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Special Report 1: The Importance Of Non-Earned Sources Of Income In Wyoming.

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This is the first in a series of special research reports from the Division of Economic Analysis. With the special reports we at the Division are trying to improve, both your and our understanding of Wyoming's economy. This first report examines non-earned sources of income and their importance as a source of income. We hope you find this and future special reports useful and informative.

When looking at local economies in Wyoming, the focus is largely on employment and wage and salary earnings. While these are both vital measures of the economy, an important and often overlooked piece of economic data is non-earned sources of income. Because non-earned sources of income do not depend on the local job market like wage and salary earnings, they act as a buffer against local economic downturns by providing a source of income, and hence spending, removed from the fluctuations of the local economy.

Earnings by Place of Work is the largest component of Total Personal Income[i] (TPI) representing 66.1 percent of TPI in 1999. However, non-earned sources of income are becoming increasingly important, representing 38.1 percent of TPI in Wyoming in 1999. This is an increase of 4.1 percent from 1989. In some Wyoming counties the percentage is even higher, with non-earned sources of income providing almost half of TPI.

The two sources of non-earned income are Dividends, Interest, and Rent, (DIR) and transfer payments. DIR is composed of personal dividend income, personal interest income, and rental income of persons with capital consumption adjustment, and is sometimes referred to as "investment income" or "property income." Transfer payments are the other source of non-earned income and represent payments by government or business to individuals or non-profit institutions.

While TPI grew by 5.3 percent annually from 1989 to 1999, the rate of growth for DIR and transfer payments was higher, at 6.7 percent and 6.3 percent, respectively. Because both DIR and transfer payments grew faster than TPI as a whole, the share of TPI from them increased over the time period. DIR as a percent of TPI increased by 3.0 percent points from

1989 to 1999, to 26.1 percent. Transfer payments as a percent of TPI grew by 1.1 percent from 1989 to 1999, to 12.0 percent. Because Earnings by Place of Work grew by 4.7 percent, slower than TPI as a whole, it fell from 66.0 percent to 61.0 percent of TPI from 1989 to 1999.

Among Wyoming counties, several derive more of TPI from non-earned sources of income than others. The counties with the highest proportion of TPI from non-earned sources in 1999 were Washakie, Teton, Fremont, Park, Sublette, Hot Springs, Niobrara, Johnson, and Sheridan, all with 40 percent or more of TPI derived from non-earned sources of income. The counties with the lowest percentage of TPI from non-earned sources of income were Campbell, Sweetwater, and Uinta, all with less than 25 percent of TPI derived from non-earned sources of income.

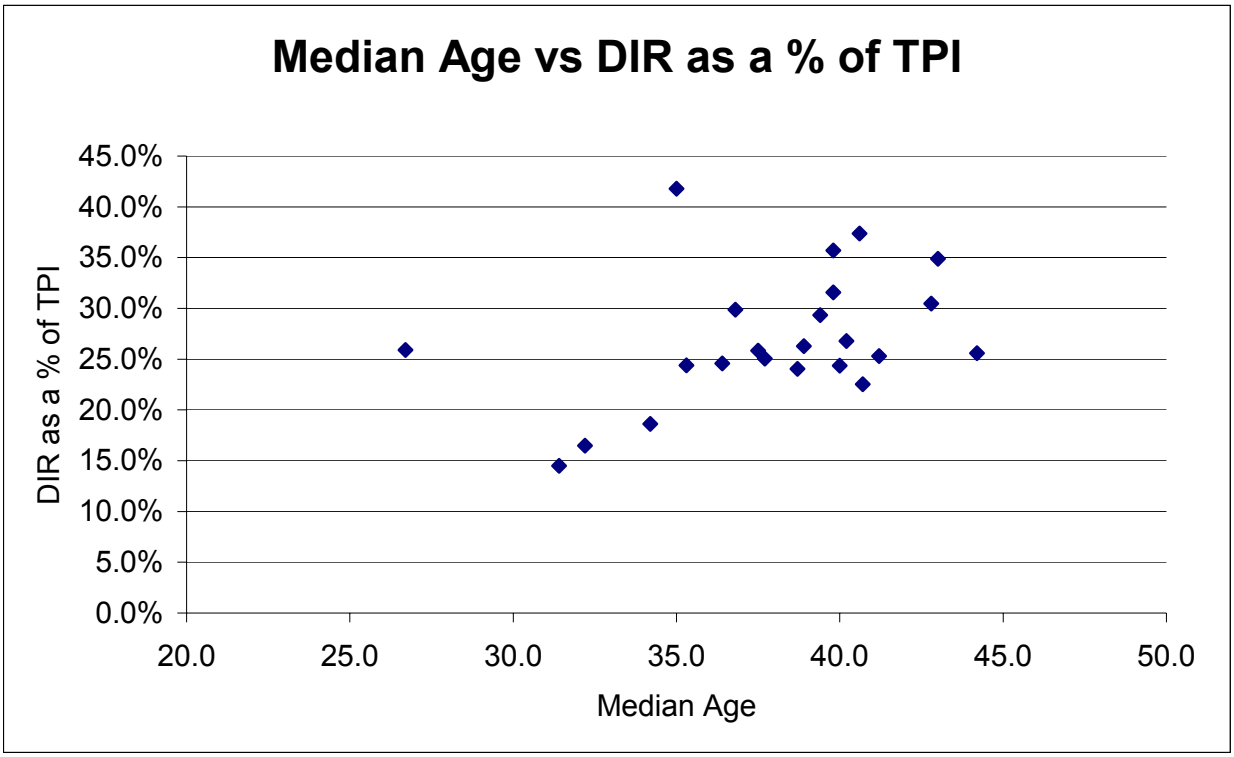
If we look at the non-earned sources of income in detail, we see differences in which types of non-earned income are most important between counties. The counties receiving the largest proportion of DIR as a percentage of TPI are Teton, Sheridan, Sublette, Johnson, and Park, all of which are over 31 percent. The counties with the lowest amounts of TPI from DIR are Sweetwater, Campbell, and Uinta at less than 20 percent. The counties with the highest amount of transfer payments are Hot Springs, Fremont, Niobrara, Big Horn, and Goshen, all of which are above 17 percent of TPI. The lowest levels are in Teton, Campbell, and Sweetwater counties, all below 10 percent.

What explains the differences in the levels of DIR and transfer payments between counties? We will use regression analysis to examine the relationship between DIR and transfer payments as our dependent variables and several independent variables. Regression analysis allows us to measure how much of the variation in our dependent variable is explained by changes in our independent variables.

First we will focus on DIR and look at two explanatory variables, age and wealth. We would expect that DIR would become a more important source of income as average age increases. As people grow older and move through their prime earning years, they acquire more physical and financial assets that would pay dividends, interest, and rent. As for wealth, we would expect that individuals with more wealth would also hold more physical and financial assets that pay DIR. Since no direct measure of wealth for each county exists, we will instead use per capita assessed valuation. Per capita assessed valuation should be a good proxy for wealth, as we would expect individuals who are wealthier to own more expensive houses. Therefore, as per capita residential assessed valuation increases, we would expect DIR as a percent of TPI to increase. Two dummy variables for Teton and Sublette counties were also included since the per capita residential assessed valuations are significantly different from the rest of the state.

In Graphs 1 and 2 we have plotted "percent of TPI from DIR" versus median age and per capita residential assessed valuation respectively. As can be seen in Graph 1, there appears to be a good correlation between median age and DIR as a percent of TPI.

Graph 1



Graph 2 shows the relationship between DIR as a percent of TPI and per capita residential assessed valuation, our measure of wealth. Because Teton County's per capita residential assessed valuation is significantly higher than all other counties, it has been excluded from the graph. Again, it would appear from the data that a correlation exists between the two variables.

Table 1 shows the regression output. Examining the output, we can see that the combination of age, per capita residential assessed valuation, and dummy variables for Teton and Sublette counties explain 79.1 percent of the variation of DIR as a total percentage of TPI. The reported F statistic for the equation, 21.8, allows us to soundly reject the null hypothesis that the equation explains none of the variation of the dependent variable.

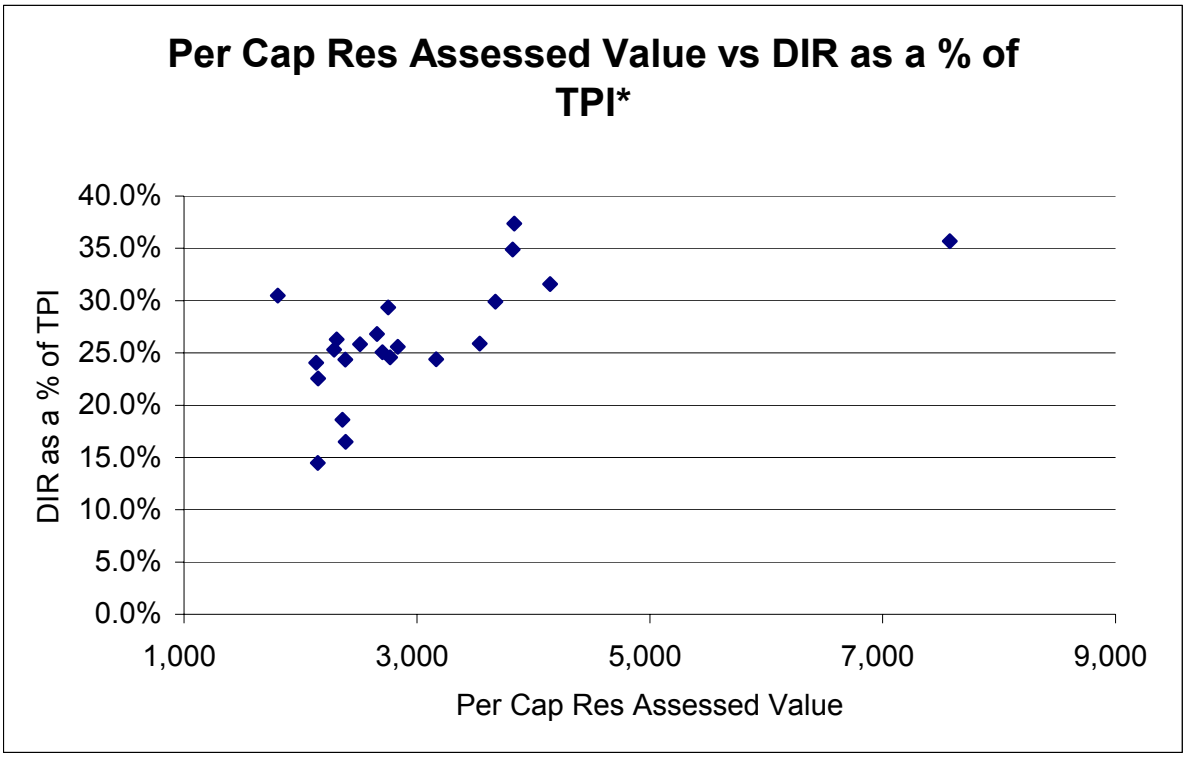
Table 1 - DIR Regression Results

Percent DIR = Intercept + Age + Res Assessed Value + Teton + Sublette

Adj R Square = .791 F = 21.77 d.f. = 18

	Coefficients	Standard Error	t Stat	P-value
Intercept	-0.17093	0.0662906	-2.578522	0.018934
Age	0.00742	0.0015566	4.768172	0.000154
Res Assessed Value	0.05322	0.0099240	5.362764	4.26E-05
Teton	-1.15595	0.2510466	-4.604516	0.000220
Sublette	-0.17073	0.0564606	-3.023960	0.007295

Graph 2



* Teton County has been excluded because its Per Capita Residential Assessed Valuation is over $30,000.

From the t-stats for the independent variables, we see that all variables are significant at the 1 percent level. The coefficient for each independent variable shows the marginal impact on DIR. For the first variable, median age, we see that as the median age increases by one year, the percentage of DIR as part of TPI increases by 0.007 percent. The per capita residential assessed value shows that as the value increases by $1,000, DIR as a percentage of TPI increases by 0.053.

From Table 2 we can see the median age and per capita residential assessed valuation for each county. The five counties with DIR over 31 percent of TPI, Teton, Sheridan, Sublette, Johnson, and Park, tend to be older. But more importantly, these also are the counties with the highest per capita assessed valuations. The three counties with DIR under 20 percent of TPI, Campbell, Sweetwater, and Uinta, are all younger, and have lower per capita residential assessed valuations.

For transfer payments we will also look at two explanatory variables, median age, and a combination of residence adjusted earnings and DIR. Also included was a dummy variable for Teton County, since residence adjusted earnings plus DIR was significantly higher than in all other counties. Age is considered because the largest component of transfer payments is government payments that largely consist of social security or medical payments. Age is also a good indicator of private pension benefits. We would expect that as age increases, so would the percentage of TPI derived from transfer payments. Residence adjusted earnings plus DIR was included to reflect those payments from the government that are income support payments. As

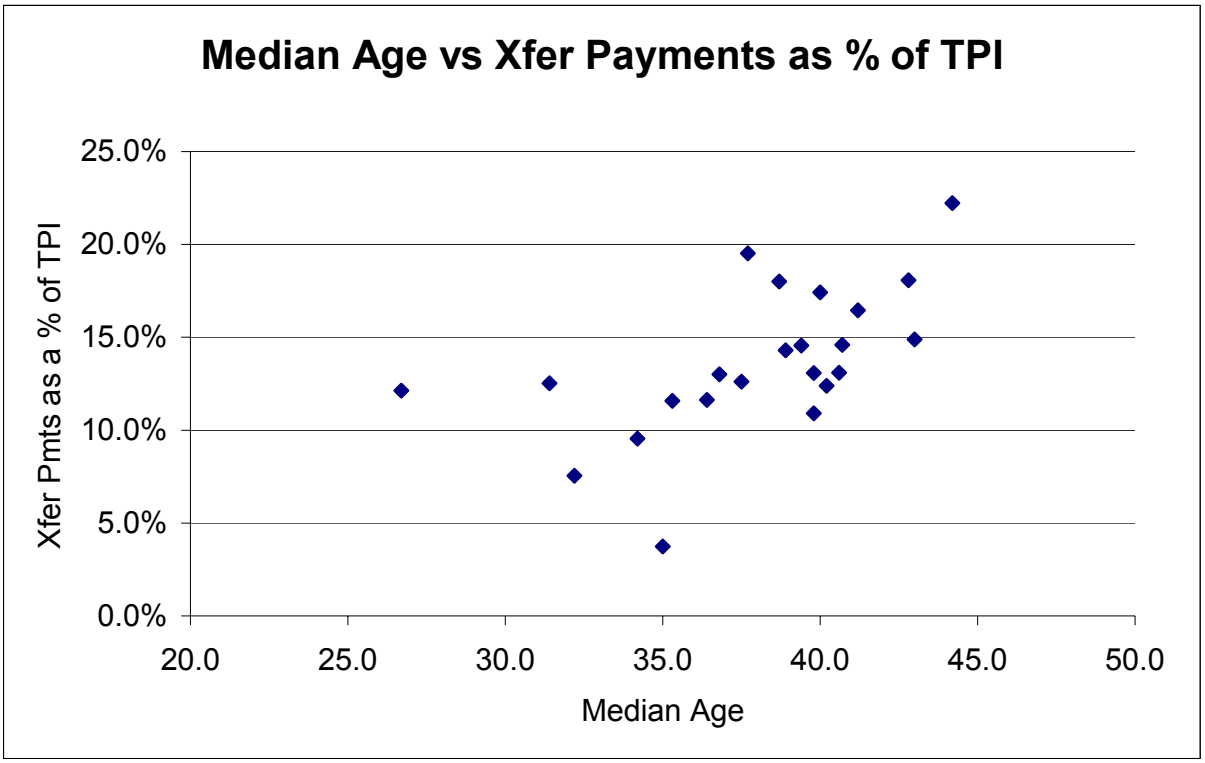
residence adjusted earnings plus DIR rises, it is less likely that an individual would receive income support payments, so we would expect the sign of this variable to be negative.

Table 2	Median Age	Rank	Per Capita Residential Assessed Valuation	Rank	DIR as a percentage of TPI	Rank
Albany County	26.7	23	3.538	7	25.9%	11
Big Horn County	38.7	13	2.135	22	24.1%	19
Campbell County	***32.2***	***21***	***2.389***	***15***	***16.5%***	***22***
Carbon County	38.9	12	2.311	18	26.3%	10
Converse County	37.5	15	2.510	14	25.8%	12
Crook County	40.2	7	2.656	13	26.8%	9
Fremont County	37.7	14	2.703	12	25.1%	15
Goshen County	40.0	8	2.385	16	24.4%	18
Hot Springs County	44.2	1	2.836	9	25.6%	13
Johnson County	**43.0**	**2**	**3.822**	**5**	**34.9%**	**4**
Laramie County	35.3	18	3.167	8	24.4%	17
Lincoln County	36.8	16	3.674	6	29.9%	7
Natrona County	36.4	17	2.769	10	24.6%	16
Niobrara County	42.8	3	1.804	23	30.5%	6
Park County	**39.8**	**9**	**4.143**	**3**	**31.6%**	**5**
Platte County	41.2	4	2.290	19	25.3%	14
Sheridan County	**40.6**	**6**	**3.836**	**4**	**37.4%**	**2**
Sublette County	**39.8**	**10**	**7.577**	**2**	**35.7%**	**3**
Sweetwater County	***34.2***	***20***	***2.361***	***17***	***18.6%***	***21***
Teton County	**35.0**	**19**	**27.904**	**1**	**41.8%**	**1**
Uinta County	***31.4***	***22***	***2.148***	***21***	***14.5%***	***23***
Washakie County	39.4	11	2.754	11	29.3%	8
Weston County	40.7	5	2.152	20	22.5%	20

Counties with DIR as a percentage of TPI higher than 31 percent are shown in **Bold**.
Counties with DIR as a percentage of TPI lower than 20 percent are shown in ***Bold Italic***.

Graphs 3 and 4 give us a visual representation of the relationship between "percent of TPI from transfer payments" and median age and adjusted earnings plus DIR. Again, we can see that there is a strong correlation between median age and transfer payments as a percent of TPI.

Graph 3



Graph 4 shows the relationship between transfer payments as a percent of TPI and adjusted earnings plus DIR. Because adjusted earnings for Teton County differed significantly from all other counties, it was excluded from the graph. The graph does show the relationship between higher adjusted earnings and a lower lever of transfer payments as a percentage of TPI.

In Table 3 we see the regression output. The adjusted R squared for the transfer payments equation was .739, indicating that the equation explains 73.9 percent of the variation in transfer payments as a percent of TPI between counties. With an F statistic of 21.8, the equation is highly significant.

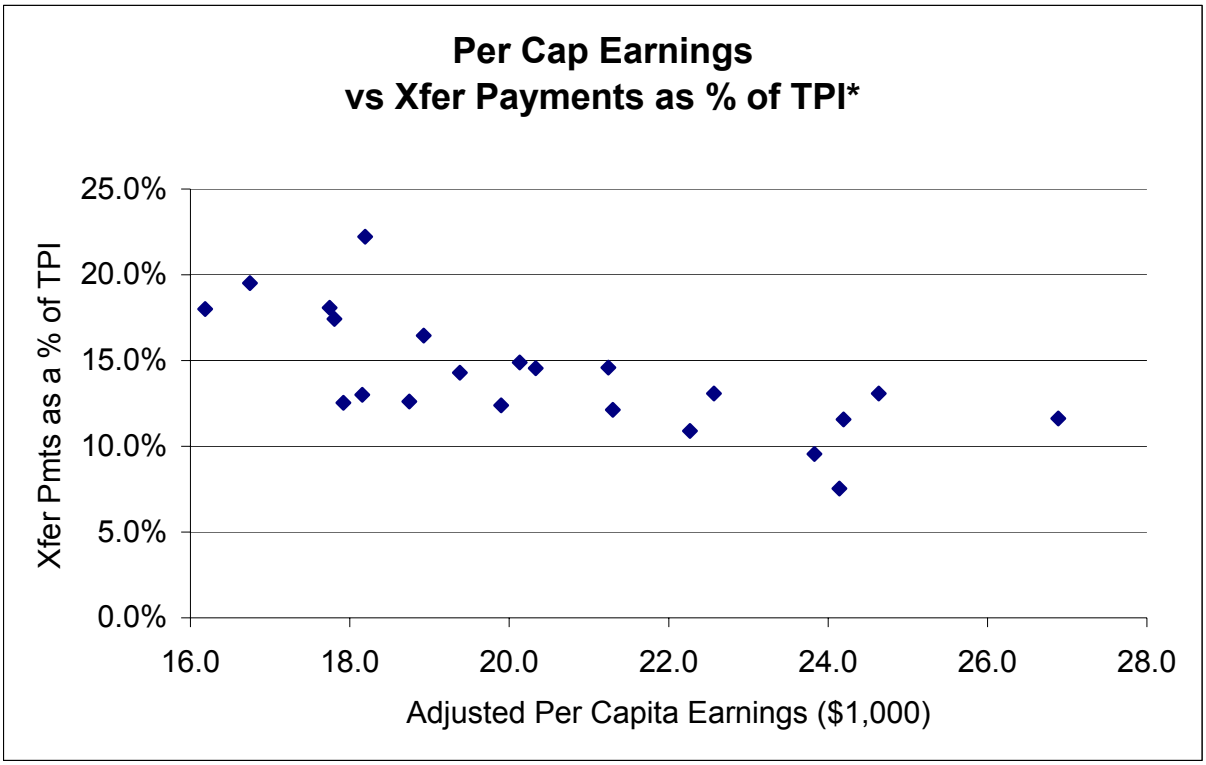
Table 3 - Transfer Payments Regression Results

Percent Trans Pmts = Intercept + Age + (Adj Earn +DIR) + Teton

Adj R Square = .739 F = 21.80 d.f. = 19

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	0.144745	0.059887	2.416958	0.025875
Age	0.003644	0.001110	3.283517	0.003908
Adj Earn + DIR	-0.006950	0.001584	-4.387710	0.000316
Teton	0.163967	0.061246	2.677188	0.014904

Graph 4



* Teton County has been excluded because its Per Capita Adjusted Earnings is over $55,000.

The individual variables were also all highly significant at the 1 percent level, except for the Teton County dummy variable, which was significant at the 1.5 percent level. From the variable coefficients, we see that for each year median age increases, transfer payments as a percent of TPI can be expected to increase by 0.004 percent. The second variable, adjusted earnings plus DIR, had a negative coefficient as was expected. For every $1,000 increase in residence adjusted earnings plus DIR, transfer payments as a percent of TPI were reduced by .007 percent.

In Table 4, median age, adjusted earnings plus DIR, and transfer payments as a percentage of TPI data for all counties are presented. As can be seen in the table, the five counties with transfer payments higher than 17 percent of TPI, Hot Springs, Fremont, Niobrara, Big Horn, and Goshen, are all older, and have lower adjusted earnings plus DIR. The three counties with transfer payments as a percent of TPI under 10 percent, Teton, Campbell, and Sweetwater, are all younger, and have high levels of adjusted earnings plus DIR.

Table 4	Median Age	Rank	Per Cap Adj Earn+DIR	Rank	Transfer Payments as a percentage of TPI	Rank
Albany County	26.7	23	21.300	9	12.1%	17
Big Horn County	**38.7**	**13**	**16.183**	**23**	**18.0%**	**4**
Campbell County	***32.2***	***21***	***24.143***	***5***	***7.5%***	***22***
Carbon County	38.9	12	19.380	14	14.3%	10
Converse County	37.5	15	18.747	16	12.6%	14
Crook County	40.2	7	19.900	13	12.4%	16
Fremont County	**37.7**	**14**	**16.747**	**22**	**19.5%**	**2**
Goshen County	**40.0**	**8**	**17.807**	**20**	**17.4%**	**5**
Hot Springs County	**44.2**	**1**	**18.192**	**17**	**22.2%**	**1**
Johnson County	43.0	2	20.129	12	14.9%	7
Laramie County	35.3	18	24.195	4	11.6%	19
Lincoln County	36.8	16	18.156	18	13.0%	13
Natrona County	36.4	17	26.890	2	11.6%	18
Niobrara County	**42.8**	**3**	**17.745**	**21**	**18.1%**	**3**
Park County	39.8	9	22.568	7	13.1%	12
Platte County	41.2	4	18.929	15	16.4%	6
Sheridan County	40.6	6	24.635	3	13.1%	11
Sublette County	39.8	10	22.268	8	10.9%	20
Sweetwater County	***34.2***	***20***	***23.830***	***6***	***9.6%***	***21***
Teton County	***35.0***	***19***	***57.403***	***1***	***3.7%***	***23***
Uinta County	31.4	22	17.919	19	12.5%	15
Washakie County	39.4	11	20.331	11	14.6%	9
Weston County	40.7	5	21.241	10	14.6%	8

Counties with transfer pmts as a percentage of TPI higher than 17 percent are shown in **Bold**.
Counties with transfer pmts as a percentage of TPI lower than 10 percent are shown in ***Bold Italic***.

Conclusion

By recognizing the degree to which non-earned sources of income play in a county's economy, we have an additional piece of information to use in evaluating the impact of changes in the local and national economy on each county. Counties with a high percentage of non-earned sources of income will be less vulnerable to local economic shocks, but may well be more vulnerable to national economic shocks. Because DIR will fluctuate with changes in the national economy, those counties with a high percentage of DIR income will have more exposure to fluctuations in the national economy. Conversely, because transfer payments largely consist of social security payments, counties with a high proportion of transfer payments will experience less variation since transfer payments are more stable.

As mentioned earlier, the DIR as a percent of TPI increased by 3.3 percent and transfer payments as a percent of TPI increased by 1.0 percent from 1989 to 1999. What is likely to

happen in the next ten years? If we look at median age numbers from the 1990 and 2000 censuses, we see that median age increased from 32.0 years in 1990 to 36.2 in 2000. If Wyoming's population continues to grow older, and it is expected to do so, both DIR and transfer payments can be expected to increase as a percentage of TPI.

From 1990 to 2000, residential per capita income in Wyoming rose from an inflation adjusted $2,164 to $3,604. During the same time, residence adjusted earnings plus DIR increased from an inflation adjusted $19,218 in 1990 to $22,580 in 2000. Earnings by place of work and DIR are both forecasted to grow faster than the rate of inflation through 2009[ii]. As adjusted earnings plus DIR grow, it is also likely that wealth will grow.

If incomes do indeed rise, the income maintenance portion of transfer payments would decrease, but it is unlikely it would be sufficient to offset the increase in the social security component of transfer payments caused by an older population. For DIR payments, the increased popularity of individual retirement accounts and deferred compensation retirement plans plus the impending retirement of the baby boom generation will likely lead to an increase in the importance of DIR as a percentage of TPI. Any future increase in transfer payments and DIR as a percentage of TPI would help moderate fluctuations in the local economy, but any increase in DIR as a percentage of TPI would increase local economies exposure to changes in the national economy. Since Wyoming's economy currently runs counter cyclical to the national economy, these trends would tend to bring Wyoming more in line with the national economy.

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[i] Total Personal Income is derived using the following method:
Earnings by place of work
less: Personal contributions for social insurance
plus: Adjustment for residence
equals: Net earnings by place of residence
plus: Dividends, interest, and rent
plus: Transfer payments
equals: Total Personal Income

[ii] *Outlook 2001:Economic Forecast to 2009*, David Black, Division of Economic Analysis, DA&I, State of Wyoming, April 2001.