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Professors study economic impact of research parks

By BRIAN LONG Assistant Business Editor

The UNC Department of City and Regional Planning is conducting a two-year national study to measure the impact that research communities such as Research Triangle Park have on their local economies.

Harvey Goldstein and Michael Luger, associate professors of city and regional planning, are studying six research parks of different size, location and institutional links to determine their effects on local economic growth. The study, which began in February, examines factors such as location and accessibility that make research parks economic assets.

"A number of people were writing anecdotal and journalistic accounts of the success of areas like Research Triangle Park and other research parks in the United States," Goldstein said.

The writers stressed how the parks benefited local economies, but "we felt there was more to it than that," Goldstein said.

Goldstein said the study's purpose is to see how big of a factor parks are in a region's economic growth. The study also addresses the issues of who benefits from the parks and who pays for them.

The study originally focused on the Research Triangle Park, but the Research Triangle Foundation, RTP's governing body, would not pay for the project, he said. Goldstein and his colleagues in the city and regional planning department then decided to con-

duct their research on a national level.

The Ford Foundation contributed \$96,000 to the project. "(The Ford Foundation is) particularly interested in the extent to which low income people, minorities and women have benefited (from research parks)," Goldstein said.

"The principal difficulty in assessing the impact (of parks) . . . is you cannot observe what (the economy) would've been like without the park," he said. Goldstein and Luger are using collected data for statistical analysis to project what the economies of the studied areas would have been like without research parks.

They also are conducting interviews with education leaders, officials and business leaders in the six areas to question them about the parks' economic impact, he added.

The primary factors that Goldstein and Luger are investigating are the economic structure of the region where a research park is located, the park's proximity to a university, the relationship between the park and local governments and the relationship between businesses within a park and other local businesses surrounding the park.

Results of the project should be available in fall 1988, a few months ahead of schedule, Goldstein said. He also plans to conduct future studies on research communities in Western Europe and Japan, and compare those case studies with the U.S. results.

Burnout behind her, Gillespie having fun

Sports

By BRENDAN MATHEWS

After more than 10 years of competitive field hockey, Betsy Gillespie felt burned out.

"Field hockey had been such a major part of my life. I had spent so much of my free time practicing and so many holidays away playing that it finally all caught up with me," she says. "There were games last year when I felt like I was just putting on a uniform and going out there to do a job."

UNC head coach Karen Shelton agrees.

"Betsy wasn't playing up to her potential last year," Shelton says. "Maybe it was burnout, but what I saw last season was Betsy thinking too much. She's a very cerebral player and sometimes thinking too much in a game would cause her to hesitate and get beat."

Shelton also believes that Gillespie's shift from forward, which she played as a freshman, to left midfielder may have caused her to struggle during her sophomore and junior years.

Whatever the reason, Gillespie's solution was to get away from it all. She spent last semester in France, going seven months without picking up a hockey stick.

Although she says that she didn't miss playing while she was gone, Gillespie came into the 1987 season with an idea of what she wanted to accomplish.

"My goal," she says, "was to go back and challenge myself for my potential."

So far, that challenge has yielded extraordinary results. Gillespie currently leads the ACC with 10 goals. twice as many as her closest competitor.

"I came out hungry this season," Gillespie says. "I was really psyched in practice."

According to Shelton, the change is apparent both on and off the field. "Betsy has done a great job this year," Shelton says. "She's been a boost to the others with her attitude and she's really hustling in practice.

"She's more relaxed than she's ever been. I think she realizes that this is her senior year and that it's the end of competitive hockey for her at this level. She's going out there playing hard and enjoying herself."

Gillespie began playing field hockey in the fourth grade when her family moved to Holland. After six years there, Gillespie's father, who is in the foreign service, took a job in Washington. Gillespie attended Chevy Chase (Md.) High School and continued to play field hockey.

Her exposure to the sport in Holland provided her with an advantage. "I was ahead of everyone else my age because field hockey is much bigger in Europe than it is here," she says .

She quickly advanced to higher levels of competition, spending her summers at Olympic development camps.

"I was there before my age," Gillespie says. "I was playing against people who were in college, but staying competitive."

Her talent and dedication led to an appearance in the 1985 National Sports Festival in Baton Rouge, La., and to her selection to the under-21 U.S. National Team in the same year.

Gillespie's decision to attend UNC over Stanford was based on the school's reputation and her friendship with Shelton, whom she knew from the summer camps. "I haven't given up anything academically by coming here and my parents love to come down and watch me play."

Being a four-year starter marks Gillespie as a team leader. "She is most definitely in a leadership position," Shelton says. "Betsy plays in a very visible part of the field and so she carries a lot of responsibility." Gillespie shares this responsibility

with others on the team. "Lori (Bruney), Ellen (Bakken) and I are friends on and off the field. We really work together as a trio," she says. "Over the years we've gained respect and the younger players look to us for help because we're older and more experienced."

Both Gillespie and Shelton admit that winning the NCAA tournament in November is a team goal. Last year the Tar Heels finished third in the tournament and were ranked first in the final polls. North Carolina is currently at the top of the national rankings with a 5-0 record.

Gillespie claims that the ranking puts no pressure on the team. "Being No. 1 gives us the incentive to maintain that position," she says.

To stay where they are the Tar Heels practice up to 21/2 hours every night. Gillespie stresses the value of

this hard work. "We don't want (the NCAA's) to be a cheap win. We've done a lot of hard work and it hurts now but it's what pulls you through in the end," she says. "We want to give that to the freshmen, that attitude that you really have to put in the time."

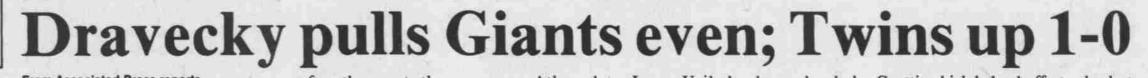
Shelton echoes Gillespie's belief. "Our chances of winning the NCAA's are very good if we play to our capabilities. The players realize that if we don't play well we can be beaten."

The Tar Heels have the elements that go into making a strong team. Gillespie points to the way the offense and defense compliment each other, combining to outscore their opponents 22-3 this season. "We're scoring a lot this year. The corners are really coming together and hitting the high percentage shots," she said. "Also the defense is very strong. We really rely on the people playing the backfield."

Gillespie sees the Tar Heels' strongest competition coming from Connecticut and New Hampshire, which beat UNC in last year's Final Four. "The polls say that our biggest competitor will be West Chester (Pa.), but I think it will be one of the big Northeastern schools."

While she is cautious about hanging all her hopes on winning the NCAA's, Gillespie admits that it would be a perfect ending to an already spectacular season.

"We want to win it all for ourselves, but we also want to do it for Karen. She's been such an instigating factor to our success."



From Associated Press reports

and Jeffrey Leonard homered Wednesday as the San Francisco Giants turned on the power and shut off the St. Louis Cardinals 5-0, evening the National League baseball playoffs at one victory apiece.

for the next three games. Atlee let Jose Uribe's bases-loaded Gaetti, which helped offset solo shots with either Danny Cox, who missed the opener with a stiff neck, or Joe Magrane going for St. Louis. The Giants, who outhomered St. Louis 205-94 during the regular season, seized control on Clark's tworun homer in the second against John Tudor. Clark almost lost the home run when he came within a stride of passing Candy Maldonado on the bases.

ST. LOUIS - Dave Dravecky Hammaker is scheduled to pitch for grounder go through his legs with two by Detroit's Mike Heath and Kirk pitched a two-hitter and Will Clark the Giants in Game 3 Friday night outs in the eighth. The two-run error Gibson. put the game out of reach. The Giants again throttled St. Louis' speed with a brilliant pitchout. Tony Pena was at first with no outs in the third and Tudor batting in a sacrifice situation. But Dravecky pitched out on an 0-1 count with Pena running, and catcher Bob Melvin caught him stealing. San Francisco led the major leagues in throwing out would-be base stealers, and its only pitchout Tuesday night in a 5-3 loss caught Vince Coleman. The Cardinals, the fastest team in baseball, stole 248 bases this season but are 0-for-2 against the Giants. In the opener of the American League playoffs in Minnesota, the Twins used a four-run eighth to knock off the vaunted Detroit Tigers, 8-5.

Starter Doyle Alexander, who lasted into the eighth, took the loss for Detroit, while Jeff Reardon picked up the win in relief. Reardon came on to replace starter Frank Viola in the top of the eighth after Viola walked Gibson and gave up a double to MVP candidate Alan Trammell.

37 players return to work; NFL union still confident

didn't recess.

From Associated Press reports

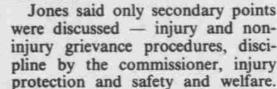
Thirty-seven more players crossed NFL picket lines Wednesday in time to pick up this week's paycheck and prepare for this weekend's games.

The defections brought to 129 the total number of players who have returned to their teams. The union says 1,585 players are under its iurisdiction.

Meanwhile, union chief Gene Upshaw and management negotiator Jack Donlan met for a second straight day in the Washington area. While both sides agreed there was little chance for a quick settlement, union official Doug Allen said Upshaw was "encouraged, and progress has been made."

Both sides, however, disagreed on what went on at the latest session.

Management Council spokesman John Jones said the meeting lasted for five hours, recessed and would resume Thursday. But Allen, the union's assistant executive director, said the talks lasted for six hours and



points. As for a quick settlement, Allen said, "There is a practical limit as to how quickly this thing can be done, but I think progress can be made in a matter of days."

None is among the major bargaining

The biggest rift in union ranks came in Redwood City, Calif., where 12 San Francisco 49ers crossed, including quarterback Joe Montana.

The union, meanwhile, noted that it was holding the line in most cases.

"We're disappointed, but not surprised by the number of 49ers who reported," Allen said. "Other than that, though, only a few trickled in. We've still got around 1,500 on the picket line and right now we're not focusing on the scabs but on our strength.

"We heard rumors of three to seven entire teams defecting, and that didn't

Dravecky did not allow a runner past second base and did not give up a hit after Tommy Herr's single in the fourth. Jim Lindeman singled in the second for the Cardinals' other hit.

Dravecky managed to avoid trouble despite leadoff walks in four innings. Those were his only walks and he struck out six.

This best-of-seven series, which has been billed as a power-versus-speed matchup; moved to Candlestick Park

Leonard homered to straightaway center field opening the fourth for the second straight day. Leonard, with a \$50,000 bonus clause in his contract for being the Most Valuable Player in the playoffs, also had two singles and is 5-for-8 in the series.

Gold Glove shortstop Ozzie Smith

17

13

13

275

230

212

Yds.

121

304

392

363

282

256

205

166

148

284

90

TYPING

Scoreboard

ACC Footba	II Lea	Wilson, UVa. Starr, UNC	67 56	
Rushi	ng	Crite, NCSU	36	
Player	Att.	Yds.		
McFadden, Clem. 62 433		Receiving		
Young, Wake	80	386	Player	Cgt.
Morgan, UVa.	69	367	Lowery, Md.	21
Allen, Clem.	69	325	Proehl, Wake	18
McGill, Wake	49	206	Marriott, UNC	22
Lowery, Md.	77	258	Ford, UVa.	16
Monk, Duke	74	298	Mattioli, UVa.	18
Boone, Duke	59	285	Green, Duke	18
Crumpler, NCSU	50	283	Abdur-Ra'oof	14
		_	King, GT	14

The Twins benefitted from two home runs by third baseman Gary

Reardon then yielded consecutive sacrifice flies to Dave Bergman and Chet Lemon, giving the Tigers a 5-4 lead.

In the bottom of the inning, though, the Twins struck back. Round-faced Kirby Puckett doubled in Dan Gladden, and after Gaetti walked to load the bases, Don Baylor singled to left to give Minnesota a 6-5 lead. Tom Brunansky then delivered a two-run double, putting the cap on the victory and giving the Twins the 1-0 lead in the playoffs.

AC	С	Foo	tball	Standings
	-	Contract of the local diversion of		

Team	Conference	Overall
Clemson	1-0	4-0
Wake Forest	1-0	4-0
North Carolina	1-0	3-2
N.C. State	2-1	2-3
Maryland	1-1	2-2
Virginia	1-1	3-2
Duke	0-1	3-2
Georgia Tech	0-3	1-3



Classified Info

Boone, Duke

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FOUND: A watch on Franklin Street. Call PROFESSIONAL TYPIST will handle all 933-7033 to claim it. your typing needs - from small manu

FOUND: Terri Krieger's driver's license on Airport Road on Mon. 9/28. Please call 929-3864

of keys, has 'Shadowood' or 'Maine' key

diagonal from Dey to Steele. House, car,

GERALDINE STAFFORD lost her PASS-

PORT on 10/2 and will pay \$\$\$ for its

LOST: Jean Jacket with key on Mickey

Mouse chain in breast pocket from stage

during 'Awareness' concert Friday. Please

LOST : In Undergrad Library diamond/

emerald ring. Sentimental value. Reward. Call 933-3167. Katherine.

WITTENAUR GOLD WATCH LOST

between Franklin St. and Old East! If

LOST: Three keys on wooden ring - "I

love my funny-looking Border Collie".

Flavia 1--286-0302 or David 962-2277.

LOST: Mazuno baseball glove with fur

lining. Left at Tincan Thur. (10/1) between

8:00 and 9:00 pm during floor hockey

LAURA HAYWOOD! I found your Credit

Durham to tell me where to send it.

and security. Check APO.

return! Please call 933-8872.

call Cathy at 933-4630.

found, call Scott at 933-6024.

Sentimental value!

game. 929-5244 (Reward).

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LOST SOMETHING ???? look for it

LOST: A gold wire ring - very unusua

looking. Last seen Friday night in the

Sigma Chi bathroom downstairs. Reward.

FOUND: Men's Seiko Watch found at

Auburn Game, Call 933-4414, ask for Jeff.

Please call 929-1365.

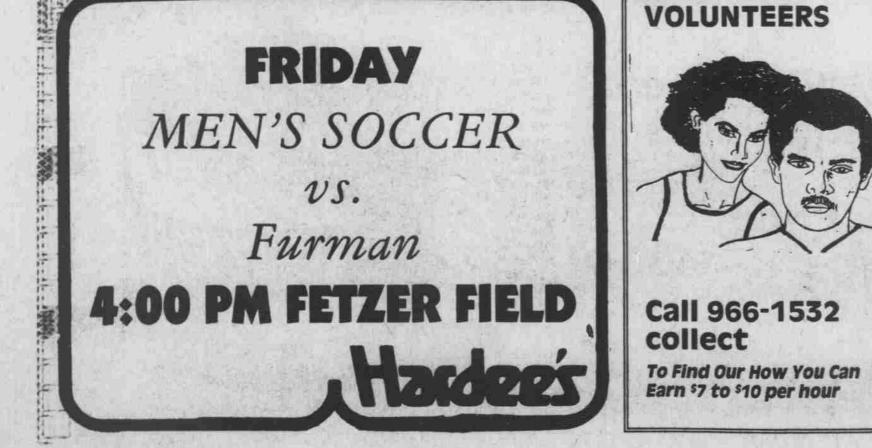
you pinhead.





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and found

lass ring of Timothy W Sparks. Call 933-6134.

chains. If found call anytime!!! 933-8160. You'll be rewarded in the hereafter for your kindness. FOUND: Keys next to path and lamp

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