

Location Choice/Migration Modeling

PCHES/IM3 Collaboration

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The Economist

The dire Strait of Hormuz
Which Boris would Britain get?
Facebook's weird new currency
Reigning cats and dogs

JUNE 22ND-30TH 2016

Texafornia

A glimpse into America's future

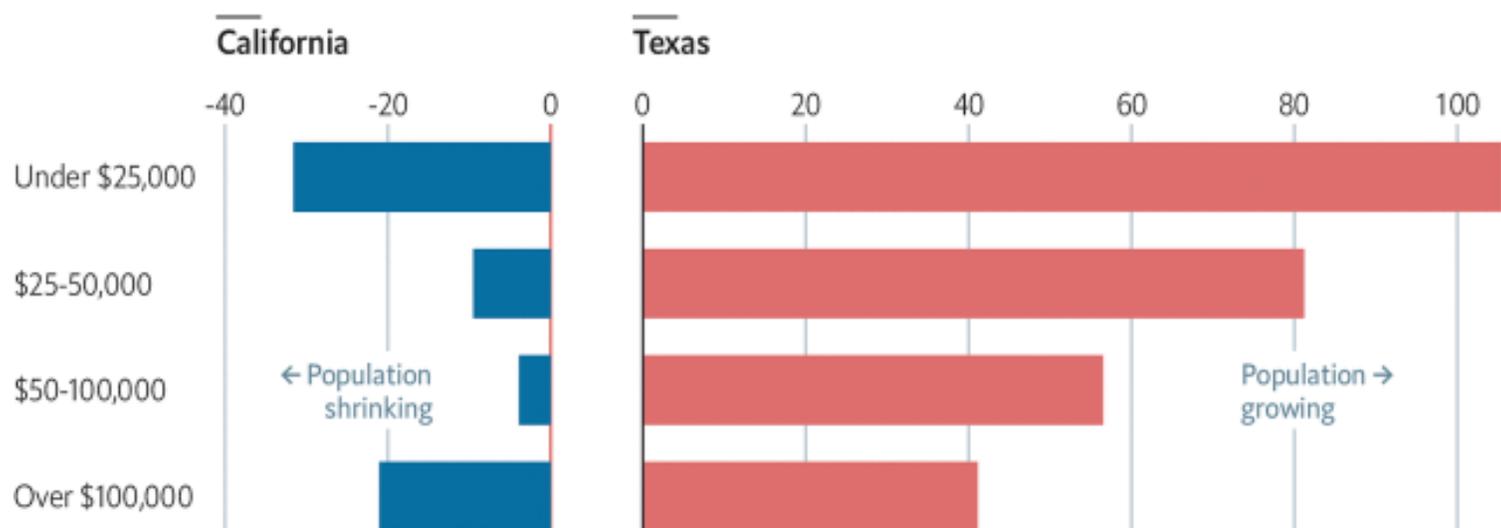


Many people are moving from California to Texas

The cost of living, as well as high taxes and red tape, are precipitating the push

Moving on out

Net migration of Americans by annual income*, 2011-16 total, '000



Source: Internal Revenue Service

The Economist

*People filing tax returns



PCHES

Program on Coupled Human and Earth Systems

CBSA Population Change: 1980-2010

| Name | Rank Change (% of Population) | 1980 Rank | Population Change (1K People) | 1980 Population | Percent Change in Population |
|--|----------------------------------|-----------|----------------------------------|-----------------|---------------------------------|
| Miami-Fort Lauderdale-Pompano Beach, FL | 14 | 22 | 3969.57 | 1595.06 | 248.87 |
| Los Angeles-Long Beach-Santa Ana, CA | 0 | 2 | 3418.63 | 9410.21 | 36.33 |
| Dallas-Fort Worth-Arlington, TX | 6 | 10 | 3354.60 | 3017.18 | 111.18 |
| Atlanta-Sandy Springs-Marietta, GA | 4 | 13 | 2942.22 | 2326.64 | 126.46 |
| Houston-Sugar Land-Baytown, TX | 3 | 9 | 2797.81 | 3148.99 | 88.85 |
| Riverside-San Bernardino-Ontario, CA | 10 | 23 | 2666.67 | 1558.18 | 171.14 |
| Phoenix-Mesa-Glendale, AZ | 7 | 21 | 2592.92 | 1599.97 | 162.06 |
| New York-Northern New Jersey-Long Island, NY-NJ-PA | 0 | 1 | 2533.57 | 16363.54 | 15.48 |
| Washington-Arlington-Alexandria, DC-VA-MD-WV | 0 | 7 | 2184.24 | 3397.94 | 64.28 |
| Las Vegas-Paradise, NV | 47 | 77 | 1488.18 | 463.09 | 321.36 |
| Chicago-Joliet-Naperville, IL-IN-WI | 0 | 3 | 1408.17 | 8052.93 | 17.49 |
| Seattle-Tacoma-Bellevue, WA | 2 | 17 | 1346.70 | 2093.11 | 64.34 |
| Orlando-Kissimmee-Sanford, FL | 22 | 48 | 1329.49 | 804.93 | 165.17 |
| San Diego-Carlsbad-San Marcos, CA | 1 | 18 | 1233.47 | 1861.85 | 66.25 |
| Tampa-St. Petersburg-Clearwater, FL | 1 | 20 | 1169.64 | 1613.60 | 72.49 |
| Austin-Round Rock-San Marcos, TX | 29 | 64 | 1131.24 | 585.05 | 193.36 |
| Denver-Aurora-Broomfield, CO | 4 | 25 | 1092.71 | 1450.77 | 75.32 |
| San Francisco-Oakland-Fremont, CA | -3 | 8 | 1084.76 | 3250.63 | 33.37 |
| Minneapolis-St. Paul-Bloomington, MN-WI | -1 | 15 | 1081.64 | 2198.19 | 49.21 |
| Sacramento--Arden-Arcade--Roseville, CA | 12 | 36 | 1049.31 | 1099.81 | 95.41 |
| San Antonio-New Braunfels, TX | 10 | 35 | 987.86 | 1154.65 | 85.56 |
| Charlotte-Gastonia-Rock Hill, NC-SC | 11 | 44 | 902.56 | 855.48 | 105.50 |
| Portland-Vancouver-Hillsboro, OR-WA | 5 | 28 | 884.52 | 1341.49 | 65.94 |
| Raleigh-Cary, NC | 40 | 88 | 728.51 | 401.98 | 181.23 |
| Philadelphia-Camden-Wilmington, PA-NJ-DE-MD | -1 | 4 | 725.30 | 5240.04 | 13.84 |



Research Objectives

- Review and build on economic, and other, literature on migration and population change (Kuminoff et al. 2013; Diamond, 2016)
- Collect and analyze datasets capturing short and long-run migration trends in the U.S.
 - Data that can better track individual and/or households
- Develop structural empirical (spatial equilibrium) models that explain migration trends and use them to forecast population change given changes economic and policy variables
 - Key components of modeling:
 - Capture endogeneity and heterogeneity in economic variables – rents, wages, amenities, and policy
 - Capture interaction between economic/policy variables with sociodemographic variables

Status of Collaboration

- Both groups are developing separate models
 - PCHES: Quasi-dynamic skilled-based sorting model (Diamond, 2016)
 - Focus is on the real cost of living in certain places (wages-rents) and its impact on the migration behavior of working-age adults over time
 - IM3: Total population sorting model (static) focusing on weather
 - Used to forecast population change given predicted climate change
- Starting to think about how we can:
 - Develop a reduced-form shift-share model with better variables on factors driving migration
 - Integrating better data on amenities, policies, and individual/household decision-making



How did Collaboration Begin

- Jared visited PSU in Spring 2018 and presented early IM3 work
- He and I had a discussion then, at Snowmass in 2018, and over the phone on several occasions about how we could join forces given we are:
 - Developing similar models
 - Have complementary skills to bring to the modeling process
 - Face similar challenges
 - Collecting and putting together data
 - Developing new datasets
 - Developing and integrating models

Reflections on the Past and Future

- Looking back, probably would started collaborating earlier
 - Could have shared efforts in: data collection, modeling, literature review, coordination of graduate students, etc.
- No real challenges thus far
 - Shared goals, methods, skills, data, etc.