PIT = Proportion of out-of-district funds received by the community college to total funds received by the community college

IIIB1a = College-related local expenditures

IIIB2. Expansion of Local Banks' Credit Base Attributable to Community College-Related Deposits. A secondary effect of the economic activity of the community college and its employees is the fact that the credit base of local banks is expanded by institutional and individual deposits. As Caffrey and Isaacs (1971) noted, this is a very imprecise figure. It is possible, however, using the Caffrey and Isaacs model, to estimate this effect. The present version of the Caffrey and Isaacs model for this variable was suggested by Lucas (1982).

$$IIIB2 = (1 - t)\,[TDC + (TDF)(TFS)] + (1 - d)\,[DDC + (DDF)(TFS) + (CBV)(IIIB1)]$$

t = Local time deposit reserve requirement

1-t = Percent of time deposits which can be loaned out

TDC = Average time deposit by community college in local banks

TDF = Average time deposit by each faculty or staff family in local bank

TFS = Total number of full-time faculty and staff

d = Local demand-deposit reserve requirement

1-d = Percent of demand deposits which can be loaned out

DDC = Average demand deposit of the community college in local banks

DDF = Average demand deposit of each community college staff person in local banks

CBV = Cash-to-business-volume ratio (.037 suggested by Caffrey and Isaacs)

IIIB1 = College-related local business volume

IIIB3. Local Business Volume Unrealized Because of the Operation of the Community College. Sometimes when a community college sells goods or services to students, employees, or the public, local businesses are denied the

opportunity to make those sales. Since bookstores generally sell items related to classes, such sales are not considered to be denied to local businesses. Typically, only non-vending food services would be included in this category. This variable was sometimes excluded entirely in models described in the literature. The value of this measure can be obtained from the proprietor of the on-campus enterprise.

IIIC. College-Related Effects on Local Individuals and Charities.

The community college affects the economic lives of individuals and charities within the taxation area. As with business activities, these measures are not additive and must be considered individually.

IIIC1. Local Jobs Attributable to the Presence of the Community College. Spending in the taxation area by the community college generates economic activity which, in turn, produces additional employment. The total number of jobs in a community attributable to the presence of a community college may be calculated using a formula suggested by Wallhaus and Lach (1981).

$$IIIC1 = [(IIB + OGC) \times JPD] + FEJ$$

IIB = Community college expenditures within the taxation area

OGC = Operating cost of government-provided municipal and public school services attributable to the presence of the community college

JPD = Full-time jobs per dollar of direct local expenditures

FEJ = Full-time equivalent jobs of community college staff

IIIC2. Personal Income of Local Individuals Resulting from Community College-Related Employment and Business Activities. As a result of spending by the college, citizens of the taxation area receive certain income. One process for calculating this income was suggested by Lucas (1982). Lucas also noted that this data was difficult to obtain and that this variable was sometimes omitted.

IIIC2 = (PSL X NCS) + (PPD X IIB)

PSL = Percentage of faculty and staff residing locally

NCS = Net compensation of faculty and staff

PPD = Payrolls and profits per dollar of local expenditures

IIB = Community college expenditures within the taxation area

IIIC3. Local Student Income Related to the Community College. Many local community college students receive income as a result of their attending a community college. Much of this income is spent in the local community and represents a flow of funds into the community. These funds include the following elements:

IIIC3 = IC1 + IC2 + IC3 + IC4 + TWI

IC1 = Scholarships

IC2 = Veterans Administration payments

IC3 = Student grants

IC4 = Student loans

TWI = Total work-study income

IIIC4. Contributions to Local Charities Attributable to the Community College. The faculty and staff of the community college donate money, time, and goods to local charities. These contributions are a valuable addition to the ability of charities to function and to the community

as a whole. The value of these contributions is obtained from the faculty and staff survey.

CCC = Cash contributions by full-time community college employees to local charities

GCC = Contributions of goods and services by full-time community college employees to local charities

COT = Contributions of time by full-time community college employees to local charities