From the Editor

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 state-wide journal, with coverage of geographical topics relating to the state. Manuscripts should deal with some social science or physical geography aspect 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 stylistic requirements, see the articles in the present number, but authors should not be dissuaded from submitting articles for review because of format considerations.

It is expected that authors will submit the final copy of the paper on an IBM-compatible diskette (3.5" or 5.25") in either double or high density format. WordPerfect files are preferred; if not, please save files in ASCII (DOS text file) format.

This is my second issue as the Editor of The Florida Geographer. The changes in the journal introduced this past year were well received by the membership, and further steps have been take this year to improve the quality of the journal, both in terms of the types of articles published as well as in the presentation of the material.

Ira M. Sheskin
University of Miami

Editor, The Florida Geographer
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Economic Development Organizations in North and Central Florida

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University of Florida and University of Utrecht

Economic development organizations (EDOs) have become ubiquitous throughout the United States and elsewhere. The Dutch bluntly call it "City-marketing" (Borchert, 1987), and it is an established part of the activities of communities around the world (Crompton, 1985; Roberts and Noon, 1987; Morrison, 1983). Local economic development organizations numbered approximately 15,000 in the United States in 1981 (Levy, 1981). The number has certainly increased significantly during the 1980's. Nearly all EDOs have been formed since 1945; over half, since 1975 (Humphrey et al. 1988). Initial increases related to regional competition ("Sunbelt" versus "Snowbelt") have given way to widespread economic development efforts at the local level.

In the United States, promotion is done by any of several groups: public agencies or a unit of local government; purely private groups, usually connected in some way to the local Chamber of Commerce; semi-public groups with some government powers for taxing or bonding authority; and public-private partnerships (Levy, 1981). Whatever the form of organization, EDOs have several functions: public relations, advertising, marketing and information provision, ombudsman and liaison functions, financing assistance, tax abatement, and development planning, especially with regard to transportation and utilities location within the community (Levy, 1981, 17-22).

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1This research was initiated while Joost van der Stappen was an exchange student at the University of Florida. The authors are grateful for the helpful comments of an anonymous reviewer.
Many look with skepticism on the work of EDOs, suggesting that they may have little or no effect on economic development (Cobb, 1982; Goodman, 1979). Cobb (1984, 41) makes this observation about local promotion in the South: "... Most areas of the South had little to offer a new plant except an unskilled workforce and access to whatever raw materials might be nearby. Since most southern locations were equally attractive in this regard, local development activists were prepared to offer any giveaways and gimmicks likely to catch an industrialist's eye." The work of local governments and EDOs "might more accurately be called 'hopeful anticipation'" (Goodman, 1979, 102).

The actual work of EDOs is more varied than these observations suggest. The various groups involved in economic development promotion provide locally-tailored campaigns that involve nurturing new firms and retaining existing companies besides "chasing smokestacks" in other regions. However, as the functions of EDOs have expanded, they have become sophisticated and costly, especially in the large cities whose markets are essentially international. Small cities and rural regions, unable to compete in the same league, tend to persist to some degree in the tried-and-true practices documented by Cobb (1982) and Goodman (1979).

This paper provides a perspective on where Florida EDOs fit within this national picture. Interviews were conducted with seven economic development professionals (EDPs) in central and north Florida and two state agency professionals in March and April, 1988. The study, although limited to only seven economic development organizations, spanned a range of community sizes, including Lake City, Gainesville, Ocala, Jacksonville, Orlando, and Tampa. In addition, the newly formed Suwannee Valley Regional development organization was included. The interviews
focused on several topics: (1) the organizational aspects of the economic development organizations, including budgets, employees, and functions; (2) market research, targeting, and promotional methods; (3) networks and relationships with developers, local governments, the state, and companies and consultants; and (4) competition, perceptions, and performance. While the individuals interviewed will not be named, we are grateful for their assistance and cooperation.

Organization and funding

Most of the EDOs are private, especially those of the three major metropolitan areas (Table 1). However, most are supported by

<table>
<thead>
<tr>
<th>City</th>
<th>Public</th>
<th>Private</th>
<th>Part of Chamber of Commerce</th>
<th>Membership</th>
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<tr>
<td>Jacksonville</td>
<td>X</td>
<td></td>
<td>Yes</td>
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</tr>
<tr>
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</tr>
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<td>X</td>
<td></td>
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<td>NA</td>
</tr>
<tr>
<td>Suwannee</td>
<td>X</td>
<td></td>
<td>No</td>
<td>NA</td>
</tr>
</tbody>
</table>

NA: Not Applicable (not a membership organization)
Source: Interviews
local governments or are funded by public funds. The Ocala/Marion Economic Development Council is both private and public, because funding comes from both the two governments and the members. Only the Columbia County Industrial Development Authority (IDA) and the Suwannee Valley Region development organizations in Lake City are fully public. The involvement of the Chambers of Commerce (and their newer counterparts, Committees of One Hundred) in the EDOs is very strong, as Humphrey et al. (1989) also found. The Chamber of Commerce and the local EDO may have different boards of directors and distinct budgets, but they commonly have the same executive vice president or director and may be located in the same building. All large and midsize city EDOs are membership organizations. As indicated by the budgets of the seven EDOs, those in Jacksonville and Orlando are the "richest," followed by Tampa, Ocala and

<table>
<thead>
<tr>
<th>City</th>
<th>1986</th>
<th>1987</th>
<th>1988</th>
<th>% Public</th>
<th>% Private</th>
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<td>$1,000,000</td>
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<td>25</td>
<td>75</td>
</tr>
<tr>
<td>Orlando</td>
<td>750,000</td>
<td>820,000</td>
<td>840,000</td>
<td>60</td>
<td>40</td>
</tr>
<tr>
<td>Tampa</td>
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<td>500,000</td>
<td>500,000</td>
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<td>100</td>
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<tr>
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<td>170,000</td>
<td>178,000</td>
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<tr>
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<td>Lake City</td>
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<td>0</td>
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<td>150,000</td>
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</table>

Note: Some figures are rounded or are estimates. Source: Interviews.
Gainesville (Table 2). The EDOs in larger cities also tend to receive more money from private sources. The Suwannee Valley Region's budget was greatest during its start-up year in 1986 when investments in equipment, market research, and advertising materials were funded. The Suwannee Valley Region is administered by the North Central Florida Regional Planning Council, sponsored by the North Central Florida Private Industry Council, and it receives funding from the Job Training Partnership Act; thus the budget is a mix of public and private sources.

Roughly half of each EDO's budget is spent on staff (salaries and benefits). Changes in budget categories over the past few years have been toward fewer promotional expenditures, and toward more travel and especially more staff. The Suwannee Valley Region, as a new EDO in 1987, had large initial promotional expenditures to establish name recognition. The larger EDOs have the largest staffs, from a total of twelve in Jacksonville to one in Suwannee.

The organizational structures of the interviewed EDOs are different, but contain elements in common. The medium and large EDOs usually contain a research section as well as industrial and economic development professionals on staff. At least two include a "community relations" professional. Turnover rates in this field are very high, especially in the smaller communities where a three-year tenure was unusually long, confirming Rubin's (1988) description of the job as a frustrating one. In sum, the element of city size determines many characteristics of an EDO. Budgets and staff sizes, however, are only quantitative indicators; perhaps more important are the ways in which EDOs vary quantitatively.
The attraction and expansion of businesses

Economic development through the attraction of businesses is, implicitly or explicitly, the primary purpose of the EDOs. All but the smallest EDOs also mentioned efforts aimed at the expansion of existing businesses. As a result, they all implement promotional and marketing activities and maintain relationships with developers of sites and buildings. The EDO’s task is to help firms make contact with banks and venture capital companies and provide them with Industrial Revenue Bonds. They also assist with statewide programs, such as the Road Access Program, the Small City Program, and state loan programs.

The EDOs were asked to list the most important strengths and weaknesses of the counties or the region they promote, concerning the attraction and expansion of businesses. The most frequently-mentioned strength is the quality of life in Florida and/or in the county the EDO is promoting. This factor includes several indicators, such as climate, recreational facilities and sports, cultural amenities, and medical services. The three large cities have recently begun to pay attention to the educational system, considered necessary for the attraction of preferable businesses: those that are clean and offer high-paying jobs. Among the seven communities, only Gainesville and Orlando could list a university as a local strength. The other communities perceive education-related weaknesses: the lack of available, specifically-trained labor, especially with technical training.

Among the strengths of the three large cities are air transport and telecommunications, although Jacksonville acknowledges its relatively poor air connections when compared to Tampa or Orlando. The smaller communities are far behind with respect to these city size-related factors. What they do offer are low costs,
low taxes, and a large amount of available labor, and a location on I-75 or I-10. Finally, the smallest communities also lack available completed sites and buildings, which the large and medium-size cities can promote.

In conclusion, the large cities have many strengths and few weaknesses. Their principal weakness tends to be related to keeping up with growth demands on infrastructure and support for education. On the other hand, the small communities offer few advantages to businesses and have weaknesses in the most elementary fields. The advantages of the large cities -- air transport, education and telecommunication -- are totally different from the strengths of the small communities: costs and quantity of labor. This can be seen as a reflection of the persistent contrast between rural and urban areas in the South (Cobb, 1982, 1984).

**Market research and industrial targeting**

Vaughan (1988, 120) says that "nothing demonstrates the mistaken pursuit of precision more than the amount of time and effort devoted to identifying 'target industries.'" To a large degree, the error is the lack of sensitivity to the large differences within industrial categories in occupations and functions (Malizia, 1985; Thompson, 1987). Thus, the selection of target industries may be on the wane in the more sophisticated EDOs. The Orlando EDO, for example, does not target industries, because, to paraphrase its EDP, an industry that is not suitable probably would not come (wasting money and time), and by targeting a single industry, you put your eggs in one basket, and when that industry has a slowdown, the area is hurt, as happened in the computer industry in California.
To avoid a concentration in one or a few sectors, a “shotgun” approach makes no choice of industries. The shotgun approach, relying heavily on advertisements, is reflected by the promotional methods used by the Industrial Development Commission of Mid Florida and the Suwannee Valley Region. However, despite Vaughan’s warning, most EDOs continue to direct their main effort toward the other end of the continuum: direct mail campaigns to strictly selected target markets. Gainesville, for example, has targeted medical and surgical instruments firms (SIC 384) and purchased a list of 1500 target companies from a data collecting company, instead of doing in-house research. In its choice of markets, the Suwannee Valley Region is using a 1987 study by a consulting firm, which provided an initial list of 2000 companies. Until now, no in-house research in marketing has been attempted.

The methods employed for a targeted direct mail campaign can be relatively unsophisticated, as Ocala’s campaign suggests: “Basically what we did is, we went through each name, each company in the industrial directory of the State of Indiana and we took that one that employed over a certain amount.” This was expanded by including specific targets: “We also took those that had something to do with van conversions or mobile home manufacturing.”

Target Industries and Advertising

The targeted industries show some important patterns. In the large cities, high tech industry is the central target, including electronics, biomedical, and defense-related industries. Information-related services, insurance, and financial services are also seen as important targets. Gainesville has also targeted biomedical firms. Ocala, Lake City, and the Suwannee Valley Region, on the other
hand, target more routine, labor-intensive activities, such as distribution and manufacturing. An especially attractive sector to all three is mobile home manufacturing (SIC 2451) and van conversions. Lake City is attempting to expand these activities both horizontally and vertically, to include suppliers of windows, lumber, and metal to mobile home manufacturers as well. Distribution (warehousing) is a dominant target sector in these places, which attempt to capitalize on their location on interstate highways.

Ocala also is trying to get a piece of the action related to motion picture development, which has recently begun to flourish in Orlando, where Disney/MGM and Universal Studios have built new facilities. Ocala believes it has a good chance of being used for site location filming. The industry is considered "clean, and movies are known for people coming in, dumping a lot of money, and hiring locals."

The regions to which the promotional efforts are targeted are generally the same for each EDO: the string of states from Illinois in the west through Massachusetts in the east. Executives from this region are familiar with Florida from vacations and are aware of Florida's relatively low taxation. International promotion is seldom implemented, although recently Jacksonville established an international trade department. Leads from abroad are mostly supplied through the Bureau of International Trade and Development of the Florida Department of Commerce. The big cities have some experience with international promotion, but "it is very expensive and nearly impossible to do it good."

Besides determining target industries, other research activities concern the economic and demographic situation of the community: location, population, education, labor, transportation,
utilities, communications, government, taxes, finance, recreational facilities, and medical aspects. EDOs also collect data on local economic development, including available buildings and sites, service directories of manufacturers and major employers, and labor availability studies. Generally, the larger the organization, the more is available on computer files and the more frequently the figures are updated. The amount of available computer equipment and software shows the same trend found in other aspects of EDOs: the larger the EDO, the more it has.

The strengths and weaknesses have great influence on the recruitment efforts. Generally, the greater the local strengths, the more discriminating the EDOs are in their efforts to select incoming businesses. In Tampa, Jacksonville, and especially Orlando, the strengths are considerable, including a diversified economy, economies of scale, and high tech industries. Active recruitment remains important for large relocations. "The twenty biggest firms, the hard core, coming every year to Tampa have to be approached and recruited aggressively and intensively," notes one EDP. Despite the advantages of the large EDOs, they are not inclined to go too far afield from the existing industrial mix.

The midsize cities, Ocala and Gainesville, are below the level of the "big three," and therefore have other marketing strategies. They try to exploit their strengths and their potential, for which a "rival" approach is best suited. Important differences in approach are present between these cities. Gainesville perceives proper planning as a strength, reflected in the statement that their goals are "to attract businesses that they think are suitable in Gainesville." Ocala, on the other hand, primarily targets further attraction of firms in industries already in the area. Finally, in the rural Suwannee Valley Region and Lake City, the situation is the opposite of the big cities; the weaknesses outnumber the strengths.
Lake City and many counties of the Suwannee Valley Region do not have buildings or industrial sites available with all infrastructure in place. Without these elementary requirements, recruitment seems almost impossible. Therefore the emphasis is on trying to expand and retain existing businesses or attracting businesses linked to those in the area.

The choices of industry targets and the target markets are reflected in the methods used in promotion and implemented by the EDOs. Promotional brochures and videos (a growing format) sent to interested firms after an initial inquiry are a proven technique. Such materials are similar, regardless of the EDO; they are attractive in appearance, but provide little specific information. Most differences are to be expected: wealthier organizations offer a wider range of information; their materials look more professional and creative, and are updated more frequently -- as often as four times a year for fact sheets.

Advertising varies among the cities studied. Jacksonville recently reduced its advertising budget, after judging that it had finally reached its goal of becoming as well-known as Orlando and Tampa, after spending $5,000,000 on advertising over five years. Lake City stopped advertising as well when it became part of the newly established Suwannee Valley Region program. As a result, only three EDOs representing a wide range of city sizes, presently implement advertising as a major promotional method: the Suwannee Valley Region, Gainesville, and Orlando. Local publicity, aimed at local and regional newspapers, is part of the EDP's job, to keep people aware of "the great place they are living and working in."

For the newly-formed Suwannee Valley Region, a local awareness program was targeted to all people of the area because even the
name for the region was new. Mass media, TV commercials, radio spots and local newspapers articles made everybody aware of the region in which they lived (Figure 1). "Our purpose is to become as well-known as, say, Napa Valley." As a result, 40 to 50% of the total EDO budget is spent on advertising, in for example, the Wall Street Journal every Monday and in the "vertical" publications in the industrial location trade: Area Development, Plants, Sites and Parks, Site Selection Handbook, and Business Facilities.

Orlando and Gainesville are also regular advertisers in those magazines, which are thought to generate the best response. Orlando, despite international recognition related to Walt Disney World, also spends 50% of its promotional budget on ads, placing ads in the so-called "trade publications," like Industry Week, airline magazines, and general business publications (Fortune, Nation's Business, and Business Week). "And although it is an advantage in terms of publicity and familiarity of people within the city, that is just not all we have to offer... Orlando is a business city as well, and full of opportunities." Other EDOs follow the dictum: "You have got to keep your name out there." Rubin (1988) confirms the pressure on EDOs to advertise where their competitor communities' ads are found.

Besides advertising, direct mail efforts and sales missions by the EDO's representatives to interested firms are used to inform potential investors. Overseas missions are organized by Jacksonville and Orlando, at times in cooperation with the Florida Department of Commerce. Sales missions appear to have become more important over time as a promotional method among the large-city EDOs. The missions are expensive, and only the rich EDOs can afford them.
Special promotional events are also becoming more important to establish and hold a dynamic image. Organizing the Superbowl

Figure 1
(Tampa in 1991) or world-famous golf tournaments (Jacksonville, Tampa) provides a broad range of city marketing opportunities and publicity, not only for business recruitment, but also for tourism. When an event takes place, the host EDO invites corporate executives from their target markets. The program also includes business sessions, explaining the attractiveness of the city for site location. By contrast, small EDOs focus on smaller events, such as art festivals.

**Networks and relationships with other organizations**

Promotion of a more indirect sort also is a very important activity of EDOs: networking and contacts with other organizations. These include railroad and utility companies, corporate real estate executives and relocation consulting firms, and local real estate developers and state and federal government agency staff. In membership EDOs, in particular, these networks are largely internal; the developers of sites and other real estate people are all members and, with bankers, insurers, and people in construction, form the major part of the membership.

Relations with local governments are different. The most important direct link of local governments to the field of economic development is planning: zoning, permitting, and other local restrictions and requirements. The local governments are represented on the board of directors. In the membership organizations, usually the most important governmental persons are members, but little accountability accompanies such membership. Even if funded partially by local governments, the requirements of an EDO may be few, such as a single report at the end of the year.

All EDOs work closely with the Division of Economic Develop-
ment of the Florida Department of Commerce. This cooperation is strengthened by regular phone calls, visits and meetings, and daily exchange of information and data, especially the "kicking down" of leads to the local EDOs by the Bureau of Industry Development and by the Bureau of International Trade and Development. The Department of Commerce is not involved in the marketing efforts of individual EDOs. One EDP compares the state program with a wholesaler, while the local organizations are the retailers, who are finally responsible for selling the product.

Finally, the most important relationships are those with the "clients," corporate executives in both existing companies and in the target firms of the EDOs. "One of our major tasks is the development of personal relationships with the national corporate real estate executives," says a big-city EDP, "and we also work close with the major relocation consulting firms in the country." These non-local networks are developed by regularly participating in conferences, seminars, and trade shows. Trips, sales missions, and the organization of special promotional events, such as golf tournaments, support these efforts. The contacts with existing businesses are important for retention and expansion purposes, but also for leads and support in recruitment activities. Locally, meetings, parties, and visits are organized to maintain good local networks between the EDO and local businesses.

**Competition and perceptions**

Although all local organizations work closely with the state Department of Commerce, competition exists between them, as Bowman (1988) found to be the case throughout the Southeast. The struggle for businesses is fought at three quite separate levels. The highest competitive level is represented in Florida by Orlando,
Tampa, and Jacksonville, which compete with each other and in national and international markets. Their major competitors outside Florida are Atlanta, Dallas, cities in the Research Triangle, and Nashville. Jacksonville also identifies Richmond and Savannah as competitors.

The second level is represented by the interviewed cities of Ocala and Gainesville, which compete with each other and with other Florida cities in the same size range, such as Lakeland and Tallahassee. For Ocala, competitors also include Tampa and Orlando, mainly because of their proximity. Gainesville, on the other hand, believes that counties in Georgia and Alabama are their direct competitors. This indicates the lingering perception by the business community of Florida: North Florida (including Gainesville) generally is perceived as part of the Southeastern countryside, while Ocala, south of the line, is perceived as part of Florida, the Sunshine State, but with attractively low wage levels.

The lowest level of competition is found in all rural areas, including Lake City. They scarcely compete nationally, and most competitors are within a 300-mile radius. Lake City’s major competitors, for example, are similar cities in Georgia.

The newly formed Suwannee Valley Region development organization adds a new concept to the promotional organizations, being between the state and the county. This multi-county, or regional, approach is considered innovative, and is thought to improve the competitiveness of the rural counties involved. At the same time, the region cannot be regarded as a competitor of the level two or one cities. “The competition is really tough, so this kind of cooperation or fusion will be inevitable,” says a large-city EDO.

At all levels, each EDP generally perceives his budget figure to be
low, compared with his competitors: Tampa and Orlando refer to the large amounts available to Miami and Jacksonville. Gainesville, and to a lesser degree, Ocala view their budgets as low relative to Tallahassee and Lakeland. Consequently, most organizations seek an increase in income to stay competitive in the marketplace. However, the total budgets tend not to increase dramatically; an annual increase of 8-10% is normal.

Performance

The performance of an EDO is difficult to gauge, but there is a high degree of similarity. "All EDOs in the big cities are professional," says a big-city EDP. Measuring actual performance of an EDO is impossible, but the standard yardstick is an estimate of the number of firms attracted and jobs created (Rubin 1988). The estimates the EDPs provided were as follows: Jacksonville 150 businesses in the past 3.5 years; Tampa, 48 in 2.5 years; and Orlando, 110 in 1987 (including expanded industries). In numbers of jobs, the estimates are rather high. Jacksonville's Chamber of Commerce estimated that expansions and relocations created about 5000 new jobs in 1987, the same as in 1986. Tampa's attracted companies created 5890 jobs in 1986 and 3390 new jobs in 1987. Orlando's efforts resulted in 2500 jobs in 1987 vs. 2700 in 1986. For Lake City, however, since 1983, only five plants were attracted, with an estimate of 550 jobs in total. Ocala and Gainesville did not have information available.

Other measures that EDOs mentioned to show performance, especially in the absence of job creation, include the number of incoming inquiries, the number of prospects, and the percentage of response to direct mail or advertising – all actually more related to inputs than to development results. The number of jobs created remains the criterion on which EDOs are judged.
The external image of an EDO is an important, if subtle, criterion. The opinion of EDOs is much the same: Although the final decisions will always be based on facts when corporate decisionmakers think about expansions or relocations, the promotional techniques will influence them to consider settlement in the promoted area. "At least perceptions and images can be changed," says one. Another adds: "This can't be an emotional business, because a lot of times, the sum of the site selection criteria is about equal, so sometimes it gets down to an emotional decision." In those cases, perceptions can turn the scale toward the best promoting city.

Conclusion

Because this study is based on only nine interviews, it is based less on statistical findings than on impressions. Three groups of EDOs appear to exist among the seven economic development organizations in communities of North Florida. The first group, the market leaders, are professional EDOs. The various activities they implement are part of a complex structure of the marketing plan. Because there is a strong local economy with a very attractive economic climate, it is possible for them to be selective about the businesses that are interested. Aggressive recruitment only occurs in relocations and expansions of large major corporations. These are similar to the successful EDOs in larger metropolitan areas in the studies by Humphrey et al., (1988, 1989).

The second level EDOs, the specialists, compete with other midsize cities in Florida and the Southeast. The existing economy has both strengths and weaknesses, neither dominant. A selective recruitment approach is the strategy of this group, targeting specific industries likely to come to such an economy.
The lowest level, the *problems*, are found in communities in rural areas. Fundamental weaknesses of the existing economy, make the EDOs' job difficult. Marketing strategies are poorly developed and a lack of financial and professional support exists.

The future economic development of communities is difficult to predict. However, the cumulative advantages of the large cities -- more money, larger networks, more publicity -- are likely to be more successful at business attraction than will occur in the smaller communities. The establishment of regional EDOs like the Suwannee Valley Region may be able to make communities in rural areas partly competitive. The rural EDOs know that they operate at a lower level in the hierarchy from the large cities, but all represent a "professional" approach to economic development that attempts to go beyond wage levels and taxes as lures to outside businesses. At the bottom line, however, no EDO can really sell its community as more than its strengths or less than its weaknesses. Thus, the large cities tend to get the better jobs of corporate divisions of labor, while small communities get routine facilities. What EDOs actually get for all the effort and expenditure described in this paper remains a real question, not only in Florida, but elsewhere as well.

References


State University Press).


Flood Insurance and Coastal Development

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Flood insurance coverage is now widespread among coastal homeowners in the United States. Indeed, coverage is far higher among coastal residents than those within river floodplains (Kusler 1983, 7). Serious questions, however, have been raised concerning the efficacy of the flood insurance program in reducing flood losses along the shoreline (Miller 1977, 40-41; Kusler, 1982, 45-46; U.S. General Accounting Office, 1982; Burby and French, 1985, 103). For example, Miller noted that the availability of Federal Insurance Administration flood insurance increased the demand for coastal properties, increased property values, and did not diminish the siting of houses within high hazard areas. Nevertheless, Miller (1983, 157), drawing from case studies in over two dozen coastal communities, notes that in only one -- Galveston, Texas -- did the availability of flood insurance make a difference between development or no development. Kusler (1982, 45) indicates that most of the state and local officials he interviewed ‘were of the belief that the insurance had encouraged some development although how much was unclear.’ Burby and French (1985, 88) indicate ‘that participation in the National Flood Insurance Program is associated with continued development of flood-hazard areas, particularly in coastal communities.’ Partly in response to concerns such as these, Congress established the Coastal Barrier Resources System in 1982. Federal expenditures, including the writing of new federally-subsidized flood insurance policies were prohibited within the 186 designated coastal barriers,

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1 This material is based upon work supported by the National Science Foundation under Grant No. CEE-8211441. Any opinions, findings, conclusions, or recommendations expressed in this paper are those of the author and do not necessarily reflect the views of the National Science Foundation.
representing 656 miles of shoreline fronting the Atlantic Ocean or Gulf of Mexico.

A major expansion of Coastal Barriers Resources System was proposed in 1985 (U.S. Dept. of Interior 1985a, 1985b), which would add substantial areas, including portions of the Florida Keys, to the System. Four years later the issue of whether to include the Keys within an enlarged system remains unresolved. However, in its 1988 report to Congress, the U.S. Department of Interior's (1988) Coastal Barriers Study Group recommended the inclusion of 19,831 land acres of the Florida Keys within the Coastal Barriers Resources System—with 13,059 of these acres being located within the Lower Florida Keys. It is within this area (Figure 1) that the efficacy of the flood insurance program in reducing potential losses and the effects of the program upon new residential development are examined a decade after the area entered the National Flood Insurance Program.

The lower florida keys study area

The Florida Keys are one of the most vulnerable areas of the United States to coastal flooding. The Florida Coastal Coordinating Council (1974, 9) indicates:

Disaster preparedness experts feel that we are well on the way in the Keys to producing one of the greatest man made natural disasters in history.

With a maximum elevation of eight feet, a one-in-a-hundred year hurricane would inundate the entire land area of the Lower Florida Keys -- those islands from Big Pine through the Saddlebunch Keys, an area ten to thirty-two miles east of Key West, Florida.
The Florida Keys

Figure 1

Straits of Florida

STUDY AREA

Marquesa Keys
Saddlebunch Keys
Sugarloaf Key
Big Pine Key
Summerland Key
Grassy Key

GRASSY KEY

Marathon
Vion Key

STUDY AREA

Cudjoe Key
Bananas Honda

Florida Bay

Key West

20

Miles

5
0
10
20

Elliot Key

Key Largo

Islamorada
Whisley Key

Upper Matecumbe Key

Lower Matecumbe Key

Long Key
Storm surges could come from either the Gulf of Mexico or the Atlantic Ocean (Federal Emergency Management Agency 1983, 19). Local base flood levels, as shown on Flood Insurance Rate Maps (FIRM) issued in 1983 by the Federal Emergency Management Agency, range from nine through twelve feet. Even the ten-year storm would flood most of the region (U.S. Army Corps of Engineers, 1972), which has experienced hurricanes in one of seven years on the average over the past century (Simpson and Lawrence, 1971). Nevertheless, this area has been unscathed by major hurricane damage since the 1960s, when it was hit in 1960, 1965, and 1966. It has been threatened by several storms in recent years, including Hurricane Kate, which moved within 90 miles of the area in November, 1985. However, these storms all spent their fury elsewhere. Although Hurricane Floyd tracked along U.S. Highway 1 through the Florida Keys in October 1987, the storm was of minimal strength and caused little damage.

Residential development within the Florida Keys has been considerable over the past several decades, not unlike many areas of the American shore (Baker, 1979). Between 1970 and 1980 the population of Monroe County, exclusive of Key West (where population changes also reflect variations in naval deployment), increased by 67%. Within the Lower Florida Keys, the almost all white population was 6,353 at the time of the 1980 Census, with 4,514 housing units enumerated. Throughout the Florida Keys (excluding the Key West urban area), 31.2% of the houses had been built in the five years preceding the 1980 Census. Until the mid-1970s, residential construction within Monroe County occurred without flood zone regulations. Land use planning began within the county in 1960 and the first zoning ordinance merely required that "no building intended for residential purpose shall be moved into or constructed on land subject to periodic or frequent flooding..." (Monroe County,
In 1973, the restrictions were increased, prohibiting the platting of land below 3.5 feet in elevation for residential purposes, unless the land was elevated with fill to that level (Monroe County, 1973). These minimal restrictions were replaced by an ordinance introduced in late 1974 regulating new construction within Special Flood Hazard Districts (Monroe County, 1975). This ordinance, enacted as a requirement for the County to enter the National Flood Insurance Program, mandated that the lowest floor of all new buildings be elevated above the 100-year flood level -- eight feet on the flood maps then used in the Lower Florida Keys. Although additional land use controls exist within the area because of the designation of the Florida Keys as an "Area of Critical State Concern" under provisions of the Florida Environmental Land and Water Management Act of 1972, the purpose of this paper is to examine the effects of the National Flood Insurance Program upon the area's residential development.

**Research methodology**

Data concerning the residential development and the residents' adjustments to the hurricane hazard were obtained from surveys conducted among homeowners and area realtors, from property appraisal records within the Monroe County Property Appraiser's Office, and from field reconnaissance. Field observations of the housing were conducted in 1976 and 1984. Property and dwelling appraisal data for 1974 and 1982 were collected for about 33% of the 1974 housing units, via a systematic random sample.

In Fall 1983, an eight-page questionnaire was mailed to all individuals shown by records in the Monroe County Property Appraiser's Office to have acquired housing in the study area during the previous four years. Completed surveys were received
from 786 house or mobile home owners, representing a response rate of 66%. This may be considered a very good response for a mail survey to the public. The questionnaire was also sent to a smaller sample of homeowners who purchased their homes before the county adopted its flood elevation ordinance. All members of the Marathon and Lower Keys and the Key West Boards of Realtors were sent surveys. Completed questionnaires were returned by 149 realtors—a response rate of 54%. Although this response rate was relatively high, realtor responses may reflect biases caused by over representation of realtors working out of certain offices. In-depth personal interviews were held with 53 area realtors to elicit responses to open-ended questions and to permit detailed follow-ups where appropriate. A detailed analysis of the influences of the realtors upon home purchases within this coastal flood zone is reported in Cross (1985).

Flood insurance coverage

Nearly three-quarters of the homeowners had obtained flood insurance coverage within the Lower Florida Keys study area by 1983, nearly a decade after it became available in the area. Federal regulations, which require homeowners who have mortgages provided by federally chartered or insured financial institutions to carry flood insurance, have had a major role in the acquisition of this insurance. Nevertheless, these requirements have neither been completely successful in assuring that insurance is obtained nor were these mortgage regulations the only factor promoting flood insurance coverage. Cases were discerned where a local bank provided mortgages for uninsured homes and where residents had mortgaged other properties to avoid obtaining a mortgage requiring flood insurance for their second homes. Notwithstanding these examples, even those recent homebuyers
without mortgages are now usually covered, with 68.4% of the post-1979 house buyers whose homes were mortgage free having obtained flood insurance. The most prominent reason cited by residents who decided against obtaining flood insurance was that flood insurance was too expensive or unaffordable. Also, 8.9% of the uninsured house buyers and 43.3% of their counterparts who purchased mobile homes indicated that they could afford the loss. Thus, the availability of flood insurance has greatly lowered the vulnerability of residents to catastrophic financial loss should a hurricane inundate the area.

Flood insurance coverage is generally unrelated to the homeowners’ perceptions of the hurricane threat, even when controlling for whether the resident’s homes were mortgaged. Indeed, for unmortgaged homeowners, there were no significant relationships between flood insurance coverage and the homeowners’ perceptions of either hurricane waves and flooding or hurricane winds as problems in living in the area, the homeowners’ expectations of a damaging hurricane within the next ten years, their evaluations of the probability of hurricanes within the Florida Keys compared with other coastal areas, or the homeowners’ considerations of the relative vulnerability of the Keys to damage during a hurricane in comparison with other locations. On the other hand, the residents’ knowledge of their flood zone location was related to their flood insurance coverage. In general, other than statistical differences in insurance coverage of houses and mobile homes, variations in the vulnerability of house types (stilt versus ground level) and homesites within this highly vulnerable coastal location are unrelated to flood insurance coverage, although a slightly greater tendency for the most vulnerable homes to be insured was discerned. Thus, flood insurance requirements do not seem to heighten residents’ concerns about coastal flooding, although they may heighten awareness.
Sixty% of the recent home purchasers expect a damaging hurricane within a decade and over three-quarters feel that their homes would suffer at least moderate damage if a hurricane directly hit their location. Indeed, these findings are similar to those noted by McElyea and colleagues (1982, 6-12) based upon research in North Carolina, "This attitude [that hurricanes are of low risk] is further exacerbated by the availability of flood insurance. The certainty of enjoying the house insured from danger seems to outweigh the threat of potential damages."

**Flood insurance and increased coastal development**

The availability of flood insurance may have contributed to the increased occupation of the coastal flood zones within the Florida Keys. Evidence supporting this argument includes observations of local real estate agents, the responses of homeowners and recent home buyers, the appreciation in value of real estate since the county entered the National Flood Insurance Program, and the location of new residential construction.

The number of single-family residences within the study area has nearly doubled since Monroe County first adopted its flood elevation ordinance required for participation in the National Flood Insurance Program. Houses account for approximately two-thirds of the nearly four thousand residences within the study area, with mobile homes comprising nearly one-third of the residences. The increase in the number of mobile homes has been minimal with the halt in new mobile home park development.

New residential construction within the Lower Florida Keys has primarily occurred within the Velocity Zones as identified on the Federal Insurance Rate Maps (Table I). Velocity (or V) Zones
Table 1
Flood Zone Locations of Residential Construction within the Lower Florida Keys Before and After Adoption of National Flood Insurance Program Flood Zone Regulations

<table>
<thead>
<tr>
<th>Island</th>
<th>Pre-Regulation</th>
<th>Post-Regulation</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>V-Zone</td>
<td>A-Zone</td>
</tr>
<tr>
<td>Saddlebunch Keys</td>
<td>32 (71.1%)</td>
<td>13 (28.9%)</td>
</tr>
<tr>
<td>Sugarloaf Key</td>
<td>34 (18.6%)</td>
<td>149 (81.4%)</td>
</tr>
<tr>
<td>Cudjoe Key</td>
<td>68 (61.8%)</td>
<td>42 (38.2%)</td>
</tr>
<tr>
<td>Summerland Key</td>
<td>195 (89.0%)</td>
<td>24 (11.0%)</td>
</tr>
<tr>
<td>Ramrod Key</td>
<td>52 (64.2%)</td>
<td>29 (35.8%)</td>
</tr>
<tr>
<td>Little Torch Key</td>
<td>38 (39.6%)</td>
<td>58 (60.4%)</td>
</tr>
<tr>
<td>Big Pine Key</td>
<td>428 (70.6%)</td>
<td>178 (29.4%)</td>
</tr>
<tr>
<td>Total Lower Keys</td>
<td>1340</td>
<td>493</td>
</tr>
</tbody>
</table>

(63.2%) (36.8%) (71.5%) (28.5%)

Designate those areas that would not only experience flooding during the one-in-a-hundred-year storm, but would also experience damaging wave action because of their proximity to the coast. Areas which would experience flooding without wave action during the hundred-year storm are designated as A Zones. V Zones in the Lower Florida Keys could experience both flooding of ten to twelve feet and wave action during the regulatory 100-year storm. 63% of the houses built before the county adopted its flood zone ordinance, as required to enter the National Flood Insurance Program, were constructed in these Velocity Zones. Of the nearly 1300 houses constructed between the time that the flood zone ordinance took effect in early 1975 and field reconnaissance of the study area in mid-1984, 71.5% were constructed in these
SUMMERLAND KEY
RESIDENTIAL CONSTRUCTION

Figure 2
Velocity Zones. An examination of a map of residential construction on Summerland Key (Figure 2) shows the propensity of residents to construct their homes within Velocity Zones (covering most of the island), frequently along the open shore or beside finger-fill canals. The locations of new residential units vis-a-vis the shore and their homesite elevations do not significantly differ from the locations of the housing built before the county’s enactment of its flood zone ordinance. Almost all the new houses are being constructed in subdivisions that were already platted -- and in most cases occupied by scattered houses -- before the regulations took effect.

The flood zone elevation requirements, required by the flood ordinance as a condition for participating in the National Flood Insurance Program, have assured that over 90% of the new residential construction is built on elevated stilts, with the remaining new houses being built on fill (Table 2). However, the utility of this mitigation measure is often negated by the building of enclosed garages, recreation rooms, and even bedrooms within the space beneath the elevated houses. Indeed, 40% of the elevated houses built since the flood elevation requirements were established have at least half their lower levels enclosed. Also, 60.4% of the recent buyers of stilt houses indicated that the "possibility of enclosing [the] downstairs as a home addition" was a very important or important factor in their decision to purchase the stilt house. Likewise, 67% of the area realtors interviewed indicated that customers purchasing stilt houses usually mentioned the possibility of enclosing the downstairs as an addition. In fact, when asked to estimate how frequently their customers mentioned various factors, a greater proportion of the realtors indicated that the possibility of enclosure was usually mentioned than the better breezes, the view from the home, or flood protection that the stilt houses would provide. Although the county adopted a tough new
Table 2
Types of New Single Family Residences Constructed Within the Lower Florida Keys Between 1976 and 1984

<table>
<thead>
<tr>
<th>Island</th>
<th>Number of Ground Level Houses</th>
<th>Number of Stilt Houses</th>
<th>% of Stilt Houses with 50%+ Enclosure</th>
</tr>
</thead>
<tbody>
<tr>
<td>Saddlebunch Key</td>
<td>8</td>
<td>28</td>
<td>57.1%</td>
</tr>
<tr>
<td>Sugarloaf Key</td>
<td>12</td>
<td>152</td>
<td>39.5%</td>
</tr>
<tr>
<td>Cudjoe Key</td>
<td>30</td>
<td>161</td>
<td>47.2%</td>
</tr>
<tr>
<td>Summerland Key</td>
<td>2</td>
<td>141</td>
<td>58.9%</td>
</tr>
<tr>
<td>Ramrod Key</td>
<td>2</td>
<td>76</td>
<td>27.6%</td>
</tr>
<tr>
<td>Little Torch Key</td>
<td>1</td>
<td>93</td>
<td>36.6%</td>
</tr>
<tr>
<td>Big Pine Key</td>
<td>59</td>
<td>400</td>
<td>32.7%</td>
</tr>
<tr>
<td>Total Lower Keys</td>
<td>114</td>
<td>1051</td>
<td>40.1%</td>
</tr>
</tbody>
</table>

flood zone ordinance in late 1983, the enforcement of the previous ordinance was generally lax, particularly with respect to the use of breakaway walls and the granting of mobile home variances. Continued liberal granting of commercial and residential variances threatened to put Monroe County’s participation within the National Flood Insurance Program in jeopardy in late 1987. It is interesting that this problem is by no means confined to the Florida Keys. For example, ""[t]he processing of [flood insurance] claims of Hurricane Alicia [in Texas] uncovered a significantly large
number of policies which were misrated due to enclosure below the elevated first floor” (Madsen 1985, 157).

Coastal flood zone real estate remains in high demand a decade after the county entered the National Flood Insurance Program. According to records in the Monroe County Property Appraiser’s Office, prepared to assess property taxes for the 1974 and 1983 tax rolls, shoreline homesites had the highest assessed values both times. Homesites along the open shore as a group have increased in value slightly less than lots on canals or in the interior. Nevertheless, homesites within the Velocity Zones displayed greater increases in appraised values than did homesites within A Zones, where flooding without velocity could be expected (Table 3). The associations between the increase in the homesite values and the flood zones were significant, even when controlling for the homesite elevation and whether the homesite was on the shore, along a canal, or away from the coast.

| Table 3 |
| Changes in the Appraised Values of Residential Homesites and the Homesites Federal Insurance Rate Map Flood Zone Location |

<table>
<thead>
<tr>
<th>1982 Values as a % of their 1974 Values</th>
<th>V Zone (N=259)</th>
<th>A Zone (N=145)</th>
</tr>
</thead>
<tbody>
<tr>
<td>250% or less</td>
<td>30 (11.6%)</td>
<td>20 (13.8%)</td>
</tr>
<tr>
<td>251 to 350%</td>
<td>86 (33.2%)</td>
<td>67 (46.2%)</td>
</tr>
<tr>
<td>351 to 450%</td>
<td>88 (34.0%)</td>
<td>32 (22.1%)</td>
</tr>
<tr>
<td>More than 450%</td>
<td>5 (21.2%)</td>
<td>26 (17.9%)</td>
</tr>
</tbody>
</table>

χ² = 9.461, with 3 degrees of freedom, α = .024
(Percentages add to 100.0% across the columns.)
Stilt houses, built before they were virtually required by the flood elevation ordinance, generally appreciated more in value than the ground level houses (considering the dwelling appraisal separate from the land appraisal) (Table 4). Although the increase in appraised value of stilt houses (dwelling only) was unrelated to the homesite's flood zone, pre-flood regulation ground level houses within the FIRM Velocity Zones appreciated less in value as a whole than did those within the A-Zones (Table 5).

<p>| Table 4 |</p>
<table>
<thead>
<tr>
<th>Changes in the Appraised Values of Stilt and Ground Level Houses</th>
</tr>
</thead>
<tbody>
<tr>
<td>1982 Values as a % their 1974 Values</td>
</tr>
<tr>
<td>150% or less</td>
</tr>
<tr>
<td>151 to 200%</td>
</tr>
<tr>
<td>201 to 250%</td>
</tr>
<tr>
<td>More than 250%</td>
</tr>
</tbody>
</table>

χ² = 46.633, with 3 degrees of freedom, α = .000
(Percentages add to 100.0% across the columns.)

Nearly 150 members of the Key West and Marathon and Lower Keys Boards of Realtors responded to a mail survey, which included the question, "Do you think that the availability of flood insurance makes it easier to sell homes and property within the Florida Keys?" (Table 6). Overall, 61% of the realtors responded
Table 5
Changes in Assessed Values of Ground Level Houses (1974 to 1982) and the Homites Federal Insurance Rate Map Flood Zone Location

<table>
<thead>
<tr>
<th>1982 Values as a % of their 1974 Values</th>
<th>House in FIRM V Zone (N=153)</th>
<th>House in Firm A Zone (N=111)</th>
</tr>
</thead>
<tbody>
<tr>
<td>150% or less</td>
<td>28 (18.3%)</td>
<td>10 (9.0%)</td>
</tr>
<tr>
<td>151 to 200%</td>
<td>90 (58.8%)</td>
<td>59 (53.2%)</td>
</tr>
<tr>
<td>201 to 250%</td>
<td>21 (13.7%)</td>
<td>25 (22.5%)</td>
</tr>
<tr>
<td>More than 250%</td>
<td>14 (9.2%)</td>
<td>17 (15.3%)</td>
</tr>
</tbody>
</table>

$\chi^2 = 9.164$, with 3 degrees of freedom, $\alpha = .027$
(Percentages add to 100.0% across the columns.)

yes, 14% were uncertain, with only 25% of the realtors disagreeing. Although interviews with the realtors indicated that they were split on the question “Have you found that the availability of flood insurance makes your customers more likely to locate near the water or on low-lying property?,” with 40% responding affirmatively and 60% indicating not, they viewed flood insurance as positively influencing the sale of homes.

Homeowners also generally view flood insurance as having a positive influence upon the salability of their homes. Indeed, in response to the question, “Do you think that the availability of flood insurance will make your home easier to sell if you decided to move?,” nearly two-thirds of the post-1979 homebuyers responded affirmatively. The responses of both buyers of houses
Table 6
Flood Insurance as an Asset in Selling Real Estate: Opinions of Realtors in the Florida Keys

<table>
<thead>
<tr>
<th>Area of Keys where realtor sold homes:</th>
<th>&quot;Do you think that the availability of flood insurance makes it easier to sell homes and property within the Florida Keys?&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Key West (N=49)</td>
<td>Yes: 53.1%, No: 26.5%, Uncertain: 20.4%</td>
</tr>
<tr>
<td>Saddlebunch, Sugarloaf, and Summerland Key Area (N=28)</td>
<td>Yes: 35.7%, No: 46.4%, Uncertain: 17.9%</td>
</tr>
<tr>
<td>Ramrod, Little Torch, and Big Pine Key Area (N=26)</td>
<td>Yes: 53.8%, No: 42.3%, Uncertain: 3.8%</td>
</tr>
<tr>
<td>Marathon, Key Colony Beach, and Duck Key Area (N=54)</td>
<td>Yes: 68.5%, No: 22.2%, Uncertain: 9.3%</td>
</tr>
</tbody>
</table>

and mobile homes were virtually identical, with recent homebuyers expressing a slightly more positive response than the pre-regulation homeowners (those purchasing houses before 1975). With flood insurance viewed as an asset, most of the homebuyers felt that their flood zone location would not affect their ability to sell their homes nor its selling price.

Recent home buyers who expressed the greatest concern about the hurricane hazard were those who were most likely to believe that the availability of flood insurance would make their homes easier to sell (Table 7). Not only were the residents’ expectations of a damaging hurricane in the next decade and their hazard perceptions significantly related to their flood insurance attitudes, but residents
Table 7
Post-1979 House Buyers’ Evaluation of Hurricane Flood Hazard and Their Beliefs that Flood Insurance is an Asset in Home Sales

<table>
<thead>
<tr>
<th>Hurricane Waves and Flooding Considered:</th>
<th>Yes</th>
<th>No</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Major Problem (N=99)</td>
<td>72</td>
<td>17</td>
<td>10</td>
</tr>
<tr>
<td></td>
<td>(72.7%)</td>
<td>(17.2%)</td>
<td>(10.1%)</td>
</tr>
<tr>
<td>Somewhat a Problem (N=173)</td>
<td>114</td>
<td>27</td>
<td>32</td>
</tr>
<tr>
<td></td>
<td>(65.9%)</td>
<td>(15.6%)</td>
<td>(18.5%)</td>
</tr>
<tr>
<td>Minor Problem (N=100)</td>
<td>59</td>
<td>16</td>
<td>25</td>
</tr>
<tr>
<td></td>
<td>(59.0%)</td>
<td>(16.0%)</td>
<td>(25.0%)</td>
</tr>
<tr>
<td>Not a Problem at All (N=41)</td>
<td>19</td>
<td>15</td>
<td>7</td>
</tr>
<tr>
<td></td>
<td>(46.3%)</td>
<td>(36.6%)</td>
<td>(17.1%)</td>
</tr>
</tbody>
</table>

χ² = 18.488, with 6 degrees of freedom, α = .005
(Percentages add to 100.0% across the columns.)

who were more knowledgeable about their flood zone location were significantly more likely to view flood insurance as an asset in selling their property (Table 8). Likewise, recent home buyers who purchased flood insurance were significantly more likely to believe that the availability of this insurance would make it easier to sell their homes in the future (Table 9). Thus, for the residents who are most concerned about the hurricane flood hazard, the availability of flood insurance alleviates this concern, and indeed, may actually contribute to the popularity of the most vulnerable shorefront properties.
Table 8
Post-1979 House Buyers’ Belief that Flood Insurance is an Asset in Home Sales and Knowledge of their Homes’ Flood Zone Location

<table>
<thead>
<tr>
<th>Flood Zone Knowledge</th>
<th>&quot;Do you think that the availability of flood insurance will make your home easier to sell if you decided to move&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Yes</td>
</tr>
<tr>
<td>Aware Home in Flood Zone (N=216)</td>
<td>150 (69.4%)</td>
</tr>
<tr>
<td>Unaware or Uncertain Home in Flood Zone (N=160)</td>
<td>92 (57.5%)</td>
</tr>
</tbody>
</table>

χ² = 7.207, with 2 degrees of freedom, α = .027
(Percentages add to 100.0% across the columns.)

The vulnerability of the respondents’ homes was not clearly associated with their attitudes about flood insurance as an asset in selling. For example, differences between ground level house owners and stil house owners in their belief that flood insurance availability was an asset when selling their homes were only significant at the 0.10 level (Table 10). Among owners of houses, no significant relationship existed between their FIRM flood zone and the insurance attitudes, although 66.3% of the V Zone inhabitants viewed it as an asset compared with 58.7% of the A Zone residents. Proximity to the shore or canals and the homesite elevation were only weakly related to the insurance as an asset.
Table 9
Flood Insurance Coverage Among Post-1979 House Buyers and their Belief that Flood Insurance is an Asset in Home Sales

<table>
<thead>
<tr>
<th>Flood Insurance Coverage</th>
<th>Yes</th>
<th>No</th>
<th>Uncertain</th>
</tr>
</thead>
<tbody>
<tr>
<td>Home Insured (N = 313)</td>
<td>221 (70.6%)</td>
<td>46 (14.7%)</td>
<td>46 (14.7%)</td>
</tr>
<tr>
<td>Home Not Insured (N = 105)</td>
<td>43 (41.0%)</td>
<td>32 (30.5%)</td>
<td>30 (28.6%)</td>
</tr>
</tbody>
</table>

χ² = 29.764, with 2 degrees of freedom, α = .000 (Percentages add to 100.0% across the columns.)

attitudes. Nevertheless, 74.3% of the post-1979 home buyers whose homesites are by the shore felt that flood insurance availability would aid future home sales, while only 55.1% of the owners of inland homesites made such claims.

Conclusion

Flood insurance coverage has increased significantly within the Lower Florida Keys over the past decade. Although the mortgage requirement has not been completely effective, it has promoted a high degree of coverage, which is high even among home owners lacking mortgages. Nevertheless, the availability of flood
insurance may have contributed to the greater desirability of coastal flood zone homes and has been ineffective in slowing coastal development, particularly within the most vulnerable velocity zones. In fact, it is possible, but difficult to prove, that the availability of flood insurance, which protects both homeowner and mortgage lender against financial loss, has stimulated growth, although considerable housing development had occurred in the area even before flood insurance was available.

If Congress expands the Coastal Barrier Resources System, further study of the impact of the National Flood Insurance Program on coastal development should be undertaken. Will properties within the already partly developed neighborhoods, which would be excluded from the System, become subject to more intense development pressure? What will happen within those sparsely
developed areas in which flood insurance would become unavailable? Although Godschalk (1984) conducted a pilot study exploring some of these questions within Hutchinson Island along Florida’s Atlantic Coast, planners as well as geographers should find the impacts of this federal legislation upon coastal development a topic worthy of continuing research.

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Monroe County, Florida (1975) An Ordinance Regulating Development Within Flood Hazard Districts Within the County of Monroe, Florida. Ordinance No. 3-1975. Monroe Board of County Commissioners. Key West.


The Tri-County Commuter Rail System in Southeast Florida: A Ridership Survey and its Planning Implications

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Florida Atlantic University

Southeast Florida, comprised of Palm Beach, Broward and Dade Counties, is one of the fastest growing regions in the nation. Transportation has been a major planning issue in southeast Florida due to the region’s rapid growth. Costs associated with highway expansion projects to accommodate the ever-increasing traffic have skyrocketed. Ironically, expanded highway capacity only seems to attract more traffic and create greater congestion. Interstate 95 (I-95), the major north-south arterial in the region, has been carrying an excessive amount of traffic generated by the rapid growth of the region.

In 1983, the Florida Department of Transportation (FDOT) commissioned a study to determine whether a feasible public transportation system could be developed (FDOT, 1984). After a review of forty-four possible public transportation options, a decision was made in 1986 to develop a commuter rail system extending from the West Palm Beach Amtrak station to the Miami International Airport along the I-95 corridor (Figure 1).

Through an on-board survey of rail system riders, this study examines the trip origin/destination distribution patterns and the

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1 The author thanks Dannie Angeletti, Darrell Davis, Nancie Knobel and Roland Marcotte who helped collect and compile the data, and Kevin Edwards who helped create the graphics.
Figure 1

demographic and travel characteristics of the riders, as well as their perceptions of the rail system. The results of the survey indicate that: (1) there exists a significant contrast between the
origin and the destination distribution patterns; (2) both private automobiles and local transit systems are important access modes of the rail system; (3) demographic profiles of the commuter rail riders are different from the national norm of local transit users; (4) income is related to riders’ perceptions of the rail system; and (5) most rail riders are not “captive” riders and can easily shift back to the already congested highways. These results have significant implications for more effective planning of commuter rail systems.

Background of the Study

The Tri-County Commuter Rail (or Tri-Rail) system instituted service in January 1989, parallel with the schedule for the I-95 reconstruction project in the tri-county area in the hope that it could serve a “maintenance-of-traffic” function and mitigate traffic congestion on I-95. Since the start of the Tri-Rail service, it has encountered a variety of problems, including the scheduling of the trains, the controversial location of a station within the “clear zone” of the Fort Lauderdale/Hollywood International Airport, the lack of linkage with Dade County’s Metrorail system, delays in opening some rail stations, and, most important, ridership levels.

In its original estimate, FDOT expected a total of 14,192 passengers to use Tri-Rail service per day (Broward County Office of Planning, 1987). The actual ridership had been stagnant at about 3,000 passengers per day until the institution of midday service in January 1990, raising the ridership level to about 4,000
passengers per day\textsuperscript{2}. Part of the reason for the difference between the two figures is due to some over optimistic assumptions made in the FDOT estimation models. Examples of these assumptions include a high level of bus feeder service, unlimited free parking at all stations, 30-35 minute headways during peak hours, and the opening of all stations\textsuperscript{3}.

This kind of optimistic forecasting is not uncommon in the history of public transit due to the need to obtain legislative support to secure funds for starting a new transit system. For example, during the planning stage of the Miami rapid transit system, the ridership level estimated from the models was 100,000 passengers per day for the first segment of the system. However, the daily ridership was only about 9,500 when that segment opened in 1984 (Fielding, 1986). The San Francisco Bay Area Rapid Transit (BART) system had a similar experience. In 1974, two years into its operation, the BART system only attracted about 50\% of its originally estimated ridership level. Even by 1984, twelve years into its operation, the ridership level was still 17\% below the initial forecast (Fielding, 1986).

During the 1970s, some advocates of public transit considered it a panacea to all kinds of transportation-related problems. For example, Altshuler, Womack, and Pucher (1979) stated:

"Whether one's concern was the economic vitality of cities, protecting the environment, stopping

\textsuperscript{2} Tri-Rail carried about 5,000 passengers per day by March 1990.

\textsuperscript{3} At the time of this survey, only 12 of the 15 planned stations were open. The unopened stations were Boynton Beach, Cypress Creek and Fort Lauderdale Airport.
highways, energy conservation, assisting the elderly and handicapped and poor, or simply getting other people off the road so as to be able to drive faster. Transit was a policy that could be embraced." (p. 36)

The history of public transit, however, has never been as successful as it was projected. This is due to the difficulty involved in changing travel behaviors in the face of continued urban sprawl. Nevertheless, a carefully planned public transit system "could fill a more narrowly defined role quite successfully." (Hanson, 1986, 20)

According to the national transit data (APTA, 1989), commuter rail systems experienced a growth of 24.2% in total passenger trips while buses had an increase of 13.4% between 1975 and 1988. During fiscal year 1988, the total passenger trips, in millions, carried by commuter rail systems in different U.S. cities were: New York (204.6), Chicago (69.9), Philadelphia (25.4), Boston (16.7), San Francisco (5.6), Washington, D.C. (2.1), Los Angeles (0.3), and Pittsburgh (0.2). The wide range of ridership levels is a reflection of the commuter patterns, population size, number of commuter rail routes, service levels of commuter rail and supporting transit systems, and other differences among these cities.

Southeast Florida’s Tri-Rail system will undergo its first major review after its third year of operation. The purpose of this review is to determine if it should continue its service after its fifth year of operation. According to the Florida Legislature, Tri-Rail must increase its ridership level to 9,300 riders per day to achieve the goal of paying forty percent of its operating costs (Tri-County Commuter Rail Authority, 1990). Otherwise, the State could
discontinue the service.

The Tri-Rail system offers a potential alternative to handling the constantly growing travel demand in this region. But, its effectiveness depends on careful planning. The objective of the study is to identify the profile of existing Tri-Rail riders in terms of the spatial distribution patterns of their trip origins and destinations, their demographic and travel characteristics, and their perceptions of the rail system. The results are expected to provide some information about the users of the system, what attracted them to the system, and their trip patterns. These results can be used as the basis for designing detailed studies aimed at improving the effectiveness of the Tri-Rail system.

**Methodology**

A survey was conducted on board Tri-Rail in March 1989. The survey covered two trains in both the north and southbound directions during the morning and afternoon service hours. Questionnaires were distributed to everyone in the rail cars and were collected as riders exited. A total of 170 questionnaires were completed although some respondents did not answer all the questions.

The questions on the survey can be categorized into four groups. The first group obtains information on riders’ attitudes toward the performance of the train, its feeder bus connections, and two other alternative travel modes (i.e., automobile and car/van pool). The second group obtains information on the trip and locational characteristics of the respondents. The third group collects

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4 Tri-Rail ran only during the AM and PM peak hours at the time of this survey.
information on each respondent’s age, gender and annual income. The last group of questions deals with the potential impact on highway traffic if Tri-Rail is discontinued.

Given the somewhat small sample size of the survey, it is important to discuss its ability to represent the entire Tri-Rail rider population. The survey followed the concepts of a clustered random sampling design (Clark and Hosking, 1986). That is, certain trains were first selected for the survey; then, samples were drawn from all riders in the selected cars of these trains. This sampling technique is often used when the available resources, such as time and money, for a survey are limited. Although this sampling technique meets the basic requirements of a random sample, it rarely generates a strict random sample, especially with a small sample size. For example, the spatial distribution patterns presented by the results of this survey may be biased, to a degree, due to the unequal numbers of valid responses from the northbound versus the southbound riders. Thus the results should be taken as indicative of general patterns.

Survey Results

(1) Trip Origins and Destinations.

Commuter rail systems have fixed routes and few, widely-spaced stations. They rely heavily on other travel modes to transport riders between rail stations and the trip origins and destinations. It is therefore important to identify the spatial distribution patterns of trip origins and destinations of commuter rail riders. In this study, these distribution patterns are identified by the zip codes of the respondents’ residence locations (i.e., trip origins) and their primary trip destinations.
The survey indicates that a significant contrast exists between the origin distribution pattern and the destination distribution pattern of the Tri-Rail riders. The trip origins show a dispersed distribution with more zip code zones reported in Palm Beach and Broward counties (Figure 2). On the other hand, the trip destinations are concentrated in fewer zip code zones located mainly in Broward and Dade counties (Figure 3).

The difference between the origin and the destination distribution patterns can be explained by other data collected from the survey. First, "work" was the trip purpose for about 78% of the respondents. This certainly results in a concentration of trip destinations in areas of major employment and activity centers. Secondly, Tri-Rail riders have the flexibility to select the most convenient travel mode to get to the rail stations where they board the train. They are, however, severely constrained in choosing a travel mode to get from the exit stations to their final destinations. This results in a situation in which Tri-Rail can attract its riders from a variety of areas, but can distribute them only to limited areas. The data supporting this argument will be discussed in detail in the next section.

When the data are examined by the boarding and the exit stations of home-to-destination trips, it further reveals the north-to-south commuting pattern in this region. This pattern is shown by the heavy concentration of trips in the lower-triangle of the origin-destination tables (Tables 1 & 2). Table 1 also shows that about 45% of the respondents traveled no more than three stations between their boarding and exit stations. Such a high proportion of shorter trips of the Tri-Rail system was probably due to the free
Figure 2
RIDERSHIP FREQUENCY PER DESTINATION ZIP CODE

Palm Beach
Broward
Dade

0
1-2
3-4
5-6
7+

115 TOTAL RESPONDENTS

Figure 3
Tri-Rail rides at the time of this survey\(^3\). However, no origin-destination data of Tri-Rail riders has been published since initiation of a fare in April 1989. A comparative study is therefore not possible now.

<table>
<thead>
<tr>
<th>Origin</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
<th>7</th>
<th>8</th>
<th>9</th>
<th>10</th>
<th>11</th>
<th>12</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td></td>
<td></td>
<td></td>
<td>0.7</td>
<td>0.7</td>
<td>2.9</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>4.3</td>
</tr>
<tr>
<td>2</td>
<td></td>
<td></td>
<td></td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.5</td>
<td>2.2</td>
<td></td>
<td></td>
</tr>
<tr>
<td>3</td>
<td></td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>0.7</td>
<td></td>
</tr>
<tr>
<td>4</td>
<td>3.6</td>
<td>2.9</td>
<td>6.8</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>1.5</td>
<td>14.5</td>
<td></td>
<td></td>
</tr>
<tr>
<td>5</td>
<td>6.0</td>
<td>8.0</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>17.4</td>
<td></td>
<td></td>
</tr>
<tr>
<td>6</td>
<td>2.9</td>
<td>1.5</td>
<td>2.7</td>
<td>3.8</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.7</td>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>7</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>5.1</td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td>11.7</td>
<td></td>
<td></td>
</tr>
<tr>
<td>8</td>
<td>0.7</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>1.5</td>
<td>0.7</td>
<td>0.7</td>
<td>3.6</td>
<td></td>
<td></td>
</tr>
<tr>
<td>9</td>
<td>1.5</td>
<td>6.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>15.2</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>10</td>
<td>6.5</td>
<td>1.5</td>
<td>2.9</td>
<td>1.5</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>1.4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>11</td>
<td></td>
<td>0.7</td>
<td>0.7</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>10.8</td>
<td></td>
<td></td>
</tr>
<tr>
<td>12</td>
<td>0.7</td>
<td>2.9</td>
<td>2.2</td>
<td>0.7</td>
<td>2.9</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>0.7</td>
<td>3.6</td>
<td>100.0</td>
</tr>
</tbody>
</table>

| Total  | 24.6 | 20.5 | 10.9 | 4.3 | 28.2 | 4.3 | 1.4 | 1.4 | 0.7 | 0.7 | 0.7 | 0.7 | 0.7 |

**Stations**

1: Miami Airport  
2: Metrorail  
3: Golden Glades  
4: Hollywood  
5: Ft. Lauderdale Airport  
6: Pompano  
7: Deerfield Beach  
8: Boca Raton  
9: Delray Beach  
10: Lake Worth  
11: Palm Beach Airport  
12: West Palm Beach

---

\(^3\) Tri-rail was free January-March 1989. Half-fare ($1.00 each way) was charged in April and May 1989. Starting June 1989, full fare ($2.00 each way) was charged.
Table 2: Origin-Destination Table by County (N=138)

<table>
<thead>
<tr>
<th>O</th>
<th>Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>R</td>
<td>Dade</td>
</tr>
<tr>
<td>I</td>
<td>Dade</td>
</tr>
<tr>
<td>G</td>
<td>Broward</td>
</tr>
<tr>
<td>I</td>
<td>Palm Beach</td>
</tr>
<tr>
<td>N</td>
<td>Total</td>
</tr>
</tbody>
</table>

(2) Access and Egress Modes.

“Park and ride” was identified by 79% of the respondents as their dominant travel mode between their residences and rail stations. Another 9% were dropped off at the stations by someone else (“kiss and ride” (Table 3). To get from the stations to their final destinations, 41% used the Tri-Rail feeder buses, and another 16% used the regular transit buses. In addition, 10% of the respondents walked from exit stations to their final destinations (Table 3).

Thus Tri-Rail riders rely on their automobiles to get to the rail stations from their residences. They are, however, heavily dependent on public transit to transport them from the rail stations to their final destinations. This indicates the importance of local transit connections for the success of the Tri-Rail system. Without an adequate means of transporting riders from rail stations to destinations, increases in ridership will be difficult to attain.

With regard to the travel time spent at each end of a trip, the survey showed that people are willing to tolerate longer travel time
### Table 3

Travel Modes: Home and Destination Ends of Tri-Rail Trips

<table>
<thead>
<tr>
<th>Home-to-Station Travel Mode</th>
<th>Percentage</th>
<th>Station-to-Destination Travel Mode</th>
<th>Percentage</th>
</tr>
</thead>
<tbody>
<tr>
<td>Park &amp; Ride</td>
<td>78.8%</td>
<td>Feeder Bus</td>
<td>41.0%</td>
</tr>
<tr>
<td>Drop-off</td>
<td>8.6%</td>
<td>Transit Bus</td>
<td>15.5%</td>
</tr>
<tr>
<td>Walk</td>
<td>4.6%</td>
<td>Walk</td>
<td>9.9%</td>
</tr>
<tr>
<td>Feeder Bus</td>
<td>7.9%</td>
<td>Pick-up</td>
<td>8.1%</td>
</tr>
<tr>
<td>Transit Bus</td>
<td>0.0%</td>
<td>Other</td>
<td>25.5%</td>
</tr>
<tr>
<td>Other</td>
<td>0.1%</td>
<td>Total</td>
<td>100.0%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>Total</td>
<td>100.0%</td>
</tr>
</tbody>
</table>

### Table 4

Travel Times at the Home and Destination Ends of Tri-Rail Trips

<table>
<thead>
<tr>
<th>Travel Time</th>
<th>Home-to-Station</th>
<th>Station-to-Destination</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than 5 minutes</td>
<td>15.2%</td>
<td>12.5%</td>
</tr>
<tr>
<td>5 - 10 minutes</td>
<td>34.5%</td>
<td>19.4%</td>
</tr>
<tr>
<td>11 - 15 minutes</td>
<td>23.0%</td>
<td>25.6%</td>
</tr>
<tr>
<td>16 - 20 minutes</td>
<td>15.8%</td>
<td>21.9%</td>
</tr>
<tr>
<td>More than 20 minutes</td>
<td>11.5%</td>
<td>20.6%</td>
</tr>
<tr>
<td>Total</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
at the destination end than at the home end (Table 4). This is probably self-evident since most respondents use buses from the rail stations to their destinations. However, it also indicates that 20-25 minutes bus connection time at the destination end is acceptable to more than one fifth of Tri-Rail riders. This number could be used to define the potential bus service areas around each rail station.

(3) Demographic Data.

There is a general belief that many transit riders come from low-income households. For example, the U.S. Department of Transportation (1984) stated that about 40% of local transit trips were made by people from households with less than $10,000 annual incomes. The same source also indicated that almost 62% of the transit riders were female. However, the income and gender data collected from the Tri-Rail survey showed quite different results. Only 13% of those on Tri-Rail earn less than $15,000 a year, and about 31% have annual incomes higher than $35,000 (Table 5). Also, the gender split among the respondents is 51% male and 49% female.

These results indicate that Tri-Rail riders have different profiles from the national norm of local transit users. Several factors may be responsible for these differences. First, commuter rail systems are primarily line-haul operations over longer distances and rely on private automobiles and other transit systems as access modes. For low-income people, many of whom do not always have access to automobiles and tend to find jobs closer to their residences, a commuter rail system is not a viable alternative. Second, because Tri-Rail is mainly for work trips during the AM and the PM peak hours, it significantly reduces the possibility of its use for shopping and social trips for which female passengers are a larger
percentage. Third, while most transit systems in this nation are CBD-oriented, Tri-Rail is not. Given that a good percentage of the downtown labor force is female and most low-income people live near downtown areas, Tri-Rail is not designed for these two population groups.

In terms of the age distribution, Tri-Rail has more riders between the ages of 25 and 55 and fewer riders below the age of 25 than the national transit data (Table 6). The figures show that Tri-Rail does not attract many school-age riders. These results further indicate that Tri-Rail has a different ridership profile from other transit systems.

<table>
<thead>
<tr>
<th>Income Group</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Less than $15,000</td>
<td>12.6%</td>
</tr>
<tr>
<td>$15,000 - $25,000</td>
<td>30.0%</td>
</tr>
<tr>
<td>$25,001 - $35,000</td>
<td>26.6%</td>
</tr>
<tr>
<td>$35,001 - $50,000</td>
<td>20.3%</td>
</tr>
<tr>
<td>More than $50,000</td>
<td>10.5%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>100.0%</strong></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Age Group</th>
<th>Tri-Rail</th>
<th>National</th>
</tr>
</thead>
<tbody>
<tr>
<td>Under 18</td>
<td>0.6%</td>
<td>15.2%</td>
</tr>
<tr>
<td>18 - 24</td>
<td>11.3%</td>
<td>20.3%</td>
</tr>
<tr>
<td>25 - 55</td>
<td>65.5%</td>
<td>43.2%</td>
</tr>
<tr>
<td>Over 55</td>
<td>22.5%</td>
<td>21.3%</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
</tbody>
</table>
(4) Perceptions of Tri-Rail and Alternative Modes.

Based on the discussions above, it is clear that most Tri-Rail users are not "captive" riders, since about 79% parked their cars at the boarding stations and rode the trains. In addition, about 50% of the respondents use Tri-Rail daily, and another 20% use it three to four times a week. The figures show that riders decided to use Tri-Rail because it was considered preferable to other travel modes for their trips.

About 76% of the respondents rated the overall performance of Tri-Rail as satisfactory or very satisfactory. The overall performance was then broken down into five dimensions: convenience, comfort, travel time, travel cost, and reliability. Each respondent was asked to use these five dimensions to rate each of the four travel modes considered on the survey, which are Tri-Rail only, Tri-Rail and feeder bus, automobile, and car/van pool.

Cross comparisons of these ratings indicate that Tri-Rail was rated higher than automobiles for comfort, travel time and travel cost; while automobiles were rated higher for convenience and reliability. Evidently, Tri-Rail riders traded a more convenient and reliable travel mode for a more comfortable, faster and less expensive travel mode. The feeder bus and Tri-Rail service, combined were rated higher than automobiles only on the dimensions of travel time and cost. This is another indication of the different characteristics of the combined train and bus service. Similar cross comparisons indicate that car/van pool is considered far inferior to the Tri-Rail or Tri-Rail/feeder bus alternatives. This may be a discouraging fact for transit agencies trying to

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6 Tri-Rail was available only on weekdays at the time of this survey.
promote the car/van pool option in this region.

To examine the relationship between income and satisfaction levels with Tri-Rail, the data have been crosstabulated by income group. The ratings of the convenience of Tri-Rail shifted from very satisfactory, to satisfactory to fair as income rises. This suggests that riders with higher incomes may need higher flexibility with their mode of travel. In addition, the middle income group ($25,000 to $35,000) appears to be the most critical group among the five income groups. It had the highest percentages of negative ratings on all the five dimensions of Tri-Rail performance.

(5) Impact of Tri-Rail on the Highway Systems.

Automobile availability has always been considered a deterrent to transit use. For Tri-Rail, however, about 70% of the respondents reported that they “always” have access to an automobile and another 10% “usually” do. This indicates that most Tri-Rail users are not “captive” riders. Also, given the earlier finding that most Tri-Rail riders park their cars at the rail stations and ride the trains, the availability of automobiles actually works as a positive factor for the Tri-Rail. Without readily-available access to an automobile, many existing Tri-Rail riders might not be able to use the service.

On the other hand, this also means that most Tri-Rail users can easily shift back to automobiles if the Tri-Rail service is discontinued or if they are not satisfied with the service. Seventy-nine percent of the respondents indicate that they would drive alone if Tri-Rail were not available. Another 5% would be auto passengers. In terms of the major highways they would use, I-95 is their first choice (81%), followed by the Florida Turnpike (12%).
Summary

Historically, public transit systems in this nation have shown mixed levels of success. Efforts have continued to be made to use public transit systems to, at least partially, alleviate the continuously worsening traffic congestion problems. Implementation of the Tri-County Commuter Rail (or Tri-Rail) system in southeast Florida is a recent example.

One common problem found with most public transit systems is that ridership levels are often significantly lower than the original estimates. Travel is a "derived" demand. It is a means to fulfill the needs of other activities. Therefore, a public transit system must be planned carefully based on a good understanding of the characteristics of its target population. The Tri-Rail system is different from most other commuter rail systems in this nation in certain aspects. For example, commuter rail systems in New York, Chicago, and Philadelphia all have radial, suburb-to-CBD type of route structures. The service area of Tri-Rail stretches in a long, narrow corridor and does not have a clear suburb versus CBD contrast. Tri-Rail thus has a shorter average trip length than other commuter rail systems. This characteristic makes it more difficult to compete with private automobiles. In addition, given that Tri-Rail is not a CBD-oriented system, it has to provide reasonable connecting services at most of its stations rather than rely on a good transit system in the CBD.

This study examined the ridership profile of the Tri-Rail system using an on-board questionnaire. The survey results provide useful information on travel patterns, demographic characteristics and perceptions of alternative modes. The information can be used for designing other studies to define the system's target groups, to adjust bus service, and to reevaluate the ridership estimate.
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Tri-County Commuter Rail Authority (1990) Tri-County Commuter Rail Authority Strategic Plan. Final report prepared by Gibbs and Hills, Inc. (Fort Lauderdale, FL).

Socioeconomic Ranks of Cubans and Other Hispanics in Florida

Thomas D. Boswell
University of Miami

Recent immigration from the Caribbean and Latin America has played a major role in shaping the current population characteristics of Florida and especially of Dade County. The 1959 Cuban Revolution had an obvious impact, resulting in the spectacular changes that have occurred in the ethnic composition of South Florida's population over the past 25 years.

As recently as 1950, the Latin American component of Florida's population was only of minimal significance, except in Key West and Tampa where small colonies of Cuban exiles had established several cigar factories. In that year, persons of Latin American birth constituted only about .5% of the state's total population and just under 2% of the city of Miami's residents. In fact, in 1950 New York contained 45% of the United States' population of Cuban birth and Florida ranked second with only about 27% (U.S. Bureau of the Census, 1952 and 1954, pp. 7 and 71).

By 1960, the demographic situation was beginning to change rapidly. The first wave of the Cuban exodus was under way. Puerto Ricans and other former Caribbean island residents were also discovering the attractions of Florida, as were some Mexican migrants who had arrived in the state originally as itinerant workers in agriculture. As a result, a little over 3% of the state's population had been born somewhere south of the United States. Dade County was beginning to emerge as the epicenter of activity for these new migration streams. Still, only about 7% of Dade's population was of Latin American origin in 1960 (U.S. Bureau of the Census, 1963, 303).
Although the flow from Cuba would alternatingly ebb and flow according to the dictates of the Castro government in Cuba, the general trend over the next twenty years would be upward. By 1980, Hispanics accounted for approximately 9% of the state's total population. In Dade County, the corresponding figure was close to 36%. At that time, persons of Cuban origin represented 55% of Hispanics in Florida. In Dade, Cubans constituted approximately 70% of its Latin American-origin population (U.S. Bureau of the Census, 1981, pp. 48 and 66). By 1989, approximately 861,000 Hispanics resided in the county, accounting for almost 47% of its total population.\(^1\)

At least three important characteristics of the Latin American immigration flow to Florida should be emphasized. First, the recency of this migration means that many are still adjusting to the cultural characteristics of their new homeland. Second, these new immigrants have not been evenly dispersed throughout the state. In 1980, about 68% of the state's Hispanics resided in Dade County. When Cubans are considered alone, they are even more concentrated, with about 87% in Dade. This high degree of concentration makes Hispanics even more visible than they would be if they were evenly distributed throughout the state. Third, it is important to understand that the movement from Latin America is not simply a single stream from Cuba. Instead, there are many streams from almost all the countries located in Latin America and the Caribbean.

This paper focuses on the socioeconomic characteristics of Hispanics in Florida as enumerated in the 1980 Census of

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\(^1\) The estimates of Hispanics living in Dade County for 1989 were obtained from Oliver Kerr (Director of Research, Metropolitan Dade County Planning Department) during a phone conversation on September 5, 1989.
Population. Florida was selected as the study site because in 1980 it contained about 58% of U.S. Cubans (U.S. Bureau of the Census, 1982, 13).

The principal source of information will be the "1980 Public-Use Microdata Sample A (PUMS)" computer tape for Florida (U.S. Bureau of the Census, 1983a). These data were derived from a 5% sample of the state's entire population on April 1, 1980. Because of this date, information is not provided for the Mariel-Cuban entrants, who began arriving from Cuba on April 21, 1980. It also does not include the approximately 170,000 Nicaraguans currently in Dade County, most of whom also arrived after the 1980 Census. Data for the socioeconomic characteristics of Hispanics derived from the forthcoming 1990 Census probably will not become available for analysis until either late 1992 or 1993. As evidence of this, the PUMS data used in this study were not available until 1983. In any event, the present study should be regarded as providing a baseline for an update study when the 1990 Census are available.

This analysis of Florida's Hispanics will be divided into two sections. In the first, Florida will be considered as a whole. The state's residents of Cuban descent (470,250) in 1980 will be compared to those of Mexican (79,393), Puerto Rican (94,775), and "Other Spanish" origin (213,741), as well as to non-Hispanics. These comparisons will provide an understanding of the demographic context of Florida's Cubans. In the second section, Florida's Cuban population will be classified according to five areas of residence within the state to determine if any regional differences exist in their socioeconomic characteristics.
Florida’s cubans vs. other hispanic populations

One question on the 1980 Census of Population inquired whether individuals considered themselves to be of Spanish or Hispanic origin or descent. All individuals were thus classified as: (1) not of Spanish or Hispanic descent, (2) Mexican or Mexican-American, (3) Puerto Rican, (4) Cuban, or (5) Other Spanish or Hispanic. The class of “Other Spanish” is a residual category, including all persons indicating they were of Hispanic descent, but did not trace their origins to Cuba, Mexico, or Puerto Rico. Note that a person considered to be of Spanish descent may not have been foreign born. Thus, persons born in Cuba, plus all subsequent generations of their American-born progeny are considered as Cuban-Americans, as long as they consider themselves as such.²

This paper compares the socioeconomic characteristics of the four Hispanic populations and non-Hispanics in Florida. Specifically, the following four sets of variables are examined: (1) ability to speak English, (2) occupational structure, (3) educational attainment, and (4) income. Following this discussion, a system is devised to rank the five populations in terms of their respective socioeconomic characteristics.

²There are a small number of persons born in Cuba, but of American or other foreign parents, who do not consider themselves to be of Cuban descent. These individuals are not considered in this report as being Cuban-Americans. Instead, they are included in one of the other four categories (based on their own preferences).
ABILITY TO SPEAK ENGLISH
By Hispanic Type in Florida: 1980

![Bar chart showing percentages of Hispanics in Florida by their ability to speak English. The categories are Non-Hispanics, Mexicans, Puerto Ricans, Cubans, and Other Spanish, with bars indicating Very Well, Well, Not Well, Not At All.]

Source: U.S. Census, PUMS, 1980

Figure 1

Ability to speak English

One indicator of the degree of acculturation of an ethnic group whose mother tongue is not English, is its ability to converse in English (Portes, Clark, and Bach, 1977, pp. 1-32 and Portes, Clark, and Lopez, 1982, pp. 1982). Obviously, ability to speak English provides opportunities for jobs that do not exist for Hispanics who speak only Spanish. Clearly, Cubans have the greatest problem with English, since approximately 40% do not speak English "not well" or "not at all." (Figure 1). Comparable percentages are notably lower for Mexicans (31%), Puerto Ricans (20%), and the Other Spanish (27%). Two factors
account for this disadvantageous characteristic of Cubans. First, more than 80% of Cubans are immigrants from a Spanish-speaking country; whereas the comparable proportion of foreign-born is much lower for the other three Hispanic groups. Second, most Cubans have arrived recently in the United States, almost all since 1959.³

OCCUPATIONAL CLASSES
By Hispanic Type in Florida: 1980

![Occupational Classes Chart]

Source: U.S. Census, PUMS, 1980

Figure 2

³Only 10.5% of Cubans born in Cuba arrived in the United States before 1960. Almost 60% arrived after 1965. Also, recall that these figures omit the 125,000 Cubans who arrived from Mariel in 1980 before the 1980 U.S. Census.
**Occupational characteristics**

Among Hispanics, Mexicans and Cubans represent opposite ends of the occupational spectrum (Figure 2). Mexicans have by far the largest share (almost 75%) of their labor force employed in the blue collar and farming category, primarily because close to one-third of Mexican-Americans employed in Florida in 1980 were in agriculture. Cubans and the "Other Spanish" had very similar occupational structures with almost 20% employed in professional jobs, and "only" about 50% in blue collar and farming jobs. In fact, less than 2% of Cubans were working in agriculture in 1980. Still, it is relevant to note that both Cubans and "Other Spanish" ranked considerably below that of non-Hispanics. The significance of this latter point is that it is evidence that it is a mistake to view Cuban-Americans as composed mainly of golden exiles from Cuba's former elite classes (Boswell and Curtis, 1984, Chapter 3 and 4).

**Educational attainment**

Three tendencies may be seen in the comparison of population groups with respect to educational attainment (Figures 3 and 4). First, Mexicans clearly are the most disadvantaged. Second, Puerto Ricans, Cubans, and Other Spanish display very similar educational attainment levels. Third, the latter three Hispanic groups are also very similar to the state's non-Hispanics.

Figure 3 also reveals that: (1) when compared to non-Hispanics, Cubans have a much higher proportion over age 25 that received an eighth grade education or less (37% vs. 15%), but (2) the percentage that attended some college was only slightly lower for Cubans (29% vs. 33%). In fact, a slightly larger proportion of
Figure 3.

these Cubans attended four or more years of college (8% vs. 7%). Perez (1984, 9) explains this educational polarization as follows:

On the one hand, the traditional socioeconomic selectivity of the migration from socialist Cuba, combined with the high proportion of young Cubans who have attended and are attending universities in this country (the United States), has produced a fairly high proportion of college graduates. On the other hand, a population with a high proportion of elderly persons (especially if they are migrants from a developing country) can be expected to have many
persons who did not attend school beyond the elementary grades.

**HIGHEST GRADE ATTENDED**

*By Hispanic Type in Florida: 1980*

![Graph showing highest grade attended by Hispanic type in Florida: 1980.](image)

*Source: U.S. Census, PUMS, 1980*

**Figure 4**

**Income patterns**

Because income is most often used as an indicator of economic status, Figures 5 and 6 view income from two perspectives: (1) individual income; and, (2) family income levels with respect to the poverty threshold established by the U.S. Bureau of the Census for 1980. Interestingly, Figure 5 indicates that the “Other Spanish” not only have the highest median income when compared
Figure 5

to the other three Hispanic groups, but also have a level slightly above that of Florida's non-Hispanics. Mexicans, on the other hand, have by far the lowest median income level; whereas Puerto Ricans and Cubans have almost identical levels between those of the Mexicans and "Other Spanish."

The family income levels relative to the poverty cutoff displayed in Figure 6 show that, among Hispanics, Cubans rank the highest. In fact, Cubans exhibit a level almost identical with that of non-Hispanics. Both Cubans and non-Hispanics had about 13% of their families with incomes below the poverty cutoff in 1980. Again, Mexicans had the lowest average level, with 38% below this minimum standard. The reason Cubans rank higher in terms
FAMILY POVERTY STATUS
By Hispanic Type in Florida: 1980

Figure 6

of family income, than they do when individual income is considered, is because a larger share of Cuban families has two or more wage earners. This primarily reflects a higher labor force participation rate for Cuban women.

Socioeconomic status of Hispanics for Florida

Methodology

An attempt has been made to estimate the socioeconomic status of the five population components referenced above. Five of the above variables have been selected that are thought to be reasonable indicators of socioeconomic status (Table 1). Each
population component is provided a status score for each of the five variables. These scores are derived by dividing each population’s raw variable value by the lowest value for that variable among the five populations. For example, the socioeconomic score for median highest grade attended for non-Hispanics was calculated by dividing its average highest grade attended value (12.1 years) by the lowest value (9.2 years), which happened to be for Mexicans. The resulting value is 1.32 (Table 1), which means that non-Hispanics had an average highest grade attended rate that was 32% higher that of the Mexicans, who had the lowest value among the five populations. Thus, the higher the socioeconomic score the higher the status. The composite SES scores are derived by adding the five variable scores for each of the populations and dividing the result by five (the number of components). Thus, the composite scores provide summary measures for each population considering all five variables simultaneously.

Discussion of the results

The composite SES scores indicate that non-Hispanics clearly have the highest rank in Florida (Table 1). The “Other Spanish” rank the highest among the Hispanics, with Cubans in second place, only barely ahead of the state’s Puerto Ricans. Mexicans are clearly ranked last in terms of their composite SES score.

An earlier study of Hispanics in the United States in 1970 (Jaffe, Cullen, and Boswell, 1980, pp. 245-278) and another for 1980 (Boswell and Rivero, 1987, pp. 49-51) examined a similar set of socioeconomic score rankings, except that the status of the Cubans was much higher than that of Puerto Ricans. In fact, in these two studies, Puerto Ricans were found to be more similar to Mexicans.
Table 1
Socioeconomic Scores for Selected Variables for Hispanic Groups in Florida, 1980

<table>
<thead>
<tr>
<th>Ethnic Type</th>
<th>Scores for Variables</th>
<th></th>
<th></th>
<th></th>
<th></th>
<th>Composite SES Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td></td>
</tr>
<tr>
<td>Non-Hispanic</td>
<td>1.32</td>
<td>1.50</td>
<td>2.59</td>
<td>1.50</td>
<td>2.01</td>
<td>1.78</td>
</tr>
<tr>
<td>Mexican</td>
<td>1.00</td>
<td>1.14</td>
<td>1.00</td>
<td>1.00</td>
<td>1.00</td>
<td>1.03</td>
</tr>
<tr>
<td>Puerto Rican</td>
<td>1.27</td>
<td>1.33</td>
<td>1.61</td>
<td>1.32</td>
<td>1.47</td>
<td>1.40</td>
</tr>
<tr>
<td>Cuban</td>
<td>1.27</td>
<td>1.00</td>
<td>1.98</td>
<td>1.32</td>
<td>2.01</td>
<td>1.52</td>
</tr>
<tr>
<td>Other Spanish</td>
<td>1.30</td>
<td>1.20</td>
<td>2.21</td>
<td>1.51</td>
<td>1.78</td>
<td>1.60</td>
</tr>
</tbody>
</table>


1 - Median Highest Grade Attended for Persons 25 Years of Age or Older
2 - Percent Able to Speak English Very Well or Well
3 - Percent Employed in Professional Occupations
4 - Median Individual Income
5 - Median Family Income Relative to the Poverty Cutoff

*Composite SES Score = Sum of the Individual SES Scores Divided by Five

@See text for an explanation of how these scores are calculated.

Note: The higher the composite SES score the higher the status.
than to Cubans. It is my hypothesis that the reason for the
difference (shown above) between the status levels of Cubans,
when compared to Mexicans and Puerto Ricans, is related to the
retarding effect of geographic concentration on the socioeconomic
characteristics of ethnic groups. For instance, it has been noted
elsewhere that Puerto Ricans in New York tend to have lower
socioeconomic status than those throughout most of the rest of the
United States (Jaffe, Cullen, and Boswell, 1980, pp. 228-240).
Similarly, Cuban-Americans outside Florida and New Jersey
generally have higher achievement levels than those within these
two states (Boswell and Curtis, 1984, pp. 108-111 and Boswell,
Diaz, and Perez, 1982, pp. 29-41). Thus, Puerto Ricans in
Florida have higher status than the average for all Puerto Ricans
on the U.S. mainland. Conversely, Florida Cubans have
somewhat lower status (when collectively considered) than the
average for all Cuban-Americans. Because of this, the
socioeconomic gap between Cubans and Puerto Ricans is much
narrower in Florida than for the nation as a whole.

Socioeconomic ranks for cubans by areas in florida

Because there is an interdependent effect, it is impossible to
determine the exact nature of the cause and effect relationships
between "degree of settlement concentration" and "level of
socioeconomic status." For instance, many older and poorer
Cubans prefer to live in Miami's Little Havana and in Hialeah
because of the cultural support systems in these areas. This tends
to depress the average standard of living (in economic terms) of
these two areas. On the other hand, it is probably equally true that
ethnic concentration slows the rate of both economic and social
assimilation because it is possible for an individual to restrict his
or her activities to the Cuban microcosms of these neighborhoods.
Since it is not possible to determine the precise direction of the relationship between spatial concentration and socioeconomic status of Florida's Cubans, only the degree of locational association is examined. For this purpose, the state has been divided into five regions (Figure 7). The Miami-Hialeah area and Pinellas and Hillsborough counties (containing the cities of St. Petersburg and Tampa, respectively) represent areas of concentrated settlement, with the former representing a much larger concentration than the latter (Figures 8 and 9). Cubans are much more widely dispersed in the remainder of Dade County and in Monroe County, although collectively this region contains a large percentage of the state's Hispanics. Even greater dispersion exists for the Cubans in

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4Miami and Hialeah are combined into one area because the main concentrations of Cubans in these areas are quite similar. A study conducted by the Latin Affairs Office for Dade County has noted this similarity (Levitan, 1980, pp. 51-55).

5Pinellas and Hillsborough counties are combined because their central cities are often regarded as economically and socially integrated. Cubans in these counties exhibit concentrated settlement in a few areas, like Ibor City. The data from the five percent PUMS sample clearly illustrate this. For instance, the county group that corresponds with the central city of Tampa contained 53.3% of the area's Cubans, while the other county group providing for the rest of Hillsborough County included 37.6%. Thus, almost 91% of the area's Cubans resided in Hillsborough. Also, by combining Cubans in Pinellas and Hillsborough counties, a larger sample size, providing greater reliability, for statistical analysis was achieved.

6The rest of Dade County and all of Monroe county are combined because of the manner in which the county groups for South Florida were delineated by the Census Bureau in the PUMS sample. Since it was not possible to separate part of southern Dade from Monroe County, I decided to include all of Monroe with Dade as one region.
Broward and Palm Beach counties' and the "Rest of the State."

The hypothesis is that the socioeconomic scores for Cubans will be the lowest for those in the Miami-Hialeah area and next lowest for those in Pinellas and Hillsborough counties. The highest rank, conversely, should occur for the Cubans in the "Rest of the State," with intermediate SES scores prevailing in the two regions of "Remainder of Dade and Monroe Counties" and "Broward and Palm Beach counties." The same five variables that were used above to examine the composite SES scores for the Hispanic components for the state are used here and the methodology employed is the same.

The results displayed in Table 2 corroborate the hypothesized relationship between concentration and socioeconomic status. Cubans in the "Rest of Florida" region clearly have the highest status. Miami-Hialeah ranks at the bottom and the Pinellas and Hillsborough counties region ranks next to last. The "Rest of the Dade County and Monroe County" area and the "Broward and Palm Beach counties" region occupy intermediate ranks that also fit the hypothesized pattern, with their composite SES scores being virtually identical. Therefore, it does appear reasonable to generalize that Cubans in more concentrated areas have lower socioeconomic status than those in more dispersed areas.

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The Broward and Palm Beach counties are combined because their Cuban populations appear similar, and yet somewhat different from the Cuban population in Dade and Monroe counties. On the other hand, both Broward and Palm Beach are close to Miami, so considerable economic and social interaction exists among the counties. Some consider Broward and Palm Beach counties to be the more distant suburbs of the Miami metropolitan area.
DISTRIBUTIONS OF HISPANICS IN FLORIDA BY AREAS 1980

PERCENTAGES OF HISPANICS IN FLORIDA BY AREAS 1980

Table 2

Socioeconomic Scores for Selected Variables
for Areas for Florida's Cubans, 1980

<table>
<thead>
<tr>
<th>Region</th>
<th>Scores for Variables</th>
<th>Composite SES Score</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>1</td>
<td>2</td>
</tr>
<tr>
<td>Miami/Hialeah</td>
<td>1.00</td>
<td>1.00</td>
</tr>
<tr>
<td>Remainder of Dade &amp; Monroe County</td>
<td>1.22</td>
<td>1.38</td>
</tr>
<tr>
<td>Broward &amp; Palm Beach Counties</td>
<td>1.21</td>
<td>1.45</td>
</tr>
<tr>
<td>Pinellas &amp; Hillsborough Counties</td>
<td>1.18</td>
<td>1.40</td>
</tr>
<tr>
<td>Rest of Florida</td>
<td>1.24</td>
<td>1.60</td>
</tr>
</tbody>
</table>

Source and Notes: See Table 1.

Conclusions

This study has two significant findings. First, it is clear in Florida (as well as in the rest of the United States) that all Hispanics are not alike. Except for the fact that most speak Spanish, practice Catholicism, and are from countries that were influenced by historical ties with Spain, there is little demographically that the various Hispanic nationality components all have in common.

This paper has shown that there are clear distinctions in the socioeconomic characteristics of Mexicans, Puerto Ricans, Cubans, and “Other Spanish” in Florida. Despite the fact that several studies (Jaffe, Cullen, and Boswell, 1980; Davis, Haub, and
Willette; 1983, and Diaz, 1984) have noted similar nationality distinctions for the United States, some studies still persist in speaking collectively about Hispanics, as though they are a single ethnic group (U.S. Bureau of the Census, 1983b). Clearly, Cubans in Florida exhibit a collective socioeconomic status lower than that of non-Hispanics, but higher than that of the state's Mexican-Americans. Florida’s Cuban residents are similar, in socioeconomic rank, to the state’s Puerto Rican and “Other Spanish” populations. It has been noted that studies of Hispanics at the national scale have found Cubans to exhibit considerably higher socioeconomic status than Puerto Ricans. The difference between the findings in those studies and this study are attributed to the fact that Florida is an area of concentration for Cuban-Americans, but not for U.S. mainland Puerto Ricans, who are more concentrated in the New York metropolitan area.

A second significant finding is that not all Cubans are alike, even within Florida. For instance, those in Miami-Hialeah are not nearly as well off as those in the Rest of Dade County and Monroe County or those in Broward and Palm Beach counties. Another study has found that similar differences occur when Cubans are compared on a state scale for the entire United States (Boswell and Curtis, 1984, 108-112). Again, as with the Hispanic population components on a state scale, there appears to be an inverse association between “degree of spatial concentration” of Cubans and their “socioeconomic ranks” by regions within Florida, although the direction and precise cause and effect connection of this relationship is impossible to determine with the census data used in this investigation.
References cited


A Report

Status of Geography in Florida, 1989

Harry J. Schaleman, Jr.
State Representative for Florida, SEDAAG
University of South Florida, St. Petersburg Campus

As the nation’s fourth most populous state, Florida leads the Southeast in student enrollment and in number of post-secondary academic institutions. It also serves as home to many agencies and organizations, both private and public, that employ professional geographers engaging in activities associated with the geography discipline. Consequently, an attempt was made to survey this broad base via questionnaire, as well as personal contact where possible, to assess the status of geography throughout the State. The overall assessment is both encouraging and frustrating. Geography awareness and visibility has been greatly enhanced during the past year at all levels. Though hampered by traditional budgetary and challenges from other disciplines, geography has advanced considerably, and the future is most promising.

All Florida’s nine state universities, an equal number of private colleges and universities, and 28 community colleges were mailed a questionnaire in early October. Those failing to respond were mailed a follow-up questionnaire three weeks later. The response was most gratifying. (See Appendix.) Eight of 9 (89%) state universities, 5 of 9 (56%) private colleges and universities, and 20 of 28 (71%) community colleges responded. Realizing that geography programs and/or courses are not offered in all surveyed institutions, the author was pleased with the results. Because the survey was designed primarily for academic institutions, input from private and public employers of geographers was obtained via a sampling of telephone calls and/or personal contact. Consequently, this report is a composite of the above, plus the author’s own observations and opinions.

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When asked to summarize the collective view of geography faculty at each institution about the "state of geography" in Florida, the comments reflected mixed feelings. At the university level, most faculty sensed substantial improvement and were impressed with recent developments, especially regarding the K—12 geography program. Both the National Geographic Society and the Florida Geographic Alliance were cited for their contributions. It was also recognized as a year in which "the geography field, its utility and applications are being appreciated more than any time in the recent past."

However, at the community college level, almost unanimous sentiment exists among the respondents that geography is woefully inadequate at virtually every level. Most feel that their students are poorly prepared in the field of geography and that the schools and teachers are responsible for this plight. As one instructor reported, "K—12 teachers and college students alike need more training in this area. Many students do not have the foggiest notion where well-known places are. One of my students thought the capital of New Mexico was Mexico City." Criticism centers on the fact that current pedagogical thinking emphasizes relevance, generalization, and utility, and views memorization, discipline, and mastery of facts as old-fashioned and out of step with the computer age. Hence, the community college instructors decry the students' complete ignorance and lack of basic information. Another instructor states that his students are so poorly prepared that "it is very difficult to teach them history, religion, or any of our social disciplines because of their poor knowledge of geography." Several faculty favor making a basic geography course mandatory for all majors as a requirement for the AA degree.
Most private and public employers of geographers appear satisfied with the training and academic background of their employees. They are more interested in mastery of the tools of geography, such as cartography, computers, GIS, etc. than breadth and depth of the traditional discipline itself. A comment shared with the author by a firm employing many geographers was that, "we will train them for our specific needs if they have some basic familiarity with the tools."

The Florida Geographic Alliance has done much to foster improved visibility of geography in Florida. Comprised of 28 professionals, the Alliance conducts workshops and institutes, and serves as consultant throughout the State to the city and county school systems. During the past year, the Florida Geographic Alliance has held about 40 county, one-day workshops (6 hours), 10 county two-week workshops (60 hours), numerous shorter presentations (1—4 hours); and an intensive 20-hour workshop for 40 teachers in conjunction with the annual meeting of the Florida Council for the Social Studies. In addition, several other geography workshops were conducted at the county level through the Teacher Education Center (TEC) program associated with the State universities. The Florida Geographic Alliance in cooperation with Florida Kiwanis Clubs and the National Geographic Society have instituted a plan to supply local schools with badly needed maps and globes through a Kiwanis Club "adopt a school" plan.

Florida Commissioner of Education, Betty Castor has selected a group of 20 educators for three-year appointments to a State commission to evaluate and improve the role of Social Studies in the K—12 curriculum. This Florida Commission on Social Studies Education includes one geography professor (myself) to insure that

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1See the following report on the Florida Geographic Alliance by Ed Fernald.
geography is a strong component in the new curriculum. Already, it appears that geography will play a formidable role at each grade level in the Social Studies curriculum with a year-long geography course proposed at both the sixth and seventh grade levels. At each of these grades the subject will be identified as Geography, not Social Studies. The new curriculum if approved by the State Commissioner of Education will do much to strengthen the role of geography throughout the state school system and better prepare students for advanced study as well as for life itself. It is an exciting breakthrough for the geography discipline.

Geography at Florida's universities is healthy and expanding, as faculty are added and additional positions are advertised. Five of the nine state universities have hired new geography faculty during the past year: including two positions at the University of Florida and one each at Florida State University, Florida Atlantic University, Florida International University, and the University of South Florida. Dr. Robert Aangeenbrug, former Executive Director of the AAG, left his post in Washington, D.C., to assume the Chairmanship at the University of South Florida. Among those recruiting faculty currently for two positions each, according to the AAG Newsletter, are the University of Miami, the University of Florida, and the University of South Florida.

Enrollment in geography programs is increasing along with the expanding and rebuilding of departments according to the reporting universities. The State's largest undergraduate program in number of students (4,041), courses (65), and faculty (13 full-time, 1 part-time) is the University of Florida. Florida State University ranks second in all the above categories (2,000), (50), and (8 full-time, 2 part-time). In order, the leaders in number of students, courses, faculty, and majors among the private colleges reporting are the University of Miami, Stetson University, Jacksonville University,
and the University of Tampa. In number of undergraduate geography majors, however, the University of South Florida leads with 135, supported by six full-time faculty and four part-time. Remarkably, this figure represents almost half the undergraduate geography majors in the state university system (290). At the graduate level, the University of Florida leads in all categories with 155 graduate students, 42 courses, with 20 masters and 7 doctoral candidates.

Of the 20 community colleges reporting, only 16 included geography courses in their curricula. As a group, these two year colleges, with 9 full-time and 15 part-time faculty, taught 55 courses and reached nearly 2,000 students. The four year colleges and universities with 48 full-time and 14 part-time faculty taught 277 undergraduate courses and had an approximate student enrollment of 12,124. The State had an offering of 115 graduate courses and served some 363 graduate students. Much is still to be done to reach, activate, and support the 57 full-time and 29 part-time faculty at Florida’s colleges and universities as well as the 290 undergraduate majors, nearly 100 graduate majors, and scores of undergraduate minors.

Enrollments are strong and student interest is high. National Geography Awareness Week has helped to give increased visibility to the discipline. Numerous international, national, and local surveys continue to focus on America’s geographic illiteracy. This combination coupled with a dedicated core of professional geographers working with teachers and students and supported and encouraged by the Florida Geographic Alliance, Florida Society of Geographers, Florida Department of Education, National Geographic Society, and other interested persons and organizations are helping to advance the role of geography at all levels. The status of geography in Florida is appreciably improved over
previous years. A mild revival or renaissance is in progress with renewed interest at the elementary, middle, and secondary levels. More resources are needed to meet this challenge.

Today is a good time to think geography. Florida is a good place to do the thinking. As the State continues to expand in population, the need for geographers and their expertise has never been more apparent. More research is necessary to cope with Florida's problems of water resources, zoning requirements, pollution, waste management, conservation, transportation, historic preservation, tourism, population pressure, economic growth, demographic changes, etc. The applied geographer and the geography educator are key colleagues working for the future of Florida. As Florida geographers host the 1991 annual meeting of the Association of American Geographers in Miami, the spotlight will be focused on our discipline, our state, and our Florida Society of Geographers. The challenge for national visibility has never been greater.

Appendix: Florida Institutions Responding to the 1989 SEDAAG Department Questionnaire

State Universities (8 of 9)

University of Florida
Florida State University
University of South Florida
University of Central Florida
University of North Florida
Florida Atlantic University
Florida International University
Florida A & M University
Private Colleges and Universities (5 of 9)

Stetson University
University of Miami
Jacksonville University
University of Tampa
Florida Southern College

Community and Junior Colleges (20 of 28)

Palm Beach Community College
Manatee Community College
Polk Community College
Central Florida Community College
Miami-Dade Community College -- North Campus
Miami-Dade Community College -- South Campus
North Florida Junior College
Florida Community College
Palm Beach Atlantic College
South Florida Community College
Santa Fe Community College
Florida Keys Community College
Broward Community College
Chipola Junior College
Brevard Community College
Lake Sumter Community College
Hillsborough Community College
Lake City Community College
Daytona Beach Community College
St. Petersburg Junior College
Florida Geographic Alliance: A Report to the Florida Society of Geographers

Ed Fernald
State Geographer
Coordinator, Florida Geographic Alliance
Florida State University

The Florida Geographic Alliance has been established as a cooperative effort of the Florida Department of Education, the Florida State University and the National Geographic Society. Its function is to increase the volume of geography instruction in Florida’s schools, help to improve what is taught, and to develop research and materials to assist in geographic instruction. Through donated time, many other universities, community colleges and county school districts have contributed significantly to the Alliance. For the first several years, the Alliance Board of Directors has included representatives from Florida’s public school classrooms, county supervisors, Department of Education representatives, and Florida Society of Geographers members from community colleges, private, and public universities throughout the state. The Alliance sent 11 public school teachers to Washington to participate in summer institutes over the past two summers. These teachers have also been added to the Alliance Board of Directors. During the fall of 1990, the number of people on the Board of Directors will be reduced significantly and a much smaller executive board appointed. Ron Cold, Social Studies Coordinator for Dade County, Dr. Bruce Bradford of Stetson University, and Linda O’Brien of the Orange County School System have been working to build efficiency into the Alliance administration. Whatever the outcome, the Florida Geographic Society will be strongly represented in the Alliance administration.
The year 1989-90 has been a very active one for the Alliance. Florida's education commissioner Betty Castor has distributed a memorandum to district school superintendents, including the following statement, "I challenge all of you to join me in achieving the goal of 100% of our middle grades students participating in learning identifiable and effective geography instruction." To do this, many hours have been spent in workshops and institutes preparing teachers, who have very little geography in their background, to teach geography. We have helped local school districts both on curriculum and the development of teaching materials.

The Alliance, as well as the Society, has welcomed Dr. Bob Aangeenbrug (former Executive Director of the Association of American Geographers) to Florida and he has already worked hard on the behalf of the Alliance. We appreciate his efforts.

The Florida Alliance held an intensive 20-hour workshop for 40 teachers in the 2½ days prior to the Florida Council for the Social Studies meeting in October 1989. According to the teachers' evaluations, this workshop was very successful. This workshop would not have been a success without the tremendous donation of time and energy by several society members, including Bruce Bradford, Peter Muller, Tom Boswell, Ron Schultz, Ed Malecki, and Bob Aangeenbrug. The Florida Council for the Social Studies has requested that we hold this workshop again next year at their yearly meeting in Ft. Myers and plans are underway for that event. FSG members are encouraged to attend and present papers at the Florida Council for the Social Studies meeting in Ft. Myers October 18-20. Another geographic education meeting at which FSG members might present papers is the NCGE meeting at Williamsburg, Virginia, November 7-10.
The big news now is the development of a 3-week workshop for 30 teachers at Florida State University this summer. Teachers are being chosen who will then go back to their local county districts and hold workshops to develop further the skills of classroom teachers. Again, FSG members are participating in this event. It is also my pleasure to announce that several counties, including Escambia and Volusia, have specifically instituted new geography requirements at the middle school level beginning in the Fall of 1990.

The Coordinator has distributed to other state coordinators an idea paper entitled, “Enhancing Geographic Education,” which has been published by the Florida State Department of Education as a technical paper. That paper is available from the State Department of Education or from your coordinator. Good news, especially for the coordinator, is the step taken by the Alliance to fund a graduate student to aid the coordinator with the paperwork and other materials that flow through the office on geographic education. The graduate student will be Laurie Molina, teacher from Armwood High School in Tampa, Florida. Laurie will work 20 hours a week, 12 months a year for two years. At the end of this period, she should have completed, or be close to completion, of a Ph.D. in Social Studies Education with an emphasis in geographic education. The coordinator’s office will fund at least half that assistantship from the Florida State University budget.

Finally, the maps, globes, and atlas project with the Florida Kiwanis Clubs has been a success. It is difficult to measure the extent of the success because it is difficult to get either the Kiwanis Clubs or the schools to report donations. Recall that, the idea was adopted by the Florida Kiwanis to have each Florida Kiwanis Club adopt a school to which they would commit $500-$1,000 a year for 5 to 10 years for the purchase of maps, globes and atlases. All
FSG members are encouraged to contact their local schools and their local Kiwanis Clubs to participate in this program, if not this year, then next. Kiwanis Clubs often are happy to have volunteers give talks on the value of geography or the use of maps, globes, and atlases in classrooms and other related topics.

I hope this accounting of projects has been useful to you. The Alliance would encourage FSG members to become involved in any or all the programs mentioned above because, in fact, you all are a member of the Florida Alliance because you are interested in geographic education.
THE FLORIDA GEOGRAPHER

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 once a year, usually in February. At this meeting, papers are presented and matters of mutual concern are discussed. Meetings move geographically to 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.