Economic Development Report

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Agriculture accounts for 96% of total private land use in Gunnison County

Mining decreased to 6%, farming dropped to 1%, while "services" increased to 40% of county employment by 2003

On $26.7 million in export sales, the cattle industry had a combined impact of more than $46 million and 360 jobs in 2003.

Mining generates the greatest revenues, best paying jobs and tax base for the county.

Tourism is responsible for the most jobs in the economy and is very close to mining in total sales significance.

Economic Impact of the Livestock Industry in Gunnison County, Colorado

Omer Tadjion and Andy Seidl [1]

Introduction

Cattle ranches and agricultural activities related to the beef cattle industry have been the dominant private land use in Gunnison County for more than a century. The purpose of this report is to highlight the formal role of the livestock industry in the Gunnison County economy, by tracing the effect of beef cattle sales through the County economy. Using secondary governmental and nongovernmental data sources, we trace the direct, indirect and induced economic activity associated with the beef cattle industry within the broader context of the Gunnison County economy. This report does not, by any means, purport to provide a total economic valuation of ranches in Gunnison. A total economic valuation would include the effect of ranching on wildlife related activities and tourism visits to the county, for example.

Current Land Use

According to the U.S. Census Bureau, the Gunnison County encompasses 3,260 square miles. Some 85% of county lands are publicly held. Gunnison's public lands are managed by the Bureau of Land Management (355,350 acres), US Forest Service (1,220,035 acres), and the National Park Service manages the Black Canyon of the Gunnison National Park and the Curecanti National Recreation Area (40,000 acres). The remaining 15% of the land is held privately and is found primarily in low lying areas of the county (Gunnison County Chamber of Commerce, 2000). Practically all residential, commercial and industrial development within the county must take place on this small fraction of the total county acreage, although some forms of economic activity (e.g., mining, forestry, recreation) may be permitted across all types of county

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lands. Currently, agriculture accounts for some 96% of total private land use, implying that a very small proportion of the county is currently found in relatively high intensity or irreversible land uses (e.g., houses, stores, factories). However, like Colorado in general, the number of agricultural operations and the amount of land in agriculture are on a downward trend. From 1997 to 2002, the number of farms decreased by 7% and their average size decreased by 15%, implying some conversion of private lands to higher intensity uses (Colorado Agricultural Statistics Service, 2005).

County Employment Trends

The Gunnison County population has been growing steadily at about 2.6% per year, reaching an estimated 14,190 people in 2004, which ranks it at the median of Colorado's 64 counties. Based on U.S. Bureau of Economic Analysis (BEA) data, total full and part time employment in Gunnison County in 2003 was 11,368 up by 4,348 since 1990. Service, government, retail trade, construction, and insurance, finance and real estate, in decreasing order, employed the most people in Gunnison County in 2003 (Figure 1).

From 1990 to present, there have been significant changes in the relative role of different sectors in the employment profile of Gunnison County. In 1990, government comprised 28% of all jobs in the county, whereas, in 2003, government made up only 15% of employment. Mining decreased from 11% to 6% of all county jobs between 1990 and 2003. Farming dropped precipitously from 11% to 1% of total jobs, while "services" increased from 17% to 40% of county employment over the period (BEA).

Of all the employment sectors, the service sector is the most diverse in its composition, including professions as dissimilar as doctors, lawyers, and engineers to hotel workers, cleaners, and mechanics. In Gunnison County, the largest component of service is accommodation and food services (33%) and arts, entertainment and recreation (17%), which account for 50% of the county's service sector employment (BEA).

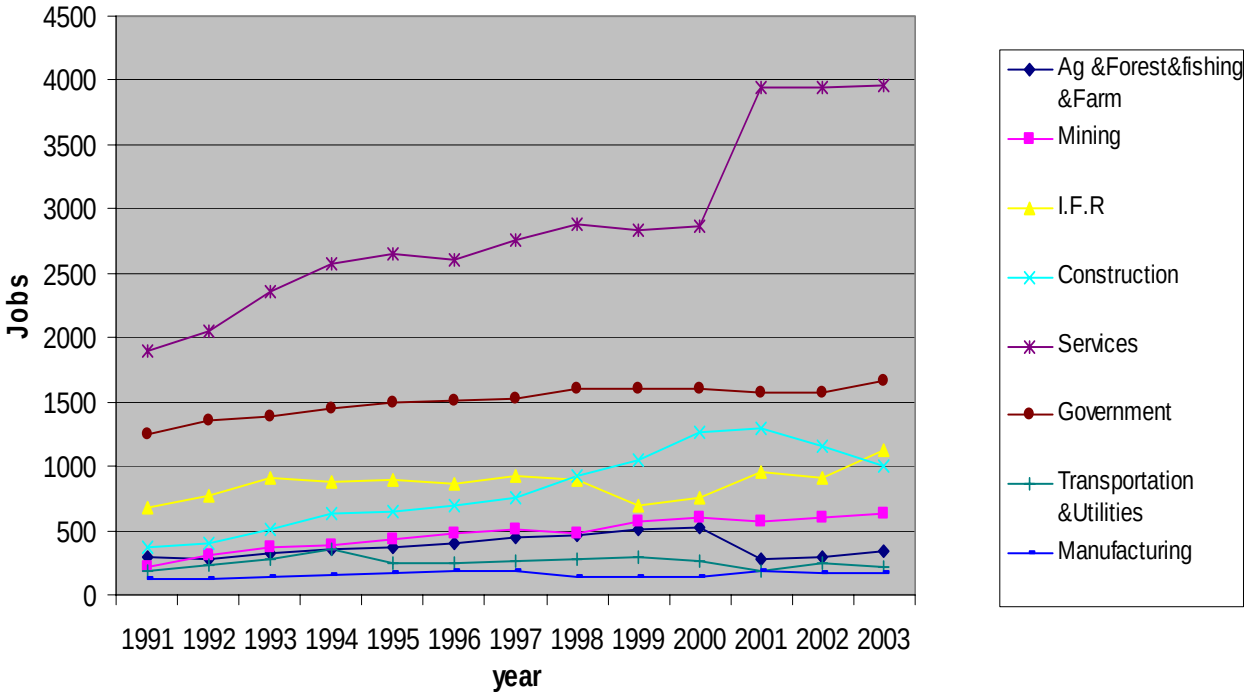

Figure 1: Employment by industry, Gunnison County (Source: U.S. Bureau of Economic Analysis)

The majority (78%) of county jobs are wage and salary employment (people who work for someone else). Self-employment, an indication of new economic activities entrepreneurship and a quality workforce, accounted for the remaining 22% of employment. The number of self-employed residents in Gunnison County rose by 28% from 1990 to 2003.

County Income Trends

Although the number of jobs is important, the quality of those jobs, proxied by their pay rate, is perhaps equally important to the quality of life in a community. Total personal income (TPI) consists of labor income from current work and non-labor income associated with past work (income from investments, pensions and annuities). It is calculated as the sum of wage and salary disbursements, other labor income, proprietor incomes with inventory valuation and capital consumption adjustments, rental income of people with capital consumption adjustment, personal dividend income, personal interest income, and transfer payments to persons, less personal contributions for social insurance.

In 2003, total personal income totaled about $371 million (Figure 2) and TPI per capita in Gunnison County showed steady growth from 1990 to 2003 (Figure 3). Non-labor income has played an increasingly important role of county TPI and TPI per capita, indicative of a location attracting more resident retirees and people with investment income relative to its historic trends. In 2004, Gunnison County's median per capita income was $36,363, compared to $24,049 statewide. However, the county's median household income was $41,528 (Figure 4), compared to $47,203 statewide, indicating fewer income earners per household in Gunnison County relative to state average. In addition, proprietor's income, a measure of entrepreneurial success changed dramatically from 2000 to 2003, after holding fairly steady for about a decade, ended the period at $54,548 (Figure 5).

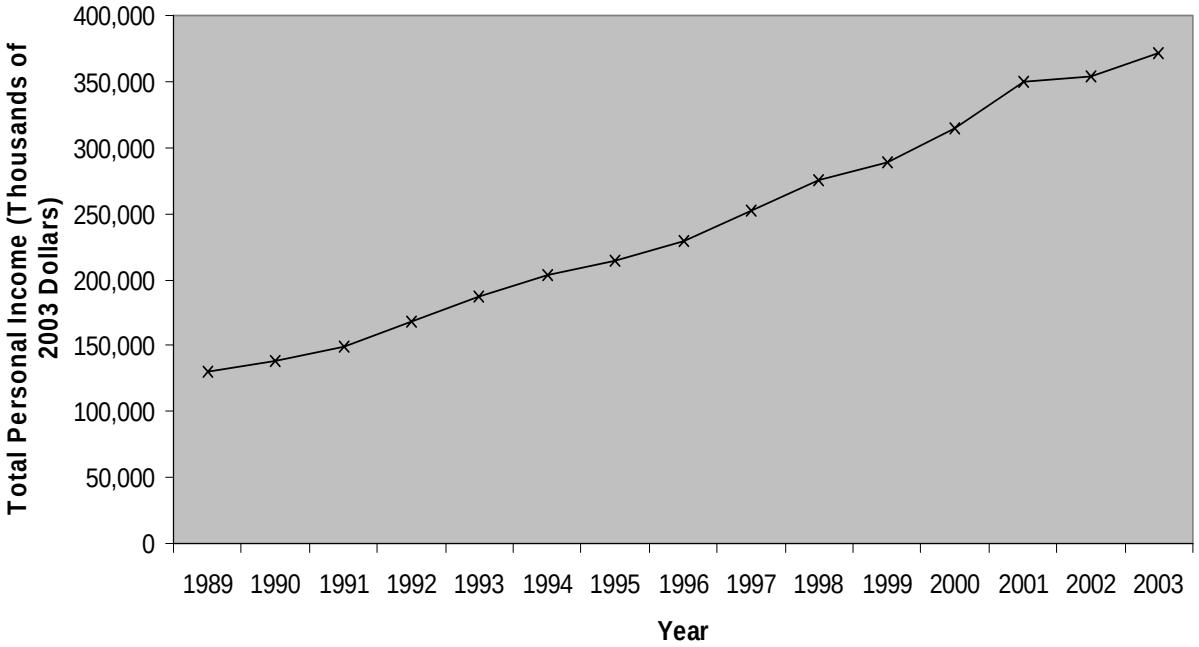

Figure 2: Personal Income Trend In Gunnison County
(Source: U.S. Bureau of Economic Analysis)

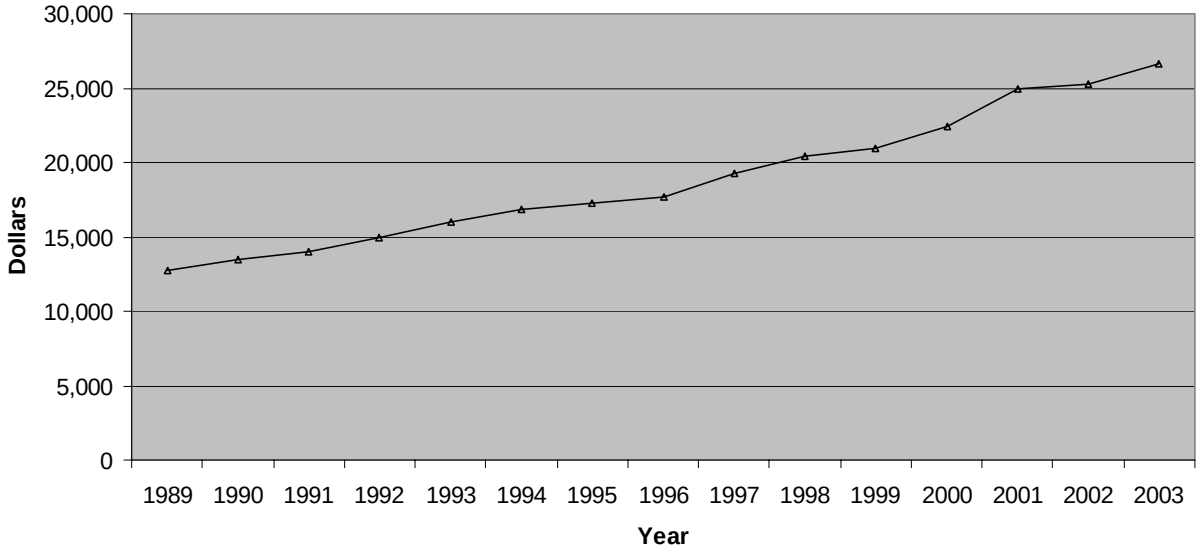

Figure 3: Per Capita Personal Income Trend in Gunnison County (source: U.S. Bureau of Economic Analysis)

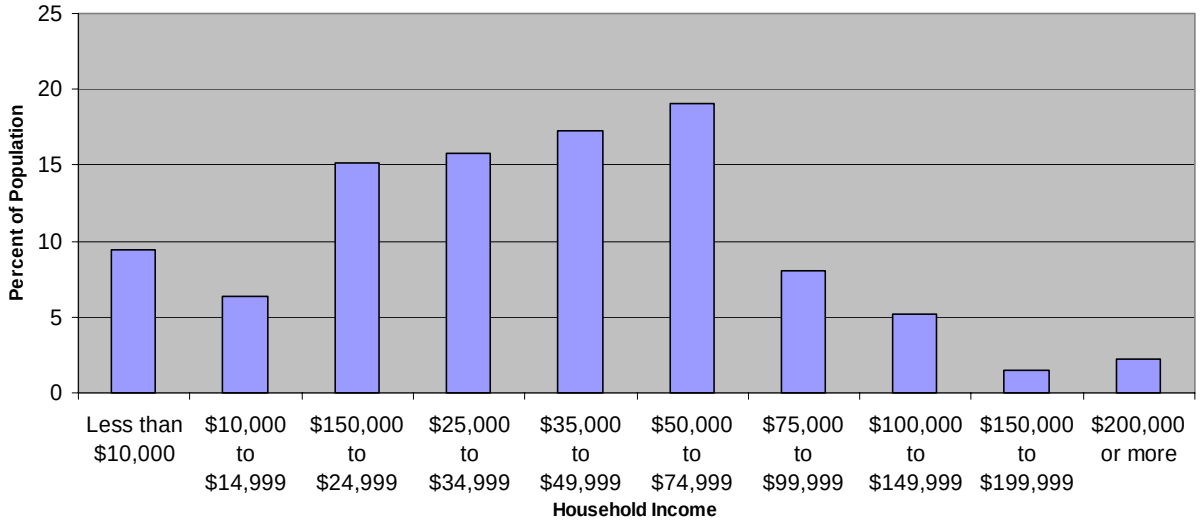

Figure 4: Household Income Groups (Source: U.S. Bureau of Economic Analysis)

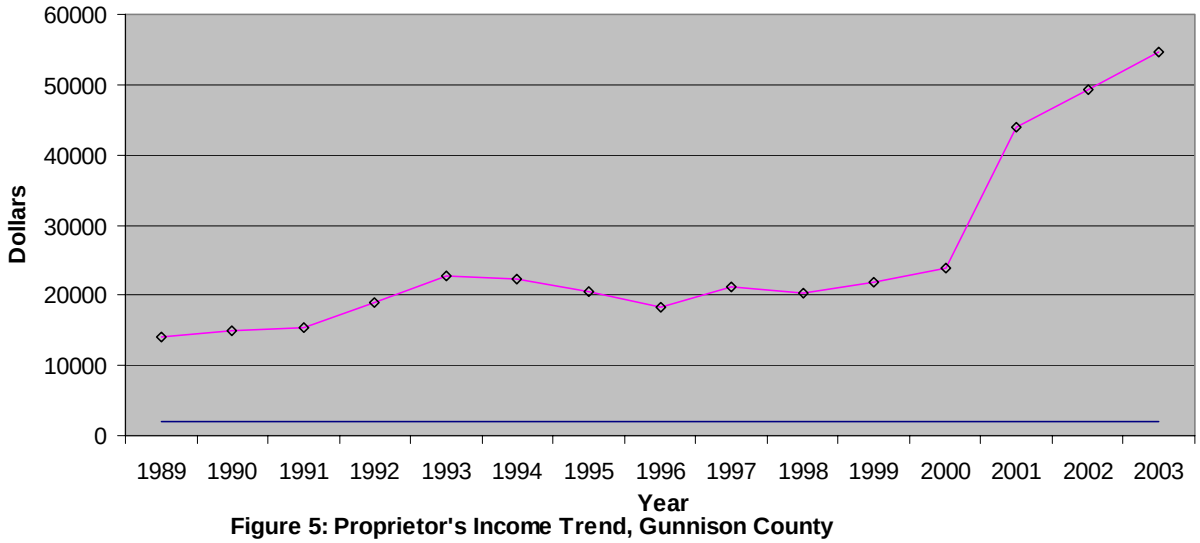

Figure 5: Proprietor's Income Trend, Gunnison County (U.S. Bureau of Economic Analysis)

Agriculture in the Gunnison County Economy

The Gunnison County agriculture sector employed 367 people and constituted 3% of the total employment of the county in 2003. Census data indicate that Gunnison County agriculture has been facing substantial challenges over the past decade. Total agriculture production expenses, regularly outstripped total farm cash receipts over the period of 1989 to 2003 (Figure 6). Net farm income is calculated by subtracting total income minus total expenses. Total income includes farm production receipts, government payments, and other incomes such as rents and machine hire. Total production expenses take into account all expenses involved in the production in the farm. In 2003, total farm receipts were $6,960,000 and total agricultural production expenses totaled $10,340,000. In 2002, at the height of the recent drought, agriculture expenses were almost three times higher than cash receipts at the county level.

However, it is important to note that this statistic should not be interpreted to imply that agriculture is not profitable. Typically, in high income and population growth regions, where the number of small “farm” acreages is increasing, persistent county level negative net farm incomes is indicative of the increasing role of “farm” acreages that are not, in fact, managed in order to generate income from agricultural activities. Although “hobby” or “lifestyle” farms, essentially vacation or retirement homes, are sometimes leased as pasture or for hay cultivation to neighboring commercial operations, they are more likely to house horses for recreational purposes or to be managed for other sorts of recreation than to be an active part of the agricultural economy. Such holdings can be expected to lose money, or generate less profit, than a commercially oriented operation, due to the distinct objectives of landowners. This can create a distorted view of the agriculture sector of an economy at the county level.

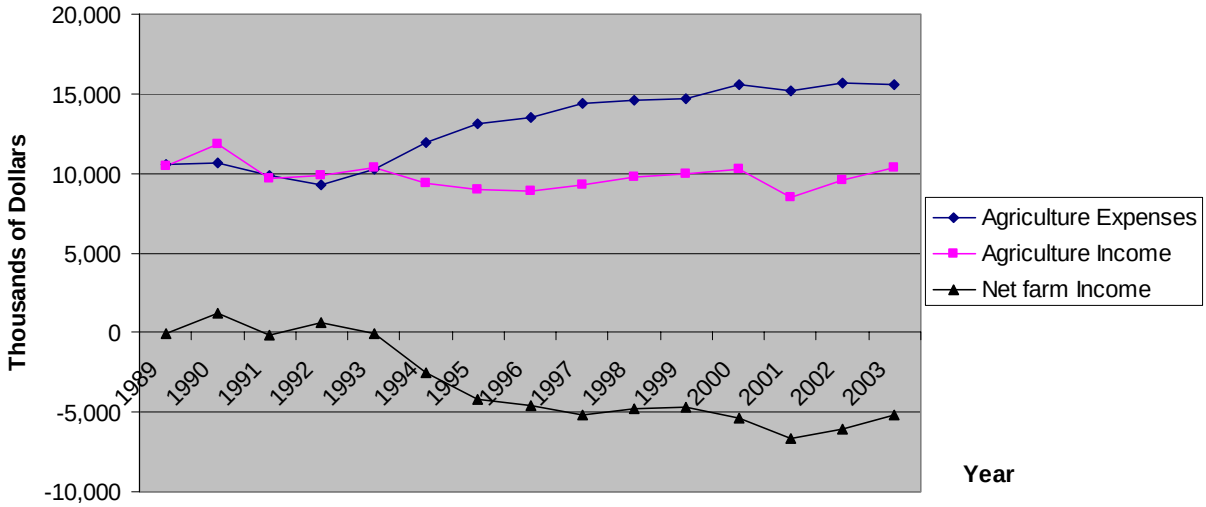

Figure 6 :Total Agriculture expenses, Agriculture Income and Net farm Income, Gunnison County (Source: U.S. Bureau of Economic Analysis)

An Input-Output perspective on Gunnison's Agricultural Economy

An Input-Output model can provide a view of how local economic sectors are inter-related. It indicates significant information related to direct, indirect and induced effects within an economy. Direct effects include the economic impact of the setup and operating industry such as jobs, employee income, the total increase in economic activities associated with this, and the resulting tax revenues. An example of a direct effect is the sale of cattle grown, minerals mined, and trees cut within Gunnison County to customers from outside the county. Another example is the sale of Gunnison County tourism services to visitors from outside the county. Indirect effects are labor and materials purchases made by the primary industry in order to create the good or service to be exported. An example of this is a Gunnison County farmer who buys a tractor from a local dealer and uses gasoline from the local gas station. Induced effects are the increases in Gunnison County economic activity stemming from expenditures by an industry sector's employees and employees of the other area businesses either directly or indirect affected by that industry. Like direct and indirect impacts, induced impacts also result in jobs, increases in the area's total income, and augmented fiscal revenues stemming from the increase in economic activity. The measure of the amount of indirect and induced economic activity generated by direct economic activity is called a multiplier.

IMPLAN is a piece of software, charged with a variety of sources of secondary data, which can provide a complete input-output model of a local economy. IMPLAN can be used to predict the effects of an economic activity, policy or shock on output (sales), employment, tax revenue for a county. The model can capture how a change in one industry (for example, cattle ranching) will affect output and employment in other industries. The changes in the initial industry are labeled direct effects and the changes in the other industries are called indirect effects. Once the indirect economic effects are determined, the direct and the indirect effects are summed to give the total economic impact. Direct, indirect and induced impacts can be described in terms of industry output, payroll, employment and tax base impacts.

IMPLAN Results for Gunnison County

IMPLAN results for Gunnison County indicate that mining, services, I.F.R (Insurance-Finance-Real Estate), and transportation are the biggest sectors of the economy with $215 million, $201 million, $117 million and $107 million worth of economic output, respectively. These sectors are followed by trade

($80 million), government ($64 million), agriculture ($36 million), construction ($32 million) and manufacturing ($18.36 million) (Table1).

Service and government comprise a high share of employment and generate the largest employee compensation (wage), $66.9 million and $54.1 million, respectively. They are followed by mining ($50 million) and trade. The agriculture industry has a relatively low level of employment and compensation ($2.11 million) relative to other county industries. Dividing the number of jobs by the amount of employee compensation provides an estimate of job quality (wage rate) by industry. Based on this estimate, mining and government are the far and away the most lucrative industries in which to be an employee on average. However, in terms of proprietor income, construction and maintenance and trade show the greatest returns to ownership per dollar of industry output (17% and 11%, respectively) among the major industries in the region. Mining and I.F.R. are the greatest contributors to business taxes in the county on an industry basis.

The total value added is a measure of how much an industry adds to the total productivity of Gunnison County economy in term of dollar. With the largest total direct economic output, the mining industry has consequently the highest total value added of $112 million. The number of people employed in the mining industry is relatively low (820 people) compared to services (4,186), trade (1,425) and Government (1,220). The mining industry is followed by services with a total value added of $118 million, manufacturing ($108 million), and I.F.R ($81 million). The agriculture industry generated the lowest total value added by industry ($7.36 million), due to the tendency to export raw (e.g., whole steers) rather than final finished products (e.g., steaks in plastic wrap).

Table 1: Industry scale output, employment & value added estimates for Gunnison County, 2003, $ millions

Industry	Industry Output	Employment (FTE)	Employee Compensation	Proprietor Income	Indirect Business Tax	Total Value Added
Agriculture	36.32	298	2.11	0.17	1.08	7.36
Mining	214.97	820	50.08	12.06	22.16	112.16
Construction & Maintenance	31.9	347	8.27	5.41	0.16	14.88
Manufacturing	18.36	157	3.73	0.54	0.1	5.82
I.F.R	116.72	844	10.64	9.75	10.67	81.03
Services	201.01	4,187	66.08	14.55	7.33	108.17
Government	64.08	1,220	54.08	0	0.01	60.62
Trade	79.96	1,425	28.71	8.65	8.15	52.96
Transportation	10.12	136	3.12	(0.70)	0.44	3.26
Other	97.47	512	12.01	7.9	4.09	0.21
Total	870.9	9,946	238.83	58.32	54.2	446.47

Multipliers increase with increases in the size and complexity of the local economy, with increases in processing or value added, and with decreases in economic leakages (imported goods and services or money otherwise leaving the local economy). Higher multipliers imply greater local economic impact than smaller multipliers. Larger multipliers are often considered desirable. However, in a highly variable or declining industry large multipliers can create greater challenges than smaller multipliers.

As expected, all estimated multipliers for Gunnison County are relatively modest (range of 1.19-1.33). Agriculture demonstrates the highest local multiplier, likely due to the purchase of local hay to produce local beef and the employ of local labor. Gunnison agriculture's multiplier of 1.33 indicates that for every dollar of direct agricultural sales out of the county an additional $0.33 is generated in the county due to indirect and induced effects. Agriculture is followed by transportation (1.32), I.F.R and trade (1.30), mining (1.2). Manufacturing shows a relatively low multiplier (0.85).

The county cattle sub-sector contributes 73.3% of the total output and 68% of the employment of the agriculture industry. The direct effect of the cattle sector is approximately $26.7 million in sales of cattle in 2003. This $26.7 million of production generated, through indirect and induced effects, another $19.5

million of goods and services purchases within the county area, resulting in a combined impact of more than $46 million in 2003. The cattle sector accounts for 201 direct jobs. The additional economic activity generated by the cattle industry creates another 160 jobs in the county. This implies that total employment in county area directly or indirectly attributable to cattle sector is about 360 jobs with compensation of about $3,310,774. The cattle industry's share of county value added is roughly $11,174,490 and its contribution to the business tax base totaled $1.75 million in 2003 (Table 2).

Table 2: The economic impact of cattle sector in Gunnison County, 2003, $

Type of Impact	Direct	Indirect	Induced	Total
Output	26,640,000	18,078,805	1,368,074	46,086,878
Employment (FTE)	201	140	19	360
Value Added	2,552,064	7,731,481	890,941	11,174,486
Employee Compensation	1,250,098	1,726,667	334,009	3,310,774
Indirect Business Tax	842,216	805,968	102,524	1,750,708
Other Property	6,710,231	4,438,893	371,620	5,480,743

The almost $20 million worth of indirect and induced economic activity due to the beef cattle industry implies that it is likely that the cattle industry can be felt throughout the Gunnison County economy. Table 3 further illustrates this point by tracking the distribution of the $26.6 million in cattle export sales as it is multiplied through the Gunnison County economy. Table 3 highlights those economic sectors that provided goods and services to the cattle industry valued at greater than $50 thousand in 2003. Analogous to Table 3, Table 4 illustrates the employment effect of the cattle sector through the Gunnison County economy. Cattle ranching created demand for local hay, and other farm goods and services associated with cattle production worth about of $6 million and 32 jobs in 2003. The industry had almost $3 million and 20 jobs in real estate effects and more than $0.5 million each in the more highly labor intensive veterinary services (11 jobs) and less labor intensive electricity purchases (2 jobs) sub-sectors (Table 3).

Table 3: Distribution of cattle sales impacts through the Gunnison County economy, 2003, >$50,000

Activity	Direct	Indirect	Induced	Total
Cattle ranching and farming	26,640,000	5,749,892	372	32,390,260
All other farming		6,053,684	390	6,054,074
Real estate		2,672,578	104,631	2,777,209
Veterinary services		570,125	4,522	574,647
Power generation & supply		542,817	33,467	576,284
Banking & credit		351,673	66,855	418,528
Other state and local government enterprises		219,990	31,420	251,410
Maintenance & repair of non residential buildings		215,687	7,391	223,078
State & local government electric utilities		161,519	9,035	170,554
Food services & drinking places		32,722	109,919	142,641
Wholesale trade		126,545	9,091	135,636
Legal services		86,458	30,143	116,602
Truck transportation		106,682	4,914	111,595
Warehouse & storage		99,841	610	100,451
Civic-social-professional organizations		83,098	12,247	95,345
Waste management and remediation services		87,772	3,730	91,502
Accounting & bookkeeping services		75,901	5,209	81,111
Automotive repair & maintenance		40,795	38,049	78,844
Agriculture & forestry support activities		72,366	22	72,388
Automotive equipment rental & leasing		56,303	13,687	69,990
Motor vehicle and parts dealers		15,664	51,797	67,461

Table 4: Distribution of cattle sector employment impacts through the Gunnison County economy, 2003, >1 FTE

Activity	Direct	Indirect	Induced	Total
Cattle ranching & farming	201.8	43.5		245.3
All other farming		31.8		31.8
Real estate		19.3	0.8	20.1
Veterinary services		10.8	0.1	10.9
Agriculture & forestry support activities		5.1	0	5.1
Food services & drinking places		0.9	3.2	4.1
Monetary authorities & depository credit		2.3	0.4	2.8
Maintenance & repair of non residential building		2.7	0.1	2.8
Warehouse & storage		2.1	0	2.1
Power generation & supply		1.6	0.1	1.7
Wholesale trade		1.5	0.1	1.6
Legal services		1.2	0.4	1.6
Service to buildings & dwelling		1.3	0.2	1.5
Physicians, dentists & other health care		0	1.3	1.3
Food & beverage stores		0.2	0.9	1.1

Summary and Conclusions

The population and income of Gunnison County are growing at a healthy rate, largely comparable with the average growth rates in the state of Colorado. The Gunnison County economy is highly dependent (directly and indirectly) upon natural resourced based industries, including mining, tourism, forestry and agriculture. While mining generates the greatest revenues, best paying jobs and tax base for the county, agriculture (largely cattle ranching) is predominant private land use and tourism is responsible for the most jobs in the economy and is very close to mining in total sales significance. Although it enjoys a long tradition in the county, mining appears to play a decreasing role in the future of Gunnison County. Tourist and resident services are increasing in importance over time, and are likely to continue to increase in importance, as second home development, a common following industry to tourism, increases in popularity.

Of course, product sales and jobs created do not create a complete picture of the economic influence of an industry on community welfare. Mining sales may overstate the contribution of the sector to the local economy due to a number of factors (various types of pollution, potential need for remediation, likely lack of re-investment of corporate profits locally). Agricultural sales may understate its local influence due to the role of open working lands in creating a desirable visitor's and resident's experience (e.g., wildlife habitat, recreational opportunities, rural lifestyle). Moreover, the sales of agricultural products, given current prices, may be inadequate to entice landowners to remain in agriculture. Rather, they may opt instead to break up and sell their lands to more intensive development in the form of second homes or small acreage farms, which may or may not provide the same level of public benefits as the larger ranch parcels now provide. Finally, not all engines of economic development are compatible and some may be synergistic. Leaders of Gunnison County would be wise to consider the interactions among of their most important economic development drivers in order to make good land use and planning decisions on behalf of the current and future residents.

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