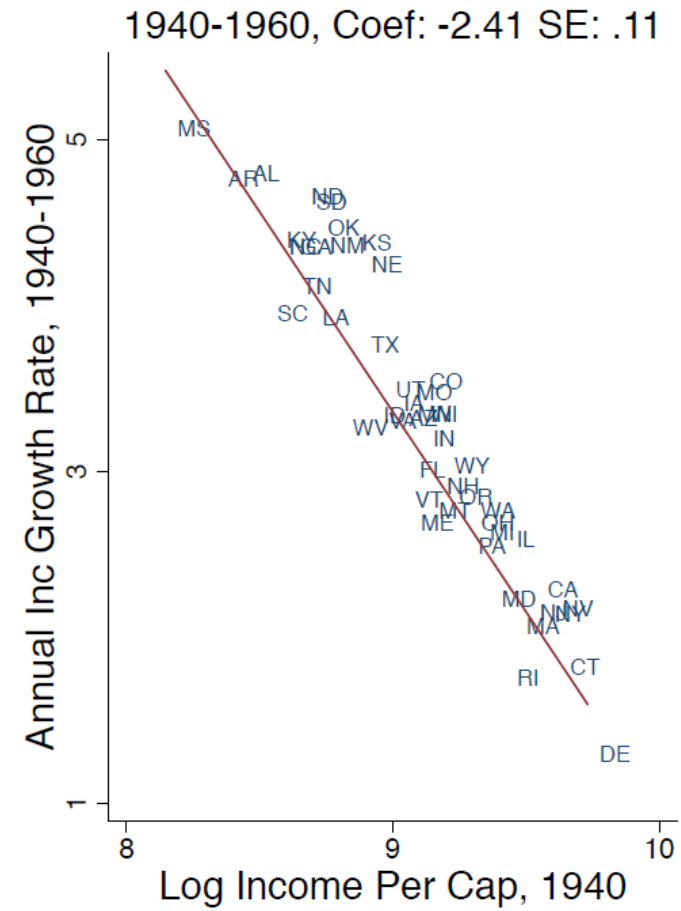


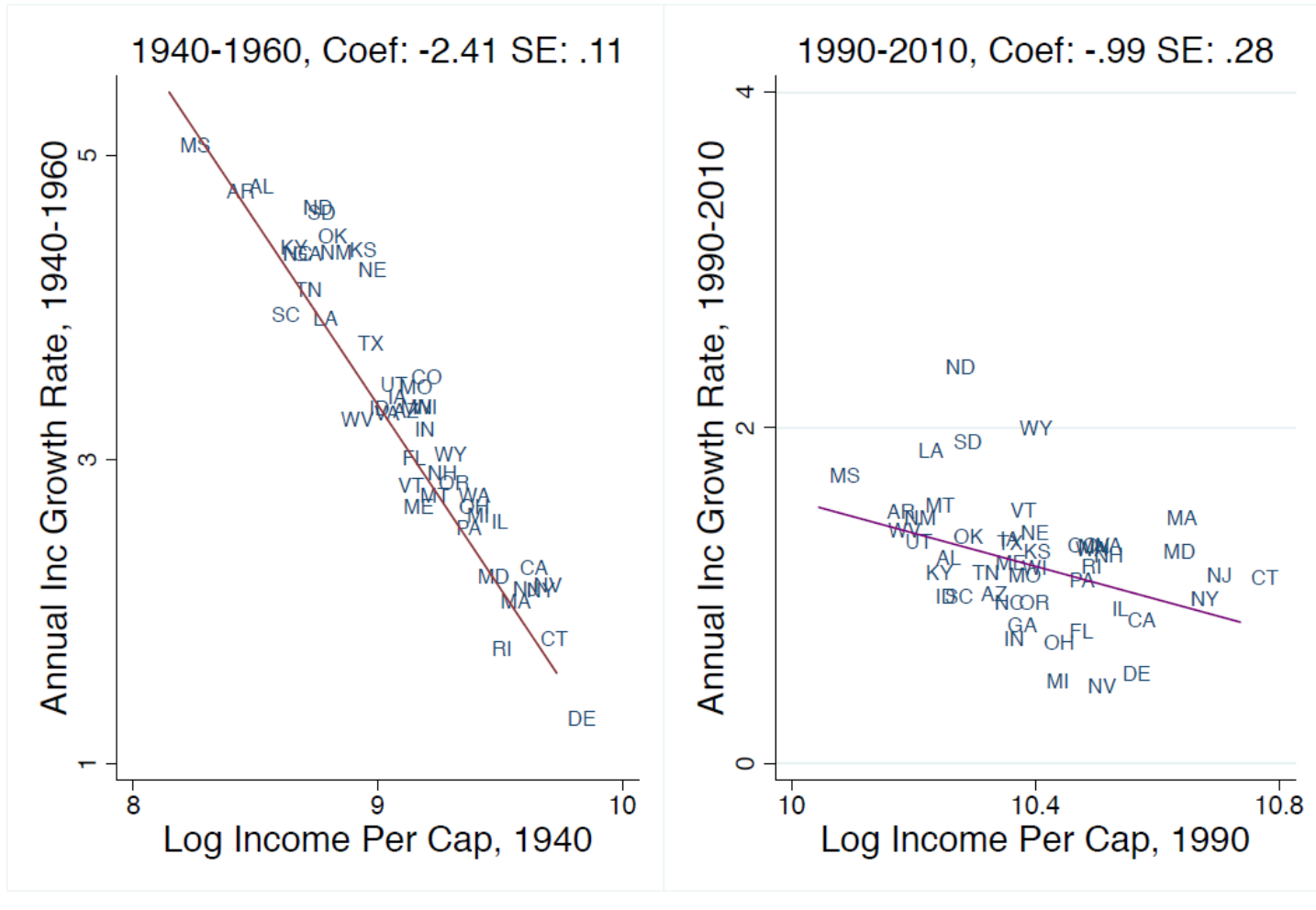
# Why Has Regional Income Convergence in the U.S. Stopped?

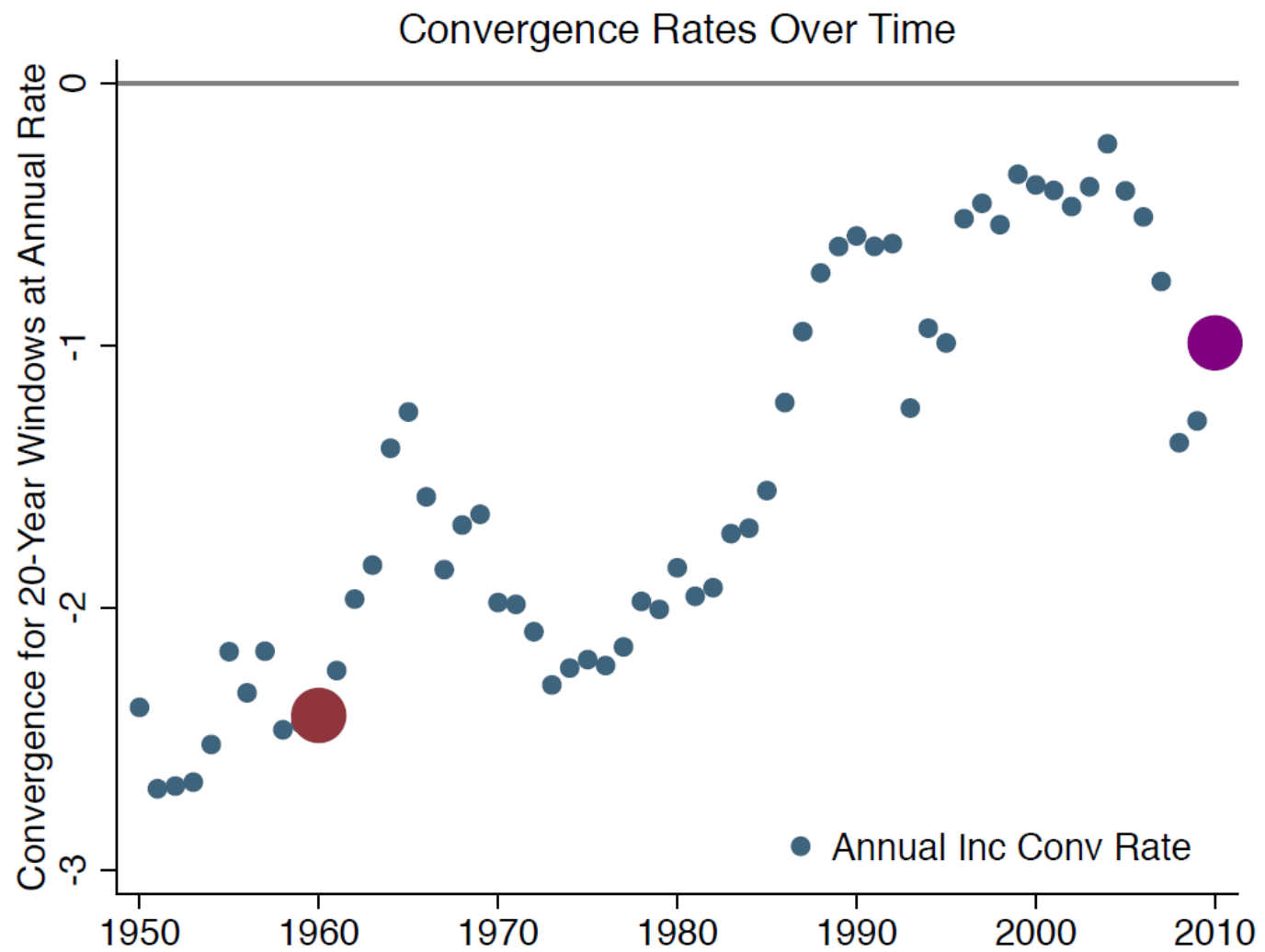
Peter Ganong and Daniel Shoag, Harvard

## Change in Income Convergence

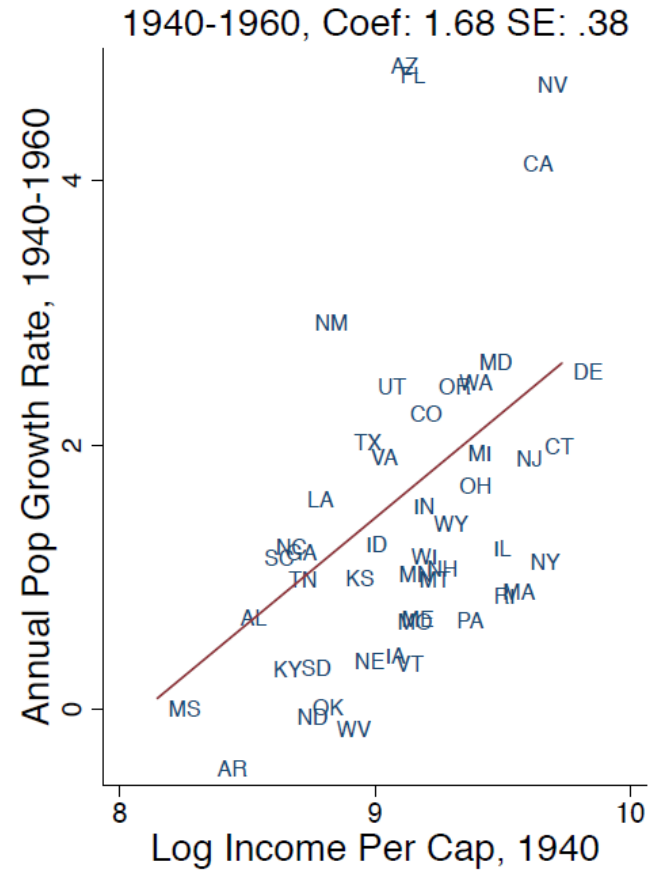


## Change in Income Convergence

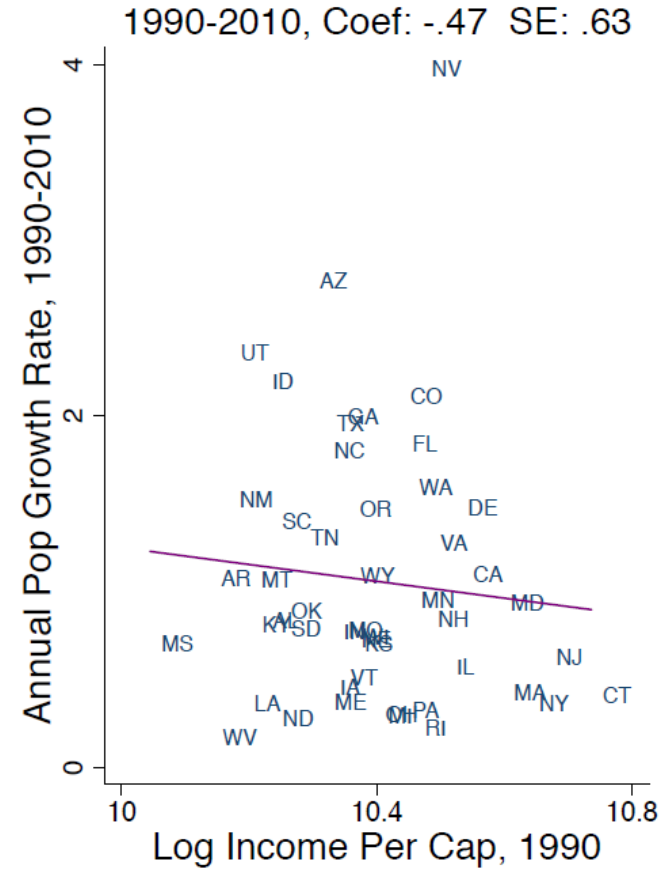
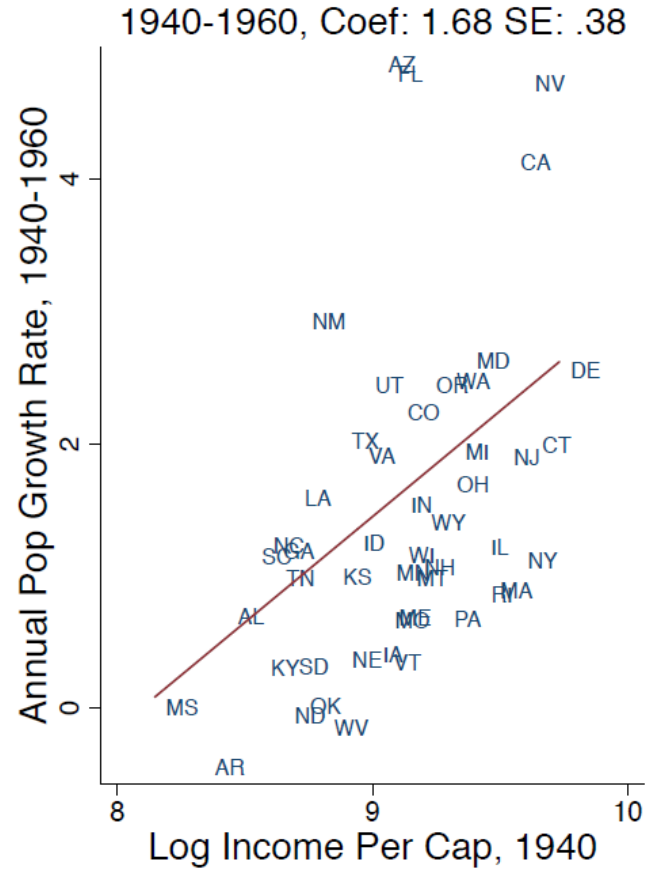




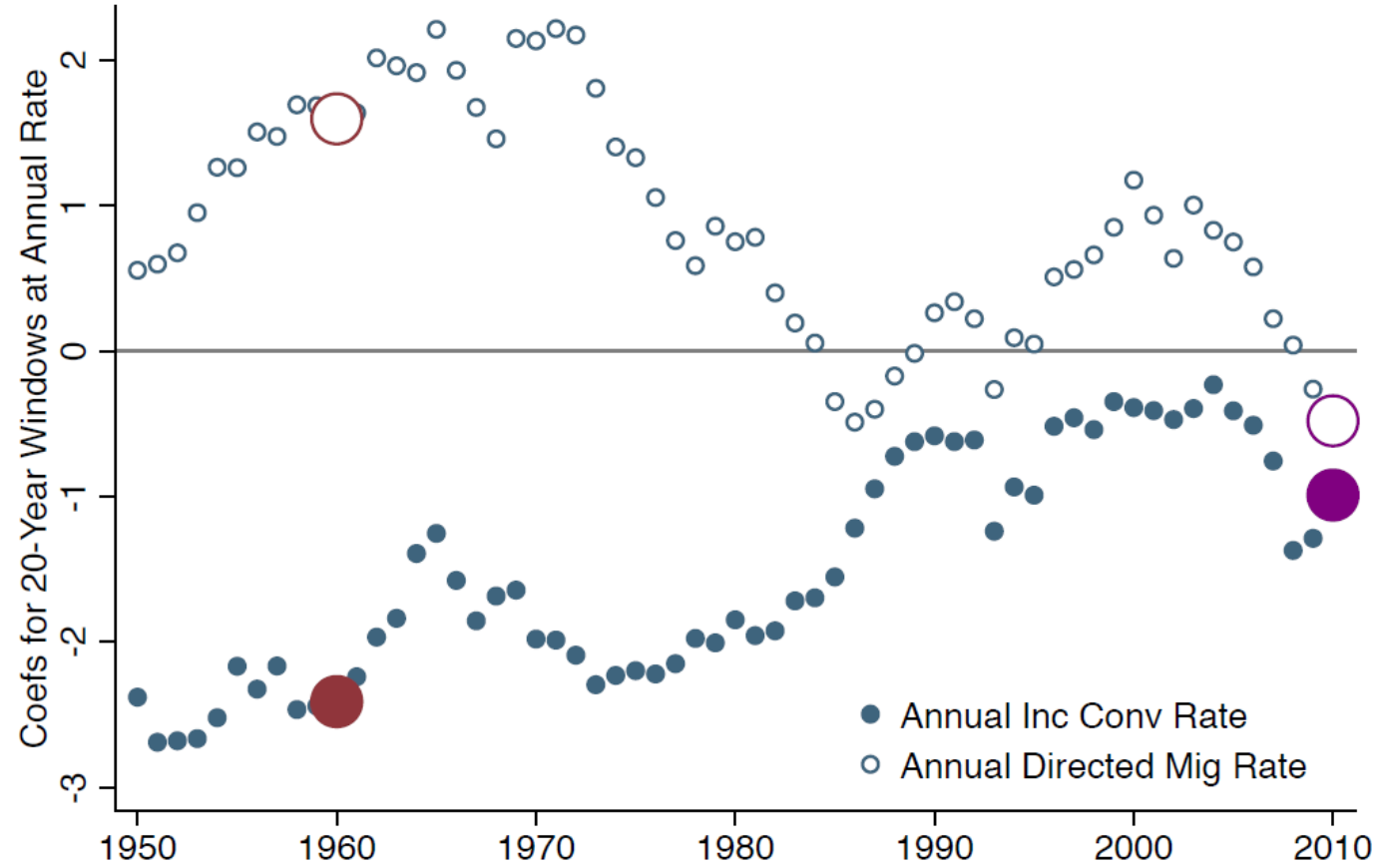
## Change in Directed Migration



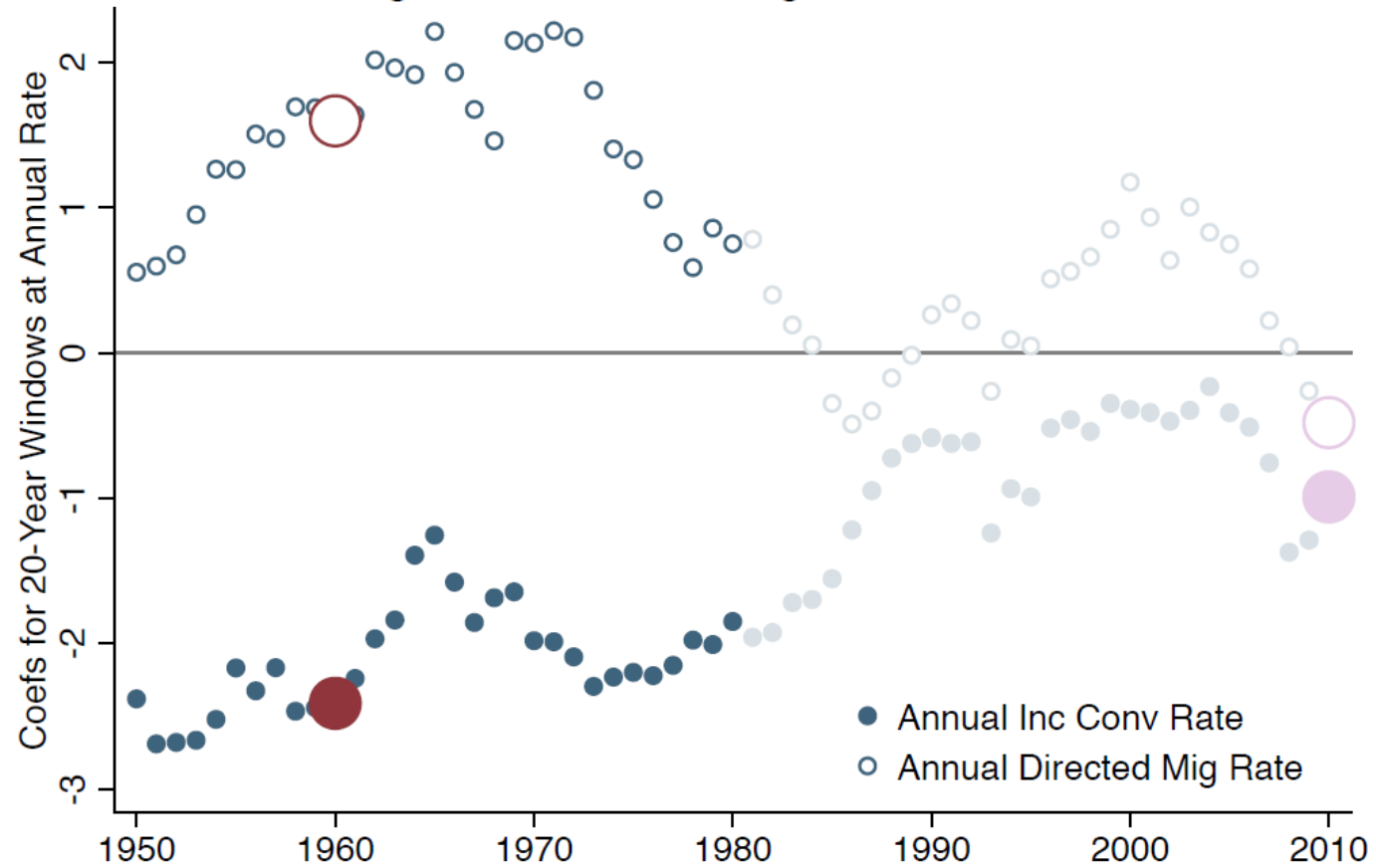
## Change in Directed Migration



Convergence and Directed Migration Rates Over Time

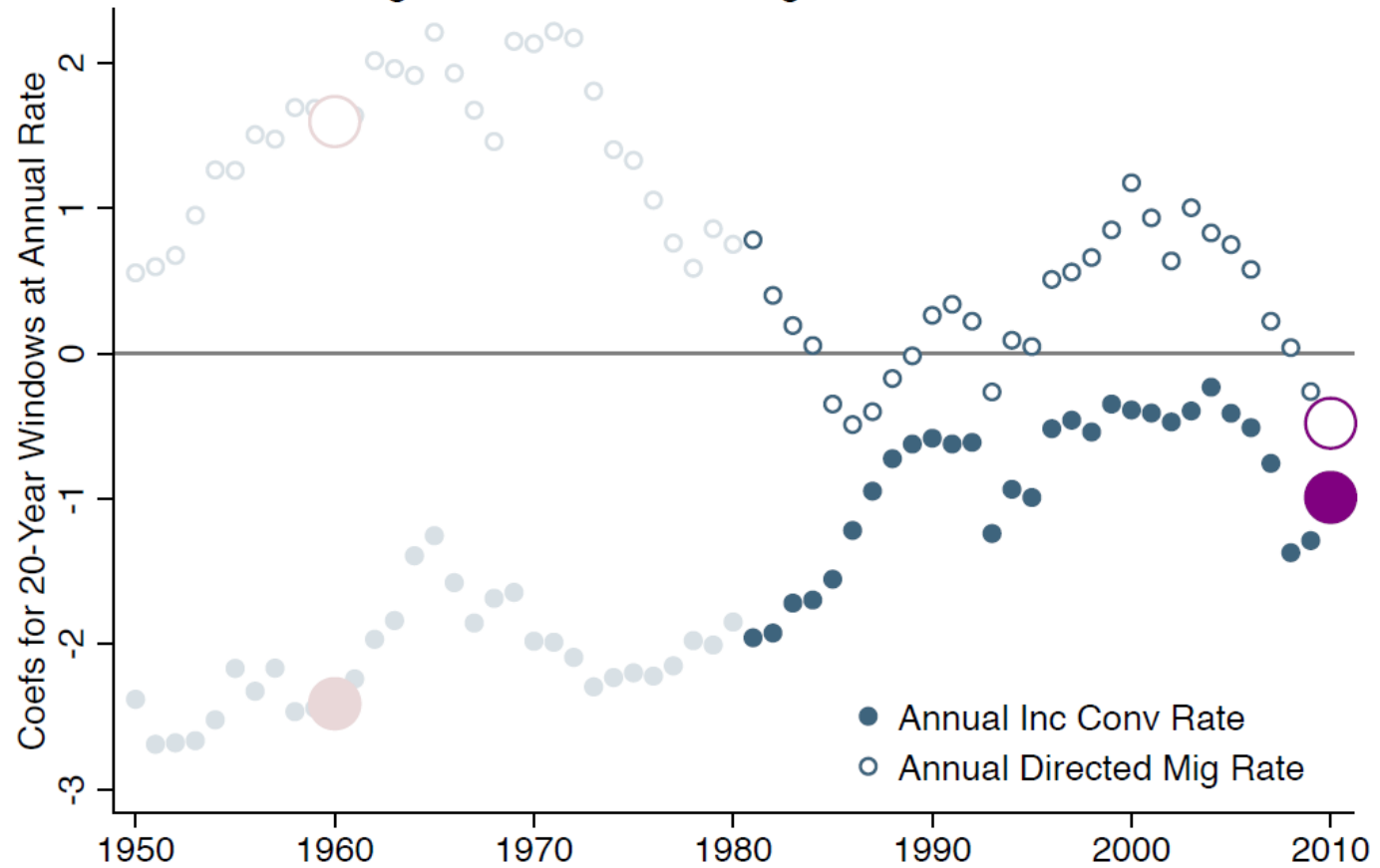


Convergence and Directed Migration Rates Over Time



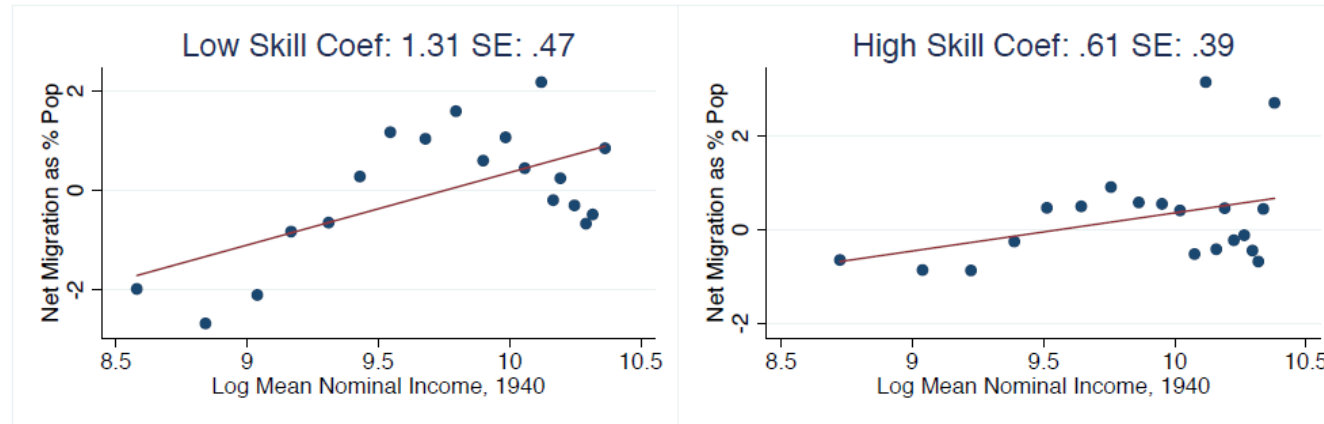


Convergence and Directed Migration Rates Over Time



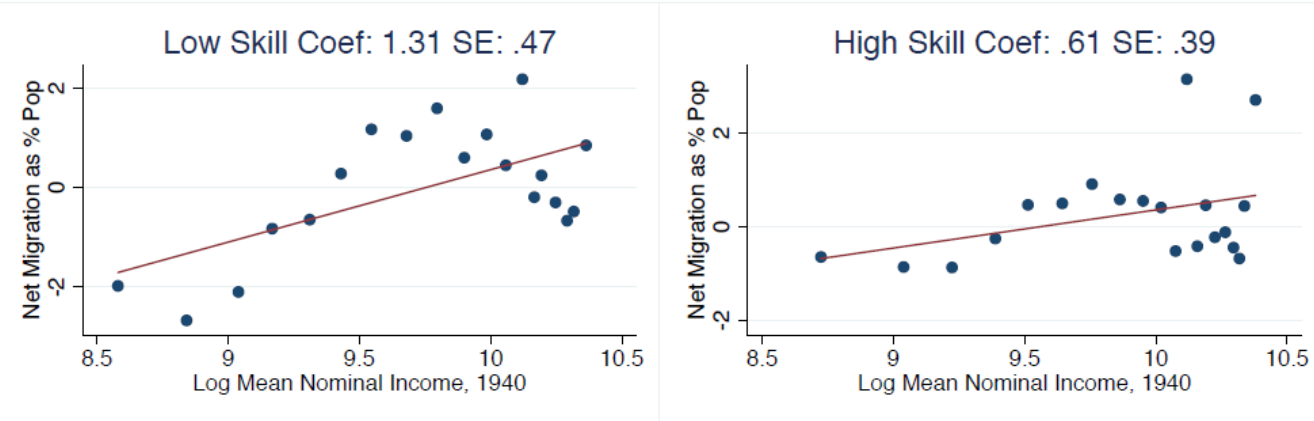
## Nominal Income and Net Migration

SEA-level, 1935-1940

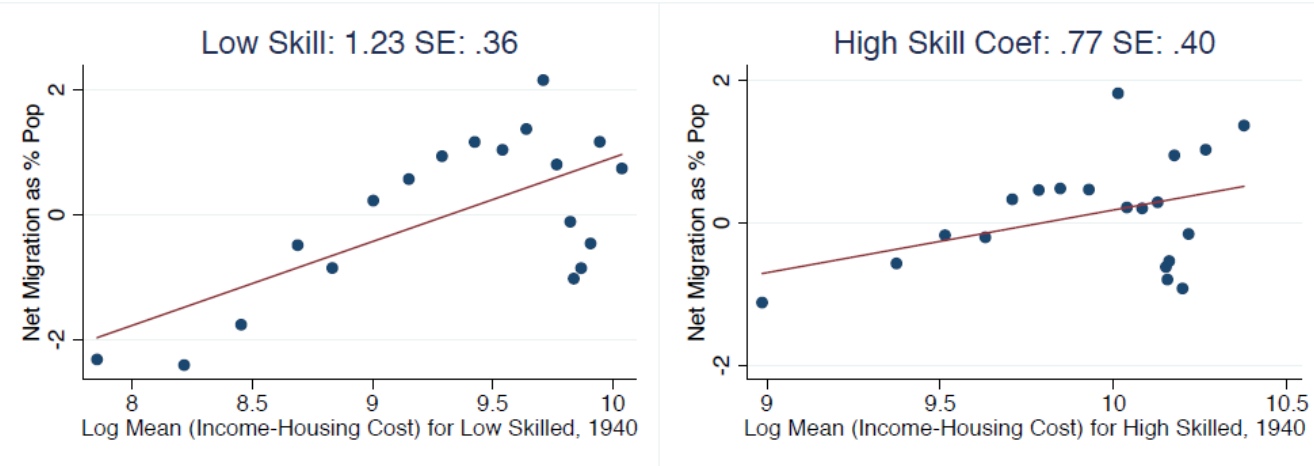


## Nominal Income and Net Migration

SEA-level, 1935-1940

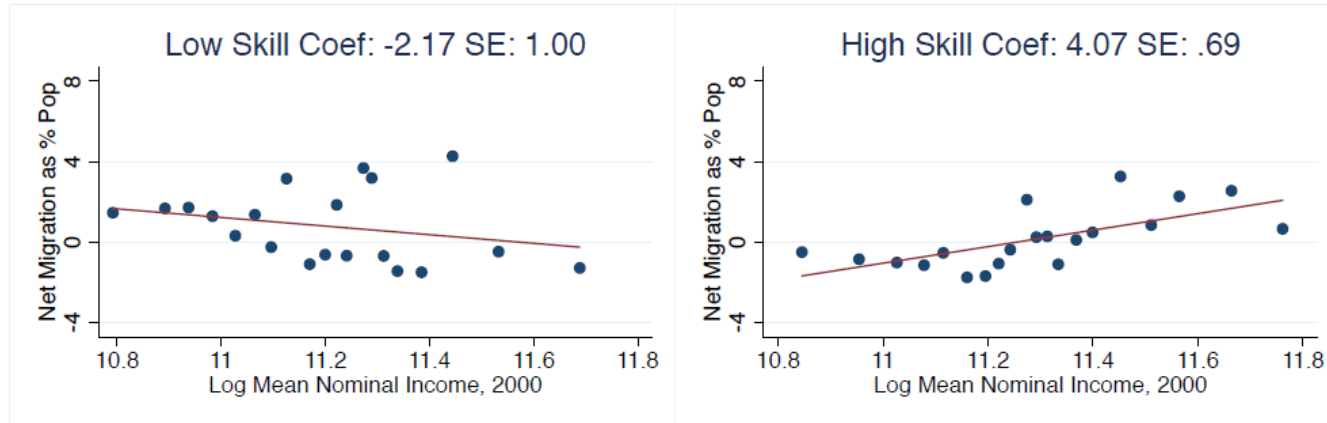


## Real Income and Net Migration



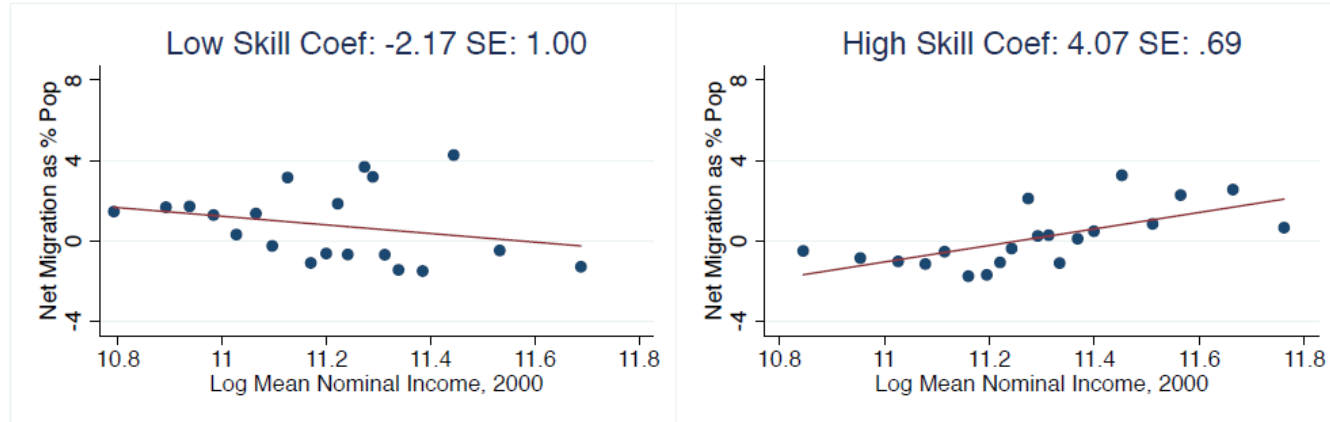
## Nominal Income and Net Migration

PUMA-level, 1995-2000

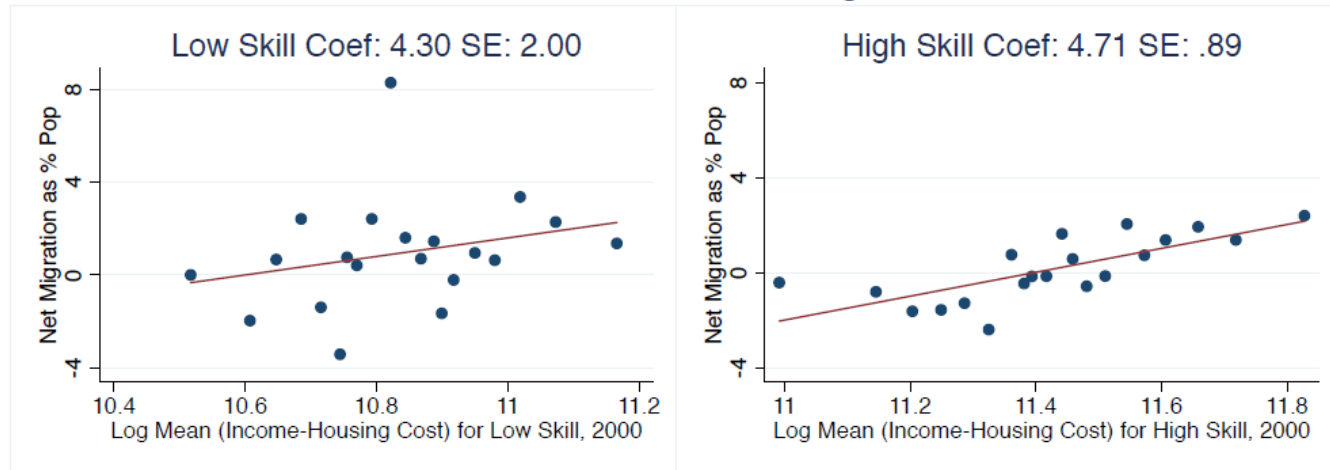


## Nominal Income and Net Migration

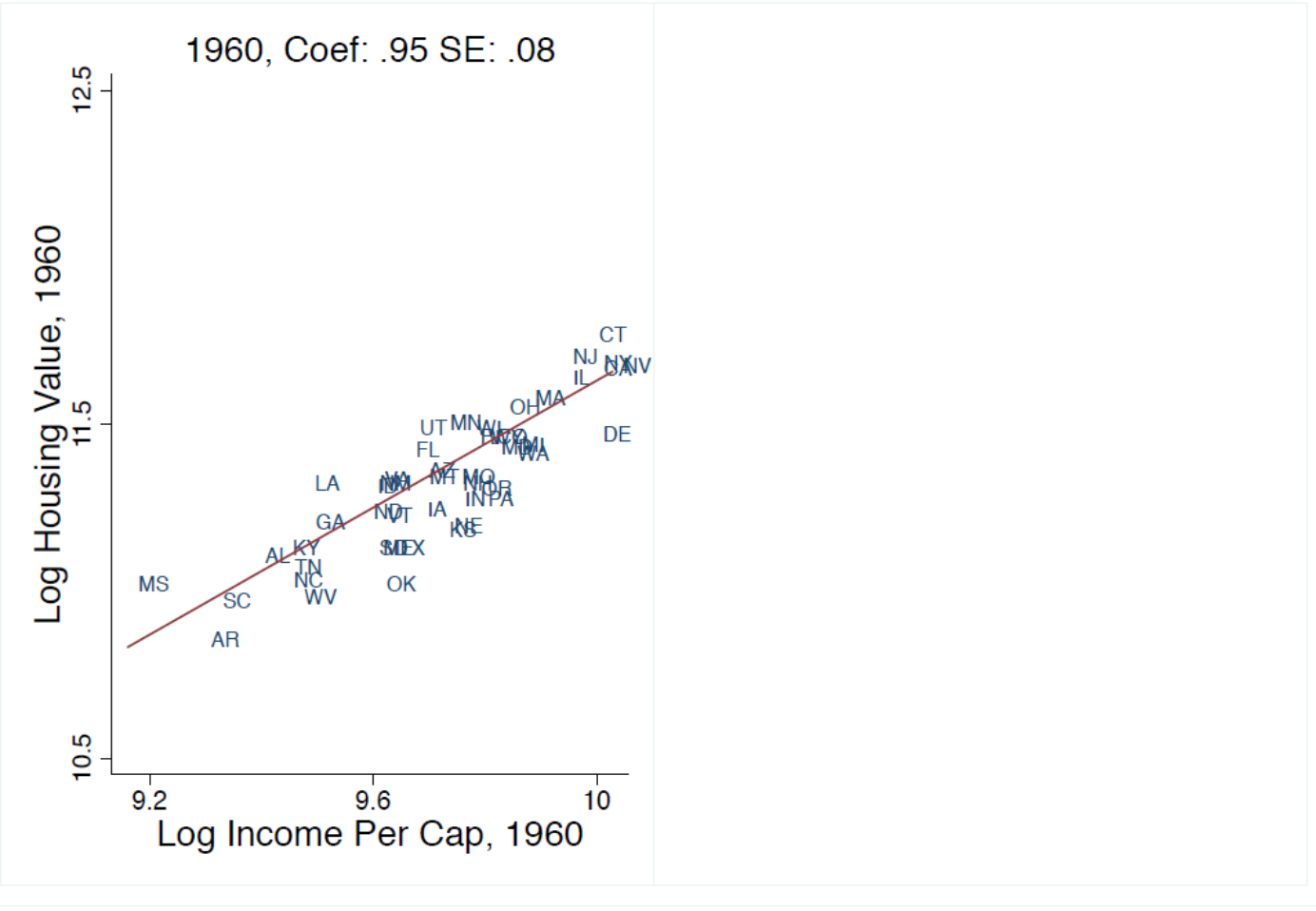
PUMA-level, 1995-2000



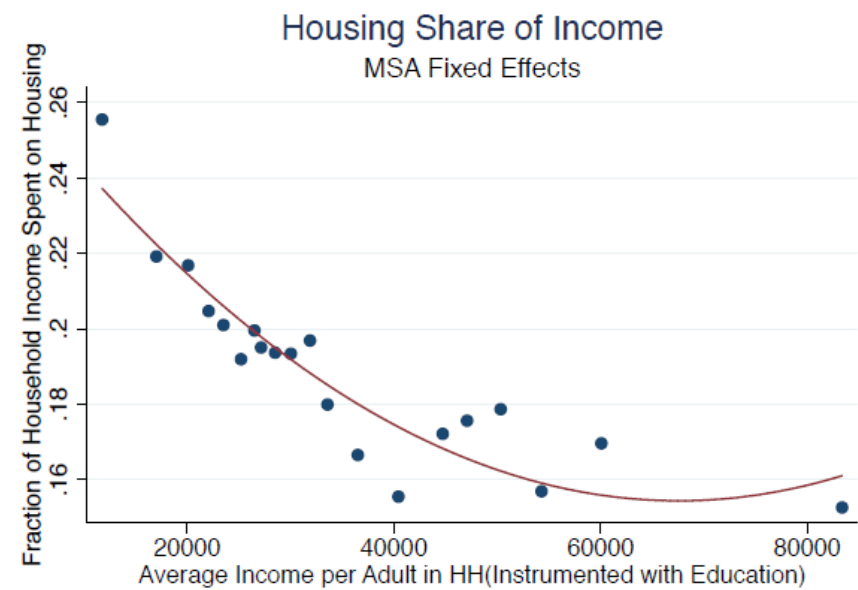
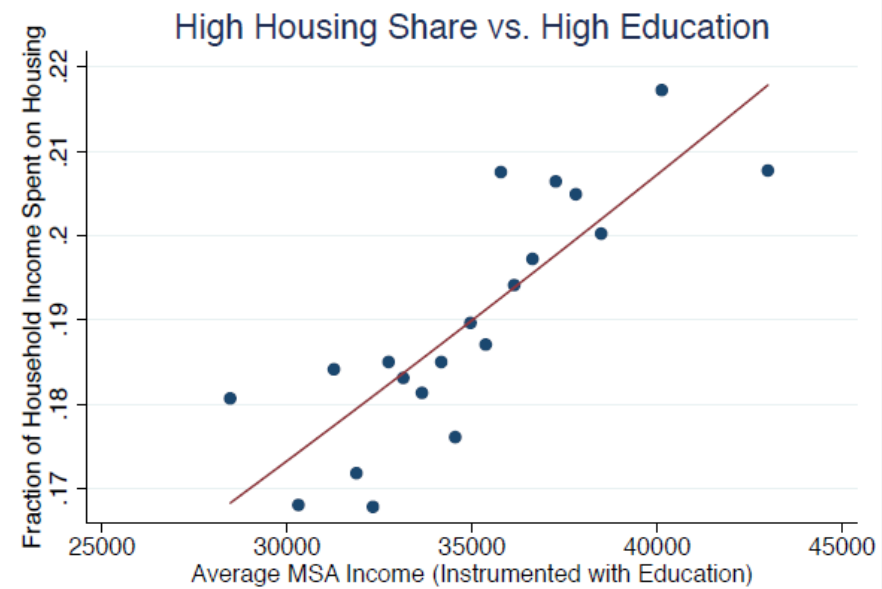
## Real Income and Net Migration



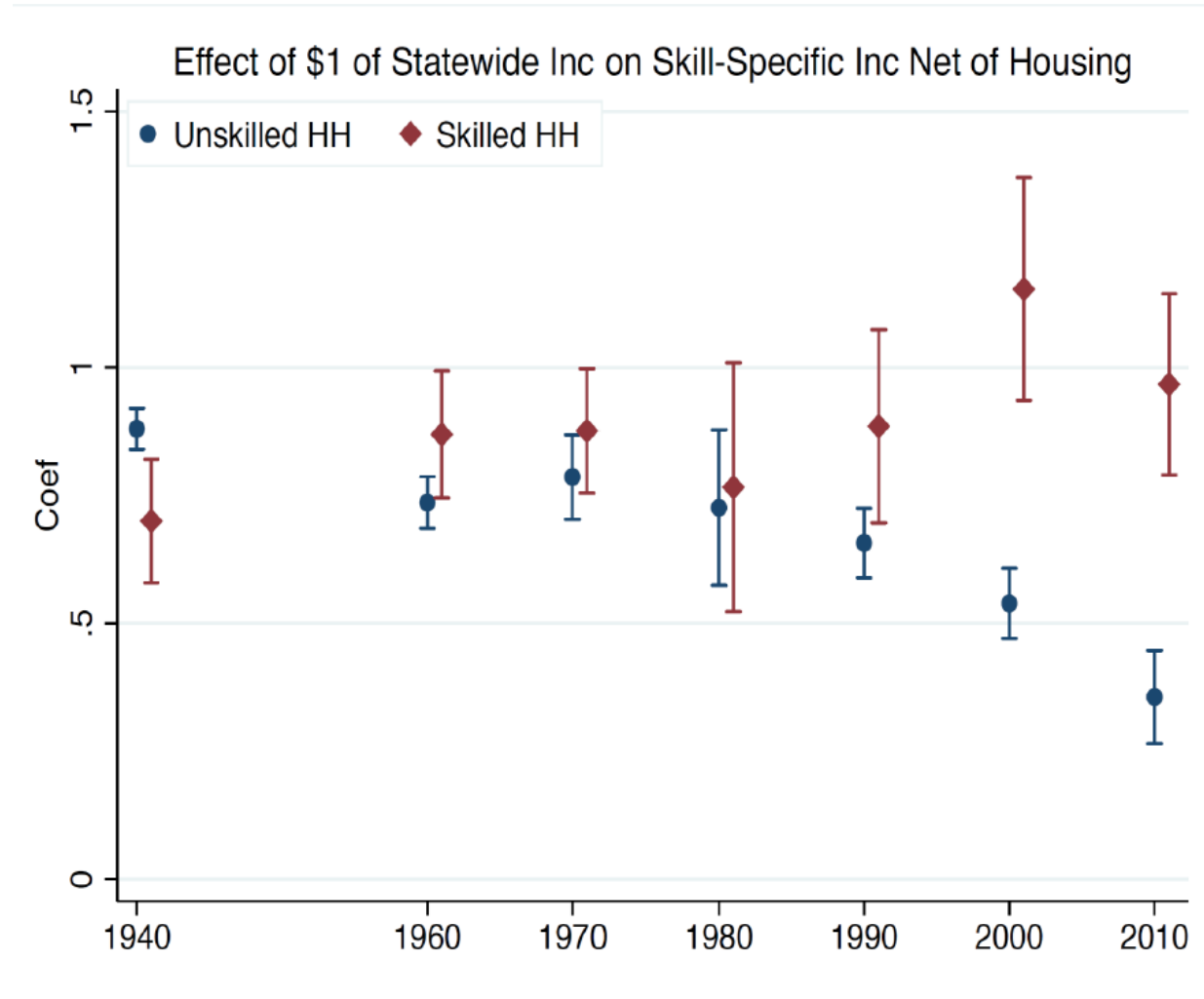
# Income and Housing Prices

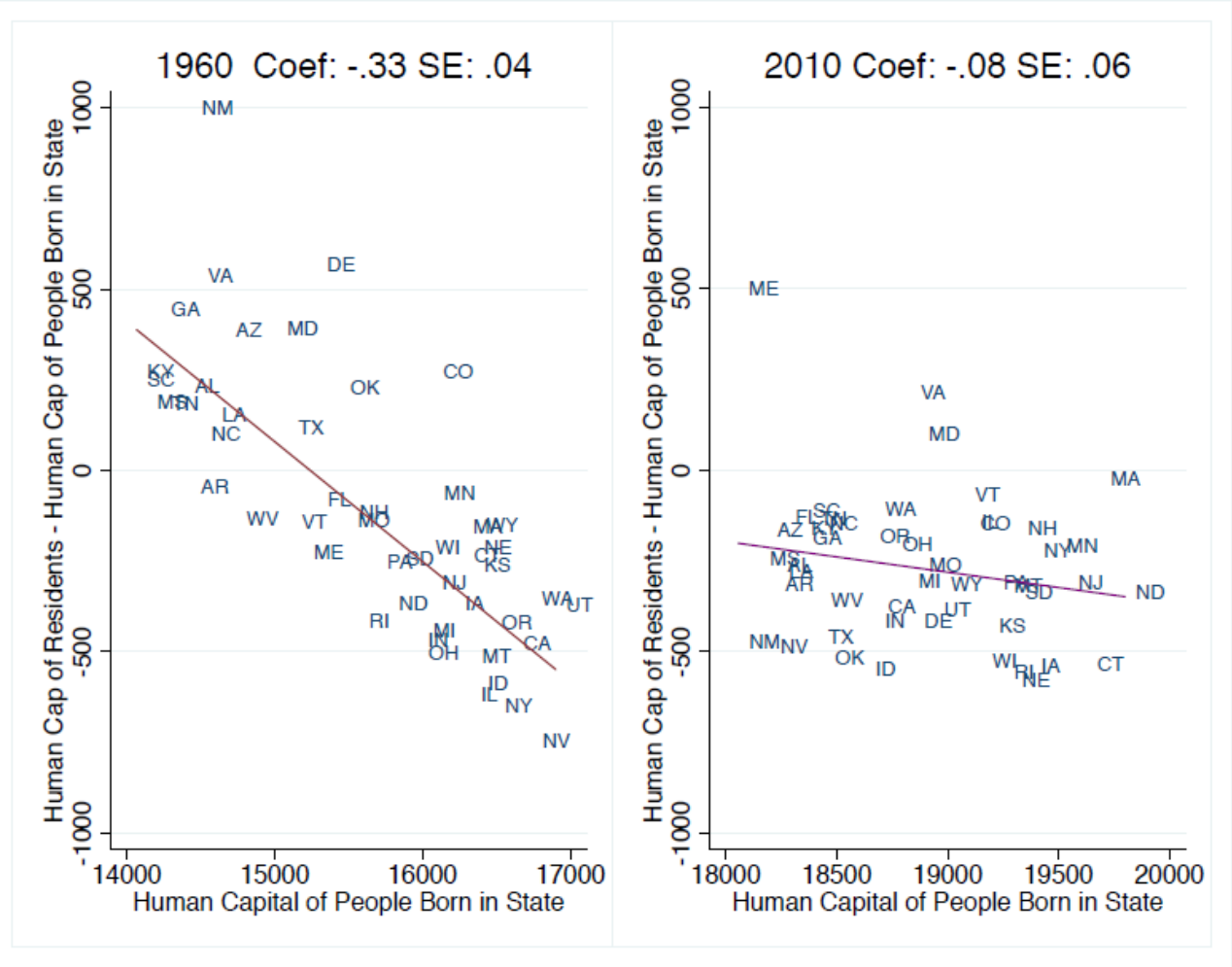


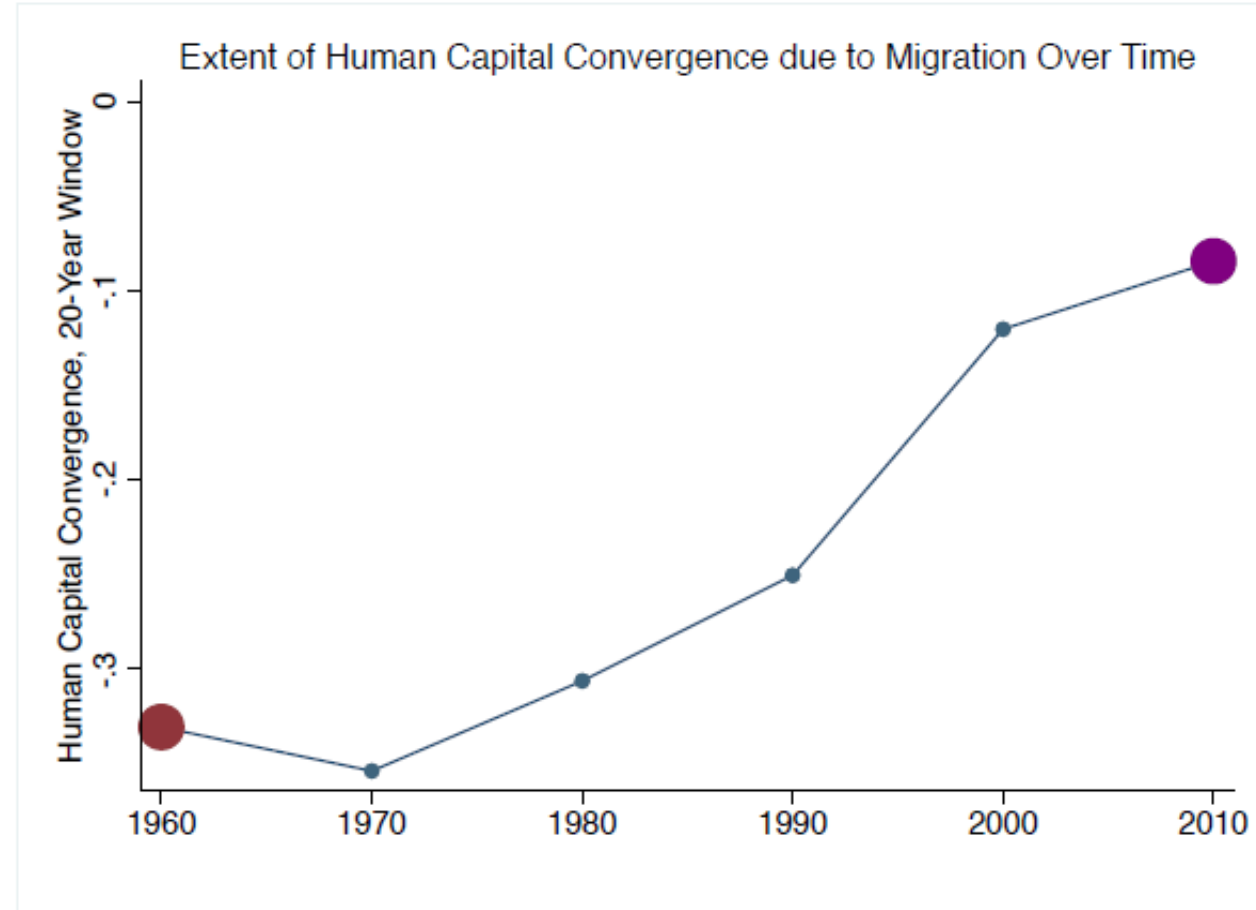




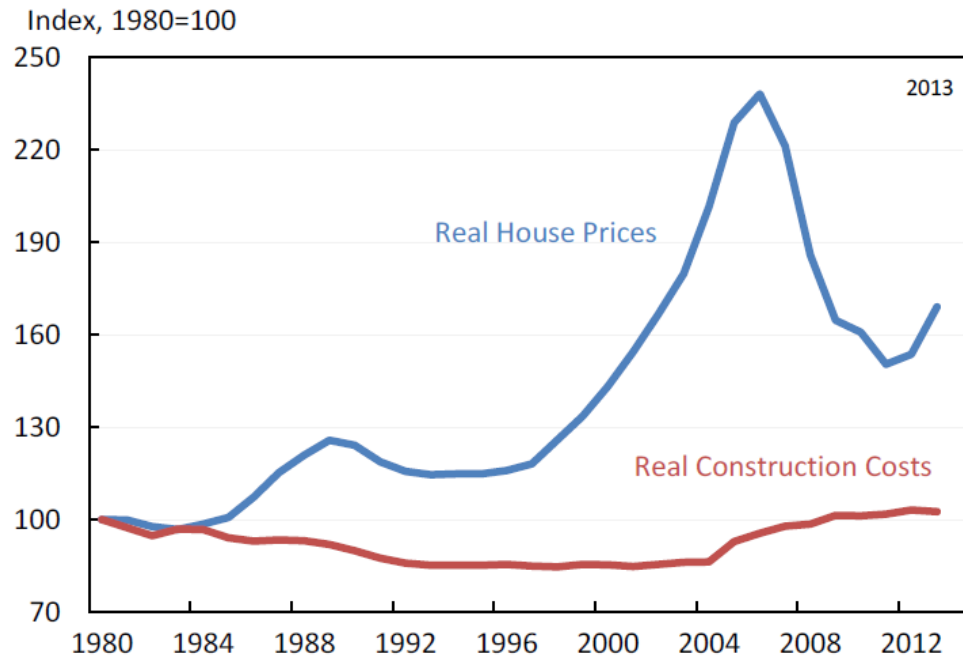


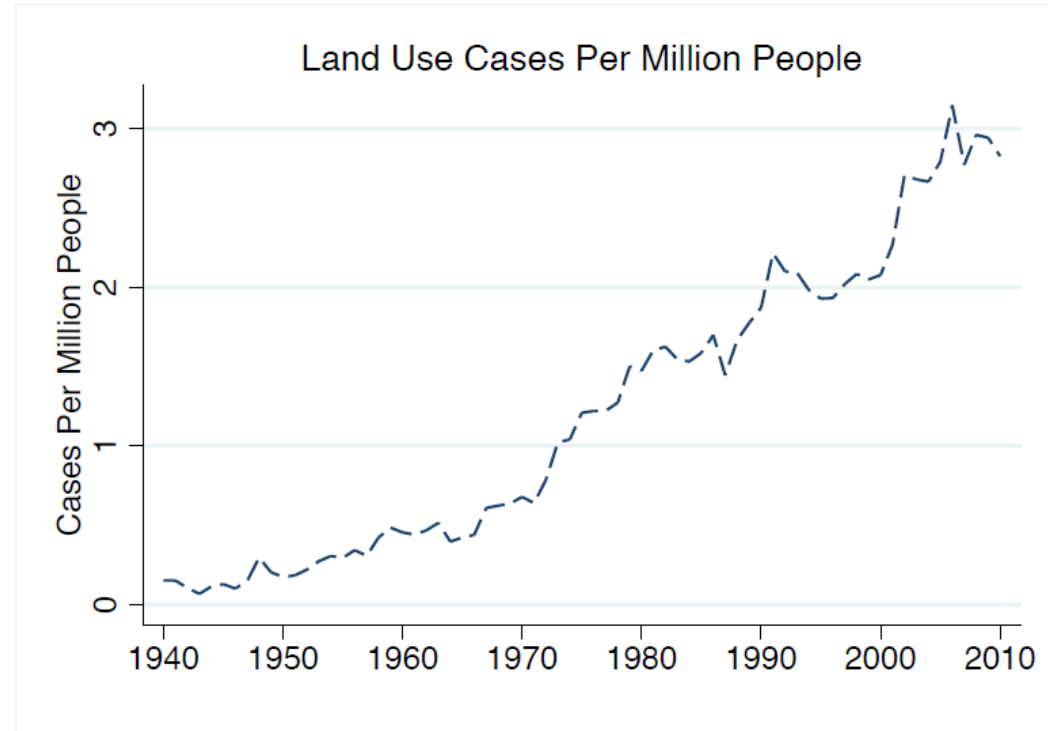


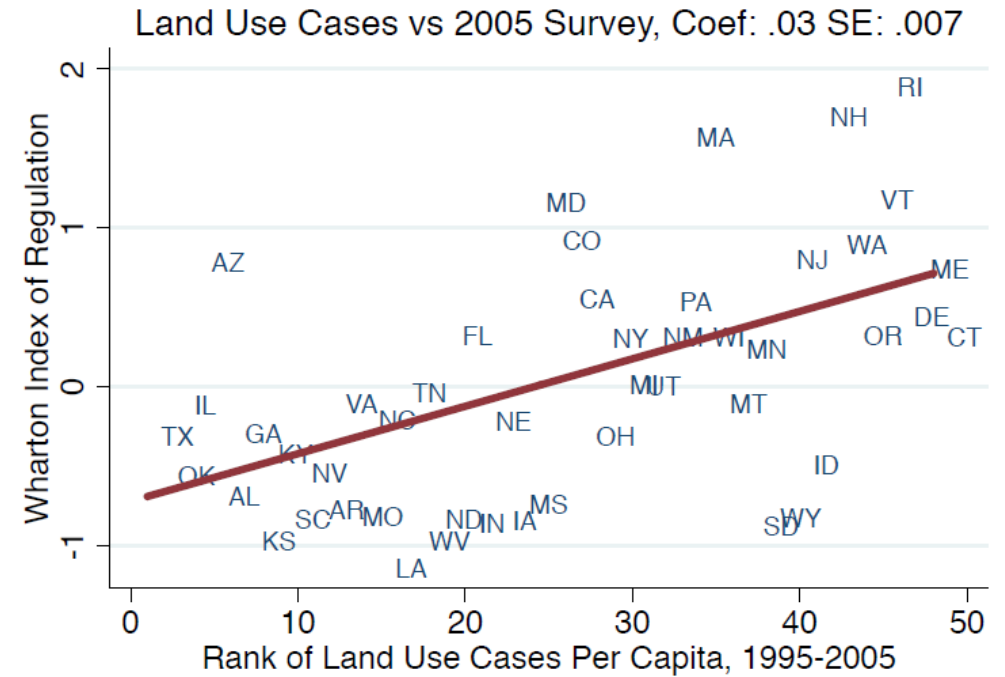
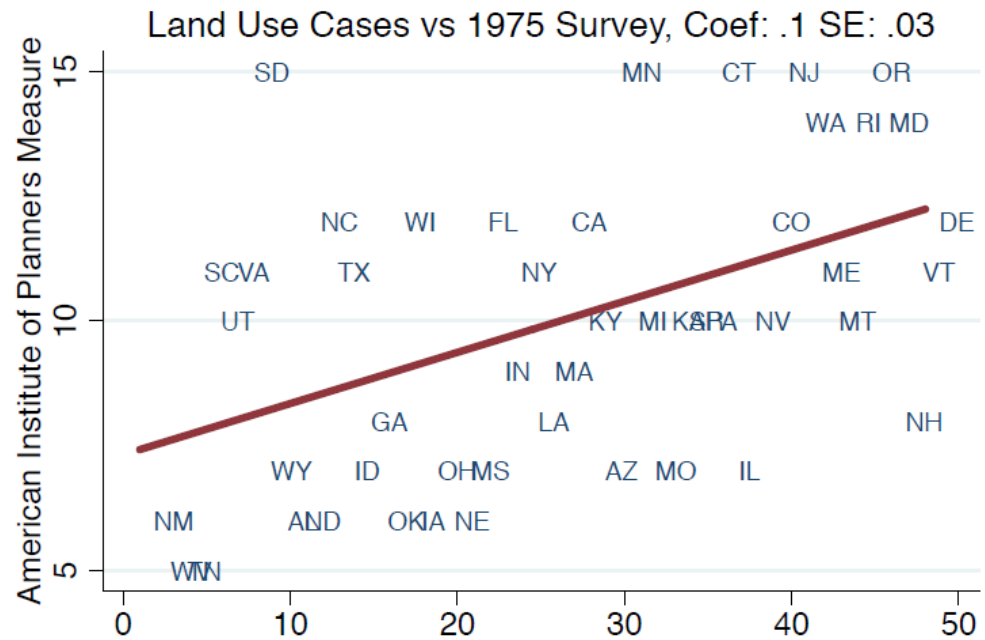




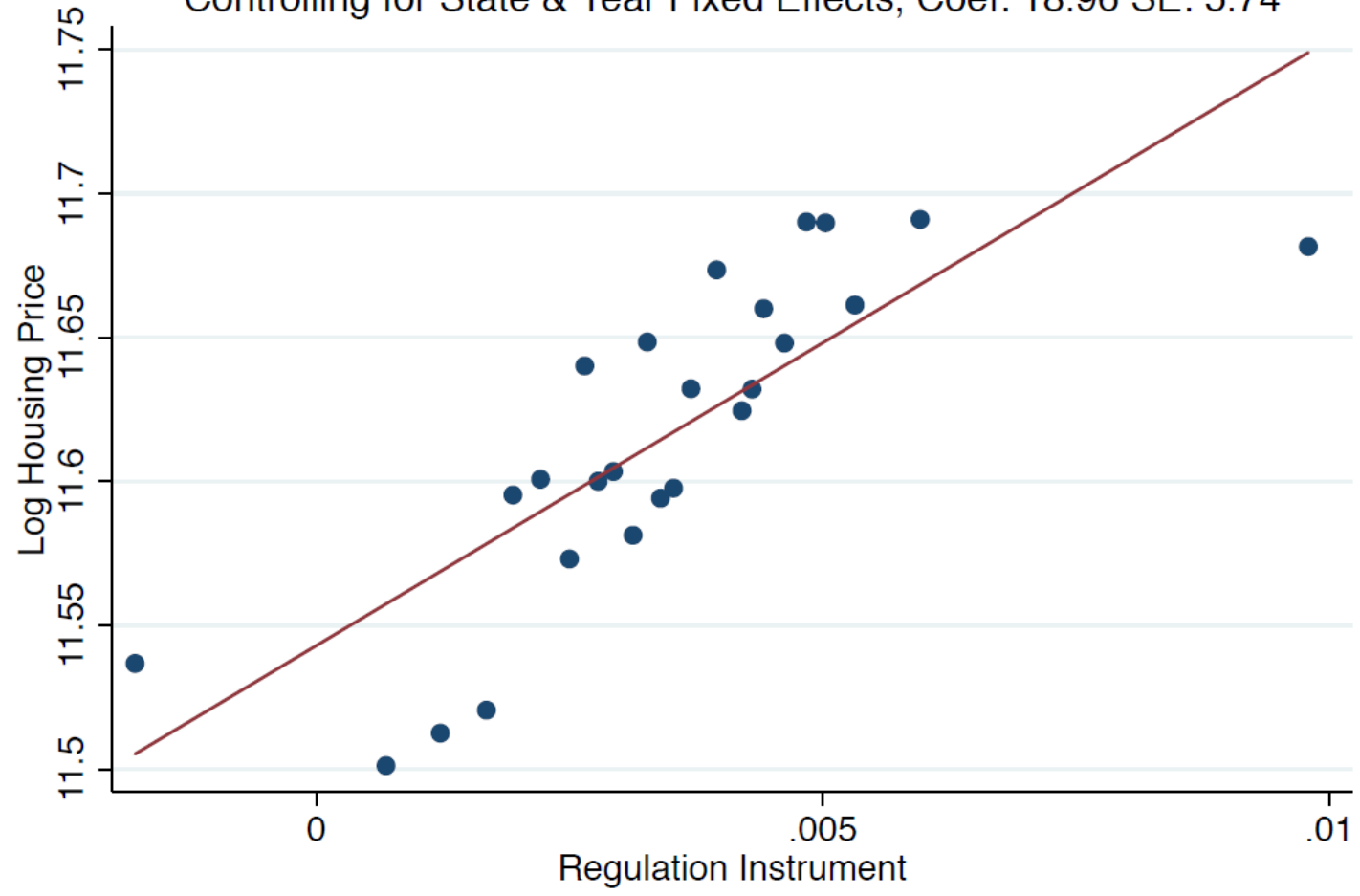
## Real Construction Costs and House Prices Over Time



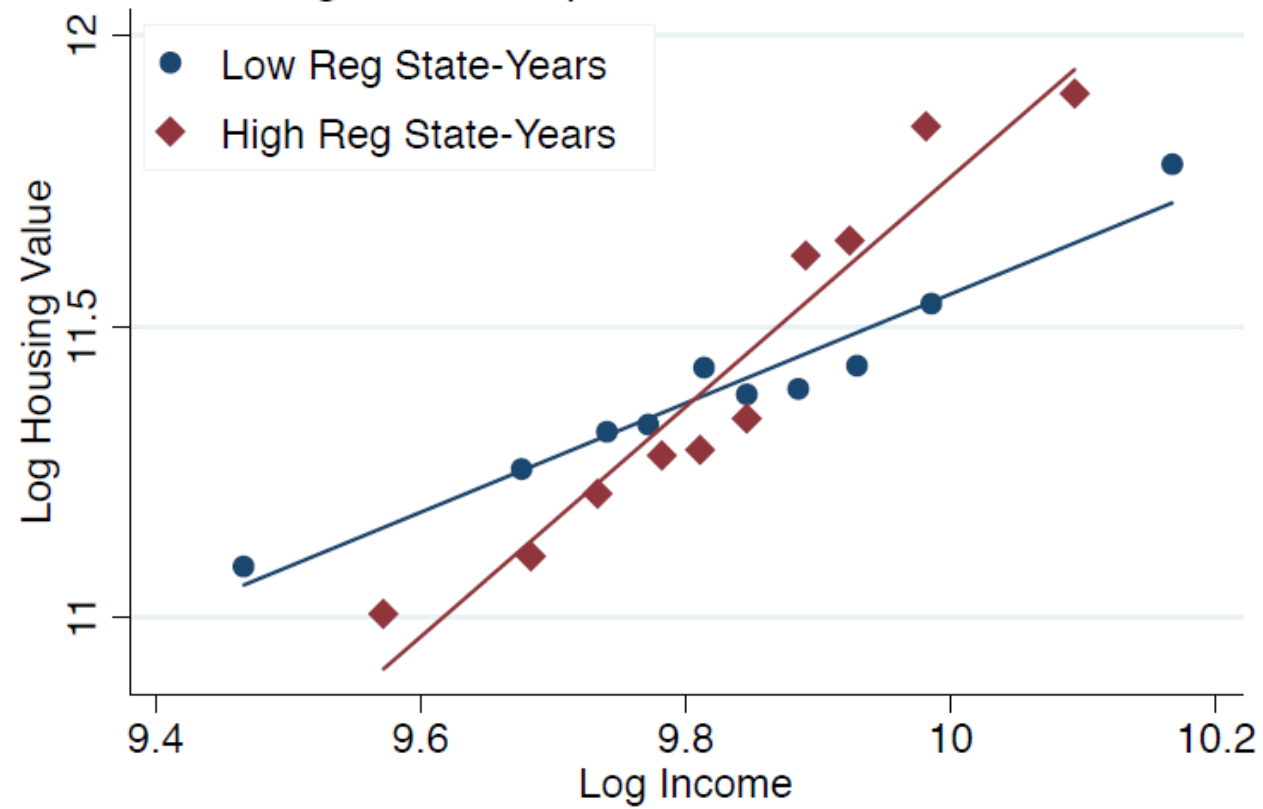




Housing Prices vs. Regulation  
Controlling for State & Year Fixed Effects, Coef: 18.96 SE: 5.74

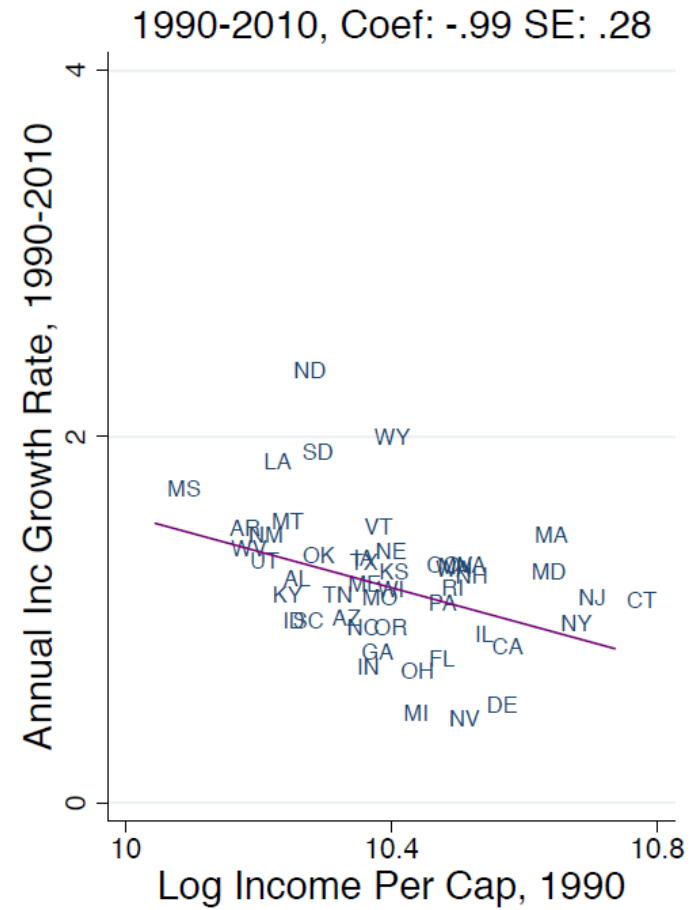
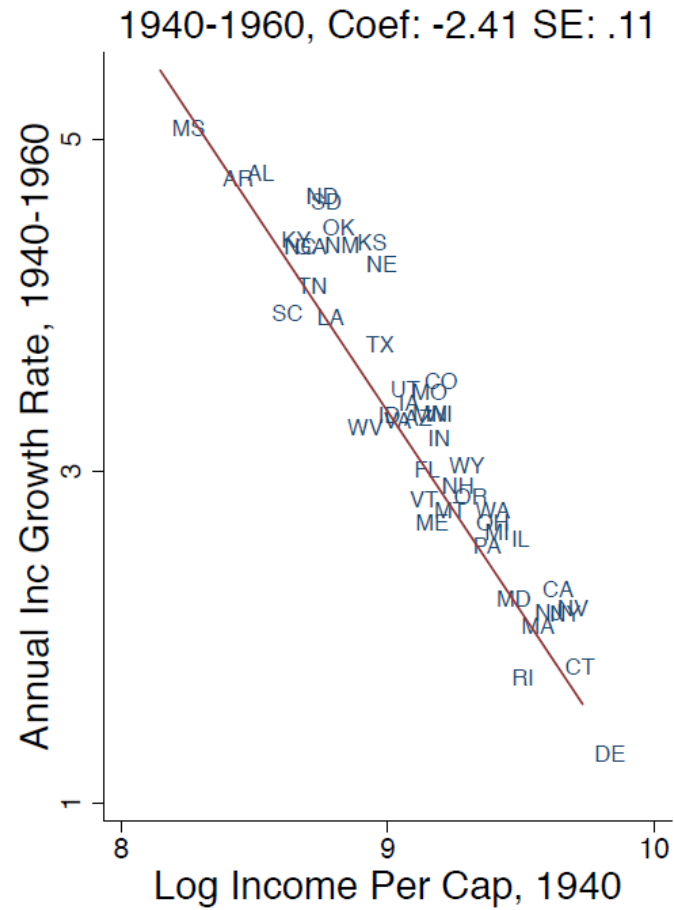


Regulations Capitalize Incomes into Prices

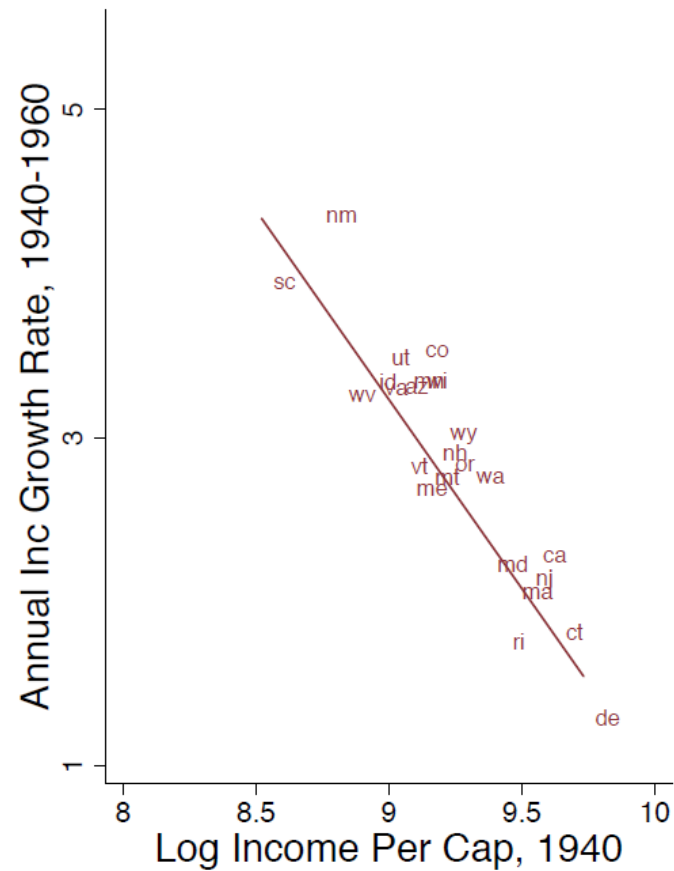




## Change in Income Convergence

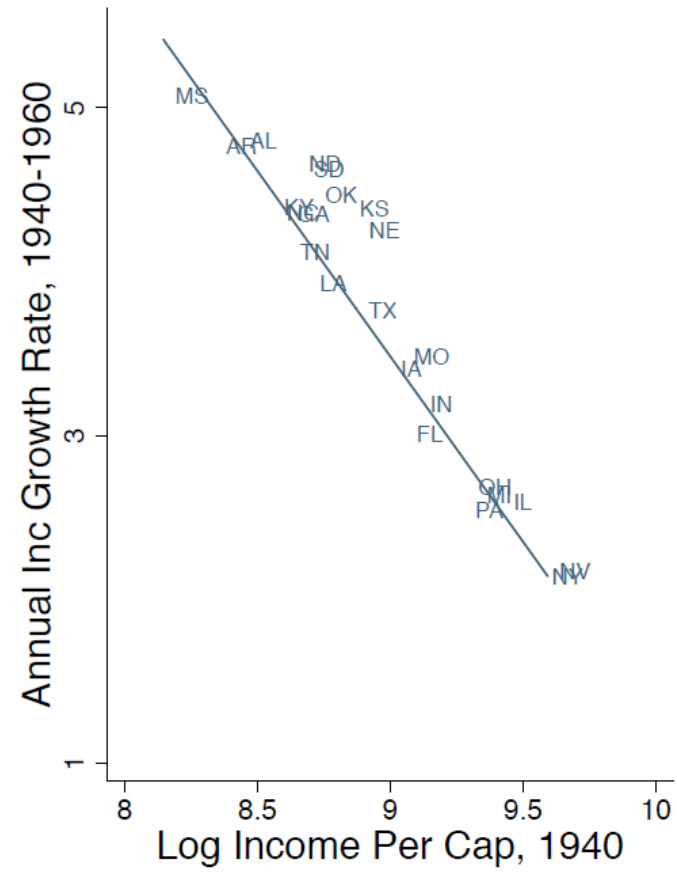


## Change in Income Convergence, By Housing Elasticity



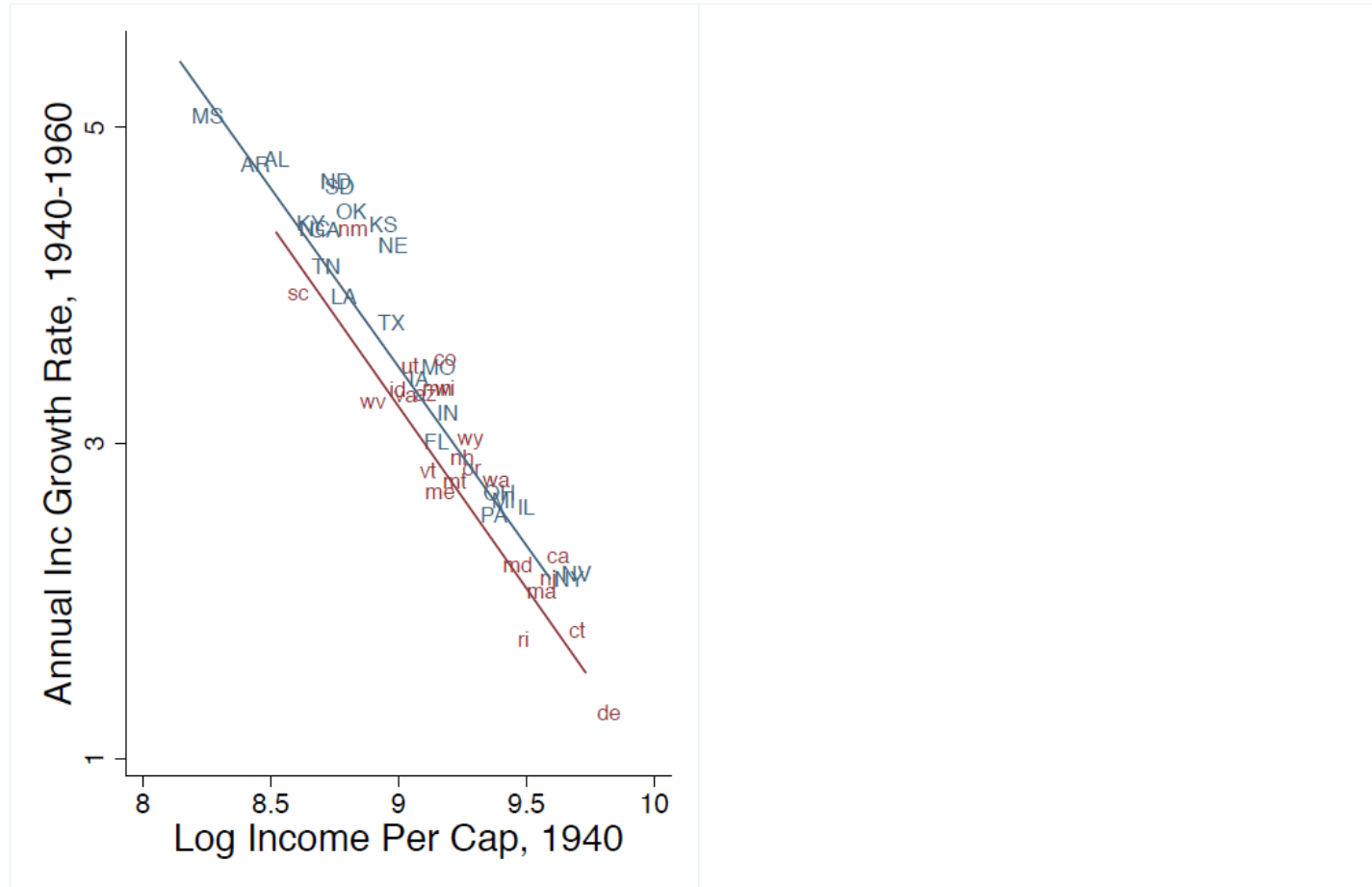
High elasticity states in blue upper case. Low elasticity states in red lower case

## Change in Income Convergence, By Housing Elasticity



High elasticity states in blue upper case. Low elasticity states in red lower case

## Change in Income Convergence, By Housing Elasticity



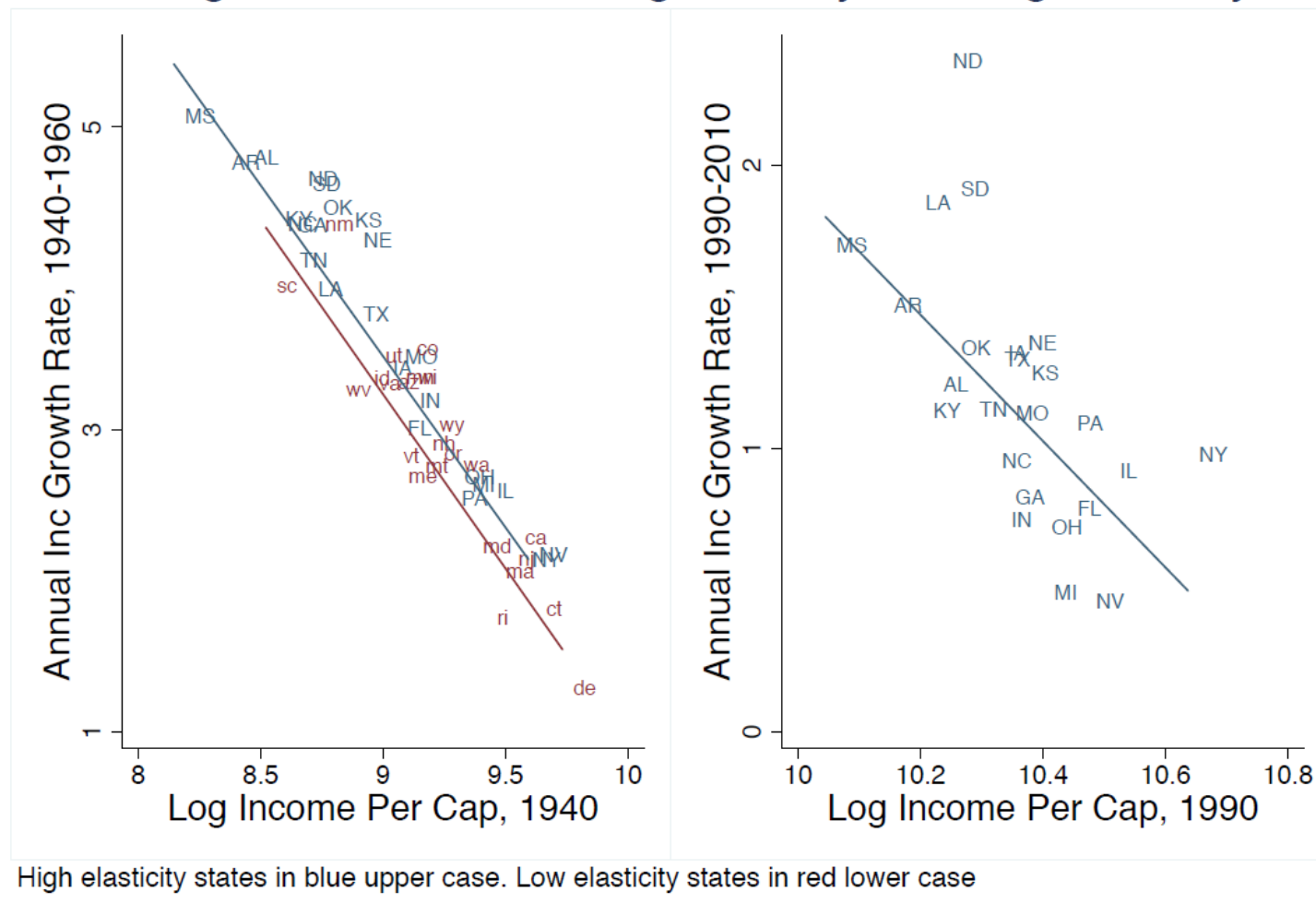
High elasticity states in blue upper case. Low elasticity states in red lower case

## Change in Income Convergence, By Housing Elasticity

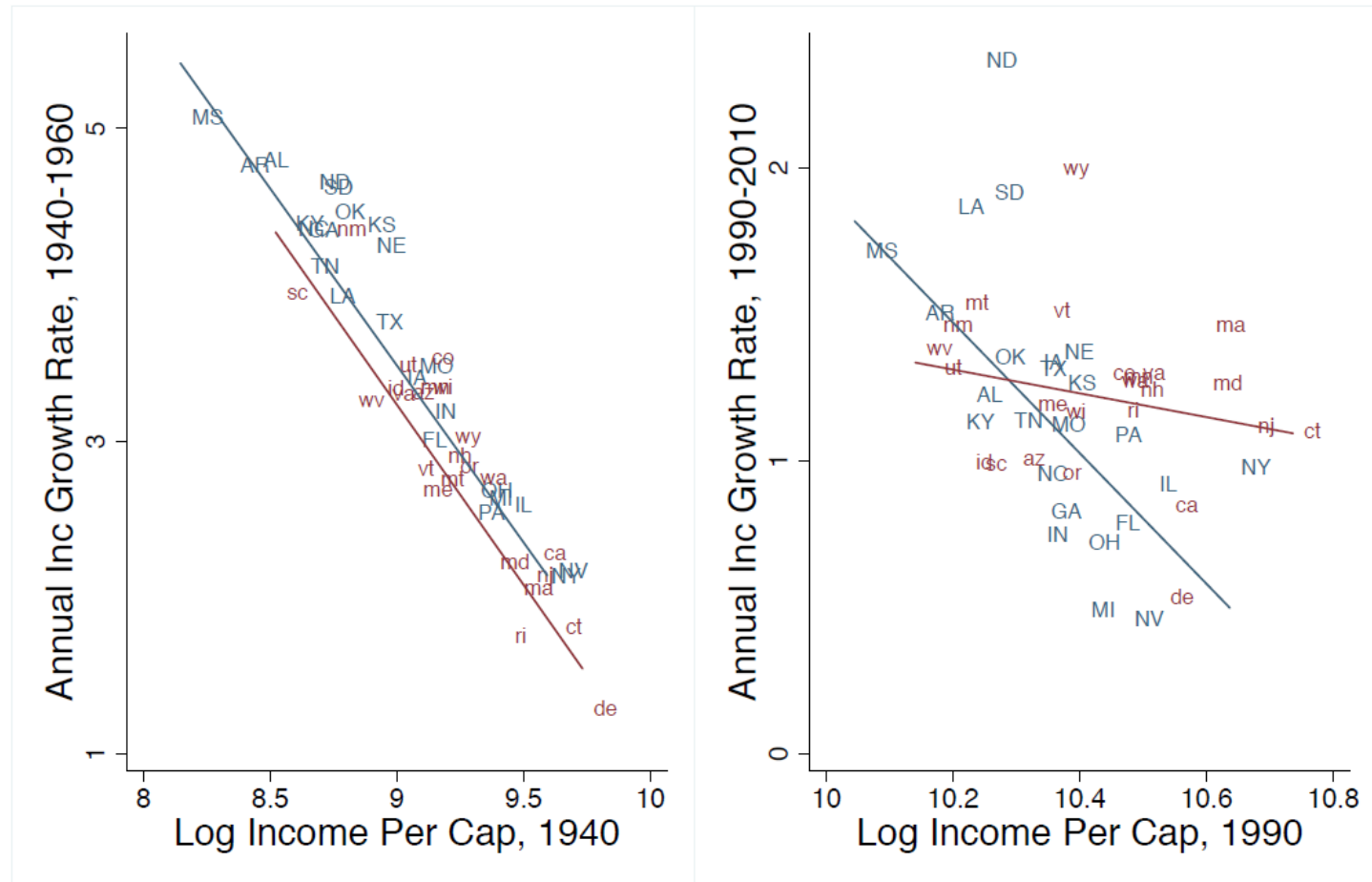


High elasticity states in blue upper case. Low elasticity states in red lower case

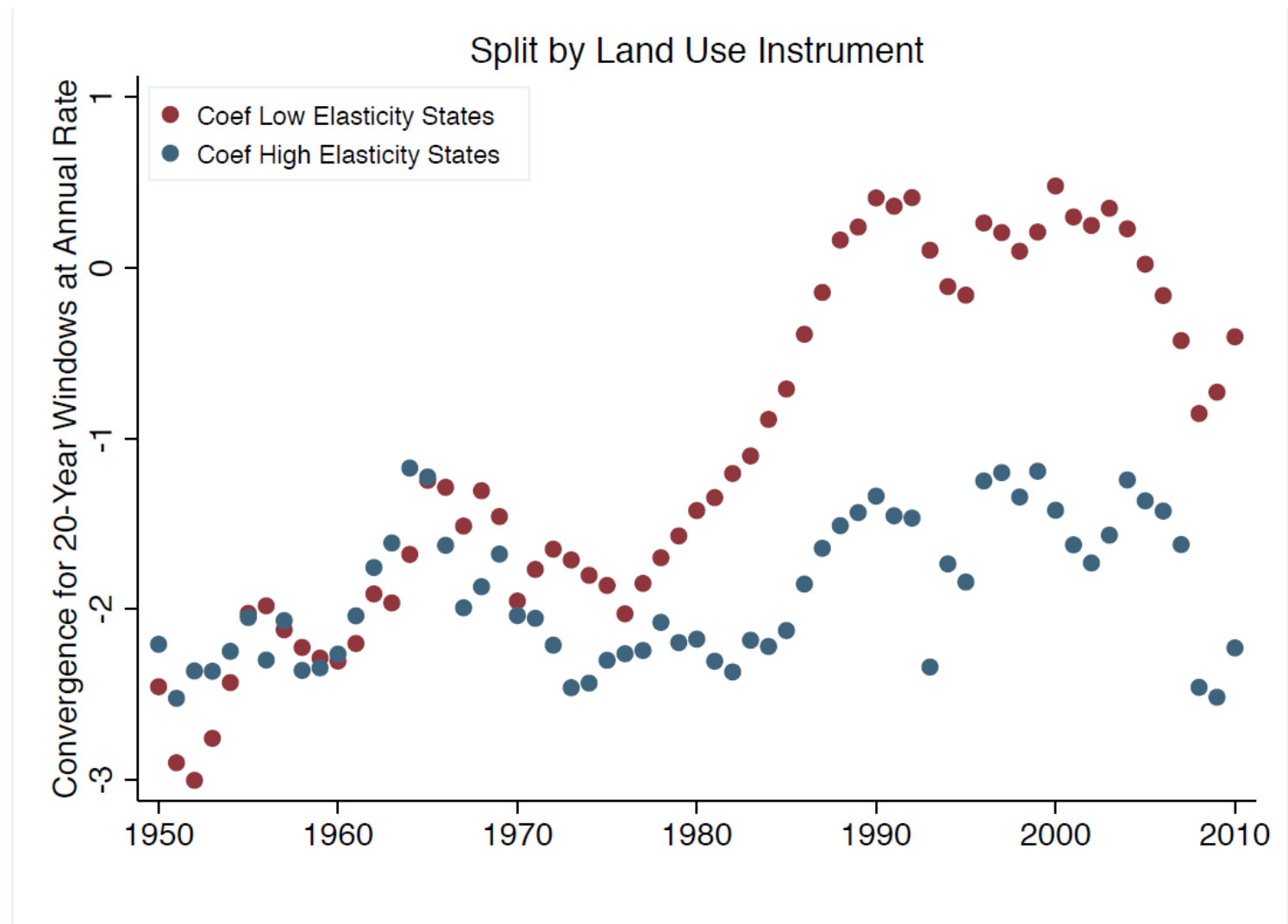
## Change in Income Convergence, By Housing Elasticity



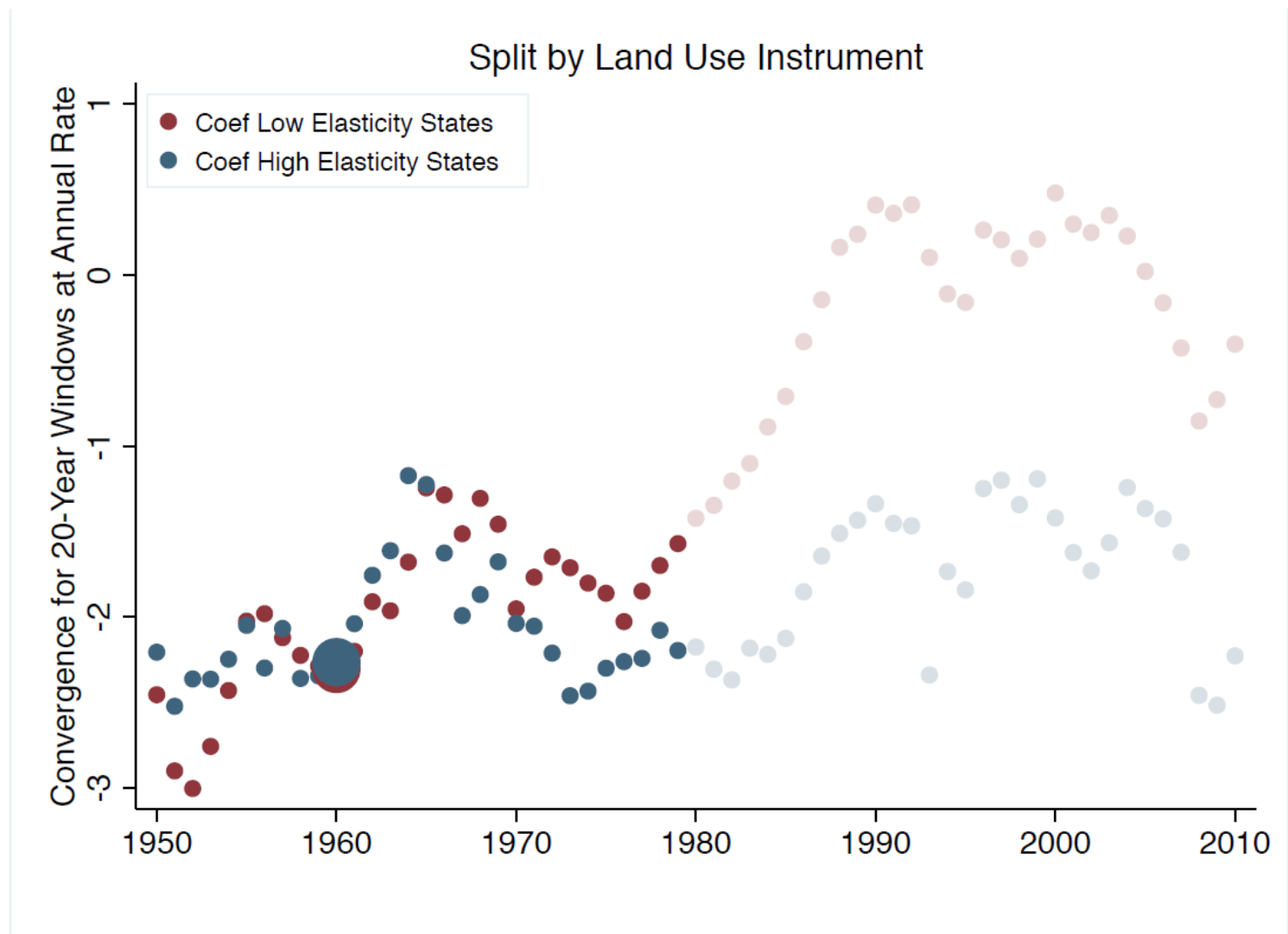
## Change in Income Convergence, By Housing Elasticity

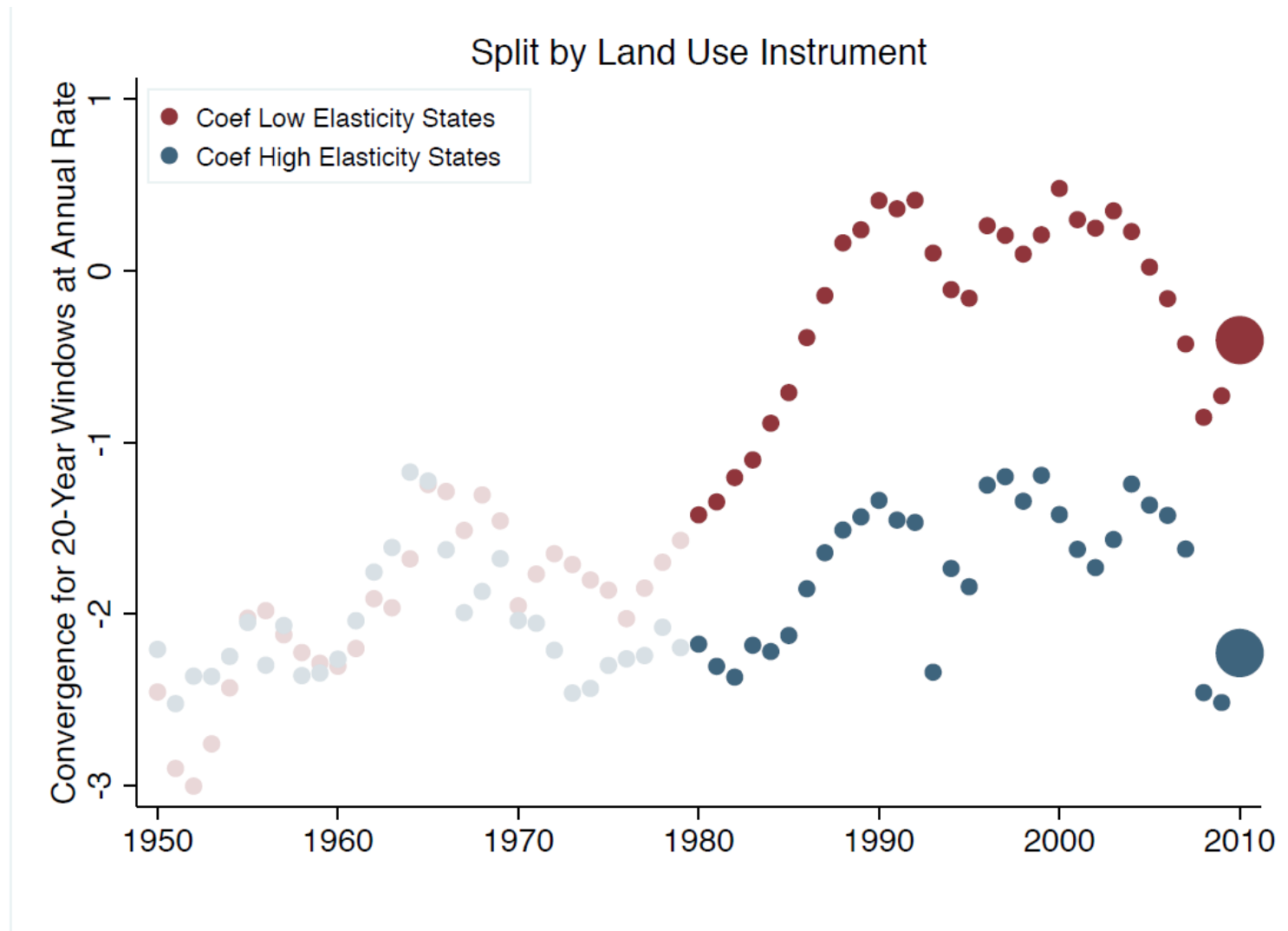


High elasticity states in blue upper case. Low elasticity states in red lower case









## How Regulations Affect Convergence

Dep Var	$\ln p_{t-20}^{house}$	$d \ln pop$	$d \ln HumanCapital$	$d \ln Inc$
Income, t-20	0.77*** (0.11)			
Income, t-20	0.83***			
*Low Elasticity	(0.26)			
N	384			

Indicators for Low Elasticity by Year in all specifications.

## How Regulations Affect Convergence

Dep Var	$\ln p_{t-20}^{house}$	$d \ln pop$	$d \ln HumanCapital$	$d \ln Inc$
Income, t-20	0.77*** (0.11)	1.69** (0.64)		
Income, t-20	0.83***	-1.88***		
*Low Elasticity	(0.26)	(0.61)		
N	384	2448		

Indicators for Low Elasticity by Year in all specifications.

## How Regulations Affect Convergence

Dep Var	$\ln p_{t-20}^{house}$	$d \ln pop$	$d \ln HumanCapital$	$d \ln Inc$
Income, t-20	0.77*** (0.11)	1.69** (0.64)	-0.043*** (.007)	
Income, t-20	0.83*** (0.26)	-1.88*** (0.61)	0.040** (0.016)	
*Low Elasticity				
N	384	2448	288	
Indicators for Low Elasticity by Year in all specifications.				

## How Regulations Affect Convergence

Dep Var	$\ln p_{t-20}^{house}$	$d \ln pop$	$d \ln HumanCapital$	$d \ln Inc$
Income, t-20	0.77*** (0.11)	1.69** (0.64)	-0.043*** (.007)	-2.034*** (0.10)
Income, t-20	0.83***	-1.88***	0.040**	1.30***
*Low Elasticity	(0.26)	(0.61)	(0.016)	(0.39)
N	384	2448	288	2448
Indicators for Low Elasticity by Year in all specifications.				

## How Regulations Affect Convergence

Dep Var	$\ln p_{t-20}^{house}$	$d \ln pop$	$d \ln HumanCapital$	$d \ln Inc$
Income, t-20	0.77*** (0.11)	1.69** (0.64)	-0.043*** (.007)	-2.034*** (0.10)
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N	384	2448	288	2448

Indicators for Low Elasticity by Year in all specifications.



# Takeaways

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- Land use restrictions have macro consequences
  - Decreased productivity
  - Increased inequality
- Increasing concern in policy circles
- New data and directions
  - I am excited to hear your ideas!
  - [Dan\\_Shoag@hks.Harvard.edu](mailto:Dan_Shoag@hks.Harvard.edu)