# Kruskal–Wallis & Dunn — End-to-End Analysis

💡 Developed by Dr. Gurdal Ertek, source code under https://github.com/gurdalertek/autodunn

💡 The app runs best when there are 2-20 distinct group label values for the categorical factor, with at least 10 observations for each value. If you have more distinct values, consider reducing the number of distinct values by combining values with few observations under the group label 'Other'

💡 You can visualize the exported `.dot` or `.svg` graph/network files using Graphviz Viewer, Gephi, yEd, or online: https://dreampuf.github.io/GraphvizOnline/

Upload a **single data file** ( `.csv` , `.xls` , or `.xlsx` ).
**Assumptions:** first column = *categorical factor*, second column = *numeric response*, first row = *column titles*.

Data file (CSV / XLS / XLSX)

Drag and drop file here
Limit 200MB per file • CSV, XLS, XLSX

Browse files

dataset - us universities.csv 11.7KB

Detected columns (from your single file)

**Factor (categorical):** `State`

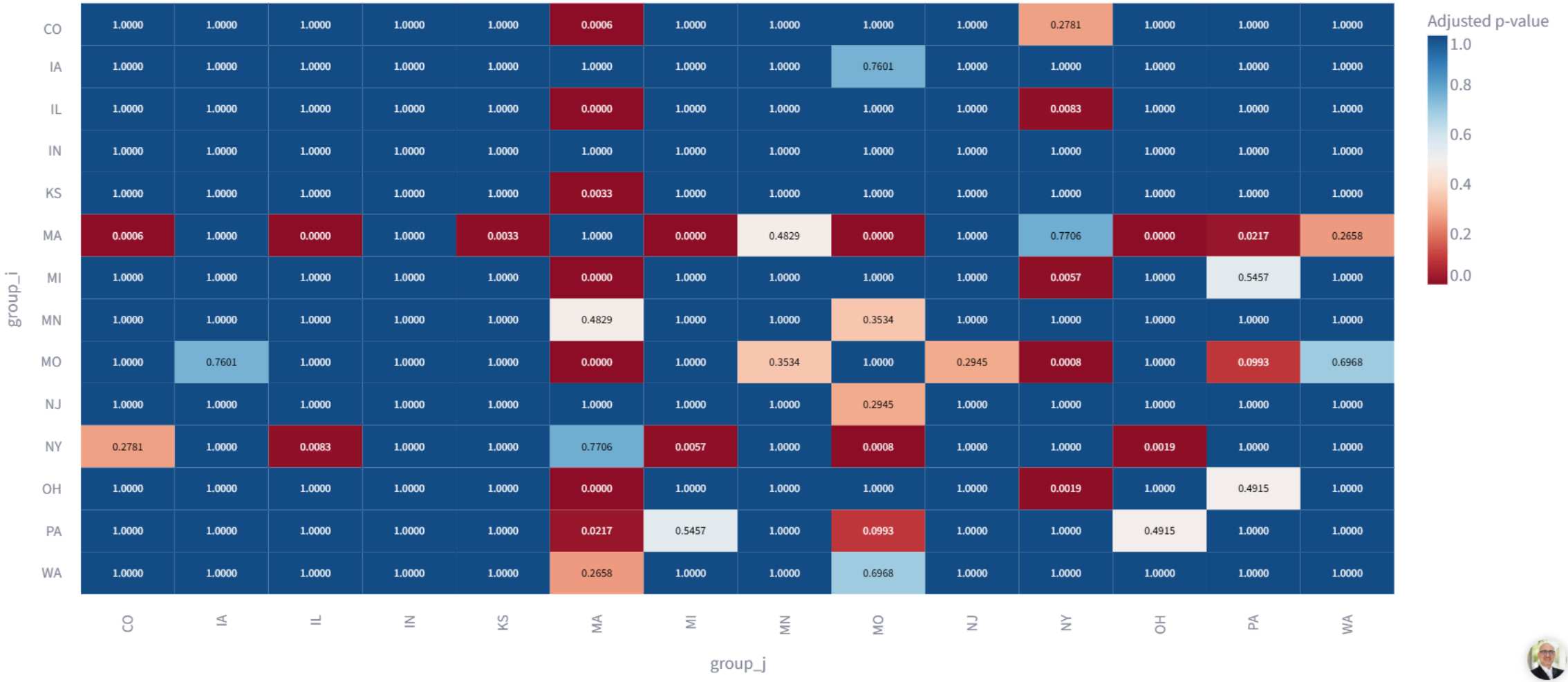
**Response (numeric):** `Earning`

Tip: If this isn't correct, reorder/rename the first two columns in your file and re-upload.

Response: Earning | Factor: State | Adjustment: bonferroni | Display α: 0.0500

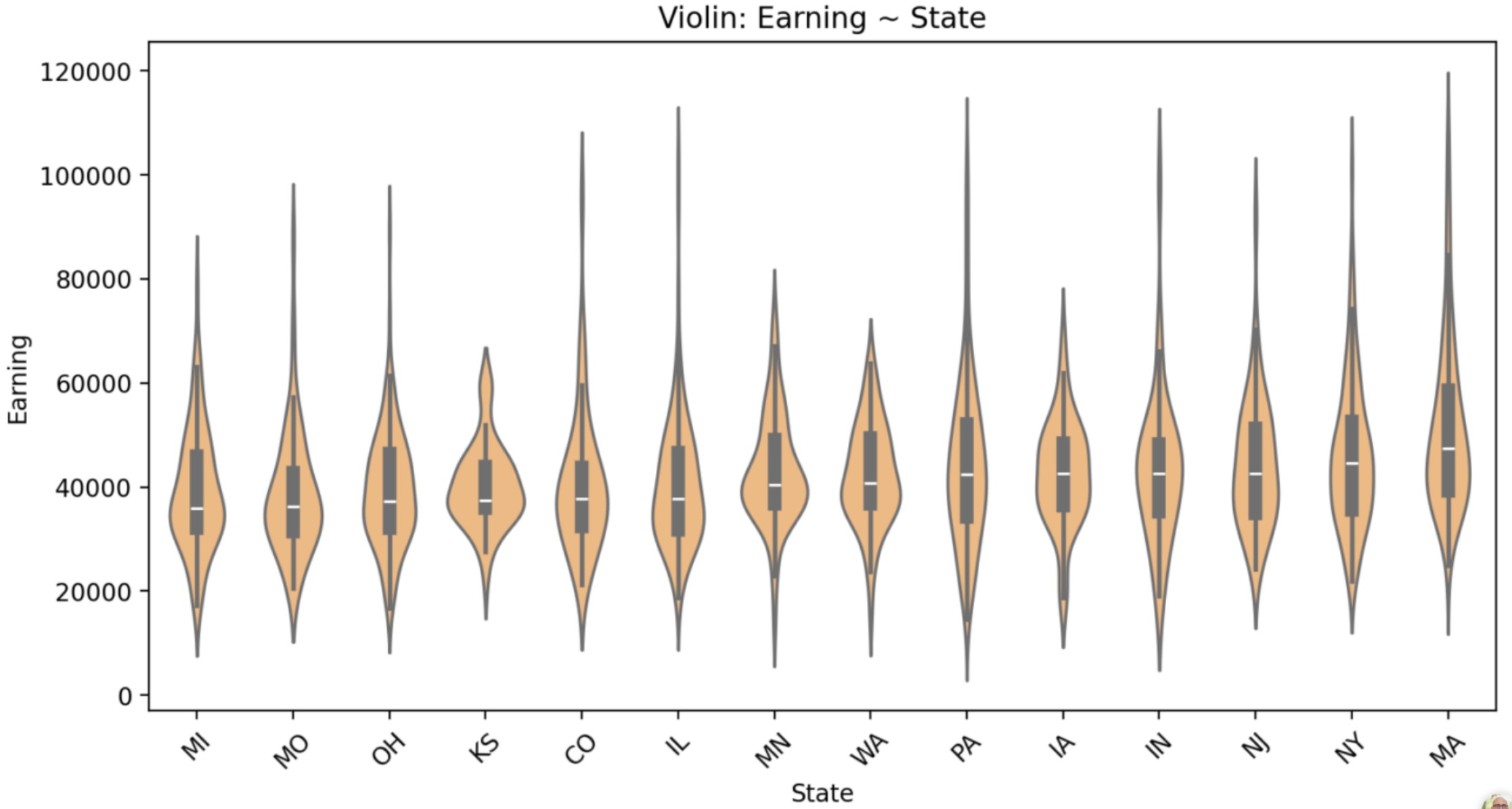
# Heatmap (Adjusted p-values)

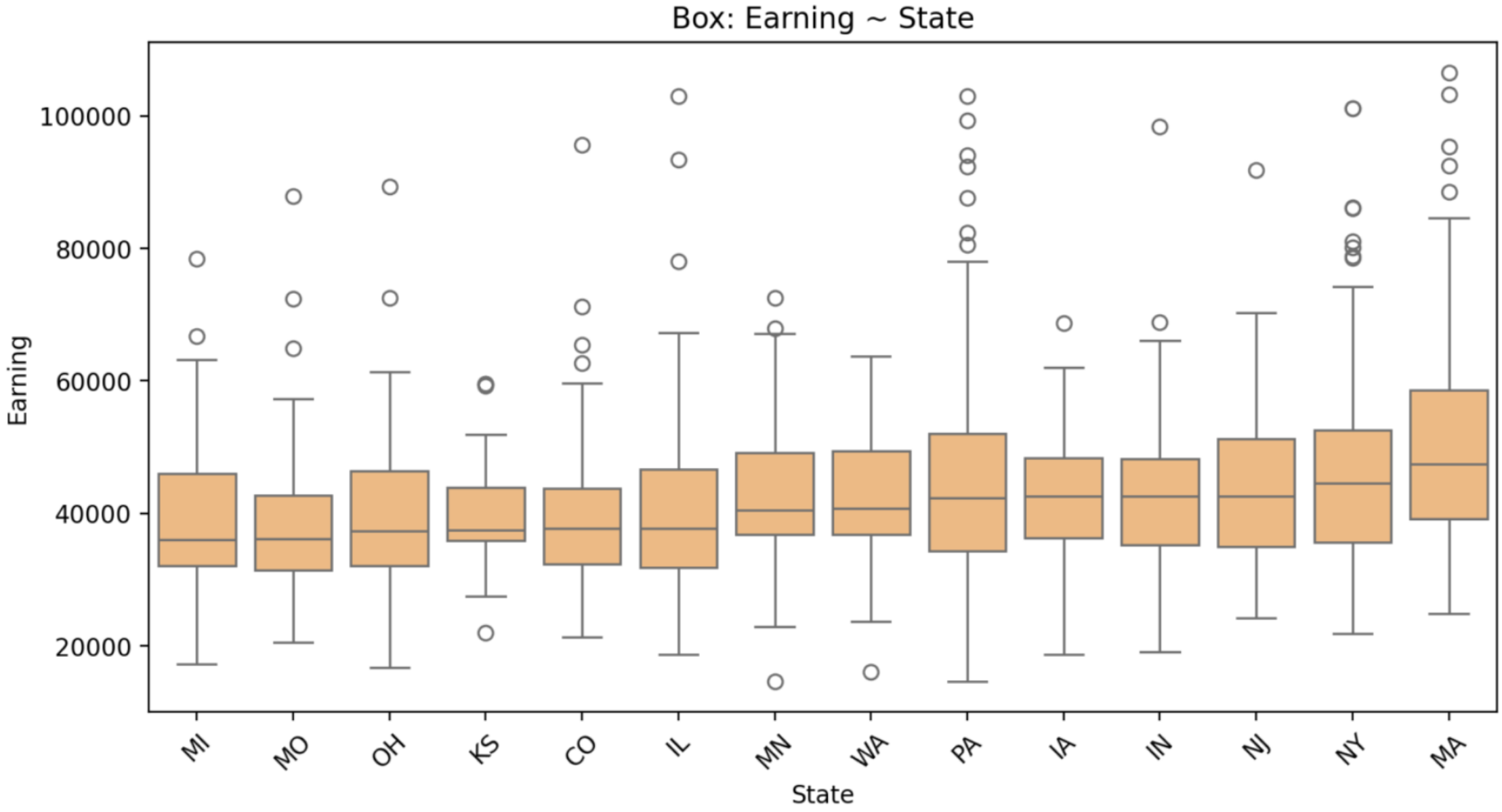
**Earning ~ State • bonferroni**



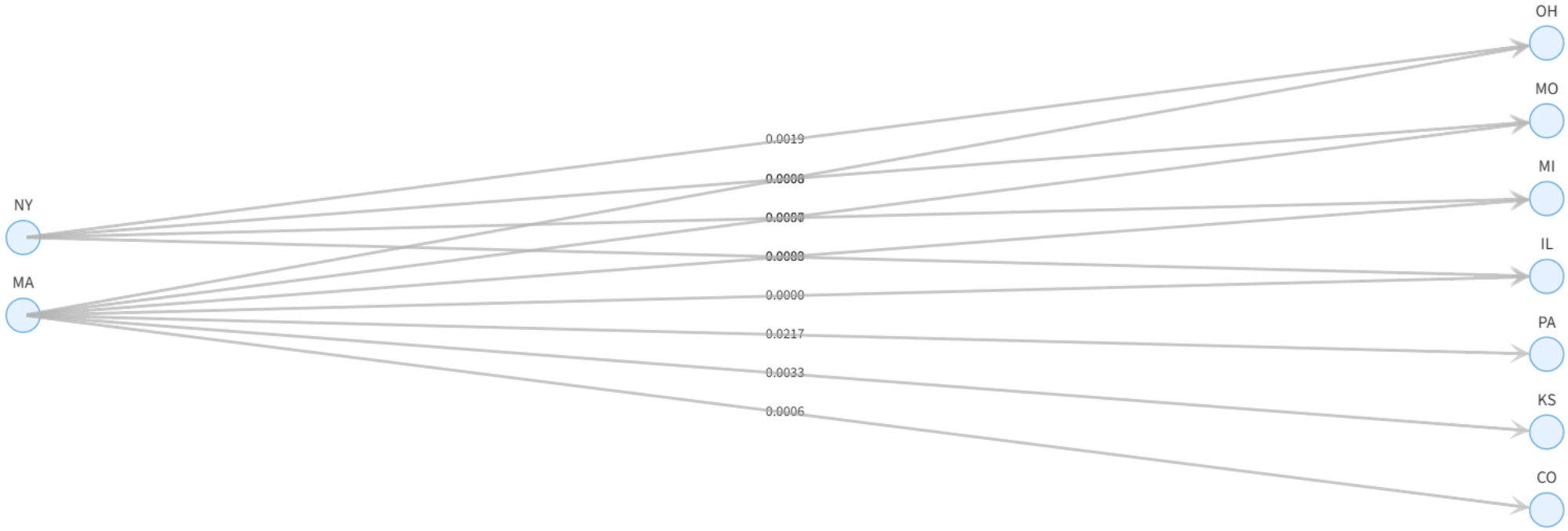
# Significant Comparisons (mean_i > mean_j and p_adj < α)

| | group_i | group_j | mean_i | mean_j | p_adj |
|---|---|---|---|---|---|
| 0 | MA | MO | 51155.7895 | 38355.3846 | 0.0000002 |
| 1 | MA | OH | 51155.7895 | 39325.8333 | 0.0000002 |
| 2 | MA | IL | 51155.7895 | 40498.2759 | 0.000002 |
| 3 | MA | MI | 51155.7895 | 39114.1026 | 0.000002 |
| 4 | MA | CO | 51155.7895 | 40344.6809 | 0.0006 |
| 5 | NY | MO | 45984.058 | 38355.3846 | 0.0008 |
| 6 | NY | OH | 45984.058 | 39325.8333 | 0.0019 |
| 7 | MA | KS | 51155.7895 | 40190.3846 | 0.0033 |
| 8 | NY | MI | 45984.058 | 39114.1026 | 0.0057 |
| 9 | NY | IL | 45984.058 | 40498.2759 | 0.0083 |


Violin: Earning ~ State
Earning
120000
100000
80000
60000
40000
20000
0
MI
MO
OH
KS
CO
IL
MN
WA
PA
IA
IN
NJ
NY
MA
State


Box: Earning ~ State
Earning
100000
80000
60000
40000
20000
MI
MO
OH
KS
CO
IL
MN
WA
PA
IA
IN
NJ
NY
MA
State

## Directed Significance Network




⬇️ Download network as HTML (interactive)

⬇️ Download network as DOT

💡 Only edges where the source group's mean > target group's mean are shown.

💡 You can visualize `.dot` or `.svg` files using Graphviz Viewer, Gephi, yEd, or online: https://dreampuf.github.io/GraphvizOnline/

# Graph-Based Visualization of Stochastic Dominance in Statistical Comparisons



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**Abstract:**

In this paper, a graph visualization scheme and methodology is proposed for representing, understanding, and interpreting the statistical comparison of means and the resulting stochastic dominance. The practicality and applicability of the visualization scheme and the methodology is illustrated through a case study, with data coming from higher education institutes in the United States of America (U.S.A.). The objective of the research is to make statistical results more accessible and readable, enabling the visual derivation of actionable insights.

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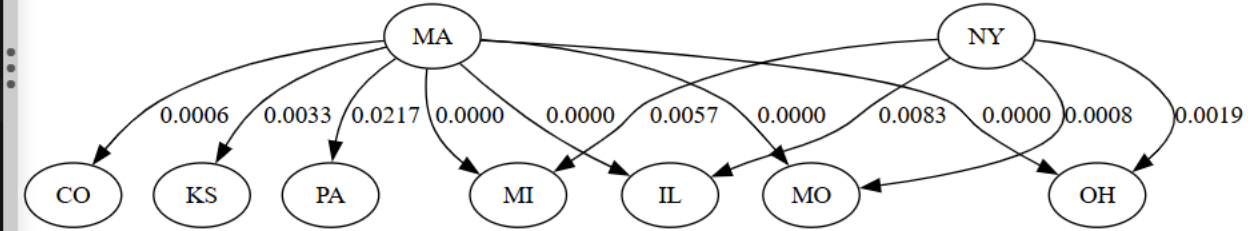
```
digraph G {
  "MA" -> "CO" [label="0.0006"];
  "MA" -> "IL" [label="0.0000"];
  "NY" -> "IL" [label="0.0083"];
  "MA" -> "KS" [label="0.0033"];
  "MA" -> "MI" [label="0.0000"];
  "NY" -> "MI" [label="0.0057"];
  "MA" -> "MO" [label="0.0000"];
  "NY" -> "MO" [label="0.0008"];
  "MA" -> "OH" [label="0.0000"];
  "NY" -> "OH" [label="0.0019"];
  "MA" -> "PA" [label="0.0217"];
}
```

Engine: dot Format: svg Show raw ou



# Arc Diagram (Node-colored arcs) — overrides the directed network

Arc α (keep pairs with p_adj < α)

0.0500 − +

Arc curvature

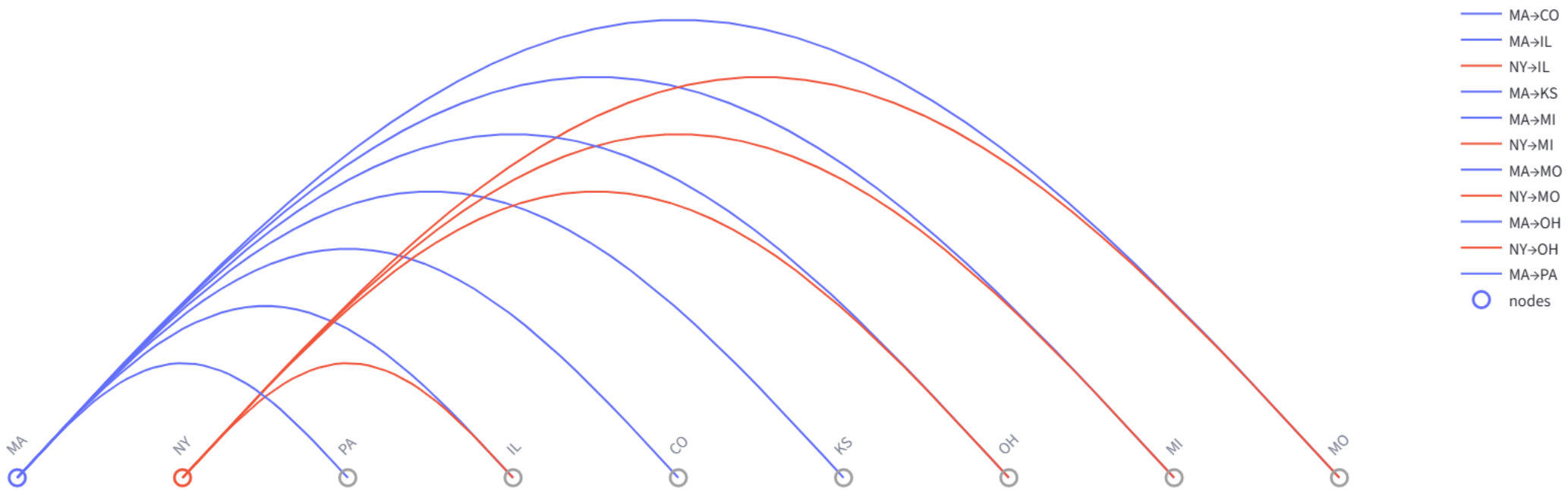
1.00

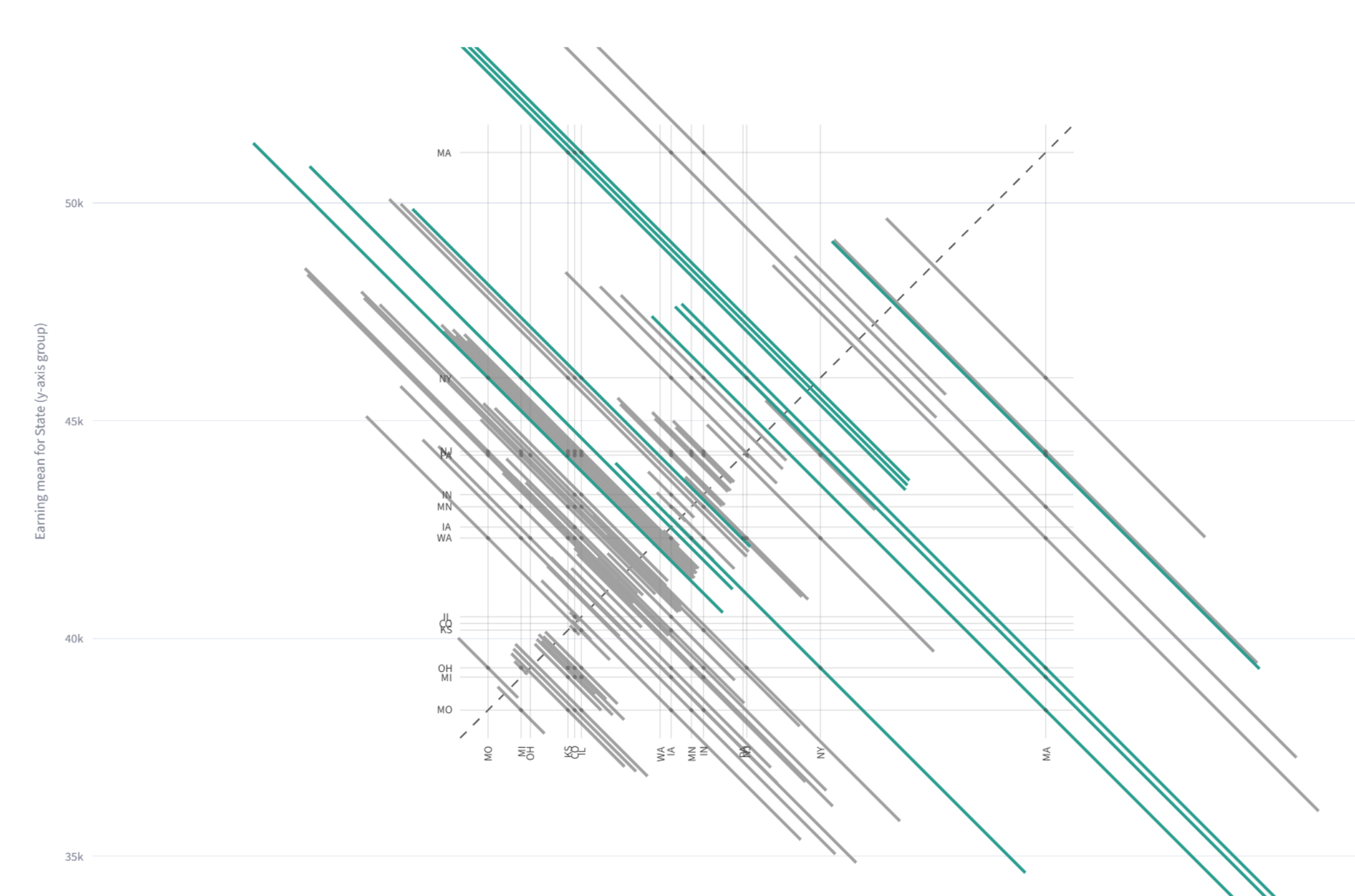
Show node labels

Thicker arcs for stronger significance

Draw Arc Diagram

**Arc Diagram — α=0.05**




Earning mean for State (y-axis group)
50k
45k
40k
35k
MA
NY
NJ
PA
IN
MN
IA
WA
IL
CO
KS
OH
MI
MO
MO
MI
OH
KS
CO
IL
WA
IA
MN
IN
NJ
PA
NY
MA