

Economic Impacts for the University of New Mexico Small Business Institute at Anderson

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Introduction

MRCOG was contacted by the University of New Mexico Small Business Institute (SBI) to analyze the economic impact associated with jobs created through its programs. Jobs were created in twelve industry sectors and subsectors at local businesses in New Mexico. Job creation was the result of SBI consulting services provided by MBA students from the Anderson School of Management. Consulting services are provided for \$500 per project and MBA students gain consulting experience and earn credit for a strategic management capstone project. Clients also have the support of PhD faculty at the Anderson School. MRCOG used the PI+ economic model to quantify the economic benefits of SBI in the Mid-Region and the balance of the state. The results of the PI+ model are presented in this report.

Methodology

The economic impact of SBI was evaluated for two regions: the Mid-Region of New Mexico and the balance of the state. The Mid-Region modeled within PI+ includes the City of Albuquerque, the rest of Bernalillo County, Rio Rancho, the rest of Sandoval County, Torrance County, Valencia County, and southern Santa Fe County. All other locations outside of the region are classified as the rest of New Mexico. The demographic and employment data internal to the PI+ model are calibrated annually to the region and state. In the model, the most recent history year is 2013, and the future years are 2014 and 2015. Regional employment changes for 2014 and 2015 are incorporated into the analysis to show the economic impact of SBI services. Model inputs were provided by SBI, which included new jobs in twelve North American Industry Classification System (NAICS) industry sectors and subsectors. Some sectors, including manufacturing, and professional, scientific, and technical services, were assumed to include firms that market their goods or services locally, nationally, or internationally. Other sectors, including services, were assumed to have firms that compete locally and are subject to job displacement, which occurs when workers move between firms. For a more in-depth methodology regarding model functionality and the economic assumptions that are used to produce PI+ model results, please refer to Appendix A.

Results–Summary

An economic impact analysis was conducted for the period from 2014 to 2015. The results are shown in Table 1, including the estimated annual impacts of job creation in the Mid-Region and the rest of New Mexico. The model incorporates data from the Bureau of Economic Analysis (BEA) employment series for states and local areas, which provides estimates of the number of full-time and part-time jobs, by place of work. Full-time and part-time jobs are counted at equal weight. All employment figures are rounded to the nearest one employee, and regional totals may not sum to statewide totals. SBI services made a significant impact on the economy of the region and the balance of the state. Per employment data provided by SBI, local businesses created 80 direct jobs in New Mexico in 2014 as a result of SBI’s assistance, and those jobs carried over into 2015. A total of 60 new direct jobs were created in 2015, for a total of 140 jobs in 2015 in the state.

Table 1. UNM SBI Economic Impact	Mid-Region of New Mexico		Rest of New Mexico		New Mexico Total	
	2014	2015	2014	2015	2014	2015
Direct Employment	74	88	6	52	80	140
Total Employment	90	115	7	81	97	195
Indirect Employment	16	27	1	29	17	55
Population	4	10	1	19	5	30
Gross Domestic Product (\$ Million)	\$ 5.99	\$ 8.27	\$ 0.91	\$ 5.78	\$ 6.90	\$ 14.05
Output (\$ Million)	\$ 8.89	\$ 12.25	\$ 2.41	\$ 10.48	\$ 11.30	\$ 22.73
Personal Income (\$ Million)	\$ 3.04	\$ 4.37	\$ 0.31	\$ 3.90	\$ 3.35	\$ 8.28

Note: Current dollar values are presented.

The overall impact has been positive, resulting in substantial indirect employment gains. The model indicates that additional indirect employment generated by SBI was 16 in 2014 and 27 in 2015 in the Mid-Region. Direct employment in Santa Fe County is outside of the region and was allocated to the rest of New Mexico. SBI can be credited with 17 indirect jobs created in 2014, and 55 in 2015 in the state. Job displacement between firms occurred due to local competition, especially in the service industry sectors, when the creation of new jobs resulted in the elimination of other existing jobs. PI+ also calculates the impact of new economic opportunities on the demographic profile of the community and the state. New employment generated a population increase in New Mexico of five in 2014 and 30 in 2015.

All financial variables are measured in current (nominal) dollars, which means dollar values are not adjusted for inflation. Dollar values for the Mid-Region and the rest of the New Mexico may not sum exactly to statewide totals due to rounding. Personal Income is defined as the income that is received by all residents from all sources, which includes wages and salaries, rental income, personal dividend income, personal interest income, and personal current transfer receipts, less contributions for government social insurance. Personal income increased in both years in the region and the state, which indicates that additional employee earnings were a result of new opportunities that would have otherwise been absent in the local economy. SBI contributed a boost of \$3.35 million in personal income in 2014 and \$8.28 million in 2015 in New Mexico.

Finally, SBI had an impact on the overall market value of goods and services in the local and state economies, which is measured by the Gross Domestic Product (GDP). PI+ indicates that SBI generated

\$5.99 million in 2014 and \$8.27 million in 2015 in additional GDP in the Mid-Region. By comparison, the total GDP in the Albuquerque MSA (Mid-Region without the Santa Fe County portion) was \$42.05 billion in 2014, according to BEA data. Overall, SBI generated \$6.90 million in 2014 and \$14.05 million in 2015 in additional GDP in New Mexico. The total state GDP was \$91.89 billion in 2014.

Results–Employment by Industry Sector

The total employment changes in New Mexico as a result of SBI’s services segmented by industry sector are summarized in Table 2. All figures are rounded to the nearest one employee and sector totals may not sum exactly to statewide totals. The state and local government industry sector experienced a direct employment increase of 44 in 2015. The high concentration of direct jobs in this sector resulted in the largest total (direct and indirect) employment impact of any sector, at 57 jobs in 2015.

The educational services sector added a total of 36 new jobs in 2014 and 37 in 2015. The model indicates that job displacement occurred due to normal local competition between firms. For example, if one school opened, another school may have experienced lower enrollment and responded by reducing jobs. The employment multiplier in the construction sector is high because it is dependent on business activity in other sectors. There were no direct jobs created in construction, but indirect employment in the sector increased by six in 2014 and 14 in 2015. Indirect spending activity resulted in an increase of jobs in the retail trade sector, which was generated by activity in other sectors. For example, new people and workers in the region and state spent money on food, housing, and transportation. A similar effect resulted in an indirect impact in the health care and social assistance sector, and the arts, entertainment, and recreation sector.

	2014	2015
State and Local Government	4	57
Educational Services	36	37
Arts, Entertainment, and Recreation	13	16
Construction	6	14
Retail Trade	5	11
Health Care and Social Assistance	6	10
Professional, Scientific, and Technical Services	3	8
Other Services, except Public Administration	3	7
Real Estate and Rental and Leasing	5	7
Administrative and Waste Management Services	4	6
Accommodation and Food Services	2	5
Manufacturing	3	5
Finance and Insurance	3	5
Wholesale Trade	1	2
Transportation and Warehousing	1	2
Mining	1	1
Information	1	1
Management of Companies and Enterprises	1	1
Utilities	0	0
Forestry, Fishing, and Related Activities	0	0

Appendix A: Overview of REMI Policy Insight +

MRCOG purchased PI+ from Regional Economic Models, Inc. (REMI) in 1999 for the purpose of developing long range employment forecasts and as a planning tool to assist member governments and clients with economic development efforts. The PI+ model was developed to improve the quality of research-based decision making in the areas of economic development and policies affecting the local economy. In short, the model is designed to assess local economic impacts of policy initiatives, business activity, and capital investments.

PI+ is designed as an economic model and not a land use model. Therefore it does not restrict or limit growth in a physical sense, or quantify the increase in demand on infrastructure, public services, or natural resources that should occur due to employment and population growth. These factors are to be considered outside of the PI+ model by the decision-makers evaluating each project.

REMI PI+ is a structural economic forecasting and policy analysis model. It integrates input-output, computable general equilibrium, econometric and economic geography methodologies. The model is dynamic, with forecasts and simulations generated on an annual basis and behavioral responses to wage, price, and other economic factors.

The PI+ model consists of thousands of simultaneous equations with a structure that is relatively straightforward. The exact number of equations used varies depending on the extent of industry, demographic, demand, and other detail in the model. The overall structure of the model can be summarized in five major blocks: (1) Output and Demand, (2) Labor and Capital Demand, (3) Population and Labor Supply, (4) Wages, Prices and Costs, and (5) Market Shares. The blocks and their key interactions are shown in Figures 1 and 2.

REMI Model Linkages (Excluding Economic Geography Linkages)

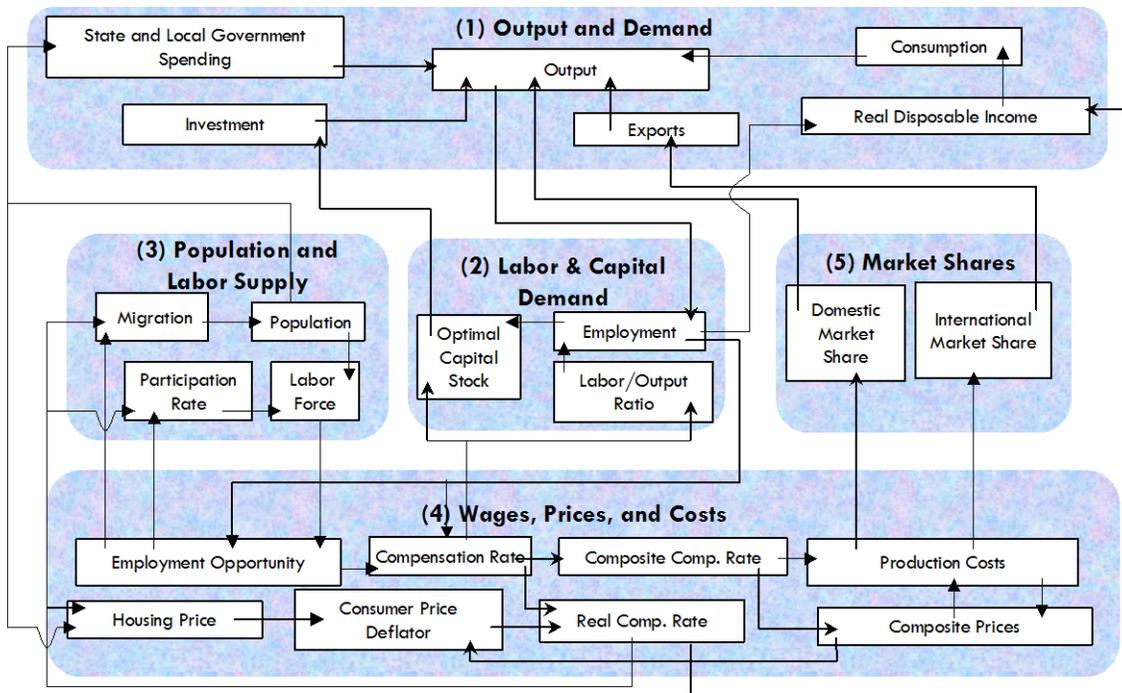


Figure 1

Block 1. Output and Demand

This block includes output, demand, consumption, investment, government spending, import, product access, and export concepts. Output for each industry in New Mexico is determined by industry demand in the state and its trade with the US market, and international imports and exports.

For each industry, demand is determined by the amount of output, consumption, investment, and capital demand on that industry. Consumption depends on real disposable income per capita, relative prices, differential income elasticities and population. Input productivity depends on access to inputs because the larger the choice set of inputs, the more likely that the input with the specific characteristics required for the job will be formed. In the capital stock adjustment process, investment occurs to fill the difference between optimal and actual capital stock for residential, non-residential, and equipment investment. Government spending changes are determined by changes in the population.

Block 2. Labor and Capital Demand

The Labor and Capital Demand block includes the determination of labor productivity, labor intensity and the optimal capital stocks. Industry-specific labor productivity depends on the availability of workers with

differentiated skills for the occupations used in each industry. The occupational labor supply and commuting costs determine firms' access to a specialized labor force.

Labor intensity is determined by the cost of labor relative to the other factor inputs, capital and fuel. Demand for capital is driven by the optimal capital stock equation for both non-residential capital and equipment. Optimal capital stock for each industry depends on the relative cost of labor and capital, and the employment weighted by capital use for each industry. Employment in private industries is determined by the value added and employment per unit of value added in each industry.

Block 3. Population and Labor Supply

The Population and Labor Supply block includes detailed demographic information about the region. Population data is given for age and gender, with birth and survival rates for each group. The size and labor force participation rate of each group determines the labor supply. These participation rates respond to changes in employment relative to the potential labor force and to changes in the real after tax compensation rate. Migration includes retirement, military, international and economic migration. Economic migration is determined by the relative real after tax compensation rate, relative employment opportunity and consumer access to variety.

Block 4. Wages, Prices and Costs

This block includes delivered prices, production costs, equipment cost, the consumption deflator, consumer prices, the price of housing, and the wage equation. Economic geography concepts account for the productivity and price effects of access to specialized labor, goods and services. These prices measure the price of the industry output, taking into account the access to production locations. This access is important due to the specialization of production that takes place within each industry, and because transportation and transaction costs of distance are significant. Composite prices for each industry are then calculated based on the production costs of supplying regions, the effective distance to these regions, and the index of access to the variety of output in the industry relative to the access by other uses of the product.

The cost of production for each industry is determined by cost of labor, capital, fuel and intermediate inputs. Labor costs reflect a productivity adjustment to account for access to specialized labor, as well as underlying compensation rates. Capital costs include costs of non-residential structures and equipment, while fuel costs incorporate electricity, natural gas and residual fuels.

The consumption deflator converts industry prices to prices for consumption commodities. For potential migrants, the consumer price is additionally calculated to include housing prices. Housing price changes from their initial level depend on changes in income and population density.

Compensation changes are due to changes in labor demand and supply conditions and changes in the national compensation rate. Changes in employment opportunities relative to the labor force and occupational demand change determine compensation rates by industry.

Block 5. Market Shares

The Market Shares equations measure the proportion of local and export markets that are captured by each industry. These depend on relative production costs, the estimated price elasticity of demand, and effective distance between the home region and each of the other regions. The change in share of a specific area in any region depends on changes in its delivered price and the quantity it produces compared with the same factors for competitors in that market. The share of local and external markets then drives the exports from and imports to the home economy.

Economic Geography Linkages

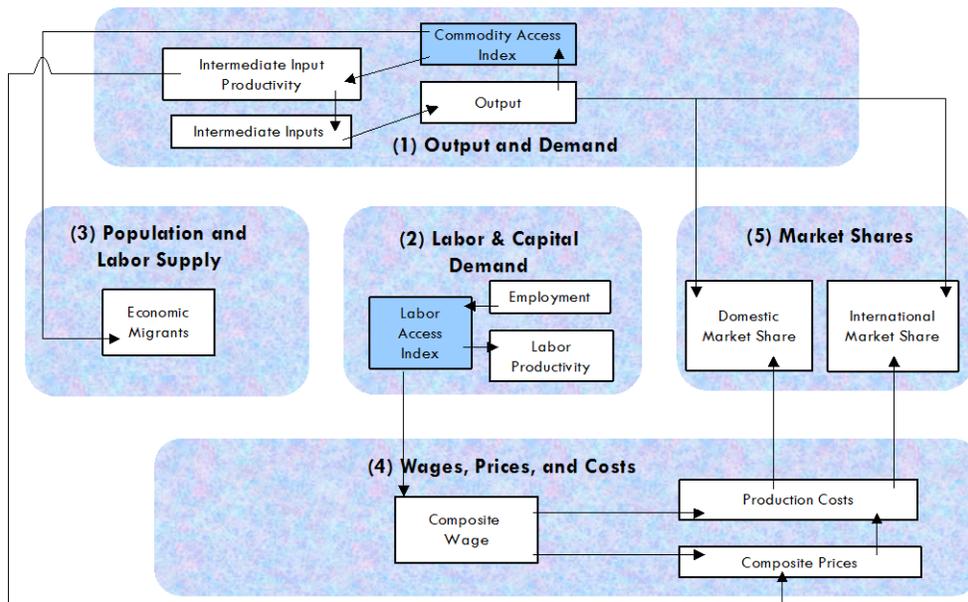


Figure 2

As shown in Figure 2, the Labor and Capital Demand block includes labor intensity and productivity as well as demand for labor and capital. Labor force participation rate and migration equations are in the Population and Labor Supply block. The Wages, Prices, and Costs block includes composite prices, determinants of production costs, the consumption price deflator, housing prices, and the wage equations. The proportion of local, inter-regional and export markets captured by each region is included in the Market Shares block.