# Regional Labor Input Price Gaps across the U.S.

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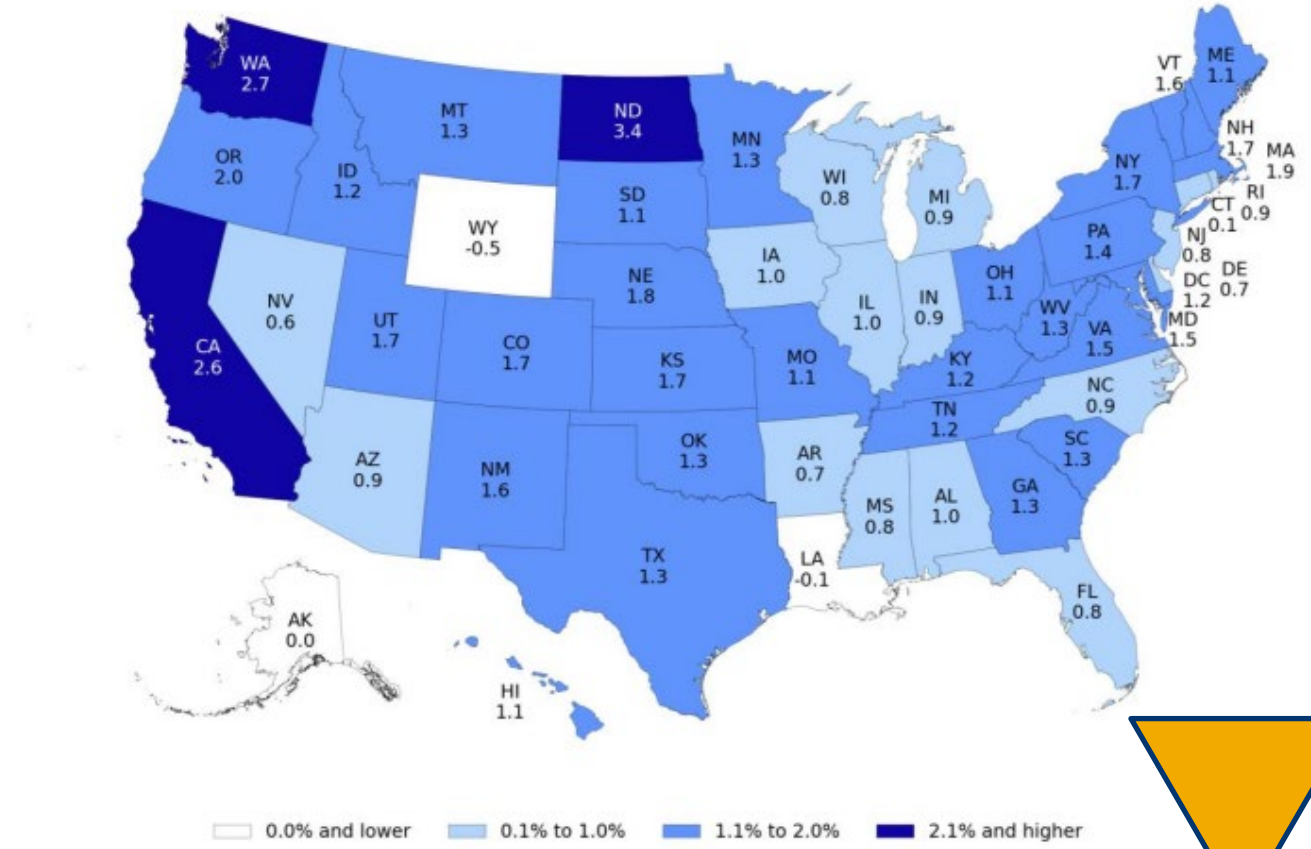
Presentation to: World KLEMS 2022
October 12, 2022

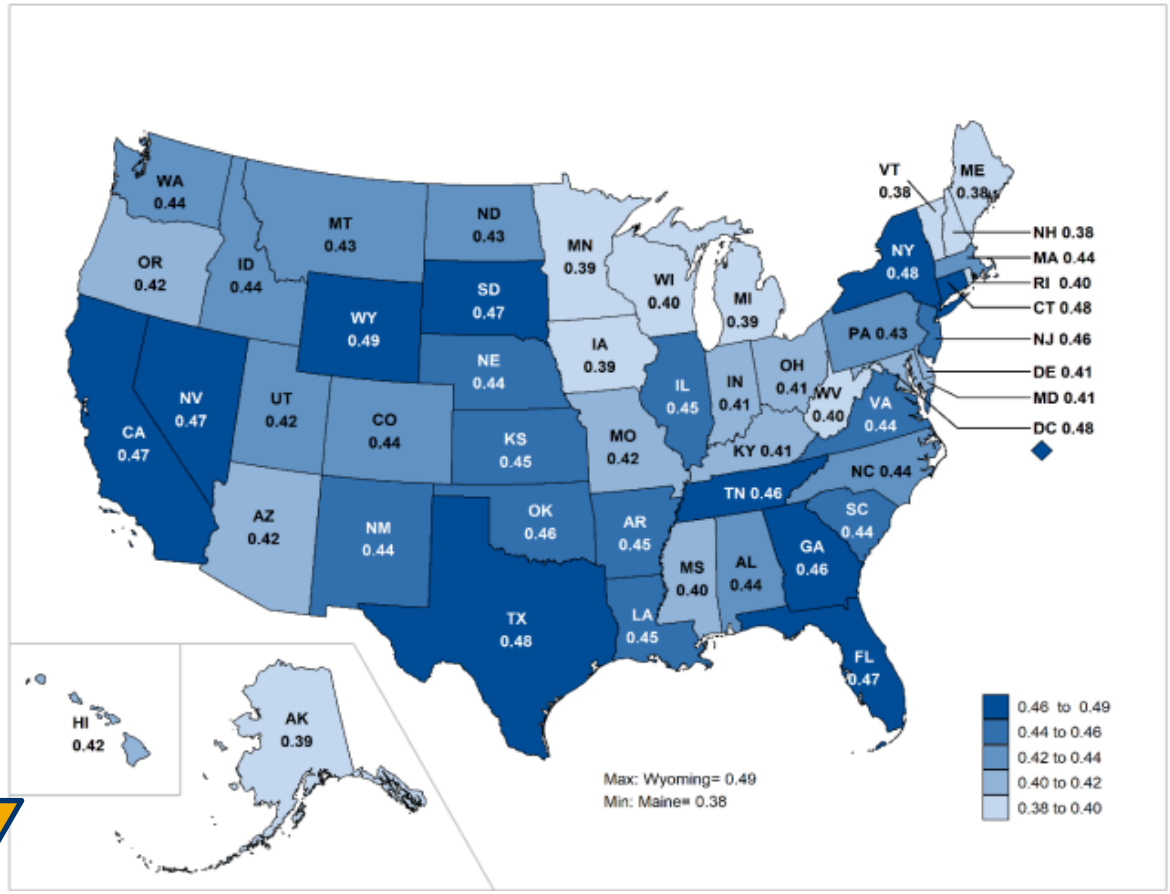
# U.S. Regional Labor Input Prices are linked to Productivity, Inequality, and Competitiveness

**Chart 5. Labor productivity by state, average annual percent change, 2007-21**




Source: [BLS]

**Figure 1. Gini Coefficients, 2018**




Source: [BEA]

# Economic Competitiveness

# Derive U.S. Regional Labor Input Prices from Model of Production

- Ultimate target: Regional productivity (TFP) **levels** integrated into national accounts
- Account for heterogeneity of workforce (Jorgenson and Griliches)
- i workers that account for education, age, sex, sector (matches ILPA)

$$\ln \tilde{T}_{r,s,t} = \frac{1}{2}(w_{k,r,s,t} + w_{k,B,s,t}) \ln \tilde{p}_{k,r,s,t} + \frac{1}{2}(w_{x,r,s,t} + w_{x,B,s,t}) \ln \tilde{p}_{x,r,s,t}$$

$$+ \sum_i \frac{1}{2}(w_{l,i,r,s,t} + w_{l,i,B,s,t}) \ln \tilde{p}_{l,i,r,s,t} - \ln \tilde{p}_{Y,r,s,t}$$

$$w_{l,i,r,s,t} = \frac{p_{l,i,r,s,t} L_{i,r,s,t}}{p_{Y,r,s,t} Y_{r,s,t}}$$

$\tilde{p}_{l,i,r,s,t}$ : labor input price relative

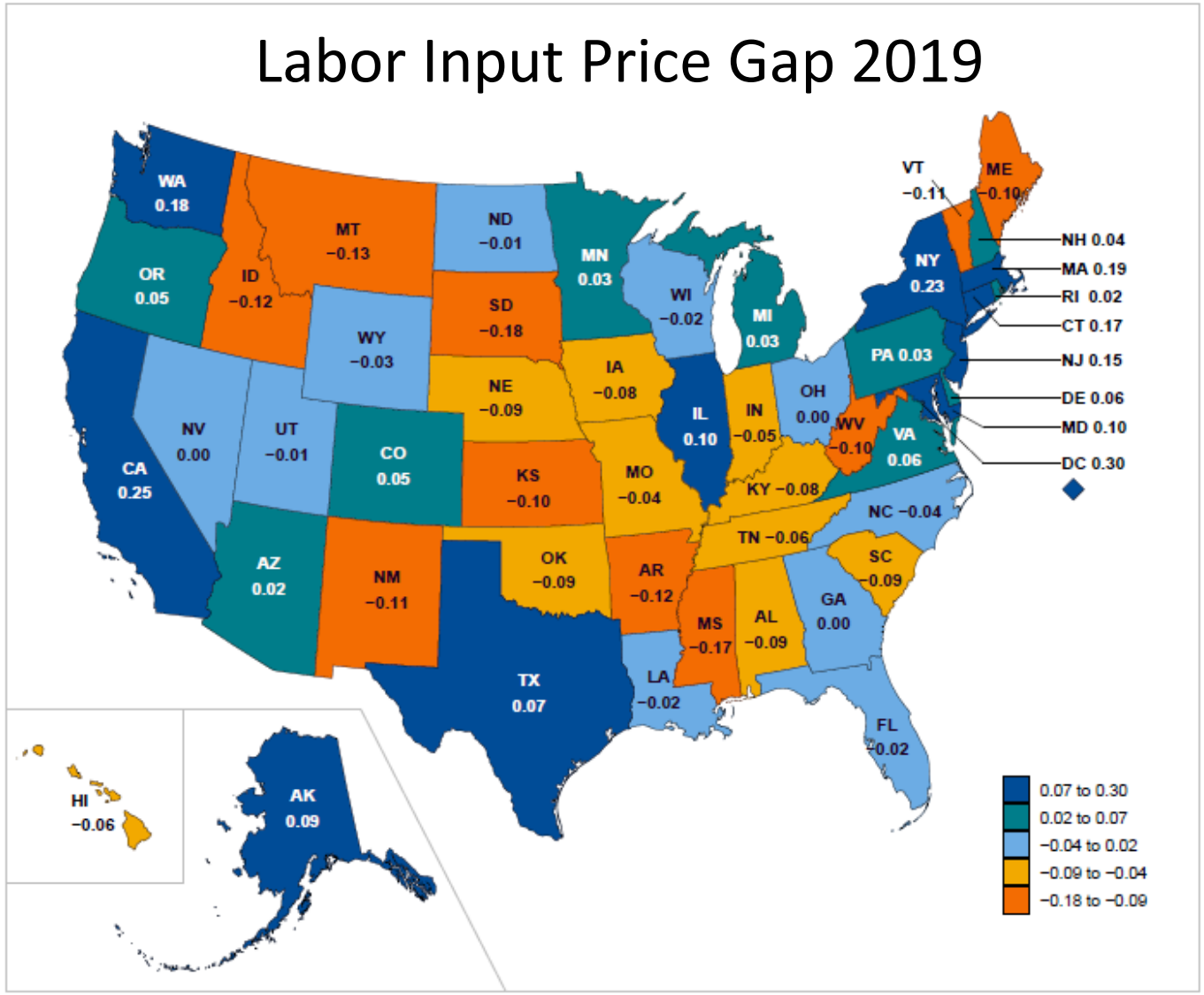
$$\ln \hat{p}_{l,r,s,t} - \ln \tilde{p}_{l,r,s,t} \equiv \ln \tilde{Q}_{l,r,s,t} = \ln Q_{l,r,s,t} - \ln Q_{l,B,s,t} : \text{Quality gap}$$

# Data is a combination of household micro data and control totals from BEA's National and Regional Economic Accounts

- American Community Survey (ACS)
  - 1% sample; age, education, sex, location of work, usual hours worked, weeks (intervals) and wage and salary income
  - By State: 51 x Sex(2) x Age(7) x Education (5)
  - By Region and Sector: Region (8) x Sector (15) x Sex(2) x Age(7) x Education (5)
  - 2006-2019

- Control totals from BEA's national and regional economic accounts
  - Consider only employees
  - Workers by State and Region x Sector consistent with National Accounts
  - Labor compensation by  State and Region x Sector consistent with National Accounts

# High Labor Input Prices Related to Major Urban Centers; Low Prices Dispersed

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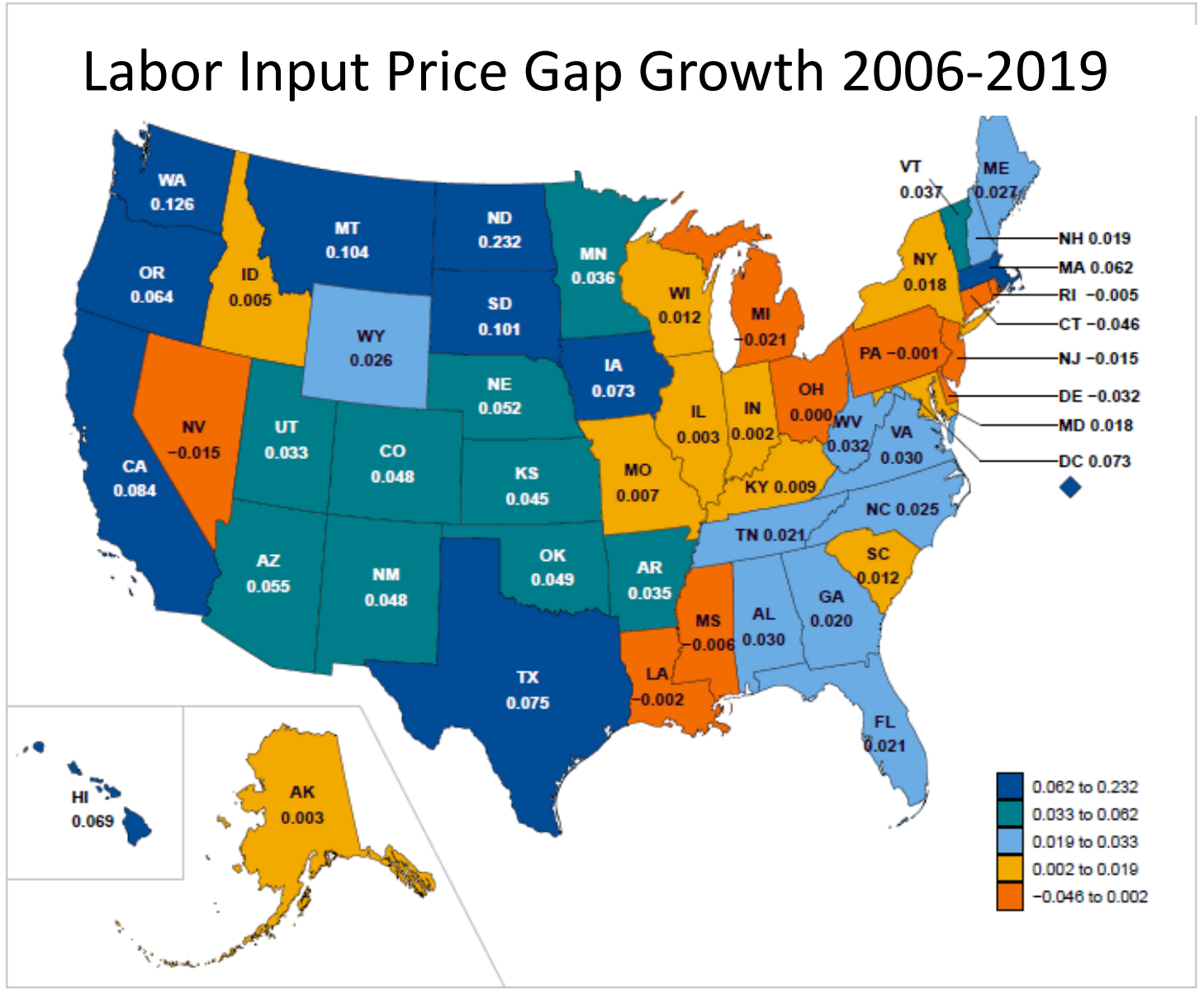
# Largest Price Growth in Western half of the Country



# Quality Differences are Important; Largest mostly in NE and negative in Southeast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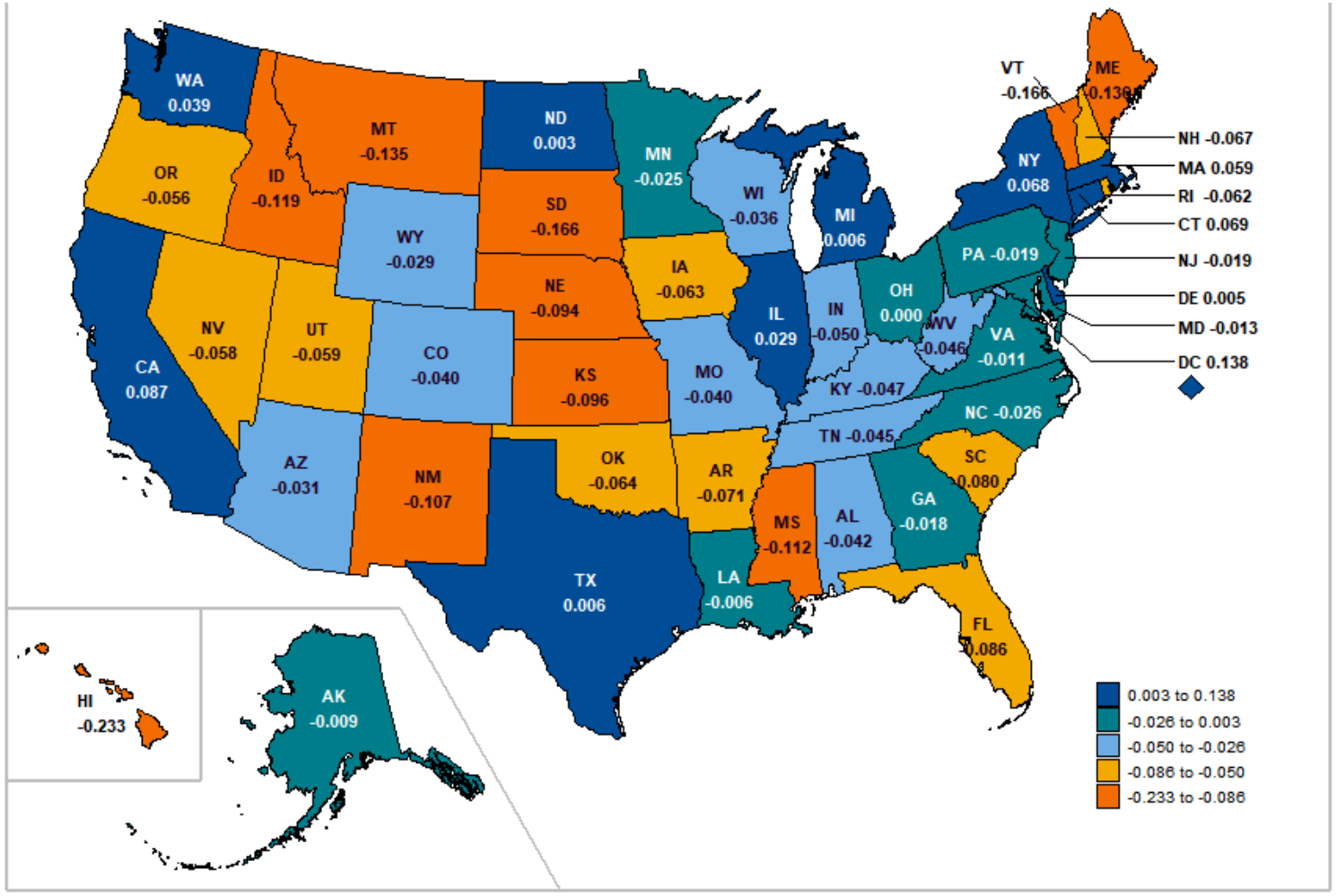
# Consumption Prices are Important for Maintaining Workforce

## Labor Input Price Gap relative to Regional Price Parity 2019

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# Sector differences are important for assessing regional labor price gaps

| Table 1: Labor Input Price Gaps, 2019 | | | | | | | | |
|---|---|---|---|---|---|---|---|---|
| Adjusted to Labor Compensation Controls | NE | Mideast | Great Lakes | Plains | South East | Southwest | Rocky Mountain | Far West |
| | | | | | | | | |
| Total | 0.11 | 0.14 | 0.00 | -0.07 | -0.03 | 0.05 | 0.02 | 0.21 |
| | | | | | | | | |
| Agriculture, forestry, fishing, hunting | -0.06 | -0.40 | 0.00 | -0.02 | -0.19 | -0.24 | -0.19 | 0.22 |
| Mining | -0.03 | 0.11 | 0.00 | 0.22 | -0.01 | 0.31 | 0.29 | 0.19 |
| Utilities | 0.06 | 0.01 | 0.00 | -0.10 | -0.10 | -0.02 | -0.12 | 0.08 |
| Construction | 0.07 | 0.05 | 0.00 | -0.13 | -0.11 | 0.01 | -0.05 | 0.14 |
| Manufacturing | 0.05 | -0.03 | 0.00 | -0.06 | -0.02 | 0.14 | 0.00 | 0.24 |
| Wholesale trade | 0.11 | 0.09 | 0.00 | -0.05 | 0.02 | 0.11 | 0.08 | 0.08 |
| Retail trade | 0.10 | 0.08 | 0.00 | -0.07 | 0.00 | 0.07 | 0.12 | 0.26 |
| Transportation and warehousing | -0.02 | 0.00 | 0.00 | -0.08 | -0.01 | 0.07 | 0.04 | 0.27 |
| Information | 0.24 | 0.31 | 0.00 | -0.08 | 0.06 | 0.13 | 0.21 | 0.72 |
| Finance, insurance, real estate, rental | 0.24 | 0.28 | 0.00 | -0.09 | -0.06 | 0.03 | -0.03 | 0.14 |
| Professional and business services | 0.21 | 0.16 | 0.00 | -0.01 | 0.01 | 0.11 | 0.09 | 0.21 |
| Education, health care, social assistance | 0.03 | 0.03 | 0.00 | -0.03 | 0.01 | 0.03 | -0.04 | 0.09 |
| Arts, entert., recreation, accom., food svc | 0.08 | 0.16 | 0.00 | -0.09 | -0.03 | 0.02 | 0.13 | 0.26 |
| Other services, except government | 0.00 | 0.08 | 0.00 | -0.08 | -0.03 | -0.02 | 0.08 | 0.03 |
| Government | 0.13 | 0.30 | 0.00 | -0.09 | -0.04 | -0.03 | -0.02 | 0.29 |

# Conclusions

- Important to account for input heterogeneity when measuring labor prices within the U.S.
- Relevant for assessing labor market competitiveness and sustainability across the U.S.; open question is why factor prices not equalized; how relates to inequality
- Integrating with National Accounts is the first step in a regional KLEMS production account
- Next steps: metropolitan areas; regional labor reallocation; longer time series; improving small cells