



# 2004

## Florida Price Level Index

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## Background

The Florida Price Level Index (FPLI) was established by the Legislature as the basis for the District Cost Differential (DCD) in the Florida Education Finance Program (FEFP). In this role, the FPLI is used to represent the costs of hiring equally qualified personnel across school districts. Since 1995, and at the request of the Legislature, the Bureau of Economic and Business Research (BEBR) at the University of Florida has performed an ongoing review of the methodology of the FPLI and has made appropriate recommendations to improve it. Since 2000, BEBR has also been responsible for calculating the FPLI, under the direction and supervision of the Florida Department of Education. To denote its intended use as an adjustment factor for school personnel costs, and to distinguish it from other price indexes produced by BEBR but not used or published by the Department of Education, the index presented in this report is referred to as the School Personnel FPLI, or FPLI\_SP.

## The 2004 Results

Table I (see next page) presents the index for 2004, which is constructed so that the population-weighted average is 100. Counties with index values above 100 contain 58.3 percent of the state's population. The median Floridian, ranked by county FPLI\_SP, lives in Pinellas county, with an index value of 100.36. That is, half of the state's residents live in counties with index values that are equal to or greater than 100.36, and half in counties with index values that are less than or equal to 100.36. The 38 counties with index values below 97.00 together account for only 16.6 percent of the state's population.

The map on page 5 shows the distribution of the FPLI\_SP across

the state. The highest index values tend to occur in the southern portion of the state, while 32 of the 38 counties with index values below 97.00 are north of Tampa. This is to be expected, since land within easy reach of employment and shopping centers becomes very scarce, and thus very expensive, when population pressures reach the high levels seen in south Florida, leading to high housing prices or long commutes, for which workers must be compensated, offsetting the attractiveness of that area's climate.

## Methodology in Brief

Use of the FPLI in the DCD assumes that, in order to attract equally qualified personnel, districts

**TABLE I**  
**2004 Florida Price Level Index**

COUNTY	2004 FPLI_SP	Rank
Alachua	98.01	(24)
Baker	97.86	(26)
Bay	94.32	(50)
Bradford	97.28	(28)
Brevard	98.24	(22)
Broward	103.11	(3)
Calhoun	93.07	(57)
Charlotte	95.95	(38)
Citrus	93.38	(53)
Clay	99.92	(12)
Collier	104.81	(1)
Columbia	94.24	(52)
DeSoto	95.58	(39)
Dixie	92.64	(58)
Duval	102.29	(5)
Escambia	94.61	(49)
Flagler	94.80	(45)
Franklin	92.55	(59)
Gadsden	96.84	(31)
Gilchrist	94.77	(47)
Glades	96.76	(32)
Gulf	90.86	(65)
Hamilton	91.89	(62)
Hardee	95.05	(44)
Hendry	98.45	(19)
Hernando	96.43	(34)
Highlands	93.28	(56)
Hillsborough	101.06	(8)
Holmes	89.09	(67)
Indian River	97.65	(27)
Jackson	92.00	(61)
Jefferson	96.57	(33)
Lafayette	91.20	(64)
Lake	98.13	(23)
Lee	100.25	(10)
Leon	99.46	(14)
Levy	94.62	(48)
Liberty	94.26	(51)
Madison	93.29	(55)
Manatee	97.98	(25)
Marion	96.02	(37)
Martin	98.39	(20)
Miami-Dade	102.03	(6)
Monroe	103.06	(4)
Nassau	99.51	(13)
Okaloosa	95.40	(42)
Okeechobee	95.19	(43)
Orange	101.17	(7)
Osceola	98.83	(17)
Palm Beach	103.39	(2)
Pasco	98.36	(21)
Pinellas	100.36	(9)
Polk	98.85	(15)
Putnam	96.11	(36)
St. Johns	98.85	(15)
St. Lucie	97.22	(29)
Santa Rosa	94.78	(46)
Sarasota	98.56	(18)
Seminole	99.99	(11)
Sumter	95.50	(41)
Suwannee	91.82	(63)
Taylor	93.38	(53)
Union	96.20	(35)
Volusia	95.53	(40)
Wakulla	96.90	(30)
Walton	92.43	(60)
Washington	90.63	(66)

must be able to offer salaries that will support similar standards of living. It further assumes that the FPLI measures the relative costs of maintaining a given standard of living across Florida's counties—that is, the FPLI is explicitly used as a Cost of Living Index (COLI) in the DCD calculation.

The Consumer Price Index (CPI), constructed by the U.S. Bureau of Labor Statistics (BLS) using the concept of a COLI as a framework, is perhaps the best known example of a price index.<sup>1</sup> Indeed, use of the FPLI to index for costs from one Florida county to the next parallels the use of the CPI by the Federal Government to index Social Security funds from one year to the next. The CPI, however, is not a simple weighted average of the prices of a specific market basket of goods and services. Rather, the BLS continually evaluates and improves its methods. Numerous adjustments are made to measured price data so that the CPI will more closely approximate a temporal COLI, making it more appropriate for its intended applications.<sup>2</sup> BEBR's work on the FPLI since 1995 has been aimed at making it more accurate and appropriate for its intended use as a spatial COLI.

At a given location, factors other than the monetary costs of goods and services purchased in the marketplace that significantly affect the compensation needed to maintain a given standard of living are nearly the same from one year to the next. Variations in climate from year to year, for example, are usually so

small they can be ignored when estimating changes in the cost of living. Across locations, however, such factors as climate, access to lakes or sandy beaches, and cultural opportunities vary widely. Moreover, climate, the range of available cultural and recreational opportunities, and the mix of public services and taxes all affect workers' standards of living and thus the ability of employers—including school districts—to hire personnel. Thus, a COLI intended to make comparisons across space must allow for variation in such factors.<sup>3</sup> Beginning with the 2003 FPLI, BEBR calculated a version of the FPLI that is more appropriate for direct adjustment for personnel cost differences across school districts by using private market wages to directly measure relative compensation required to attract equally qualified workers. That index is referred to as the FPLI\_SP in this report.<sup>4</sup> The FPLI\_SP is intended to approximate a fully amenity adjusted price level index, that is, a true spatial COLI, as closely as possible given the data available.

Market wages adjust both for differences in conditions across areas and for differences in the location of employment within areas. Across areas, other things being equal, places that are more productive, and thus more attractive to firms, will have higher wages and prices, while places that are more pleasant to live in, and thus more attractive to workers, will have lower wages and higher prices. Consequently, a simple weighted average of the relative

<sup>1</sup>Question 4 under "Frequently Asked Questions" at the CPI homepage, <http://www.bls.gov/cpi/home.htm>, discusses this point. Chapter 17 of the *BLS Handbook of Methods*, which may be accessed at the same web site, contains more detail.

<sup>2</sup>Links to documentation for many hedonic adjustments may be found at <http://www.bls.gov/cpi/home.htm>.

<sup>3</sup>In terms of the CPI methodology adapted to a spatial context, this would be analogous to a full hedonic adjustment to the price of land across space to reflect all factors affecting standards of living that are determined with choice of residential location.

<sup>4</sup>In the 2003 FPLI Report, what is now designated as the FPLI\_SP was named the Low Centrality FPLI\_A.

prices of purchased goods and services is inferior to the FPLI\_SP as a COLI in a spatial context. Areas that have lower than average prices of purchased goods and services, if they are otherwise less attractive to live in, could well have higher than average labor costs.

Within areas, firms that must locate closer to downtown must pay higher wages than firms free to locate near outlying residential areas. That is because workers at downtown firms must either pay higher housing costs near downtown or endure longer commutes. Further, the larger the difference between real estate costs downtown and in outlying areas, the larger this pay difference will be. Therefore, occupations and industries that tend to locate farther from downtown will show less difference in average wages between cities with high housing costs and cities with low housing costs than occupations and industries that tend to be concentrated near downtown. All else being equal, school related occupations are seven percent less likely to be in a central county of a metropolitan statistical area than is the average occupation.

In calculating the FPLI\_SP, BEBR first used statistical techniques to estimate a raw index of wages for comparable workers employed in jobs of comparable centralization of employment across counties. Wage data for this calculation consist of average wages for over 700 occupations across Florida's 67 counties. Although data for each occupation are not available for all 67 counties, many observations are available in even the smallest counties. The Labor Market Information division of Florida's Agency for Workforce Innovation collects these data as part of the U.S. Bureau of Labor Statistics' Occupational Employment Statistics

(OES) Survey. Measures of occupational centralization are also calculated from these data, and are used in conjunction with data on the costs of goods and services, including housing costs, to capture adjustments to housing costs for occupations with locational centrality comparable to school personnel.

Since the quality and extent of the data may vary with the size of the labor market in a county, the raw index is statistically and geographically smoothed. To carry out the statistical smoothing, BEBR constructs a model relating the raw index to the costs of goods and services, the raw wage index in surrounding counties, and county retirement-age and total population. This model is used to generate a "predicted" value for the raw index. A weighted average of the raw and predicted values is then calculated, where the weights in each county are chosen to maximize the accuracy of the final index, given the reliability of each county's raw and predicted indexes.

The second type of smoothing is geographic in nature. Workers who live in suburban or rural counties surrounding a larger urban county will commute to the larger county for work if wages in the larger area are sufficiently higher to compensate for any extra commute time. Further, given the design of the OES survey, it is expected that the index is most accurate in metropolitan counties (counties with cities that lend their names to one of Florida's metropolitan statistical areas, as defined by the U.S. Census Bureau). Therefore, the index has been constrained in non-metropolitan counties to be no less than the commute-time-adjusted wage index of nearby metropolitan counties.

## FPLI History

Table II (pages 6 and 7) lists the FPLI values for the 2005–2006 DCD calculation. The FPLI\_SP has been calculated only for 2003 and 2004 FPLI. The values in the table for 2002 represent a fixed weight index of relative prices for a selected market basket of goods and services. Relative rankings are given in parentheses next to the index number for each year. The rankings can be somewhat misleading, at least for the counties grouped near the middle or lower range, where modest changes in the index value from year to year can produce large changes in a county's relative ranking.<sup>5</sup>

## Summary

The 2004 School Personnel Florida Price Level Index has been presented, along with an explanation of the methodology used to compute it. Note that this is a cross-sectional measure that compares the price levels among Florida's 67 counties and is not designed to measure inflation from one year to the next.

This report can be found on the Internet at: <http://www.firn.edu/doe/fefp>.

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<sup>5</sup>An index of the relative costs of goods and services, the BEBR FCPI, a spatial COLI for the average occupation, the BEBR FCLI, and the data and calculations supporting the FPLI\_SP may be accessed at [www.bibr.ufl.edu](http://www.bibr.ufl.edu) after April 1, 2005.



**TABLE II**  
**Historical Florida Price Level Index: 2002 TO 2004**  
(POPULATION WEIGHTED AVERAGE = 100.00)

COUNTY	2004 FPLI_SP		2003 FPLI_SP		2002 FPLI_SP	
Alachua	98.01	(24)	99.46	(15)	93.61	(33)
Baker	97.86	(26)	97.58	(29)	91.79	(45)
Bay	94.32	(50)	95.03	(51)	91.83	(44)
Bradford	97.28	(28)	97.01	(31)	91.63	(49)
Brevard	98.24	(22)	99.02	(21)	95.39	(24)
Broward	103.11	(3)	102.96	(4)	107.96	(3)
Calhoun	93.07	(57)	95.55	(47)	88.34	(66)
Charlotte	95.95	(38)	95.66	(46)	93.50	(34)
Citrus	93.38	(53)	94.03	(57)	90.90	(56)
Clay	99.92	(12)	99.63	(13)	92.86	(37)
Collier	104.81	(1)	104.47	(1)	103.10	(5)
Columbia	94.24	(52)	93.97	(58)	89.38	(62)
DeSoto	95.58	(39)	96.19	(38)	96.03	(16)
Dixie	92.64	(58)	92.98	(62)	91.44	(53)
Duval	102.29	(5)	102.95	(5)	95.29	(25)
Escambia	94.61	(49)	95.69	(45)	92.24	(42)
Flagler	94.80	(45)	94.54	(55)	94.50	(30)
Franklin	92.55	(59)	95.02	(52)	95.01	(27)
Gadsden	96.84	(31)	99.42	(16)	91.97	(43)
Gilchrist	94.77	(47)	95.13	(50)	90.26	(61)
Glades	96.76	(32)	97.37	(30)	95.83	(17)
Gulf	90.86	(65)	93.24	(60)	91.61	(50)
Hamilton	91.89	(62)	92.28	(63)	88.32	(67)
Hardee	95.05	(44)	94.9	(54)	92.41	(41)
Hendry	98.45	(19)	99.08	(20)	97.16	(12)
Hernando	96.43	(34)	96.28	(36)	91.74	(46)
Highlands	93.28	(56)	93.71	(59)	92.84	(38)
Hillsborough	101.06	(8)	101.18	(8)	99.53	(8)
Holmes	89.09	(67)	90.3	(67)	89.10	(65)
Indian River	97.65	(27)	96.91	(32)	95.61	(20)
Jackson	92.00	(61)	94.46	(56)	89.30	(63)
Jefferson	96.57	(33)	99.15	(18)	93.71	(32)
Lafayette	91.20	(64)	93.13	(61)	90.53	(59)
Lake	98.13	(23)	98.79	(23)	94.64	(29)

(Continued...)

**TABLE II**  
**Historical Florida Price Level Index: 2002 TO 2004**  
(POPULATION WEIGHTED AVERAGE = 100.00)

COUNTY	2004 FPLI_SP		2003 FPLI_SP		2002 FPLI_SP	
Lee	100.25	(10)	100.24	(10)	97.38	(10)
Leon	99.46	(14)	103.22	(3)	95.56	(21)
Levy	94.62	(48)	94.98	(53)	91.69	(48)
Liberty	94.26	(51)	96.77	(34)	91.60	(51)
Madison	93.29	(55)	95.78	(44)	91.51	(52)
Manatee	97.98	(25)	96.87	(33)	97.31	(11)
Marion	96.02	(37)	95.99	(40)	93.14	(36)
Martin	98.39	(20)	99.15	(18)	98.60	(9)
Miami-Dade	102.03	(6)	100.34	(9)	109.24	(2)
Monroe	103.06	(4)	101.66	(6)	113.56	(1)
Nassau	99.51	(13)	99.23	(17)	93.30	(35)
Okaloosa	95.40	(42)	95.51	(48)	92.64	(40)
Okeechobee	95.19	(43)	96.5	(35)	95.53	(22)
Orange	101.17	(7)	101.63	(7)	96.71	(13)
Osceola	98.83	(17)	98.45	(25)	96.09	(15)
Palm Beach	103.39	(2)	103.61	(2)	106.95	(4)
Pasco	98.36	(21)	98.2	(28)	95.51	(23)
Pinellas	100.36	(9)	100.24	(10)	101.95	(6)
Polk	98.85	(15)	98.85	(22)	94.85	(28)
Putnam	96.11	(36)	96.24	(37)	90.67	(57)
St. Johns	98.85	(15)	98.57	(24)	95.76	(18)
St. Lucie	97.22	(29)	98.28	(27)	95.72	(19)
Santa Rosa	94.78	(46)	95.79	(43)	91.21	(55)
Sarasota	98.56	(18)	98.45	(25)	99.60	(7)
Seminole	99.99	(11)	100.01	(12)	96.52	(14)
Sumter	95.50	(41)	95.14	(49)	91.72	(47)
Suwannee	91.82	(63)	92.1	(64)	91.23	(54)
Taylor	93.38	(53)	95.87	(42)	92.75	(39)
Union	96.20	(35)	95.92	(41)	90.55	(58)
Volusia	95.53	(40)	96.16	(39)	95.06	(26)
Wakulla	96.90	(30)	99.48	(14)	93.85	(31)
Walton	92.43	(60)	91.84	(65)	90.49	(60)
Washington	90.63	(66)	91.68	(66)	89.19	(64)

The 2004 Florida Price Level Index was prepared by the Bureau of Economic and Business Research at the University of Florida and the staff of the Florida Department of Education, Deputy Commissioner for Finance and Operations.