Voting with their feet: Relative economic conditions and state migration patterns

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New England Public Policy Center at the Federal Reserve Bank of Boston

Why do we care about migration across states?

- Population growth and labor supply

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"Texas is one of the few big states not flat on its back from the recession. Using its greener pastures as a selling point, the state should go out and steal everything we can from the rest of the country. That means stealing the best brains from places that are depressed, like Rhode Island, Michigan, and California." – Richard Fisher, President, FRB Dallas.

What does this paper do?

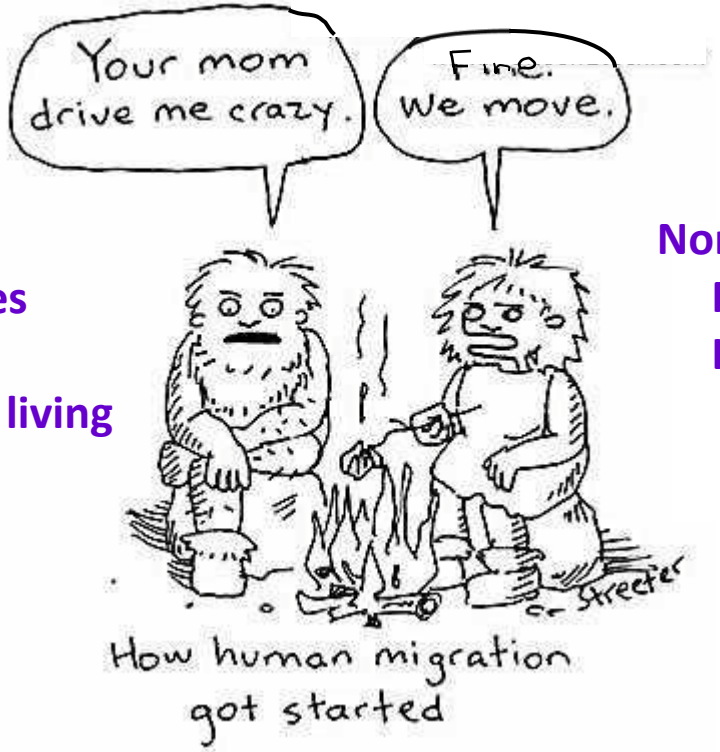
- Examines the role of economic conditions—labor market conditions, per capita incomes, and housing affordability—in determining domestic state-to-state migration.
- Estimates a logistic migration model that controls for demographic characteristics of origins and state-specific fixed amenities.
- Contributions to literature:
  - Longer panel of data to test relationships over time
  - Full set of state fixed effects not just regional effects
  - Better measures of labor market and housing market conditions
  - Forecasts future path of migration

Why do people migrate?

Why do people migrate?

Economic Reasons:

- Better job opportunities
- Higher incomes
- More favorable cost of living



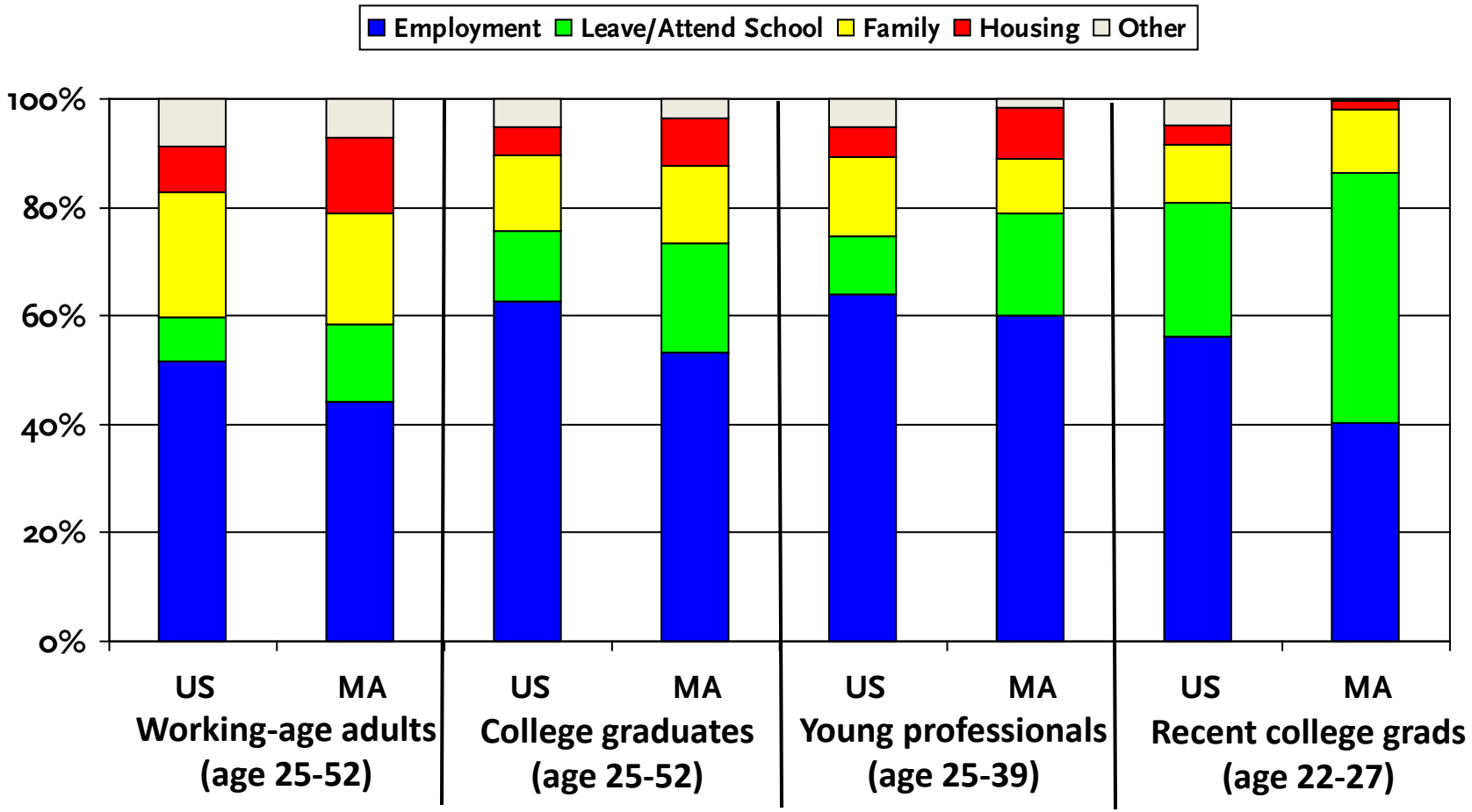
Non-Economic Reasons:

- Proximity to family
- Local amenities

Reason for Leaving

Individuals moving across state lines over the past decade did so primarily for job-related reasons--few cited housing as their motivation.

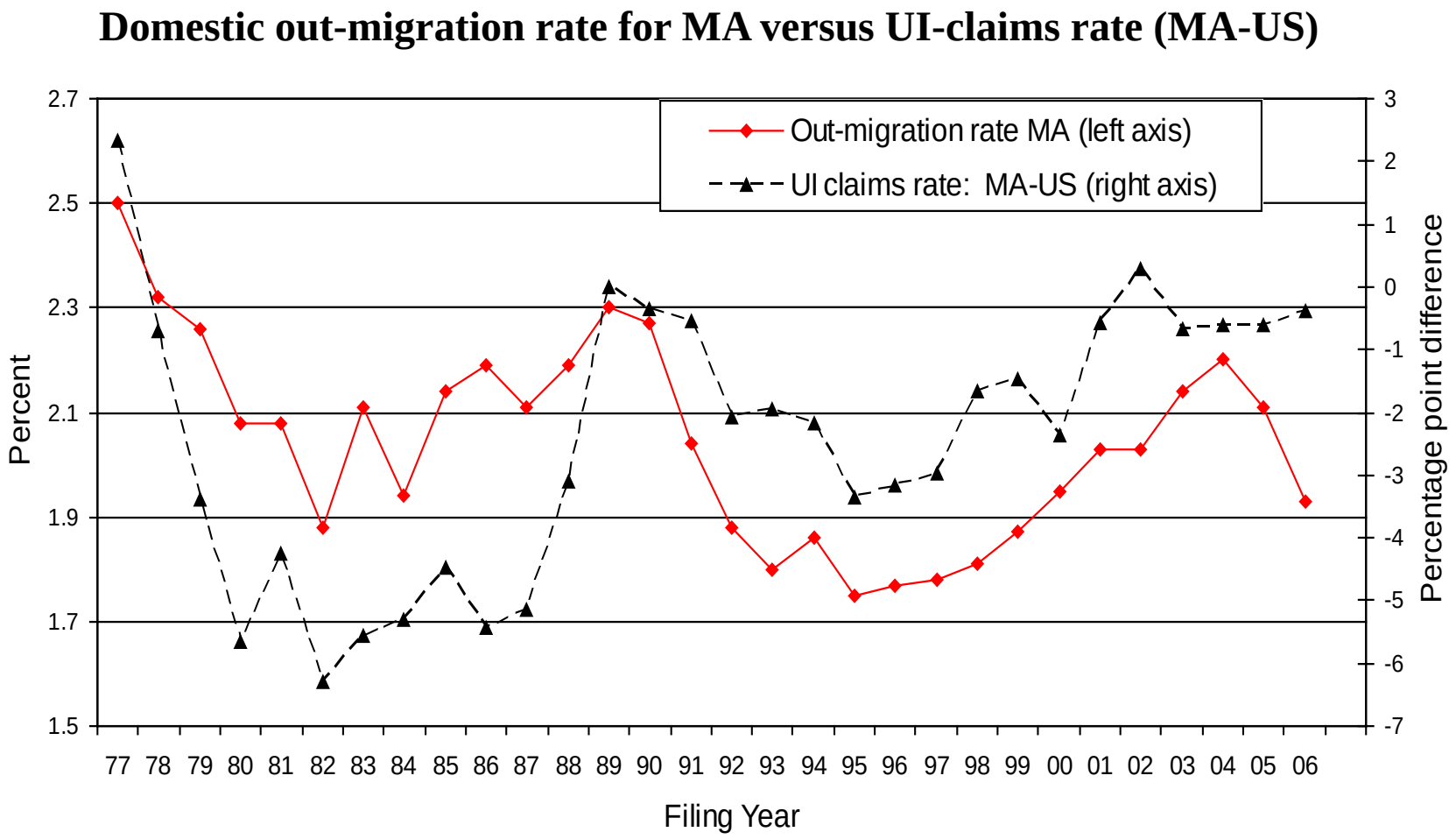
Primary reason for leaving among individuals moving across state lines



Source: Author's calculations from the Current Population Survey, 1999-2007.

"Occular" Correlation Between Migration and Labor Market Conditions

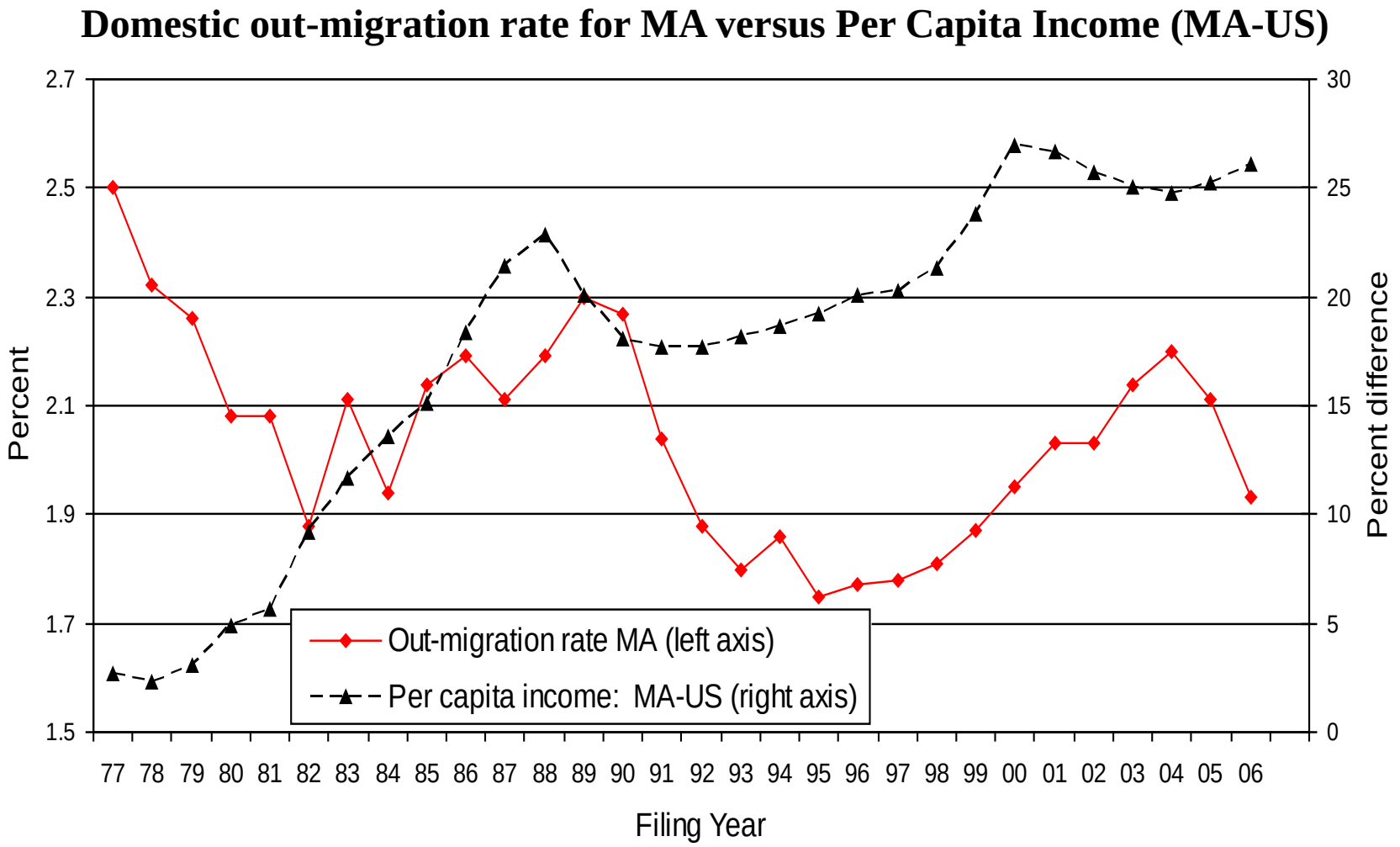
Over the past three decades, the domestic out-migration rate appears to be highly positively correlated with the relative UI claims rate.



Source: Author's calculations from IRS data on state-to-state migration and UI claims from the Bureau of Labor Statistics.

"Occular" Correlation Between Migration and Per Capita Income

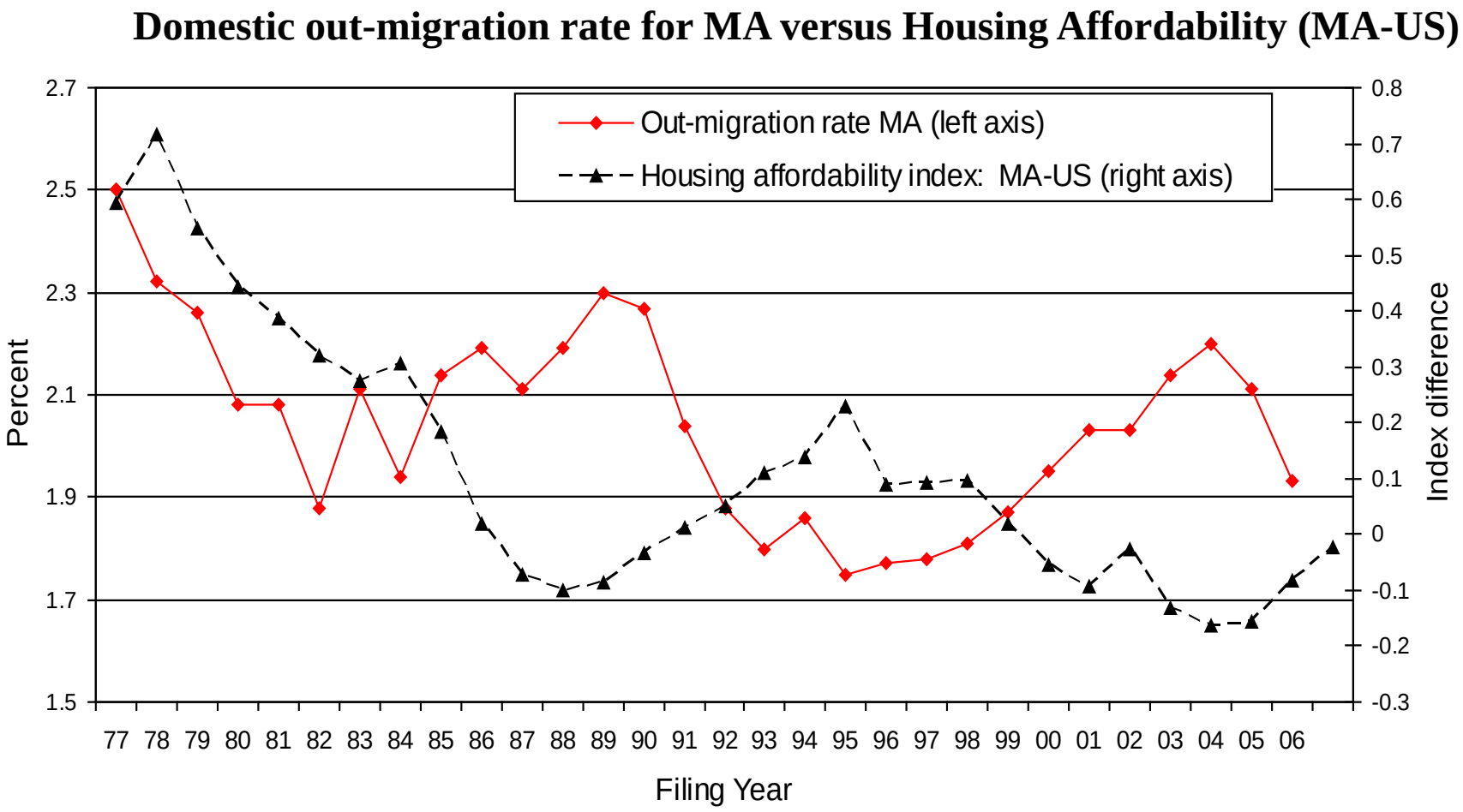
The correlation between migration and relative per capita income has weakened.



Source: Author's calculations from IRS data on state-to-state migration and per capita income from the CPS.

"Occular" Correlation Between Migration and Housing

In contrast, the relationship between relative housing affordability and out-migration appears to have become stronger over time.



Source: Author's calculations from IRS data on state-to-state migration and the ratio of median household income to the income needed to purchase the median-priced house.

Modeling Migration: A logistic regression framework

- Individuals are assumed to choose the location yielding the highest expected net discounted return on migration from among a finite number of destinations:

$$\Pi_{ijt} = \exp(Z_{ijt}) / [\Sigma_k \exp(Z_{ikt})] \qquad i, j = 1,\ldots,50; \quad t=1,\ldots,\tau$$

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- Where Z is the index of the expected return to moving to different places:

$$Z_{ijt} \begin{cases} = \Phi_1 X_{it} + \varphi X_{jt} + \gamma T_{it} + \delta D_{ij} + \zeta UR_t & \text{if } i \neq j \text{ (moving)} \\ = \Phi_2 X_{it} + \varphi X_{jt} - \gamma T_{it} & \text{if } i = j \text{ (staying)} \end{cases}$$

where

$$\Phi_1 X_{st} = A_s^{o} + \beta_1 UI_{st} + \beta_2 PCI_{st} + \beta_3 HAI_{st} \text{ for } s \text{ indexing origins (i)}$$

$$\text{and } \Phi_2 X_{st} = A_s^{d} + \beta_1 UI_{st} + \beta_2 PCI_{st} + \beta_3 HAI_{st} \text{ for } s \text{ indexing destinations (j)}$$

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- The reduced form looks like: : $Y_{ijt} = \ln(\Pi_{ijt} / \Pi_{iit}) = Z_{ijt} - Z_{iit}$

$$Y_{ijt} = \alpha + \beta_1 (UI_{it} - UI_{jt}) + \beta_2 (PCI_{it} - PCI_{jt}) + \beta_3 (HAI_{it} - HAI_{jt}) + 2\gamma T_{it} + \delta D_{ij} + \Sigma_s A_s^{o} F_{js} - \Sigma_s A_s^{d} F_{is} + \varepsilon_{ijt}$$

Logistic Regression Results: 1997-2006 Period

Over the entire period, relative labor market conditions and per capita incomes appear to have the greatest impact on migration decisions.

Independent variables	1	2	3
UI Claims Rate $diff_{t-1}$			
Per Capita Income $diff_{t-1}$			
House Affordability Index $diff_{t-1}$			
National Unemployment Rate			
State fixed effects included?	No	Yes	Yes
Year fixed effects included?	No	Yes	Yes
Demographic controls?	No	No	Yes
R-squared			
Number of observations			

Source: Author's calculations based on IRS migration data. Clustered standard errors are in parentheses.

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UI Claims Rate $diff_{t-1}$	-0.044**	0.056***	
	(0.017)	(0.003)	
Per Capita Income $diff_{t-1}$	-0.140***	-0.018***	
	(0.018)	(0.006)	
House Affordability Index $diff_{t-1}$	0.100***	-0.028***	
	(0.015)	(0.003)	
National Unemployment Rate	0.032***	-0.038***	
	(0.001)	(0.001)	
State fixed effects included?	No	Yes	Yes
Year fixed effects included?	No	Yes	Yes
Demographic controls?	No	No	Yes
R-squared	0.165	0.807	
Number of observations	67,652	67,652	

Source: Author's calculations based on IRS migration data. Clustered standard errors are in parentheses.

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UI Claims Rate $diff_{t-1}$	-0.044**	0.056***	0.053***
	(0.017)	(0.003)	(0.003)
Per Capita Income $diff_{t-1}$	-0.140***	-0.018***	-0.061***
	(0.018)	(0.006)	(0.007)
House Affordability Index $diff_{t-1}$	0.100***	-0.028***	-0.033***
	(0.015)	(0.003)	(0.002)
National Unemployment Rate	0.032***	-0.038***	-0.033***
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Logistic Regression Results: Across Decades

The relationship between per capita income and migration has weakened over time while that of housing affordability has risen.

Independent variables	1977-1986	1987-1996	1997-2006
UI Claims Rate $diff_{t-1}$	0.054***	0.0112***	0.033***
	(0.003)	(0.004)	(0.003)
Per Capita Income $diff_{t-1}$	-0.203***	-0.039***	-0.015*
	(0.009)	(0.012)	(0.009)
House Affordability Index $diff_{t-1}$	-0.000	-0.036***	-0.042***
	(0.003)	(0.003)	(0.003)
National Unemployment Rate	-0.065***	-0.011*	-0.026***
	(0.007)	(0.006)	(0.004)
State fixed effects included?	Yes	Yes	Yes
Year fixed effects included?	Yes	Yes	Yes
Demographic controls?	Yes	Yes	Yes
Number of observations	22,560	22,556	22,536

Source: Author's calculations based on IRS migration data. Clustered standard errors are in parentheses.

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UI Claims Rate diff in Origin$_{t-1}$	0.026***	0.048***	0.010***
	(0.003)	(0.004)	(0.003)
UI Claims Rate diff in Destination$_{t-1}$	-0.047***	-0.097***	-0.035***
	(0.003)	(0.004)	(0.003)
Per Capita Income diff in Origin$_{t-1}$	-0.14	-0.042***	-0.005
	(0.009)	(0.011)	(0.008)
Per Capita Income diff in Destination$_{t-1}$	0.185***	0.069***	0.015**
	(0.008)	(0.010)	(0.008)
House Affordability Index diff in Origin$_{t-1}$	-0.004	-0.039***	-0.028***
	(0.003)	(0.003)	(0.003)
House Affordability Index diff in Destination$_{t-1}$	0.001	0.018***	0.031***
	(0.003)	(0.003)	(0.002)

Source: Author's calculations based on IRS migration data. Clustered standard errors are in parentheses.

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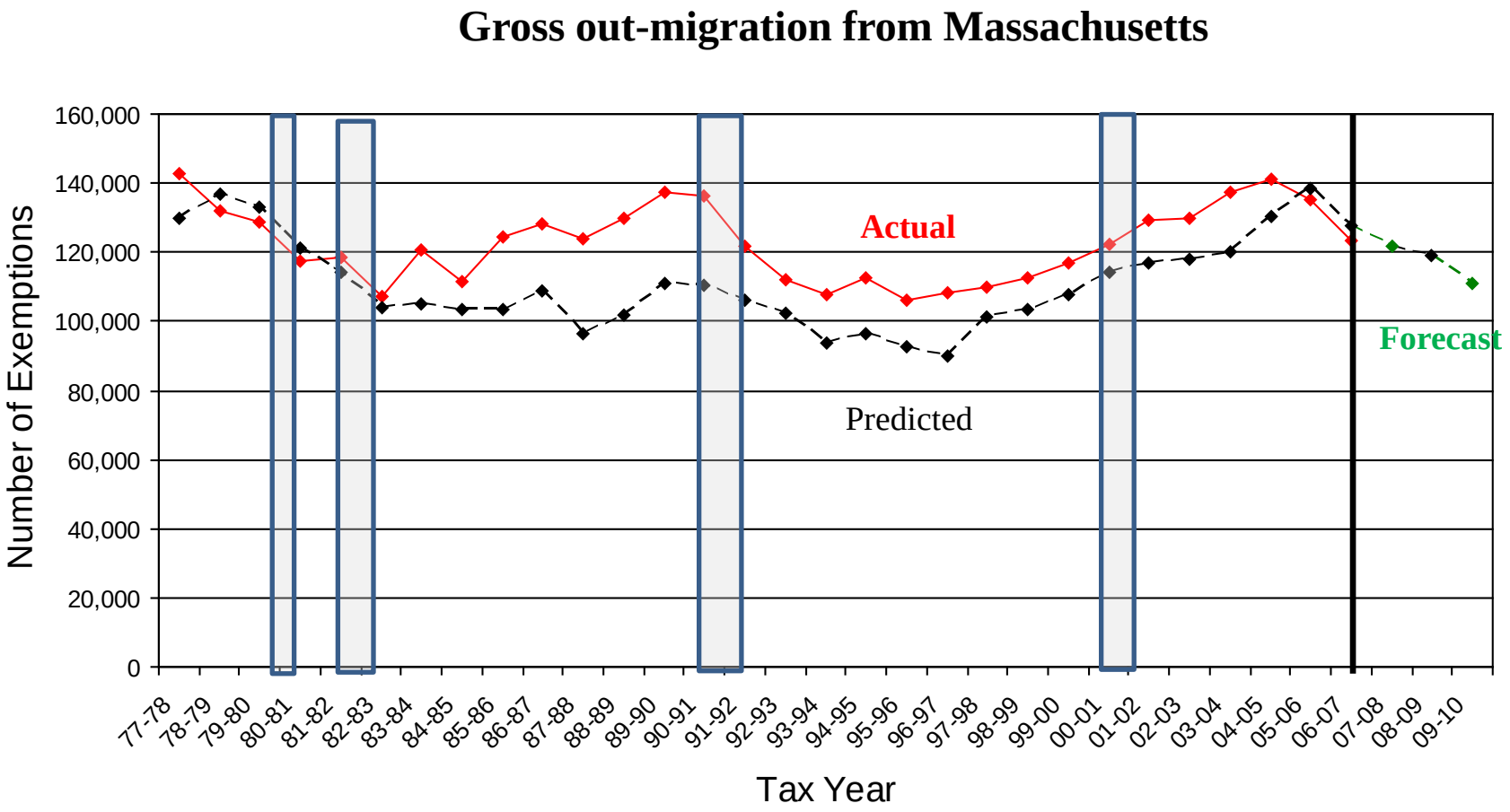
Forecasting Migration for Massachusetts – Gross Out-Migration

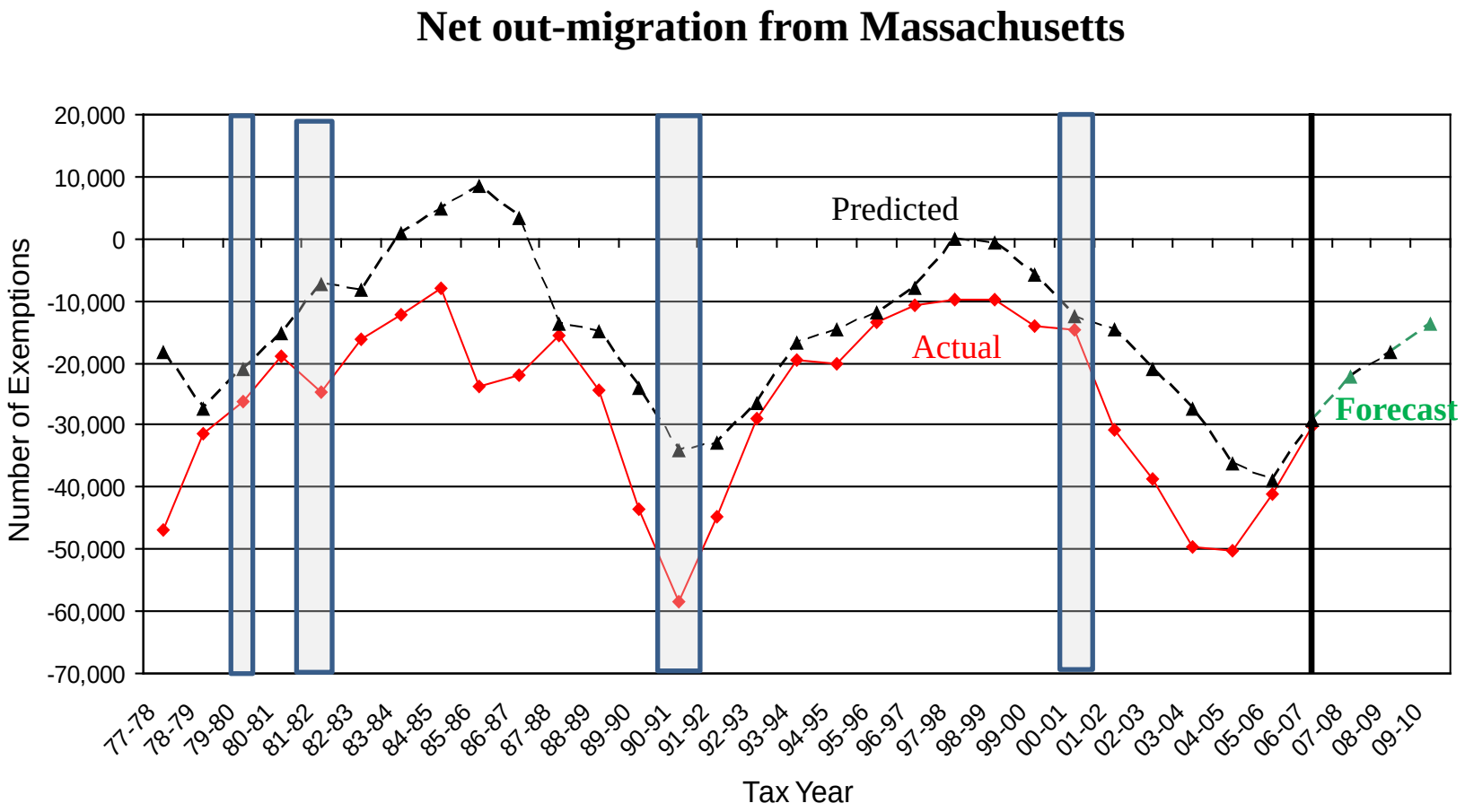
The model does a fairly good job of tracking gross out-migration flows over time.



Source: Author's calculations from IRS data on state-to-state migration. Shading represents U.S. recession periods.

Forecasting Migration for Massachusetts

Given current economic conditions, it appears that net out-migration from Massachusetts will continue to slow in the wake of the recession.



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What did I learn?

- Economic factors clearly matter in determining migration, these factors vary in importance, and their importance has varied over time.
- The impact on an individual state can be large.
- Caveat: these estimates fail to capture other factors that may affect migration of particular groups.
- Policymakers should consider a variety of factors when trying to attract and retain residents – not just focus on one factor in isolation.