

Hurricane Andrew 20 Years Later

Are we better prepared panel

FIU Metropolitan Center

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Overview

- Quick review of economic environment in summer 1992.
- Macroeconomic impacts of Hurricane Andrew in Miami-Dade and Broward counties.
- Macroeconomic modeling of major environmental events.
- Impact simulation with the South Florida REMI model.

The Economy in 1991-92

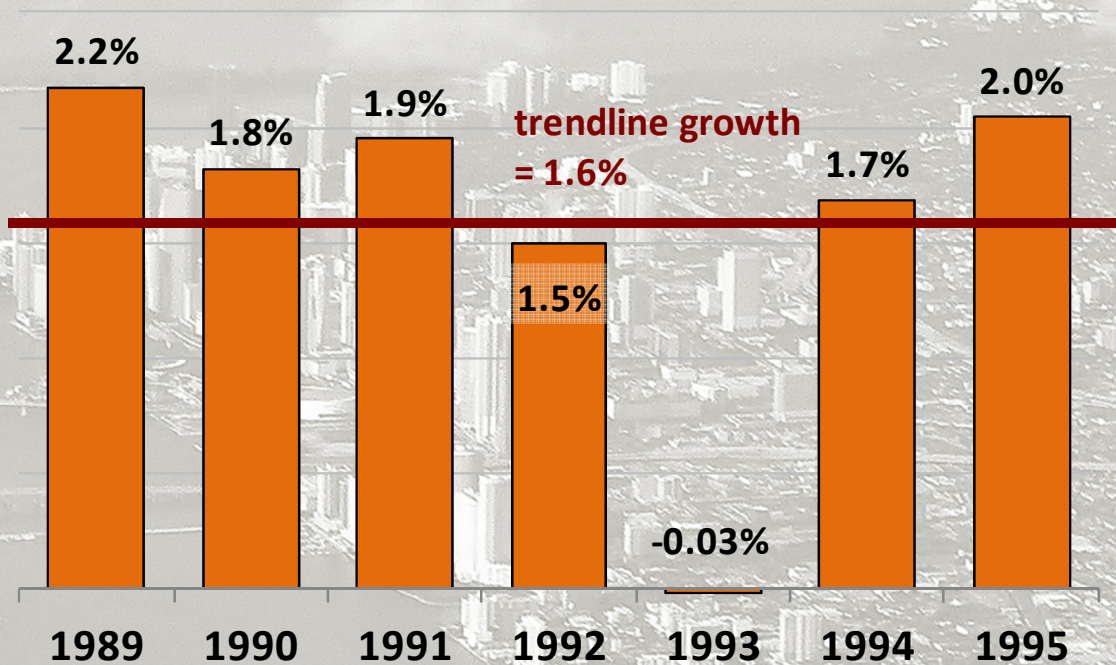
- U.S. recession from 3Q90 to 1Q91. Slow (“jobless”) recovery begins in 2Q91
- National recession and weak recovery weighed heavily on Miami-Dade
 - Employment fell sharply in 1991 vs. 1990
 - Local recovery did not begin until Mar’92
 - From Feb to Aug’92 only 21% of jobs lost in local recession had been recovered. (+6K vs -30K lost)
 - National recession slowed MD population growth in 1991-92 but hurricane led to a transitory drop.

August 24th Andrew hits Homestead

- Total estimated damage: \$26.5B at 1992 prices (\$25B in Florida)
 - Damaged in current value – \$37B
 - 25,500 homes destroyed, 101,000 damaged in Miami-Dade.
 - 90% of residential units in Homestead destroyed
 - 44 deaths (official count)
- Despite physical devastation and loss of property value, macroeconomic indicators suggest a relatively quick recovery in Miami-Dade and economic benefits to Broward.

Miami-Dade population post-Andrew

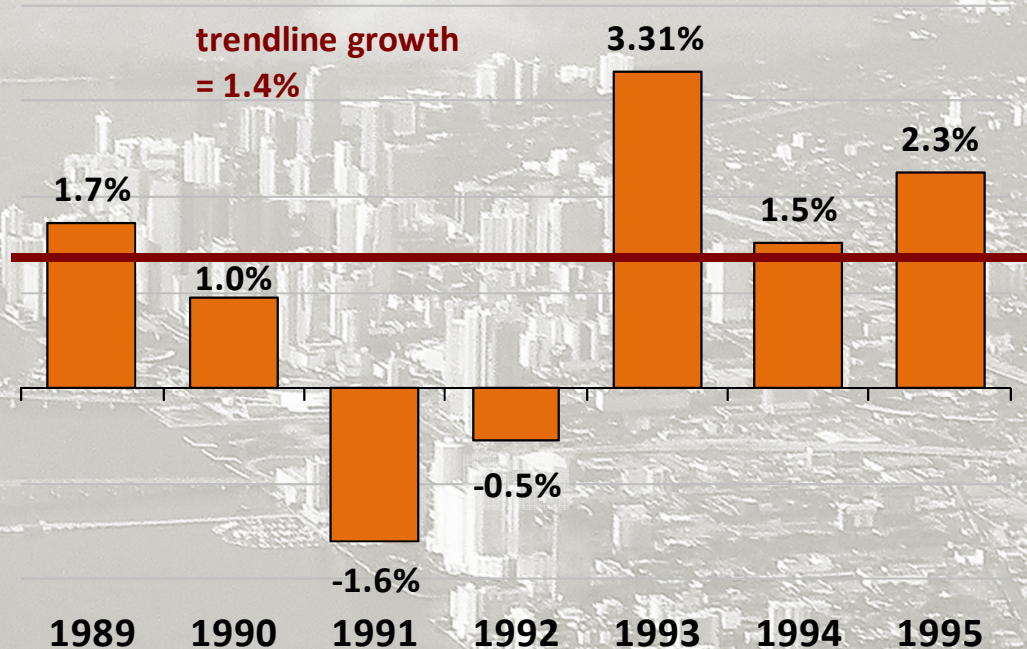
Miami-Dade Population Growth Rate



- Population growth would likely have fallen below trend in '92 without Andrew.
- But the shortfall in population in 1993 was driven by hurricane related damages.
- Population did not return to trend until 1995.

Residents Employed post-Andrew

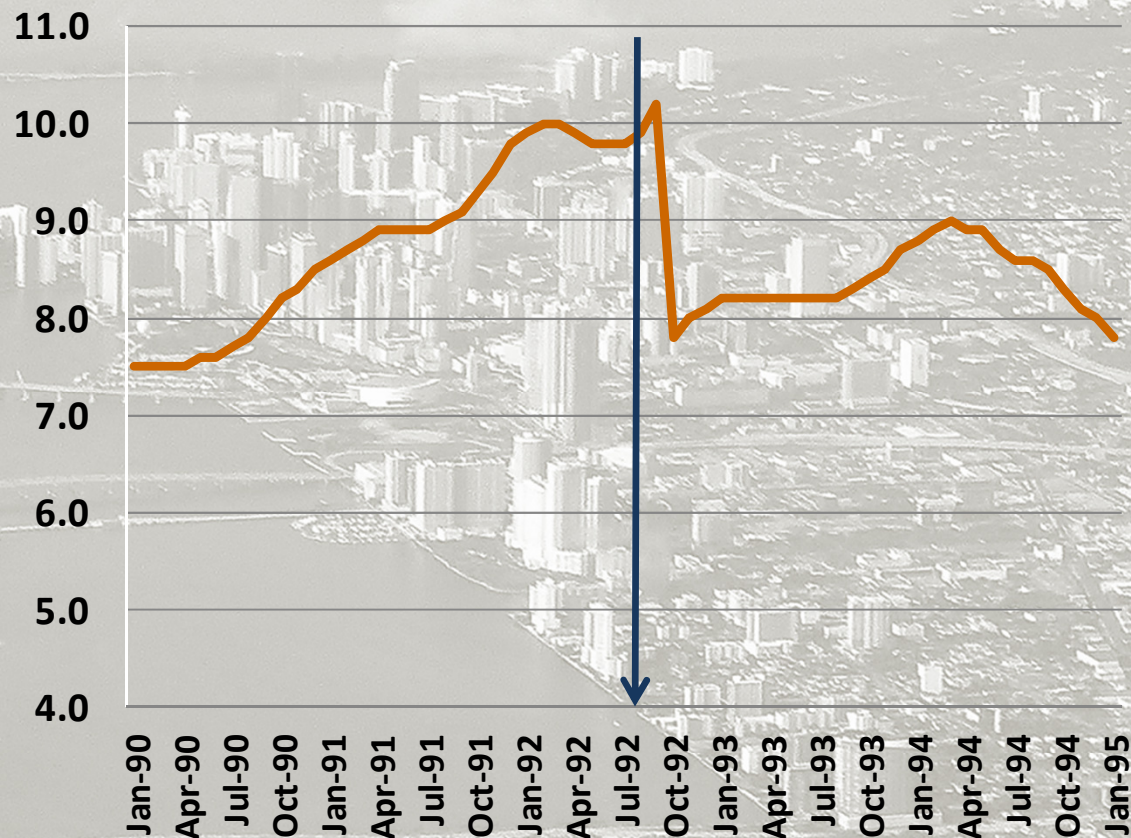
Miami-Dade Employment Growth Rate



- Recessionary pressures reduced employment among County residents in 1991 and the loss of housing and population post-Andrew prolonged the decline into 1992.
- Number of persons working in MDC, however, increased quickly.

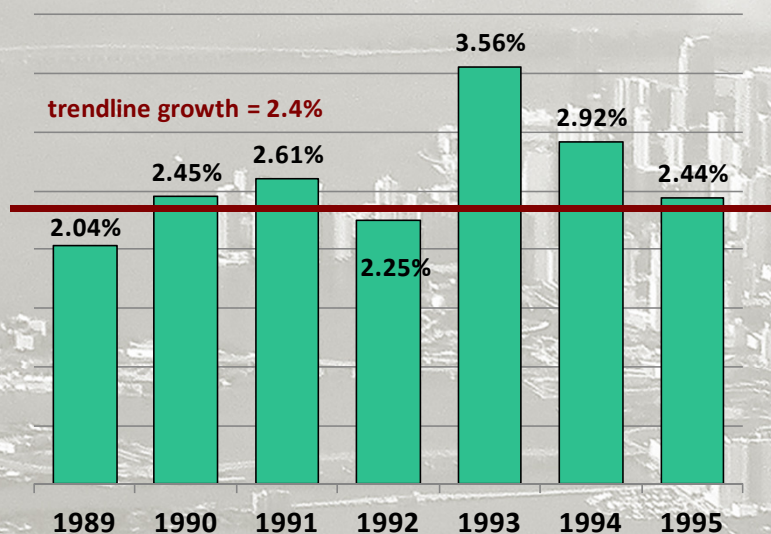
Miami-Dade Unemployment post-Andrew

Miami-Dade Unemployment Rate

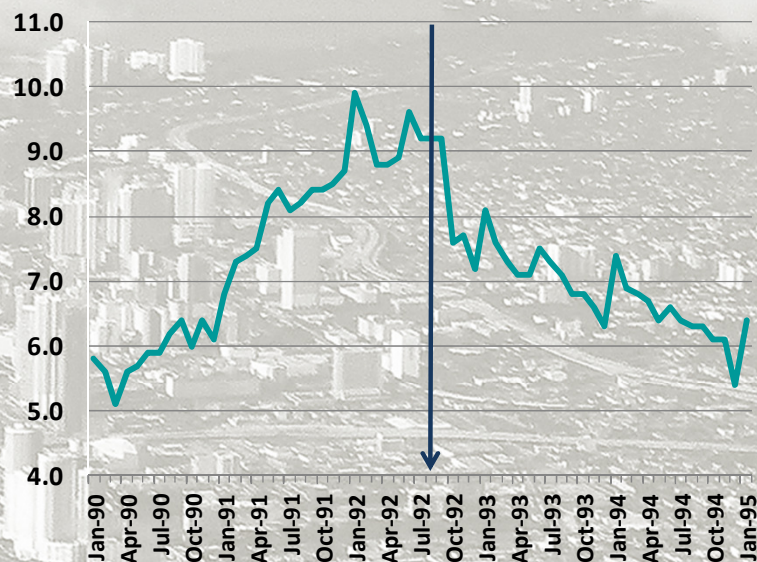


Population Shift Boosts Broward Economy

Broward Population Growth Rate



Broward Unemployment Rate, NSA



- Population growth (MD migrants) provided increased aggregate demand for Broward firms.
- Increased the tax base, funded amenities, generated economies of agglomeration – changed long term dynamics

Economic recovery in Miami-Dade was not evenly distributed.

| | 1990* | 2000* | 2010** |
|---------------------------|-----------|-----------|-----------|
| Population: | | | |
| Miami-Dade County | 1,937,094 | 2,253,362 | 2,496,435 |
| S. Dade Core Impact Area | 59,429 | 64,810 | 83,737 |
| % of Total | 3.1% | 2.9% | 3.4% |
| Per Capita Income: | | | |
| Miami-Dade County | \$ 13,686 | \$ 18,497 | \$ 22,957 |
| S. Dade Core Impact Area | \$ 9,896 | \$ 11,163 | \$ 15,659 |
| % of Total | 72.3% | 60.4% | 68.2% |

* Decennial Census

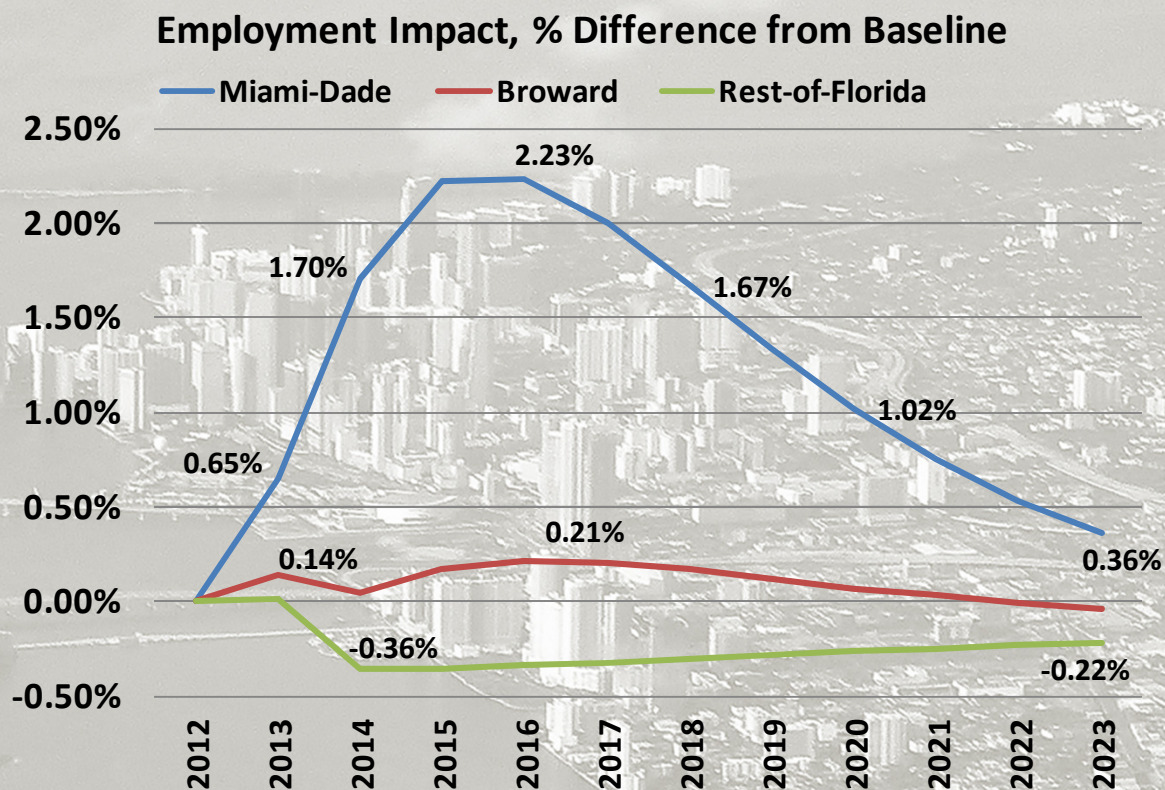
** ACS 2010 5 Yr survey

- Recovery in areas hardest hit by the storm lagged until the mid-2000s.

Modeling economic impact of Andrew type damages today

- Which county(ies) are directly impacted by hurricane?
- Simulation parameters (assumptions)
 - \$37B loss to residential capital stock
 - Recovery of insurance losses through higher premiums amortized over 10-years
 - Hurricane event induced intra-regional population shifts
- South Florida REMI model
 - Seven South Florida counties plus rest of Florida
 - Model allows for population and capital migration across geographies, and changes in prices of goods and services
 - Includes a “demand side” and a “supply side”

Basic Simulation (illustration)



- Increase in ins. premiums spread across state and not borne entirely in Miami-Dade or SF 7-county region
- No population shift was incorporated in simulation