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High-Tech Jobs in Florida

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Editors note: The following article provides an analysis of High-Tech Jobs in Florida from 1998 to 2003. Because of a change in industry classification systems from the Standard Industrial Classification system to the North American Industry Classification System in the year 2000, the analysis is separated into two periods, 1998 – 2000 and 2001 – 2003. Due to the change in industry classification systems a different methodology in determining High-Tech Jobs is used for the latter period, and therefore no direct comparisons can be made between the two periods.

High-Tech employment is calculated using a list of science and engineering intensive industry groups compiled by the Bureau of Labor Statistics (BLS). High-Tech industries typically use state-of-the-art techniques, devote a high proportion of expenditures to research and development, and employ scientific, technical, and engineering personnel. The BLS list of High-Tech Industry Groups is generated using data on the amount of employment in an industry accounted for by scientific, technical and engineering personnel engaged in research and development activities. Industries are considered High-Tech if employment in both research and development and in all technology-oriented occupations accounts for an amount of employment that is at least twice the average amount of employees for all industries in the 1998 Occupational Employment Statistics (OES) survey. This list is the basis of the USF Center for Economic Development Research (CEDR) analysis of High-Tech jobs in the state of Florida from 1998 through 2000. But this list was based on the Standard Industrial Classification (SIC) system, which was replaced by the North American Industry Classification System (NAICS). In 2002 the BLS updated the OES with conversions to the NAICS system.

In "Gauging Metropolitan 'High-Tech' and 'I-Tech' Activity: Some Thoughts and Commentary" authors Chapple et al use the 1998 OES to identify all three-digit SIC manufacturing and service-producing industries with 9% (three times the average of the economy as a whole) of their national workforce in science and engineering jobs to develop a list of High-Tech Industry Groups. Then, Carnegie Mellon University Center for Economic Development takes this list of High-Tech Industry Groups (SIC based) and converts it to a list of High-Tech Industries (NAICS based). Using employment data from the updated 2002 OES and following the same methodology as Chapple, et al, the Carnegie Mellon University Center for Economic Development makes a new list, which is the basis of the USF-CEDR's analysis of High-Tech jobs in the state of Florida from 2001 through 2003.

Table 1 shows the number of High-Tech jobs in Florida in 1998, 1999 and 2000. High-Tech jobs in Florida increased by 2.84% from 1998 to 1999, and increased by 5.32% from 1999 to 2000. Our Summary Indicator for "High-Tech Jobs" is the percentage of High-Tech jobs to total jobs in Florida. This indicator assesses not only the rate of growth of High-Tech jobs, but also whether High-Tech jobs are increasing relative to total employment. In 1998, 5.37% of jobs in Florida were in High-Tech industries.

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From the Editor…

This is the second issue of *The Tampa Bay Economy* (TBE) for 2004, published solely in electronic form. To conserve resources, we will no longer be mailing printed copies of the TBE.

"High-Tech Jobs in Florida" is the lead report in this issue. The articles analyzes, for the period 1998-2003, trends in Florida high-tech employment, and compares Florida's experience to those of other selected states.

Also in this issue is "Household Income Distribution in Tampa Bay, 1989-1999," which utilizes a Gini coefficient to describe income distribution trends in our seven-county region.

"Economic Contributions of the Finance and Insurance Sector in Florida's High Tech Corridor and the Rest of Florida" summarizes a CEDR research report completed in December 2003.

CEDR conducted the 28th annual USF Basic Economic Development Course in October 2004. This issue of the TBE includes a brief report about the course.

"Market Analysis of Hillsborough County's Community Development Block Grant Areas" summarizes a CEDR report commissioned by the Hillsborough County Economic Development Department.

We conclude this issue of the TBE with an "Update on CEDR's Data Center."

To help us make the journal add even more value to Tampa Bay's economic development community, we ask the journal's readers to send us their comments at: cedr@coba.usf.edu with subject line "Journal Comments."

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In 1999, the Summary Indicator dropped slightly to 5.33%. In 2000, the percentage of jobs in High-Tech industries to total jobs increased to 5.44%. Table 1 also shows the following industry groups have the most High-Tech Jobs in Florida: Management and Public Relations (SIC 874), Computer and Data Processing Services (SIC 737), Engineering and Architectural Services (SIC 871), Electronic Components and Accessories (SIC 367), and Communications Equipment (SIC 366).

Table 1
Private Sector High-Tech Jobs in Florida

		Employment		
SIC Code	**Industry Group**	**1998**	**1999**	**2000**
281	Industrial Inorganic Chemicals	522	526	567
282	Plastics Materials and Synthetics	3,214	3,230	3,425
283	Drugs	3,052	3,941	4,321
284	Soap, Cleaners, and Toilet Goods	2,892	2,911	3,059
285	Paints	1,492	1,566	1,632
286	Industrial Organic Chemicals	1,840	1,597	1,006
287	Agricultural Chemicals	6,497	6,563	6,307
289	Miscellaneous Chemical Products	1,778	1,802	1,650
291	Petroleum Refining	nd*	nd	38
348	Ordinance and Accessories, N.E.C.	631	735	789
351	Engines and Turbines	2,374	2,439	3,315
353	Construction and Related Machinery	3,215	3,609	3,270
355	Special Industry Machinery	2,648	2,416	2,562
356	General Industrial Machinery	5,073	4,964	5,281
357	Computer and Office Equipment	6,019	5,938	5,558
361	Electric Distribution Equipment	2,206	2,228	2,110
362	Electrical Industrial Apparatus	2,315	2,601	2,251
365	Household Audio and Video Equipment	2,615	2,577	2,598
366	Communications Equipment	21,160	19,508	20,293
367	Electronic Components and Accessories	22,597	21,452	22,593
371	Motor Vehicles and Equipment	8,102	7,880	7,442
372	Aircraft and Parts	17,371	17,061	16,239
376	Guided Missiles, Space Vehicles	10,014	8,729	8,326
381	Search and Navigation Equipment	9,543	9,444	8,464
382	Measuring and Controlling Devices	6,484	5,844	5,981
384	Medical Instruments and Supplies	15,353	15,091	15,101
386	Photographic Equipments and Supplies	385	310	270
737	Computer and Data Processing Services	66,258	71,101	82,271
871	Engineering and Architectural Services	47,019	51,580	56,403
874	Management and Public Relations	82,068	87,151	91,088
	Total Florida High-Tech Jobs	354,737	364,794	384,210
	Total Florida Jobs (Public and Private Sector)	6,605,987	6,844,649	7,060,986
	Summary Indicator	**5.37%**	**5.33%**	**5.44%**

Source: Compiled by CEDR from US Department of Labor, Bureau of Labor Statistics, State and County Employment Wages from Covered Employment and Wages, available at http://data.bls.gov/cgi-bin/dsrv?ew
*n/d: Not Disclosable - data do not meet BLS or State Agency disclosure standards, usually because a minimum employment amount has not been met.

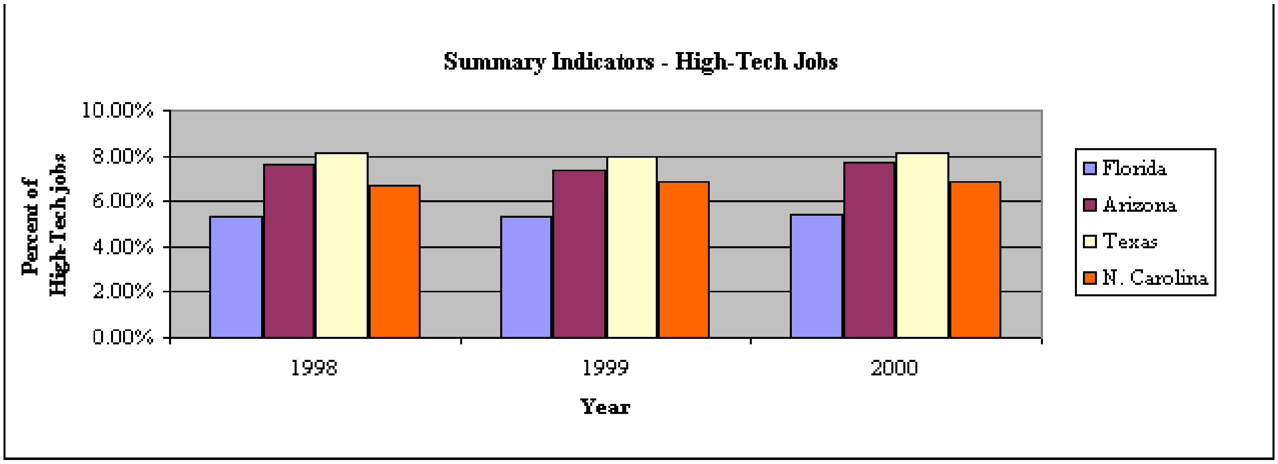
Table 2 provides a comparison of the Summary Indicators for High-Tech Jobs in Florida with other selected states. **Chart 2** depicts the comparisons. All states experienced a slight downturn in the percent of jobs in High-Tech industries from 1998 to 1999, but in 2000 they increased their percents of High-Tech jobs over 1998 levels. In 2000, Texas had the highest percentage of High-Tech jobs among the benchmarking states, exceeding Florida's Summary Indicator by 2.67%. However, that is down from a 2.74% difference in 1998, indicating Florida's relative success in attracting High-Tech jobs.

Table 2
Summary Indicators for Private Sector High-Tech Jobs

Year	Measure	State: Florida	Arizona	N. Carolina	Texas
1998					
	High-Tech jobs	354,737	157,452	249,246	715,267
	Total jobs	6,605,987	2,072,726	3,721,309	8,818,172
	Summary Indicator	5.37%	7.60%	6.70%	8.11%
1999					
	High-Tech jobs	364,794	157,913	261,075	720,236
	Total jobs	6,844,649	2,150,538	3,804,369	9,016,641
	Summary Indicator	5.33%	7.34%	6.86%	7.99%
2000					
	High-Tech jobs	384,210	170,444	266,220	754,439
	Total jobs	7,060,986	2,220,712	3,862,782	9,289,286
	Summary Indicator	5.44%	7.68%	6.89%	8.12%

Source: Compiled by CEDR from U.S. Department of Labor, Bureau of Labor Statistics, State and County Employment and Wages from Covered Employment and Wages, available at http://data.bls.gov/cgi-bin/dsrv?ew

Chart 2



Source: US Department of Labor, Bureau of Labor Statistics, State and County Employment and Wages from the Quarterly Census of Employment and Wages (2001 forward), http://www.bls.gov/data/home.htm

Table 3 indicates the year-over-year percent change in High-Tech jobs in Florida by industry group. From 1998 to 1999 the Drugs (SIC 283) industry group experienced the highest percent increase - just over 29% - while the Industrial Organic Chemicals (SIC 286) industry group absorbed the highest percent decrease of about 13%. In the 1999 to 2000 period, the Industrial Organic Chemicals industry group continued to lose jobs with another 37% decline. The big gainer in 1999 to 2000 was the Engines and Turbines (SIC 351) industry group with an almost 36% increase in jobs. Table 3 also shows that three of the industry groups holding the most High-Tech jobs (SIC 874, SIC 737, SIC 871) experience positive growth in number of High-Tech jobs in both 1999 and 2000. The other two (SIC 367, SIC 366) have negative growth in the number of High-Tech jobs in 1999, but then rebound in 2000 with positive growth.

Table 3
Percent Change in Private Sector High-Tech Jobs in Florida
(by Industry Group)

SIC Code	Industry Group	1998 to 1999 % Change	1999 to 2000 % Change
281	Industrial Inorganic Chemicals	0.77%	7.79%
282	Plastics Materials and Synthetics	0.50%	6.04%
283	Drugs	29.13%	9.64%
284	Soap, Cleaners, and Toilet Goods	0.66%	5.08%
285	Paints	4.96%	4.21%
286	Industrial Organic Chemicals	-13.21%	-37.01%
287	Agricultural Chemicals	1.02%	-3.90%
289	Miscellaneous Chemical Products	1.35%	-8.44%
291	Petroleum Refining	nd*	nd
348	Ordinance and Accessories, N.E.C.	16.48%	7.35%
351	Engines and Turbines	2.74%	35.92%
353	Construction and Related Machinery	12.26%	-9.39%
355	Special Industry Machinery	-8.76%	6.04%
356	General Industrial Machinery	-2.15%	6.39%
357	Computer and Office Equipment	-1.35%	-6.40%
361	Electric Distribution Equipment	1.00%	-5.30%
362	Electrical Industrial Apparatus	12.35%	-13.46%
365	Household Audio and Video Equipment	-1.45%	0.81%
366	Communications Equipment	-7.81%	4.02%
367	Electronic Components and Accessories	-5.07%	5.32%
371	Motor Vehicles and Equipment	-2.74%	-5.56%
372	Aircraft and Parts	-1.78%	-4.82%
376	Guided Missiles, Space Vehicles	-12.83%	-4.62%
381	Search and Navigation Equipment	-1.04%	-10.38%
382	Measuring and Controlling Devices	-9.87%	2.34%
384	Medical Instruments and Supplies	-1.71%	0.07%
386	Photographic Equipments and Supplies	-19.48%	-12.90%
737	Computer and Data Processing Services	7.31%	15.71%
871	Engineering and Architectural Services	9.70%	9.35%
874	Management and Public Relations	6.19%	4.52%

Source: Compiled by CEDR from US Department of Labor, Bureau of Labor Statistics, State and County Employment Wages from Covered Employment and Wages, available at http://data.bls.gov/cgi-bin/dsrv?ew. *nd: Not Disclosable - data do not meet BLS or State Agency disclosure standards, usually because a minimum employment amount has not been met.

Table 4 shows the number of jobs in Florida in 2001, 2002 and 2003 (preliminary data) within each High-Tech industry, classified by NAICS. High-Tech jobs in Florida decreased by 5.57% from 2001 to 2002, and decreased by 1.22% from 2002 to 2003. The Summary Indicator shows that in 2001, 2.88% of jobs in Florida were in High-Tech industries. In 2002, the number of jobs in Florida's High-Tech industries dropped to 2.72% and fell to 2.65% in 2003. Table 4 also shows the following industries to hold the most High-Tech jobs: Engineering Services (NAICS 541330), Custom Computer Programming Systems (NAICS 541511), Computer Systems Design Devices (NAICS 541512), Research and Development in the Physical, Engineering, and Life Sciences (NAICS 541710), and Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing (NAICS 334220).

Table 4
Private Sector High-Tech Jobs in Florida

		EMPLOYMENT		
NAICS	**Industry**	**2001**	**2002**	**2003(p)**
211111	Crude Petroleum and Natural Gas Extraction	224	nd	172
325110	Petrochemical Manufacturing	nd	nd	nd
325120	Industrial Gas Manufacturing	323	296	293
325131	Inorganic Dye and Pigment Manufacturing	84	83	82
325188	All Other Basic Inorganic Chemical Manufacturing	nd	nd	nd
325192	Cyclic Crude and Intermediate Manufacturing	nd	N/A	nd
325199	All Other Basic Organic Chemical Manufacturing	426	nd	416
325411	Medicinal and Botanical Manufacturing	114	163	132
325412	Pharmaceutical Preparation Manufacturing	3,924	3,916	4,176
325413	In-Vitro Diagnostic Substance Manufacturing	nd	95	100
325414	Biological Product (except Diagnostic) Manufacturing	nd	3	7
333210	Sawmill and Woodworking Machinery Manufacturing	48	41	nd
333292	Plastics and Rubber Industry Machinery Manufacturing	nd	nd	nd
333293	Textile Machinery Manufacturing	270	215	200
333294	Printing Machinery and Equipment Manufacturing	335	425	403
333295	Semiconductor Machinery Manufacturing	nd	nd	nd
333298	All Other Industrial Machinery Manufacturing	897	813	848
333313	Office Machinery Manufacturing	1,249	1,000	1,003
333314	Optical Instrument and Lens Manufacturing	1,297	1,252	1,413
333315	Photographic and Photocopying Equipment Manufacturing	99	85	98
333319	Other Commercial and Service Industry Machinery Manufacturing	1,037	972	920
334111	Electronic Computer Manufacturing	2,094	1,844	1,857
334113	Computer Terminal Manufacturing	122	103	159
334119	Other Computer Peripheral Equipment Manufacturing	1037	972	920
334210	Telephone Apparatus Manufacturing	2,407	1,986	1,471
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	10,178	8,238	6,899
334290	Other Communications Equipment Manufacturing	4,211	3,612	3,173
334310	Audio and Video Equipment Manufacturing	2,096	1,911	1,049
334412	Bare Printed Circuit Board Manufacturing	5,835	4,620	3,546
334413	Semiconductor and Related Device Manufacturing	8,742	8,611	7,856
334414	Electronic Capacitor Manufacturing	584	507	378

Table 4 (Continued)
Private Sector High-Tech Jobs in Florida

		EMPLOYMENT		
NAICS	**Industry**	**2001**	**2002**	**2003(p)**
334415	Electronic Resistor Manufacturing	438	317	290
334417	Electronic Connector Manufacturing	640	516	525
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	5,006	3,929	2,881
334419	Other Electronic Component Manufacturing	2,099	2,097	1,961
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	2,703	2,943	3,555
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	8,353	8,056	8,081
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	394	391	357
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	1,065	924	983
334514	Totalizing Fluid Meter and Counting Device Manufacturing	672	554	533
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	1,225	948	905
334516	Analytical Laboratory Instrument Manufacturing	910	746	575
334517	Irradiation Apparatus Manufacturing	40	28	23
334519	Other Measuring and Controlling Device Manufacturing	421	481	519
336411	Aircraft Manufacturing	4,726	3,825	3,958
336412	Aircraft Engine and Engine Parts Manufacturing	5,330	4,377	3,651
336413	Other Aircraft Part and Auxiliary Equipment Manufacturing	2,851	2,552	2,349
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	nd	nd	nd
511210	Software Publishers	5,910	6,276	6,376
541310	Architectural, Engineering, and Related Services	9,793	9,638	9,772
541330	Engineering Services	42,639	43,593	45,175
541370	Surveying and Mapping (except Geophysical) Services	6,016	6,326	6,828
541380	Testing Laboratories	3,773	3,813	4,004
541511	Custom Computer Programming Services	22,130	21,350	23,002
541512	Computer Systems Design Devices	19,338	17,125	16,867
541710	Research and Development in the Physical, Engineering, and Life Sciences	10,254	10,310	9,842
541720	Research and Development in the Social Sciences and Humanities	1,690	1,704	1,618
	Total High-Tech Jobs in Florida	206,049	194,582	192,201
	Total Jobs in Florida (Public and Private Sector)	7,153,589	7,164,523	7,248,097
	Summary Indicator	**2.88%**	**2.72%**	**2.65%**

Sources: Compiled by CEDR from - 1) Carnegie Mellon University Center for Economic Development (CED), Table 1: Technology Employers, http://www.ssti.org/Publications/online.htm 2) US Department of Labor, Bureau of Labor Statistics, State and County Employment and Wages from the Quarterly Census of Employment and Wages (2001 forward), http://www.bls.gov/data/home.htm.
*n/d: Not Disclosable - data do not meet BLS or State Agency disclosure standards, usually because a minimum employment amount has not been met. p: preliminary data from 2003

Table 5 provides a comparison of the Summary Indicators for Private Sector High-Tech jobs in Florida with a group of selected states as benchmarks. **Chart 5** is a visual comparison. All states consistently experienced a decrease in the percent and absolute number of jobs in High-Tech industries from 2001 through 2003. Texas led with the highest percent of High-Tech jobs to total jobs, while Florida had the least percent of High-Tech jobs to total jobs out of all four states in each of the three years. But Florida was the state that experienced the least percent decrease from 2001 through 2003 indicating some stability in High-Tech employment, relative to the benchmark states.

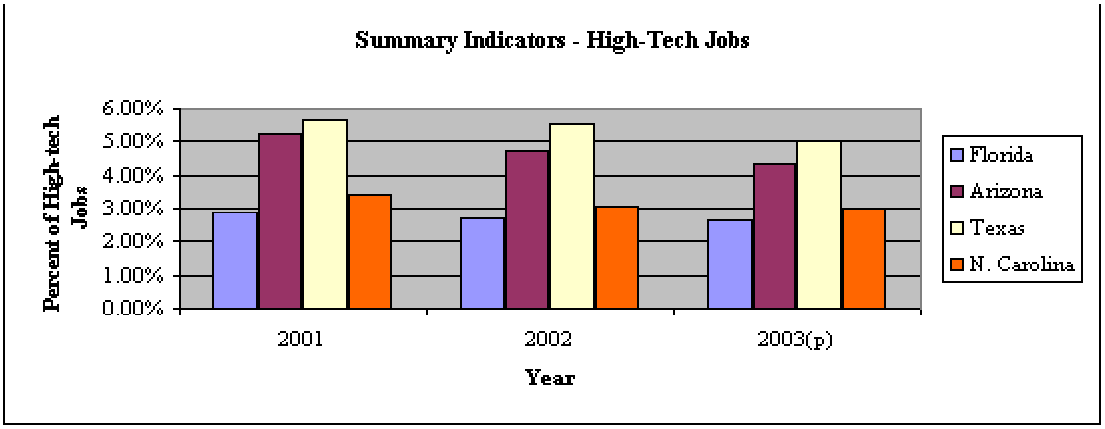
Table 5

Summary Indicators for Private Sector High-Tech Jobs

Year	Measure	State: Florida	Arizona	Texas	N. Carolina
2001					
	High-Tech jobs	206,049	117,438	528,128	128,577
	Total Jobs	7,153,589	2,243,652	9,350,770	3,805,498
	Summary Indicator	**2.88%**	**5.23%**	**5.65%**	**3.38%**
2002					
	High-Tech jobs	194,582	105,591	512,777	114,003
	Total Jobs	7,164,523	2,240,234	9,261,089	3,751,648
	Summary Indicator	**2.72%**	**4.71%**	**5.54%**	**3.04%**
2003					
	High-Tech jobs	192,201	98,907	461,834	111,278
	Total Jobs	7,248,097	2,272,393	9,208,473	3,719,444
	Summary Indicator	**2.65%**	**4.35%**	**5.02%**	**2.99%**

Source: US Department of Labor, Bureau of Labor Statistics, State and County Employment and Wages from the Quarterly Census of Employment and Wages (2001 forward), http://www.bls.gov/data/home.htm

Chart 5



Source: US Department of Labor, Bureau of Labor Statistics, State and County Employment and Wages from the Quarterly Census of Employment and Wages (2001 forward), http://www.bls.gov/data/home.htm

Table 6 indicates the year-over-year percent change in High-Tech jobs in Florida by industry. From 2001 to 2002 the Medicinal and Botanical Manufacturing (NAICS 325411) industry experienced the largest percent increase of about 43%, while the Irradiation Apparatus Manufacturing (NAICS 334517) industry experienced the largest percent decrease of about 30%. From 2002 to 2003 (preliminary data) it was the Biological Product (except Diagnostic) Manufacturing (NAICS 325414) industry experiencing the largest percent increase of 133%, and the Audio and Video Equipment Manufacturing (NAICS 334310) industry experiencing the largest percent decrease of about 45%. Notably, of the 61 High-Tech industries profiled, only 4 experienced positive growth in consecutive years (2002 and 2003) with the latter year's growth being larger than the first. Those industries are: Electromedical and Electrotherapeutic Apparatus Manufacturing (NAICS 334510), Engineering Services (NAICS 541330), Surveying and Mapping (except Geophysical) Services (NAICS 541370), and Testing Laboratories (NAICS 541380). Table 6 also shows that only one of the industries holding the most High-Tech jobs, Engineering Services (NAICS 541330), is experiencing positive growth in number of High-Tech jobs in both 1999 and 2000.

Table 6
Percent Change in Private Sector High-Tech Jobs in Florida (by Industry)

		% Change	
NAICS Code	**Industry Group**	**2001 - 2002**	**2002 - 2003**
211111	Crude Petroleum and Natural Gas Extraction	N/A*	N/A
325110	Petrochemical Manufacturing	N/A	N/A
325120	Industrial Gas Manufacturing	-8.36%	-1.01%
325131	Inorganic Dye and Pigment Manufacturing	-1.19%	-1.20%
325188	All Other Basic Inorganic Chemical Manufacturing	N/A	N/A
325192	Cyclic Crude and Intermediate Manufacturing	N/A	N/A
325199	All Other Basic Organic Chemical Manufacturing	N/A	N/A
325411	Medicinal and Botanical Manufacturing	42.98%	-19.02%
325412	Pharmaceutical Preparation Manufacturing	-0.20%	6.64%
325413	In-Vitro Diagnostic Substance Manufacturing	N/A	5.26%
325414	Biological Product (except Diagnostic) Manufacturing	N/A	133.33%
333210	Sawmill and Woodworking Machinery Manufacturing	-14.58%	N/A
333292	Plastics and Rubber Industry Machinery Manufacturing	N/A	N/A
333293	Textile Machinery Manufacturing	-20.37%	-6.98%
333294	Printing Machinery and Equipment Manufacturing	26.87%	-5.18%
333295	Semiconductor Machinery Manufacturing	N/A	N/A
333298	All Other Industrial Machinery Manufacturing	-9.36%	4.31%
333313	Office Machinery Manufacturing	-19.94%	0.30%
333314	Optical Instrument and Lens Manufacturing	-3.47%	12.86%
333315	Photographic and Photocopying Equipment Manufacturing	-14.14%	15.29%
333319	Other Commercial and Service Industry Machinery Manufacturing	-6.27%	-5.35%
334111	Electronic Computer Manufacturing	-11.94%	0.70%
334113	Computer Terminal Manufacturing	-15.57%	54.37%
334119	Other Computer Peripheral Equipment Manufacturing	-6.27%	-5.35%
334210	Telephone Apparatus Manufacturing	-17.49%	-25.93%

Table 6 (Continued)

Percent Change in Private Sector High-Tech Jobs in Florida (by Industry)

NAICS Code	Industry Group	% Change 2001 - 2002	2002 - 2003
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	-19.06%	-16.25%
334290	Other Communications Equipment Manufacturing	-14.22%	-12.15%
334310	Audio and Video Equipment Manufacturing	-8.83%	-45.11%
334400	Semiconductor and Other Electronic Component Manufacturing	N/A	N/A
334412	Bare Printed Circuit Board Manufacturing	-20.82%	-23.25%
334413	Semiconductor and Related Device Manufacturing	-1.50%	-8.77%
334414	Electronic Capacitor Manufacturing	-13.18%	-25.44%
334415	Electronic Resistor Manufacturing	-27.63%	-8.52%
334417	Electronic Connector Manufacturing	-19.38%	1.74%
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	-21.51%	-26.67%
334419	Other Electronic Component Manufacturing	-0.10%	-6.49%
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	8.88%	20.80%
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	-3.56%	0.31%
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	-0.76%	-8.70%
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	-13.24%	6.39%
334514	Totalizing Fluid Meter and Counting Device Manufacturing	-17.56%	-3.79%
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	-22.61%	-4.54%
334516	Analytical Laboratory Instrument Manufacturing	-18.02%	-22.92%
334517	Irradiation Apparatus Manufacturing	-30.00%	-17.86%
334519	Other Measuring and Controlling Device Manufacturing	14.25%	7.90%
336400	Aerospace Product and Parts Manufacturing	N/A	N/A
336411	Aircraft Manufacturing	-19.06%	3.48%
336412	Aircraft Engine and Engine Parts Manufacturing	-17.88%	-16.59%
336413	Other Aircraft Part and Auxiliary Equipment Manufacturing	-10.49%	-7.95%
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	N/A	N/A
511210	Software Publishers	6.19%	1.59%
541310	Architectural, Engineering, and Related Services	-1.58%	1.39%
541330	Engineering Services	2.24%	3.63%
541370	Surveying and Mapping (except Geophysical) Services	5.15%	7.94%
541380	Testing Laboratories	1.06%	5.01%
541511	Custom Computer Programming Services	-3.52%	7.74%
541512	Computer Systems Design Devices	-11.44%	-1.51%
541600	Management, Scientific, and Technical Consulting Services	N/A	N/A
541700	Scientific Research and Development Services	N/A	N/A

Table 6 (Continued)
Percent Change in Private Sector High-Tech Jobs in Florida (by Industry)

NAICS Code	Industry Group	% Change 2001 - 2002	% Change 2002 - 2003
541710	Research and Development in the Physical, Engineering, and Life Sciences	0.55%	-4.54%
541720	Research and Development in the Social Sciences and Humanities	0.83%	-5.05%

Sources: Compiled by CEDR from – 1) Carnegie Mellon University Center for Economic Development (CED), Table 1: Technology Employers, http://www.ssti.org/Publications/online.htm 2) US Department of Labor, Bureau of Labor Statistics, State and County Employment and Wages from the Quarterly Census of Employment and Wages (2001 forward), http://www.bls.gov/data/home.htm. *N/A: Not Available – a percent change was not available due to no data disclosed to make a calculation

We are also able to examine the number of High-Tech establishments in Florida. See **Table 7**. The table indicates the year-over-year percent change in number of establishments within each High-Tech industry. From 2001 to 2002 the Other Measuring and Controlling Device Manufacturing (NAICS 334519) industry experienced the largest percent increase of about 24%, while the Sawmill and Woodworking Machinery Manufacturing (NAICS 333210) industry experienced the largest percent decrease of 25%. From 2002 to 2003 (preliminary data) it was the Computer Terminal Manufacturing (NAICS 334113) industry experiencing the largest percent increase of 40%, and the Semiconductor and Related Device Manufacturing (NAICS 334413) industry experiencing the largest percent decrease of about 15%. Only 6 High-Tech industries experienced positive growth in both 2002 and 2003, with 2003's growth being larger than 2002's. Those industries are: Other Electronic Component Manufacturing (NAICS 334419), Aircraft Manufacturing (NAICS 336411), Architectural, Engineering, and Related Services (NAICS 541310), Surveying and Mapping (except Geophysical) Services (NAICS 541370), Custom Computer Programming Services (NAICS 541511), and Computer Systems Design Devices (NAICS 541512).

In comparing Table 6 to Table 7 both industries, Irradiation Apparatus Manufacturing (NAICS 334517) in 2002 and Audio and Video Equipment Manufacturing (NAICS 334310) in 2003, that experienced the largest percent decrease in High-Tech jobs also experienced a percent decrease in High-Tech establishments. There is a strong correlation between the number of jobs and the number of establishments within the High-Tech industries. There is also a moderate correlation between percent change in High-Tech jobs and percent change in High-Tech establishments.

Table 7 also shows that three of the industries with the most High-Tech Jobs: Engineering Services (NAICS 541330), Custom Computer Programming Services (NAICS 541511), and Computer System Design Devices (NAICS 541512) also have the most establishments. Those same three are also three of the 6 High-Tech Industries that experienced positive growth in both 2002 and 2003 with 2003's growth being larger than 2002's.

Table 7
Private Sector Establishments in the High-Tech Industries in Florida

NAICS	Industry	ESTABLISHMENTS 2001	2002	2003(p)	% Change 2001-2002	2002-2003
211111	Crude Petroleum and Natural Gas Extraction	19	nd	19	N/A*	N/A
325110	Petrochemical Manufacturing	nd	nd	nd	N/A	N/A
325120	Industrial Gas Manufacturing	17	20	18	17.65%	-10.00%
325131	Inorganic Dye and Pigment Manufacturing	5	5	6	0.00%	20.00%
325188	All Other Basic Inorganic Chemical Manufacturing	nd	nd	nd	N/A	N/A
325192	Cyclic Crude and Intermediate Manufacturing	nd	0	nd	N/A	N/A
325199	All Other Basic Organic Chemical Manufacturing	10	nd	11	N/A	N/A
325411	Medicinal and Botanical Manufacturing	15	14	13	-6.67%	-7.14%
325412	Pharmaceutical Preparation Manufacturing	57	55	61	-3.51%	10.91%
325413	In-Vitro Diagnostic Substance Manufacturing	nd	8	8	0.00%	0.00%
325414	Biological Product (except Diagnostic) Manufacturing	nd	4	4	0.00%	0.00%
333210	Sawmill and Woodworking Machinery Manufacturing	8	6	nd	-25.00%	0.00%
333292	Plastics and Rubber Industry Machinery Manufacturing	nd	nd	nd	N/A	N/A
333293	Textile Machinery Manufacturing	31	28	25	-9.68%	-10.71%
333294	Printing Machinery and Equipment Manufacturing	23	19	19	-17.39%	0.00%
333295	Semiconductor Machinery Manufacturing	nd	nd	nd	N/A	N/A
333298	All Other Industrial Machinery Manufacturing	37	36	38	-2.70%	5.56%
333313	Office Machinery Manufacturing	15	13	12	-13.33%	-7.69%
333314	Optical Instrument and Lens Manufacturing	35	29	25	-17.14%	-13.79%
333315	Photographic and Photocopying Equipment Manufacturing	13	12	14	-7.69%	16.67%
333319	Other Commercial and Service Industry Machinery Manufacturing	104	100	96	-3.85%	-4.00%
334111	Electronic Computer Manufacturing	45	41	42	-8.89%	2.44%
334113	Computer Terminal Manufacturing	6	5	7	-16.67%	40.00%
334119	Other Computer Peripheral Equipment Manufacturing	38	42	44	10.53%	4.76%
334210	Telephone Apparatus Manufacturing	44	41	38	-6.82%	-7.32%
334220	Radio and Television Broadcasting and Wireless Communications Equipment Manufacturing	103	95	95	-7.77%	0.00%
334290	Other Communications Equipment Manufacturing	48	47	46	-2.08%	-2.13%
334310	Audio and Video Equipment Manufacturing	46	40	38	-13.04%	-5.00%
334412	Bare Printed Circuit Board Manufacturing	71	65	63	-8.45%	-3.08%
334413	Semiconductor and Related Device Manufacturing	50	53	45	6.00%	-15.09%
334414	Electronic Capacitor Manufacturing	8	7	6	-12.50%	-14.29%
334415	Electronic Resistor Manufacturing	8	7	6	-12.50%	-14.29%
334417	Electronic Connector Manufacturing	12	11	12	-8.33%	9.09%
334418	Printed Circuit Assembly (Electronic Assembly) Manufacturing	46	49	42	6.52%	-14.29%
334419	Other Electronic Component Manufacturing	39	40	42	2.56%	5.00%
334510	Electromedical and Electrotherapeutic Apparatus Manufacturing	43	40	45	-6.98%	12.50%
334511	Search, Detection, Navigation, Guidance, Aeronautical, and Nautical System and Instrument Manufacturing	53	51	52	-3.77%	1.96%
334512	Automatic Environmental Control Manufacturing for Residential, Commercial, and Appliance Use	27	25	22	-7.41%	-12.00%
334513	Instruments and Related Products Manufacturing for Measuring, Displaying, and Controlling Industrial Process Variables	57	51	53	-10.53%	3.92%
334514	Totalizing Fluid Meter and Counting Device Manufacturing	24	21	20	-12.50%	-4.76%

		ESTABLISHMENTS			% Change	
NAICS	Industry	2001	2002	2003(p)	2001-2002	2002-2003
334515	Instrument Manufacturing for Measuring and Testing Electricity and Electrical Signals	51	45	45	-11.76%	0.00%
334516	Analytical Laboratory Instrument Manufacturing	23	20	21	-13.04%	5.00%
334517	Irradiation Apparatus Manufacturing	10	9	12	-10.00%	33.33%
334519	Other Measuring and Controlling Device Manufacturing	29	36	40	24.14%	11.11%
336411	Aircraft Manufacturing	44	49	56	11.36%	14.29%
336412	Aircraft Engine and Engine Parts Manufacturing	57	54	52	-5.26%	-3.70%
336413	Other Aircraft Part and Auxiliary Equipment Manufacturing	51	52	49	1.96%	-5.77%
336419	Other Guided Missile and Space Vehicle Parts and Auxiliary Equipment Manufacturing	nd	nd	nd	N/A	N/A
511210	Software Publishers	210	230	249	9.52%	8.26%
541310	Architectural, Engineering, and Related Services	1,576	1,629	1,701	3.36%	4.42%
541330	Engineering Services	3,354	3,584	3,775	6.86%	5.33%
541370	Surveying and Mapping (except Geophysical) Services	682	698	735	2.35%	5.30%
541380	Testing Laboratories	379	379	388	0.00%	2.37%
541511	Custom Computer Programming Services	3,337	3,511	3,858	5.21%	9.88%
541512	Computer Systems Design Devices	2,953	2,991	3,106	1.29%	3.84%
541710	Research and Development in the Physical, Engineering, and Life Sciences	601	580	594	-3.49%	2.41%
541720	Research and Development in the Social Sciences and Humanities	184	171	167	-7.07%	-2.34%

Table 7 (Continued)
Private Sector Establishments in the High-Tech Industries in Florida

As shown by our summary indicators, over the period of 1998 to 2000, Florida experienced growth in the number of jobs in High-Tech industries relative to jobs in the economy as a whole. While positive growth was consistent among the benchmark states, Florida's .07% growth over the three years falls below North Carolina's .19% growth and Arizona's .08% growth for that same period.

For the period of 2001 to 2003, under the new industry classification system and using a different definition of High-Tech industries, our summary indicators show that over the period Florida experiences a decline in the number of jobs in the High-Tech industries relative to jobs in the economy as a whole. Again this trend is consistent with the benchmark states for the period, but Florida's .23% decline was the least, ranking ahead of Arizona's .88% decline, Texas's .63% decline, and North Carolina's .39% decline. Thus the state of Florida was able to keep relatively more jobs in the High-Tech industries than the benchmark states.

Household Income Distribution in Tampa Bay, 1989-1999

By Dave Sobush, Economist with the Center for Economic Development Research

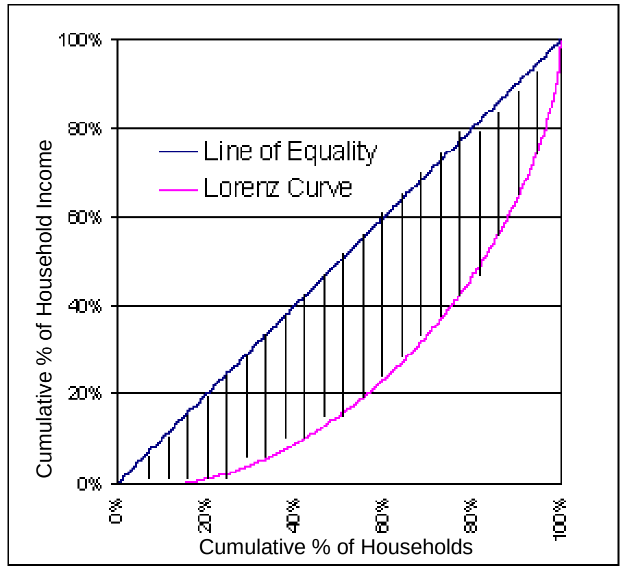
CEDR's annual publication, *Tampa Bay Market Report,* reveals economic information including per capita income and population for the Tampa Bay region. Multiplying per capita income by the population calculates the aggregate value of income dollars in a given region, but neither the aggregate value nor the per capita value provide much insight into the distribution of income within an area. A Gini coefficient provides this insight.

This article discusses the calculation of the Gini coefficient, reports household income distribution - measured by a Gini coefficient - for Florida, the seven-county Tampa Bay area, and Tampa Bay's three cohort Metropolitan Statistical Areas (MSAs) for years 1989, 1999, and estimates the current (2004) distribution of household income. Finally, this article discusses possible uses of Gini coefficients for grant-seeking economic developers.

Calculating the Gini Coefficient

For any set of numbers, the Gini coefficient, developed by Italian statistician Corrado Gini (d. 1965), is a number between zero and one, where perfect equality between the numbers is denoted by a zero value, and perfect inequality is denoted by a value of one. For example, a society in which every household had the same income would have a Gini coefficient of 0.0. A society in which one household earned all income and all other households earned no income would have a Gini coefficient of 1.0.

The Gini coefficient is calculated as the ratio of areas under the line of perfect equality (the 45° line) and the Lorenz curve. The Lorenz curve graphs the percentage of cases (for the purposes of this article, households) on the x-axis and the cumulative percentage of the variable of interest (for the purposes of this article, total household income) on the y-axis.



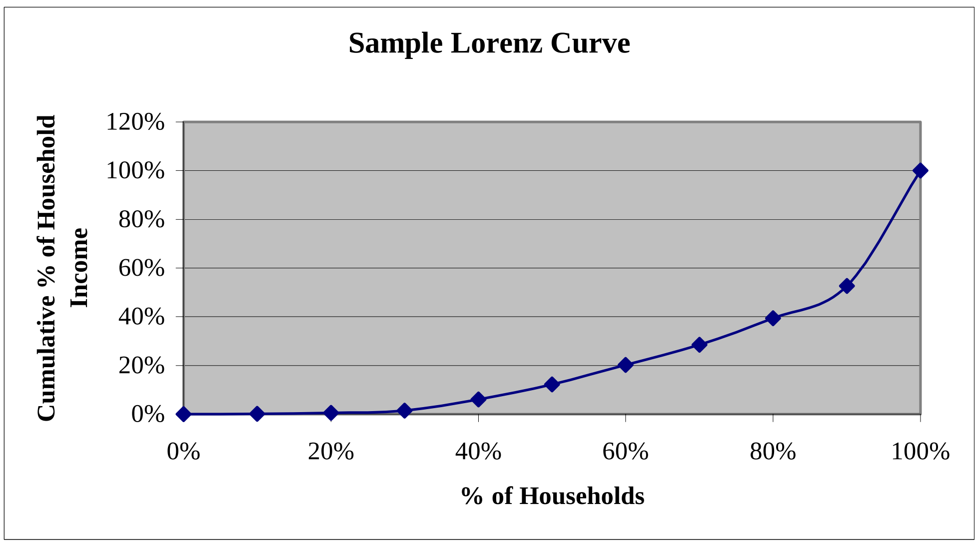
In our example Lorenz curve illustrated above, we conclude that the bottom 80% of households earn roughly 45% of household income. Or in other terms, the upper 20% of households earn roughly 55% of all income. The Gini coefficient would be calculated as the shaded area divided by the total area under the line of equality.

Methodology

The Lorenz curve is created by first arranging the household income data in ascending order. After the cases have been ordered, the cumulative percentage of household income is assigned to each case. For a sample of 10 households, a spreadsheet set up to graph the Lorenz curve may look like this:

	A	B	C	D
1	Case Number	Household Income (HHI)	Percentage of Total HHI	Cumulative % of HHI
2	1	$ 1,000	0.15%	0.15%
3	2	$ 2,500	0.36%	0.51%
4	3	$ 6,000	0.87%	1.38%
5	4	$ 32,000	4.66%	6.05%
6	5	$ 42,500	6.19%	12.24%
7	6	$ 55,000	8.01%	20.26%
8	7	$ 56,250	8.20%	28.45%
9	8	$ 75,235	10.96%	39.42%
10	9	$ 90,750	13.22%	52.64%
11	10	$ 325,000	47.36%	100.00%

To graph the Lorenz curve, plot the data in column D in line-chart format, as shown below:



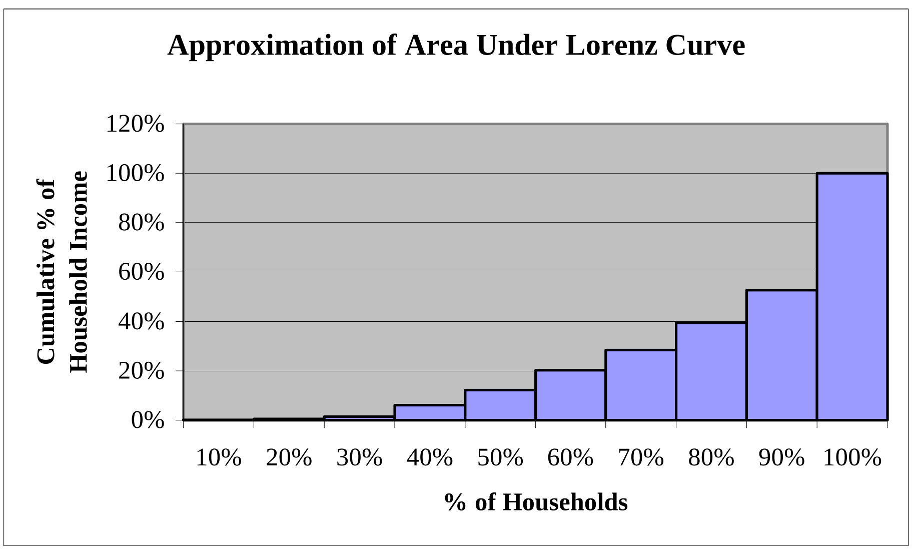
Precise measurement of the area under the Lorenz curve requires that (a) the curve be mathematically defined as a function and (b) that the integral of that function be taken. Recognizing that this level of mathematic finesse may not be readily available to an individual or organization, we propose a method of estimating the area under the Lorenz curve. Rather than using calculus to create the curve, and then to determine the area underneath it, approximate Lorenz curves can be constructed and measured by a process of division, multiplication, and addition.

Instead of integral calculus, the alternative method involves the creation of n rectangles, where n is the number of cases.

Each rectangle has a width of 1/n, and a height equal to the cumulative percentage of HHI assigned to each case. By taking the sum of the areas of the rectangles, we approximate the area under the Lorenz curve.	To do so, modify our earlier spreadsheet by adding two columns: 1/n, where n is the number of cases, and D x E, where the value displayed for each row is the product of column D and column E. In our example, n equals 10 therefore 1/n equals 0.1.

	A	B	C	D	E	F
1	Case Number	Household Income (HHI)	Percentage of Total HHI	Cumulative % of HHI	1/n	D x E
2	1	$ 1,000	0.15%	0.15%	0.1	0.0001
3	2	$ 2,500	0.36%	0.51%	0.1	0.0005
4	3	$ 6,000	0.87%	1.38%	0.1	0.0014
5	4	$ 32,000	4.66%	6.05%	0.1	0.0060
6	5	$ 42,500	6.19%	12.24%	0.1	0.0122
7	6	$ 55,000	8.01%	20.26%	0.1	0.0203
8	7	$ 56,250	8.20%	28.45%	0.1	0.0285
9	8	$ 75,235	10.96%	39.42%	0.1	0.0394
10	9	$ 90,750	13.22%	52.64%	0.1	0.0526
11	10	$ 325,000	47.36%	100.00%	0.1	0.1000
12					**SUM(F2:F11)**	**0.2611**

To graph the approximate area under Lorenz curve, plot the data in column D in column-chart format, as shown below:



The line of equality forms a triangle with base and height both equal to 1, thus the area under the line of equality is 0.5*1*1=0.5. To calculate the approximate area under the Lorenz curve, sum the values of cells F2 through F11, as shown above in cell F12. Subtract this value from the total area under the line of equality to yield the area between the Lorenz curve and the line of equality:

$$0.5 - 0.2611 = 0.2389$$

Divide this result by 0.5 to yield the Gini coefficient:

$$0.2389/0.5 = 0.4778$$

For large sample sizes, the width of the rectangles will decrease, producing a smoother curve and thus a more accurate approximation of the area under the Lorenz curve.

Data Source and Gini Coefficients

The data used to create the Lorenz curve and thus the Gini coefficient is the U.S. Census Bureau's Public Use Microdata Sample (PUMS). The PUMS data, gathered concurrent with the decennial census, contains a wide array of demographic and economic data for both people and households. We use the 1990 and 2000 5%-sample PUMS databases, hence our household income data corresponds to years 1989 and 1999, respectively. PUMS data is available for a variety of geographic areas, although finer detail (i.e. the municipal level) will yield smaller and sometimes insufficient sample sizes than a larger area.

We calculate our Gini coefficients using the methodology described above, with one exception. For the state of Florida, taking a random sample of 65,000 cases reduces the sample size of 350,000+. The following table reports Gini coefficients for Florida, Tampa Bay, and Tampa Bay's three cohort MSAs:

GINI Coefficient Values for Household Income

Area	**1989**	**1999**	**10-Year Rate of Change**	**2004***
Florida	0.5580	0.5648	1.21%	0.5682
Tampa Bay	0.5321	0.5506	3.49%	0.5602
Lakeland-Winter Haven, FL MSA	0.5604	0.5450	-2.75%	0.5374
Tampa-St. Petersburg-Clearwater, FL MSA	0.5288	0.5432	2.73%	0.5505
Sarasota-Bradenton, FL MSA	0.5381	0.5763	7.09%	0.5964

** CEDR estimate based on annual compound growth rate, 1989-1999*

As measured by the Gini coefficient, reported 1989 and 1999 household income was distributed more evenly in the Lakeland-Winter Haven and Tampa-St. Petersburg-Clearwater MSAs than in the state as a whole. The Tampa Bay region followed this trend. However, Gini coefficients for household income distribution in Tampa Bay and the Tampa-St. Petersburg-Clearwater MSA grew at a faster rate during the ten-year period of interest. While our 2004 estimate still shows a higher Gini coefficient for the State, should the current trends continue Tampa Bay and the Tampa-St. Petersburg-Clearwater MSA will eclipse that of the state in the future, signifying a growing divide between the upper-income and lower-income households.

For all years reported, household income in the Sarasota-Bradenton MSA was distributed less equally than the other examined areas. This pattern is predicted to continue and the difference between this area and others to increase. As shown above, the 10-year rate of change in the Gini coefficient for the Sarasota-Bradenton area was twice that of the next highest rate of change.

Uses of Household Income Distribution Data

Many economic development and/or neighborhood enhancement grants, such as those given by the U.S. Economic Development Administration (EDA) or private-sector foundations, require demonstration of need. Many times, per capita incomes below national or state averages suffice as that demonstration. However, in geographically smaller areas, such as MSAs, counties, and municipalities, outliers at the top of the income scale may push per capita income levels above that which demonstrates need. Third-party data sources produce income and data at very detailed levels, such as block groups, but often these sources are priced beyond the financial means of ad hoc researchers.

By creating Lorenz curves, researchers and grant applicants can produce per capita and household income statistics for segments of the population. For instance, if a Lorenz curve shows that the bottom 20% of households earn 5% of the income, divide 5% of the total income by 20% of the total households to calculate the average household income for the lowest-earning 20% of households. Even if an area as a whole cannot demonstrate need, if large segments of the population can demonstrate to have need, grant applicants may find greater success.

Economic Contributions of the Finance and Insurance Sector in Florida's High Tech Corridor and the Rest of Florida

By Dennis G. Colie, Ph.D., Director, Center for Economic Development Research

Editor's note: The following article is a summary of a CEDR research report of the same title and dated December 2003. The original CEDR research report can be found on CEDR's website at http://cedr.coba.usf.edu

The purpose of this research is to estimate the economic contributions of the Finance and Insurance (F & I) sector of the economy within the Florida High Tech Corridor and the Rest of Florida. We employ the *REMI™ Policy Insight* model to perform the estimates. The by-county geographic coverage of the model allows us to examine the principal component counties of the Florida High Tech Corridor**:** Brevard, Hernando, Hillsborough, Lake, Manatee, Orange, Osceola, Pasco, Pinellas, Polk, Sarasota, Seminole**,** and Volusia counties. Florida's counties other than the principal component counties are aggregated in the model as the Rest of Florida.

The conceptual foundation of this analysis is the understanding that job creation in one industry begets additional jobs in related industries. In addition, further jobs are created to support an increased level of aggregate household income and spending resulting from the inter-industry job creation. This phenomenon of job creation, with concomitant increased levels of income and production, is called the multiplier or ripple effect.

In 2003, there are about 175,800 jobs in the F & I sector. These jobs represent 4.81% of total employment in the Corridor. In the Rest of Florida there are about 276,600 F & I jobs, or 4.97% of total employment. Within the F & I sectors of both the Corridor and the Rest of Florida, we expect the number of Banking jobs to slightly decrease between 2003 and 2007, while we expect jobs in Credit & Finance and Insurance to increase during that same time period.

In 2003, output of the F & I sector within the Corridor approximates $27.5 billion, or 7.65% of the Corridor's total economic activity. The Rest of Florida produces F & I output equal to about $44.6 billion, or 8.61% of total output in that area. Although we expect Banking jobs to decline, we anticipate that Banking output will grow at an over 2% average annual rate throughout Florida. Declining employment and growing output is consistent with productivity gain (and consolidation) in the Banking industries. Overall, we expect F & I output throughout Florida to grow by more than 3% per annum.

Also in 2003, wages of the F & I sector within the Corridor are nearly $6.4 billion, or 6.25% of the Corridor's total wage bill. In the Rest of Florida, F & I wages equal about $11.5 billion, or 7.45% of total wages paid in the Rest of Florida. Between 2003 and 2007, we anticipate that total wages and salaries paid to workers in the F & I sector will increase by more than an average 4% per annum.

We assess the economic contributions of the F & I sector of the economy using the traditional counter-factual approach. With this approach, we use the *REMI™ Policy Insight* model to virtually remove the baseline output produced by the primary industries of the F & I sector. The model tabulates the direct effects of the removal of the baseline economic activities as well as the ripple, or secondary, effects throughout the economy.

First, we virtually remove the output of the F & I sector within the High Tech Corridor, but allow finance and insurance activities in the Rest of Florida. This first counter-factual analysis yields the economic contribution of the F & I sector to the High Tech Corridor. Second, we virtually remove the output of the F & I sector from both the Corridor and the Rest of Florida. Hypothetically, finance and insurance activities now only take place outside the state of Florida. This second counter-factual analysis yields the economic contribution of the F & I sector to the state of Florida.

From the first analysis, we find that in 2003 the F & I sector contributes about 457,000 jobs, or 12.53% of total employment, to the High Tech Corridor's economy. The largest contributions are in Hillsborough County and Pinellas County at 129,500 jobs and 106,600 jobs, respectively. Measured by output, the F & I sector contributes over $57 billion, or about 15.85% of total output, to the Corridor's economy. The largest contributions are in Hillsborough County at over $15.7 billion, or 21.06% of Hillsborough County's total economic activity and in Pinellas County at over $13.9 billion, or 22.55% of Pinellas County's total economic activity. And, as measured by wages, the F & I sector contributes over $14.9 billion, or about 14.70% of total wages and salaries, to the Corridor's economy. The largest contribution is in Hillsborough County at over $4.5 billion, which is approximately 19.61% of the County's total wage bill. The contribution in Pinellas County is over $3.4 billion, which is the highest percentage, 20.77%, of any Corridor county's wage bills.

From the second analysis, we find that in 2003 the F & I sector's contribution to the state of Florida's economy is approximately 1,228,000 jobs, over $158 billion of output, and wage and salary disbursements for workers totaling over $42.5 billion.

From our analyses, we conclude that the F & I sector is a large and growing segment of Florida's economy. The center of this economic activity is in the Tampa Bay region in the western portion of Florida's High Tech Corridor, particularly clustered within Hillsborough County and Pinellas County.

This research was done in support of the Florida Financial Service Cluster Initiative (FFSCI) under the coordination of Guy Hagen, President, Innovation Insight, Inc. In the next column, Mr. Hagen describes the FFSCI:

The Florida Financial Service Cluster Initiative (FFSCI) is a public-private partnership with objectives including the expansion, attraction, and creation of high value financial services companies in Florida. In particular, the FFSCI has targeted non-retail finance operations including securities and commodities, insurance, transaction processing, and technology / operations facilities. The FFSCI is a statewide partnership led by top executives from the private sector and with representatives from across Florida.

FFSCI's efforts to date have helped to attract key companies like Depositors Trust & Clearing Corporation (DTCC), and sponsoring a comprehensive strategic research project to guide marketing and positioning, economic development, and other collaborative activities.

The FFSCI's first objective is to obtain Florida 'high impact' designation for selected financial services sectors. The FFSCI has been working closely with state officials toward this goal, which would be an important and high profile step toward establishing Florida as one of the top international clusters in financial services.

The FFSCI is in the process of formal incorporation, and expects to unveil some high-profile industry events and announcements in early 2005.

The official website of the FFSCI is http://financialflorida.com .

- Guy Hagen, President
  Innovation Insight, Inc.

USF's Basic Economic Development Course

By Nolan Kimball, Coordinator of Information/Publications with the Center for Economic Development Research

The Center for Economic Development Research (CEDR) conducted the 28th annual USF Basic Economic Development Course during the week of October 24 - 29, 2004. The course was held at the Hilton Tampa Airport Westshore in Tampa, Florida. Thirty-three students from six states participated in the 2004 course. CEDR is a unit of the College of Business Administration. Dennis G. Colie, Director of CEDR was the Course Director and the Course Coordinator was Nolan Kimball, Coordinator of Information/Publications for CEDR. The International Economic Development Council (IEDC) accredits the course.

The Course Director received valuable input from the Advisory Committee, whose members are economic development practitioners. The 2004 Course Advisory Committee members were:

Beatriz Bare, Director of Corporate Recruitment and Expansion, Greater Tampa Chamber of Commerce, Committee of One Hundred

Richard "Buzz" David, CEcD, Director, Pinellas County Economic Development

Marilyn Hett, Business Development Administrator, Hillsborough County Economic Development Department

Michael McHugh, Director, Hernando County Office of Business Development

Regina Smith, Director, Lee County Office of Economic Development

Mary Jane Stanley, CEcD, President/CEO, Pasco Economic Development Council and Chairperson of the Florida Economic Development Council.

CEDR structured the 2004 USF Basic Economic Development Course around the core topics established by IEDC.

Those topics are Marketing/Attraction, Business Retention and Expansion, Entrepreneurship/Small Business Development, Economic Development Finance, Real Estate Development Reuse, Workforce Development, Strategic Planning and Community/Neighborhood Development. Field trips also highlighted urban redevelopment and environmental issues in economic development.

Nine of the 19 presenters at this course are IEDC members. The presenters were drawn from diverse working environments:

- Fifteen from not-for-profit economic development organizations,
- One from manufacturing,
- Two from academia, and
- One from an economic development consulting firm.

Tuition for this year's course was $755. The tuition included expenses for instruction, course materials, refreshments, field trips, a group photo and two luncheons. The Florida Economic Development Council (FEDC) sponsored the Opening Night Networking Dinner as well as providing one scholarship for a qualified participant. The Mosaic Company – formerly Cargill Crop Nutrition, Inc. - served box lunches during the environmental field trip.

CEDR will hold the 29th Annual USF Basic Economic Development Course during the week of October 23 - 28, 2005 at a location (to be determined) in the Tampa Bay area.

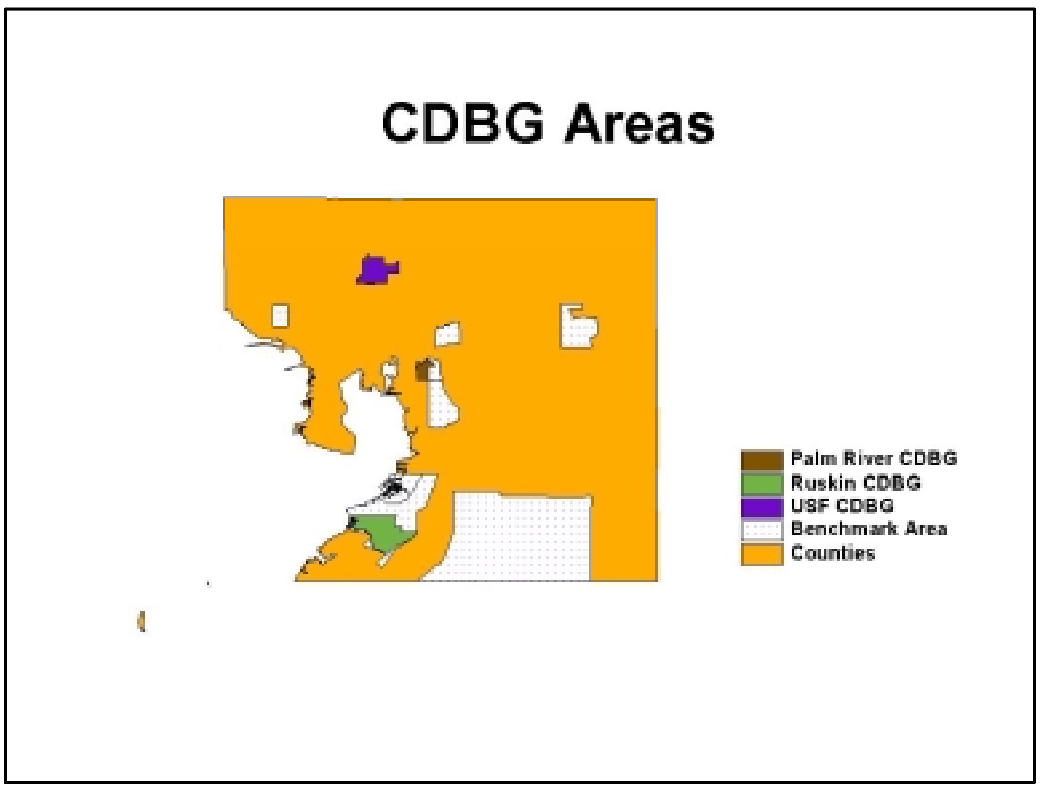
Market Analysis of Hillsborough County's Community Development Block Grant Areas

By Dave Sobush, Economist with the Center for Economic Development Research

In order to assess economic conditions within the county's Community Development Block Grant (CDBG) program target areas, the Hillsborough County (FL) Economic Development Department commissioned CEDR to create an inventory of business establishments within a benchmark CDBG area and to compare this inventory to the demographic characteristics of the benchmark area. We then compare the USF, Ruskin, and Palm River CDBG areas to the benchmark for analysis of the relative abundance or scarcity of businesses within those CDBG areas.

Creating the Benchmark Area

To create the CDBG benchmark area, we obtained geographic information systems (GIS) shapefiles of the nine Hillsborough County CDBG target areas from the County's website. Then, using the ArcView Business Analyst extension, and its associated databases, we determined the cohort census tracts - small, relatively permanent statistical subdivisions of a county populated by between 2,500 and 8,000 persons - of the nine CDBG areas. We defined a cohort census tract as one contained by - in part or in whole - or tangent to a CDBG area. We selected, at random, nine of these census tracts to create the benchmark area. The figure below shows the geographic location of the benchmark, USF, Ruskin, and Palm River CDBG areas relative to Hillsborough County.



Demographic Characteristics

The ArcView Business Analyst software package contains demographic data collected at the block group level. The table below summarizes the demography of the benchmark, USF, Ruskin, and Palm River CDBG areas.

Demographic Summary of Benchmark, USF, Ruskin, and Palm River CDBG Areas

	CDBG Benchmark		USF		Ruskin		Palm River	
Population (2005)	Amount	%	Amount	%	Amount	%	Amount	%
White	62,964	78.28%	24,657	64.87%	5,836	89.92%	4,818	57.87%
Black	12,028	14.95%	10,429	27.44%	81	1.25%	2,841	34.12%
American Indian, Eskimo, or Aleut	312	0.39%	168	0.44%	24	0.38%	64	0.77%
Asian or Pacific Islander	1,167	1.45%	1,283	3.38%	37	0.57%	159	1.91%
Other	3,967	4.93%	1,471	3.87%	512	7.88%	444	5.33%
Hispanic Origin	22,474	27.94%	7,227	19.01%	2,257	34.78%	2,409	28.93%
Total (Excluding Hispanic Origin)	80,437	100.00%	38,008	100.00%	6,490	100.00%	8,326	100.00%
Age & Gender (2005)								
Population Age <18	21,353	26.55%	8,059	21.20%	1,406	21.66%	2,656	31.90%
Population Age 65+	9,288	11.55%	4,363	11.48%	1,491	22.97%	734	8.82%
Population Male	40,034	49.77%	18,876	49.66%	3,233	49.81%	4,017	48.25%
Population Female	40,404	50.23%	19,132	50.34%	3,258	50.19%	4,309	51.75%
Income (2005)								
Per Capita	$ 19,515	n/a	$ 17,078	n/a	$ 17,192	n/a	$ 15,052	n/a
Average Household Income	$ 55,986	n/a	$ 36,549	n/a	$ 44,045	n/a	$ 47,135	n/a

Calculation and Analysis of Descriptive Statistics

To calculate the descriptive statistics, we take the number of establishments for each industry category, divide by a demographic characteristic, and multiply by 1,000. Therefore, each descriptive statistic represents the number of establishments for every 1,000 of the specified demographic characteristic. For instance, in the 3rd quarter of 2003, the CDBG benchmark area had 17 Child Day Care Services establishments (NAICS industry 624410), and a projected 2005 population of 80,437. Thus, the descriptive statistic is 0.2113. Put in other words, in the CDBG benchmark area, for every 1,000 people, there are 0.2113 Child Day Care Services establishments.

Conclusions

In order to focus our analysis, we report on establishments when normalized by total population and by per capita income, due to their straightforward effects on economic behavior.

The number of establishment types found to be relatively scarce in a CDBG area varies greatly if the establishment types are normalized by population or by per capita income. Normalizing by population consistently yields fewer scarce establishment types, suggesting that this characteristic contributes more greatly to the decision of an entrepreneur to establish a business in an area. For example, our findings suggest that the Palm River CDBG area, based on the per capita income of its residents, has 28.08 fewer

Offices of Physicians (except Mental Health Specialists) – NAICS code 621111 – establishments than it should. However, based solely on the total population of the area, a deficit of 2.04 NAICS code 621111 establishments is revealed. We feel that 28 establishments is too much for the market to "miss;" entrepreneurs would have filled the gap if establishments normalized by per capita income was the descriptive statistic of interest in the decision to open a business. Therefore we conclude that an establishment type scarce in terms of population is a more accurate assessment of under-representation in the marketplace.

USF - Not surprisingly, given the area's proximity to the University of South Florida (the University is itself exogenous of the USF CDBG), offices of physicians and dentists are relatively abundant in the USF CDBG area. On the other hand, engineering, accounting, and certain computer services are under-represented. These industries are prime targets for expansion, and should take advantage of the University's presence in the area, as both a source of employees and clientele. Given the USF CDBG area's relatively high population density, it is surprising to see the relative scarcity of grocery and convenience stores, making these also logical priorities for business expansion.

Ruskin - In addition to those establishment types present in the benchmark CDBG area, but absent in the Ruskin CDBG area, business expansion should focus on attracting professional services, more specifically the offices of physicians and dentists, to the Ruskin CDBG area. The data also suggests that insurance and real estate operations are under-represented within the Ruskin CDBG area. Temporary Help Services (NAICS code 561320) establishments are relatively scarce in the Ruskin area, but due to the nature of this industry – providing temporary labor to other businesses – we expect that this industry will thrive only when its customers set up operations within or close to the Ruskin CDBG area.

Palm River - Business expansion should focus on attracting professional services, such as offices of physicians, lawyers, and dentists, to the Palm River CDBG area. The data also suggests that accounting and real estate operations are under-represented within the Palm River CDBG area. Restaurants – both limited-service and full-service – are a good opportunity for expansion in the Palm River CDBG area. Not only are restaurants generally under-represented in the area, but would offer flexible employment opportunities for local residents as well as provide a sense of place and community.

This article is a summary of the CEDR research project "Community Economic and Demographic Research, September 2004" available from CEDR's website at http://cedr.coba.usf.edu. These types of analyses are good beginnings for neighborhood development efforts, as they provide focus and measurable indicators of program effectiveness.

Update on CEDR's Data Center

By Dodson Tong, Data Manager for the Center for Economic Development Research

CEDR's online Data Center has updated its databases with the most currently available data and will continue to update these datasets as they are released throughout 2005. Note that there will be a planned major data change included in the Local Area Unemployment Statistics and in the Metropolitan Area Designations beginning with the release of data for January 2005 in March. The Bureau of Labor Statistics (BLS) will implement a redesigned method for producing labor force estimates for census regions, divisions, states, and selected substate areas. The redesigned method encompasses a number of changes:(1) the introduction of improved time-series regression models for all states, the District of Columbia, New York City, the Los Angeles-Long Beach-Glendale metropolitan division (currently the Los Angeles-Long Beach metropolitan area), and the respective balances of New York and California, (2) the introduction of real-time benchmarking to national Current Population Survey (CPS) estimates of employment and unemployment, and (3) the introduction of time-series regression models for six additional substate areas and their respective state balances. The estimates will also reflect the routine annual updates to population estimates from the U.S. Census Bureau. More information on these changes is available from the Bureau of Labor Statistics, Division of Local Area Unemployment Statistics website at http://www.bls.gov/lau/lauschanges2005.htm.

Other changes affecting the estimation methodology for the substate areas include implementation of Census 2000-based geographic area definitions. In the Tampa Bay area, this change is reflected in the renaming of the Sarasota-Bradenton, FL Metropolitan Statistical Area (MSA) to the Sarasota-Bradenton-Venice, FL MSA as a result of the latter city's recent growth. All data from January 2000 forward will eventually be revised to incorporate all of these changes. Also, in order to present a more consistent substate series, the substate data for 1990-99 will be revised to reflect new area definitions and statewide controls. More information about the changes to metropolitan areas is available from the Bureau of Labor Statistics, Division of Local Area Unemployment Statistics Web site at http://www.bls.gov/lau/lausmsa.htm.

Due to the stormy weather over the past few months, questions on how many people lost their jobs or were directly affected by the hurricanes came up. One way to help address this question is to look at the monthly filings of initial unemployment claims by workers. Therefore, CEDR's Data Center has recently created this additional online database to its website. For example, the largest number of initial unemployment claims filed in August 2004 (right after Hurricane Charley) occurred in Charlotte County with 3,791, representing a monthly change of 1,285%. The largest filing of initial unemployment claims for September 2004 (right after Hurricanes Frances, Ivan, and Jeanne) was Palm Beach County with 4,829 initial claims for a monthly change of 133%. However, the largest percentage increase in initial claims during this same period came from Indian River County with an increase of 809%, representing 2,815 initial claims. This database can be accessed at http://cedr.coba.usf.edu and "Query CEDR Databases." The Regional and State database section under Initial Unemployment Claims, has "BY COUNTY" link to a database which enables the user to access this type of data.

Please note that historical "data-inserts" accompanying previous journals are available for downloading under the "Tampa Bay Economy Journal" link off CEDR's website.

In addition to the Initial Unemployment Claims data, the Regional and State database section continues to make available the following:

- **Cost of Living**. This data set provides relative costs of living for Florida's 67 counties and is released annually by the Florida Department of Education. Starting with period 1993-1994, Florida's cost of living in a given year is set at 100% and then each Florida county's cost of living is expressed relative to 100%.

- **Education Indicators.** The indicators in the data set are graduation rates, drop out rates, SAT scores, average class size, and per pupil expenditures for Florida's public high schools. The Florida Department of Education distributes the data. CEDR presents the data organized by county and covering four academic years beginning with 1996-1997.

- **ES202**. This data set is a Bureau of Labor Statistics (BLS) sponsored collection of job and wage data from all employers participating in Florida's unemployment insurance program. It is organized by 1-digit level Standard Industrial Classification (SIC) codes (and totals for all SIC codes), and describes the number of units (i.e. an establishment designated as a single reporting unit for the unemployment insurance system), the number of covered employees, total wages of those employees, and average wages. The data set is partitioned for each Florida county and provides monthly data (by quarter) from first quarter 1988 to first quarter 2004. A version with annual data from 1988 to 2003 is also available. Beginning with year 2001, these datasets will be available by 2-digit North American Industrial Classification System (NAICS) 2002 handbook manual codes Note that there is not an exact bridge from the previous SIC system to the new NAICS system due to the newer industries that NAICS now tracks.

- **Gross Sales**. This data series provided by the Florida Department of Revenue is intended as a measure of economic activity. Gross sales are the sum of taxable and non-taxable sales as reported by businesses to the Florida Department of Revenue. The Florida Department of Revenue reports gross sales and taxable sales to CEDR by ninety-nine "kind" codes. In order to protect the confidentiality of businesses reporting to the Florida Department of Revenue, CEDR has aggregated certain kind codes and converted the aggregations into 8 categories. The data set is partitioned by Florida county and provides monthly data beginning in 1994.

- **Housing Permits**. This data set of construction authorized by building permits is distributed by the Manufacturing and Construction Division, Bureau of the Census. The data set is primarily based on reports submitted to the Bureau by local building permit officials in response to a mail survey, although some data may be generated by Census Bureau interviewers or imputed from past data. The data on CEDR's web site is organized by state, by county, and by Metropolitan Statistical Area (MSA) for each month of a year beginning with January 1996 to November 2004. The data describes the number of units and aggregate value for which building permits have been issued by: single-family, 2-family, 3&4-family, and 5-family units. Note that beginning with January 2004 data, the Residential Construction Branch began using the new OMB Metropolitan and Micropolitan Statistical Area definitions that were released in June 2003.

- **Local Area Unemployment Statistics (LAUS).** This labor force data set is prepared monthly by the Bureau of Labor Statistics (BLS) and describes labor force participation, employment, unemployment, and unemployment rate by county of residence (data is also included by Florida MSA). The self-employed are counted as employed persons in the LAUS data. The LAUS estimates are based on a combination of data from the Current Population Survey (CPS), unemployment insurance claim data, the Current Employment Statistics (CES) survey of establishments, and ES-202 data. Statewide and Florida counties' data are available. The data can be displayed beginning with the month of January 1990 to December 2004. Annual averages are also available.

- **Personal Income**, **Per Capita Personal Income, and Population** - These three data sets are organized by county, or by MSA, per year and are released annually through the Regional Economic Information System (REIS) of the Bureau of Economic Analysis (BEA). The data is based on place of employment and reflect annual averages. In producing REIS, BEA makes use of data that are byproducts of the administration of various federal and state programs, including unemployment insurance, Social Security, federal income taxes, veterans benefits, and military payroll. Hence, the REIS data series, which includes farming and non-farming, military and civilian, proprietorships (i.e. self-employment) and wage and salary employment, is more comprehensive than ES202. ES202 data covers non-farming and salary employment only. BEA defines Personal Income as the current income received by persons from all sources (including investment income and transfer payments) minus their personal contributions for social insurance. Personal income includes both monetary income (including non-paycheck income such as employer contributions to pensions) and non-monetary income (such as food stamps and net rental value to owner-occupants of their homes). The REIS county and MSA data are issued about 16 months after the year in which the observations were made. Currently CEDR's data center has this information from 1969 to 2002. The 2003 data should be available in mid 2005.

- **Zip Code Business Patterns** - This dataset contains the number of business establishments located within a postal ZIP code area throughout Florida. The database also reports the number of employees by industry. CEDR has ZIP code business pattern data from 1997 to year 2000. For each year, drop-down menus allow the researcher to specify a ZIP code area by name (ordered alphabetically) or by ZIP code (ordered numerically). Additionally, the researcher can specify a ZIP code and a Standard Industrial Classification (SIC) code for the 1997 data. Beginning in 1998, the data is organized by North American Industry Classification System (NAICS) codes, so the researcher may specify a ZIP code and a NAICS code. Most economic activity is covered by this data set. However, data are excluded for self-employed persons, domestic service workers, railroad employees, farm workers, most government employees, maritime workers on ocean-going vessels, and persons working outside the U.S. ZIP Code Business Patterns data items are extracted from the Standard Statistical Establishments List, a file of all known single and multi-establishment firms. The list is maintained and updated by the U.S. Bureau of the Census.

CEDR has developed and provided ZIP code maps for each of Florida's counties that will help researchers identify and define a local area of interest. ZIP Code Business Pattern maps are available from 1997, which are a graphical representation of the data. In conjunction to this ZIP Code Business Patterns data, maps from 1999 ZIP code boundaries are also made available.

CEDR has also recently received from the Bureau of Economic Analysis (U.S. Dept. of Commerce) *State Personal Income, 1929 - 2003.* There are tables with annual measures for each of the states of the U.S.:

- Income and employment summary,
- Personal income by major source and earning by industry,
- Compensation of employees by industry,
- Wage and salary disbursements by industry,
- Total full-time and part-time employment by industry,
- State economic profiles,
- Personal current transfer receipts,
- Farm income and expenses, and
- Personal current tax receipts.

Although the *State Personal Income, 1969 - 2003* tables are not available online, you can go to CEDR's home page and click on "Request Data from CEDR" to e-mail your individualized data request.

Other items that can be found at CEDR's web site are reports of research reports and other publications as well as links to other sites containing data of interest for economic development.

CEDR's online data center continues to garner wide interest. In 2004, annual web hits reached over 239,806 and averaged a monthly count of 19,984. Since CEDR began putting its research reports available online, the numbers of downloads has also gone up. In 2004 there were 38,172 CEDR research report downloads. During the most recent month, users remained at the site for an average of 14.55 minutes per visit. Check CEDR's web site at http://cedr.coba.usf.edu for new projects and continuously updated data sources.