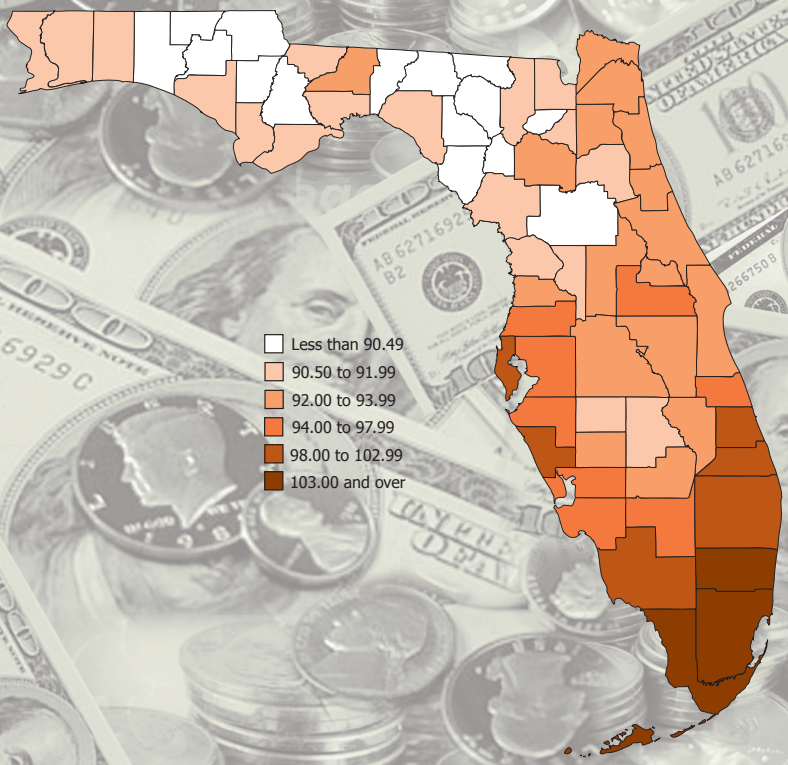
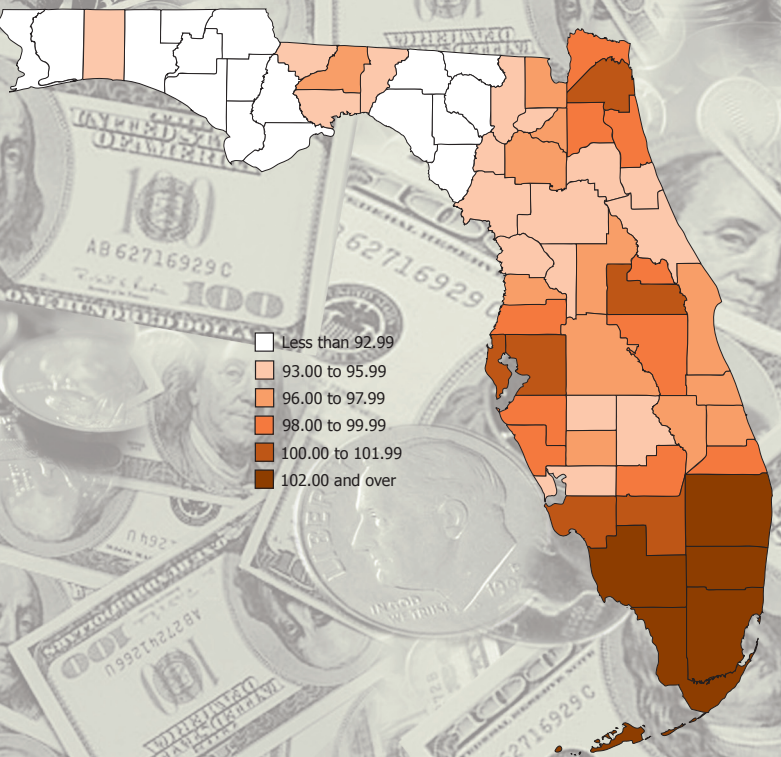
Economic Analysis Program

BEBR
Tracking Florida's Population and Economy

2005 Florida County Retail Price and Wage Indices



2005 Florida County Retail Price Index



2005 Florida County Wage Index

UF | UNIVERSITY of FLORIDA
The Foundation for The Gator Nation

University of Florida
Bureau of Economic and Business Research

Economic Analysis Program
James F. Dewey, Director
David A. Denslow, Senior Research Economist
Babak T. Lotfinia, Research Coordinator

Information/Publication Services
Susan Floyd, Director
Phoebe Wilson, Coordinator

November 22, 2006

This report was prepared by the Bureau of Economic and Business Research
at the University of Florida.

This report is available at: http://www.bebr.ufl.edu

2005 Florida County Retail Price and Wage Indices

This report presents and discusses the 2005 editions of the Florida County Retail Price Index (FCRPI) and the Florida County Wage Index (FCWI), produced by the Bureau of Economic and Business Research (BEBR) at the University of Florida.

In the narrowest sense, the FCRPI is an index of the relative income required to purchase the same basket of goods and services purchased by the average Floridian in each of Florida's counties at a particular point in time, in this case August 2005. For example, from Table I on page 2, in Miami-Dade the basket of goods and services purchased by the average Floridian would cost 15.42 percent more than the state average, or 19.61 percent more than in Hillsborough (obtained by subtracting Hillsborough's FCRPI of 96.50 from Miami-Dade's 115.42 and dividing by 96.50). In a similarly narrow sense, the FCWI is an index of the relative wages paid to the typical worker performing an identical job across Florida's counties at a particular point in time. That is, the FCWI is an input price index for labor. For example, from Table II on page 3, a worker in Hillsborough County would earn on average 1.63 percent more than the state average, or 0.49 percent less than in Miami-Dade County, for performing the same job.

Each item priced for the FCRPI is placed in one of five major categories: food, health care, housing, other goods and services, and transportation. Figure I shows that approximately 17 cents of the typical consumer's dollar was spent on food, 45 cents on housing and related items, 16 cents on transportation, 6 cents on health care, and 17 cents on other goods and services. Table III on page 5 gives more detail on the categories and their items. Table IV (pages 6 and 7) presents sub-indices for each major category, each relative to a population-weighted state average of 100.00, which illustrate which categories of prices in a county are above or below the state average. For example, the cost of food in Alachua County is estimated to be less than one percent higher than the statewide average, but housing is estimated to cost almost 15 percent less. Comparisons across counties are also possible within each category. For example, Alachua's health care index is 89.27, while Broward's is 107.56, which means that items in the health care category tend to be more expensive in Broward County than in Alachua County.

The following sections elaborate on the points discussed above. The first presents in non-technical terms the theory of spatial cost of living indices and demonstrates their uses in general and in the specific context of Florida. Next are methodological details about the construction and computation of the FCRPI and FCWI, followed by closer examination of the 2005 results.

Spatial Cost of Living Indices

While the FCRPI is a retail price index and the FCWI is an input price index (for labor inputs), in a broader sense each index is a spatial cost of living index (COLI). Spatial COLIs measure the relative income needed to maintain a given standard of living across geographic locations, or, the relative income needed to make a worker indifferent between living and working in alternative geographic labor markets. The FCRPI is a ***conditional*** spatial COLI—it gives the relative income needed to maintain a given standard of living *on the condition that all non-market factors affecting the standard of living remain the same from location to location*. The FCRPI uses basically the same methodology used by the U.S. Bureau of Labor Statistics (BLS) to construct the Consumer Price Index (CPI).

It may be reasonable to assume non-market factors that affect the standard of living are roughly constant from one year to the next at a given location, at least compared to changes in the prices of goods and services. This assumption underlies the use of the CPI as a temporal COLI to adjust Social Security payments for inflation.[1] However, it is not reasonable to assume that those factors are constant from one location to the next at a particular time. For example, the presence or absence of sandy beaches, the climate, the range of available cultural and recreational opportunities, and the mix of taxes and public services are all factors that affect living standards but are not reflected in a price index of pecuniary consumption alone. However, in competitive labor markets, workers will relocate until the wages offered in one labor market are just sufficient to compensate for differences in both market prices and non-market factors that affect standards of living. These wages reflect these non-market factors, making the FCWI, based on them, an estimate of an ***unconditional*** spatial COLI.

The two indices are thus suited to different uses. If one wants to know the relative cost of purchasing a given market basket of goods and services across the counties of Florida, including meeting the tax obligations associated with those purchases, the FCRPI should be used. If one wants to know how much it will cost on average to hire equally qualified personnel across counties, the FCWI should be used. For example, suppose an accountant is considering relocating from Tampa to Pensacola in response to a job offer. If she were fully familiar with the amenities offered by both areas but wanted to compare the purchasing power of the salary she had been offered in Pensacola to her current salary in Tampa, she would want the FRPI, indicating a given salary would go 5.9 percent further in Pensacola. If, however, the managers of an accounting firm were considering relocating their operation to Pensacola from Tampa and wanted to know the average relative cost of hiring personnel, they would want the FCWI, indicating it would take approximately 9.53 percent lower wages to attract equivalent personnel.

The FCRPI and much of the FCWI are computed in BEBR's annual calculation of the Florida Price Level Index (FPLI), done for the Florida Department of Education. Through 2002, the FPLI was based on essentially the same methodology as the FCRPI. However, the FPLI is intended to

[1]Neither the FCRPI nor the FCWI as purely spatial indices, measures inflation from year to year. Furthermore, occasional methodological changes meant to improve the theoretical and practical soundness of the FCRPI mean that temporal comparisons of that index should not be made.

TABLE I

County	FCRPI	Rank
Alachua	92.47	30
Baker	91.05	47
Bay	91.73	36
Bradford	90.72	51
Brevard	93.93	18
Broward	114.12	3
Calhoun	89.55	61
Charlotte	94.46	15
Citrus	91.23	41
Clay	92.31	33
Collier	99.76	6
Columbia	91.10	44
DeSoto	92.53	29
Dixie	90.42	53
Duval	93.70	19
Escambia	91.12	42
Flagler	92.57	28
Franklin	90.93	48
Gadsden	91.78	35
Gilchrist	90.19	57
Glades	92.68	27
Gulf	91.66	37
Hamilton	88.51	67
Hardee	91.62	39
Hendry	95.00	14
Hernando	92.34	32
Highlands	90.73	50
Hillsborough	96.50	12
Holmes	88.75	65
Indian River	95.53	13
Jackson	88.98	64
Jefferson	90.14	58
Lafayette	89.36	63
Lake	92.38	31
Lee	97.47	11
Leon	93.10	22
Levy	91.12	42
Liberty	89.57	60
Madison	89.45	62
Manatee	97.90	10
Marion	90.39	55
Martin	98.11	9
Miami-Dade	115.42	2
Monroe	130.87	1
Nassau	92.04	34
Okaloosa	91.64	38
Okeechobee	92.74	26
Orange	94.34	17
Osceola	93.49	21
Palm Beach	102.78	4
Pasco	94.43	16
Pinellas	98.73	7
Polk	92.82	25
Putnam	90.78	49
St. Johns	92.89	24
St. Lucie	100.66	5
Santa Rosa	90.55	52
Sarasota	98.20	8
Seminole	93.52	20
Sumter	91.40	40
Suwannee	90.31	56
Taylor	91.10	44
Union	89.79	59
Volusia	93.10	22
Wakulla	91.10	44
Walton	90.40	54
Washington	88.71	66

be used as the basis for the District Cost Differential (DCD) in the Florida Education Finance Program (FEFP), and since the DCD is a production price index, the FPLI is inherently an input price index (for labor inputs) and not a retail price index. Despite this, when the FEFP, DCD, and FPLI were created in the mid-1970s, the wage data needed to create a direct input price index for labor inputs (or, equivalently, an *unconditional* spatial COLI) were unavailable. Therefore, the feasible methodology of a *conditional* spatial COLI, which would proxy the needed labor price index if non-market factors affecting standards of living did not vary across counties, was adopted as the basis for the FPLI.

However, since conditions that make one area more desirable than another tend to drive retail prices up while lowering the wages required to attract workers, all else equal, a conditional spatial COLI may make a very poor proxy for an unconditional spatial COLI, or a labor price index. Therefore, with the release of data allowing the creation of a direct labor input price index, i.e. an unconditional spatial COLI, the methodology underlying the FPLI was accordingly changed. The index published in 2003 was called the School Personnel FPLI, or FPLI_SP, in order to distinguish its methodology from prior FPLIs of prior years. Except for an adjustment to reflect the fact that that schools as workplaces are less centrally located than the average workplace, the methodology of the 2005 FPLI_SP is the same as that of the 2005 FCWI.[2]

Methodology in Brief

The items in the market basket of goods and services upon which the FCRPI is based are chosen to represent the expenditure categories used by the U.S. Bureau of Labor Statistics (BLS) to weight an item's relative importance in the Consumer Price Index (CPI). The selected items are used by most households, are widely available for purchase, and vary little in quality from county to county. To increase the accuracy of the index, items are more likely to be selected if their prices vary strongly from county to county, but that does not imply that such items are weighted more heavily.

Some of the prices in the five major FCRPI categories are obtained through data available from state agencies. Other prices are gathered from a telephone survey of retail outlets and service providers covering all 67 counties. The survey requires the cooperation of the merchants, who are told its purpose. Each year a very high proportion of the sampled merchants are gracious enough to participate. The information collected is held in strict confidence.

For most items priced in retail outlets, prices are obtained at a minimum of three outlets per county. For many items accounting for a certain percentage of the "typical" consumer's spending according to the BLS, no prices are gathered. Some of these (postage, for example) do not vary from county to county. For others, prices may actually vary slightly across counties, but statistical analysis has determined the variation that we would measure if a price were available for every transaction at every outlet over the course of a year is substantially less than the measured variation found by sampling. For such items, survey sampling does more to introduce measurement noise across counties than to reveal genuine differences in the overall price level. Such items are treated as constants throughout the state, which at once reduces the cost of calculating the index and improves its accuracy.

To produce each county's index, the county average prices are divided by the

[2]This report does not present a historical series for either the FCWI or the FCRPI. The 2003 FPLI_A (average centrality) was calculated using essentially the same methodology as the FCWI, and the two can be reasonably compared. However, while the 2003 FPLI_P and all FPLIs before 2003 were prepared using basically the same methodology as the 2005 FCRPI, direct comparison is inappropriate due to differences in the reference groups. The 2005 FCRPI uses the average Tampa MSA household as its reference point. In contrast, the 2000-2002 FPLI and the 2003 FPLI_P were produced using the average Tampa MSA household in which the head of household was 35-44 years of age. (Consumer expenditure data are available only for Tampa and Miami, and the former more closely resembles the state as a whole.) The change reflects the difference in purpose between the FCRPI and the FPLI. The FPLI is an input price index intended to proxy wages, so focusing on households most likely to be in the workforce was best. The FCRPI is intended only as a retail price index for the average Floridian, necessitating the change.

state population-weighted average prices to produce relative prices. Each relative price is then weighted by the appropriate item weight, listed in Table IV (pages 6 and 7). The weighted relative prices are added together for each county and the resulting totals are then multiplied by 100, producing an index value for each county such that the population-weighted statewide average of the county indices is 100.00. The weights, detailed by item and category in Table III on page 5, represent the fraction of the "typical" consumer's budget spent on each item. Starting with the CPI weights for Tampa, provided by the BLS, we modify them slightly to be more appropriate for a conditional spatial cost of living index.

The calculation of the FCWI is based on both labor market data and the results of the FCRPI. The labor market data consist of average wages for over 700 occupations across Florida's 67 counties. While data for each occupation are not available for all 67 counties, many observations are available in even the smallest county, whose sample consisted of 111 observations. The Labor Market Information division of Florida's Agency Workforce Innovation collects the data as part of the BLS Occupational Employment Statistics (OES) Survey (OES).

In calculating the FCWI, BEBR first uses statistical techniques to estimate a raw index of wages for comparable labor across counties directly from the wage data. Some types of jobs are centralized within urban areas, some are decentralized, and some fall in between. Since land costs, and thus housing costs, are higher in more central locations, workers in occupations that are concentrated in central locations must either pay a high price for housing or endure a long commute. Workers in occupations that are less concentrated in central areas have the option of living where housing is cheaper without having a long commute. Therefore, variation in the pecuniary price level is likely to have larger effects on the wages of workers in high centrality occupations (more concentrated in central locations), but smaller effects on the wages of workers in low centrality occupations (less concentrated in central locations). Accordingly, estimation of the raw index values controls for interactions between the average centrality of each occupation and the FCRPI in each county.

Second, since the quality 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, we construct a model relating the raw index to the FCRPI and other county-level data. 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 index, given the reliability of each county's raw and predicted indices. The second type of smoothing is geographic in nature. Workers who live in suburban or rural counties surrounding larger, urban counties will commute to the larger county for work if wages in the larger area are sufficiently higher to more than compensate for any extra commute time. Further, given the design of the OES survey, we expect the index to be most accurate in metropolitan counties (counties with cities that lend their names to one of Florida's metropolitan statistical areas). Therefore, we constrain the index in non-metropolitan counties to be no less than the commute-time-adjusted wage index of nearby metropolitan counties.

The 2005 Results

Tables I and II respectively present the retail price and wage indices for 2005, and each is constructed so that the population-weighted average is 100.00. Hillsborough County, which closely resembles the state in most demographic characteristics, is very near the state average for both the FCWI the FCRPI, having values of 101.63 and 96.50 respectively. The FCRPI map on the upper-left of the cover shows that the highest values of the FCRPI are in the southern, more populous part of the state. This is to be expected, since land that is 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. While the long housing market boom has put upward pressure

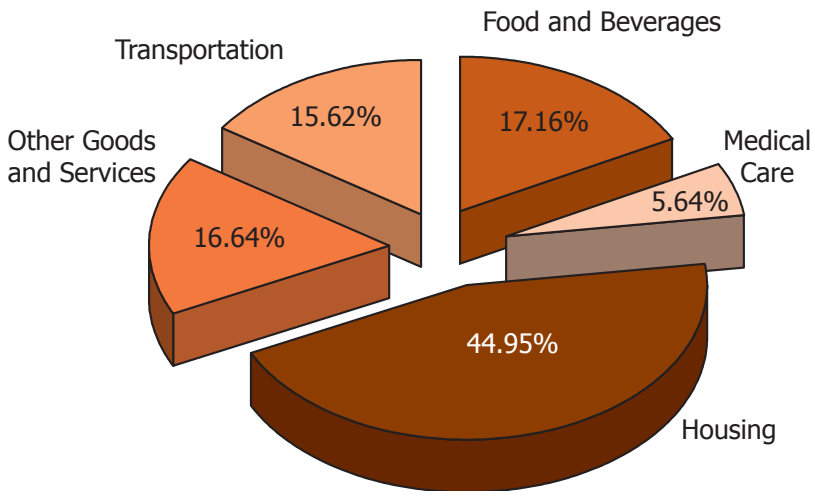
TABLE II

County	FCWI	Rank
Alachua	97.44	25
Baker	97.50	24
Bay	92.48	51
Bradford	96.93	32
Brevard	97.61	23
Broward	103.91	3
Calhoun	91.18	60
Charlotte	95.27	37
Citrus	93.91	48
Clay	99.55	12
Collier	106.83	1
Columbia	93.89	49
DeSoto	97.43	28
Dixie	92.09	53
Duval	101.92	6
Escambia	91.94	55
Flagler	94.46	44
Franklin	90.67	62
Gadsden	94.87	41
Gilchrist	94.22	45
Glades	98.62	18
Gulf	89.08	65
Hamilton	91.56	56
Hardee	95.59	36
Hendry	100.35	11
Hernando	96.98	31
Highlands	94.91	40
Hillsborough	101.63	7
Holmes	87.49	67
Indian River	97.36	30
Jackson	90.14	64
Jefferson	94.61	43
Lafayette	90.66	63
Lake	97.42	29
Lee	101.32	8
Leon	97.44	25
Levy	94.06	47
Liberty	92.34	52
Madison	91.40	59
Manatee	98.40	21
Marion	94.19	46
Martin	102.13	5
Miami-Dade	99.25	15
Monroe	103.49	4
Nassau	99.15	16
Okaloosa	93.69	50
Okeechobee	96.32	33
Orange	100.91	9
Osceola	98.57	19
Palm Beach	104.62	2
Pasco	98.92	17
Pinellas	100.69	10
Polk	97.44	25
Putnam	95.76	35
St. Johns	98.49	20
St. Lucie	97.72	22
Santa Rosa	92.05	54
Sarasota	99.29	14
Seminole	99.48	13
Sumter	95.26	38
Suwannee	91.49	57
Taylor	91.48	58
Union	95.84	34
Volusia	94.83	42
Wakulla	94.93	39
Walton	90.78	61
Washington	88.86	66

on housing prices throughout the state, undeveloped accessible land provides relief from this pressure in most counties. Areas where this relief valve is blocked, by high population or more direct restrictions on the uses of otherwise developable land, have experienced faster increases in the cost of living than the rest of the state.

This may be seen in the four counties having an FCRPI above 106.00, Broward, Miami-Dade, Monroe, and Palm Beach. These counties represent 30.8 percent of the state's population but only 11.4 percent of its total land mass. Furthermore, over 2.4 million acres of the land in these counties are national park land, and therefore not available for development. Compare this to the northern portion of the state, which had the lowest index values. Thirty-eight of the 44 counties with FCRPI values below 93.00 are north of Tampa. Together those 38 counties comprise only 17.2 percent of the state's population, but account for 48.7 percent of its landmass. As a direct result of the way the retail price index is constructed, the "average" Floridian by definition experiences a retail price level of 100. The median Floridian, however, resides in Hillsborough County, which has a retail price index of 96.50 and is ranked 12. That is to say that about half of all Floridians live in counties with retail prices higher than those in Hillsborough, and about half live in less expensive counties. The distribution of the FCRPI is thus quite asymmetric. The median county in contrast is Nassau, having an FCRPI of 92.04 and is ranked 34.

FIGURE I: Composition of Consumer Expenditures



The FCWI map on the cover (lower-right) shows that the highest values of the FCWI also tend to occur in the southern portion of the state, although the pattern is much less pronounced than in the case of the FCRPI. Again, it is to be expected that the southern part of the state would have relatively high values of the FCWI, since workers must be compensated for the much higher costs of housing and other goods and services in that portion of the state. It is also to be expected that this pattern would be less pronounced, since factors other than the costs of housing and other goods and services affect the FCRPI. The distribution of the FCWI is much more symmetric. Eleven counties containing 58 percent of the state's population have an FCWI above 100, and the median Floridian lives in Orange, at 100.91.

TABLE III
Item Weights for the 2005 Florida County Retail Price Index

Category	Number of Items Priced	Weight of Items Priced	Weight of Items Not Priced	Total Weight
Food and Beverages	4	5.851	11.306	17.157
Housing	4	35.709	9.237	44.946
Medical Care	5	5.172	0.467	5.639
Other Goods and Services	8	3.713	12.928	16.641
Transportation	3	7.519	8.099	15.618
Total	24	57.963	42.037	100.000

Food and Beverages	
Item	Weight
French Fries	1.444
Hamburger	1.505
Served Coffee	1.448
Served Soft Drink	1.453
Total Category Weight 17.157	

Housing	
Item	Weight
Air Cond. Seasonal Inspection	0.495
Apartment Rent Index	5.090
Electricity, 1000 KWh	3.781
Homeowner Cost Index	26.343
Total Category Weight 44.946	

Medical Care	
Item	Weight
Extraction	0.216
Eye Examination	0.116
Filling	0.216
Health Insurance	0.359
Healthcare Cost Index	4.264
Total Category Weight 5.639	

Other Goods and Services	
Item	Weight
Bowling	0.769
Day Care Service	1.228
Dry Cleaning (Man's Suit)	0.118
Dry Cleaning (Woman's Dress)	0.118
Man's Haircut	0.296
Movie Rental	0.769
Safety Deposit Box Fee	0.120
Woman's Haircut	0.296
Total Category Weight 16.641	

Transportation	
Item	Weight
Auto Insurance	2.570
Gasoline, Unleaded, Self	4.085
Lube-Oil-Filter	0.864
Total Category Weight 15.618	

TABLE IV
Category Indices

County	FCRPI	Food & Beverages	Housing	Medical Care	Other Goods & Services	Transpor-tation
Alachua	92.47	100.69	85.40	89.27	99.22	97.76
Baker	91.05	98.72	83.35	94.55	97.33	96.84
Bay	91.73	102.59	84.12	90.22	98.23	95.34
Bradford	90.72	102.95	81.37	87.66	98.14	97.41
Brevard	93.93	99.92	89.00	96.40	97.63	96.68
Broward	114.12	99.88	129.11	107.56	100.21	103.82
Calhoun	89.55	103.99	79.53	85.57	96.32	96.72
Charlotte	94.46	100.67	88.43	98.45	99.83	97.80
Citrus	91.23	102.30	83.56	87.87	96.05	97.21
Clay	92.31	101.91	83.67	95.54	100.97	96.27
Collier	99.76	100.86	98.60	96.43	103.09	99.55
Columbia	91.10	104.66	82.29	88.95	96.44	96.63
DeSoto	92.53	98.21	84.21	109.10	97.91	98.49
Dixie	90.42	100.64	82.42	87.32	95.37	98.09
Duval	93.70	100.89	86.86	95.40	99.61	98.55
Escambia	91.12	100.18	82.97	94.61	97.88	96.16
Flagler	92.57	101.92	85.31	94.50	98.33	96.35
Franklin	90.93	100.31	81.08	107.58	96.56	96.96
Gadsden	91.78	105.22	81.65	94.99	98.06	98.36
Gilchrist	90.19	102.22	80.54	93.09	96.01	97.51
Glades	92.68	101.35	85.08	93.50	97.94	99.14
Gulf	91.66	103.44	82.85	89.90	97.26	98.72
Hamilton	88.51	99.64	79.66	86.03	95.37	95.35
Hardee	91.62	97.62	83.86	97.17	98.90	97.62
Hendry	95.00	103.28	89.68	91.11	98.45	98.94
Hernando	92.34	103.68	84.61	95.41	96.95	96.14
Highlands	90.73	100.23	81.52	91.53	98.71	98.03
Hillsborough	96.50	100.60	92.29	94.02	100.18	101.10
Holmes	88.75	99.33	79.60	86.35	95.84	96.81
Indian River	95.53	98.44	92.16	94.23	99.94	97.81
Jackson	88.98	100.38	79.12	87.75	97.30	96.40
Jefferson	90.14	98.95	81.16	92.29	98.01	97.15
Lafayette	89.36	101.83	78.87	92.21	95.17	98.63
Lake	92.38	99.19	85.62	93.45	98.27	97.71

TABLE IV
Category Indices (Continued)

County	FCRPI	Food & Beverages	Housing	Medical Care	Other Goods & Services	Transpor-tation
Lee	97.47	99.21	96.34	96.84	99.63	96.78
Leon	93.10	102.63	84.95	95.33	100.46	97.41
Levy	91.12	106.34	82.03	87.21	95.92	96.88
Liberty	89.57	102.58	79.46	88.71	96.14	97.69
Madison	89.45	97.47	80.08	85.28	97.46	100.60
Manatee	97.90	101.28	96.51	92.68	100.81	96.99
Marion	90.39	99.67	81.86	95.04	97.93	95.04
Martin	98.11	98.81	96.94	96.81	100.44	98.71
Miami-Dade	115.42	98.70	129.79	118.38	100.52	107.23
Monroe	130.87	99.87	167.97	101.23	101.98	99.66
Nassau	92.04	102.27	83.70	92.98	98.63	97.47
Okaloosa	91.64	99.78	85.48	87.02	98.40	94.91
Okeechobee	92.74	97.74	84.82	108.13	98.19	98.68
Orange	94.34	99.48	88.96	97.89	99.87	97.01
Osceola	93.49	100.40	87.24	93.70	99.24	97.70
Palm Beach	102.78	98.41	103.70	101.71	103.83	104.18
Pasco	94.43	99.89	89.85	95.11	98.75	96.75
Pinellas	98.73	100.25	97.20	96.34	101.61	99.29
Polk	92.82	100.66	85.53	95.56	98.79	97.80
Putnam	90.78	102.74	82.42	88.98	96.96	95.74
St. Johns	92.89	100.64	85.52	94.09	101.02	96.47
St. Lucie	100.66	101.01	101.47	107.28	98.75	97.57
Santa Rosa	90.55	97.51	83.05	94.07	96.17	97.23
Sarasota	98.20	101.61	96.73	96.07	101.28	96.13
Seminole	93.52	99.46	86.70	98.54	101.83	95.94
Sumter	91.40	98.05	85.00	87.97	97.25	97.52
Suwannee	90.31	104.56	80.30	90.20	95.59	97.87
Taylor	91.10	101.53	81.29	100.34	96.64	98.65
Union	89.79	101.43	81.19	88.02	95.11	96.73
Volusia	93.10	99.57	87.23	95.26	98.38	96.48
Wakulla	91.10	101.17	82.75	96.01	97.15	95.81
Walton	90.40	100.31	82.15	88.07	97.85	96.15
Washington	88.71	100.24	79.42	85.20	96.29	95.95