Economic Development Challenges

for Small Towns in Idaho's Butte, Custer, and Lemhi Counties

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SUMMARY

Perhaps abundant beautiful scenery and recreational opportunities should drive the economies of three Idaho counties in the heart of Idaho's Northern Rocky Mountains. But they don't. This paper uses economic base analysis in a collaborative effort with community members and leaders to pinpoint the contribution of different economic sectors in mountainous Butte, Custer, and Lemhi counties (BCL). Data are based on 2009 secondary data from IMPLAN (Impact Analysis for PLANning) at the lowest point of the Great Recession. (See more about IMPLAN in definitions section).

Our educational process encouraged active participation of local, civic, and economic leaders to understand how their small regional economies work. The collaborative process promotes decentralized decision making and enhances communication among local decision makers, as well as development and government agencies. The economic drivers are identified and the contribution of major industries estimated.

INTRODUCTION—WAY MORE RUGGED LAND THAN PEOPLE; GATEWAY TO TOURIST SPOTS

Butte, Custer, and Lemhi counties comprise 11,723 square miles in central Idaho—the size of Delaware and Rhode Island combined. Forming part of the Northern Rocky Mountains and bordered on the north by the Beaverhead Mountains that form the Continental Divide, the area sprawls across a large portion of the rugged Idaho Batholith, yet its southern edge also embraces the Snake River Plain. Mountain climbers challenge the area's numerous peaks taller than 10,000 feet in elevation including Mount Borah in the Lost River Range, Idaho's tallest mountain at 12,659 feet.

All three counties share a short growing season, high elevation, and rugged topography along the Continental Divide. All but 8% of the land in these three counties—92% of the land—is owned and managed by one or more federal agencies, including the U.S. Forest Service, Bureau of Land Management (BLM), Department of Energy (DOE), or the National Park Service (NPS).

The region is a tourist gateway to Yellowstone and Grand Teton National Parks, Sawtooth National Recreation Area, Frank

Church River of No Return Wilderness, and Craters of the Moon National Monument and Preserve.

In summer, the region is endowed with opportunities for camping, hunting, all-terrain vehicle touring, trout and world-class steelhead fishing, wildlife viewing, and white-water rafting.

In the winter, recreation includes snowmobiling, downhill, and cross-country skiing. These natural amenities that tourists enjoy also attract second-home buyers, retirees, and certain types of entrepreneurs, all wanting to live in rural communities with a view of the Rockies.

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However, natural amenities and tourism are not the drivers of the economy. Rather, the stunning jagged terrain and long distances between towns that attract tourists hamper the production and distribution of goods and services.

Population in the three counties is small and stagnant—14,912 or 0.79 square miles per person in 2009. Households that year totaled 6,353. Populations in the principle towns also were small: Lemhi's Salmon had 3,130 residents; Custer's Challis had 1,107 and Mackay, 686. Butte's Arco—once thought to become the home to the Idaho National Laboratory (INL)—had only 926 residents. The area's 143 economic sectors employed more people than live there—18,669 part- and full-time workers.

The region's population grew 0.77% per year from 11,500 in 1970 to 14,900 in 2009. Yet compared to the rest of Idaho, percentages of population and personal income declined since 1970. Population dropped from 1.61% of the state in 1970 to 0.96% in 2009; likewise, its share in Idaho's income fell from 1.44% in 1970 to 0.97% in 2009 (Fig 1).

Real per capita income in the region was about 10% below that of Idaho between 1970 and 2000, growing at an annual rate of 2.2% to increase from $17,788 in 1970 to $32,520 in 2009. However, by 2009, the income gap had disappeared as the region's per capita income increased.

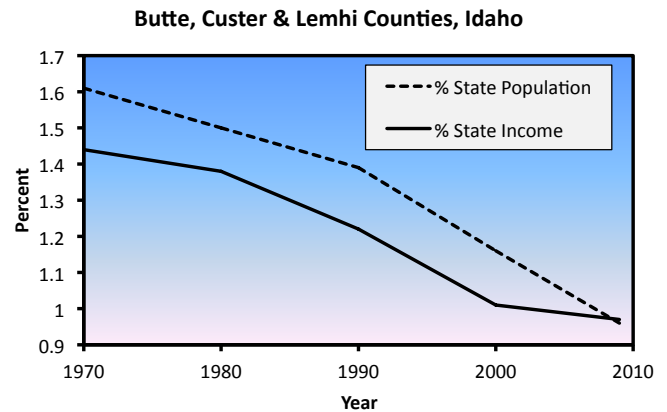## IDAHO NATIONAL LABORATORY AND ITS IMPACT

The Idaho National Laboratory (INL), near Arco at the southern edge of Butte County, is a U.S. Department of Energy (DOE) nuclear research facility, home to more than 50 nuclear reactors over the years, and currently the focus of an intense environmental cleanup.

It is operated by DOE contractors and staffed with highly paid craft, service, engineering, and scientific personnel. But more than 97% of INL's employees live outside of the three-county region[1], deceptively warping the reported economic data on the region whose local economy, based on government, mining, and agriculture, is challenged.

Butte County's Arco, the closest town to INL site, has lower household incomes and more families living below the poverty line than does Mackay, 26 miles to the north. In 2009, Arco had a 23.3% poverty rate compared to Butte County's 16%. Even though the real per capita income in the region is the same as Idaho's average, the declining share in Idaho's state income is a challenge for regional economic development.

Low economic diversification and a high dependence on natural resources and government employment characterize this mountainous region. The USDA Economic Research Service developed a set of county-level typology codes that capture differences in economic and social characteristics. This typology characterized Butte County as farming dependent, Custer as mining dependent, and Lemhi as government dependent.

Butte, Custer & Lemhi Counties, Idaho

Figure 1. Percentage of the state population and income in the Butte, Custer, and Lemhi counties in Idaho, 1970 to 2009.
Source: Bureau of Economic Analysis, 2011.

THIS STUDY'S OBJECTIVES

The objective of our study was to use economic base analysis—maintaining that exports of one sector of an economy bring about additional economic activity in other sectors—to describe the local economy and help community members, government leaders, and business people:

- Identify economic drivers;
- Use the data to support local governments;
- Answer questions about potential community investments; and
- Improve communication among community members and development agencies.

ECONOMIC BASE ANALYSIS—TWO WAYS OF ASSESSING ECONOMIC CONTRIBUTIONS

Gross measure quantifies sales, employment, wages, and value added generated by each sector. Gross measures are the reports on economic activity compiled by government agencies and published as economic statistics.

Economic base measure quantifies economic activity by giving credit to the industry that brings new dollars into the region through its exports. The base measure encompasses all the exports of a sector plus inputs produced by others. The base measure reveals linkages among all sectors of the economy needed to produce export sales—linkages that are not evident in the gross measure.

Businesses in a region can be divided into industries that meet local or internal demand (nonbasic industries) and industries that meet nonlocal or export demand (basic industries). The nonbasic industries serve other industries in the region and circulate economic activity within the region.

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[1] INL reports 7, 971 employees; 239 live in Butte County and 71 live in Custer County. The IMPLAN data set reports 10,371 part-time and full-time jobs in professional and scientific research services in the three counties.

In contrast, the basic industries are driven by export demand and correspondingly drive regional output or jobs. The economic base multipliers show that exports spur new output from the basic industries and drive new output in the non-basic industries by increasing demand for goods and services.

An example clarifies the difference between these two measures. In the gross analysis, if a tire merchant sells a tire to a local rancher, the value of the transaction (and associated employment, wages, and value added) would be attributed to the "tire store" industry. But, the rancher needs the new tires to produce beef, which is exported outside the region. The tire sale is possible only because the rancher brings the new dollars (exports) into the region; and so the base analysis gives credit for the economic contribution to the beef production industry.

Exports bring new money to the region, and this money is circulated among the non-exporting sectors, creating a multiplier effect. Higher multipliers reflect higher self-sufficiency in the regional economy, and lower multipliers denote larger "leakages" due to imports, savings, and taxes.

DATA AND PROCEDURES IN THREE WORKSHOPS USING SAM MODEL

Local leaders participated in a series of three workshops between March and November 2011 in the communities of each county.

In the first workshop series, community needs to develop social accounting matrix (SAM) models were addressed, and the raw county data from IMPLAN (sales, employment, wages, value added, and exports) were screened for each industrial activity by a group of leaders representing the economic and institutional diversity in the communities.[2]

Whenever incongruences in the data emerged, stakeholders were assigned to verify the data or suggest ways to amend the IMPLAN data at the county level. Industries at the county level remain the same among all three counties. They follow the North American Industry classification (Tables 1 through 5 and the list below).

Industries were aggregated into these 19 sectors.[3]

1. Hay and other agriculture
2. Beef
3. Mining
4. Utilities
5. Construction
6. Manufacturing
7. Wholesale
8. Retail
9. Transportation
10. Communications
11. FIRE (finance, insurance, and real estate)
12. Other professional services
13. Idaho National Laboratory and contractors
14. Private education
15. Medical and health
16. Entertainment
17. Food and hospitality
18. Personal services and repair
19. Government and miscellaneous

The SAM model also enables tracking of transfer payments to households in different income brackets. These payments include retirement, disability, and insurance benefits, medical benefits, and Social Security. Household income levels were aggregated into three tiers.

- Low tier = households earning less than $25,000 annually,
- Middle tier = households earning $25,000 to less than $75,000,
- High tier = households earning more than $75,000.

In the second workshop series, preliminary versions of SAM models were discussed (county level and the three-county models) with the three communities, and raw data could be further adjusted to properly represent the reality. Results were discussed in light of the county and regional concerns.

In the third series of workshops, the three-county SAM draft report was discussed, and a slide presentation highlighted regional findings and contrasted county-level SAMs. Multiple discussions with various groups of leaders gathered additional feedback.

ECONOMIC CONTRIBUTIONS

Gross Output—Total 62% for INL

Base Output—Total 66% for INL

Total output or sales of the region in 2009 was $2.2 billion or about 2% of the state's output. In terms of gross output, INL and contractors contributed 62%, followed by mining with 10%, and state and local government with 5%. In terms of base output, INL and contractors contributed 66%, followed by mining with 11%, and state and local government with 6%.

Exporting sectors. For predominantly exporting sectors, such as INL, contractors, mining, construction, and beef, the base output is larger than the gross output because other supporting sectors supply inputs to produce the exports from these base industries.

For example, the gross output of construction is 2.5% ($56.3 million) while the base construction is 2.8% ($62.1 million); the gross output of beef is 1.5% ($33.4 million) while the base output is 2.3% ($52.0 million).[4]

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[2] As an alternative to prohibitively expensive survey-based social accounting matrix (SAM) models, a secondary database (IMPLAN) was used to construct a SAM for the three-county region (see SAM, p. 13 and definitions, p. 12).

[3] The detailed aggregation scheme is provided on pages 12 and 13. Tourism is not a sector but rather a category of exports.

[4] When contrasting base with gross measures, predominantly nonexporting sectors contract and predominantly exporting sectors expand.

Table 1. Gross and base output in Butte, Custer and Lemhi counties, Idaho, 2009.

| Sector/Institution	GROSS OUTPUT			BASE OUTPUT				
	Total in $ millions	%	Rank	Total in $ millions	Direct in $ millions	Indirect in $ millions	%	Rank
Other agriculture & hay	42.9	1.9	6	32.9	28.4	4.4	1.5	6
Beef	33.4	1.5	10	52.0	25.4	26.6	2.3	5
Mining	227.4	10.2	2	245.2	226.0	19.2	11.0	2
Utilities	13.4	0.6	18	6.4	5.7	0.7	0.3	21
Construction	56.3	2.5	5	62.1	53.4	8.6	2.8	4
Manufacturing	29.1	1.3	13	32.8	28.8	3.9	1.5	7
Wholesale	30.5	1.4	12	11.3	9.8	1.4	0.5	17
Retail	37.4	1.7	9	17.2	15.2	2.0	0.8	12
Transportation	14.7	0.7	17	8.9	7.7	1.2	0.4	18
Communications	19.9	0.9	15	14.4	11.9	2.5	0.6	15
*FIRE	66.4	3.0	4	7.0	5.8	1.2	0.3	20
Other professional services	20.1	0.9	14	13.2	11.1	2.1	0.6	16
INL and contractors	1,386.6	62.0	1	1,470.6	1,331.1	139.5	65.8	1
Private education	6.1	0.3	19	4.7	4.3	0.4	0.2	22
Medical & health	38.2	1.7	8	17.1	13.5	3.6	0.8	13
Entertainment	19.6	0.9	16	16.0	13.1	2.9	0.7	14
Food & hospitality	40.2	1.8	7	24.6	21.0	3.7	1.1	9
Personal services & repair	33.0	1.5	11	19.8	16.4	3.4	0.9	11
Government & misc.	121.1	5.4	3	124.5	114.2	10.4	5.6	3
Households (low tier = up to $25,000)				22.7		22.7	1.0	10
Households (middle tier = up to $75,000)				26.1		26.1	1.2	8
Households (high tier = more than $75,000)				7.1		7.1	0.3	19
TOTAL	**2,236.3**	**100**		**2,236.6**	**1,942.8**	**293.8**	**100**	

Source: IMPLAN
Note: Because of rounding, direct and indirect figures may not add exactly to sector totals.
*FIRE = Finance, insurance, real estate.
Gross Output = Sales realized by one industrial sector.
Base Output = Exports of an industrial sector plus associated indirect stimulation of the output of other sectors that support the exporting sector.
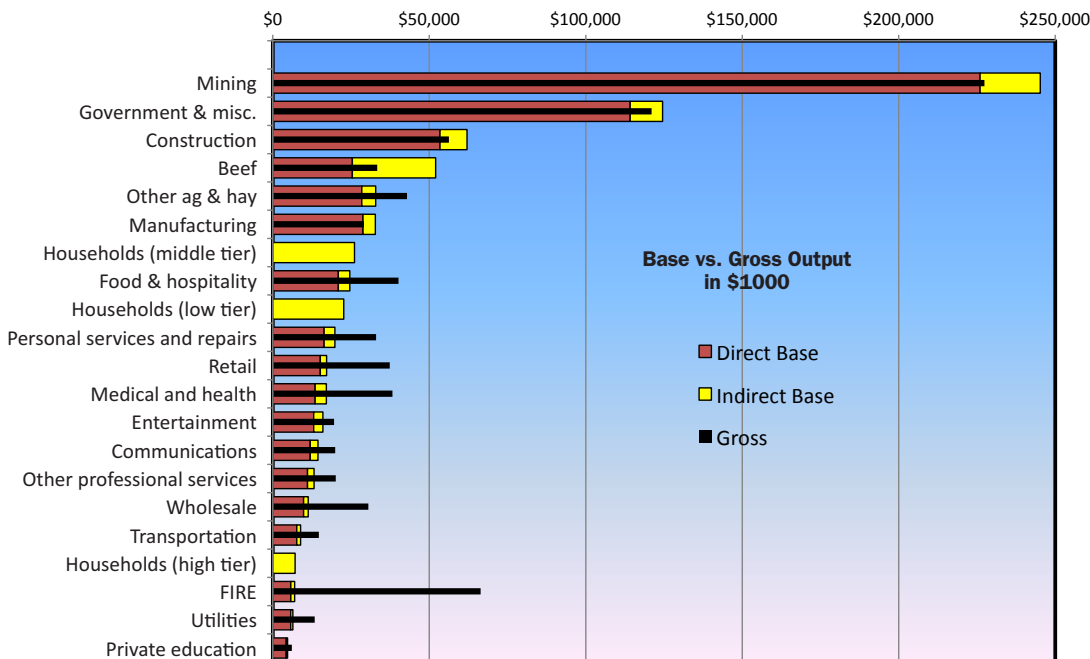
Figure 2. Gross and base output in Butte, Custer, and Lemhi counties, 2009. For easier comparison between sectors of the local economy, the INL is not displayed. INL direct base output is 1,331,076,000. INL indirect base output is 1,331,076,000. INL gross output is 1,383,606,000. The combined base output of the INL is 6 times greater than the next largest sector of the economy.

Table 2. Gross and base employment in Butte, Custer, and Lemhi counties, Idaho, 2009.

Sector/Institution	GROSS EMPLOYMENT			BASE EMPLOYMENT				
	Total Jobs	%	Rank	Total Jobs	Direct Jobs	Indirect Jobs	%	Rank
Other agriculture & hay	461	2.5	8	352	305	47	1.9	10
Beef	310	1.7	12	498	236	262	2.7	5
Mining	413	2.2	10	589	410	179	3.2	4
Utilities	39	0.2	19	25	17	8	0.1	22
Construction	520	2.8	7	611	494	117	3.3	3
Manufacturing	110	0.6	16	148	109	39	0.8	15
Wholesale	186	1.0	14	75	60	15	0.4	18
Retail	783	4.2	5	342	318	24	1.8	12
Transportation	106	0.6	17	70	55	15	0.4	20
Communications	125	0.7	15	104	75	29	0.6	16
FIRE	229	1.2	13	31	20	12	0.2	21
Other professional services	327	1.7	11	206	180	26	1.1	14
INL & contractors	10,370	55.5	1	11,460	9,954	1,506	61.4	1
Private education	96	0.5	18	72	68	5	0.4	19
Medical & health	890	4.8	3	353	314	38	1.9	9
Entertainment	456	2.4	9	344	304	40	1.8	11
Food & hospitality	705	3.8	6	406	368	39	2.2	7
Personal services & repair	802	4.3	4	434	399	36	2.3	6
Government & misc	1,742	9.3	2	1,775	1,643	131	9.5	2
Households (low tier = up to $25,000)				315	0	315	1.7	13
Households (middle tier = up to $75,000)				363	0	363	1.9	8
Households (high tier = more than $75,000)				97	0	97	0.5	17
TOTAL	**18,669**	**100**		**18,670**	**15,329**	**3,341**	**100**	

Source: IMPLAN
Note: Because of rounding, direct and indirect figures may not add exactly to sector totals.
FIRE = Finance, insurance, real estate.
Gross Employment = Employment realized by one industrial sector.
Base Employment = Employment of an exporting industrial sector plus employment associated with all linked industries that support the exporting sector.

Nonexporting sectors. In contrast, the predominantly non-exporting sectors supply goods and services to the exporting sectors, and a portion of the value of these domestic sales accrues to the exporting sectors. For example, medical and health services contributed 1.7% in the gross output but only 0.8% in base output. Similarly, the contributions of food and hospitality, and retail to gross output were 1.8% and 1.7%, respectively, but only 1.1% and 0.8% to base output.

Households are accounted only in the base measure. Their local expenditure of transfer payments—retirement, disability, and insurance benefit payments, medical benefits, and Social Security, among others—contributes, indirectly, to base sales totaling 2.5%.

In Figure 2 (p. 4), the sectors and institutions are arranged with respect to decreasing base output. Because INL and contractors grossly overshadow other economic activities, INL base output of nearly $1.5 billion is not shown, so that the other sectors are visible in the graph. Households in the middle and low tiers are ranked 8 and 10 in contributors to the base output, respectively.

Households in the upper tier contribute very little to the base economy.
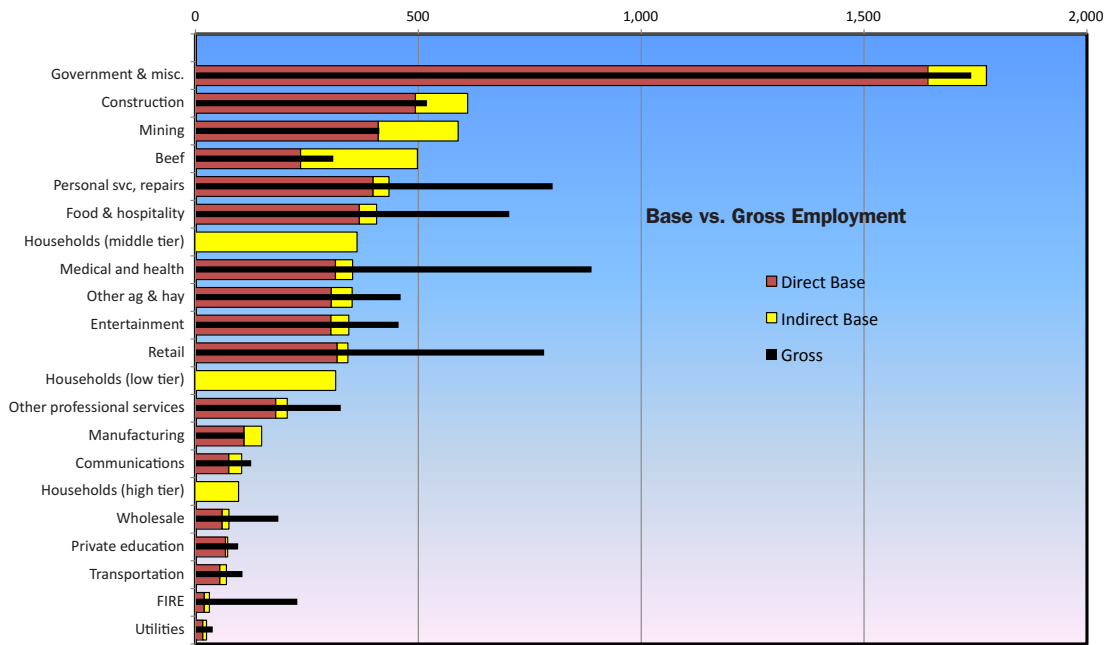
GROSS AND BASE EMPLOYMENT

Businesses in the region in 2009 employed 18,669 part time and full time workers (Table 2).

The largest share of gross employment was INL and contractors (55.5%), followed by state and local government (9.3%), medical and health (4.8%), personal services and repair (4.3%), and retail (4.2%). INL and contractors had the largest share of base employment (66%), followed by mining (11%), state and local government (5.6%), construction (2.8%), and beef (2.3%). Households do not bring direct jobs to the economy but in 2009 created 775 indirect jobs (4.1%). In comparison, food and hospitality amounted to 47% of the 775 jobs generated by the three tiers of households.

The shares of gross jobs in personal services and repair, retail, and FIRE decrease in the base measure, but the shares in the base jobs in beef and construction increase. Households in the

Figure 3. Gross and base employment in Butte, Custer, and Lemhi counties, 2009. For easier comparison between sectors of the local economy, the INL is not displayed. INL base employment is 9,954. INL indirect base employment is 1,506. INL gross employment is 10,370. The combined base employment of the INL is 6.5 times greater than the next largest sector of the economy.

Table 3. Gross and base value added in Butte, Custer, and Lemhi counties, Idaho, 2009.

Sector/Institution	GROSS VALUE ADDED			BASE VALUE ADDED				
	Total in $ millions	%	Rank	Total in $ millions	Direct in $ millions	Indirect in $ millions	%	Rank
Other agriculture & hay	18.7	1.7	9	15.1	12.4	2.7	1.4	6
Beef	5.0	0.5	18	14.3	3.8	10.5	1.3	7
Mining	25.4	2.3	5	36.7	25.2	11.5	3.4	3
Utilities	9.4	0.9	14	4.4	4.0	0.4	0.4	20
Construction	21.8	2.0	6	26.1	20.7	5.4	2.4	4
Manufacturing	8.3	0.8	16	10.4	8.2	2.2	1.0	11
Wholesale	19.8	1.8	7	7.3	6.4	0.9	0.7	16
Retail	30.9	2.9	4	13.8	12.6	1.2	1.3	8
Transportation	7.2	0.7	17	4.4	3.7	0.7	0.4	18
Communications	9.3	0.9	15	6.9	5.6	1.4	0.6	17
FIRE	42.3	3.9	3	4.4	3.7	0.7	0.4	19
Other professional services	12.3	1.1	12	8.0	6.8	1.2	0.7	15
INL and contractors	695.1	64.1	1	746.0	667.2	78.8	68.8	1
Private education	4.6	0.4	19	3.5	3.3	0.3	0.3	22
Medical & health	18.7	1.7	10	8.7	6.6	2.1	0.8	13
Entertainment	10.4	1.0	13	8.7	7.0	1.7	0.8	14
Food & hospitality	19.0	1.7	8	12.1	9.9	2.2	1.1	10
Personal services & repair	16.5	1.5	11	10.3	8.2	2.1	0.9	12
Government & misc.	110.3	10.2	2	110.2	104.0	6.2	10.2	2
Households (low tier = up to $25,000)				13.7	0.0	13.7	1.3	9
Households (middle tier = up to $75,000)				15.6	0.0	15.6	1.4	5
Households (high tier = more than $75,000)				4.3	0.0	4.3	0.4	21
TOTAL	**1,085.0**	**100**		**1,085.0**	**919.2**	**165.8**	**100**	

Source: IMPLAN

Note: Because of rounding, direct and indirect figures may not add exactly to sector totals.

FIRE = Finance, insurance, real estate.

Gross value added = Total of (1) wages and salaries; (2) proprietor's income; (3) indirect business taxes; and (4) dividends, interest, and rents realized by one industrial sector.

Base value added = The same 4 categories for one exporting industrial sector plus the 4 categories for all linked industries that support the exporting sector.

middle tier rank 8 in their contribution to base jobs, closely followed by household in the low tier (Fig.3, page 6).

GROSS AND BASE VALUE ADDED— REGION TOTAL: $1.1 BILLION IN 2009

Total gross and base value added in the region was almost $1.1 billion in 2009 (Table 3). The largest share of gross value added was by INL and contractors (64%), followed by state and local government, FIRE, retail, and mining. In terms of base value added, INL and contractors have the largest share (69%), followed by state and local government, mining, construction, and households in the middle tier (income up to $75,000).

The rural regional economy is concentrated in a few sectors, and households make significant indirect contributions, which are invisible in gross measures of the economy.

The economy is dominated by four sectors—INL and its contractors, state and local government, mining, and construction. Retail, medical and health services, other professional services, personal services and repair, communications, and wholesale generate base value added. They are not largely exporting sectors (see larger bars of gross value added compared to the bars of base value added, Fig. 4, page 8).

Communities can do little to influence activities of INL and contractors or activities of the federal and state government. The discussion among local leaders must focus on economic sectors that involve local entrepreneurs.

FINAL DEMAND, EXPORTS, AND MULTIPLIER EFFECTS

Final demand (exports, capital formation, inventory purchases, and federal government purchases) for the region totaled nearly $2 billion in 2009 (Table 4). INL and contractors have the largest share in final demand (68%), followed by mining (11%), and state and local government (6%). By contrast, food and hospitality—the most indicative sector for "tourism"—contributes just 1% to final demand.

Regional exports totaled $1.8 billion in 2009. The difference between total regional exports and total final demand (about $140 million) is due to the difference in state and local government ($57 million), construction ($31 million), and INL and contractors ($26 million). INL was the largest exporter with 71%, followed by mining 12%, and medical and health services 3%. Lodging and food, surrogates for tourism, contributed only 1% of regional exports.

Table 4. Exports and final demand in Butte, Custer, and Lemhi counties, 2009

| Sector/Institution	Exports in $ millions	%	Rank	Final Demand in $ millions	%	Rank
Other agriculture & hay	28.4	1.6	5	28.4	1.5	6
Beef	25.4	1.4	6	25.4	1.3	7
Mining	224.7	12.5	2	226.0	11.6	2
Utilities	4.6	0.3	16	5.7	0.3	18
Construction	21.8	1.2	7	53.4	2.7	4
Manufacturing	28.7	1.6	4	28.8	1.5	5
Wholesale	4.6	0.3	17	9.8	0.5	15
Retail	13.9	0.8	9	15.2	0.8	10
Transportation	6.2	0.3	14	7.7	0.4	16
Communications	7.4	0.4	13	11.9	0.6	13
FIRE	1.0	0.1	19	5.8	0.3	17
Other professional services	5.9	0.3	15	11.1	0.6	14
INL & contractors	1,309.0	72.8	1	1,331.1	68.5	1
Private education	3.7	0.2	18	4.3	0.2	19
Medical & health	13.0	0.7	11	13.5	0.7	11
Entertainment	12.4	0.7	12	13.1	0.7	12
Food & hospitality	17.2	1.0	8	21.0	1.1	8
Personal services & repair	13.6	0.8	10	16.4	0.8	9
Government & misc.	56.8	3.2	3	114.2	5.9	3
Total	**1,798.3**	**100**		**1,942.8**	**100**	

Source: IMPLAN

Note: Because of rounding, direct and indirect figures may not add exactly to sector totals.

FIRE = Finance, insurance, real estate.

Exports = Sales of goods and services outside of Idaho—both domestic and international sales.

Final demand = Exports, capital formation, inventory purchases, and federal government purchases.
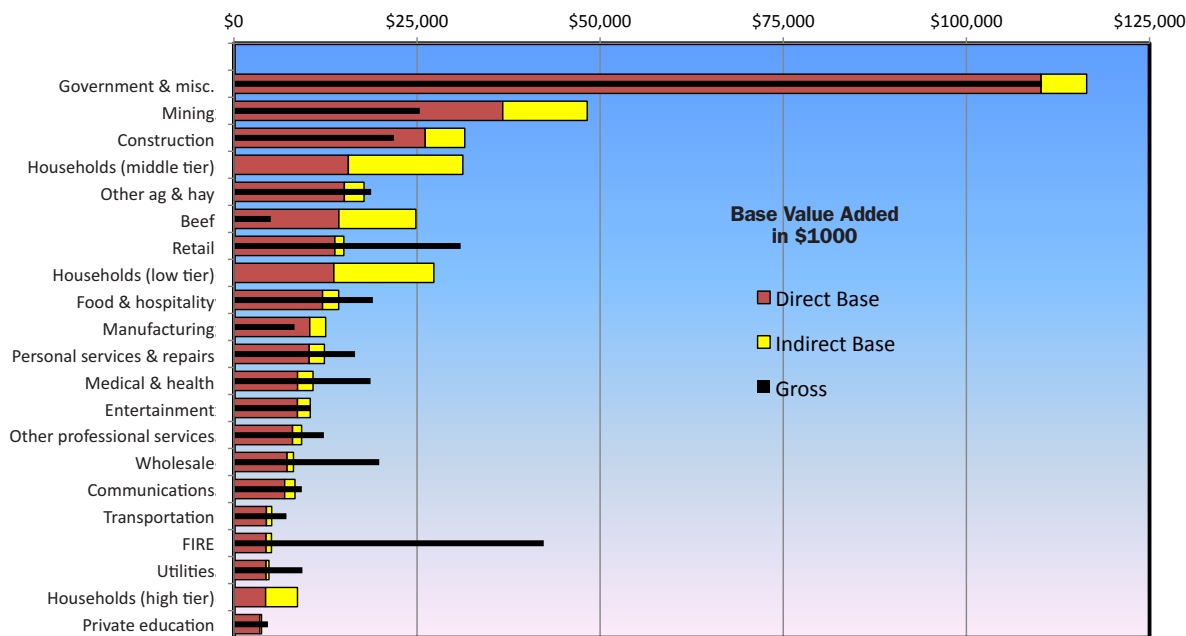
Figure 4. Gross and base value added in Butte, Custer, and Lemhi counties, 2009. For easier comparison among sectors of the local economy, the INL is not displayed. INL base value added is $746,019,000. INL indirect value added is $78,791,000. INL gross value added is $695,077,000. The combined base value added of the INL is 7.08 times greater than the next largest sector of the economy.

Multipliers represent the intensity of the ripple effect of sales to the final demand. This means that for each dollar of additional sales to final demand by a given industry, a certain additional amount is contributed by other industries or induced by household demand.

For example, beef has the largest output multiplier, 2.05 (Table 5), generating for each dollar of exported beef an additional indirect output ($1.05) from other industries – local labor and locally produced hay. As shown in Table 5, differences among these multipliers are based on their dependence on imports and linkages with other sectors in the economy. After beef, the multipliers are considerably lower; medical and health 1.27; entertainment 1.23; communications, FIRE, and personal services all with 1.21. Nine sectors have multipliers between 1.10 and 1.20, including other agriculture and hay (1.16). INL and contractors, private education, mining, and government have the lowest multipliers (1.09 to 1.10), indicating that they purchase most of their supplies, labor, and equipment from outside the study region.

Employment multipliers provide insights as to what is the impact of one intervention such as the introduction or removal of an industry. For every direct job created by the beef industry, a total of 2.11 jobs are created (employment multiplier of 2.11). FIRE, utilities, mining, communications, and manufacturing created more than 1.36 per every direct job. The number of jobs per additional million dollars in sales to final demand shows the potential job creation, but does not speak to the quality of the job.

Entertainment, personal services and repair, medical and health, retail, and beef, generate 20 or more jobs, albeit, low paying jobs. Mining and manufacturing create less than 5 jobs per additional million dollars increase in final demand.

Table 5. Output and employment multipliers and jobs per $1 million in the BCL Region, 2009

Sector/Institution	Output	Jobs	Jobs per $1 million
Other agriculture & hay	1.16	1.15	12.4
Beef	2.05	2.11	19.6
Mining	1.09	1.44	2.6
Utilities	1.12	1.49	4.3
Construction	1.16	1.24	11.4
Manufacturing	1.14	1.36	5.1
Wholesale	1.15	1.25	7.6
Retail	1.13	1.08	22.5
Transportation	1.16	1.27	9.1
Communications	1.21	1.38	8.7
FIRE	1.21	1.58	5.4
Other professional services	1.19	1.14	18.6
INL & contractors	1.10	1.15	8.6
Private education	1.10	1.07	16.8
Medical & health	1.27	1.12	26.0
Entertainment	1.23	1.13	26.4
Food & hospitality	1.17	1.11	19.4
Pers services & repair	1.21	1.09	26.5
Government & misc.	1.09	1.08	15.5

Source: IMPLAN and own calculations.
FIRE = Finance, insurance, real estate.
Multipliers = The intensity of the ripple effect of sales to the final demand. For each dollar of additional sales to final demand by a given industry, a certain additional amount is contributed by other industries or induced by household demand.

Economic impact of any one sector on the entire economy is the product of a change in final demand times the output multiplier. If an increase or reduction of final demand is known, then the economic impact of that intervention can be estimated, i.e., an increase or decrease in economic activity. While INL and contractors dominate in the share of final demand, their multiplier is modest—1.09.

IS THERE LIFE BEYOND INL?

INL and its contractors have very small multipliers and employ very few county residents; however, they play an extremely important role in the region due to the sheer size of their activity compared to the rest of the economy.[5] INL employees who live in the region (about 3%) are generally well paid and contrast sharply with those employed in most other sectors of the local economy.

How can local decision makers carry out regional economic development when the major exporter employs, almost exclusively, an in-commuting labor force? One way is to look in detail at those economic sectors in which there is local decision making. Focusing on other sectors besides INL, as presented in Figs. 2 to 4, provides enough contrast among smaller local sectors that involved local leaders can begin to develop a strategy for developing the part of the economy under local control. Groups of entrepreneurs from different sectors, belonging to the local chambers of commerce and regional economic development organizations, can take advantage of their knowledge of inter-sectoral linkages and synergies in the regional economy taking into account the reduced linkages with INL and contractors.

Attracting a portion of the 97% INL in-commuters to reside in the region and to benefit from the induced effect of their wages could be a development strategy. The decision of INL employees to reside in the region depends on the services and amenities offered in the region. Natural beauty and outdoor recreational opportunities are not the only amenities and services that new residents consider. A survey is warranted to identify the expenditure patterns of INL in-commuters. It could shed light for developing a strategy to lure them to reside or spend more time and money in the region.

TOURISM = 3 CATEGORIES OF ECONOMIC ACTIVITY

"Tourism" is not an industry but rather a category of exports. As an export, it can be analyzed for economic base. To produce and export tourism or travel dollars requires the direct production from the tourism business itself (i.e., a hunting guide service) and all its supply chain. In addition to tourist/entertainment businesses, an additional set of hospitality inputs is necessary to produce tourism and travel. The hospitality group includes tourism-related service industries of motels, restau-

rants, gas stations, etc. Trade, food, and lodging are base industries for tourism exports. Trade, food, and lodging are also non-base industries for other industries.

The economic base analysis helps us determine what proportion of tourism and trade is base versus non-base. We aggregated into the food and hospitality sector all tourism- and travel-related services such as parks, travel agents, and outfitters.

Lacking a detailed expenditure survey of every category of tourist, we assume the upper limit of tourism's contribution to the base economy would be all $21.0 million in export sales from hospitality and food, all $13.1 million in entertainment exports, and all $15.2 million in retail exports (Table 4). We add the indirect base output to capture the indirect effects, i.e., $3.7, $2.9, and $2.0 million respectively for hospitality and food, entertainment, and retail. Thus, the upper estimate of the contribution of tourism to the regional base economy in 2009 was $57.9 million in sales, or about 2.5% of the total sales in the three-county economy.

NATURAL AMENITIES AND THEIR ECONOMIC ACTIVITIES

Natural amenities attract or retain three categories of economic activity in the BCL region. These can be measured by the economic base analysis.

1. Mobile entrepreneurs—$11 million direct and $2 million indirect. The first category comprises mobile entrepreneurs who are attracted by high-value natural amenity areas. They are mainly professional business consultants, financial brokers, engineers, architects, artists, and writers, among others, who connect to the world through the Internet and airports. These entrepreneurs are small businesses or sole proprietors who are mobile and export all their services outside the region. The sales contribution (final demand) of all base other professional services was $13 million ($11 million direct and $2 million indirect).

2. Retirees and rich independents—$48.8 million in transfer payments. The second category comprises retirees and financially independent individuals who live in throughout the region (i.e., Northfork, Moore, Challis, and Salmon). Retirees and the footloose affluent, attracted by natural amenities, bring new money to the region through transfer payments, dividends, interest, and property rents.

The wealth transfers are reflected in the base analysis. A total of $48.8 million in transfer payments were made to households in 2009 (Bureau of Economic Analysis, 2011). It is assumed that no more than 10% of the recipient retirees migrated to the region because they were attracted to natural amenities.[6] Based

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[5] Should the size of the region increase, the size of the multiplier would also increase because of a more interlinked economy. INL and contractors would buy more from a larger region. INL output multiplier in 16 counties of southern Idaho is 1.57; for every dollar of output sold to final demand total output increases by $1.57 (see Black Holley and Church, 2010).

[6] This is the proportion of migrant retirees in retirement destination counties such as Blaine or Bonner in Idaho. Though none of the counties in the area is classified as retirement destination.

on the assumption, $4.9 million in transfer payments were brought to the region by migrant retirees. Also, these migrant retirees brought $10.8 million in the form of interest, dividends, and property rental income.[7] The combined figure for nonlabor income brought by migrant retirees was $16 million in 2009.

3. Affluent part-time residents, vacationers—$2 million. The third category comprises affluent part-time residents who vacation in the region (i.e., second home owners). In addition to the $16 million in nonlabor income from migrant retirees induced by natural amenity values, there was $7.2 million construction capital to support housing for migrant retirees and second-home owners in 2009. Lemhi County led the construction capital with $4.8 million, followed by Custer County, $1.8, and the rest ($600,000) in Butte County.

Construction activities in the region and the rest of the country were at minimum due to the Great Recession. IMPLAN data show that construction capital in the region was $39.2 million in 2007, five times the level of construction in 2009. We estimate that $1.8 million was for second-home owners or migrant retirees (new construction residential). If the multiplier for construction is applied to this figure, then $2 million is the contribution of this category of affluent part-time residents and vacationers.[8]

We estimated the contribution to the economy induced by high-value natural amenities at $31 million ($13 million in service sales, $16 million through nonlabor income of migrant retirees and $2 million in construction of second homes or principal homes for migrant retirees) in all 1.4% of the base economy.

CONCLUDING REMARKS—TWO STORIES EMERGE

Using gross and economic base measures, two different stories emerge about the Butte-Custer-Lemhi Region's economy in the lowest point of the Great Recession. The gross measure, used by national, state, and regional decision makers, shows the economy driven by INL and contractors, state and local government, and mining.

However, the base measure, more important to local decision makers, sees the local economy obscured by INL and contractors and driven by state and local government, mining, construction, and beef.

Outside contributions to the base economy in the form of retirement income, transfer payments, and dividends need to be considered when making policy. The SAM model includes three strata of households as institutions, which indirectly contribute

2.5 cents per dollar of base sales (Table 1), 4.1% to the base jobs (Table 2), and 3.1% in base value added.

Excluding INL and its contractors and government from the analysis allows local decision makers a clearer picture of the economic drivers in the region for consideration when they evaluate opportunities and challenges.

Mining, construction, beef, other agriculture and hay, personal services and repair, and retail are the sectors that policy makers can examine in more detail. The interplay of final demand and economic multipliers shed light on the outcomes of potential expansion or contraction in different sectors and the impact on sales, employment and value added.

The participatory process to formulate and develop a three-county SAM model has enabled participant local leaders to interact with development agencies using evidence-based results within the framework of economic base analysis. Communities of practice in community economic development continue to spread in Idaho.[9]

Some of the evidence-based results to be further addressed are:

Tourism. The contribution of tourism and other possibly related services to the 2009 base economy is estimated at $58 million or 2.5% of the base economy. This assumes that all the export sales from lodging and hospitality ($25 million), entertainment ($16 million) and retail ($17 million) were to tourist and travelers. Further research is warranted in expenditure patterns of tourists in the area.

Natural amenity impact. The natural amenity value of the region is estimated at $31 million, or 1.4% of the 2009 base economy. Migrant retirees, attracted by the natural amenity value in the region, in 2009 brought $13 million in nonlabor income. New residential construction in the region, also related to natural amenities, was $2 million, and service sales related to mobile entrepreneurs were $16 million.

Base analysis highlights sector linkages. The economic base analysis uncovers and quantifies the linkages between the sectors in the regional economy and accounts for the impact of export sales on typically non-exporting sectors, making economic base analysis a suitable approach to identify economic drivers in the region.

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[7] Age-related transfer payments to households (retirement and disability) for Butte, Custer, and Lemhi Counties were 38.8%, 46.2%, and 40.5% of the total government transfer receipts to individual persons in 2009. Source: Bureau of Economic Analysis, http://www.bea.gov/regional/reis/default.cfm#step2.
[8] To put things in perspective, the $2 million during the Great Recession could have been $10 million in 2007 when the economy was growing.
[9] Economic base has been used to assess Idaho's agricultural economy (Watson et al. 2008), small regions (Rodríguez, Traver, Eborn, and Dye, 2010), or a single county (Peterson and Rodríguez, 2010).

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ANNEX

DEFINITIONS

Base measure (output). Sales of an exporting sector plus inputs produced by others. The base measure reveals linkages among all sectors of the economy needed to produce export sales—linkages that are not evident in the gross measure.

Direct effect. Economic activity generated by exports of any industrial sector.

Economic base theory. It maintains that exports of one sector of an economy bring about additional economic activity in other sectors. The export revenue from one sector is responsible for stimulating a certain portion of the output and jobs in other sectors as well. Analysis of these relationships is accomplished through an economic based SAM model.

Exports. Sales (both domestic and international) of goods and services outside the study region.

Final demand. Exports outside the study region, capital, inventory purchases, and federal and government purchases that drive the Social Accounting Matrix (SAM). Industries respond to meet demands directly or indirectly (by supplying goods and services to industries responding directly).

Government transfers to households. Payments received by households from the Social Security Administration for retirement, disability, survivorship, etc.

Gross measure (output). Sales generated by a sector. Gross measures are the reports on economic activity compiled by government agencies and published as economic statistics.

Household consumption. The largest component of final demand; it consists of payments by individuals/households to industries for goods and services used for personal consumption.

IMPLAN database. IMPLAN (IMpact analysis for PLANning) is a database containing county, state, zip code, and federal economic statistics specialized by region and not estimated from national averages. IMPLAN is used to create complete, extremely detailed Social Accounting Matrices and Multiplier Models of local economies. Data from it can be used to measure the effect on a regional or local economy. It also allows users to build economic models estimating effects of a proposed change in a specific economic region. Using classic input-output analysis in combination with regional Social Accounting Matrices and Multiplier Models, IMPLAN provides a highly accurate and adaptable model for its users. It is owned by MIG, Inc (formerly Minnesota IMPLAN Group).

Indirect effects. Effects generated by industries purchasing inputs from other local businesses that support the sales of exports, and generated by industries paying wages to employees who are involved in export activities. The wages are used to purchase goods and services from other local businesses.

Jobs. Full- and part-time employment as specified by the U.S. Department of Commerce.

Jobs or employment multiplier. Sum of direct and indirect jobs required to sustain an additional $1 million of sales to exports from a given industry.

Multiplier effect. The multiplier effect refers to the idea that an initial spending rise can lead to an even greater increase in a region's income. For example, a company spends $1 million to build a factory. The money does not disappear, but rather becomes wages to builders, revenue to suppliers, etc. The builders will have higher disposable income as a result, so consumption—aggregate demand—will rise as well. If all of these workers combined spend a total $2 million dollars, the multiplier is 2 because there was an initial $1 million input, which created a $2 million output.

Sales or output multiplier. Sum of the direct and indirect output required from all sectors of the local economy needed to sustain $1 of sales to exports from a given industry.

SAM—Social Accounting Matrix model. A numerical representation of transactions among the sectors in the regional economy that can be used to determine changes in the economic impact of economic agents. The four components in a SAM are: production; household consumption that is supported by provision of factor inputs (labor and wages); accumulation in institutions (resident households and state and local government); and final demand. The SAM allows the estimation of direct and indirect effects.

State and local government. State and local government purchases are divided among public education, non-education, and investment. Purchases are for elementary, high school, and postsecondary education. Non-education purchases are for all other government activities. State and local investment are expenditures for capital goods and construction.

Value added (VA). The sum of (1) wages and salaries, (2) proprietor's income, (3) indirect business taxes, and (4) dividends, interest, and rents. The sum of VA across all sectors of the economy equals the state gross regional product.

Wages and salaries. Paychecks of full- and part-time workers in Idaho businesses.

INDUSTRY AGGREGATIONS (see page 3)

1. Hay and other agriculture. Vegetable and grain farming; greenhouse, nursery and floriculture productions; all other crop farming; forestry, forest products and timber tract production; logging, and support activities.

2. Beef. Cattle ranching and farming

3. Mining. Extraction of oil and natural gas, extraction of all minerals, support activities to mining

4. Utilities. Electric power generation, transmission, and distribution; natural gas distribution; water and sewage

5. Construction. Residential and non-residential, new and for maintenance; ready-mix concrete manufacturing

6. Manufacturing. All manufacturing

7. Wholesale. Wholesale trade businesses, warehousing, and storage

8. Retail. All retail

9. Transportation. Air, truck, transit and ground passenger transportation

10. Communications. Couriers and messengers, newspaper publishers, periodical publishers, book publishers, software publishers, radio and television broadcasting, cable and other subscription programming, Internet publishing and broadcasting, and telecommunications

11. FIRE. Monetary authorities and depository credit intermediation activities, non-depository credit intermediation and related activities, securities, commodity contracts, investments, and related activities, insurance carriers, insurance agencies, brokerages, and related activities, funds, trusts, and other financial vehicles, real estate establishments, imputed rental activity for owner-occupied dwellings

12. Other professional services. Legal services, accounting, tax preparation, bookkeeping and payroll services, architectural, engineering and related services, design services, management, scientific and technical consulting services, environmental and other technical consulting services, investigation and security services

13. INL and contractors. Custom computer programming services, scientific research and development services, management of companies and enterprises, waste management and remediation services

14. Private education. Private elementary and secondary schools, other private educational services

15. Medical and health. Offices of physicians, dentists, and other health practitioners, home healthcare services, medical and diagnostic labs and other ambulatory care services, private hospitals, nursing and residential care facilities, rehabilitation services

16. Entertainment. Commercial hunting and trapping, scenic and sightseeing transportation and support activities for transportation, performing arts companies, promoters of performing arts and sports and agents for public figures, independent artists, writers and performers, museums, historical sites and parks.

17. Food and hospitality. Hotels and motels, food services and drinking places.

18. Personal services and repair. Automotive repair and maintenance, electronic and precision equipment repair and maintenance, commercial and industrial machinery and equipment repair and maintenance, personal and household goods repair and maintenance, personal care services, dead care services, dry cleaning and laundry services, other personal services

19. Government and miscellaneous. U.S. Postal Service, other federal government enterprises, state and local government transportation and utilities, employment and payroll (only state and local government, and federal government), and public education.

SOCIAL ACCOUNTING MATRIX (SAM) MODELS

Historically, economic base analysis required that all industries of the economy were entirely basic or non-basic. The non-base industries serve other industries in the region but do not cause the region to grow. The base industries are driven by export demand, which causes the region to grow. The SAM is no longer restricted to the base analysis for the aggregate economy. Rather, it allows base analysis for each industry, and each industry can be apportioned into the base and non-base components of the economy.

The SAM general equilibrium models a demand-driven economy with sectors or industries described by fixed linear expenditure functions leaving exogenous (external) demands to determine the level of regional output:

$$(1) \qquad \begin{bmatrix} X \\ V \\ Y \end{bmatrix} = (I \quad S)^{-1} \begin{bmatrix} ex \\ ev \\ ey \end{bmatrix}$$

where X is a vector of sector supply of good and services, V is a vector of value-added by categories, Y is a vector of household incomes, ex is a vector of exogenous commodity demand, ev is a vector of exogenous value-added and ey is a vector of exogenous household incomes.

I is the identity matrix and S is a matrix with SAM direct coefficients as described below:

$$(2) \qquad S = \begin{bmatrix} A & 0 & C \\ V & 0 & 0 \\ O & Y & H \end{bmatrix}$$

where the first section (A, 0, and C) are the activity accounts; the second section (V, 0, and 0) are the value-added accounts; and the (0, Y, and H) are the accounts of endogenous institutions. The exogenous columns and rows are excluded in (2), federal government, inventory, capital and exports. A is a (nxn) transaction matrix that represents the linkages between buying (inputs) and selling (outputs) sectors, C is a matrix with expenditure coefficients, V is a matrix with value added coefficients, Y is a matrix with value added distribution coefficients and H is a matrix with institutional and household distribution coefficients.

The $(I - S)^{-1}$ is the Leontief inverse in (1), or the final-demand-to-output multiplier matrix, which allows the calculation of X, V, and Y for a given set of values ex, ev, and ey.

Modified from Rodríguez, Taylor, Eborn and Erikson (2010)

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