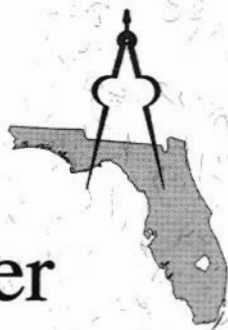


# The Florida Geographer



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Antebellum Florida

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*The Florida Geographer* is the official publication of the Florida Society of Geographers and is distributed free to members of the society. It is a statewide journal, with coverage of geographical topics relating to the state. Manuscripts should deal with some social science or physical geographical aspect of Florida or include Florida as an important component of a larger study.

Manuscripts are solicited from all who feel they have research worthy of dissemination. For matters of style, see articles in the present issue. Authors should not be dissuaded from submitting articles for review because of format considerations.

Authors should submit the final copy of the paper on an IBM-compatible diskette (3.5") in either double or high-density format. Word Perfect files are preferred: if not, please save files in ASCII (DOS text file) format.

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Editor, *The Florida Geographer*

## To the readers of *The Florida Geographer*

I am now in the second year of my tenure as editor of *The Florida Geographer*. The first year's issue was formed from a collection of manuscripts that had accumulated over a three year period, and together made a rather formidable issue, both in size and quality. I believed that through frequent requests to those interested in Florida geography conveyed through our Internet list server, by telephone, and directly at various geography meetings, including that of our society, by June I would have been successful in gathering at least an equal number as was published in the 1996 edition. Alas, that was not the case. Although I believe the quality of the articles published in this issue remains high, the number and size of the articles has declined. It was not my intention to be the author of two articles in this issue, but I added that on Dade County to the one on seasonality of tourism to bring the issue to a reasonable size. Both themes are important.

I continue to believe that *The Florida Geographer* is a marvelous outlet for papers with a geographical theme about Florida. Not only is it read by geographers throughout the state, but it reaches all members of the Florida Geographical Alliance (which contributes to the cost of publication). All of the state's universities and many of the community colleges now receive the journal, and several universities outside of Florida subscribe. Most of the articles that appear in the journal continue to be written by members of the faculty of higher educational institutions. I would like to see more submitted by graduate students. *The Florida Geographer* is a refereed journal, and an article published in it would enhance a student's vita. I appeal to you faculty members to urge those students who write good term papers on a Florida theme to submit them to this journal. Those teachers who have material on Florida that is not too long, or too specialized, also are invited to make submissions.

Once again I would like to thank Jim Anderson, Peter Krafft, and Betsy Purdum of the Florida Resources and Environmental Analysis Center for editing and composing this issue.

Morton D. Winsberg  
Editor, *The Florida Geographer*

## Manufacturers in Florida: Large and Small

Edward J. Malecki  
University of Florida

Amid popular and research interest in high technology, producer services, and financial services, manufacturing has received less attention among researchers in recent years. This is perhaps even more true in Florida, where tourism and agriculture, together with retirement-dependent services, have formed the base of the Florida economy for decades (Winsberg 1992).

How important is manufacturing? In their book, *Manufacturing Matters: The Myth of the Post-Industrial Economy*, Cohen and Zysman (1987) see manufacturing as crucial to America's future economic prosperity, and cite America's strongest economic competitors, Germany and Japan, who have prospered (not without recent problems) on the strength of their manufacturing firms.

This paper looks at 1994 County Business Patterns data, comparing Florida firms to the nation. It also looks in detail at small firms (those fewer than 100 employees), and at the ten counties that are major locations of manufacturing in the state. The detailed sectors where small firms operate provide the setting for the modernization efforts of the Florida Manufacturing Extension Partnership within Enterprise Florida.

The national data confirm the importance of manufacturing. Jobs in manufacturing account for 18,098,123 (18.7%) of the all jobs in the United States in 1994, according to the U.S. Department of Commerce's County Business Patterns.<sup>1</sup> In Florida, manufacturers are approximately one-half as prominent as at the national level; 9.5% of the state's jobs are in manufacturing. Indeed, Florida's manufacturing employment as a percentage of total employment has fallen since 1960, when it represented 15.7% of all jobs. The reason, of course, is expansion of jobs in services; that category has grown in the state from 17.2% in 1960 to 38.6% in 1994. This shift

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<sup>1</sup>The data were obtained from the US Census Bureau's World Wide Web site: <http://www.census.gov>. The County Business Patterns data are found at <http://www.census.gov/epcd/cbp>.

toward sales and service jobs has lessened Florida's potential to weather recession or to fuel future growth (Fik et al. 1993).

The significance of manufacturing goes beyond its role as an employer. What is most important as we move toward a post-industrial economy is the income levels generated by various jobs. Services are notorious for the wide disparity between low-skill (and low-paying) jobs in retailing, food service, cleaning crews, and hotel maids, on the one hand, and well-paying specializations in medicine, finance, and real estate. The data show that this stereotype is largely accurate. Nationwide, manufacturing jobs account for an average payroll of \$33,036, 28% higher than the average of \$25,723 per job in all sectors. (The average payroll figure is not exactly an average wage, but total payroll divided by total employment, as reported in the County Business Patterns data. Better data on wages by sector, broken down by areal units, however, are difficult to come by.)

In Florida, manufacturing jobs have an average payroll per job of \$28,516, over 28% higher than the average of \$22,237 for all jobs in the state. The lower income of Florida manufacturing employees is a result of a different industry mix, together with traditions of nonunion work and the Southern acceptance of lower wages (Cobb 1993). A final basis of comparison is to contrast the 473,638 manufacturing jobs in Florida with the nearly equal number (423,697) in the sector (SIC 58), Eating and Drinking Establishments. The latter provide an average wage (payroll per employee) of only \$8,997. Even the Finance, Insurance, and Real Estate (FIRE) sector (SIC 60), with an average payroll/employee of \$28,400, does not equal that of Florida's manufacturing firms.

### **Manufacturing Sectors**

There is a great deal of variation in both the size and the average wage (payroll/employee) levels of Florida industries (Table 1). Florida's manufacturing base differs somewhat from that of the national economy. The largest sectors in Florida, each employing over 50,000 people, are Electrical and electronic equipment (SIC 36) and Printing and publishing (SIC 27), which are only the fifth and fourth largest sectors (respectively) nationally. The two largest manufacturing industries nationwide, Industrial machinery (SIC 35) and Transportation equipment (SIC 37), rank seventh and fifth, respectively, in Florida. Perhaps the greatest contrast with national trends in sector size is Instruments (SIC 38), which ranks fourth in

Table 1

## Manufacturing Sectors in Florida, Ranked by Employment, 1994

Manufacturing Sector (2-digit)	Employment*	% of Total State Employment	% of Total State Value-Added**
SIC 36 (Electrical & electronic equipment)	58,850	12.4	15.7
SIC 27 (Printing and publishing)	57,072	12.1	11.6
SIC 20 (Food and kindred products)	41,571	8.8	14.4
SIC 38 (Instruments and related products)	38,900	8.2	10.7
SIC 37 (Transportation equipment)	35,505	7.5	8.3
SIC 34 (Fabricated metal products)	31,999	6.8	4.8
SIC 35 (Industrial machinery and equipment)	31,205	6.6	4.7
SIC 23 (Apparel and other textile products)	30,466	6.4	3.5
SIC 24 (Lumber and wood products)	19,845	4.2	2.5
SIC 32 (Stone, clay and glass products)	19,578	4.1	3.3
SIC 30 (Rubber and miscellaneous plastics products)	18,332	3.9	3.2
SIC 28 (Chemicals and allied products)	18,293	3.9	9.3
SIC 26 (Paper and allied products)	14,332	3.0	4.2
SIC 25 (Furniture and fixtures)	13,610	2.9	1.4
SIC 39 (Miscellaneous manufactures)	10,137	2.1	1.3
SIC 33 (Primary metal industries)	4,973	1.1	0.7
SIC 22 (Textile mill products)	3,259	0.7	D
SIC 31 (Leather and leather products)	2,664	0.6	D
SIC 21 (Tobacco products)	907	0.2	—
SIC 29 (Petroleum and coal products)	890	0.2	0.4
Total Manufacturing	473,638	100.0	100.0

Source: County Business Patterns, 1994 [[www.census.gov/epcd/cbp](http://www.census.gov/epcd/cbp)].

\* The employment in this table excludes an additional 21,250 employees counted as "administrative and auxiliary," mainly workers in offices and research facilities, but within firms classified as manufacturing. These account for 4.49% of all workers in manufacturing in the state; the US figure in this category amounts to 7.10% of all national employment in manufacturing.

\*\* Source: Rogers (1996), Table 1

Florida but only tenth in the U.S. Despite these differences in rank with national data, the state and national rankings of the twenty sectors are very similar — correlated (calculating a Spearman rank order correlation) at .85.

Location quotients (LQs) provide a better picture of specialization of economic activity, since they identify local concentrations of employment disproportionate to national levels. Table 2 includes

**Table 2****Location Quotients of 3-Digit Industrial Sectors**

Manufacturing Sector	LQ based on Employment	LQ based on Number of Establishments
Cigars (SIC 212)	12.875	9.887
Ophthalmic goods (SIC 385)	6.289	1.359
Agricultural chemicals (SIC 287)	4.898	1.533
Handbags & personal leather goods (SIC 317)	4.489	1.231
Communications equipment (SIC 366)	4.479	1.393
Ship and boat building & repairing (SIC 373)	2.940	4.138
Search & navigation equipment (SIC 381)	2.848	1.840
Concrete, gypsum, & plaster products (SIC 327)	2.740	1.470
Miscellaneous furniture & fixtures (SIC 259)	2.431	2.647
Newspapers (SIC 271)	2.141	0.913
Miscellaneous publishing (SIC 274)	2.054	1.554
Preserved fruits and vegetables (SIC 203)	1.908	0.956
Beverages (SIC 208)	1.836	0.786
Misc. electrical equipment & supplies (SIC 369)	1.814	1.328
Wood buildings and mobile homes (SIC 245)	1.683	1.063
Fabricated structural metal products (SIC 344)	1.579	1.155
Medical instruments and supplies (SIC 384)	1.563	1.305
Millwork, plywood and structural members (SIC 243)	1.546	1.549
Household furniture (SIC 251)	1.026	1.634
Periodicals (SIC 272)	1.260	1.578
Aircraft & parts (SIC 372)	1.092	1.511

Source: Calculated from County Business Patterns data from [www.census.gov/epcd/cbp](http://www.census.gov/epcd/cbp). Only location quotients greater than 1.5 are shown.

all 3-digit sectors with an LQ greater than 1.5 based on either employment or number of establishments (firms, plants, offices). The industry most concentrated in Florida is the cigar sector, with an LQ of nearly 12.9. Others industries cover a wide range of products. Those in high-tech include: ophthalmic goods and search & navigation equipment, both in the Instruments sector; agricultural chemicals; communications equipment; and ship & boat building and repair. Low-tech specializations include handbags and personal leather goods; concrete, gypsum & plaster products, and



miscellaneous furniture & fixtures (a sector that includes window blinds). Some of these manufacturing concentrations respond to Florida's unique geographical situation—such as cigars, boat building, and search & navigation equipment. Others are related to the movement of large firms, such as Harris, to the state (communications equipment). Florida has very small location quotients in several sectors, including Textiles (LQ = 0.20), Primary metals (0.29), Petroleum and coal (0.31), and Industrial machinery (0.68).

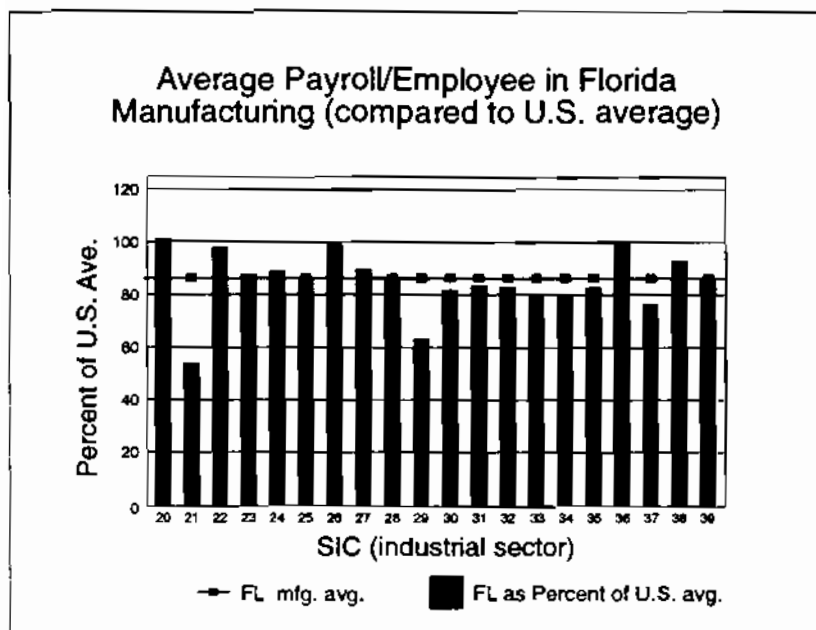
The difference between the two columns of Table 2 indicates the presence of branch plants. When an employment LQ value is greater than an establishment LQ value, there are relatively large numbers of employees in relatively few plants—examples include most of the sectors in Table 2, but perhaps especially ophthalmic goods (6.3 vs. 1.4) and communications equipment (4.5 vs. 1.4). The opposite trend—a relatively large number of establishments or firms—is evident in a small number of industries, including ship and boat building, where there are far more establishments than employees (LQs 2.8 vs. 4.1), but also miscellaneous furniture and fixtures (LQs 2.4 vs. 2.6), household furniture (1.0 vs. 1.6), periodicals (1.3 vs. 1.6), and aircraft & parts (1.1 vs. 1.5). It should be noted that Florida, like most regions, has relatively few sectors in which a concentration relative to the nation can be identified. A recent study of the Seattle area (Gray et al. 1996) identified only five manufacturing sectors in that region with LQ values greater than 3.0—the same number as in Florida.

Florida's manufacturing jobs pay, on average, about one-seventh (14%) less than the national average, using total payroll/total employment as an approximation for average pay (Figure 1). Only three sectors have pay levels at or above the U.S. average: Food (SIC 20), Electrical and electronic equipment (SIC 36), and Paper (SIC 26). The Instruments sector (SIC 38), the highest-paying sector in Florida manufacturing (at \$36,042), is at 93.2% of the national level. The lowest figures are found in the state's two smallest sectors: Tobacco products and Petroleum and coal products, each of which employs fewer than 1,000 workers. Both sectors in the state pay less than two-thirds the national average.

### Small Firms in Florida Manufacturing

Florida's manufacturing firms are predominantly controlled outside the state. While there are exceptions to this generalization, evidence from a study a decade ago confirmed the dominance of

Figure 1



branch plants in several sectors in Florida (Malecki 1985). That study found that southern states (the Census 'South' region) had relatively low numbers of single-location firms and high numbers of branch and subsidiary establishments in three high-tech manufacturing sectors (Computers, SIC 3573; Semiconductors, SIC 3674; and Surgical and medical instruments, SIC 3841). Florida's standing as a leading state in high-technology employment was based almost entirely on its status as a branch plant location for firms in these sectors headquartered in other regions of the country.

The location quotients for the 20 two-digit manufacturing sectors show that, with few exceptions, Florida's values hover near the U.S. average (indicated by  $LQ = 1.0$ ). At this level of aggregation, two sectors are among the state's specializations: Instruments (SIC 38) and Electrical & electronic products (SIC 36). No other sector surpasses the (minimally concentrated) 1.5 threshold, although seven industries have LQ values between 1.0 and 1.5. When calculated on the basis of small establishments (those with fewer than 100 employees), the picture is very different. Here, Tobacco (SIC 21),

Transportation equipment (SIC 37), and Furniture & fixtures (SIC 25) surpass the 1.5 level., but Instruments (SIC 38) and Electrical and electronic products (SIC 36)—both dominated by branch-plant employment—are no longer identified as concentrated in Florida.

### Establishment Size

While we have no federal data source that adequately reports on the size of companies, a estimate can be made from County Business Patterns data, calculating average employment per establishment. Since branch plants are more likely to be large, and independent firms to be small, a low employment/establishment ratio suggests the presence of independent firms. The largest establishments or plants are found in the sectors that are among those concentrated in the state: ophthalmic goods, handbags, communications equipment, and agricultural chemicals. These, as well as newspapers and beverages, are significantly larger than the average Florida manufacturing establishment, which has 28 employees. Sectors with very small firms and plants include Tobacco, Textiles, Motor vehicles, and Petroleum & coal products, all of which are less than one-third the size of the average Florida manufacturer.

An alternative way to examine firm size is by the number of establishments in different size categories. Table 3 shows that, in numbers of establishments (branch plants as well as independent firms), we can identify three groups of industries: (1) those with over 1,000 establishments, (2) those with 500-999 establishments, and (3) those with fewer than 200 establishments. The set of industries with large numbers of plants and firms includes five sectors that account for 7,807 or 46.6% of Florida's manufacturing establishments. These include Printing and publishing, which alone has over one-fifth of the state's manufacturing establishments. The second set of industries includes those that have the highest payroll per employee. Several of these operations are branches of out-of-state firms, operated in large plants. This is indicated by the relatively high percentages of establishments with over 100 employees (especially SIC 36, Electrical and electronic equipment, which has 99 plants with 100 or more employees, 12.8% of all establishments in the sector, and Paper, in which 22.7% of all plants are over 100 employees. The smallest-firm sectors are those with disproportionately large numbers of establishments smaller than 100 employees: Miscellaneous manufactures, Printing & publishing, Lumber & wood products, and Stone, clay & glass products.

Table 3

## Small and Large Manufacturing Establishments

Sector	Total Establishments	Establishments with 1-99 Employees	% 1-99	Establishments with >100 Employees	% 100+
All manufacturing sectors	16,770	15,866	94.6%	904	5.4%
SIC 27 (print/publ)	3,488	3,410	97.8%	78	2.2%
SIC 35 (incl mach & eq)	1,546	1,487	96.2%	59	3.8%
SIC 34 (fabric metal pr)	1,332	1,257	94.4%	75	5.6%
SIC 24 (lumb/wd)	1,314	1,283	97.6%	31	2.4%
SIC 23 (apparel)	1,275	1,203	94.3%	72	5.6%
SIC 39 (misc manuf)	969	955	98.6%	14	1.4%
SIC 32 (st, clay & glass)	937	909	97.0%	28	3.0%
SIC 37 (transp eq)	899	827	92.0%	72	8.0%
SIC 25 (furn/fixt)	803	773	96.3%	30	3.7%
SIC 36 (electr & electron)	772	673	87.2%	99	12.8%
SIC 20 (food)	697	597	85.6%	100	14.3%
SIC 30 (rubbl & plastic prod)	668	636	95.2%	32	4.8%
SIC 38 (instruments)	564	512	90.8%	52	9.2%
SIC 28 (chemicals)	522	488	93.5%	34	6.5%
SIC 26 (paper)	194	150	77.3%	44	22.7%
SIC 22(textiles)	188	181	96.3%	7	3.7%
SIC 33 (prim metals)	137	124	90.5%	13	9.5%
SIC 31 (leather prod)	64	56	87.5%	8	12.5%
SIC 29 (petrol & coal)	49	47	95.9%	2	4.1%
SIC 21 (tobacco)	21	18	85.7%	3	14.3%

## The Geography of Manufacturing within Florida

Manufacturing is a predominantly urban activity in Florida. The top ten counties account for over 73% of all manufacturing employment in the state, despite containing only 63% of the population (Table 4). These counties include the central counties of Florida's largest metropolitan statistical areas: Miami-Fort Lauderdale, Tampa-St. Petersburg, Palm Beach, Orlando, Jacksonville, Melbourne-Titusville-Cocoa, Winter Haven, and Daytona Beach (Figure 2). Nearly all of the top-10 manufacturing counties have a higher percentage of the state's manufacturing employment than of its population, indicating a strong economic base in manufacturing. Broward County is the prominent exception to this.

Table 4

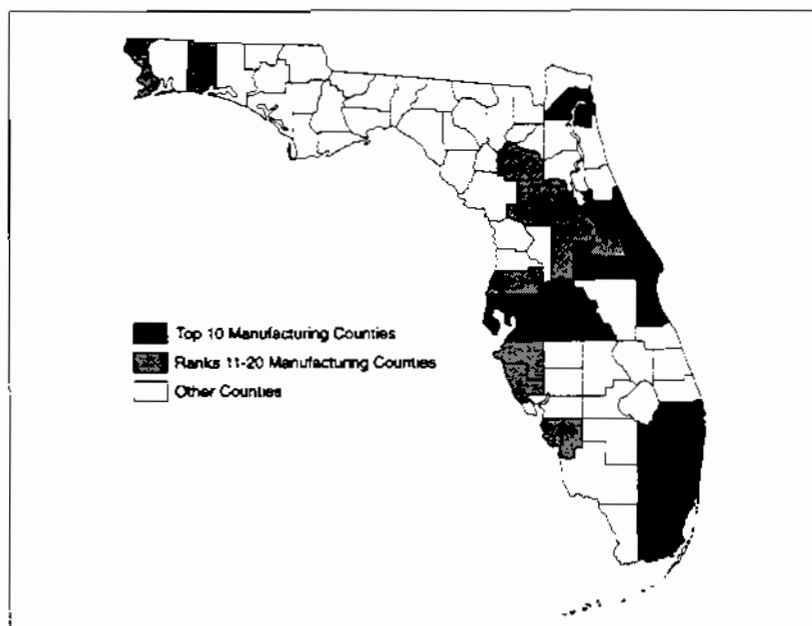
## Largest Manufacturing Counties in Florida

County	Manufacturing Employment, 1994	% of State Manufacturing Employment	Population, 1995	% of State Population
Dade	79,160	16.71%	2,031,336	14.34%
Pinellas	44,492	9.39%	870,884	6.15%
Broward	39,254	8.29%	1,412,165	9.97%
Orange	36,603	7.73%	749,631	5.29%
Hillsborough	34,622	7.31%	884,608	6.24%
Palm Beach	31,569	6.67%	972,093	6.86%
Duval	29,443	6.22%	701,673	4.95%
Brevard	23,938	5.05%	450,646	3.18%
Polk	19,469	4.11%	436,701	3.08%
Volusia	10,853	2.29%	408,261	2.88%
Top ten counties	349,403	73.77%	8,917,998	62.94%
Next ten counties*	69,580	14.69%	2,576,592	18.19%

Source: [www.census.gov](http://www.census.gov)

\* Includes Seminole, Sarasota, Marion, Manatee, Escambia, Lee, Alachua, Lake, Pasco, and Okaloosa.

Figure 2



The second ten counties (ranks 11-20) contain an additional 14.7% of Florida's manufacturing jobs — somewhat less than the 18.2% of the state's population found in them. This group of counties includes several suburban counties of the major MSAs (Seminole, Pasco), as well as the counties of second- and third-tier metropolitan areas, such as Sarasota, Ocala, Pensacola, Fort Myers, Gainesville, and Fort Walton Beach. Just 22 counties — fewer than one-third of the state's 67 counties — contain almost 90% (89.9%) of Florida's manufacturing employment (Figure 3).

The top-10 counties, with 73.77% of the state's manufacturing employment, contain all of the state's small (1-19 employees) manufacturing establishments in two sectors: Tobacco (SIC 21) and Cigars (SIC 212). They also contain more than 90% of small establishments in two sectors: Knitting mills (SIC 225), Handbags and personal leather goods (SIC 317), and more than 80% of them in Bakery products (SIC 205), Apparel (SIC 23), Household furniture (SIC 251), Paper (SIC 25), especially Misc. converted paper products (SIC 267) and Paperboard containers and boxes (SIC 265), Soaps and cleaners (SIC 284), and Jewelry and silverware (SIC 391). The fact that there are few industries with small firms suggests that the bulk of the state's manufacturing in these counties is in branch plant facilities with relatively high employment. If we include all establishments with fewer than 100 employees, this changes the picture only slightly, adding Petroleum and coal (SIC 30) and Miscellaneous chemical products (SIC 289) to the list.

Dade County is overwhelmingly the dominant manufacturing center in Florida, with over one-sixth of the state's manufacturing employment and 19.3% of all establishments. (Employment totals are estimates since several sectors are coded only with category or employment ranges.) Pinellas County, the second-ranked county in manufacturing employment with over 9% of the state total, accounts for 8.6% of establishments, reflecting the presence of large branch plants. Pinellas County has a larger number of establishments than Dade County only in Instruments (93 vs. 79) (including medical instruments (41 vs. 34), Industrial machinery & equipment (213 vs. 200), and Petroleum and coal products (4 vs. 2). Broward County has more establishments than Dade in Electrical & electronic products (108 vs. 97) and Petroleum and coal (8 vs. 2). Dade County has over one-half of Florida's Apparel firms, over and one-quarter of the Food firms (including 40% of the bakeries). These examples illustrate that each county in the state has its own industrial specialization.

Overall, the top-10 counties contain their share of manufacturing establishments and employment in all but what might be considered rural sectors (Lumber & wood, Paper products, and Stone, clay & glass products) or coastal sectors, such as Transportation equipment, especially ship and boat building & repair. In nearly all other industries, the large urban counties contain 70% or more of all firms and employment in manufacturing.

From the perspective of Enterprise Florida's Manufacturing Extension Partnership (MEP), funded jointly by the state and by the National Institute of Standards and Technology (NIST), the fact that 10,893 of the state's 15,866 manufacturing establishments are located in only ten counties makes these counties obvious targets for early extension efforts. To these can be added the second ten counties and their additional 14% of employment (and, probably, of establishments, although that total was not compiled for this paper). The other 57 (or 47) counties contain relatively few manufacturers. Extension field agents from the state's four Extension Centers, located in Orlando, Fort Walton Beach, Tampa, and West Palm Beach, as well as other urban counties, can minimize travel time while maximizing contacts with firms. The drawback of this is the potential for increased isolation for manufacturing firms located in the other 47 counties. In terms of "bang for the buck," however, it is likely that MEP field agents could have their greatest impact by *initially* focusing efforts on these counties. The small manufacturers in the other counties generally will require greater effort and expense to make contact with, but it is very often rural firms that need contact with experts most (Rosenfeld 1992)

## Conclusion

This brief look at manufacturing in Florida shows both strengths and weaknesses. The state has concentrations in several high-paying sectors (such as Instruments, Electrical & electronic products, and Chemicals). However, it also has a relative shortfall of important sectors nationally, such as Transportation equipment and Industrial machinery. Much of Florida's manufacturing is in branch establishments, and these tend to be large (100 or more employees) and, overall, to be located in the large urban counties. Dade County alone contains over one-sixth of Florida's manufacturing employment. Small plants and firms are found throughout the state, and they account for the bulk of the state's manufacturers. The 95% of establishments with fewer than 100 employees represent just over

40% of all manufacturing employment — a very significant segment of the Florida economy (Figure 4). If for no other reason than the higher wages in manufacturing, policy effort—private as well as public—must pay increased attention to this small, but critical, sector of the state's economy.

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## Alien Invaders: Envisioning Exotic Species in Florida

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The *Tampa Tribune* recently expressed its "shame and outrage" that State politicians were ignoring what the paper calls "perhaps the greatest threat to the State's natural heritage": the invasion of exotic species. These nefarious species were, according to the paper, quite literally "gobbling up Florida's landscape." Here, the terms used to portray this invasion are significant. The Australian melaleuca tree (*Melaleuca quinquenervia*), for example, originally was imported as a means to reclaim land from the soggy marshes of south Florida. The melaleuca is characterized in the editorial as a "heavy drinking Australian punk tree" which threatens to render most of the Everglades a "biological wasteland" as a result of the continual spread of its "ugly thickets." The similarly invading Australian pine (*Casuarina equisetifolia*) is characterized as having "little wildlife value" to speak of as it 'overruns' undeveloped sections of barrier islands where sea turtles and American crocodiles abode. Finally, hydrilla (*Hydrilla verticillata*), an aquatic plant originally from Sri Lanka has, according to the paper, "invaded 42 percent of the state's public waters" and is "most troubling to residents" as it has a propensity to "grow an inch a day" making boating and other recreational uses of these waters "virtually impossible" (*Tampa Tribune* May 2, 1995).

Of course, the *Tampa Tribune* was not the first to notice the potential ecological problem of invasive exotic species in Florida. There is ever growing documented evidence of the effects of such invasions in Florida and elsewhere in the scientific literature (Coblentz 1990; Berger 1993; Bodle *et.al.* 1994). I will use this editorial commentary, however, as a means to explore several issues surrounding the way in which our conception of this ecological "problem" is constructed by the very way in which we speak of it. "Heavy drinking" Australians aside, terms like "exotic," "alien," "invaders," even "natural heritage," are just as loaded as terms such as "ugly" and "troublesome" in relation to the natural world. Indeed, recent work in this area clearly demonstrates how such

rhetoric constructs a certain kind of nature or human-nature nexus as much as it may reflect some outside "reality" (Herndl and Brown 1996; Cronon 1995; Baldwin, Jr. *et.al.* 1994).

Yet, rather than attempt to scale the heights of rhetorical analysis, I am concerned here with three seemingly more practical issues, all within the general context of the ecological problem of exotic species. There is the question, firstly, as to what is "natural" in the "natural heritage" of Florida. To answer this presumes that what is "natural" in this respect can be determined in some sort of objective way; surely a debatable proposition. The second issue concerns the very characterization of "exotics" as a problem which needs to be dealt with, sometimes even at crisis-speed. There is much room for debate here, both in terms of the actual effects of exotics and in the very idea that there is something to be saved from their on-slaughter. The third issue concerns the wider context in which the conversation about exotics is taking place; that is, the growing feeling among some humans that non-human nature can be, and indeed must be, somehow managed by humans in order to insure its survival. This feeling is most manifested in the growing literature of the new transdiscipline of conservation biology which is characterized by one of its founders as a "crisis discipline" (Soulé 1991). There are several problems with this notion of the human management of non-human nature, however, the most significant being that it retains, paradoxically, the very "mastery of nature" discourse its adherents feign to battle most vehemently.

### **The Nature of Nature**

When the *Tampa Tribune* writes about the "natural heritage" of Florida it is easy to presume that most of us understand something similar. But what, really, does this heritage entail? There is a tendency to think that this nature connotes something somehow more original, somehow more pristine, somehow more real. Moreover, the usual conception of this natural reality is that it is only minimally impacted, if at all, by humans. Yet, this conjured image entails a rather severe conundrum. Florida's flora and fauna, like that of all areas of the world, were greatly impacted by the activities of aboriginal peoples as others are increasingly pointing out (Worster 1994). So, how far does one go back in time to determine the real nature of Florida or North America? In his recent presidential address to the Society for Conservation Biology, for example, Soulé (1990, 235) argues seriously that, since such megafauna were

once native to North America he "would not be surprised to read someday that cheetahs are helping to control deer and that mesquite is being overbrowsed by rhinoceroses." In Florida's case, because for long periods in recent geological history much of the peninsula was under water, its real natural heritage in this respect could be regarded as totally submersed aquatic.

But the question can be taken to a higher level of sophistication. The tendency among ecologists is to regard nature as more natural to the extent that the impact of one natural species, humans, can be minimized or otherwise impeded. Aboriginal Floridians are not considered in most ecological accounts because they are generally considered to be more a part of nature than outside; sort of like other beasts in the garden. With the conquest of the aboriginals, so this narrative unfolds, the human impact on the rest of nature has increased continuously to the extent that, now, humans must be totally banished in order for the garden to heal itself. One of my colleagues in Biology, for example, has suggested that, to solve south Florida's ecological problems, all people living south of Gainesville should be moved north. The proper benchmark for managing ecosystems, another ecologist recently has argued, is to consider "natural" to mean "without human influence" whatsoever (Hunter, Jr. 1996). The paradox in this scenario, however, is not only that it miss-identifies humans but also that it suggests that in order to recover "nature" (some) humans will have to manage both the process and the ultimate outcome. Yet, how is this humanly-managed nature more "natural" than any other?

### Invading Exotics

The bottom line is that this scenario is a form of mastery of nature discourse even if, in this case, on the side of a supposed ecological good. Before bringing this point home, however, I will approach it from another angle. There has been much textual hand-wringing in recent years about the invasion of exotic species in Florida. The extent of this problem is summarized in a recent government report:

South Florida...contains troublesome infestations of several aggressive non-indigenous plants, most of which were deliberately introduced. The State has approximately 925 established non-indigenous plant species. Non-indigenous plants and land

mammals constitute about 25 percent of all species in the State. Sixty-three percent of the introduced non-indigenous bird species in the continental United States are found in Florida, which also has the largest number of established non-indigenous amphibian and reptile species in the United States (O.T.A. 1993, 255; emphasis added).

The major problem of this nature in Florida is exotic aquatic flora like the melaleuca, hydrilla, Australian pine, water hyacinth (*Eichhornia crassipes*), and Brazilian pepper tree (*Shinus terebinthifolius*) which have clogged waterways and otherwise displaced other aquatic species. The report just cited goes so far as to say that melaleuca "is now regarded as the most serious threat to the integrity of all south Florida's natural systems" (O.T.A. 1993, 261). No wonder, then, that an estimated \$1.3 million has been spent as of 1991 for the removal of this exotic or that, between 1980 and 1990, the management of all exotic aquatic plants in Florida cost an estimated \$120 million in public funds (Schmitz *et al.* 1990).

Now most scientists would agree with this attempted species-cleansing of south Florida's "natural" systems given the way the call to action has been constructed. Exotic species overwhelm natives, more successfully compete for resources and reproduce themselves, disrupt established ecological relationships, and thereby forever change the natural community in which they have inserted themselves. These species are aliens solely bent on changing the existing, more natural community.

Already, the rhetoric suggests cross-fertilization with social theory concerning the results of human migrations. Yet, keeping in context, what is the ecological issue with regard to exotics which drives conservationists to argue quite sincerely that "eradicating" these natural species, if distasteful, is a "nasty necessity" that must be undertaken to preserve natural integrity (Temple 1990)? The answer appears to be threefold. First, exotics displace native species to the point of extinction. As a result, second, exotics are a force in the thinning of global and local biodiversity. Thirdly, and most generally, exotics disrupt the "integrity" of natural ecosystems thereby leading to the degradation of such systems. In short, all three issues are quite interrelated and implicate exotics as just so many weeds in the garden.

### Managing Ecological Integrity

The specific problem with the characterization of the ecological "threat" of exotics is that it assumes more than it can substantiate. Exotics certainly have displaced native species. But the question again arises: how long does a species have to be in-place before it is assumed to be native? In addition to Soulé's remark about native American rhinoceroses, another ecologist recently has written about what he calls four new species of "naturalized exotic trees" in Florida. As he puts it, "naturalization is defined as a wild population having reproductive adults, juveniles, and seedlings in either disturbed or undisturbed habitats" (Pascarella 1994, 173). If exotics can be so naturalized, in other words, why the haste to eradicate them? The key here is that what is native can be only relatively defined with regard to time in the same way that it can be only relatively defined with regard to the spatial boundaries of "home" and "not-home."

Similarly, whether exotics actually will thin biodiversity cannot be known over short periods of geological time. While this may be an initial impact of the introduction of new species, it is not necessarily the longer-term impact as other species—even those labeled "native"—come into interrelation. It may be, as Soulé (1990, 234) so colorfully puts it, that the "flood of exotics will tend to homogenize ecological communities" as "the number of exotics in most regions produces a cosmopolitanization of remnant wildlands." But such a homogenization, even if occurring, does not necessarily imply a thinning of biodiversity; after all cosmopolitanism itself implies increasing diversity in interrelation.

And, hence, we arrive at the final issue. Exotics appear to disrupt the integrity of functioning ecosystems leading ultimately to ecological degradation. This is an extremely important charge because the idea of the new conservation movement is that ecological integrity can, indeed should, be managed at the community level. But this presumes that the extent and nature of ecosystems actually can be identified with certitude and, in turn, that they function with integrity in some sort of equilibrium state. Yet, both assumptions have come into serious question in what conservationists themselves are calling the recent post-modern turn in the science of ecology. According to this, as Lodge (1993, 373) so neatly summarizes, "ecological communities" are not considered evolving toward some equilibrium relation. Rather, such communities are "in perpetual disequilibrium...Community succession proceeds,

therefore, toward a moving target." As Worster (1995, 73-74) puts it, the post-modern message in ecology is that:

Nature should be regarded as a landscape of patches of all sizes, textures, and colors, changing continually through time and space, responding to an unceasing barrage of perturbations.

From this point of view, exotics merely change existing ecological relations at any given place at any given time. To label this change somehow "good" or "bad" is not only based on an outmoded systems equilibrium model, it is also the height of anthropomorphic arrogance. (Some) humans have labeled (some) species weeds to be eradicated on the basis of uncertain time- and space-bound ecological knowledge. But "weeds" are merely a human construction; an anthropomorphic projection on to non-human nature. If saving something called Florida's natural heritage is the real goal, then eradicating species such as cows, sugarcane, and citrus trees would be much more efficient than picking on the melaleuca. But, then, we humans do not see cows as "ugly" as we once did.

### **Conclusion**

In a short paper like this, I can only point in certain directions. In the end, what is considered most "natural" or "native" to the place is relative to the human evaluation of non-human nature. Humans can never think like a mountain without the mountain becoming thereby a human construction. The idea that humans can somehow manage non-human nature on the basis of strict ecological interests or integrity is of the same ilk. One fears the nefarious results—both financial and ecological—of the many attempts at species-cleansing in the name of "natural heritage" or "ecological integrity," both ultimately defined by (some) humans for (some) human purposes. Again, the parallel in social theory of the appeal of the following statement by the editors of the *Tampa Tribune* is nothing but obvious: "without a concerted effort to control exotic plants, Florida's landscape, and its appeal, soon may be lost to these foreign invaders"; to the (English First) ramparts, indeed!

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# **Diurnal Patterns of Retailing in Boca Raton, Florida**

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Investigation of the spatial pattern to retailing is a standard topic in geographical research. Less common are studies that specifically differentiate all-night establishments from those open during daytime hours. This paper analyzes the form, function, and location patterns of day-time and night-time commercial establishments. Specifically, it asks the following questions:

1. What are the patterns of form, function, and location of the commercial establishments that are open during normal business hours in eastern Boca Raton?
2. What are the patterns of form, function, and location of the commercial establishments in eastern Boca Raton that are open twenty-four hours?
3. Are the patterns for the day-only and for the all-night establishments similar, or are there significant differences?

Boca Raton is a suburban community located in Palm Beach County on the Atlantic Ocean between Fort Lauderdale and West Palm Beach. This study examines the eastern portion of Boca Raton. Specifically, the region is limited on the north, south, west, and east respectively by the towns of Delray Beach, Deerfield Beach, Interstate 95, and the Atlantic Ocean (Fig. 1).

## **Daytime Retailing Patterns**

Field survey identified 2472 commercial establishments in the study region. A commercial establishment was considered to be a store or office wherein the average consumer could obtain goods or services. Unoccupied units in a building were not counted, and purveyors of goods or services not purchased by the general consumer were likewise ignored. Examples of the latter would be firms selling sand or gravel in train car-load lots or designer show rooms that sell "to the trade" only. Exclusive clubs that require membership were also excluded.

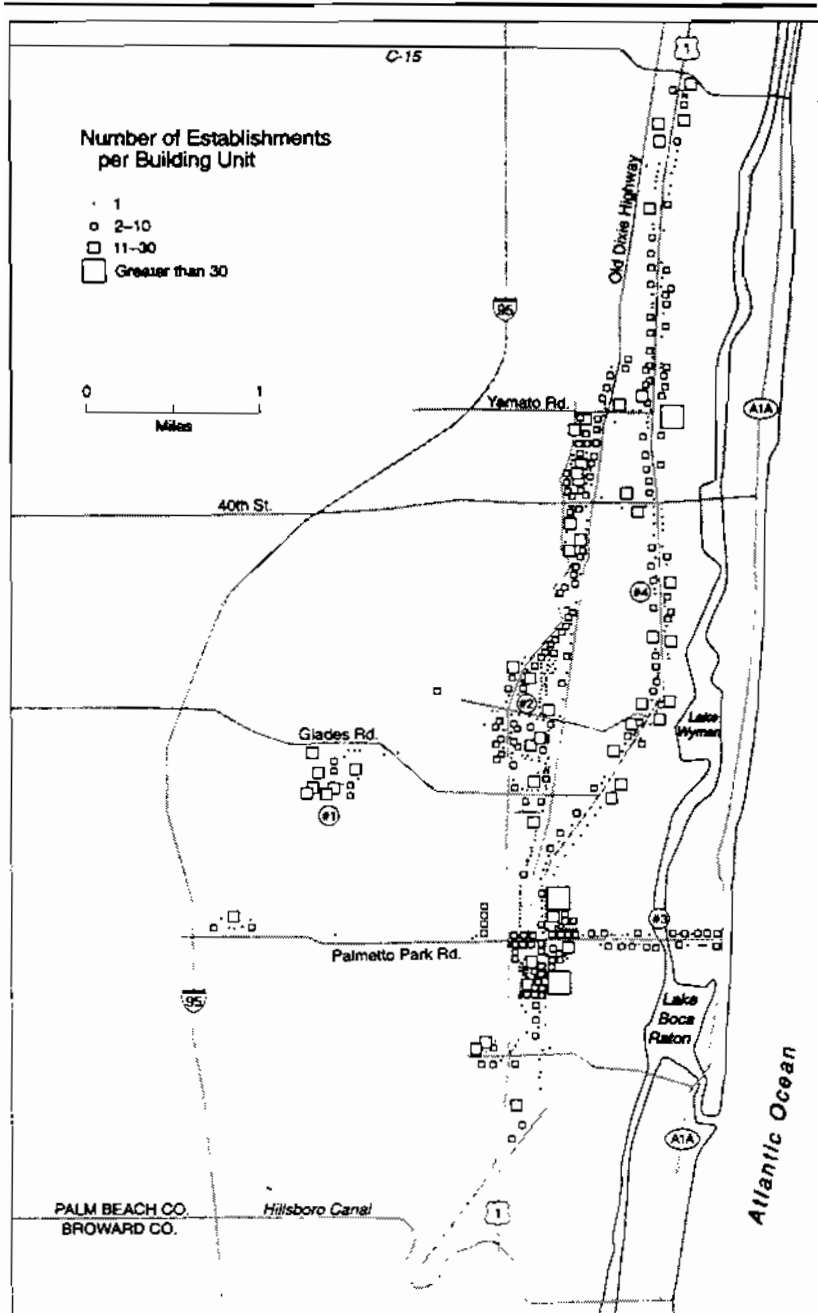


Figure 1

### Location Factors

Commercial activity in the study region exhibits a strong north-south linear pattern. With only one exception, east-west streets are not extensively used for commercial activity. The only exception is Palmetto Park Road east of Federal Highway, marked #3 on Fig. 1. Overlooking this exception, we find that the great majority of commercial establishments are located on three major north-south roads in eastern Boca Raton, all of which closely parallel the Florida East Coast Railway (FEC).

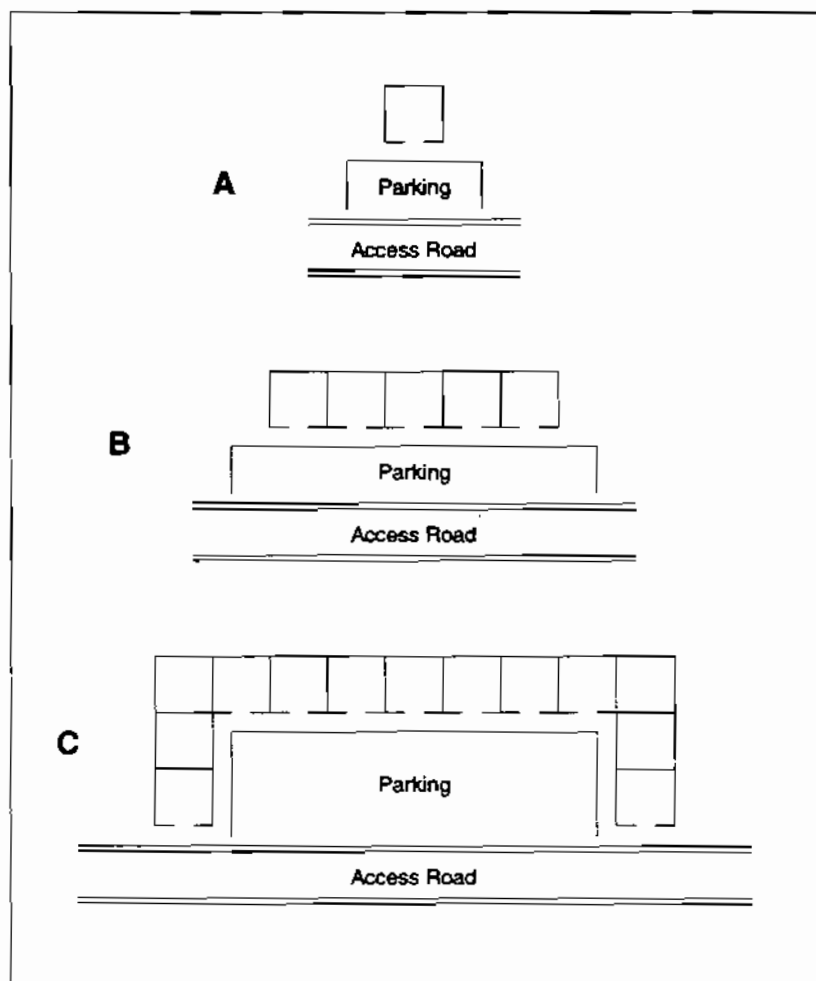
Before the construction of Interstate 95 in the early 1970s, Federal Highway (U.S. 1) provided the major artery of travel north and south in the eastern part of Palm Beach County. One block to the west of Federal Highway is Dixie Highway, which parallels the FEC tracks, and on the other side of these tracks, 2nd Avenue provides another north-south route. I-95 now provides rapid north-south travel. However, in the study region, few facilities are located near interchanges.

Federal Highway has attracted 1002 of the 2472 facilities, or approximately 40 percent of the total. Location on Federal Highway is certainly an advantage for the merchants of eastern Boca Raton. Many older establishments owe their Federal-Highway location to historical impetus. In the period before the 1970s, virtually all commercial facilities were located on Federal Highway, with Dixie Highway attracting only a small number. Because Federal Highway still represents the major north-south thoroughfare east of the Interstate, sites on Federal still are considered prime commercial real estate.

However, some 60 percent of the commercial facilities have located away from Federal, some in major concentrations, some in isolated districts. Each concentration has unique location factors. The hospital district (Region #1 on Fig. 1) contains numerous medical offices surrounded by residential land. Elite shops, beauty salons and expensive restaurants have concentrated on eastern Palmetto Park Road (Region #3 on Fig. 1). Other districts owe their location to zoning restrictions. The light industrial district, between Dixie and 2nd Avenue, contains a concentration of establishments that are not permitted to locate on land zoned commercial. Therefore, while Federal Highway remains a major attraction for establishments, it is only one of many magnets attracting purveyors of goods and services. Most shops have located away from this highway.

**Spatial Patterns: Form**

The 2472 total establishments (those that are day-only and those that are day-and-night establishments) are organized into a number of formal patterns. These have been grouped into four categories, three of which are illustrated (Figure 2).



**Figure 2**

*Isolated Units.* Some 337 establishments are isolated units, that is, the shops or offices are housed in discrete structures that share no walls with neighboring establishments (Figure 2a). Typical of this type would be a functional building lacking a distinct architectural style. Virtually all are single-story structures with the principal door for patrons facing the access street. Parking is usually provided as a strip of asphalt between the shop and the street that can accommodate a few automobiles.

Isolated establishments are found in all districts of the study region but seem to be especially well represented in the light industrial district between Dixie Highway and 2nd Avenue. A number of shops here are auto repair facilities.

*Two to Ten Units.* Some 849 shops or offices are housed in small buildings of from two to ten units. These commercial establishments share at least one wall with a neighboring establishment (Figure 2b). While architecture styles and spatial layouts of the buildings vary greatly, a typical unit would be a single-story modern or post-modern building. Parking would be provided by a zone of asphalt that can accommodate one automobile immediately in front of each establishment. This form of retail development is commonly called "strip," indicating that a narrow strip of commercial land along a major road separates the road from residential or some other land use.

*Eleven to Thirty Units.* Fifty-six building complexes accommodate from 11 to 30 shops or offices (Figure 2c). These also vary greatly in terms of style and layout. The earlier representatives, from the 1950s to 80s, are modern in design. More recent contributions show the post-modern panache that characterizes Boca Raton. Neo-Spanish is an especially popular post-modern style.

Many of these larger units are simply larger versions of the strip development of the previous category. A number are shopping centers, which differ from strip development in that the shops are set back farther from the street and commonly form an "L" or square "U" when viewed from above, the empty portions for parking. Some units in this category would properly be called office buildings and have parking provided by means of underground garages.

*Developments/Buildings with More than Thirty Units.* Three very large complexes (greater than 30 facilities) are located along Federal Highway in the study region. One is a large office complex with 75 occupied offices or office suites. Another is Mizner Park, a popular post-modern development of expensive shops and restaurants, a

cartoon museum, and other trendy establishments. Mizner Park contains 52 commercial establishments. The third large commercial unit, Royal Palm Plaza, a neo-Spanish development, was one of Boca Raton's earliest major shopping areas. Royal Palm Plaza has 113 shops and offices in a number of buildings linked by pedestrian walkways.

### **Spatial Patterns: Functional Agglomeration vs. Dispersal**

The variety of goods and services offered in the study region is tremendous. Specific functions would number into the thousands, far too complex for listing in a study of this type. Therefore, to simplify, functional agglomeration or dispersal was examined. This refers to the degree like trades locate in close proximity to each other.

Two forms of functional agglomeration or dispersal are discerned: (1) dispersal of like trades; and (2) agglomeration of like trades.

*Dispersal of Like Trades.* This category is by far the most common: most trades are proximate to establishments that engage in an unrelated trade. A dress shop would more likely locate next to a music store, for example, than next to another dress shop. Thus, most of the trades in the study region tend to be sprinkled about the commercial areas, not concentrated in one locale.

*Agglomeration of Like Trades.* Less common are trades that agglomerate, that is, they locate next to their competitors. Examples include the following:

- (1) Medical practitioners tend to locate near the Boca Raton Community Hospital (#1, Figure 1). The attraction of medical facilities to the hospital is an obvious locational factor. Virtually every facility in this region has some medical function or another.
- (2) Shops selling fabrics and sewing goods (#2 Figure 1). Fabrics and sewing supplies are specialized items that are purchased infrequently. Three fabric shops are found in eastern Boca Raton, all located in the 100 block of NW 20th Street. Customers can walk from one shop to another and thus obtain the fabric desired without having to drive great distances.
- (3) Galleries selling expensive objects d'art such as original paintings, pieces of sculpture, and other costly decorative items (#3, Figure 1). Fifteen galleries are located on Palmetto Park Road between Federal Highway and A 1 A. These shops cater to

wealthy owners of waterfront condominiums and expensive homes on the beach or the Intracoastal Waterway. Mizner Park and Royal Palm Plaza also have a few galleries, but no other part of eastern Boca Raton contains representatives of this trade.

(4) Modestly priced motels (#4, Figure 1). Five motels are found in the study region, all on Federal Highway. Three are clustered near the 3000 block of North Federal Highway. Some of the motels predate I-95, so their location in eastern Boca can be explained by being on what was then the major north-south road in southern Florida. With the construction of I-95 came large hotel complexes west of the Interstate, outside the study area. However, smaller, less expensive motels still survive on Federal Highway.

### Night-time Patterns

During the dead of night (2:00 A.M. to 6:00 A.M.), the number of facilities providing goods and services decreases to 23, listed in Table 1 by type. The specific establishments are located on the map of all-night establishments (Figure 3). The numbers on the map

Table 1

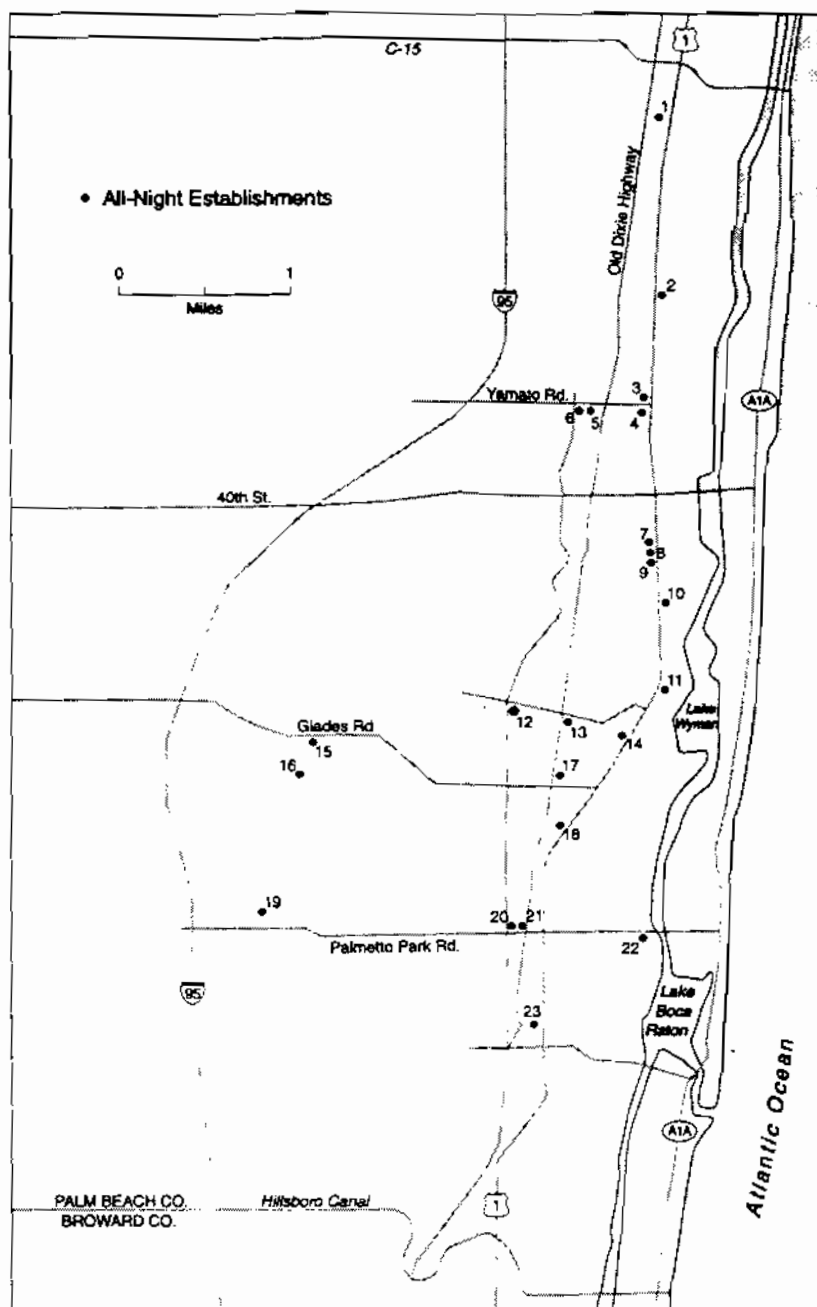
#### Night-time Establishments by Type

Gasoline Stations*	7
Convenience Stores	5
Motels	4
Restaurants	3
Hospital	1
Coin Laundry	1
Pharmacy	1
Copy Center	1

\*with snacks and sundries also available

identify the following: 1, pharmacy (Walgreen); 2, convenience store (7-11); 3, gasoline/sundries (Mobile); 4, gasoline/sundries (Shell); 5, convenience store (7-11); 6, gasoline/sundries (Mobil); 7, restaurant (Deruy's); 8, motel (Ramada); 9, motel (Day's Inn); 10, motel (University Inn); 11, copy service (Kinkos); 12, gasoline/sundries

Figure 3





(Mobil); 13, gasoline/sundries (Mobil); 14, motel (Boca Inn); 15, gasoline/sundries (Shell); 16, hospital; 17, convenience store (7-11); 18, gasoline/sundries (Mobil); 19, restaurant (Denny's); 20, convenience store (7-11); 21, coin laundry; 22, convenience store (7-11); 23, restaurant (Dunkin' Donuts).

### **Spatial Patterns: Form**

The all-night facilities are found in isolated structures and in small strip developments. Only one, the Walgreen Drug Store, is located in a large shopping center (30 units). All other stores are closed at night. This is true of all the other all-night establishments as well, with the exception of a 7-11 store and a coin laundry (Figure 3, numbers 20 and 21). These two shops are adjacent to each other. A half-dozen closed establishments comprise the rest of the small shopping center in which these night-time facilities are located. In the landscape of the night, this tiny shopping center with its two open facilities is something of a focus of eastern Boca Raton's night-time activity.

### **Spatial Patterns: Functions**

Among the night-owl establishments, the most frequent function (7 cases) is that of gasoline station/sundries. Other functions with high representation are convenience stores (5), motels (4), and restaurants (3). Motels cater almost exclusively, and the other functions largely, to persons traveling through the region at night.

Four establishments (hospital, coin laundry, pharmacy, copy center), are the only representatives of their function that are open at night. These are primarily functions utilized by locals who may require emergency services or who may have night-shift jobs and lack access to day-time establishments. Somewhat surprising is the lack of any all-night supermarkets. A few are found outside the study region some miles away, but none of the seven supermarkets within the study region remains open throughout the night.

The pattern of agglomeration vs. dispersal, reviewed above for the day-time establishments, is also examined for those of the night. Despite small numbers, similar patterns are revealed, writ small. Three motels on North Federal Highway (Figure 3, numbers 8, 9, and 10) are located together. Two gasoline stations are across the street from each other (Figure 3, numbers 3 and 4). Restaurants, on the other hand, tend to locate significant distances from each other.

**Location Factors**

The Location of the night-time establishments differs from that of the day-time ones. Whereas most of the day establishments are located away from Federal Highway, this is not the case with the night-time ones. To see if the difference is significance, a chi-square statistic was calculated. Table 2 displays the data. Of the all night

**Table 2**

**Commercial Establishments, Eastern Boca Raton**

Location	Day Only		Day and Night	
	N	%	N	%
On Federal Highway	990	40.4	12	52.2
Not on Federal Highway	1459	59.6	11	47.8
Total	2449	100.00	23	100.0

Chi-square = 1.30

establishments, 12 are located on Federal Highway; 11 are not; of the day establishments, 990 are located on Federal, 1459 are not. The null hypothesis states that there is no relationship between the location of the establishments relative to Federal Highway and whether-or-not the establishments are open twenty-four hours. More generally, the null hypothesis asserts that factors of location are independent for these two groups of commercial establishments.

With one degree of freedom, the critical level of significance is 3.84 at the .05 level. The obtained chi-square value is 1.30, below this level. Therefore, the null hypothesis cannot be rejected. We conclude, therefore, that location relative to Federal Highway and whether-or-not establishments are open at night are not related. Different factors of location would seem to operate on the two sets of establishments. Some day-time shops are located in residential areas, or are otherwise remote from the major routes of travel. Few of these districts contain all-night establishments. Rather, the all-night places cluster on the heavily-traveled roads, especially Federal Highway. The light industrial district of eastern Boca Raton is quiet at night, very much in contrast with its day-time pattern.

The very large shopping centers and office complexes likewise close up tight at night.

### Conclusions

Our comprehension and understanding of landscape—what we see on the land, how we describe an area—result largely from what we observe, and since we generally observe landscape during the day, our perception of an area is consequently biased. A town at night is a very different place from that same town during the day. The factors that operate to determine form, function, and location operate differently.

Daytime establishments, this study has shown, can be found in a variety of architectural configurations, including large shopping centers or office buildings. Night-time establishments, on the other hand, tend to locate in small strip developments, or in isolated units.

Functionally, the thousands of establishments open during normal business hours offer a tremendous variety of goods and services to the general consumer. At night, these shrink to but a few. Only the most basic needs can be met: gasoline for an automobile; food and drink of a most limited variety; a few emergency services—little else.

Differences are found in terms of location as well. Primarily, all-night establishments are on major roads, especially roads that convey travelers into, then out of the region. Out-of-the-way streets and shopping centers cannot support all-night establishments.

If we restrict our knowledge of an area to what we see during normal business hours, we obtained a restricted view of the land. Like a person, a town has differing moods and personalities. During the day, we see the town all dressed up, as it were, in its business suit, ready to put its best face to the public. But to understand a person or a town thoroughly, we should also visit at unguarded times. In the dead of night, we see a sleepy face, unadorned and difficult to recognize. Eastern Boca Raton, renowned in the day-time for its architectural beauty, is not particularly pretty at 4:00 A.M. Notwithstanding, Boca Raton, any town, should be seen in its many personalities. One may lose a night's sleep viewing the landscape thus, but it is worth the effort to discover this other aspect of landscape.

Acknowledgements: Ron Taylor and Ed Ziegler: thanks.

## Patterns of Racial and Ethnic Segregation In Florida's Urban Counties

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The spatial segregation of racial and ethnic groups in U.S. cities has been identified as a major social problem (Massey and Denton 1993). While the issue of segregation received academic attention during the first third of the 20th century (Park and Burgess 1925), it was not until the urban riots of the 1960s and the report of the Kerner Commission (National Advisory Commission 1968) that segregation was thrust into the national policy debate. Since then, numerous descriptive analyses have been done measuring the extent of racial and ethnic segregation (Taeuber and Taeuber 1965; Farley 1977; Schnare 1980; Sorensen, Taeuber and Hollingsworth 1974; Massey and Denton 1989), followed by a related literature dealing with the multiple causes of segregation (Clark 1986, 1988; Galster 1986, 1988) and associated policy prescriptions (Downs 1973; Orfield 1981; Goering, 1986; Saltman, 1990; Smith, 1993).

This is a formidable body of literature directed to a single issue. However, in spite of this significant amount of academic and policy attention, there have been only modest changes in the magnitude of segregation over time. Taeuber (1983), in commenting on the changes in segregation between 1970 and 1980, noted that at the rate observed it would take 50 years for white-black segregation in the average city to be reduced to a dissimilarity index level of 50. Subsequent analyses show that segregation change in later decades has occurred at a relatively steady, but slow rate (Smith 1991).

The tenacity of racial and ethnic segregation and the large social problems that have been associated with it argues for continued monitoring and measurement. Much of this monitoring, however, has occurred for the nation's largest cities (Massey and Denton 1993), reflecting the overwhelming emphasis of academic and policy research on national urban problems and federal policy solutions. Less attention has been given to smaller cities organized by states, with an emphasis on state policy initiatives. Within Florida, for example, measures of white-black and Anglo-Hispanic

segregation exist over time for particular places (Winsberg 1983; Boswell 1993), but there is no general analysis of segregation and segregation changes for other than these major places.

This has, to some degree, hampered state policy initiatives, as was recently demonstrated in a state level analysis of the impediments to fair housing conducted by the Florida Department of Community Affairs (1996). The importance of continually monitoring segregation levels throughout the state is increased by the rapid growth of Florida's population and the implications that this growth has for changing patterns of residential settlement and segregation.

This paper responds to the need for a state level analysis of housing segregation and was completed for this state study on fair housing impediments. Accordingly, what follows is a descriptive study of housing segregation in both the large and more moderate sized places in Florida. The analysis covers levels of segregation in both 1980 and 1990, the magnitude of change, and the extent to which these levels can be accounted for by differences in racial income distributions. The analysis also extends to the neighborhood (census tract) level in an attempt to go beyond the description of aggregate segregation patterns to consider patterns of neighborhood change and the variety of racially mixed neighborhoods that exist.

### Design of the Study

To address these questions I have measured housing segregation at the level of the county. Counties were chosen as the primary unit of analysis because they satisfy a number of important criteria: county boundaries do not change and thus allow for stable comparisons over time; and counties represent political units within which public policy initiatives to address problems of segregation can be formulated and implemented. However, counties with too few persons and too few minorities do not represent useful contexts for the study of housing segregation. Accordingly, only those counties that have been tracted whose 1990 population represents 1 percent or more of the state population (129,400 persons) are included. An exception is made for St. Johns, Santa Rosa and Nassau counties; while below the 1990 population threshold, these counties are included within metropolitan designated areas and are tracted at both time periods.

Levels of segregation are measured between three racial/ethnic groups that constitute the majority of the Florida population: non-

Hispanic whites, non-Hispanic blacks, and Hispanics. (Hispanics are not separated by race. For purposes of exposition I will generally use white, black, and Hispanic in the text.) The 29 counties included in the analysis contain 89 percent of the state's non-Hispanic white population; 91 percent of the non-Hispanic black population; and 97 percent of the Hispanic population. Thus, only very small proportions of the population of each group are omitted.

Throughout the analysis, the unit of measurement of segregation that is used is the index of dissimilarity (Taeuber and Taeuber 1965). While this index represents only one dimension of segregation (Stearns and Logan 1986; Massey and Denton, 1989), it is the most frequently used measure, thereby allowing for comparisons over time and space with other studies. Based on the experiences of other studies, dissimilarity scores below the range of 30-49 are considered low levels of segregation; scores in the range of 50-69 are taken as moderate levels of segregation; and scores of 70 and above are interpreted as high levels of segregation (Massey and Denton 1993). These are only rough guidelines, however, to evaluating the distribution of index values. The index is computed on the basis of tracts, with 1990 tract boundaries adjusted for comparability to the 1980 tract definitions.

### Levels of Segregation and Segregation Change

*White-Black Segregation.* Segregation between whites and blacks for 1980 was, on average, at the upper end of the moderate category (i.e. between 50 and 69). The average value of the dissimilarity index was 67.9, with a range from 27.6 to 88.5. However, 14 counties exceeded this average level, 13 of which show high levels of segregation (i.e., above 70.0). These are (in descending order) Lee (88.5), Manatee (84.4), Broward (83.8), Sarasota (83.6), Palm Beach (83.3), Pinellas (83.2), Pasco (81.3), Dade (79.3), Orange (76.3), Volusia (75.0), Seminole (74.5), Hillsborough (72.0), and Duval (71.1). These counties are, with only few exceptions, the largest counties in the state in 1980; they average 520,800 population, with only 3 counties under 200,000 persons and none under 100,000 persons. In contrast, the remaining counties average only 131,900 persons, with only 3 counties above 200,000 population and none over 400,000 persons. These largest counties, however, are not necessarily distinguished by the largest proportions of black population. For the 13 most segregated places the average proportion black is 10.9 percent

Table 1  
Levels of Segregation\* and Segregation Change, 1980 and 1990

County	Population (%)			Segregation*			Change	White - Hispanic	1990	Change
	1980	1990	1990	1980	1990	1980				
	White	Black	Hispanic	White	Black	Hispanic	White - Black	White - Hispanic	1990	Change
Alachua	76.7	18.8	3.2	74.8	18.8	3.7	48.6	21.3	70.5	-0.8
Bay	84.8	11.8	1.6	85.0	10.7	1.8	64.8	25.6	23.4	-2.2
Brevard	86.3	8.6	2.0	87.5	7.7	3.1	66.2	17.5	19.7	2.2
Broward	84.3	10.9	4.0	74.9	14.9	8.6	83.8	26.2	25.9	-0.3
Clay	92.1	5.1	1.7	90.4	5.1	2.6	47.9	17.2	19.7	2.5
Collier				82.3	3.8	13.2	67.1	53.0	53.0	
Dade	46.4	16.6	35.7	30.4	19.2	49.0	79.3	52.6	50.5	-2.1
Duval	72.5	24.4	1.8	71.2	24.1	2.6	71.1	23.2	20.7	-2.5
Escambia	76.6	19.5	1.7	75.4	19.9	1.9	59.3	17.9	19.4	1.5
Fullborough	75.9	13.1	9.9	72.7	12.8	12.8	72.0	39.7	35.4	-4.3
Lake				87.6	9.0	2.7	46.1	40.0	40.0	
Lee	88.9	7.8	2.8	88.3	6.4	4.5	88.5	42.7	36.1	-6.6
Leon	71.7	24.4	1.6	71.9	24.0	2.4	53.3	25.6	27.6	2.0
Manatee	88.4	8.8	2.1	87.0	7.6	4.4	84.4	49.2	49.2	8.7
Martin	81.5	16.4	1.6	83.6	12.6	3.0	61.2	23.2	23.4	0.2
Nassau	84.8	13.5	1.4	86.1	10.3	1.1	27.6	11.5	9.3	-2.2
Okaloosa	86.7	8.5	2.3	85.0	8.9	3.1	50.9	24.6	22.1	-2.5
Orange	80.0	14.6	4.2	73.3	14.8	9.6	76.3	27.2	26.9	-0.3
Oceola	90.7	6.1	2.2	81.2	5.1	11.9	60.4	37.3	30.4	6.2
Pasco	95.0	2.0	2.4	94.0	1.9	3.3	81.3	40.6	31.1	-9.5
Pineellas	89.7	8.1	1.5	88.6	7.6	2.4	83.2	76.9	15.9	-2.3
Palm Beach	80.9	13.2	4.9	79.1	12.0	7.7	83.3	43.1	41.7	-1.4
Polk	81.3	14.9	3.0	81.8	13.2	4.1	63.6	56.5	28.3	-5.3
Saint Lucie				79.6	16.1	3.6	76.2	34.5	34.5	
Santa Rosa	92.8	4.4	1.3	92.5	4.0	1.5	55.5	17.5	15.0	-2.5
Sarasota	92.8	5.1	1.5	92.9	4.3	2.1	83.6	30.9	31.8	0.9
Seminole	86.1	9.9	2.9	83.3	8.3	7.4	74.5	17.6	16.1	-1.5
St. Johns	82.9	14.4	2.2	88.3	8.7	2.3	69.6	19.2	11.6	-7.6
Volusia	86.6	11.1	1.6	86.1	8.9	4.0	75.0	26.2	43.9	17.7
Average	83.0	12.0	3.9	81.3	11.1	6.2	67.5	27.1	28.4	1.2

\* Index of Dissimilarity

(range 2.0-24.3 percent) while for the remaining counties the average percent black is 12.8 percent (range 4.4-24.4 percent).

Only three counties are distinguished by low levels of segregation: Alachua (48.6), Clay (47.9), and Nassau (27.6). Both Clay and Nassau are relatively small places, however, with small minority populations and both are suburban counties without a metropolitan central city of their own. To a large degree, then, they appear more like many of the counties that were excluded from the analysis on the basis of small population numbers. Thus, only Alachua, from among the counties of over 100,000 population, exhibited relatively low levels of white - black segregation in 1980. Three counties that reach near-low segregation levels are Leon, Okaloosa, and Santa Rosa.

Levels of segregation between whites and blacks in 1990 averaged 58.1, with a range of 23.0-76.9. This represents a decline in all counties between 1980 and 1990 by an average of 9.8 dissimilarity points. This decline is not unusual and is comparable to declines registered in other places during this period, as reported in the research literature (Smith 1991). However, no obvious pattern exists to this decline; large changes in dissimilarity points are recorded for both large and highly segregated places as well as for smaller and less segregated places. Indeed, the single largest point decline occurs in Osceola County, a place only moderately segregated in 1980.

Using the same standard to classify counties as low, moderate, or highly segregated, six of the highly segregated places in 1980 remain highly segregated in 1990. These are Pinellas (76.9), Lee (76.8), Palm Beach (75.3), Sarasota (73.9), Manatee (72.0), and Dade (71.9). To these is added St. Lucie (76.2) which was not included in the 1980 set of places. The most highly segregated places are no longer clearly the largest counties in the state: the second and fifth ranked counties by 1990 population (Broward and Hillsborough, respectively) are no longer in this category.

Seven places are now classified as exhibiting low segregation. These are Nassau (23.0), Clay (32.2), Okaloosa (37.3), Osceola (37.3), Alachua (39.4), Leon (49.0) and Escambia (49.6). Again, these are predominantly small places; the largest is Escambia County with a 1990 population of 263,000 persons. Similarly, neither the high or low segregated set of counties is distinguished by the racial composition of their populations. The average percent black among the highly segregated places is 10.4 percent (range 4.2-19.2 percent) compared to 11.5 percent for all other places (range 1.9-24.2 per-



cent). Conversely, the average percent black for the seven counties classified as low segregation is 13.7 percent (range 5.0-24.0 percent).

In sum, most of the counties included in this analysis are moderately segregated by race in 1990. Levels of segregation between whites and blacks did decline between 1980 and 1990, resulting in fewer counties classified in the high segregation category, and more counties in the low category. These declines, however tend to mirror national patterns and are neither substantially less nor substantially greater than we would expect. However, based on the standards employed in this analysis, fully 10,450,000, or 81 percent of the state's 1990 population, continued to live in counties that show from moderate to high levels of white - black segregation.

*White-Hispanic Segregation.* White-Hispanic segregation is generally lower than white-black segregation by a considerable amount (Massey and Mullen 1984; Massey and Denton 1989), and these differences also exist within Florida. Thus, whereas the dissimilarity index between whites and blacks averaged 67.9 and 58.1 in 1980 and 1990, respectively, the index between whites and Hispanics was only 27.1 and 28.4 at these two dates. Also, unlike the decline in segregation between whites and blacks over time, levels of segregation between whites and Hispanics are low and, on average, have not declined further.

The generally low levels of white-Hispanic segregation suggest that the standards for judging low, moderate, and high levels of segregation, based on white-black patterns, are inappropriate to the white-Hispanic context; even the most highly segregated counties in 1980 would be considered only moderately segregated by these white-black standards. Only one county (Dade) has a dissimilarity index of above 50.0 in 1980, and only four counties (Lee, Manatee, Palm Beach, and Pasco) have indexes in the range of 40-49.9. Particularly low levels of segregation in 1980 (under 20.0) are shown for Nassau, Clay, Santa Rosa, Escambia, Brevard, St. Johns, Seminole, and Pinellas counties. The average levels of dissimilarity of 27.1 in 1980 and 28.4 in 1990 compare very favorably to averages across 60 metropolitan areas in 1980 of 43.6, and 38.7 for a subset of southern metropolitan areas (Massey and Denton 1989). Also unlike white-black segregation, which uniformly declined among the study counties, segregation of whites and Hispanics increased in a number of places. The largest increase was in Volusia County (17.7 points) and this increase is considerable. Other increases that warrant detailed inspection are those in Manatee County (8.7 points) and Osceola County (8.2 points).

### Expected Levels of Segregation

Social scientists generally understand housing segregation to be the result of three general conditions: discrimination, choice, and income (Clark 1986, 1988; Galster 1986, 1988). Discrimination in the housing market results in some housing and neighborhoods being blocked to members of minority racial and ethnic groups. Alternatively, under the choice hypothesis, segregation is seen as the result of free and open choice made by both majority and minority households. To the degree that black and Hispanic households desire to live in homogeneous racial and ethnic neighborhoods, and therefore do not pursue options in majority white neighborhoods, segregation will exist. The third hypothesis, income, focuses on the differences in the costs of housing across a jurisdiction and the differences in the abilities of white and minority households to afford this housing. The relative concentration of lower cost and higher cost housing in different neighborhoods, and the differential ability of majority and minority households to afford this housing, will produce an uneven racial/ethnic distribution and segregation. This segregation, however, results not directly from racial/ethnic causes.

Clearly, these three hypotheses are not independent of each other. Housing discrimination is likely to have an effect on both tastes and attitudes for housing and neighborhoods, as well as the ability to afford housing in different areas. Nevertheless, the three constructs are a useful model for understanding the effects of different causal variables. The important analytical question then becomes how to separate the contributions of each factor and to account for their different effects on the total level of segregation. The ability to make this separation has important public policy implications. For example, where segregation is seen mainly as the result of illegal discrimination, then anti-discrimination policies are appropriate. To the extent that segregation results from economic causes, then income maintenance and economic development policies may be relevant. These contrasts with the potential for a diminished to non-existent policy role where segregation results from choice factors.

Methodologies for determining the relative contribution of choice to levels of segregation are not readily available; at best we are able to survey households of different racial and ethnic characteristics and determine preferences for racial/ethnic homogeneity of diversity (Farley, et al. 1993). In contrast, however, we are able to estimate the contribution that differences in income make to resi-

dential segregation, and this analysis provides an important perspective on understanding segregation levels. The operational question of an analysis of the effects of income on levels of segregation is phrased in terms of the level of segregation that would exist if income were the only factor operating to allocate households to housing. The procedure involves the development of a housing allocation model in which majority and minority households are allocated to neighborhoods based on their abilities to afford the range of housing in that neighborhood. Taken over all neighborhoods of a jurisdiction, this produces a racial distribution for which an index of dissimilarity can be computed. This index expresses the level of segregation that would hypothetically exist if only income were operating in the location of households, and can then be compared to the actual segregation level of the community.

The housing allocation model used in this analysis is based on assumptions that housing in each tract will be distributed in proportion to the representation of each racial group in each household income group (e.g., under \$5000, 5-9,999, etc.), and where households are expected to spend between 33-38 percent of gross annual income on rent, or a multiple of 2.3-2.8 of gross annual income on owner-occupied housing. The analysis of expected levels of segregation is completed for whites versus blacks, 1990 only. Historical data are deemed to be relatively unimportant in this instance, as is the extension of the analysis to Hispanics, based on the relatively low levels of segregation found in the previous section. The results of this analysis are shown in Table 2.

Table 2 shows that the percent of segregation accounted for by income is highly variable across the counties, ranging from a low of 7.7 percent in Bay and Pasco counties, to a high of 30.1 percent in Clay. Across the set of counties income accounts for 16.5 percent of the average level of segregation, and this is comparable to findings in the research literature. For example, using a similar methodology, Farley (1995) finds that income accounts for 16.4 percent of the level of segregation in the St. Louis metropolitan area.

A minor pattern exists in these distributions; counties for which income accounts for over 20 percent of the level of segregation tend to be those counties with lower levels of segregation. This includes the counties of Alachua, Clay, Leon, Marion, Nassau, and Osceola. Collier and St. Johns counties are also included as cases in which income accounts for over 20 percent of segregation, but these counties are more highly segregated and are exceptions to the pattern. To a degree, however, this pattern is created by the arith-

**Table 2****Actual v, Expected Levels of Segregation, 1990**

County	Actual	Expected	% Income	% Unaccounted
Alachua	39.4	8.2	20.8	79.2
Bay	54.4	4.2	7.7	92.3
Brevard	52.6	7.4	14.1	85.9
Broward	68.9	7.9	11.5	88.5
Clay	32.2	8.5	26.4	73.6
Collier	67.1	20.2	30.1	69.9
Dade	71.9	10.0	13.9	86.1
Duval	59.3	11.1	18.7	81.3
Escambia	49.6	9.4	19.0	81.0
Hillsborough	62.2	10.9	17.5	82.5
Lake	46.1	6.5	14.1	85.9
Lee	76.8	11.3	14.7	85.3
Leon	49.0	11.1	22.7	77.3
Manatee	72.0	8.8	12.2	87.8
Marion	52.5	15.1	28.8	71.2
Nassau	23.0	6.1	26.5	73.5
Okaloosa	37.3	6.0	16.1	83.9
Orange	61.4	8.7	14.2	85.8
Osceola	37.3	7.8	20.9	79.1
Pasco	67.7	5.2	7.7	92.3
Pinellas	76.9	9.8	12.7	87.3
Palm Beach	75.3	14.8	19.7	80.3
Polk	56.5	7.4	13.1	86.9
Saint Lucie	76.2	12.2	16.0	84.0
Santa Rosa	51.3	8.4	16.4	83.6
Sarasota	73.9	10.4	14.1	85.9
Seminole	56.2	11.2	19.9	80.1
St. Johns	69.0	15.0	21.7	78.3
Volusia	69.3	7.7	11.1	88.9
Average	58.1	9.7	16.7	83.3

metic involved in computing the percent accounted for by income and no complementary pattern exists for those counties where income has a small affect.

There are a number of implications of these distributions for addressing housing segregation. First, the variation in the percent of segregation that goes unaccounted is relatively small, ranging only between 70 percent (Collier County) and 92 percent (Bay and Pasco counties). Thus, a case can be made that no county is likely to dramatically reduce levels of segregation through economic development policies that increase black household income relative to

whites (assuming that the relationships of income, choice, and discrimination to housing segregation remain constant.) Second, however, counties for which income is relatively unimportant and for which levels of segregation are high, are the prime candidates for further scrutiny and policy initiatives. Nine counties, for example, rank above the average on both the level of segregation and the percent of segregation unaccounted for by income. These are Broward, Dade, Lee, Manatee, Orange, Pasco, Pinellas, Sarasota, and Volusia.

### Tract Level Patterns

While measurement of levels of segregation of the county is a useful indication of area-wide segregation, the county dissimilarity index does nothing, in itself, to indicate where within a county majority and minority populations are concentrated. This type of information, however, is often critically important for policy purposes. Ultimately overall levels of segregation need to be transferred to the conditions of neighborhoods so that public policy can be focused on these areas. The degree to which racial/ethnic groups concentrate in particular neighborhoods can be measured in a variety of ways, a common method being the comparison of the relative proportions of each racial/ethnic group within a tract. Thus, tracts that are 90 percent white (black) can be regarded as areas in which there exists a heavy concentration of one group. This method, however, creates a serious problem in that the tract concentration is not grounded in any standard. Thus, a tract that is 90 percent white within a county that is itself 90 percent white may represent a substantially different condition from a tract with the same racial composition in a county that is only 60 percent white. This suggests that the concentration of population within tracts should be standardized to the racial/ethnic composition of the larger area within which the tract is located (Smith 1996; Nyden 1996).

The concept of measuring the racial composition of tracts relative to the racial composition of the larger area is operationalized in terms of a continuum of degrees of racial/ethnic diversity, in which the racial/ethnic composition of a tract is judged in comparison to the racial/ethnic composition of the parent county. Diversity is considered a condition in which the tract contains a proportion minority that is *similar* to the county proportion, and in which degrees of deviation from this county proportion are recognized as representing decreasing degrees of diversity and increasing

degrees of concentration. For these purposes, diversity is defined as the presence of a combined non-Hispanic black, Hispanic, and other populations, relative to non-Hispanic whites; i.e., all population groups other than non-Hispanic whites treated as a single minority. This combination loses some detail in that it does not allow us to distinguish the relative over or under representation of particular minority groups in a tract. In Florida, where the Hispanic population is large, a tract can be classified as diverse because of the presence of a large number of Hispanics, rather than because of appropriate proportional representation of each minority group. Nevertheless, there is considerable value in creating a general picture of tract level diversity. Greater detail be accomplished through successive iterations of the analysis, taking each minority versus non-Hispanic whites in turn.

At issue in this method is defining the standards by which the degree to which tract proportions of these two groups (whites, all minorities) are similar to, or deviate from, county proportions. A method for defining these degrees of diversity has been developed as follows: a diverse tract is one that contains a proportion minority that corresponds to the range defined by the county proportion minority, plus and minus this county proportion divided by 4. Thus, in a county that is composed of 20 percent minority, this results in a *diverse* tract as one that contains between 15-25 percent minority. All other tracts are classified in terms of increasing proportions of white occupants or minority population in equal divisions around this central type. Thus, under these conditions *concentrated white* tracts contain between 0-5 percent minority; *minimally diverse white* tracts contain between 5-10 percent minority; and *moderately diverse white* tracts contain between 10-15 percent minority. Similarly, at the other end of the distribution, *concentrated minority* tracts contain between 75-100 percent minority; *minimally diverse minority* tracts are from 50-75 percent minority; and *moderately diverse minority* tracts are from 25-50 percent minority. While the classification schema is admittedly arbitrary, it does appear to be intuitive logical.

An important consideration in measuring the diversity/concentration of tracts is their stability over time. This is important because tracts containing diverse populations are generally believed to be unstable, moving from a relative concentration of majority to minority groups over time. Thus, diversity often is a temporary phenomenon, occurring only during the process of transition. Only by measuring diversity over two or more points in time can the stability of tract racial/ethnic composition be discerned. Accord-

Table 3a  
Tract Types, By County, 1980 and 1990

County	# tracts	1980						
		Con white	Min div white	Mod div white	Diverse	Mod div minority	Min div minority	Con minority
Alachua	26	0.00	<b>0.42</b>	0.08	0.23	0.19	0.04	0.04
Bay	27	<b>0.30</b>	<b>0.30</b>	0.11	0.11	0.11	0.04	0.04
Brevard	70	0.17	<b>0.54</b>	0.00	0.09	0.13	0.06	0.01
Broward	151	0.31	<b>0.34</b>	0.11	0.05	0.07	0.03	0.09
Clay	11	<b>0.27</b>	0.09	0.18	<b>0.36</b>	0.09	0.00	0.00
Dade	226	0.10	<b>0.20</b>	0.10	<b>0.20</b>	0.12	0.15	0.14
Duval	107	0.26	<b>0.30</b>	0.12	0.07	0.09	0.03	0.13
Escambia	52	<b>0.19</b>	0.19	0.12	0.15	<b>0.19</b>	0.06	0.10
Hillsborough	132	0.08	<b>0.30</b>	0.18	0.14	0.11	0.08	0.11
Lee	46	<b>0.52</b>	0.24	0.04	0.07	0.04	0.07	0.02
Leon	30	0.11	<b>0.20</b>	0.17	<b>0.20</b>	0.07	0.07	0.17
Manatee	31	<b>0.58</b>	0.16	0.03	0.03	0.07	0.07	0.07
Marion	27	0.19	<b>0.26</b>	0.22	0.11	0.11	0.04	0.07
Nassau	4	0.00	0.00	0.25	<b>0.50</b>	0.25	0.00	0.00
Okaloosa	28	0.21	0.18	<b>0.25</b>	0.14	0.18	0.04	0.00
Orange	116	<b>0.28</b>	0.31	0.10	0.13	0.06	0.04	0.08
Osceola	13	0.15	<b>0.31</b>	0.08	0.31	0.15	0.00	0.00
Pasco	31	0.13	<b>0.39</b>	0.16	0.03	0.26	0.03	0.00
Pinellas	156	<b>0.44</b>	0.31	0.05	0.04	0.09	0.03	0.05
Palm Beach	135	<b>0.44</b>	0.22	0.05	0.06	0.10	0.04	0.09
Polk	64	<b>0.28</b>	0.16	0.17	0.09	0.19	0.06	0.05
Santa Rosa	11	0.09	<b>0.46</b>	0.00	0.00	0.46	0.00	0.00
Sarasota	26	<b>0.42</b>	0.19	0.19	0.04	0.08	0.04	0.04
Seminole	45	0.13	<b>0.38</b>	0.16	0.09	0.13	0.04	0.07
St. Johns	14	<b>0.50</b>	0.14	0.00	0.07	0.14	0.14	0.00
Volusia	53	<b>0.36</b>	0.23	0.06	0.09	0.19	0.02	0.06
		0.25	<b>0.26</b>	0.11	0.13	0.14	0.05	0.05

ingly, the analysis of tract racial/ethnic composition is done for two time periods, 1980 and 1990. During each period a tract is classified according to the seven part distinction, recognizing that the boundaries that define each of the seven categories change between 1980 and 1990 as the racial/ethnic composition of the county changes. Because the analysis is done over time, only those counties that contain census tracts in both 1980 and 1990 are included; this reduces the set of study counties to 26 (Collier, Lake, and St. Lucie Counties are excluded.) The analysis produces a classification of each tract's racial/ethnic composition relative to that of the county, for each time period. These results are shown in Table 3(a,b). The modal type for each county, and for the average of the counties is displayed in bold type.

These results suggest a large change in the composition of tracts between 1980 and 1990. Viewing the bottom line of table 3a, the modal type of 1980 was *minimally diverse white* tracts, followed closely by *concentrated white* tracts. By 1990, however, the modal

Table 3b  
Tract Types, By County, 1980 and 1990

County	# tracts	1990						
		Con white	Min div white	Mod div white	Diverse	Mod div minority	Min div minority	Con minority
Alachua	26	0.00	0.12	0.23	0.35	0.23	0.04	0.04
Bay	27	0.22	0.11	0.22	0.30	0.07	0.04	0.04
Brevard	70	0.06	0.14	0.14	0.19	0.41	0.04	0.01
Broward	151	0.18	0.20	0.21	0.14	0.11	0.06	0.10
Clay	11	0.00	0.36	0.18	0.27	0.18	0.00	0.00
Dade	226	0.03	0.12	0.12	0.37	0.12	0.11	0.12
Duval	107	0.11	0.22	0.19	0.17	0.08	0.07	0.16
Escambia	52	0.10	0.15	0.14	0.19	0.25	0.10	0.08
Hillsborough	132	0.02	0.24	0.14	0.00	0.26	0.18	0.17
Lee	46	0.70	0.07	0.02	0.04	0.13	0.02	0.02
Leon	30	0.00	0.23	0.23	0.17	0.07	0.10	0.20
Manatee	31	0.23	0.39	0.07	0.10	0.13	0.07	0.03
Marion	27	0.07	0.22	0.26	0.22	0.11	0.04	0.07
Nassau	4	0.00	0.00	0.25	0.50	0.25	0.00	0.00
Okaloosa	28	0.04	0.21	0.21	0.32	0.21	0.00	0.00
Orange	116	0.11	0.24	0.21	0.21	0.11	0.04	0.08
Osceola	13	0.15	0.23	0.08	0.31	0.23	0.00	0.00
Pasco	31	0.00	0.26	0.32	0.16	0.23	0.03	0.00
Pinellas	156	0.21	0.33	0.13	0.13	0.12	0.04	0.05
Palm Beach	135	0.22	0.22	0.12	0.16	0.09	0.12	0.08
Polk	64	0.09	0.23	0.13	0.25	0.20	0.06	0.05
Santa Rosa	11	0.18	0.09	0.27	0.00	0.46	0.00	0.00
Sarasota	26	0.23	0.35	0.08	0.12	0.15	0.04	0.04
Seminole	45	0.04	0.11	0.22	0.35	0.18	0.04	0.07
St. Johns	14	0.14	0.21	0.29	0.07	0.21	0.07	0.00
Volusia	53	0.19	0.25	0.13	0.19	0.11	0.08	0.06
		0.13	0.20	0.18	0.20	0.18	0.05	0.06

types had changed to *minimally diverse white* and *diverse*, followed closely by *moderately diverse white* and *moderately diverse minority* tracts (table 3b). Indeed, the distribution for 1980 is highly skewed to the left most columns (i.e., the tracts with larger percentages of whites), while the distribution for 1990 is more closely centered on the more diverse central categories. In the aggregate, it appears that Florida's census tracts were becoming more diverse and more evenly distributed across the seven tract categories. Tracts in which minorities are highly concentrated, moreover, do not appear to change much over the decade. However, these general patterns mask a considerable amount of diversity. Lee County appears at one extreme, showing substantial resistance to change over the decade. In Lee County, 76 percent of tracts are in the two most concentrated white categories in 1980, and this increases to 77 percent in 1990. Clay and Sarasota Counties are similar. In contrast, Alachua, Brevard, and Seminole Counties show substantial declines in the proportion of tracts in these two extreme white categories, and in



both Seminole and Brevard the modal type for 1990 changes to the diverse tract category. Between these two extremes are the remainder of counties, most of which show declines in the proportion of tracts in the two extreme white categories by as much as half.

In contrast, the change in the proportion of tracts in the two extreme minority categories is relatively small. For all counties, the average change is from 10 percent to 11 percent of tracts between 1980 and 1990. While the numbers are small, in many places there was an increase in the proportion of these heavily minority tracts. This includes Duval, Hillsborough, Palm Beach, and Volusia Counties. Similarly, in many counties no change occurs (e.g., Marion, Pasco, Polk, Sarasota, and Seminole Counties.) The pattern that is represented by these two contrasting patterns suggests that changes in the racial/ethnic composition of tracts is more likely in tracts that were previously heavily white, and in the direction of more diversity — as opposed to changes in tracts that are heavily minority. This suggests that the declines in the levels of segregation, as measured by the index of dissimilarity, are more likely to be the result of increasing integration within the county, as opposed to increasing deconcentration of ghetto areas (Smith 1991).

What cannot be discerned from Table 3, however, is the pattern of tract continuity and change; there is no way of knowing whether the diverse tracts in 1990, for example, were created out of white tracts increasing their proportions of minority members, or minority tracts increasing their proportion of whites. An indication of this continuity and change is provided in Table 4. In this table, for all counties taken together, the 1980 categories are presented as rows, and the 1990 categories as columns. Thus, the intersection of each row and column shows how tracts of each type, in 1980, changed in 1990.

For example, Table 4 shows that while the number of *diverse* tracts increased from 181 in 1980 to 333 in 1990, only slightly less than half (87 of 181, 48 percent) of the 1980 diverse tracts remained diverse in 1990. The remaining 1990 diverse tracts are created in 1990 from other types, principally the *minimally diverse white* and *moderately diverse white* categories, representing the general trend for increased diversity in mostly white tracts. However, 36 tracts classified as *moderately diversified minority* in 1980 become *diverse* in 1990. This is an important outcome because much of the research literature characterizes neighborhood change as uni-directional; i.e., tracts that enter the minority market are not likely to become less concentrated in minorities (Aldrich 1975). There is also a moderate

Table 4  
1980 and 1990 Tract Types, All Counties

1990 Types

1980 Types	Con white	Min div white	Mod div white	Diverse	Mod div minority	Min div minority	Con minority	Sum	%
Concentrated white	197	183	68	19	5	3	0	475	0.266
Minimally diverse white	30	160	155	111	32	2	4	494	0.276
Moderately diverse white	4	14	47	78	53	3	0	199	0.111
Diverse	4	11	11	87	53	12	3	181	0.101
Minimally diverse minority	0	0	6	36	104	46	3	195	0.109
Moderately diverse minority	0	1	1	2	25	52	19	100	0.056
Concentrated minority	0	2	2	0	1	13	126	144	0.081
Sum	235	371	290	333	273	131	155	1788	
%	0.131431767	0.207494407	0.162192394	0.186241611	0.152684564	0.073266219	0.086689038		

trend for some minority tracts to become less concentrated between 1980 and 1990. For example, of the 195 tracts classified as *moderately diverse minority* in 1980, almost as many (36) changed to the more *diverse* category as changed to the *minimally diverse minority* category (46). Similarly, some *minimally diverse minority* tracts changed in the direction of more diversity. Nevertheless, more tracts became *concentrated minority* tracts in 1990, and the overwhelming majority of these concentrated minority tracts retained their 1980 status into 1990. This confirms our earlier observation that most of the change in levels of segregation in these counties is the result of increased diversity in white tracts, and that *concentrated minority* tracts are relatively impervious to change.<sup>1</sup>

## Conclusion

The importance of housing segregation as a social problem, combined with the rapid growth of Florida's population, argues for continual monitoring of segregation levels and patterns by race and ethnicity. Recent state-level experiences in dealing with segregation as a policy issue have highlighted the relative paucity of this information over the urban areas of the state. This analysis has focused on measuring patterns of segregation for urban counties, under the rationale that patterns of settlement in metropolitan areas, combined with the distribution of government powers for addressing segregation issues, makes the county an appropriate unit for policy intervention.

The analysis has shown that the urban counties of the state show substantial variation in levels of white-black segregation. While declines occurred between 1980 and 1990, these declines were, on average, no more than those witnessed on a national level. They did, however, result in fewer counties being classified as high in segregation, and more classified as low in segregation. A few counties, such as Dade, Lee, Manatee, Pinellas, St. Lucie, and Sarasota bear particular attention for high levels of segregation, while Alachua, Clay, Okaloosa, and Osceola show very low segregation levels.

In contrast to racial segregation, segregation between Anglos and Hispanics is remarkably low across the state and has remained low throughout the 1980-1990 decade with little change. Even the counties with the highest levels of Anglo-Hispanic segregation, such as Dade and Collier, would be classified at the lower end of moderate segregation on the scale used for racial groups.

One argument regarding how to address the issue of segregation regards the relative role of income in maintaining segregation patterns. An analysis of the level of racial segregation that hypothetically would exist if only the differences in the income distributions between whites and blacks operated to allocate population to housing suggests that these income differences have only a moderate effect on segregation levels. On average, income is able to account for only 17 percent of the level of observed segregation, although there is some modest variation among counties. Most of the pattern of segregation must, therefore, be attributed to either self-segregation (choice), or discrimination. While there is considerable controversy in the literature over the relative contributions of these two explanations, continuing evidence from both national and local studies demonstrates that discrimination by lending institutions, real-estate firms, and private landlords, among others, is a major part of this problem (Turner and Wienk 1993).

Nevertheless, there are a considerable number of bright spots when racial change is examined at the level of the individual tract. Generally, tracts have tended to become more diverse in their population, resulting in fewer tracts that are all or mostly white relative to the racial composition of their respective county. A considerable number of tracts, moreover, have managed to maintain themselves as racially diverse, in spite of overwhelming expectations to the contrary. However, the least amount of change appears to occur for tracts that are high in their percentage of minorities. A high proportion of these "dedicated" minority tracts appear resistant to racial change, and this does conform to expectations that once an area is understood to be firmly of minority status, it is unlikely to become less concentrated.

## Notes

1. The general patterns represented in Table 4 are not necessarily duplicated in each county. Unfortunately, reporting these outcomes for each county would require 26 separate tables and is beyond the space limitations available for this paper. Detailed tables, however, can be obtained from the author.

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## Seasonality of Florida Tourism

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Florida began attracting tourists even before it became part of the United States, but it wasn't until this century, most particularly after World War II that tourism became of great importance to the state's economy. Until the 1950s most visitors came to the state during the winter. Not only did they find the heat and humidity of Florida summers insufferable, but many feared the occasional outbreaks of tropical diseases such as malaria and yellow fever. As May approached tourist hotels simply closed, not to reopen until October or November. There are still many residents of Miami Beach who remember shuttered hotels along Ocean and Collins Avenue.

The state's tourist industry long sought a way to extend its season, but it wasn't until well after World War II that its efforts were rewarded. The widespread adoption of air conditioning played a major role, helping to induce many young families to drive down from the north during the summer to enjoy Florida's beaches and other attractions, while experiencing the comfort of a cool room at night. The construction of the Magic Kingdom and other theme parks in Central Florida offered a further reason for parents to come with their children. By the 1950s over 80 percent of the visitors to the state came by auto, and the summer quarter had become the peak season for motor tourists, and the winter generally was the lowest. At that time the reverse was true of those who came by air. Although only 12 percent of the state's visitors came by air, winter was the peak season and summer the low.

Air traffic to Florida began to grow rapidly during the 1970s, and by the end of the decade air visitors accounted for nearly 40 percent of all visitors. By the 1990s there were years when their share rose above half. As the number of air visitors rose, the difference between the share of air visitors that arrived in the peak and that in the low season decreased. Although winter continues to be the high quarter and summer the low, by the mid 1990s only seven percentage points separated the two quarters. The fine balance between the



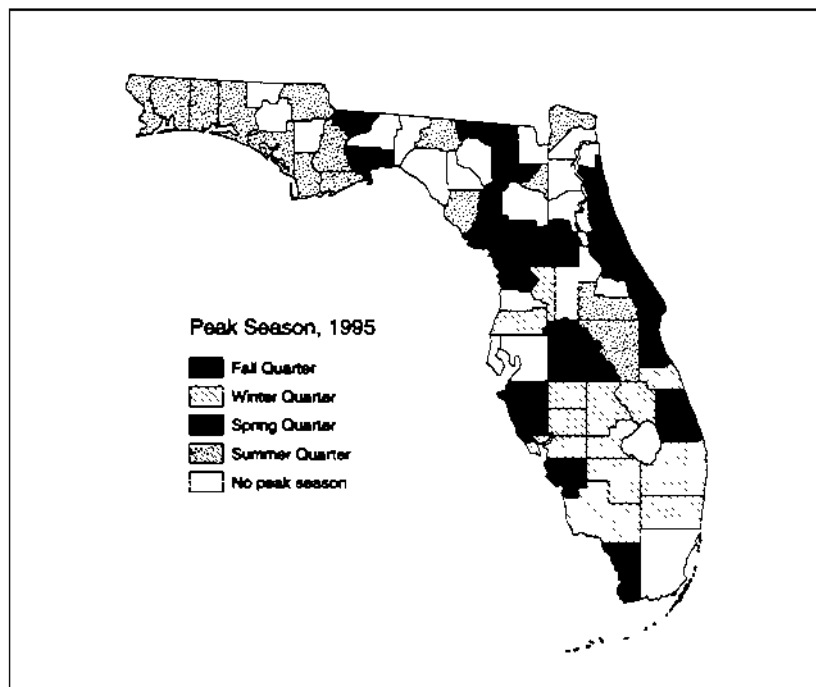
two seasons, in great part, was accomplished through a phenomenal growth in the number of summer air visitors who now are coming from abroad by air to visit the theme parks. The peak season for auto visitors has not been as stable as that for air visitors, but in most years the summer quarter continues to be the high one and the fall quarter the low. In most years the difference between the share of the peak season and that of the low for auto tourists is even lower than for air tourists.

No data are available to measure the degree of seasonality of a county's tourism. However, there are some interesting ways of determining it. Since tourists are more likely to eat in restaurants than permanent residents, seasonal changes in restaurant sales makes a good surrogate. Monthly data are available from the state's Department of Revenue. Monthly sales for every county here have been divided into four quarters of three months each, starting with the winter quarter (January, February and March). The percentage of restaurant sales in each quarter was then calculated, and the percentage point difference between the high and the low quarter determined. A county with a difference of only three percentage points or less was considered to have low seasonality, of four to nine percentage points moderate, and above nine points high. The results appear in Figure 1.

Since there is so little difference between the share of restaurant taxes collected in their peak season compared to their low one, counties with large cities such as Dade (Miami), Duval (Jacksonville), Hillsborough (Tampa), and Pinellas (St Petersburg) either are not of great interest to tourists, or attract approximately the same amount of tourists throughout the year. Most of the other counties within this group never have been identified with tourism. Today the vast majority of Florida's counties have only moderate differences between their high and low tourist seasons, even those that are closely identified with tourism (Orange, Osceola, Brevard, Broward, and Volusia).

There are, however, two parts of the state where tourism remains highly seasonal, the Panhandle and Southwest Florida (the latter includes the Naples and Key West areas). In 1995 there was a 14 percentage point difference between Collier County's (Naples) high and low season, and a 10 percentage point difference between the two contrasting seasons in Monroe County (Key West). On the Panhandle, which has a brisk winter, the difference between the high and low seasons was greatest. For Walton County (Fort Walton Beach) it was 24 percentage points and there was a 14 point differ-

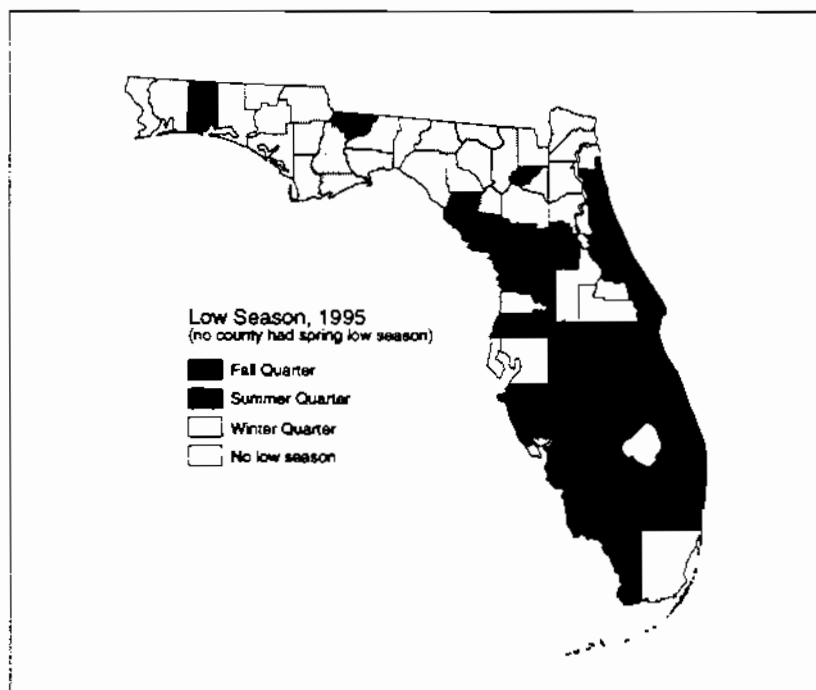
Figure 1



ence between the high and low seasons of Bay County (Panama City). Several other Panhandle counties have over ten point differences.

The peak and the low seasons clearly are temperature related. The peak season of almost all the Panhandle counties is summer, when many Georgia and Alabama visitors drive to Florida's "Red Neck Riviera". Summer is also the peak season for Nassau County (Fernandina Beach), and most importantly, the Orlando area. The Orlando area's summer peak is partially the result of it being the season when so many foreign visitors arrive, but also because school is out and families from the North can bring their children. Spring peaks are associated with many counties in the middle third of the state, and winter in the southern third. Monroe County (Key West) is a notable exception, since it has its peak in the spring, although there is very little difference between winter and spring restaurant sales. Only two counties have a fall peak that is markedly different from their low season. Both have few residents, and are in

Figure 2



the northern part of the state. Several restaurant owners in these counties attribute high fall restaurant sales to the hunting season. Not surprisingly, Alachua County (Gainesville) and Leon County (Tallahassee), home of two of the nation's most powerful collegiate football teams, have fall restaurant peaks, but the difference between the share of taxes collected in the fall compared to their low seasons (winter) is very small.

The low season, like the high is associated with temperature (Figure 2). Most counties in North Florida have their low season in the winter. Most in the upper third of the peninsula have theirs in the fall, while many in the southern two-thirds of the peninsula in the summer. Since spring is a lovely time of the year in all parts of the state, no county has a spring low in restaurant sales.

In 1995 only two percentage points separated the shares of the peak and the low season of Florida's total restaurant sales. This is an indication, at least from the point of view of the total economy of the state, that the tourist industry is now a twelve months a year

operation. Nonetheless, southwestern Florida and the Panhandle have slack seasons. Given the relative severity of the climate in both during their low seasons, it will probably continue to be a hard sell to get visitors to come to Naples during the summer, and to the Panhandle during the winter.

## The Effects of Migration on The Median Reported Income in Dade County

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In last year's issue of *The Florida Geographer* I addressed the effect of Hurricane Andrew on migration to and from Dade County, Florida (Winsberg 1996). Using data obtained from the United States Internal Revenue Service (1996), it was noted that Dade County (Miami-Hialeah) had experienced a net out-migration of approximately 20,000 tax filers and their exemptions during each of the first two tax years of this decade. As a consequence of the damage wrought in the county when Hurricane Andrew struck in August, 1992, in the third year of the decade net out-migration more than doubled (45,519), but in the next two for which data are available it fell back to approximately 30,000 each tax year. Although Dade County's population continues to grow, albeit at a slower pace than most counties in Florida with large populations, it does so primarily from natural increase and immigration from abroad, and not from people arriving from elsewhere in the United States.

This essay, using median reported income data also provided by the Internal Revenue Service (IRS), seeks to better understand the economic impact of this net out-migration, as well as to better comprehend the economic characteristics of those who are coming to Dade and those who are leaving it. The population of Dade County has undergone enormous change in the past half century. In 1950 its majority population was nonHispanic white, and it had a substantial black minority. By 1997 over half the population was Hispanic, and nearly a quarter of the population was nonHispanic black. This demographic transformation has had a profound effect upon the economy of Dade County. Of Florida's fourteen largest counties in population in 1990, Dade in 1950 had the highest per capita income. Since that year its rank has declined. In 1960 it fell to second place, in 1970 it reached fourth, where it stood in 1980. By 1990 it had sunk to seventh, and in 1995 it was ninth among the fourteen. Although much of that decline resulted from a dramatic change in the employment structure of the county, with a sharp rise

in the share of employees in low wage services and equally low wage manufacturing, some is a consequence of the income of those who leave being higher than that of those who arrive. The data provided by the Internal Revenue Service can offer some indication of the role migration has played in this decline.

Dade County is one of the three most important ports of entry for Latin American immigrants, Los Angeles and New York being the other two. Although, as will be discussed below, the IRS data does not give information concerning ethnicity, race or, if an immigrant, the 1990 population census identifies the enormous importance of Hispanics in the movement to and from metropolitan Dade County. The Hispanization of Dade County has been well documented, an incomplete, but extensive bibliography being published in this issue of *The Florida Geographer* (Tremblay 1997).

### Data

For many years the Internal Revenue Service has released data on the movement of tax filers and their exemptions between counties. Originally the data were on expensive to purchase and difficult to use magnetic tape, but now they can be purchased cheaply on diskettes that can be easily loaded into spreadsheets.<sup>1</sup> The data include the number of tax filers and their exemptions who leave and enter every county in the United States as long as there were a minimum of ten tax filers that moved. The counties of destination and origin are indicated. In the case of Dade County, using the most recently available data, there were 294 counties throughout the United States in which there were at least ten tax filers in 1995 who had filed in Dade County the previous year. There were 242 counties from which at least ten tax filers had left in 1994 who filed in Dade County in 1995. Some may question using tax payers and their exemptions to measure migration. At least in the case of Dade County, when 1990 IRS data were used, there was an extraordinarily close similarity to the number of tax filers and their exemptions living in Dade County and the size of that year's census count for the county. The IRS figure was just two percent less than that of the census.

Since 1992 the Internal Revenue Service has included reported income of the tax filers. We now know the total and median income reported of all those who filed for the first time in a county, and where they came from. In the case of Dade County, in each of the three periods for which the IRS has released data, those who have

left reported a higher median income the year after they left Dade County than did those who filed in Dade for the first time after leaving another county. The difference was especially great the year that Hurricane Andrew struck (1992). Those who left Dade County reported a median income in their new counties of residence that was 29 percent higher than first time filers in Dade. This probably resulted from the huge migration of Dade residents whose homes were damaged in the hurricane. Following the massive out-migration that took place between 1992 and 1993 the difference between the median income of first filers in another county who left Dade County the previous year, and the median income of those who filed for the first time in Dade after coming from another county declined. Between 1993 and 1994 it fell to 24 percent higher, and between 1994 and 1995 it plummeted to 11 percent higher.

It would be dangerous to draw too many conclusions from these IRS data, since occupation of filers is not provided. The higher median income of those who have left Dade and those who have come might mean that filers who leave Dade County are more highly skilled and command higher incomes than those who come. Then, it also might mean that filers are moving to counties where the wage scale for similar professions might be higher than in Dade. Whatever the explanation, in the case of Dade County it does mean that migration has contributed to a considerable loss in its reported income during the three years that data are available, especially in the year of Hurricane Andrew. If those who left Dade County in 1992 (the year of Hurricane Andrew) had stayed, and reported the income they did in the county they filed in, and those who came would have reported the median income of non-migrant Dade filers, it would have increased Dade's total reported income by nine percent. Between 1993 and 1994 and between 1994 and 1995 it would have increased it by eight percent.

### Out-Migration between 1994 and 1995

*Florida Out-Migration.* 75 percent of all who filed taxes in Dade County in 1994 but in another county in 1995 did so in another Florida county. It therefore is appropriate to begin the discussion of the effects of out-migration on the Dade County economy by examining movement to other Florida counties. Between 1994 and 1995, as well as for the two previous periods for which there were data, the largest out-migration was to nearby Broward County. Those who left for Broward reported a median income that was 26

percent higher than the median income of Dade's non-migrants. It is fair to believe that many of those who migrated to Broward were professionals who continued to work in Dade but moved to southern Broward, which is within easy commuting distance to Dade. It can be seen from Figure 1 that the whole Gold Coast through Martin County, as well as Monroe County immediately to the south of Dade, also attracted migrants from Dade County whose median reported income was considerably higher than that of Dade non-migrants. Given the distance from Palm Beach and Martin County to Dade County, and from large communities in Monroe County, it is doubtful if many who moved there have continued to work in Dade. Whether they have continued to work in Dade County or not, the flow of out-migrants is so large, and their median reported income so great that their departure must significantly lower the median reported income of Dade's non-migrants.

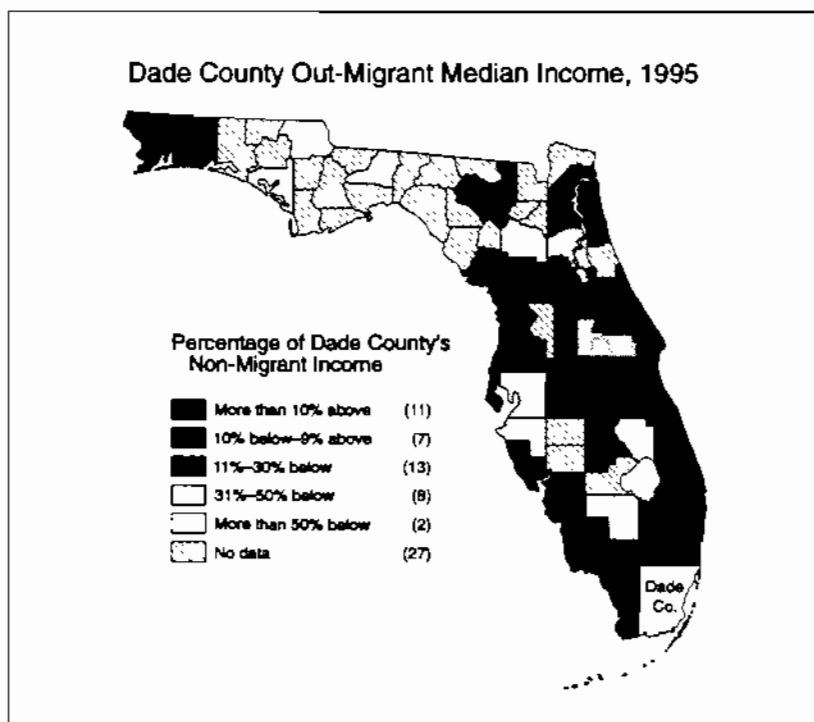
There were Florida counties where the median income of people who left Dade in 1994 and filed there in 1995 was well below the median income of Dade's non-migrants. Most appear to be identified with labor intensive agriculture or college students. The most extreme example was Okeechobee County where the median reported income of a 1994 Dade migrant who filed there for the first time in 1995 was 61 percent below that of Dade's non-migrant median income. Although data are not available to support it, it seems reasonable to assume that a large number who left Dade County have become involved in that county's huge dairy industry. Many, perhaps most migrants to the county from Dade are Hispanic, and it is well known that employment in Okeechobee County's dairy industry is heavily Hispanic. Hendry, Manatee and Hillsborough counties are also identified with low wage agricultural employment, and might, in part, account for the low median income of 1994 Dade migrants compared to those who did not leave Dade County.

Both Alachua and Leon counties, the home of the state's three state universities which may be considered "residential," had median reported incomes of 1994 Dade out-migrants well below that of those who did not leave Dade. This is probably a consequence of the large number of students who are attracted there, and who must work for low wages while they receive a higher education.

*Out-migration Elsewhere in the United States.* Although small compared to the migration to Florida counties, between 1994 and 1995 there was considerable movement from Dade County to places



Figure 1



elsewhere in the United States. Among the destinations that drew large numbers of tax filers and their exemptions from Dade County between those years were Greater New York 5365, Greater Atlanta 2128, Greater Los Angeles 1550, Greater Washington 1328, Greater Boston 982, and Greater Chicago 944.

Few would doubt that most who left Dade County for counties outside of Florida were Hispanic. The data show that in most of their destinations they earned less money than the median reported income of Dade County residents. This was particularly true of Dade residents who had settled in counties within Greater New York. In fact, there was only one county of the sixteen for which data are available where former Dade residents reported a larger income than a Dade non-migrant, and that was Somerset, N.J. Few Dade residents moved there between 1994 and 1995 (49). Since Dade County now is over half Hispanic, it can be assumed that a large

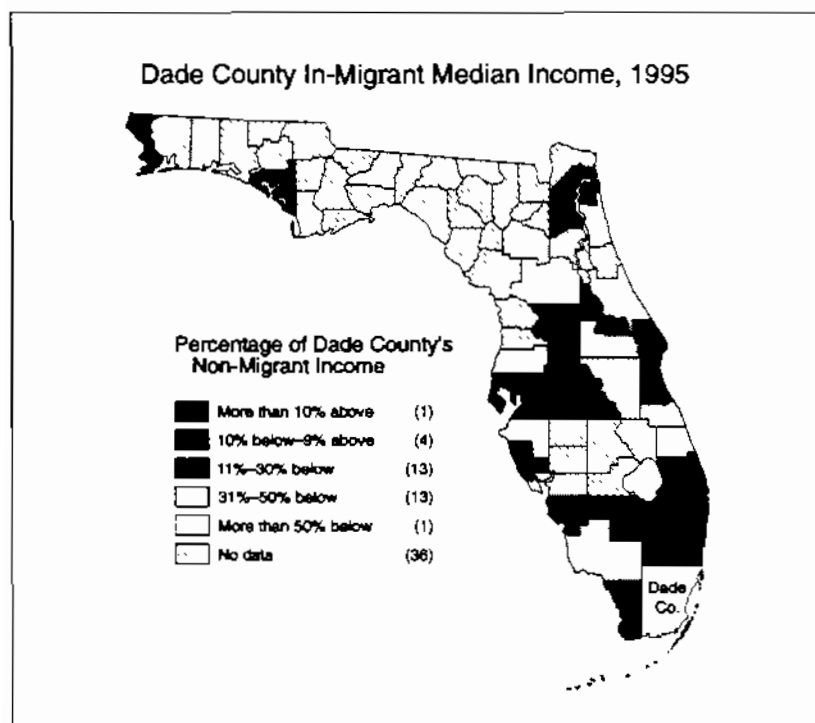
share of migrants from Dade to New York, and all the other large cities mentioned were members of that ethnic group. The median income of Dade migrants who in 1995 filed in New York City's Bronx and Queens only earned about half as much as the median Dade County non-migrants. The situation was better for those who migrated to Manhattan. Their median income was about 12 percent less. For Dade migrants to Los Angeles, Chicago, Boston and Washington it was between 5 and 12 percent less.

### **In-Migration Between 1994 and 1995**

*In-Migration from other Florida Counties.* The share of Florida migrants in the total flow of in-migrants into Dade County has long been much smaller than the share of out-migrants to other Florida counties from Dade County. Between 1994 and 1995 it was only 36 percent, which is about typical of most years. About 20 percent of all in-migrants to Dade County between 1994 and 1995 came from Broward County. Large as that share was, in actual numbers it was only 13386, and was dwarfed by the 36411 who left Dade to live in Broward. Whereas the median income of people who left Dade for Broward was 26 percent higher than that of the median Dade non-migrant, those who came from Broward to Dade earned four percent less than the median Dade non-migrant. There was only one county in the entire state of Florida which between 1994 and 1995 sent taxpayers to Dade County whose median reported income reported from Dade County was higher than the median income of Dade County non-migrants. That county was Pinellas (St. Petersburg-Clearwater) and the median income of former residents of that county who arrived in Dade County in 1995 was 19 percent higher than the median income of Dade non-migrants. Unfortunately there were too few taxpayers involved in this migration from Pinellas to Dade County (173) for their income to have had much an effect on the total for the county.

While most Florida counties have been receiving Dade residents whose median income is higher than that of a Dade non-migrant, most Florida counties are sending people to Dade County whose median income reported in Dade County is less than that of Dade non-migrants. This is particularly true of those who come from Marion County, where in 1995 it was approximately half (Figure 2). There were many counties from which a typical tax filer who arrived in Dade County reported an income that was 31 percent to 50 percent lower. These included counties with large populations

Figure 2



like Orange (Orlando), Volusia (Daytona Beach) and Collier (Naples) as well as many with far fewer residents.

The IRS data are not able to definitively answer the question of why Dade County is attracting people from elsewhere in Florida whose median income when they file for the first time in Dade is far below that of Dade County non-migrant. It probably results from people coming to Dade that have lower earning power than the non-migrants. It is doubtful that the wages for comparable work are much different in Dade than elsewhere in Florida. Since Dade County never has attracted many Florida retirees, it cannot be attributed to a large number of people who ceased work to come live there on a retirement income far below what they had previously earned.

Although it probably is stretching the possibilities of interpreting the IRS data, it is of interest to note that both median income of out-migrants to and in-migrants from Alachua and Leon counties to Dade is considerably lower than Dade non-migrant income. As

previously mentioned, a large share of migrants between Dade and these counties are probably university students. Whereas it is understandable that students from Dade to these counties would be earning little once they reached them, it is more difficult to explain why students who leave, many of whom must have received college degrees, should earn so little after they returned to Miami.

*In-Migration From Elsewhere in the United States.* There are several large metropolitan areas outside of Florida which have been sending many people to Dade County. Between 1994 and 1995 Greater New York provided the largest number (11882), followed by Greater Los Angeles (3466), Greater Chicago (1552), Greater Washington (1337), Greater Boston (1279), and Greater Atlanta (1018). Among these six metropolitan areas, only that of Atlanta had a larger in-migration from Dade County than an out-migration to that county. Net migration to Greater Atlanta from Dade County was 1110. Dade County received 6517 more migrants from Greater New York than it sent between 1994 and 1995. The net in-migration from Los Angeles was 1916, from Chicago 608, Boston 297, and from Washington a mere 24.

The IRS data suggests that Dade County's economy would have benefitted more if they had not come, since most counties within the large metropolitan areas mentioned above sent migrants to Dade whose median income once they got there was below that of the median Dade County non-migrant who filed. Of the sixteen counties within Greater New York for which there are data, migrants to Dade from only five reported median incomes in Dade higher than Dade's non-migrant median income, and all but one was a suburban county from which the movement to Dade was small. The one county with a large population that was an exception was New York (Manhattan), whose residents once they reached Miami reported a median income that was 17 percent above that of the Dade non-migrant. Those who came from Brooklyn, Queens and the Bronx, all boroughs with large "barrios," in Miami filed returns that were from 25 percent to 15 percent lower than non-migrants. The median income of those who came from Los Angeles was one-quarter less than that of Dade's median non-migrant, approximately the same for those who came from the Queens and Bronx of New York. Median income of those who came from Boston, Atlanta, Chicago and Washington earned between 5 percent and 10 percent less than Dade non-migrants.

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## Conclusion

Dade County (Miami-Hialeah) finds itself economically in a difficult position. The Internal Revenue Service data on tax filers who leave and arrive in the county indicate that it is experiencing a much larger out-migration than in-migration in the movement between it and the rest of the nation. Furthermore, those who leave, when they file income tax in their new place of residence, report much higher income than is reported by Dade County non-migrants. The reverse is true of those who come to Dade County. On arrival they report considerably less income the year they arrive than the Dade non-migrant.

The data used can be interpreted in several ways, but I am convinced the evidence supports the idea that the huge migration from Latin America and the Caribbean into Dade is largely responsible. Numerous studies, using decennial census data, show convincingly that a process of invasion and succession within the county is well underway. Those who can afford it often move out. This succession first began to dislodge nonHispanic whites and today there are relatively few left in the county. More recently nonHispanic blacks have been leaving in appreciable numbers. Affluent Hispanics, many second generation, also have joined the movement out. Most are moving north along Florida's Gold Coast, the majority settling in Broward County. Those who come to live in Greater Miami from other parts of the United States typically earn less than Miamians when they first arrive. This is probably because they bring with them lower earning power than the typical Dade resident.

Among Florida's heavily populated counties, over the past 40 years, Dade has experienced a slower per capita income growth than most. Of the 14 largest counties it has fallen from the leader in 1950 to ninth in 1995. With poor immigrants from abroad settling within it, and what appears to be less skilled workers in-migrating from elsewhere in the United States, and more affluent Miamians leaving for other counties throughout the nation, this trend is likely to continue into the future.

## Note

1. *County Inflow and Outflow Migration Data* is available on 3 1/2 inch diskette either in ASCII or Excel at a price of \$50.00 for each state.

Data may be obtained from:

Statistics of Income CP:S:P  
Internal Revenue Service  
Box 2608  
Washington, DC 20013-2608  
Phone: (202) 874 0944

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## A Bibliography of the Social and Cultural Geography of Miami, Florida

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North American urban geographers have long been interested in the dynamics of urban life in large American cities. Numerous studies on Los Angeles, often-called a 'post-modern city', have enhanced our understanding of how people adapt to life in a megalopolis. We believe Miami offers geographers, among other social scientists, an invaluable opportunity to study questions on urban planning, migration, ethnicity and language. Its natural environment, such as the Everglades, is unique in North America and is of special concern to those interested in the effects of urban sprawl.

The study of greater Miami can also provide insight on the strategies and practices of large ethnic groups in an urban setting. Approximately one-half (over 1 million) of Greater Miami's population is of Hispanic-origin, and the city is recognized as the unofficial "Capital of Latin America." Geographers are thus able to examine urban social and cultural realities of large, structured Hispanic communities.

This bibliography on the social and cultural geography of Miami focuses specifically on issues related to ethnicity.<sup>1</sup> References were obtained from the *Geographical Abstracts* and *Dissertation Abstracts* from 1980 to 1996. We have also included a few recent works by non-geographers that are relevant to the scope of this project. We hope that this bibliography will be continually updated to include new studies on this constantly evolving city.

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<sup>1</sup> For a general bibliography of Florida see Angel Cardec et al. (1996) *Bibliography of Geographic Research of Florida*: Tallahassee: Department of Geography Working Paper, Florida State University.

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### Book Notes

Morton D. Winsberg

A.F. Randazzo and D.S. Jones eds. (1997) *The Geology of Florida*. Gainesville: University Press of Florida. 327 pp., photos, tables, maps, diagrams, bibliography and index. ISBN 0-8130-1496-4. \$39.95.

R.C. Smith, J.J. Miller, S.M. Kelley, and L.G. Harbin. (1997) *An Atlas of Maritime Florida*. Gainesville: University Press of Florida. 56 pp., maps, graphs, tables, photos, drawings, references. ISBN 0-8130-1512-X Paper. \$9.95.

D. Ste. Claire(ed) with catalogue annotations and essay by P.A. Cowdrey, Jr. and essays by D. Ste.Claire. (1997) *A History of Florida Through New World Maps*. Gainesville: University Press of Florida. 64 pp., maps, drawings, bibliography and index. ISBN 0-8130-1511-1 Paper. \$12.95.

The University Press of Florida, the publisher for the state's universities, continues its enthusiasm for publishing books with a Florida theme. The three cited above are recent releases which geographers might find of interest.

From the point of view of effort and production values *The Geology of Florida* is the most impressive, and stands well alongside *The Atlas of Florida*, which the press released in its third edition last year. Seventeen scholars participated in the writing of *The Geology of Florida*, seven from the University of South Florida or other institutions in the Tampa Bay area, and six from the University of Florida or that city's Museum of Natural History. Tallahassee's Florida Geological Survey supplied two authors.



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The book takes a conventional approach in the development of a regional geology. The first chapter begins with a general discussion of the state's geomorphology and physiography. This is followed by several chapters in which the historical geology of the state is discussed. A chapter is devoted to the hydrogeology of Florida, with appropriate concentration on the Floridan Aquifer. Two chapters follow analyzing the fossil record of the state, first those of invertebrates and then mammals. Minerals of economic importance to the state merits a chapter, as does the geology of the Florida coast, the origins of the state's phosphorite deposits, environmental geology, and a concluding chapter on the geology of the Florida Keys.

Most geographers in the state with an interest in the physical environment pursue that interest through its interaction with human activity. They will find the chapters on economic minerals and environmental geology of greatest interest. Although the authors are clearly writing for an audience of physical scientists, much within these chapters, and others as well, is assessable to geographers who are oriented toward the social sciences.

*An Atlas of Maritime Florida* and *A History of Florida Through New World Maps* will appeal to a far wider range of geographers. In fact, both deserve to be on the shelves of public, school and college libraries throughout the state. *Maritime Florida* is filled with physical information about the sea around Florida, as well as the growth of the use of its coastal waters from the preColumbian period to the present. Appropriately, since it always evokes great interest, a considerable amount of space is devoted to wrecking and smuggling, as well as the destruction wrought by hurricanes and reefs to ships passing along its coast. The maps in the atlas would not win a prize for artistry, but they serve their purpose well.

*A History of Florida through New World Maps* is the first effort, at least to this reviewer's knowledge, that traces the cartographic history of the state.

Following a brief history of the state written by the editor, with some handsome engravings taken from early books, Cowdrey annotates some of the most important maps showing the peninsula, beginning with one by Munster published in 1540 and ending with a U.S. War Department map from 1846. Many are reproduced in color, which should be greatly appreciated by the reader. Cowdrey has a concluding chapter on the evolution of navigational maps.

The Florida Society of Geographers was chartered in 1964 as a non-profit organization for the purpose of furthering professionalism in geography through application of geographic techniques in all areas of education, government, and business in Florida.

The Society supports these objectives by promoting acquaintance and discussion among its members and with scholars and practitioners in related fields by stimulating research and field investigation, by encouraging publication of scholarly studies, and by performing services to aid the advancement of its members and the field of geography in Florida.

The Society holds meetings one a year, usually in February. At this meeting, papers are presented and matters of mutual concern are discussed. Meetings are held in different parts of the state and always include field trips to allow participants to gain first hand knowledge through field experience.

Persons interested in membership in the Florida Society of Geographers should contact:

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Regular membership is \$10 per calendar year; student membership is \$5. Membership includes a subscription to this journal.