Measurement of Local Economic Growth as a Critical Part of Market Analysis

by Donald R. Epley

An important part of local market analysis is the measurement of economic growth that can be used to track progress in the economy through time and assess the relative productivity of the local base in comparison to other areas. This information is a critical part of the analysis to determine if a market has the potential for sufficiently increasing rents and equity to justify an investment. One analytical approach is to derive a local indicator that is consistent with the concepts and tools used by the federal government to measure growth for the national economy.

The purpose of this article is to suggest that a useful local indicator is the median family income statistic that is produced annually by the U.S. Department of Housing and Urban Development. It is a measure of local income that results from the skills of the area labor force that have been employed by the historical accumulation of regional capital. Also, it is consistent with the federal and state governments' emphasis on the measurement of various income accounts as proxies for growth. The gross domestic product (GDP), gross national product (GNP), and personal income (PI) accounts have been published for a number of years under the label of "economic growth."

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An accurate measurement and approximation of the economic health of the local economy should be of interest to every real estate analyst and counselor. The potential for maximum future income and appreciation will be directly influenced by the rate of economic growth, and these measurement tools will be a useful and essential part of every counselor's toolkit.

ECONOMIC GROWTH AND MEASUREMENT

Economists have traditionally labeled an increase in productivity from the traditional factors of production of land, labor, and capital, as economic growth. One method to measure the production function can be in goods and services which means that a heterogeneous combination of units of production must be aggregated. The current method used by the U.S. Department of Commerce is to total the dollar income generated from the demand or sale of all units produced. This income has been reported regularly as gross domestic product (GDP) and personal income (PI).

Two difficulties arise when the GDP or the PI measurements are used at the regional and local level. First, the income figures produced by the federal and state agencies typically are two years old. Second, the local income account data often does not exist, and if it is produced locally, may not be reliable or compatible with state totals.

Five methods are discussed typically for the measurement of economic growth and to project the economic future (Sullivan, 1990, pp. 134-154). One is to measure the amount of basic employment that produces primarily for export compared to the number of non-basic employees who produce primarily for local consumption. Economic growth is viewed as an increase in the base employees only as the sale of the products they produce generates new fresh dollars that are used in a multiple effect on the non-basic workers. Further, the number of basic workers can be expressed relative to total population which creates a ratio that can be used to project employment and the resulting impact on the economy.

The second method is to construct an econometric model that finds the best relationship between a dependent variable, such as personal income, and other independent variables such as employment and retail sales (Gordon, Mosbaugh, and Canter, 1996). The typical approach is a regression model that can be used to find the best historical relationship among these variables that can be used for projections, if desired. The regression model relies on the skills of the analyst to accurately identify and update the variables and the equation(s).

The third approach is to rely on an input-output table that shows the relationship between the products that have been produced by local industries and the industries that supply the factors of production that are purchased (Epley, 1972-73). The results can be expressed in production dollars, employment, or income.

The fourth approach is to assemble a number of local economic indicators into an index that is labeled typically as "economic activity." Different methods of construction include one that is based on export prices (Cross, 1997), a heterogeneous grouping of indicators that are measured in varying units such as number of employees, dollars of retail sales, and number of building permits (Jones Lang LaSalle, 1998; Governor's Office, 1994), and an estimate of changes in the value added of the local work force (Epley, 2002).

The fifth approach is to locate or construct local indicators of family income. Following the same concept used at the federal level that economic growth is measured by a change in income, a good local indicator of family well-being, such as median family income, can be used.

In sum, the measurement choice depends on the potential use of the indicator and the available budget. The input-output method is the most detailed and the most accurate, and at the same time, the most expensive. Once constructed by state agencies, these models have almost been discarded as a tool that is too expensive.

The econometric model is the typical choice of the economist. Its accuracy is subject to the talents of the analyst and can require expensive data. The result is typically information on economic relationships and impacts that are difficult to understand and explain to users outside the economics community.

The economic base analysis is a good first step to determine the basic structure of the community. It is too simplistic and does not contain sufficient detail that can be used to explain changes in growth and income.

The result is that local economic growth must be explained by an economic growth index that is constructed around income levels of the workforce, or the selection of an indicator that can be used regularly and reliably. Such an indicator is the median family income statistic described in this paper.

MEDIAN FAMILY INCOME

Median family income is a critical component of consumer demand that drives a significant amount of local economic activity. One of the principal goals of the local planning process and government and private expenditures should be to increase the level of family income. It provides a good indicator of the future level of consumer purchasing power that will appear in retail sales, building permits, and housing purchases.

Every community has a historical investment of capital in firm assets that are used to produce products and services. This composition of investment will demand a workforce with special knowledge and skills that will result in a wage structure unique to the local economy. Measuring the resulting family income is a good indicator of the change in the composition of the workforce, wages, or both.

One local income account figure that is produced annually by the U.S. Department of Housing and Urban Development for every MSA and selected non-MSA areas is the median family income estimate. Used to determine family income qualification levels for Section 8 housing, these estimates may be found at the HUD Web site (www.huduser.org/datasets).

Another source for this income account are the tables shown on the website of the Federal Financial Interagency Examination Council (www.ffiec.gov/). This agency shows selected census data and median family income by census tract for MSAs in tables that can be downloaded.

CURRENT USES

Median family income is used currently by several organizations:

- National Association of Realtors includes median family income in its affordability index which estimates the ability of the public to purchase housing.

Exhibit 1
Historical Assessment for One MSA

Year	Median Family Income	Annual Growth
2002	$46,600	1.75
2001	45,800	3.85
2000	44,100	0.92
1999	43,700	4.05
1998	42,000	5.26
1997	39,900	-

- U.S. Department of Housing and Urban Development uses median family income in its estimation of low income and very low income levels to qualify for section 8 housing.
- U.S. Department of Health and Human Services uses median family income for its Low Income Energy Assistance Program.
- Federal Financial Interagency Examination Council, Washington, D.C., requires covered financial institutions to use median family income when accumulating local data for reports to indicate Community Reinvestment Act and Home Mortgage Disclosure Act compliance.

This family income estimate is produced annually by the U.S. Department of Housing and Urban Development for every U.S. metro area and non-area. The annual figures are based on the 1990 census data updated to 2002 using Bureau of Labor Statistics earnings and employment data and Census median family income data.

MEDIAN FAMILY INCOME VS MEDIAN HOUSEHOLD INCOME

Median family income measured by the U.S. Department of HUD is not the same figure as the median household income measured by the U.S. Census. A family consists of two or more people living in the same housing unit who are related by birth, marriage, or adoption. One must be the householder. A household consists of all people who occupy a housing unit regardless of relationship such as a single person, multiple unrelated individuals, or families living together. The median is the point where one-half of all numbers are above and one-half are below.

The Spokane, WA, MSA is shown in Exhibit 1. Six years of historical income figures were gathered and annual growth computed.

Exhibit 2
Spokane MSA and Nine State Reporting Areas: Median Family Income Level and Rank

	2000		2002		2000-02	
	MFI	Rank	MFI	Rank	% Growth	Rank
Nine Reporting Areas						
Bellingham	$48,100	6	$50,200	5	4.37	6
Bremerton	49800	3	51500	4	3.41	8
Olympia	49900	2	53000	2	6.21	2
Rich-Ken-Pasco	48200	5	49500	6	2.7	9
Seattle-Bell-Everett	65800	1	77900	1	18.39	1
Spokane	44100	7	46600	7	5.67	5
Tacoma	49100	4	52000	3	5.91	4
Yakima	38200	9	40500	8	6.02	3
Outside MSAs	38600	8	40200	9	4.15	7
median	**$48,200**		**$50,200**			

Although the Spokane economy has not maintained a growth rate equal to inflation in selected years, all rates are positive which reflects slow steady growth.

HISTORICAL COMPARISON IN THE STATE

Two criteria were used for a comparison of the Spokane MSA with other comparable regions. One was the absolute level of median family income. Using similar levels means that the local composition of the invested capital must be paying the workforce a similar amount. The second criterion was a similar growth rate This means that the workforce is paid approximately the same for increases in productivity.

Using these two criteria produced the ranking and comparable economies shown in Exhibit 2.

The Spokane MSA ranked seventh in median family income among the nine reporting areas in 2000 and remained in the same position in 2002. Although the growth rate between the two years was a respectable +5.67% and ranked fifth among growth rates, it was still not sufficient to increase the level of income to a higher relative position.

The Spokane MSA year 2000 median family income of $44,100 was below the 9 reporting area median of $48,200. The 2002 figure of $46,600 remained below the 9 area median of $50,200. The state is higher than the U.S. in all three categories (Exhibit 3).

Exhibit 3
State of Washington and the U.S., 2002

	Total	Metro	Non-metro
Washington	$60,600	$64,800	$40,200
U.S.	54,400	58,600	39,700

COMPARISON WITH OTHER MSAs

The attached tables show a comparison of the Spokane MSA median family income with 44 selected MSAs. In the search for comparable areas, two criteria may be used: absolute dollar levels that are close to $46,600, and a similar rate of growth (Exhibit 4).

The Modesto, CA, MSA median family income of $46,500 in 2002 and the +5.92% rate of growth in 2000-02 makes it most comparable to the Spokane economy in the 44 MSAs examined

This method to select comparable MSAs is useful to local groups such as the Chamber of Commerce and any economic development organizations. It shows which MSAs can be emulated and used as benchmarks, and concurrently, the MSAs which have a similar capital structure and value added workforce that generates a similar level of income.

Exhibit 4

Median Family Income	2002	2000	% growth
5% higher than Spokane			
Seattle-Bell-Everett,WA	77900	65800	18.39
Rochester, MN	74300	66500	11.73
Madison, WI	71300	64700	10.2
Racine, WI	65000	59800	8.7
Omaha, NB	64400	58600	9.9
Indianapolis. IN	64100	57700	11.09
Ft Wayne, IN	59800	54500	9.72
Topeka, KS	59200	54000	9.63
Wausau, WI	57700	54000	6.85
Sacramento, CA	57300	52900	8.32
Portland- Van, OR-WA	57200	53700	6.52
Salt-Lake City, UT	57200	53400	7.12
Colorado Spgs, CO	56800	51300	10.72
Boise City, ID	54500	50200	8.57
Olympia, WA	53000	49900	6.21
Sioux City, IA-NB	52300	48100	8.73
Tacoma, WA	52000	49100	5.91
Bremerton, WA	51500	49800	3.41
Provo-Orem, UT	50400	46500	8.39
Bellingham, WA	50200	48100	4.37
Rich-Ken-Pasco, WA	49500	48200	2.7
Springfield, MO	49200	45200	8.85
Comparable with Spokane			
Muncie. IN	48900	47900	2.09
Grand Forks, ND-MN	48800	45400	7.49
Billings. MT	48600	47300	2.75
Flagstaff, AZ-UT	48200	45500	5.93
Stockton-Lodi, CA	47500	45400	4.63
Spokane, WA	**46600**	**44100**	5.67
Modesto, CA	46500	43900	5.92
Waco, TX	46300	43800	5.71
San Antonio. TX	46200	43100	7.19
Lubbock, TX	45500	43600	4.36
Amarillo, TX	44800	43000	4.19
San Angelo, TX	44400	41300	7.51
5% lower than Spokane			
Joplin, MO	43600	40900	6.6
Grand Junction, CO	42700	40400	5.69
Great Falls. MT	41900	40000	4.75
Medford-Ashland, OR	41900	38800	7.99
Abilene, TX	41200	40300	2.23
Wichita Falls, TX	40900	39800	2.76
Yakima, WA	40500	38200	6.02
Fresno, CA	40300	37600	7.18
Outside MSAs, WA	40200	38600	4.15
Pueblo. CO	39400	37500	5.07
El Paso, TX	36300	34900	4.01
	median	48900	

CONCLUSION

Indicators of local economic growth should be part of every real estate market analyst's toolkit as the nature and amount of economic activity will be part of every investor's investment criteria. One good indicator is the median family income estimate that is produced annually for each MSA by the U.S. Department of HUD for determining the qualification level of families to receive housing support. It serves as a final measurement of the ability of the local historical capital structure to employ and pay a wage level that creates local spending power.

Median family income can be combined with other useful statistics such as the range of low and high family incomes in the area in question. The percent of families that fall at the high and low ends, respectively, is useful on the distribution of purchasing power. The community can be composed of high wage earners or those at the lower end which influences trade area and potential development.

Should the analyst want to compare the local economy with other comparable areas, two criteria are important. The first is the absolute level of income that shows the ability of the historical investments in the area to employ and pay a workforce. The second is the growth rate in income as it shows the ability of the invested capital to improve on its productivity.