



Economic Multipliers in Local Colorado Economies

Prepared for
USDA-Forest Service, Rocky Mountain Region, Denver CO
USDA-Forest Service, Washington Office, Ft Collins CO
and its partnership with
Colorado Department of Local Affairs

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Study Questions

- Should classic economic impact multipliers be extended to include the effects of 1) capital formation and 2) local government spending?
- If so, how would multipliers change at the county level?
- Essentially, a focus on induced effects.

Multipliers & Their Specification

- Indirect – always supply-chain, backward linkage relationships
- Induced – always spending by institutions that receive income or revenues generated by direct & indirect effects
 - Customarily - Households
 - Why?
 - Strong connections between:
industry production \Rightarrow payrolls \Rightarrow household income
 \Rightarrow household spending

Multipliers & Their Specification

- These connections are strong enough that the labor earnings portion of household income is regarded as dependent on industry production.
- Households are moved from the independent part of the model (final demand) to the interdependent part (intermediate demand). “Closing the model”.
- Do similar relationships exist for
 - Capital accounts?
 - Local government?

Capital Accounts

- Why the interest? Construction:
 - often a large employer in local economies.
 - can have strong local supply-chains.
 - often draws non-local workers who spend earnings locally.
- Not a new idea. Addressed & dismissed in the early years of I-O.

Capital Accounts

- Three reasons
 1. I-O models map saving (capital inflow) and investment or formation (capital outflow) of a region. But there is no reason to expect a relationship between local saving and local capital outlays. Capital markets are national & international in scope.
 2. I-O is a short-term model that maps the annual relationships of production & consumption. Capital investments have, by definition, a long-term relationship with production that bridges several years of production.
 3. Saving estimates are notoriously inaccurate in the NIPA. I-O models often follow this weakness and use capital accounts as a catch-all for residual discrepancies.

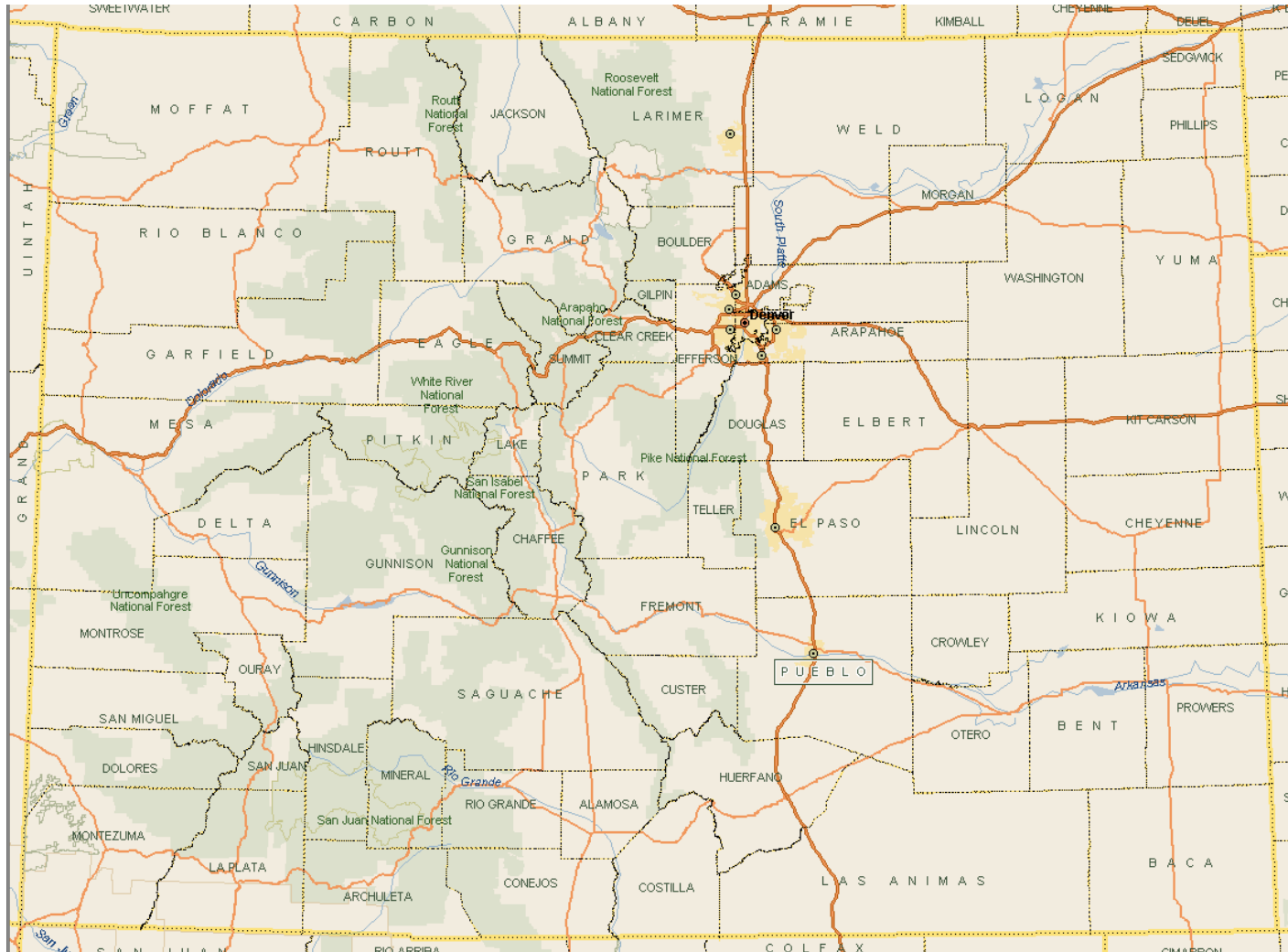
Local Government

- The same criteria apply:
 1. A strong relationship between business activity and local government spending
 2. The relationship holds in the short-run
 3. Credible data to map the relationship
- Yes – to all 3
- Qualifiers
 - Spending on operations, not investment or transfer payments
 - Only Local government - not Federal or State

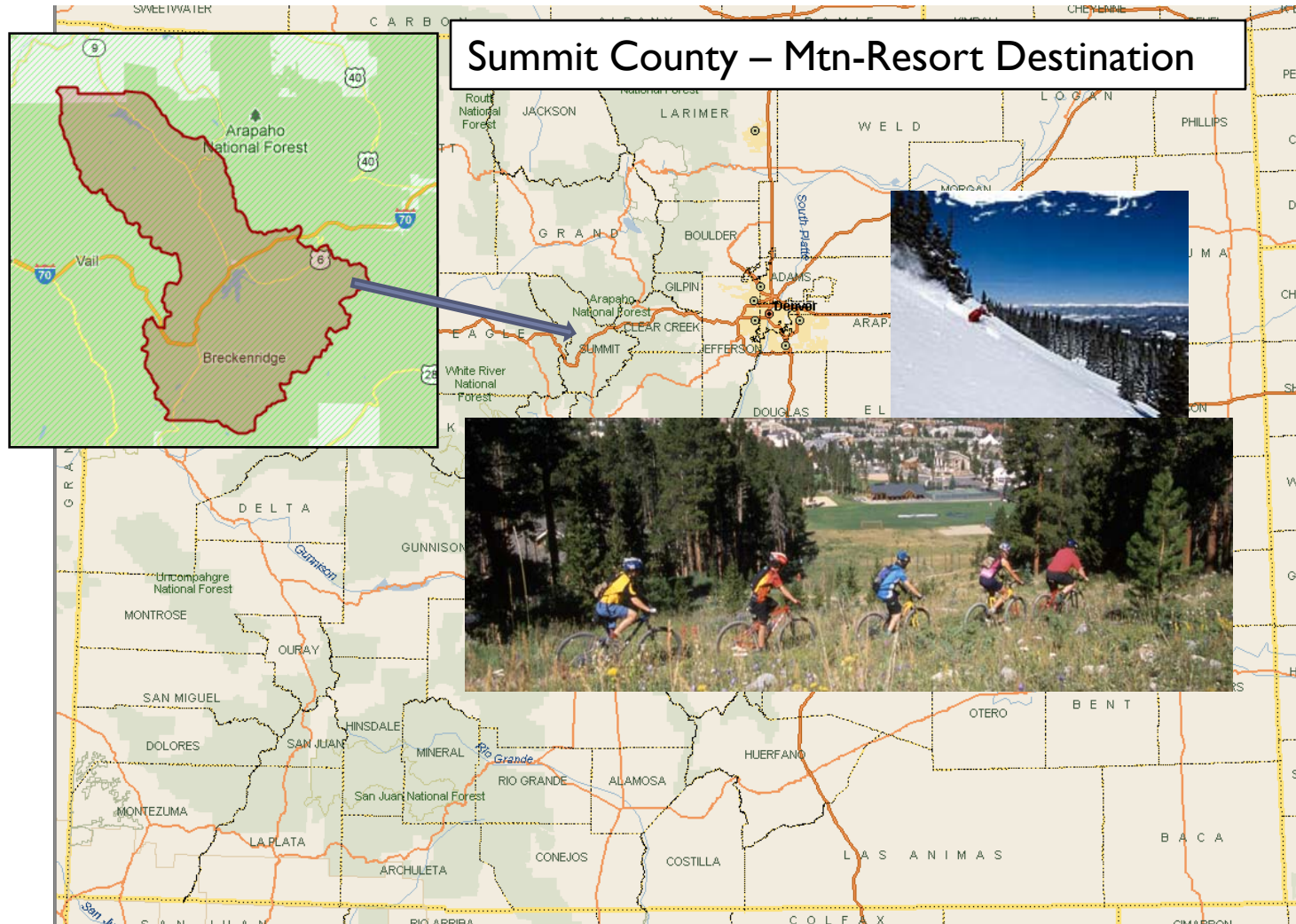
Local Government

- Revenues from property, sales, and use taxes account for 82% of local govt revenues across the US (Census 2008)
- Local govt expenditures often limited legally to current revenues (true in Colorado)
- Some local govt functions are not tied to local revenue sources
 - Education is no longer tied to local property taxes
 - Nationally, school districts receive 56% of revenues from Federal or State sources
 - 27 states exceed the average, 4 states exceed 80%

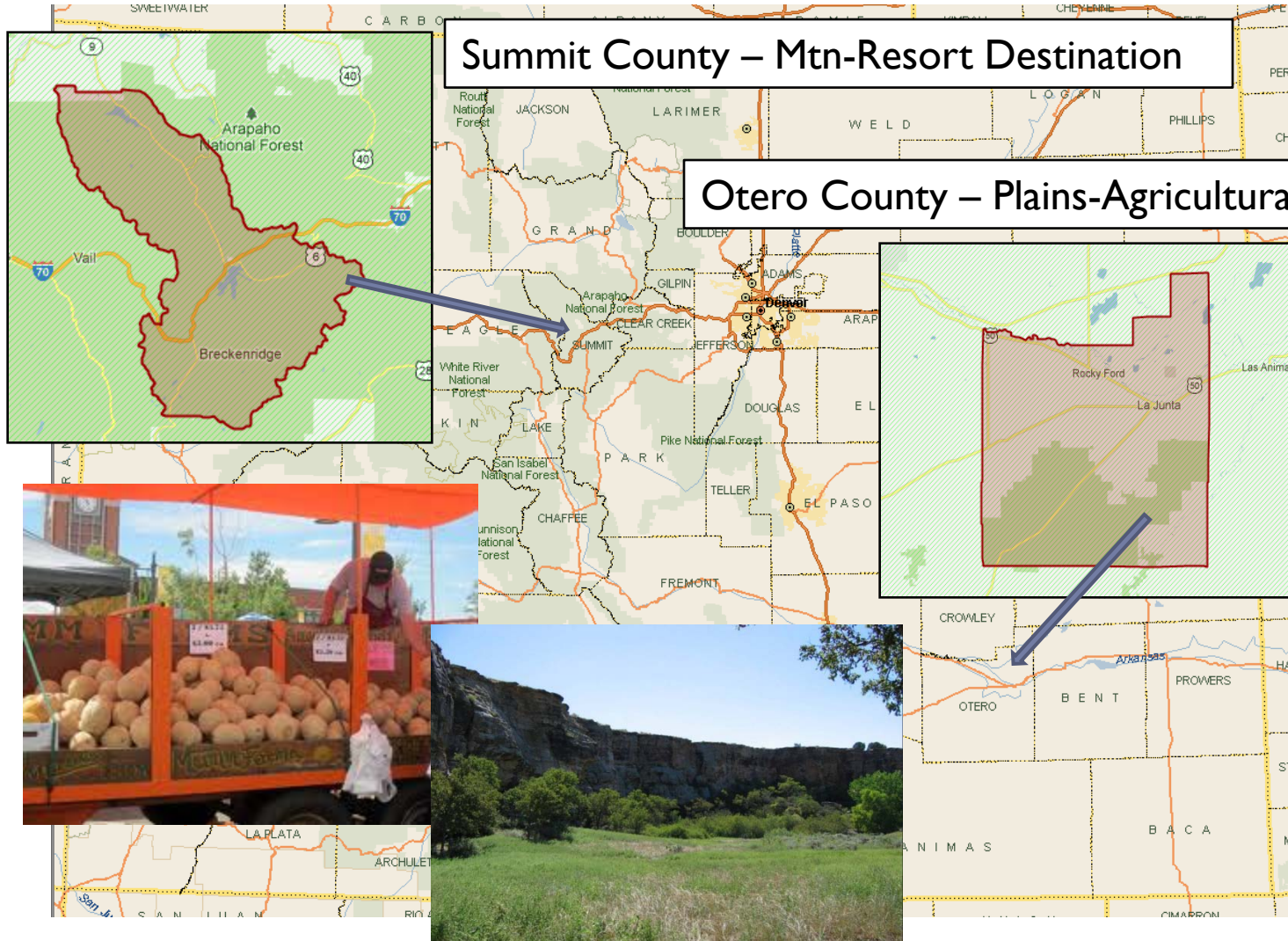
The Model Areas



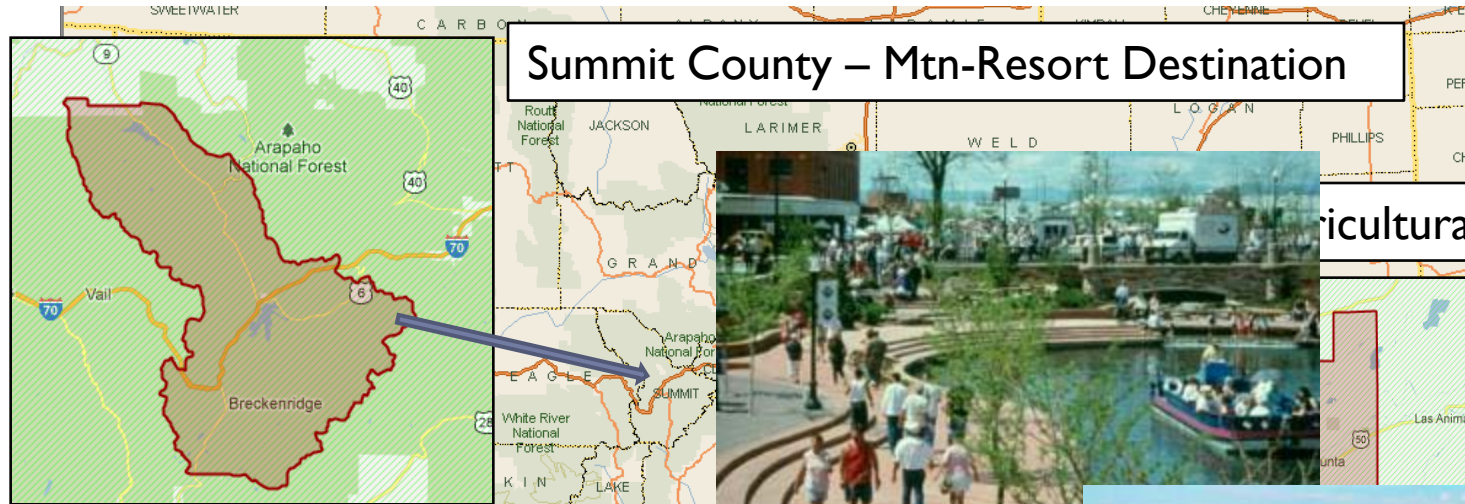
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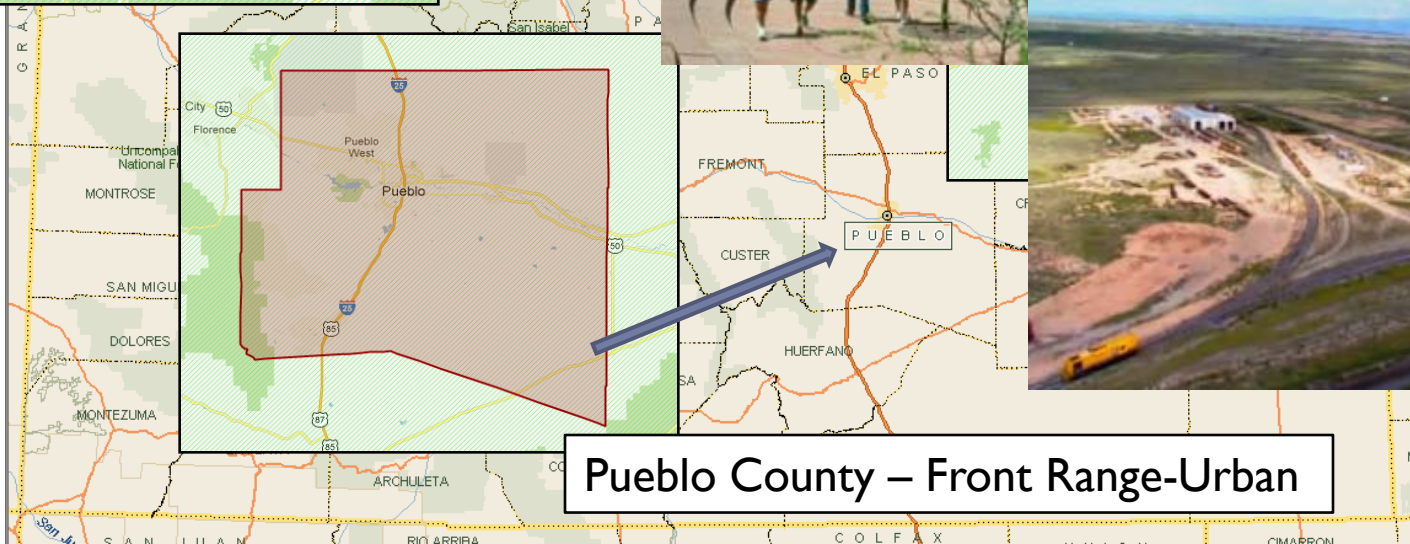
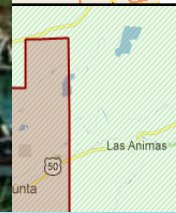
The Model Areas



The Model Areas



Agricultural



Pueblo County – Front Range-Urban

The Model Areas

Summary of Characteristics

County	Setting	Geography	Median Household Income (2008)	Economic Dependence	Census Classification
Otero	Rural	Eastern Plains	\$33,234	Agriculture	---
Summit	Mountain Resort	I-70 Corridor	\$64,813	Tourism	Micropolitan
Pueblo	Urban	Front Range	\$42,005	Government, Professional services	Metropolitan

Local Govt Entities in Model Areas

Number of Local Governments

County	Municipalities	Special Districts- Water/Sanitation	Special Districts- Fire Protection	Special Districts- Other
Otero	6	1	4	6
Summit	6	6	4	11
Pueblo	3	7	3	10

Number of Local Government Enterprises

County	Passenger Transit	Water/Sanitation Services
Otero	0	6
Summit	*	9
Pueblo	1	5

Data Sources for Local Govts

- Comprehensive Annual Financial Reports for **2007**
- Adopted budget documents for 2009 (payroll \$)
- From:
 - Colorado Office of the State Auditor
 - Colorado Department of Local Affairs/Division of Local Governments
 - Colorado Department of Local Affairs/State Demography Office
 - Colorado Department of Labor & Employment/LMI
 - Emails and phone calls with fiscal offices of entity

IMPLAN Model Customization

- State & Local Govt combined – both “industries” & institutions in the SAM
- Both “industries” and institutions were redefined so that Local-noneducation was isolated.
- All State-noneducation was shifted to Federal-nondefense
 - Became Fed/State-general
- State & Local-education was not redefined.
 - No revenue transfers from new Local-general
 - All revenue transfers from Fed/State-general
- Revenue transfers from IBT were modified

IMPLAN Model Customization

- Local Govt
 - Commodity production and final demands were modified based on primary data.
 - Commodity purchase mix as represented in IMPLAN's S&L-noneducation institution were assumed to adequately represent local governments.
 - Transfer payments to households (e.g. welfare, employee retirement) were allocated to household groups using IMPLAN's S&L-noneducation distribution pattern.

IMPLAN Model Customization

- Local Govt Enterprises
 - Only 3 enterprises in IMPLAN data
 - 430-Passenger Transit
 - 431-Electric Utilities
 - 432-Other Enterprises
 - Transit & Electric modified using primary data
 - Water & sewer services dominate enterprises
 - 428-Federal Other Enterprises was unused in all 3 models
 - Redefined it as local water & sewer enterprises
 - Water & sewer removed from 432
 - 428 production function changed to Industry 33-Private water/sewer
 - Govt commodity 3033 production & purchases modified

IMPLAN Model Customization

- Closing the models
 - User Preferences
 - Households checked
 - Households plus S&L Govt checked, Enterprises(Corporations) unchecked

Findings – By County (2007)

County/Stat	Number of Industries	Average SAM Multiplier – HH Only	Average SAM Multiplier- HH & Local Govt	Percent Increase of Mean
Otero				
Mean	112	1.353	1.371	1.4%
Weighted Mean	112	1.339	1.352	0.9%
Pueblo				
Mean	189	1.412	1.440	2.0%
Weighted Mean	189	1.405	1.427	1.6%
Summit				
Mean	129	1.447	1.495	3.3%
Weighted Mean	129	1.391	1.453	4.4%

Findings by Industry – Summit County (2007)

Industry	Average SAM Multiplier – HH Only	Average SAM Multiplier- HH & Local Govt	Percent Increase of Mean
Retail Stores - Furniture and home furnishings	1.418	1.546	9.0%
Retail Stores - Gasoline stations	1.373	1.496	9.0%
Retail Stores - General merchandise	1.444	1.573	9.0%
Retail Stores - Clothing & clothing accessories	1.385	1.507	8.8%
Retail Stores - Food and beverage	1.451	1.578	8.8%
Retail Stores – Sport'g goods/hobby/book/music	1.434	1.560	8.8%
Retail Stores - Building materials/garden supply	1.419	1.544	8.8%
Retail Stores – Miscellaneous	1.450	1.574	8.6%
Retail Stores - Motor vehicle and parts	1.476	1.601	8.4%
Retail Nonstores - Direct and electronic sales	1.312	1.421	8.3%
Retail Stores - Health and personal care	1.476	1.599	8.3%
Wholesale trade businesses	1.400	1.513	8.0%

Findings by Industry – Summit County (2007)

Industry	Average SAM Multiplier – HH Only	Average SAM Multiplier- HH & Local Govt	Percent Increase of Mean
Retail Stores - Electronics and appliances	1.505	1.626	8.0%
Real estate establishments	1.250	1.346	7.7%
Electric power generation/transmission/distrib.	1.198	1.285	7.3%
Imputed rental for owner-occupied dwellings	1.293	1.377	6.5%
Amusement parks, arcades, & gambling	1.382	1.465	6.0%
Hotels and motels, including casino hotels	1.431	1.513	5.7%
Automotive repair & maintenance	1.396	1.473	5.5%
Automotive equipment rental & leasing	1.473	1.552	5.4%

Findings - Summary

- On average, change in multipliers was underwhelming.
- Industries with highest payments of IBT show the highest change in multipliers.
- Areas with substantial tourism industry have 2 factors working toward larger multipliers:
 1. Tourism-related sectors make large payments to IBT
 2. Local Governments have large expenditures to serve visitor populations.

Consequently, standard specification of multipliers in tourism-dominated economies may tend to understate induced effects.

Final Note

- An approximation technique was developed and tested.
- Results tended to overestimate Otero County changes, and underestimate Pueblo and Summit County changes.
- The approximations in Summit County were consistently 20% lower than changes observed in the hybrid model.

Report Availability

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