Pensions and health insurance: Variation across regions

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BEA/BLS

BEA Advisory Committee Meeting

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Purpose

- Improve estimates of state personal income
- How?
  - Improve state-by-industry estimates of employers' contributions for employee benefits
    - Pensions
    - Health and life insurance
    - Supplemental unemployment insurance

Current Practice

- National levels for employer contributions are estimated by NAICS 3-digit industries
  - Administrative and survey source data
- National totals are distributed among states by industry
  - Using the distribution of wages and salaries across states for each industry
- State estimates reflect variation in:
  - Industry mix across states
  - Contribution rates across industries

Problem With Current Practice

- Does not reflect variation across states in contribution rates in each industry
  - Same contribution rate for an industry in every state
- Contribution rates vary within industry by
  - Firm size
  - Extent of unionization
  - Worker and job characteristics

Solution

- Use BLS National Compensation Survey data to develop estimates of contribution rates
  - Modeled estimates that generate a unique contribution rate for each state and industry
- Generate contribution levels for each state and industry
  - Contribution rate times wages and salaries

Expected Impact

- Not too big
  - State estimates are benchmarked back to national industry totals
    - Only the variation across states for each industry is affected
- But
  - May affect relative ranks of states
  - Impact more significant in some industries

BLS National Compensation Survey (NCS)

- Quarterly survey of ~35,000 jobs in ~8,000 establishments in 20 compensation categories
- Used to produce
  - Employment Cost Index (quarterly)
  - Employer Costs for Employee Compensation (annual)
  - Inter-area pay comparisons (annual)
  - Employee Benefits Descriptions

Details of ECI Data Used

- Microdata for 1999-2002
  - Private non-agriculture industry only
  - Sample size > 51,000
- Data collected for each sampled job:
  - Cash pay
    - Straight-time wages, premium & leave pay, bonuses
  - Employers' costs for non-cash compensation
    - Pensions, health & life insurance, supplemental UI

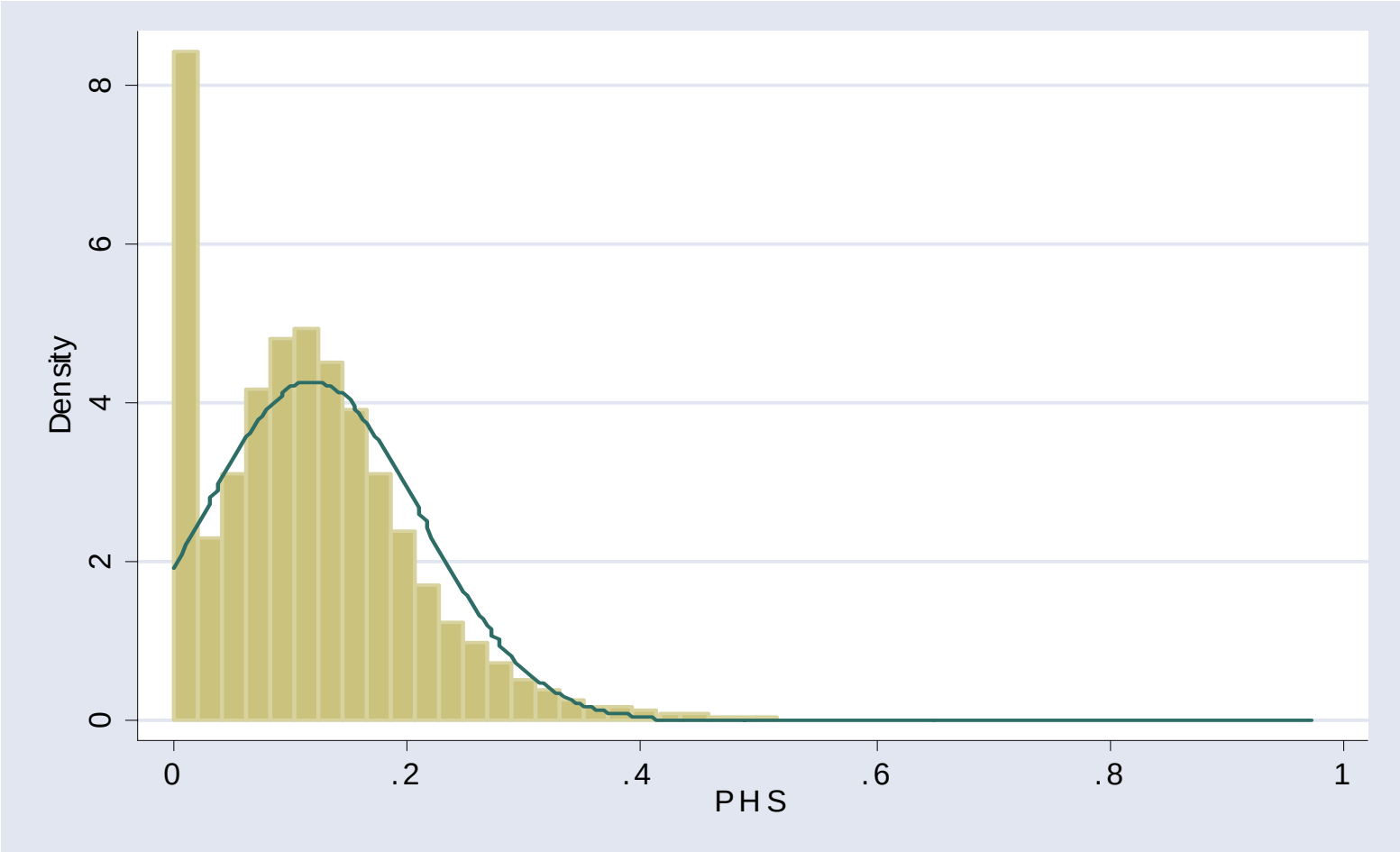
Goal of the Analysis of NCS Data

- Interested in predicting average RATIO of:
  - Employers' non-cash pay components to Employers cash pay components
- Want to predict this RATIO:
  - Separately by state for each industry
- BEA will use the RATIO to estimate non-cash components for each state and industry

Contribution Rate Model

- Dependent Variable :
  - Non-cash / Cash RATIO for 51,000 job-level observations
- Independent variables:
  - Dummies for state, year, 3-digit NAICS
  - Interacted dummies: 1-digit NAICS by state
- Use a TOBIT to account for zero lower bound

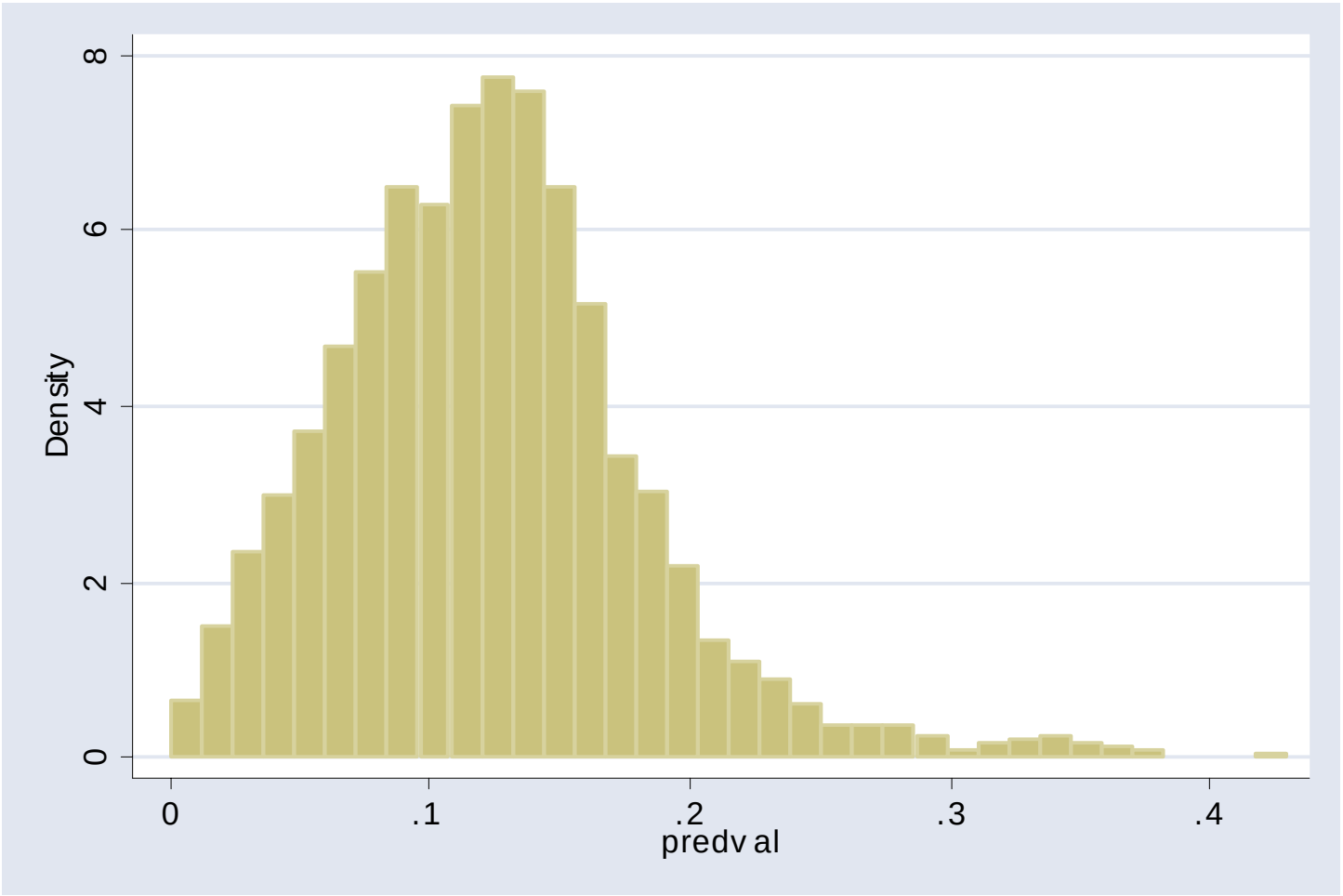
Distribution of Contribution Rates in NCS



Alternative Geographies, Industries

- Investigated Less Detailed Regional Indicators and Less Detailed Industrial Definitions
- Investigated Models Having no Interaction Terms
- F-tests indicated that state, 3-digit NAICS, and interaction terms were jointly significant

Estimated contribution rates (RATIOs)



What Explains Variation in the RATIOs?

- Estimated Model with Varying Sets of Controls :
  - Unionization Rate
  - Wage Levels
  - Average Establishment Size

- Predicted RATIOs with these Controls Held Constant over all state-industry cells

- Compare models in terms of variation in RATIOs

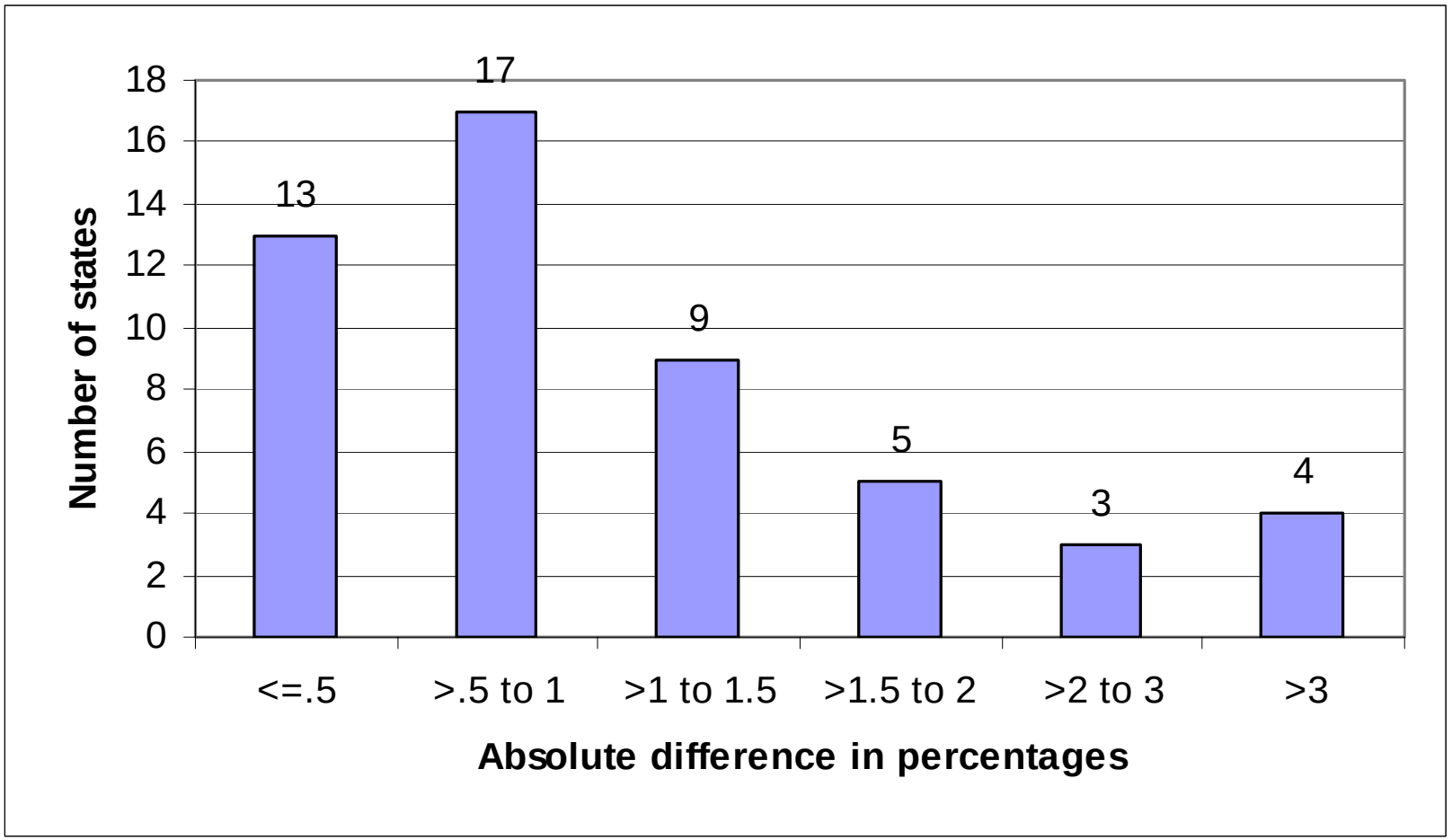
Decomposition Results

Model	Mean	Standard Deviation	Minimum	Maximum
Basic Specification	0.123	0.059	0.000	0.430
Union Added	0.118	0.050	0.000	0.390
Union and Wages	0.118	0.051	0.000	0.394
Union, Wages, and Size	0.118	0.050	0.000	0.395

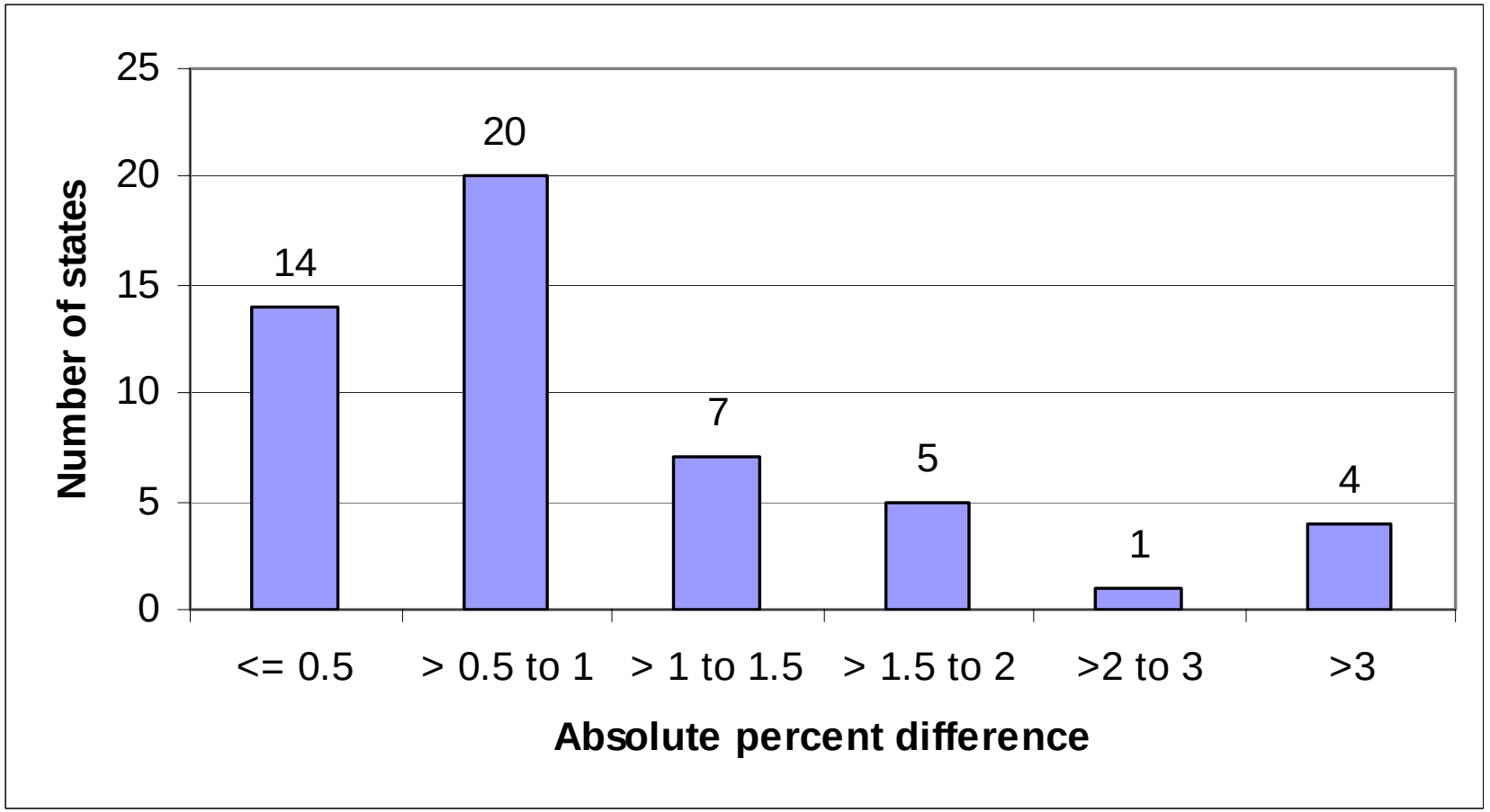
Steps to Generate New Compensation Levels

1. Generate new employer contribution levels
   - Wages times modeled contribution rates
2. Control modeled contribution levels to national industry totals
   - Compute new controlled contribution rates
3. Estimate new compensation levels
   - Replace old contribution levels with new contribution levels in compensation

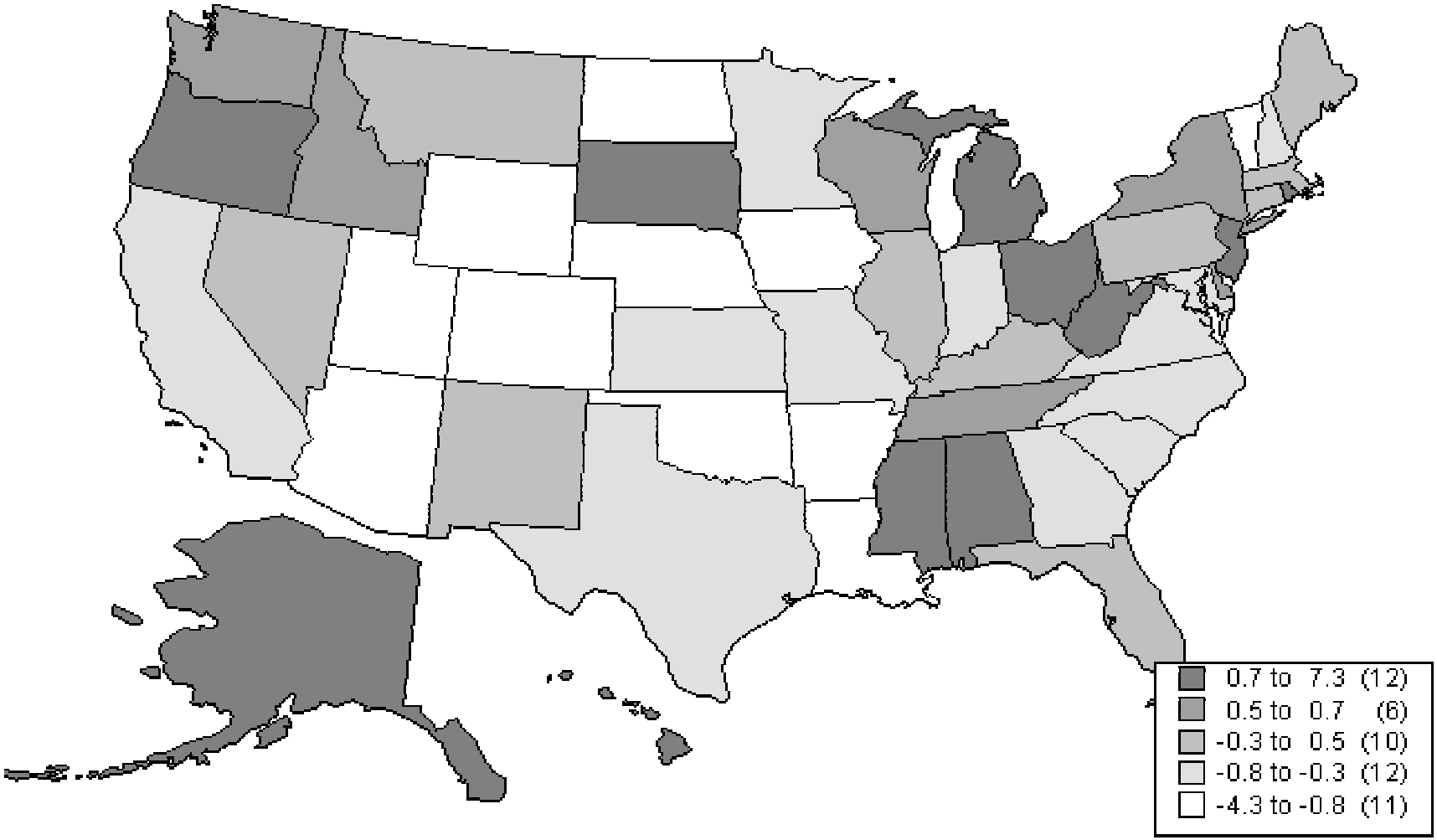
Absolute Difference in State Contribution Rates



Absolute Percent Difference in State Compensation Levels



Quintiles of Compensation Differences



Problem With Extreme Values

- Sampling and/or measurement error leads to some estimated contribution rates that are either very low or high
- Is this a concern?
  - High contribution rates might have sizeable affects on published BEA industry earnings by state
  - But, model is used to generate contribution rates for every state by industry cell
    - Need to evaluate impact on published estimates

Questions For Committee

- Is using a model a fruitful and technically appropriate way to estimate employer contribution rates?
- How appropriate is the particular model that was used to generate predicted contribution rates? Are there other models that should be studied?
- How might the BEA control for variation in estimates that results from sampling and/or measurement error, and that sometimes results in extreme values?