

Hurricanes and Their Implication for Unemployment

Evidence from the Caribbean

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Introduction

- Extreme climate → at least 10 billion USD damages since 2000 in Caribbean
- Number of studies have looked impact on economy, monetary sector, etc.
- Question: What effect will these extreme events have on the labour market?
- Several (not mutually exclusive) possibilities:
 - Business disruptions/closures → temporary/permanent layoffs, i.e., labour demand ↓
 - Clean-up & recovery activity → labour demand (temporarily) ↑
 - Death and emmigration → labour supply ↓

Literature

- Existing Literature: small, but growing
- No study for the Caribbean
- Exception: Camillo (2017) examines Jamaica and finds no effect on unemployment from hurricanes, but increases in transition to informal sector
- Other literature (for developing countries) → mixed results
- Are these results relevant for the wider Caribbean?

This Project

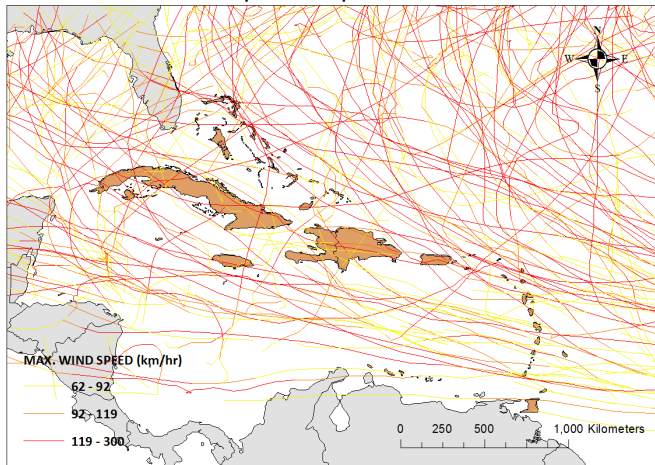
- This Project seeks to answer 3 questions:
 - 1 What and how long is the impact of hurricanes on unemployment in the Caribbean? (...and why)
 - 2 Do Effects differ by gender and age?
 - 3 What role does labour legislation play?

Data Needed

- 3 main data sets:
 - 1 Tropical storm damages
 - 2 Labour market
 - 3 Labour legislation

Tropical Storm Damages

Example: Tropical Storms



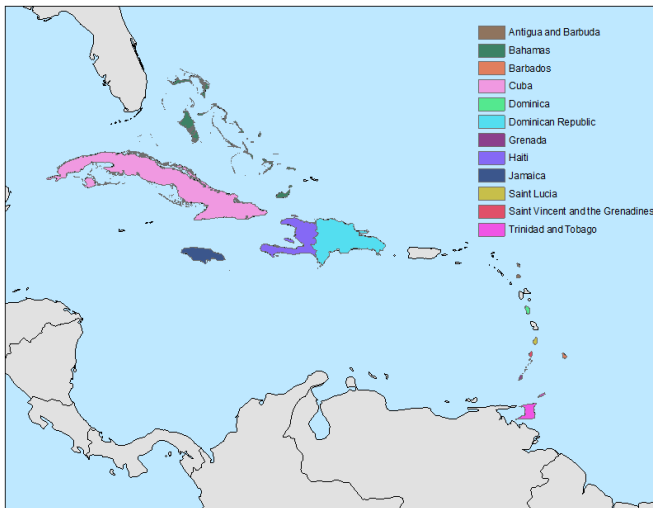
Tropical Storm Damages

- We follow the recent literature and use an 'ex-ante' constructed damage measure:
 - 1 Hurricane track data & wind field model → local wind speed
 - 2 Local wind speed & damage function → local damages
 - 3 Local damages & local nightlight intensity → island damages

Labour Market data

- Goal: panel data set of unemployment (total, gender, & age), employment, labour force participation across the Caribbean
- Used several sources: WB Development Indicators (main), ILOSTAT, National Statistical Agencies
- Also constructed migration measure from (legal) US immigration
- Allowed us to build an **unbalanced** panel for 13 Caribbean countries over 13 years:

Data Sample



Labour Legislation

- CARIBLEX database

- While a rich database, does not provide time dimension \Rightarrow time invariant indicator

- We created three indicators (above or below median legislation):
 - 1 General Protection

 - 2 Employment Protection

 - 3 Social Security

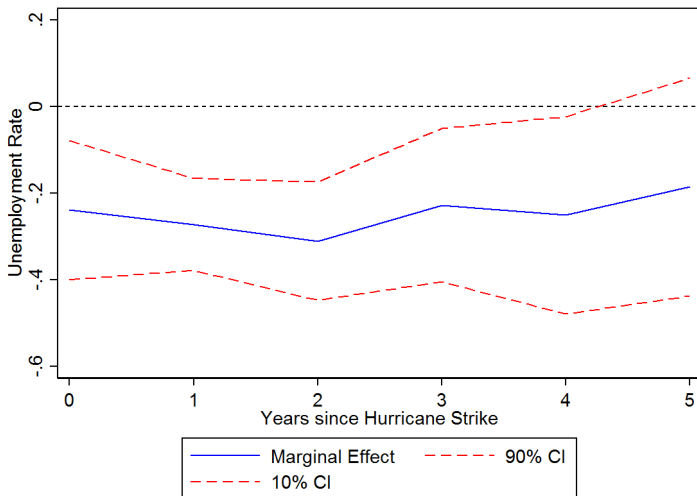
Methodology

- Benchmark Specification:

$$UR_{it} = \alpha + \sum_{s=0}^S \beta_{t-s} C_{it-s} + \sum_{s=0}^S \gamma_{t-s} L_{t-s} \times C_{it-s} + \sum_{i=1}^I \lambda_i TREND_{it} + \pi_t + \mu_i + \epsilon_{it} \quad (1)$$

- UR : unemployment (employment, LFP, migration); C : vector of climate; L : labour legislation indicator
- Sample period: 1993-2014

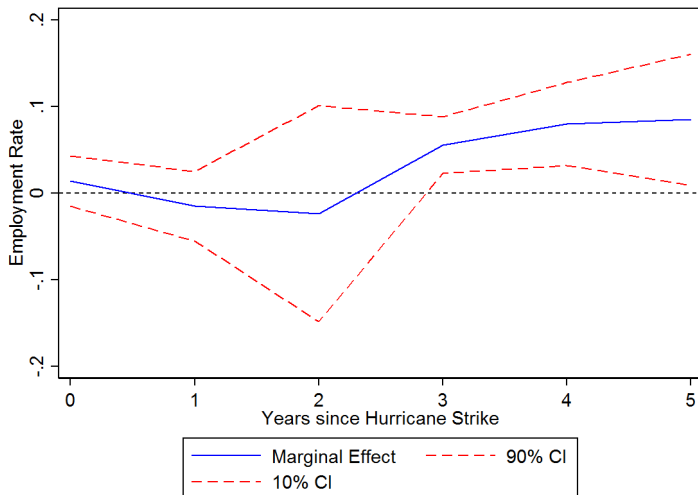
Unemployment



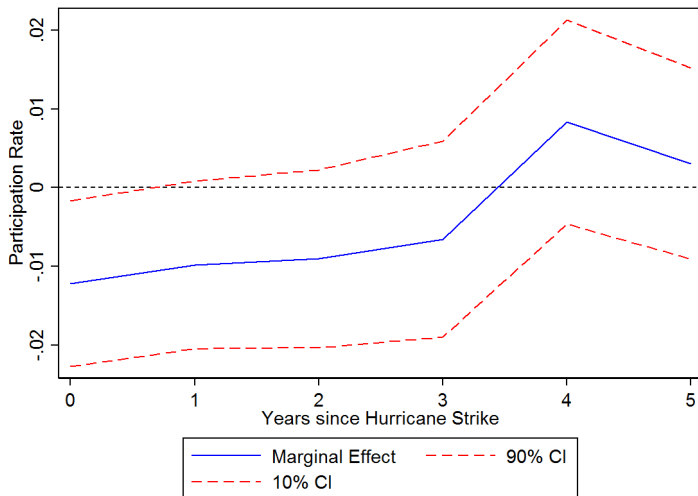
Unemployment Sub-groups

Note: we generally found similar effects regardless of whether we differentiated by gender, age, or gender & age!

Employment



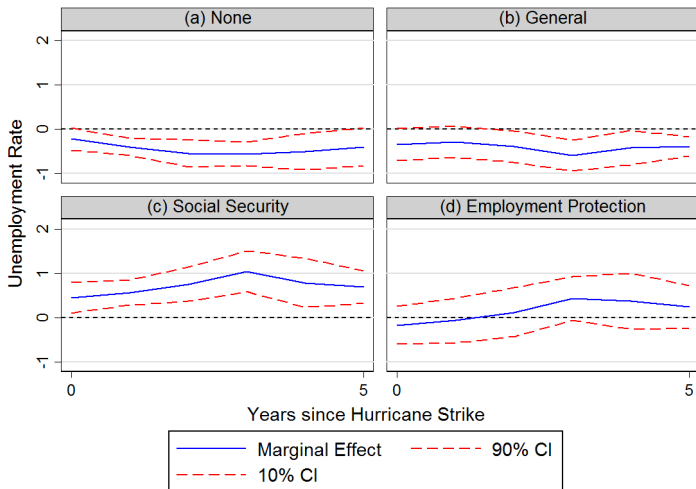
Labour Force Participation



Migration



Labour Market Legislation



Conclusion

- Hurricane damages → unemployment rate ↓
- Effect lasts up to 4 years ⇒ cumulative drop in unemployment of 13.3%
- Only partially due to fall in labour force participation....
- Legislation also may have played some role
- But need (much) better data to draw clearer conclusions!