

# Public Insurance in Fiscal Federations: Evidence from the USA

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– European University Institute –

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*WORK IN PROGRESS*

# Inequality and Insurance in Fiscal Federations

## Introduction

There are several reasons why federal, not regional governments should tackle income inequality and provide insurance against income risk

- ▶ tax base mobility can lead to adverse sorting
- ▶ regional fiscal resources differ

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- ▶ tax base mobility can lead to adverse sorting
- ▶ regional fiscal resources differ

But there are considerable constraints to federal policies

- ▶ practical and legal restrictions on discriminating between regions
- ▶ regional differences in
  - ▶ price levels [Price Indices](#)
  - ▶ income distributions [Poverty in US states](#)
- ▶ regional fiscal autonomy

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How much public insurance in the US?

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  - ▶ faces state specific
    1. prices
    2. policies
    3. income distributions
  - ▶ aims to
    - ▶ provide public insurance against household earnings risk Risk
    - ▶ implement federation-wide uniform insurance (accounting for 1, 2, 3)

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    - ▶ implement federation-wide uniform insurance (accounting for 1, 2, 3)
- ▶ **Does the US federal government achieve this objective?**

# Our Paper

## Methodology and Contribution

- ▶ We build a microsimulation model of US federal and state policies
  - ▶ considers federal and state income taxes and transfers [Table](#)
  - ▶ estimates changes in household tax liabilities and transfer entitlements as (labor) income changes [EMTRs](#) [CBO Chart](#)
  - ▶ includes a measure for the 'real value' of the associated insurance

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  - ▶ includes a measure for the 'real value' of the associated insurance
- ▶ The model allows to
  - ▶ overcome data restrictions (income shocks; sparse hh panels)
  - ▶ decompose effects of federal and state policies, and prices
  - ▶ account for heterogeneity across years and income groups



## Methodology and Model

# Why we look at taxes and transfers

- ▶ For households income shocks  $\varepsilon$  can be absorbed by

## 1. Public insurance

- ▶ Net transfers  $T$  consisting of transfers ( $b$ ) and taxes ( $\tau$ )

$$T = b - \tau \text{ where } b \geq 0 \text{ and } \tau \leq 0$$

$T$  varies considerably across US states

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▶ Medicaid

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- ▶ asset holdings ( $A_t$ ), asset income ( $R_t^A$ )
- ▶ flexible labor supply, job transition or migration

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## 3. Changes in consumption

- ▶ Channels 1 to 3 are reflected in the household budget

$$\varepsilon_t = -\Delta T_t^s - \Delta T_t^f - \underbrace{\Delta R_t^A + \Delta A_{t+1}}_{= 0 \text{ by assumption}} + \underbrace{\Delta C_t}_{\text{absorbs unsmoothed part}}$$

## Our prototype family: meet the Millers

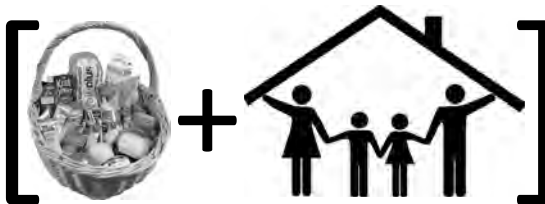
US federal and state taxes and transfers depend on family characteristics and income so during our simulation we hold fixed:

- ▶ Husband and wife
- ▶ Two children (ages 6-11)
- ▶ No disabilities
- ▶ Family home rented
- ▶ No other family members in home
- ▶ Family income = two equal full time labour incomes
- ▶ No job loss or hours adjustment
- ▶ No migration



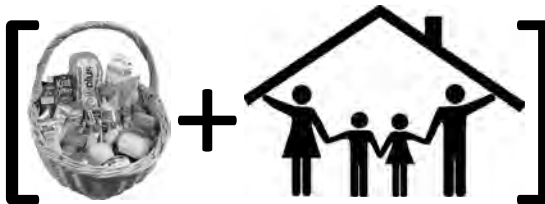
## The Subsistence Basket

We calculate real disposable incomes and shock sizes, using expenditure on a [subsistence basket](#) which varies by state, income group and year.



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We calculate real disposable incomes and shock sizes, using expenditure on a **subsistence basket** which varies by state, income group and year.



Subsistence baskets have two components:

1. Food

- ▶ Minimum *monthly* expenditure required for nutritious diet, as specified by federal Thrifty Food Plan TFP

2. Rent

- ▶ Average *monthly* rent payment for households in same state, same characteristics and similar income Rent



# Our Experiments

## Experiment 1

- ▶ Give Millers same **real** pre-tax income (45 baskets) in each US state
- ▶ Subject pre-tax income to shock of 5 baskets
- ▶ Calculate change in real disposable incomes
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## Experiment 3

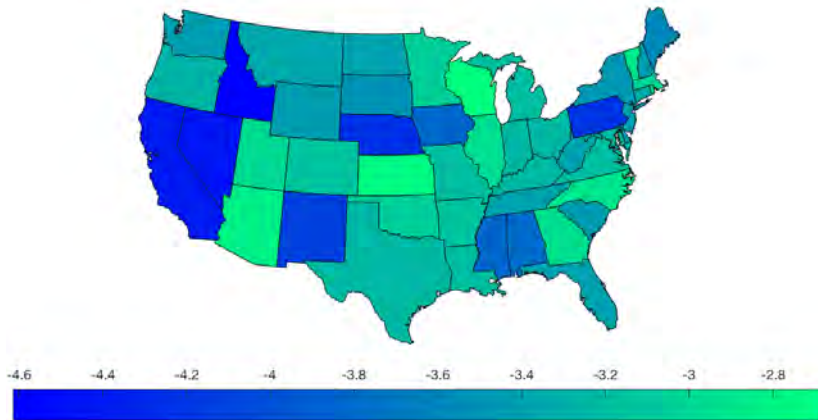
- ▶ Give Millers 10th percentile of state **real** pre-tax income pc. of 45 baskets
- ▶ Subject pre-tax income to shock of 10%  
→ shock is same proportion of real income in each state
- ▶ Experiment continues as above

## Results

# Results: Experiment 1

For same real incomes (45 baskets)

Income insurance in 2004: Number of baskets lost  
(Experiment 1)



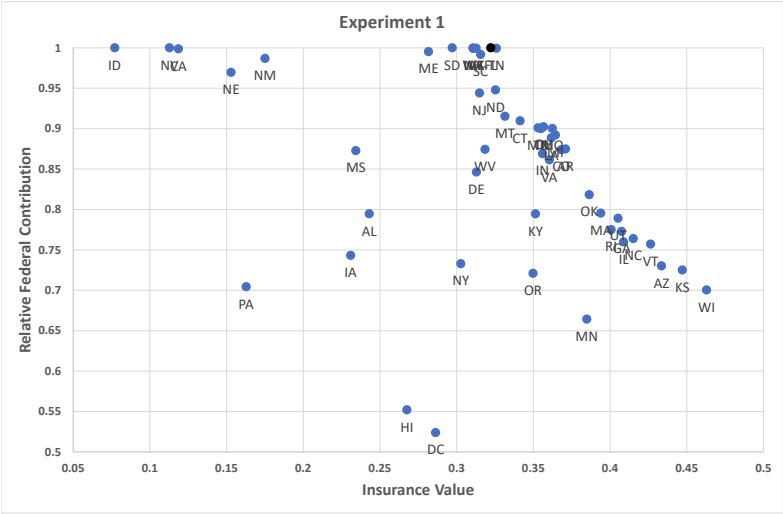
Number of baskets lost; maximum -2.69 (Wisconsin), minimum -4.61 (Idaho)

Same nom income, state prices

Same nom income, national prices

# Results: Experiment 1

Relative contributions

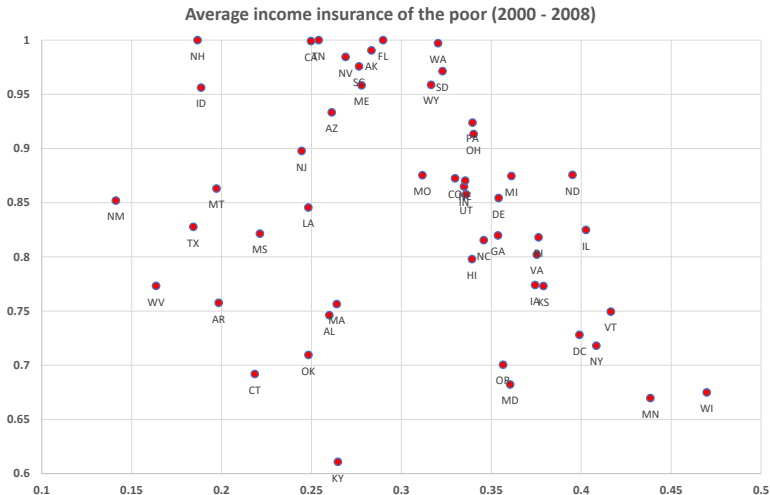


Insurance coefficients (x-axis) against federal insurance contribution (y-axis)

Decomposition

# Results: Experiment 3

## Relative contributions



Insurance coefficients (x-axis) against federal insurance contribution (y-axis)

## Conclusion



# Summing up

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### **The Project so far**

- ▶ We study the role of US state policies in smoothing income shocks
- ▶ We build and use
  - ▶ a microsimulation model of US taxes and transfers
  - ▶ a state, year and income specific price index
- ▶ We find considerable heterogeneity across states

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- ▶ Political preferences (Republican vs. Democrat states)
- ▶ Differences in state income volatility
- ▶ Relationship to other state specific taxes

Thanks for your attention

## Appendix

# Appendix: Related Literature

## Inequality and Insurance: Federal or Regional Policies?

### **Inequality**

- ▶ Consensus in fiscal federalism literature: should be dealt with by central government
  - ▶ Oates (1979, 1999); Boadway and Tremblay (2012)
- ▶ US states nevertheless engage in extensive redistribution
  - ▶ Baicker et al. (2010); Gordon and Cullen (2012); Moffitt (2003)



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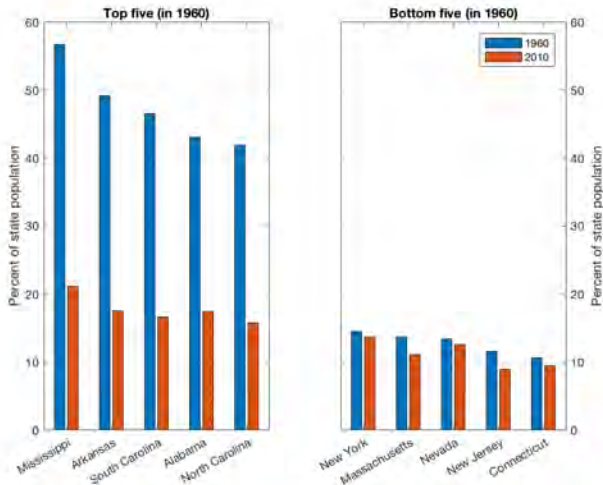
- ▶ Empirically, substantial variation across US states
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### **State Budget Insurance**

- ▶ Mixed evidence on risk-sharing between US states
  - ▶ Von Hagen (1992); Asdrubali et al. (1996); Rodden and Wibbels (2010)

# Appendix

## State Income Distributions

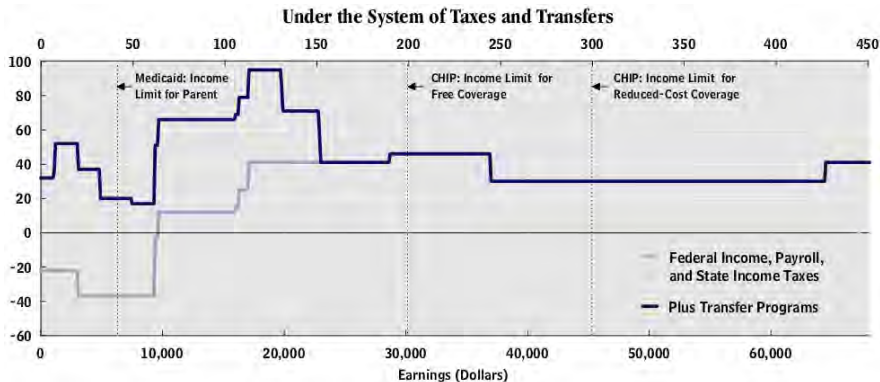


Percentage of families in poverty by state in 1960 and 2010

# Appendix

## Taxes and Transfers in the US

### "Marginal Tax Rates for a Hypothetical Single Parent with One Child" (by Earnings, in 2012)



lhs: marginal tax rate in %; top: earnings in % of federal poverty line

Source: Congressional Budget Office (2012)

# Appendix

## Effective Marginal Tax Rates

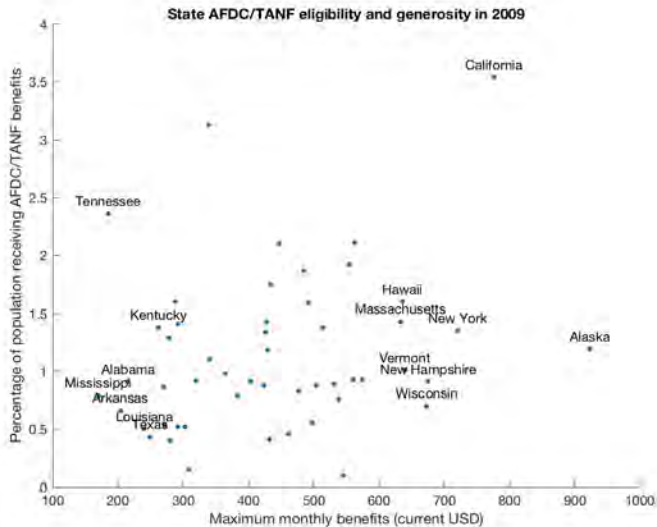
- ▶ Effective Marginal Tax Rates account for changes in tax debt (or credit) AND changes in transfer entitlements
- ▶ These changes can be very non-linear

Before tax and transfer income	Tax liability	Transfer entitlement	After tax and transfer income
2,200	- 200	500	2,700
2,200	- 150	400	2,750
...	...	...	...
10,000	1,000	100	9,100
11,000	1,100	0	9,900

**Table:** Hypothetical Illustration of Effective Marginal Tax Rates (USD)

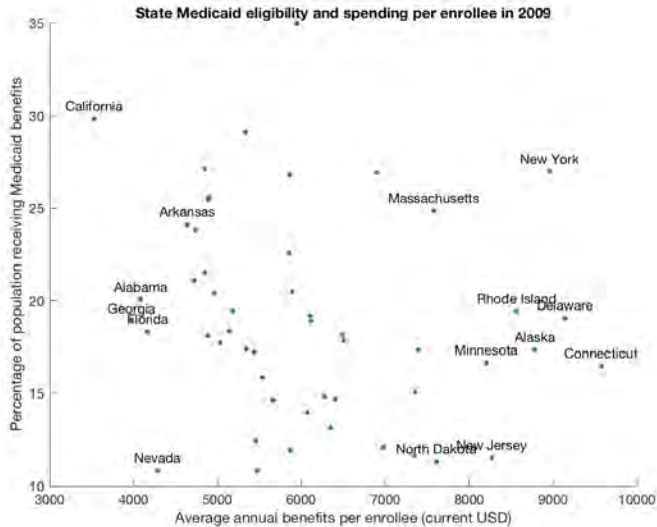
## Appendix: State AFDC/TANF generosity

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# Appendix: State Medicaid provision

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## Appendix: Individual Income Taxes

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- ▶ 43 states tax individual income, while 7 levy no income tax
- ▶ Tennessee and New Hampshire tax only interest and dividend income
- ▶ Of the states that tax labour income, 8 have flat income taxes, while 33 have a progressive tax system

**Figure:** Single filer tax brackets for Missouri and New York, 2017

Mo.	1.50%	>	\$0	N.Y.	4.00%	>	\$0
(p)	2.00%	>	\$1,008	(bb)	4.50%	>	\$8,500
	2.50%	>	\$2,016		5.25%	>	\$11,700
	3.00%	>	\$3,024		5.90%	>	\$13,900
	3.50%	>	\$4,032		6.45%	>	\$21,400
	4.00%	>	\$5,040		6.65%	>	\$80,650
	4.50%	>	\$6,048		6.85%	>	\$215,400
	5.00%	>	\$7,056		8.82%	>	\$1,077,550
	5.50%	>	\$8,064				
	6.00%	>	\$9,072				



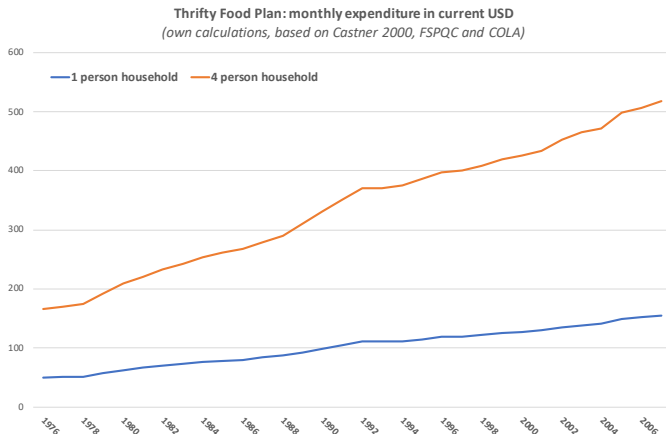
# Appendix

## The Thrifty Food Plan

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### **Thrifty Food Plan:** 'national standard for minimal cost nutritious diet'

- ▶ one month reference period and accounts for family size
- ▶ key policy measure for which data available from 1976



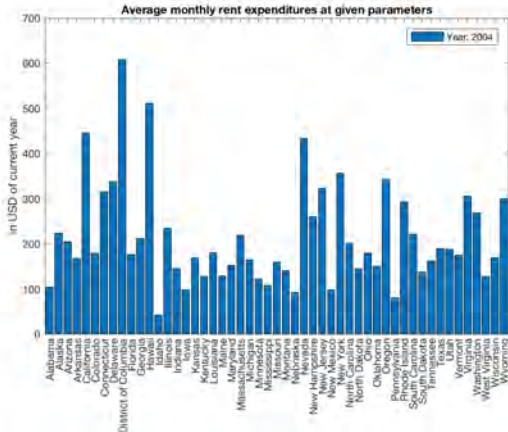
# Appendix

## The Monthly Rent Expenditures

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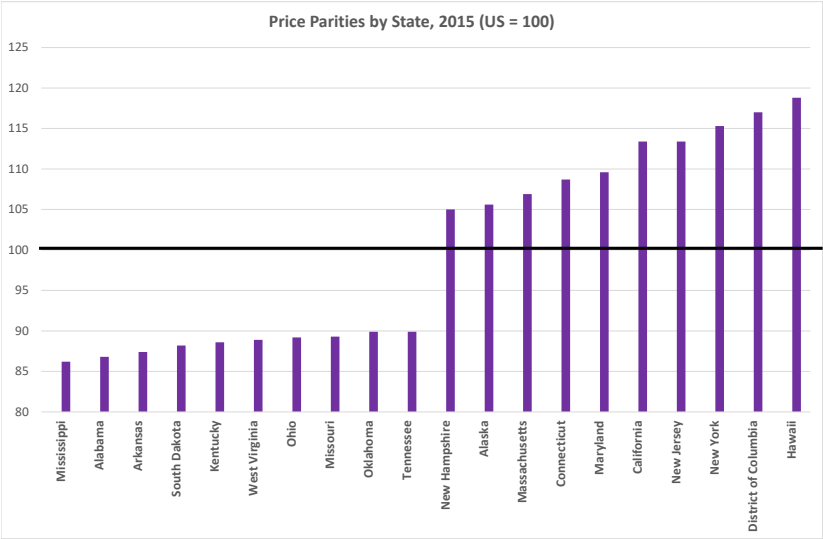
**Monthly Rent** is nominal monthly gross rent expenditure of a family with

- ▶ identical characteristics in the same state and year
- ▶ similar income (same decile of state, year earnings distribution)



# Appendix: State Price Parities

◀ Back



Source: Bureau of Economic Analysis

## Appendix: Earnings risk

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- ▶ We consider earnings risk due to **uninsurable labor income shocks**
- ▶ Reasons for labor income stochasticity
  - ▶ Self-employment
  - ▶ Profit sharing
  - ▶ Performance-related bonus pay
  - ▶ Shocks to productivity
- ▶ Large literature on this kind of risk
  - ▶ Insurance-efficiency tradeoff in various environments (Mirrlees (1974), Varian (1980), ...)
  - ▶ "In 2002 dollars, our estimated annual standard deviation amounts to 11,500\$ for the average worker in our panel, who earns just over 45,000\$." (Storesletten et al, 2004)
  - ▶ Idiosyncratic income risk fluctuations play an important role for welfare effects of business cycles (Bayer et al, 2017)

# The Relative Contributions

## Government Decomposition

◀ Back

- We compute insurance provided by government level  $i = \{s, f\}$  as

$$\begin{aligned}\chi^i &= \frac{(\tau^i(w_0) - b^i(w_0)) - (\tau^i(w_1) - b^i(w_1))}{w_0 - w_1} \\ &= \frac{T^i(w_1) - T^i(w_0)}{w_0 - w_1}\end{aligned}$$

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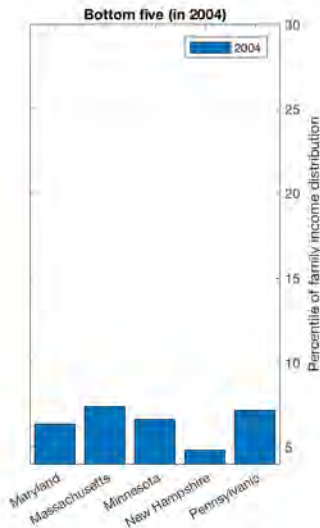
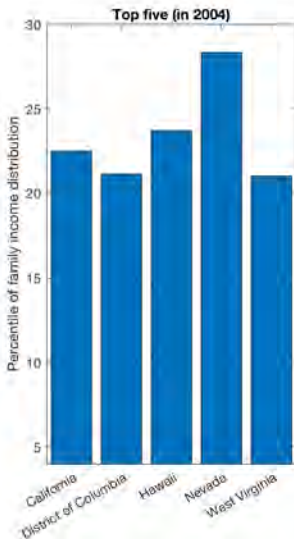
- ▶ In each state  $\rho^i$  is the *relative* insurance contribution of  $i$

$$\rho^i = \frac{\chi^i}{\chi^s + \chi^f}$$

## Appendix: Experiment 2 - Corresponding percentiles

◀ Back

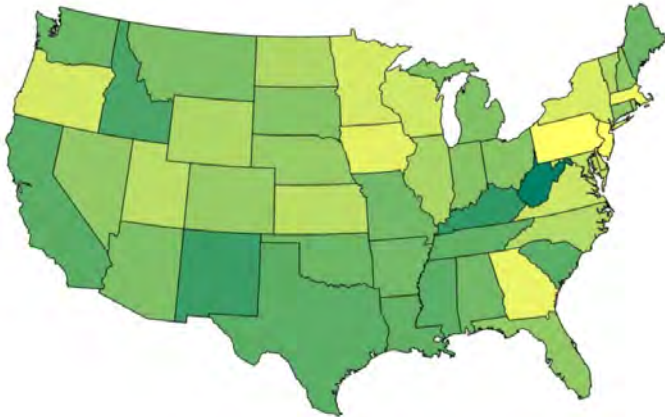
45 baskets refer to different percentiles of states' nominal incomes



## Appendix: Experiment 2

Nominally poor households - relative to state peers

**Average income insurance of the poor 2000-2008 (brighter is better)**



Insurance values for the poor; maximum 0.58 (Pennsylvania), minimum -0.17 (West Virginia)



# Appendix: Experiment 2

## State and federal contributions

[← Back](#)



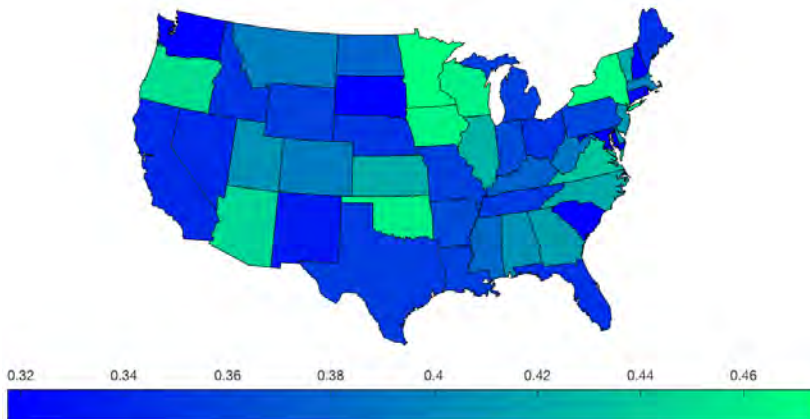
Insurance coefficients for low income households (x-axis) against federal insurance contribution (y-axis)

# Appendix: Experiment 1a

Same nominal income, different prices

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Income insurance in 2004  
(Experiment 1a)



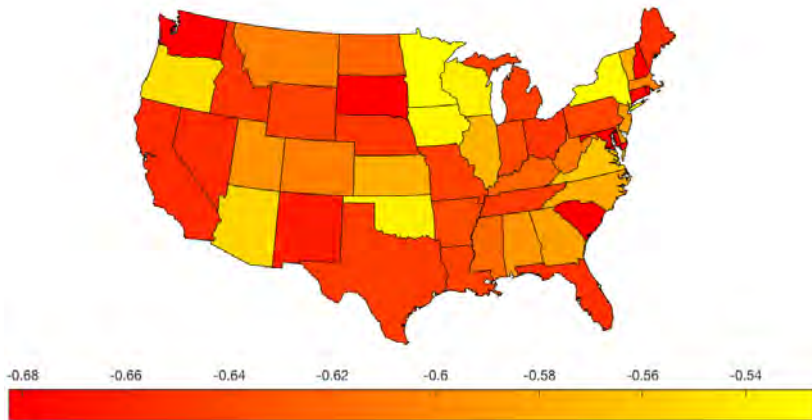
Insurance values measured by  $\chi$ ; maximum 0.47 (Minnesota), minimum 0.31 (New Hampshire)

# Appendix: Experiment 1b

Same nominal income, same price

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Income insurance in 2004  
(Experiment 1b)



Ratio of real disposable income loss to pre-tax income shock

# Appendix: US Welfare Programs

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## Selected US means tested programs

## Expenditures (2007, current USD)

	<u>per program (bn)</u>	<u>% of total</u>	<u>monthly per recipient</u>
FEDERAL			
(1) Supplemental Nutrition Assistance Program (SNAP, 'Food Stamps')	30	5.8	96
(2) Earned Income Tax Credit (EITC)	49	9.3	165
STATE			
(3) Medicaid	329	62.9	482
(4) Temporary Assistance for Needy Families (TANF, formerly AFDC)	12	2.2	234
(5) State Earned Income Tax Credit (SEITC)	n/a	n/a	n/a
Unemployment Insurance (UI)	32	n/a	354

Source: Ben-Shalom, Moffitt, Scholz (2011)

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- ▶ TaxSim (2 and 5); own calculator (1); H. Hoynes' calculators (3 and 4)
- ▶ Our simulation does not include UI
  - ▶ history dependent so does not respond to shocks unconditionally
  - ▶ compared to others, program is quantitatively small
  - ▶ no calculators available