

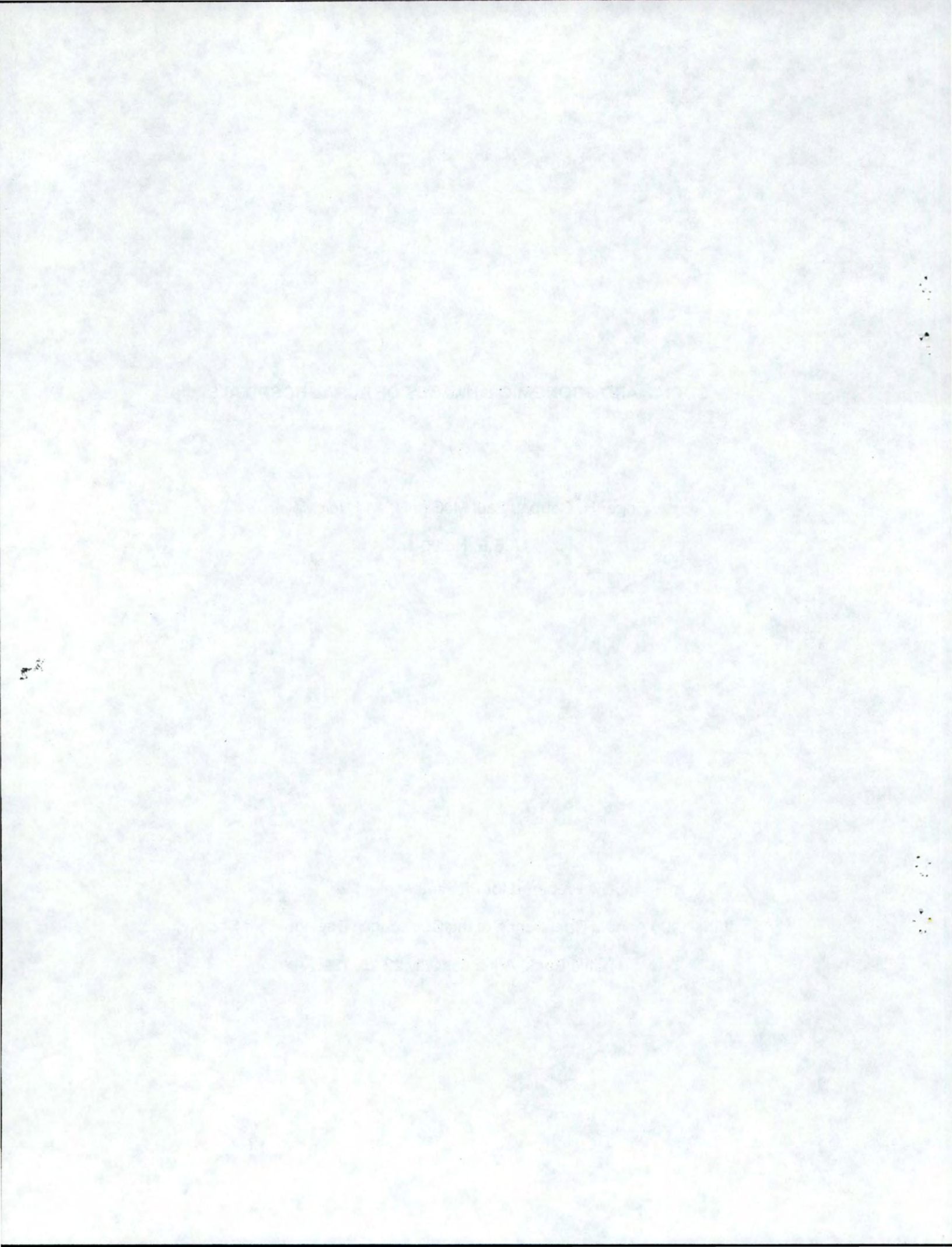
**SOCIAL AND ECONOMIC LINKAGES OF RURAL HOSPITALS**

By

Roger H. Coupal, Paul McGinnis, and Neil Meyer

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## SOCIAL AND ECONOMIC LINKAGES OF RURAL HOSPITALS

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\*Roger H. Coupal, Paul McGinnis, and Neil Meyer

The availability of rural health resources has become an important national and regional concern in the past decade. Community planners have begun to re-evaluate the economic role of rural hospitals in the community's goals and long term economic viability. The hospital, very often being one of the largest single employers in a rural community, is a vital source of moderate to high salaries. It also serves as an integral part of community efforts to re-invigorate local economies because the quality of health care and hospital services is part of location decisions by entrepreneurs and retirees. Unlike its neighboring businesses however, the hospital has a complex mission, playing both a public, non-market role and a market role. It not only provides a marketable service that must contend with market forces associated with demographic changes and technological change but also provides an important public service.

As a result its decision making becomes much more complex. Under this public - private role information linkages between the consumer and supplier become impeded by regulatory requirements and conflicting objectives.

The goal of this project<sup>1</sup> is to create a formal institutional structure around a rural hospital that provides community level information to hospital planners to better meet needs of the community and also to provide information from technical experts outside the community for generating and evaluating alternative plans. Five communities participated in the pilot project. A Community Health Council (CHC) was formed from active influential

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1. This project was designed by Paul McGinnis of Mountain States Health Corporation and the result of a cooperative effort by Mountain States Health Corporation of Boise, Idaho and the Idaho Cooperative Extension System.

members within the community. In each community a "community encourager" whose function is to organize a group of individuals to serve on a community health council and act as a facilitator between the Mountain States Health Corporation and the technical experts it brings in and the CHC. Each community's CHC would help generate information on the needs and expectations of its citizens. The results of this analysis summarize and explain how the hospital and its CHC fit into the surrounding economic landscape.

Rural hospitals, like rural communities, are confronting a unique set of circumstances that do not exist in most urban metropolitan areas<sup>2</sup>. The demographic make up of rural areas has changed dramatically in the past decade with a return to the pattern of the 50's and 60's where the general trend in population is from rural to urban (unlike the trend in the 70's.) The individuals that stay, many of whom are low skilled and therefore less mobile, or, may be older and on fixed incomes. As a result, the economic status of the patient base that rural hospitals face tend to be lower income and a higher poverty. (Though this is not to say that the elderly are all low income. The elderly are in fact more well off today than similar age groups historically and should be seen as an important source of consumer spending.)

The rural population relies more heavily on medicare/medicaid programs and is generally less well insured. The relatively higher proportion of medicare/medicaid recipients imposed a burden on rural hospitals after changing the payment system to a fixed payment system. A payment based upon a certain DRG<sup>3</sup> is based in theory on an average cost. The DRG is scaled down in rural areas because of supposedly lower wages. This lower payment and higher proportion of recipients generates a cashflow shortage for many hospitals. (Since payments are generally lower than what it costs the hospital, urban or rural, it might

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2. U.S. Congress. Senate. Special Committee on Aging. The Rural Health Care Challenge. S. Report 89-845, Serial No. 100-N. 1988.

3. DRG or diagnostic related group estimates payment to a hospital by first using a standard or national average and then adjusting the standard to local wage levels and to an average DRG weight. It ignores utilization levels which also greatly influence unit costs. Furthermore, it ignores the public good value of a hospital to the communities economic and physical health.

be important to note that urban hospitals shift some of the cost burden to privately insured patients [Fort, Hallagan, and Rosenman].)

Another unique aspect of the rural hospital is a noted personnel shortage. A higher reliance on medicare/medicaid revenues and the rural urban medicare payment discrepancies combine to contribute to a chronic revenue problem which impacts not only the flexibility in terms of services but also availability of qualified staff.

Just how a hospital fits into the local economic landscape is probably unique for every community hospital. Previous studies have shown that income multipliers for hospitals to their local communities tend to range from 1.09 to 1.63 [J. Christianson and L. Faulkner]. One study in Oklahoma estimated impacts from an employment multiplier 3.25 [G. Doeksen and R. Loewen]. Knowing the hospitals purchase goods and services from all over the state and region, estimated state level multipliers have been predictably higher ranging around 2.0 [K. Tacke and L. Merke].

This report highlights five in the rural northwest listed in Table 1:

TABLE 1  
COMMUNITY HOSPITALS STUDIED AND THEIR RESPECTIVE LOCATIONS

COUNTY FIPS CODE/ HOSPITAL NAME	LOCATION	COUNTY Pop.
(035) Clearwater Valley Hospital	Orofino, Idaho	10,400
(001) Barrett Memorial Hospital	Dillon, Montana	8,500
(023) Garfield County Hospital	Pomeroy, Wash	2,500
(025) Harney County Hospital	Burns, Oregon	7,600
(063) Wallowa Memorial Hospital	Enterprise, Oregon	7500

TABLE 2  
Hospital and Competitor Hospital Size and Usage

Hospital	Beds	Occup.	Competitor Hospital Distance		
			(Miles)	Beds	Occup.
Clearwater Valley Hosp.	26	38.0%	45	139	61.9%
Barrett Memorial Hosp.	31	32.3%	72	184	75.0%
Harney County Hosp.	44	18.2%	90	164	65.2%
Wallowa County Hosp.*	76	52.6%	60	84	41.7%
Garfield County Hosp.	14	---	51	136	45.6%

\*This hospital has no real primary care even though there are two Physicians in the community. It does have a thriving nursing home.

All the hospitals except for one have the same problem: low occupancy rates coupled with a large neighbor. Wallowa County Hospital, the only exception, is asking itself whether to expand services. These statistics would tend to indicate a common problem in rural areas, over-supply or migration of demand of hospital services. However, the statistics over simplify the problems and opportunities facing these communities. Clearwater County, Harney County and Barrett Memorial Hospitals are located on roads that can be treacherous during the winter or are very isolated. None of the communities are "bedroom" communities that feed off the economic activity of other, larger cities so leaving for whatever reason requires a certain amount of planning and cost.

## ECONOMIC LINKAGES OF THE HOSPITAL

The respective economies that surround each hospital listed in Table 1 each have a different mix of basic sectors and service sectors. Table 3 lists the size of each sector relative to its contribution to total personal income. On one extreme Garfield Co., Washington is heavily dependent upon farming with the farm sector contributing 54% of the county resident's total personal income while Clearwater Valley Hospital has a small farm sector and is more dependent upon manufacturing, in this case timber. Barrett Memorial Hospital is dominated by a mix of ranching and local and state government. The community of Dillon has a small college. The two Oregon communities differ in the respect that Harney County is slightly more dependent upon timber than Wallowa County.

TABLE 3  
PERSONAL INCOME IN THE FIVE COUNTIES

County FIPS Code	Idaho 035	Mont 001	Oregon 025 063	Wash. 023
Per Cap. Pers. Income	\$8212	\$9104	\$9061	\$9225 \$15477
<u>Percent of Total Industry Earnings</u>				
Farm	3.1%	14.9%	<u>17.8%</u>	<u>17.4%</u> <u>52.4%</u>
Ag. Serv, For., Fish.	1.6%	0.7%	1.2%	0.6% 0.6%
Mining	0.0%	1.8%	3.8%	0.3% 0.0%
Construction	3.8%	11.3%	7.2%	4.3% 2.4%
Manufacturing	41.9%	2.6%	<u>17.5%</u>	<u>15.0%</u> 0.0%
Trans. & Public Util.	5.8%	11.4%	7.3%	8.5% 1.9%
Wholesale	1.4%	5.5%	2.9%	3.2% 10.2%
Retail	7.4%	11.2%	10.1%	12.2% 5.3%
Fin, insur. & Real E.	1.2%	2.3%	1.6%	2.3% 2.1%
Services	7.0%	12.8%	10.5%	10.6% 5.2%
Federal Govt.	12.4%	8.7%	10.7%	7.9% 9.2%
State & Local Govt.	14.3%	<u>16.6%</u>	<u>16.9%</u>	<u>17.8%</u> 10.4%

Source: U.S. Dept. of Commerce, BEA

A hospital, like any business, is linked to the surrounding community economy by first its customers or patient base and second by what it purchases from the community. Hospitals purchase goods and services from neighboring businesses and labor services from residents (and also bring in new residents.) It is linked in a forward sense to its patient base and then linked in a backward sense through its employees and local purchases back out to the community. An important implication is that if residents purchase hospital services in another community, the local hospital loses but also the community in general loses. The hospital would have fewer employees who purchase goods and services locally too.

Economic leakage occurs where hospitals and employees purchase goods and services outside the community. Most of the hospital's purchases have to occur outside most communities. Chemicals, technologically complicated equipment services, and other routinely used tools in a hospital come from large companies located in urban areas. However, there may other types of purchases that could be competitively supplied locally.

The five hospitals in this report are described first in terms of how they compare with other sectors of the community economy as an employer, their ability to generate income, and their ability to generate economic wealth. Then we describe the hospital in terms economic leakage and the backward linkages to the surrounding community<sup>4</sup>.

Backward linkages can be explained in terms of their indirect or inter-industry linkage and their induced or household linkage. An inter-industry linkage occurs when the hospital purchases a good or service from other sectors of the economy. Those purchases can be divided up into local purchases and purchases outside the county. The latter is economic leakage while the former is a linkage. To supply a hospital local firms themselves purchase other inputs locally. This incremental increase and the direct purchase by the hospital equals the inter-industry linkage. An induced or household linkage occurs because

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4. The economic base analysis for this report is conducted using USDA, Forest Service, IMPLAN.



employees of the hospital and the proportion of employees associated with firms doing business with the hospital purchase goods and services in the community. Local firms including the hospital itself depend in part on these people buying goods and services. For each community, the distribution of these linkages is detailed.

Economic leakage, while not detailed in this report is still an important number because of the potential for community development programs that serve to address this problem.

#### Clearwater Valley Hospital

As described above Clearwater Valley Hospital is located in Orofino, Idaho in a timber based economy with 10,400 county residents. Forty-two percent of the personal income generated in the valley come from timber milling. The economy has a large Federal and State Government component also. Table 4 ranks the top 20 sectors in terms of employment, income, and value added<sup>5</sup>. The hospital sector ranks 16th in its contribution to value-added, and 13th in employment. Government, retail, and the natural resource based sectors rank higher. Combining the hospital sector with the doctors and dentists sector moves the rank up to eighth.

As dollars enter the hospital in the form of revenues from patients, insurance and government payments, the dollars are distributed to staff and purchases. From each dollar of revenue 47.2 cents goes to wages and salaries. 8.05 cents are represented as profits and professional fees and 6.8 cents go to local purchases. This means that over 48 cents leave the county as economic leakage.

Wages and salaries of hospital employees and local hospital purchases generate 28.4 cents of economic activity beyond the one dollar of revenue. Seven cents of direct local

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5. Value added is defined as the sum of wages and salaries, returns to ownership, and indirect business taxes. It can be seen county level equivalent to gross national product.

TABLE 4  
Clearwater County, Idaho Dominant Economic Structure

Sector	Value - Added	% of Total	RNK	Empl ment	% of Total	RNK	Empl Comp	% of Total	RNK
Logging Contractors	0.303	22.7%	1	553	15.6%	2	13.472	23.0%	2
Government Industry	16.088	18.0%	2	1022	28.8%	1	16.088	27.4%	1
Federal Electric Utilit	9.013	10.1%	3	104	2.9%	7	4.073	6.9%	4
Veneer and Plywood	8.225	9.2%	4	361	10.2%	3	6.238	10.6%	3
Owner-occupied Dwell	7.337	8.2%	5	0	0.0%	91	0.000	0.0%	90
Gen. Retail Trade	4.787	5.3%	6	288	8.1%	4	3.070	5.2%	5
Eating and DrinkingS	3.043	3.4%	7	206	5.8%	5	2.170	3.7%	6
Sawmills	2.127	2.4%	8	111	3.1%	6	1.667	2.8%	7
ROW Industry	1.444	1.6%	9	-0	0.0%	92	-0.003	0.0%	92
U.S. Postal Service	1.245	1.4%	10	53	1.5%	8	1.543	2.6%	8
Doctors and dentists	1.204	1.3%	11	47	1.3%	9	0.838	1.4%	11
HOSPITAL	1.110	1.2%	12	44	1.2%	11	0.948	1.6%	9
Banking	1.049	1.2%	13	39	1.1%	14	0.690	1.2%	12
Facility Mainten.	0.934	1.0%	14	22	0.6%	19	0.851	1.5%	10
Auto Repair and Serv.	0.741	0.8%	15	19	0.5%	21	0.457	0.8%	13
Food Grains	0.676	0.8%	16	45	1.3%	10	0.095	0.2%	41
Equipment Repair	0.621	0.7%	17	8	0.2%	42	0.193	0.3%	23
Motor Freight Transport	0.618	0.7%	18	33	0.9%	16	0.434	0.7%	14
Hay and Pasture	0.562	0.6%	19	15	0.4%	26	0.054	0.1%	49
Real Estate	0.513	0.6%	20	11	0.3%	34	0.033	0.1%	56
Rest of the Economy	7.915			559			5.767		
<b>TOTAL</b>	<b>89.554</b>			<b>3545</b>			<b>58.678</b>		

purchases in the community is expanded to 7.4 cents through indirect linkages. Hospital purchases are directed towards utilities, transport, and business services, Table 5.

Household linkages represent 75% of the total economic linkages to surrounding community. Wages and salaries of hospital staff and employees of local businesses linked by hospital purchases generate another 21 cents of economic activity. The distribution of these linkages are primarily in retail and services of the local economy. The hospital itself is linked again through potential spending by these employees.

#### Barrett Memorial Hospital

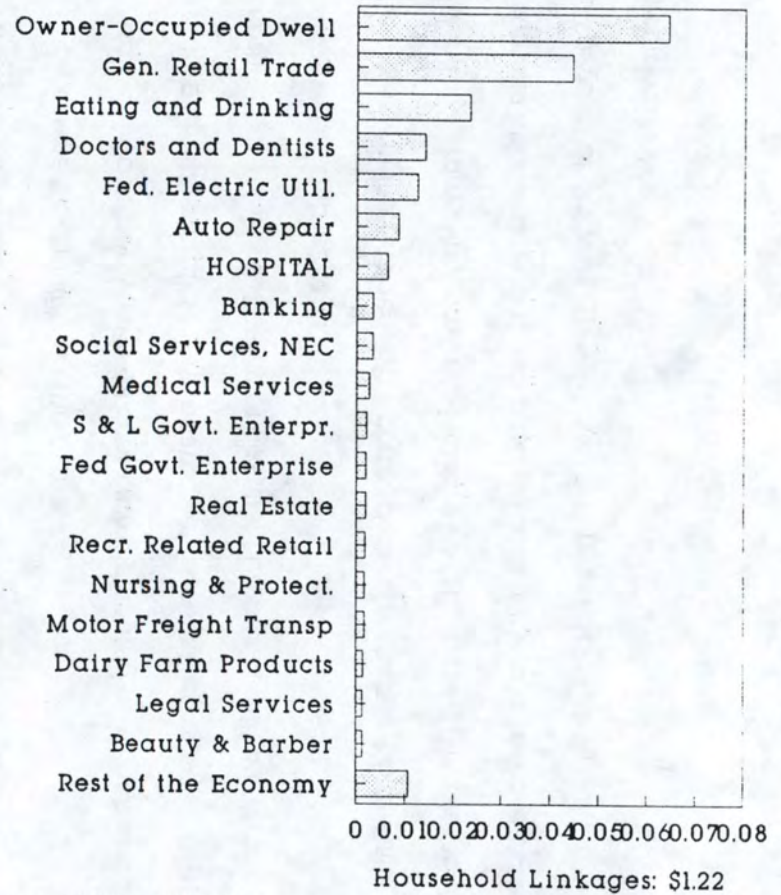
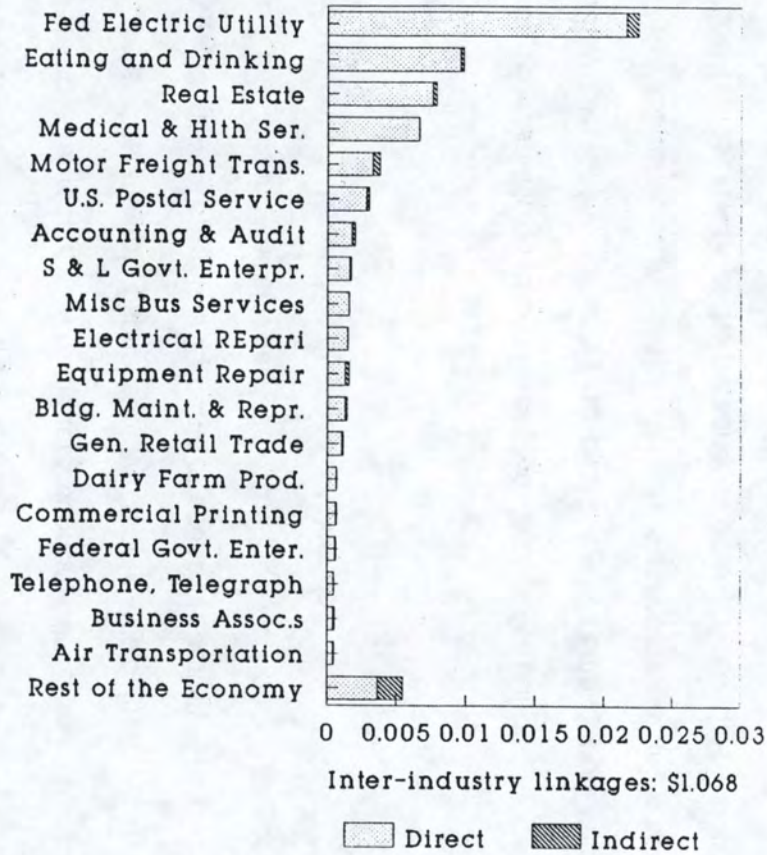
Barrett Memorial Hospital, located in Dillon, Montana, is surrounded by a slightly more diversified economy than Clearwater Valley Hospital but with a smaller population base: 8,500 residents. The economic base consists of cattle, transportation, and a small college. These three sectors represent 43% of the personal income generated. A ranking of the top twenty sectors, Table 6, shows government to be the largest sector. The next largest include retail/service sectors, livestock, and mining. The hospital ranks 19th in its generation of economic wealth, and fifth in employment.

Out of every dollar of hospital revenue 49 cents are distributed as wages and salaries, professional fees, or retained as profits. This means that 51 cents are used for hospital purchases. The community retains 9.4 cents of hospital purchases with the remainder leaving the county as economic leakage.

The proportion of revenues retained, 58.4 cents, generate another 1.5 cents in economic activity in the community from inter-industry effects, Table 7. Household linkage generates 18.2 cents of additional economic activity. Retail trade and service sectors represent over 80 percent of the total inter-industry and household linkage of the hospital to the surrounding community.

TABLE 5

CLEARWATER VALLEY HOSPITAL ECONOMIC LINKAGES



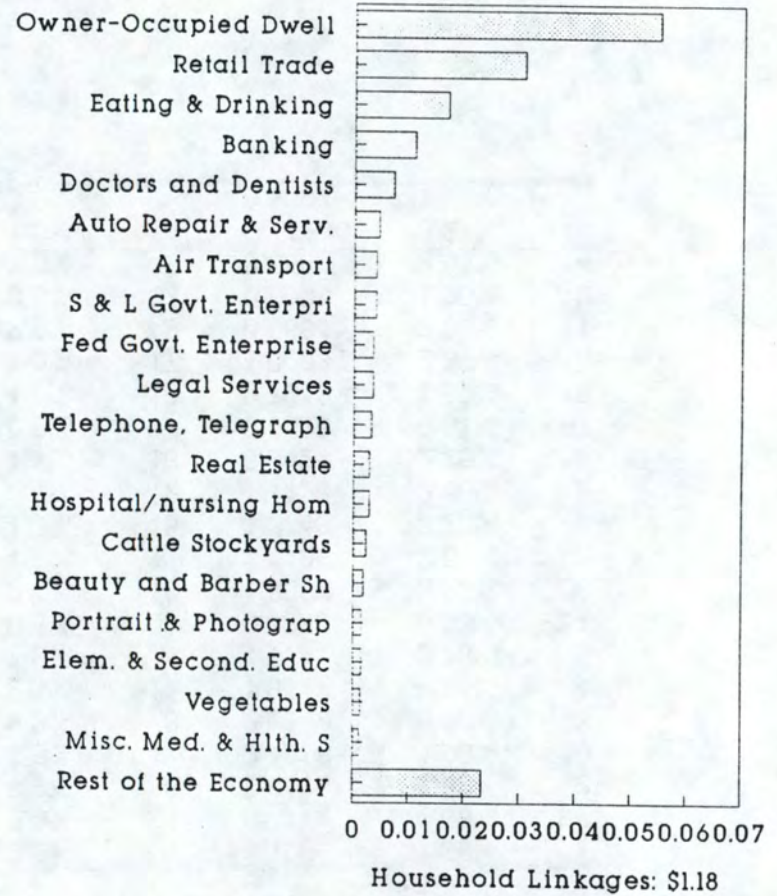
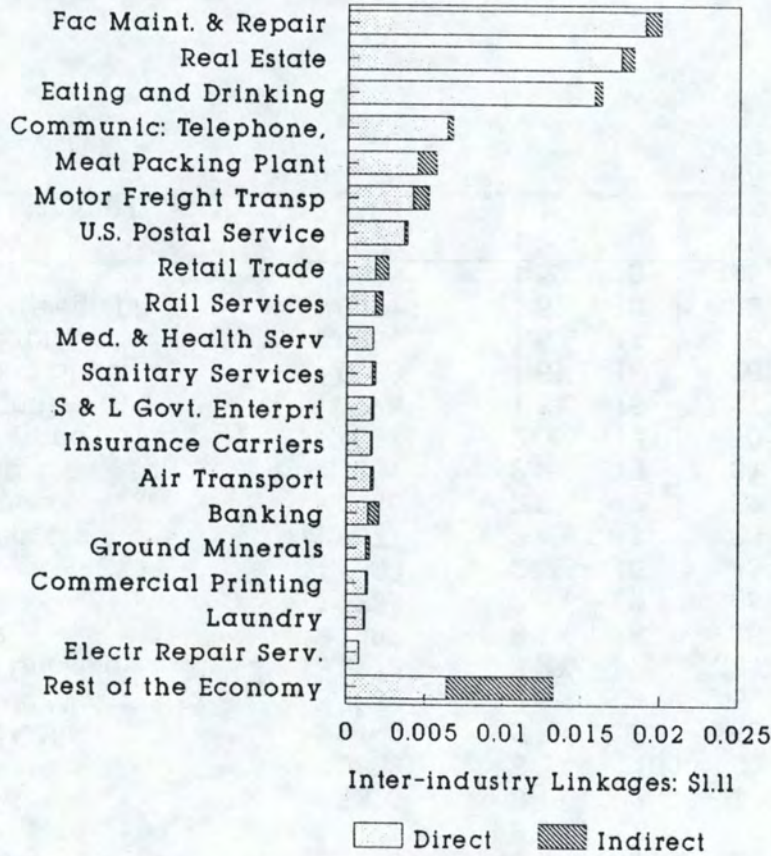
Source: USFS, IMPLAN

TABLE 6  
Beaverhead County, Montana Dominant Sectors

Sector	Value-Added	% of Total	RNK	Empl ment	% of Total	RNK	Empl Comp	% of Total	RNK
Govt. Industry	13.1065	19.0%	1	630	22.6%	1	13.1065	31.29%	1
Owner-Occupied Dwell.	6.1711	8.9%	2	0	0.0%	95	0	0.00%	94
Retail Trade	5.6325	8.1%	3	275	9.9%	2	3.6116	8.62%	2
Hay and Pasture	4.3663	6.3%	4	92	3.3%	7	0.4206	1.00%	20
Range Fed Cattle	3.9142	5.7%	5	255	9.2%	3	2.0949	5.00%	3
Talc & Borate Mining	3.1836	4.6%	6	59	2.1%	11	1.9117	4.56%	4
Eating and Drinking	2.2072	3.2%	7	201	7.2%	4	1.574	3.76%	5
Real Estate	2.1482	3.1%	8	15	0.5%	28	0.1362	0.33%	34
Sawmills	1.7234	2.5%	9	68	2.4%	10	1.3507	3.22%	7
Banking	1.6998	2.5%	10	43	1.6%	13	1.1186	2.67%	8
Railroad Services	1.6677	2.4%	11	33	1.2%	15	1.3748	3.28%	6
Ground Minerals	1.5445	2.2%	12	59	2.1%	12	1.1126	2.66%	9
Constr.- Min. Extr.	1.4961	2.2%	13	31	1.1%	16	0.9421	2.25%	13
Rest of the World	1.4057	2.0%	14	-0	-0.0%	97	-0.0026	-0.01%	97
Motor Freight Trans.	1.1276	1.6%	15	27	1.0%	18	0.7912	1.89%	15
Constr.- Farm Struct.	1.0989	1.6%	16	28	1.0%	17	1.0003	2.39%	10
Nursing & Prot. Care	1.0964	1.6%	17	73	2.6%	9	0.9664	2.31%	11
Telephone, Telegraph	1.0471	1.5%	18	13	0.5%	33	0.5009	1.20%	19
HOSPITAL	1.0225	1.5%	19	195	7.0%	5	0.858	2.05%	14
Food Grains	0.7999	1.2%	20	40	1.5%	14	0.1124	0.27%	44
Rest of the Economy	12.4456	18.1%		646	23.2%		8.9097	21.27%	
TOTAL	68.9048			2788			41.8906		

TABLE 7

Barrett Memorial Hospital Economic Linkages



### Harney County Hospital

Harney County Hospital, located in Burns, Oregon, is in a community economy dominated by timber and ranching with a population base of 7,600. Burns, once noted as having the largest lumber mill in the Northwest has seen a steady decline in employment at the mill since the mid-seventies. The mill has been suffering from out-of-date technology and increasing transportation costs as nearby old growth timber is logged out. However, building up from behind the decline is viable value-added timber sector that is hiring people. Livestock, timber, and government represent over 60 percent of personal income in the community. The hospital ranks ninth in its contribution to value-added and tenth in employment. Government, the timber based sectors, livestock, and retail trade rank higher than the hospital, Table 8.

The distribution of hospital revenues are, like other hospitals, split fairly evenly between spending on employees and goods and services. Wages and Salaries comprise 47.2 cents out of each dollar of revenue and another eight cents is used for profits and professional fees. This leaves 44.8 cents for hospital purchases. Local purchases comprise 4.2 cents. The rest, 40.6 cents, is economic leakage.

Of the dollars of that do stay in the community, 6.8 cents is generated through inter-industry linkages. Local hospital purchases link it to real estate, telephone-telegraph, medical services, laundry, and transportation among others, Table 9. The household linkage represents over three quarters of the total hospital linkages. As expected, retail trade and consumer services dominate the distribution of the linkage. The hospital itself and physicians rank fourth and fifth respectively.

### Wallowa Memorial Hospital

Wallowa County Hospital, located in Enterprise, Oregon is surrounded by an economy diversified with tourism, livestock, lumber, and tourism related government employment with a population base of 7,500. Together these sectors represent over 60% of the total

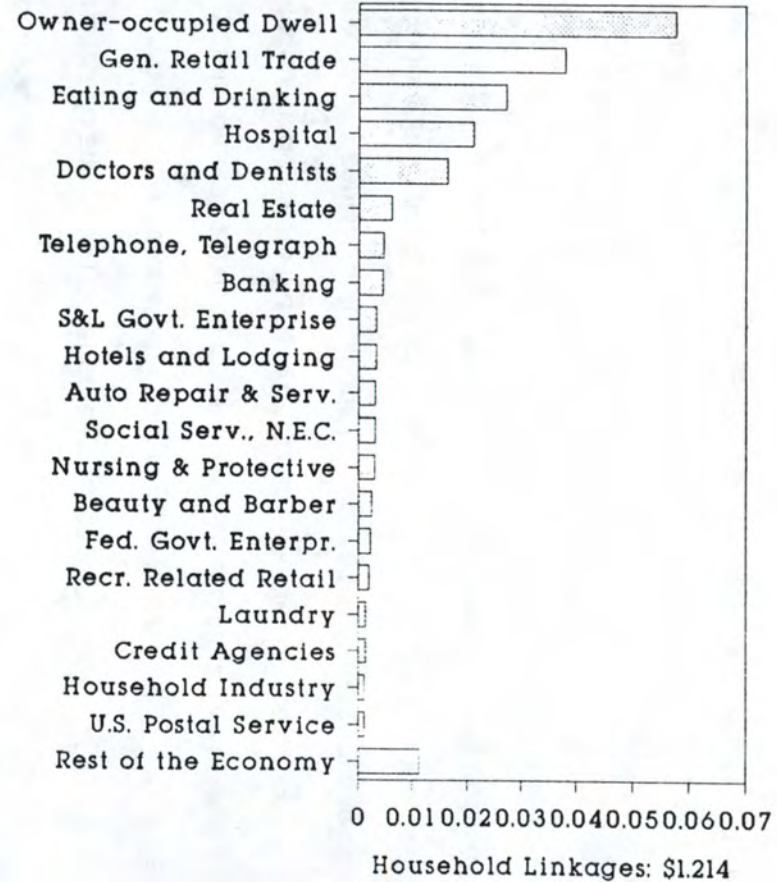
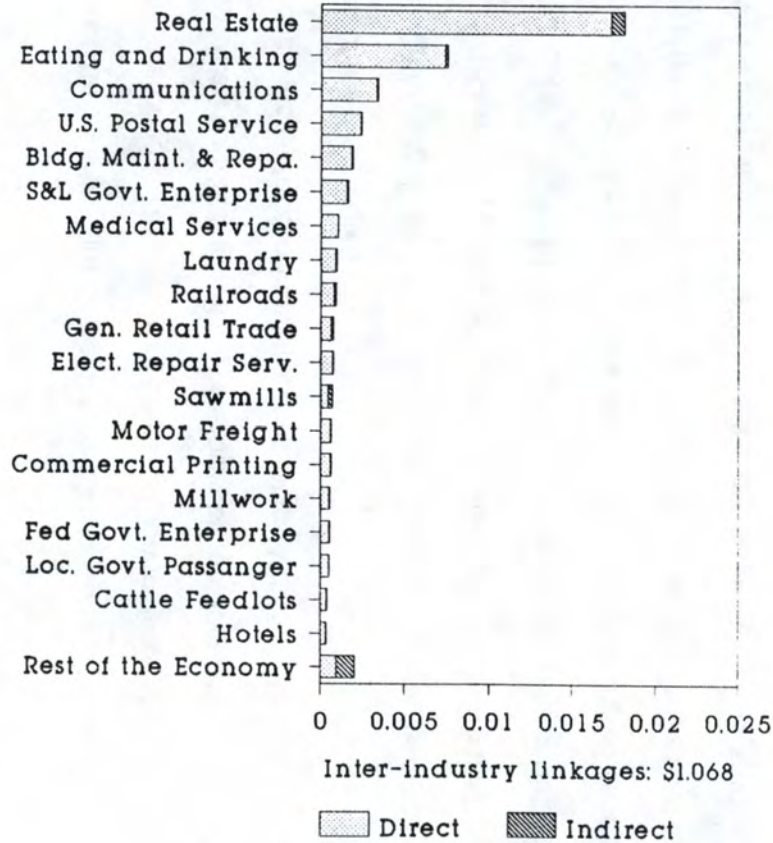
TABLE 8  
Harney County, Oregon Dominant Economic Sectors

Sector	Value-Added	% of Total	Empl RNK	ment	% of Total	RNK	Empl Comp	% of Total	RNK
Government Industry	13.7565	21.3%	1	785	27.9%	1	13.75	32.6%	1
Sawmills	11.4885	17.8%	2	329	11.7%	2	9.0	21.3%	2
Owner-Occupied Dwell.	5.3812	8.3%	3	0	0.0%	72	0	0.0%	72
Retail Trade	4.6343	7.2%	4	281	10.0%	3	2.97	7.0%	3
Logging Camps	2.9548	4.6%	5	21	0.7%	19	1.96	4.6%	4
Range Fed Cattle	2.3647	3.7%	6	196	6.9%	4	1.26	3.0%	5
Hay and Pasture	2.3172	3.6%	7	62	2.2%	9	0.22	0.5%	19
Real Estate	1.9628	3.0%	8	25	0.9%	17	0.15	0.3%	29
HOSPITALS	1.5057	2.3%	9	60	2.1%	10	0.96	2.3%	9
Eating and Drinking	1.3516	2.1%	10	159	5.6%	5	0.97	2.3%	8
Millwork	1.2973	2.0%	11	85	3.0%	8	1.0	2.4%	7
Rest of the World	1.2662	2.0%	12	-0	0.0%	74	-0.0	0.0%	74
Railroads	1.145	1.8%	13	29	1.0%	14	0.94	2.2%	10
Doctors and Dentists	1.0659	1.7%	14	35	1.3%	13	0.74	1.8%	12
U.S. Postal Service	1.0007	1.6%	15	43	1.5%	11	1.22	2.9%	6
Telephone, Telegraph	0.9758	1.5%	16	16	0.6%	23	0.46	1.1%	14
Struct wood Members	0.9696	1.5%	17	150	5.3%	6	0.75	1.8%	11
Grass Seed	0.8491	1.3%	18	15	0.5%	26	0.05	0.1%	50
Industrial Bld. Constr	0.7293	1.1%	19	18	0.6%	21	0.66	1.6%	13
Banking	0.6997	1.1%	20	27	1.0%	15	0.46	1.1%	15
Legal Services	0.6037	0.9%	21	13	0.5%	30	0.34	0.8%	16
Residential Constr.	0.398	0.6%	22	26	0.9%	16	0.33	0.8%	17
Food Grains	0.3057	0.5%	23	19	0.7%	20	0.043	0.1%	53
Paving Mixtures	0.2985	0.5%	24	7	0.3%	38	0.16	0.4%	25
S & L Govt. enterprise	0.2866	0.4%	25	16	0.6%	24	0.16	0.4%	24
Rest of the Economy	4.9082	7.6%		397	14.1%		3.58	8.5%	--
TOTAL	64.52			2815			42.18		



# Table 9

## Harney County Hospital Economic Linkages



Source: USFS, IMPLAN

personal income of the county. Though not far from larger communities with regional medical centers (Enterprise is 72 miles from Lewiston, Idaho and a regional medical center) poor or hazardous road conditions limit the feasibility by residents from using other hospitals. The occupancy rates tend to reflect this factor. Wallowa County Hospital has the highest use rates of the five studied.

Like the other counties, Wallowa County is dominated by natural resource related economic activity. Government and tourism related sectors contribute over 20% of the total value-added in the county, Table 10. The hospital is ranked 10th in its contribution to value-added and ninth in employment. As a single entity, the hospital is ranked second.

The hospital retains a higher proportion from each dollar of revenue than the other counties primarily because the hospital makes a profit. Its proportion of spending on wages and salaries are about the same. Total hospital purchases seem to be somewhat less and especially local purchases.

Of the dollars that do stay, each dollar of revenue generates another 41 cents of economic activity through local purchases, Table 11. Real estate, electric services, eating and drinking, and transportation services dominate the distribution. The household or induced linkages though, dominate the total backward linkage. Linked household spending contributes another twenty cents. Contributions to owner equity (owner-occupied dwellings), retail trade and services, and the health sector dominate the induced linkage. The induced linkages that return back to the health sector represent 20% of the total linkage.

#### Garfield County Hospital

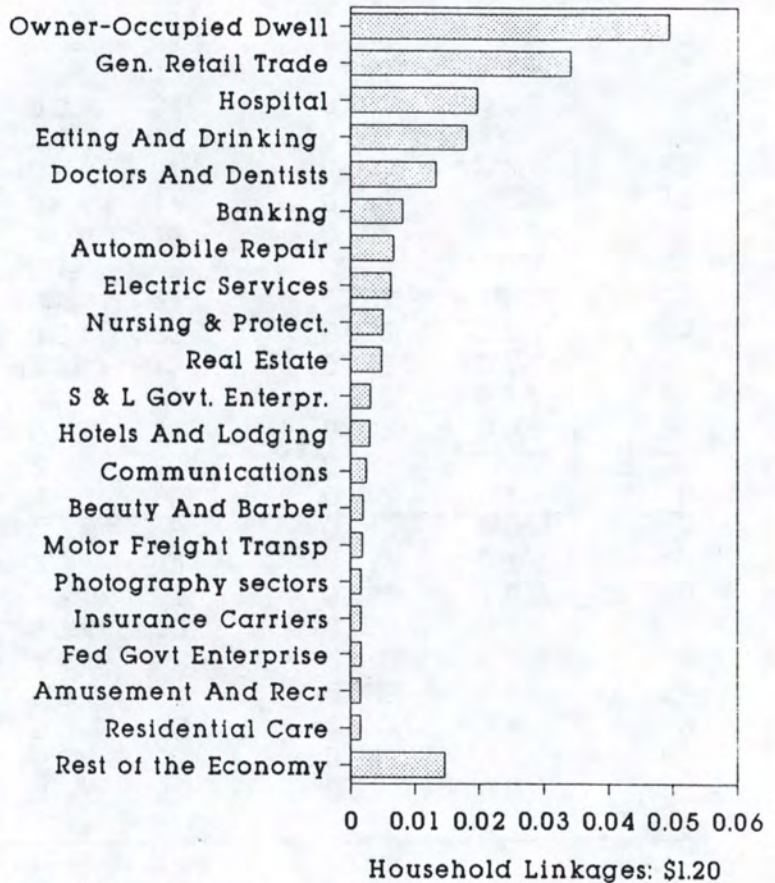
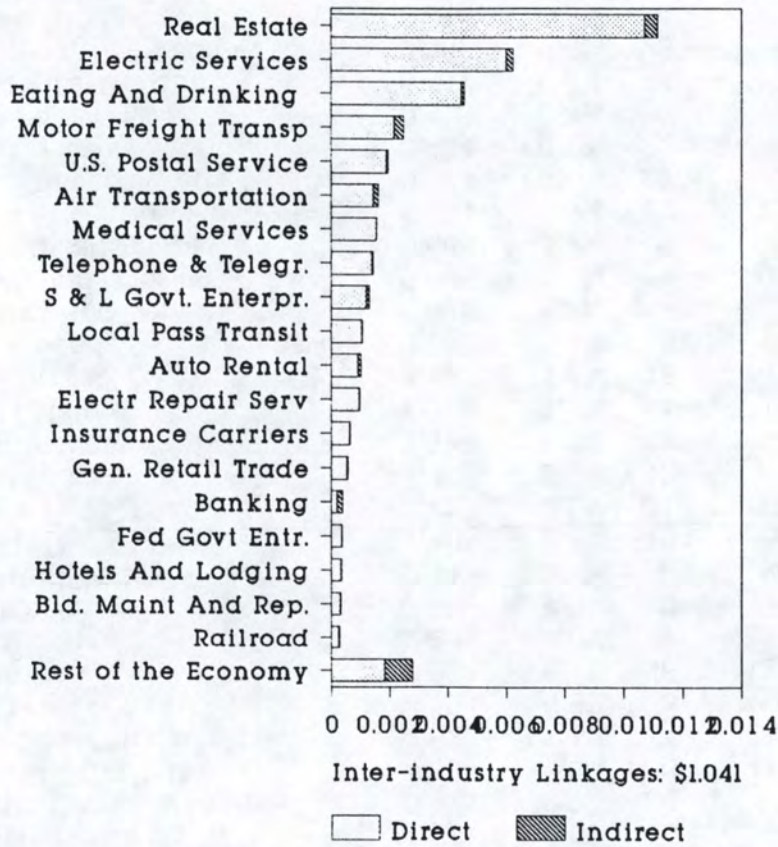
Garfield County Hospital, located in Pomeroy, Washington, is located in a highly agricultural area with the smallest population base of the communities studied of 2,500. Over half of the personal income generated in the county comes from farming. Other than farming though there is very little else (Table 3.) Unlike the other communities studied, the

TABLE 10  
Wallowa County, Oregon Dominant Economic Sectors

Sector	Value- Added	% of Tot	RNK	Empl ment	% of Tot	RNK	Empl Comp	% of Total	RNK
Government Industry	11.677	18.0%	1	700	22.9%	1	11.677	36.1%	1
Owner-Occupied Dwell	6.421	9.9%	2	0	0.0%	87	0	0.0%	86
Recr Related Retail	4.891	7.6%	3	484	15.8%	2	0.082	0.3%	43
Gen. Retail Trade	4.62	7.1%	4	253	8.3%	3	2.962	9.2%	3
Logging Contr	4.194	6.5%	5	170	5.6%	4	2.025	6.3%	4
Sawmills	3.933	6.1%	6	134	4.4%	5	2.979	9.2%	2
Electric Services	2.891	4.5%	7	28	0.9%	18	0.762	2.4%	9
Vegetables	2.78	4.3%	8	113	3.7%	7	0.581	1.8%	10
Hay And Pasture	2.417	3.7%	9	65	2.1%	12	0.233	0.7%	22
HOSPITAL	1.497	2.3%	10	89	2.9%	9	0.849	2.6%	6
Range Fed Cattle	1.453	2.2%	11	120	3.9%	6	0.777	2.4%	8
Food Grains	1.301	2.0%	12	84	2.7%	10	0.183	0.6%	27
ROW Industry	1.274	2.0%	13	-1	0.0%	88	-0.002	0.0%	88
Real Estate	1.229	1.9%	14	15	0.5%	28	0.078	0.2%	45
Banking	1.193	1.8%	15	41	1.3%	15	0.785	2.4%	7
Grass Seeds	0.886	1.4%	16	16	0.5%	26	0.053	0.2%	53
Doctors And Dentists	0.815	1.3%	17	23	0.8%	21	0.567	1.8%	12
Eating And Drinking	0.805	1.2%	18	95	3.1%	8	0.574	1.8%	11
U.S. Postal Service	0.688	1.1%	19	30	1.0%	16	0.852	2.6%	5
Motor Freight Transp	0.531	0.8%	20	28	0.9%	17	0.373	1.2%	13
Miscellaneous Crops	0.441	0.7%	21	13	0.4%	31	0.062	0.2%	50
Nursing Care	0.434	0.7%	22	49	1.6%	13	0.307	1.0%	15
Auto Repair	0.423	0.7%	23	10	0.3%	34	0.261	0.8%	19
Residential Constru.	0.417	0.6%	24	27	0.9%	19	0.345	1.1%	14
Telephone, Telegraph	0.387	0.6%	25	6	0.2%	44	0.185	0.6%	26
Hotels And Lodging	0.375	0.6%	26	42	1.4%	14	0.252	0.8%	21
Rest of the Economy	6.752	10.4%		423	13.8%		4.509	14.0%	
TOTAL				3056			32.31		

TABLE 11

Walla Walla Memorial Hospital Economic Linkages



Source: IMPLAN

hospital in Pomeroy is financially connected to a nursing home. Other than nursing home patients there have been no other primary care patients since 1982. The physicians in the community do not recommend any patients to the hospital. The objective for the hospital is to look for ways to return the hospital back to the role of the primary care provider for the community.

The dominant sectors of the economy, Table 12, describe a community highly dependent upon farming. The service sector and most of the government sectors primarily service the farm sector. The hospital/nursing home is ranked fifth under the retail sector in its contribution to value added and fourth in employment.

Hospital revenues supported by the nursing home operation are distributed in much the same manner as in all other hospitals of this study. Wages and salaries comprise 41.4 cents of each dollar of revenue and professional fees take another eight cents. This leaves 51 cents for hospital purchases of supplies and services. Six cents out of every dollar of revenue are spent locally.

Every dollar of revenue generates another 23.4 cents of economic activity in the community, Table 13. Local purchases by the hospital generate another 6.7 cents in inter-industry activity. Real Estate, laundry services, state and local government enterprises, and miscellaneous health services represent the major sectorial purchases.

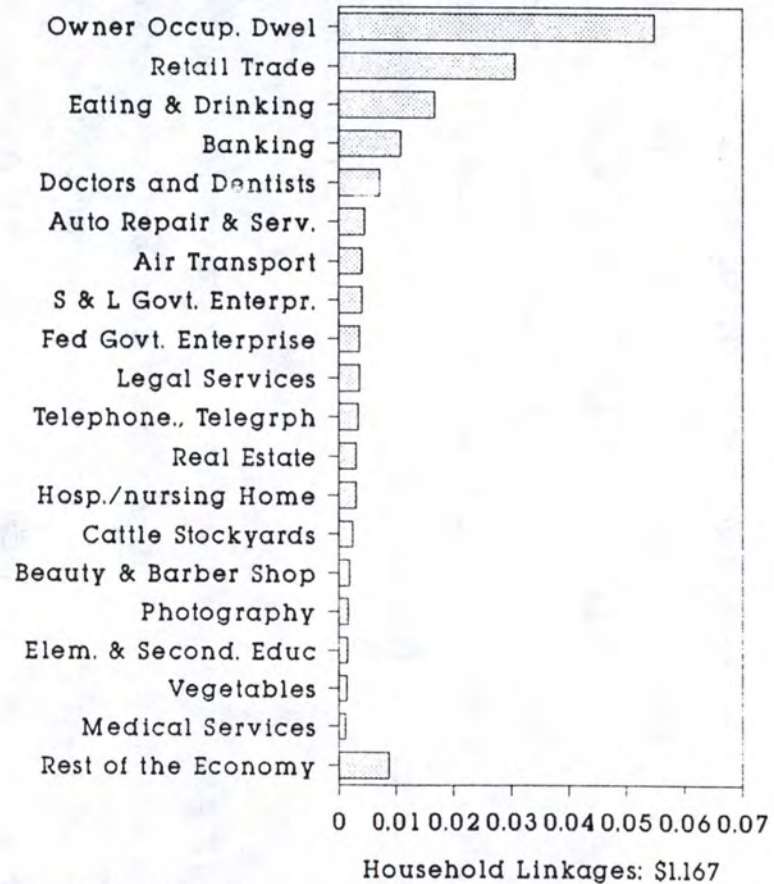
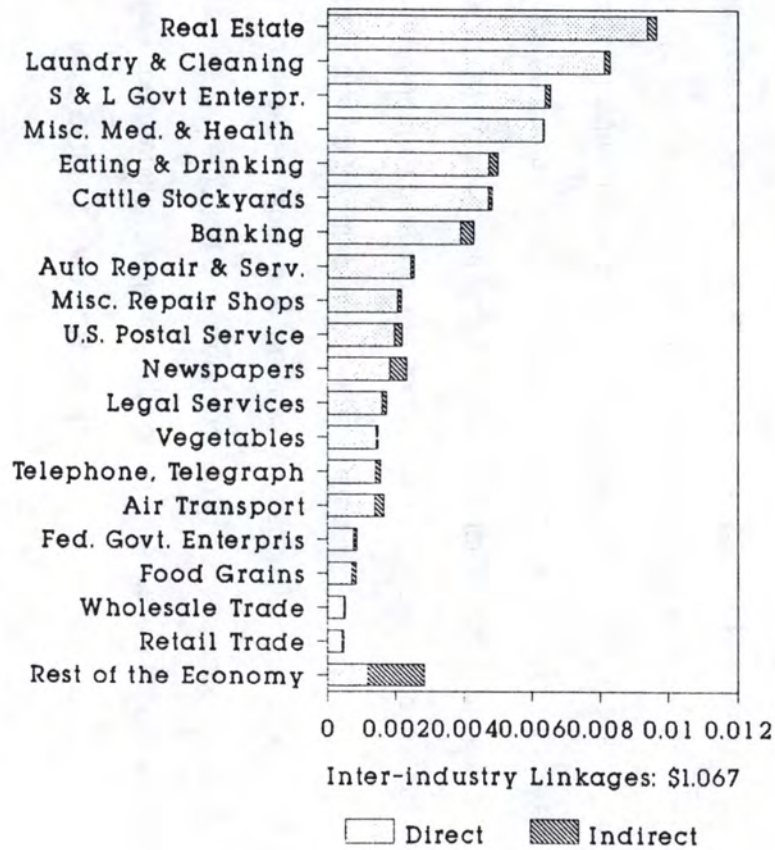
Induced linkages by households represent the largest proportion of the total linkage, totaling 16.7 cents. Contributions to owner equity and retail trade and service dominate the household linkage. An important implication of the household linkage though is that even though the physicians do not use the hospital they depend to a certain extent upon the impacts of its business. In economic terms this means that while the hospital is not forward linked to the physicians, the physicians are nevertheless backward linked to the hospital.

TABLE 12  
Garfield County, Washington Dominant Economic Sectors

Sector	Value - Added	% of Total	Empl RNK	ment	% of Total	RNK	Empl Comp	% of Total	RNK
Food Grains	8.511	38.3%	1	571	40.8%	1	1.196	11.7%	2
Govt. Industry	4.402	19.8%	2	280	20.0%	2	4.402	43.1%	1
Owner-Occupied Dwell.	1.507	6.8%	3	0	0.0%	55	0	0.0%	56
Gen. Retail Trade	0.854	3.8%	4	55	3.9%	5	0.548	5.4%	5
HOSPITAL/NURSING	0.821	3.7%	5	80	5.7%	4	0.694	6.8%	3
ROW Industry	0.685	3.1%	6	0	0.0%	57	-0.001	0.0%	57
Real Estate	0.459	2.1%	7	4	0.3%	30	0.029	0.3%	32
Hay & Pasture	0.45	2.0%	8	13	0.9%	11	0.043	0.4%	25
U.S. Postal Serv.	0.448	2.0%	9	15	1.1%	8	0.555	5.4%	4
Farm Sector Constr.	0.409	1.8%	10	14	1.0%	9	0.373	3.7%	6
Banking	0.362	1.6%	11	13	0.9%	10	0.238	2.3%	7
Misc. Repair Shops	0.355	1.6%	12	8	0.5%	14	0.134	1.3%	12
Gen. Wholesale Trade	0.28	1.3%	13	159	11.3%	3	0.173	1.7%	9
Eating & Drinking	0.253	1.1%	14	46	3.2%	6	0.181	1.8%	8
Newspapers	0.205	0.9%	15	8	0.5%	16	0.162	1.6%	10
Cattle Feedlots	0.185	0.8%	16	16	1.1%	7	0.099	1.0%	14
Commerc. Constr	0.174	0.8%	17	5	0.4%	20	0.159	1.6%	11
Vegetables	0.166	0.7%	18	7	0.5%	18	0.035	0.3%	28
Telephone, Telegraph	0.157	0.7%	19	4	0.3%	29	0.075	0.7%	18
Doctors & Dentists	0.156	0.7%	20	4	0.3%	25	0.109	1.1%	13
Rest of the Economy	1.407	6.3%		102	7.2%		1.009	9.9%	
<b>TOTAL</b>	<b>22.246</b>			<b>1401</b>			<b>10.212</b>		

# Table 13

## Garfield County Hospital Economic Linkages



Source: USFS, IMPLAN

## **SUMMARY AND POLICY IMPLICATIONS**

In all five communities the hospital is one of the largest employers in the county. Only the sectors that make up the dominant economic base of each community and the retail trade sector are larger. When one includes the associated health sectors though the importance of this aggregated sector is amplified.

The inter-industry linkage of the hospital is very small, usually less than 10 cents out of each dollar of revenue. Hospitals are a source of large economic leakage. While this in most cases cannot be helped due to the kind of purchases the hospital makes, there may be opportunities for potential local suppliers to capture some of those dollars.

The household linkage represents the most important part of the total hospital local linkage. As a result this links the hospital to retail trade and services within the community, sectors that more often than not represent the largest source of employment in a community. Furthermore the hospital and other health sectors are then linked back together through this portion of consumer spending. Whether or not physicians refer customers to the local hospital or, as in the case of Pomeroy, Washington, refer patients outside the community, these physicians depend to a certain extent upon the health of the hospital.

## **POLICY IMPLICATIONS**

As hospitals and communities evaluate their alternatives, the local jobs, linkages and income recapture are important considerations. The medical sector is an important source of jobs and income in all five communities studied. Without the hospital, those jobs would be lost from the community and it becomes a less desirable place to live. Also income paid out through taxes and insurance premiums cannot be recaptured to the community.

If federal payment rules cannot be revised to reflect lower occupancy rates and higher per paying - patient capital costs, then subsidy may be necessary to preserve the local health care delivery system and community jobs. This type of analysis helps quantify the level of subsidy that could be implemented and still leave the community better off. Tough



decisions need to be made for the community by its citizens and consideration of this type of analysis is only one part of the community's overall decision making process.

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