

Economic Change and Defining Industries in the Tenth Federal Reserve District



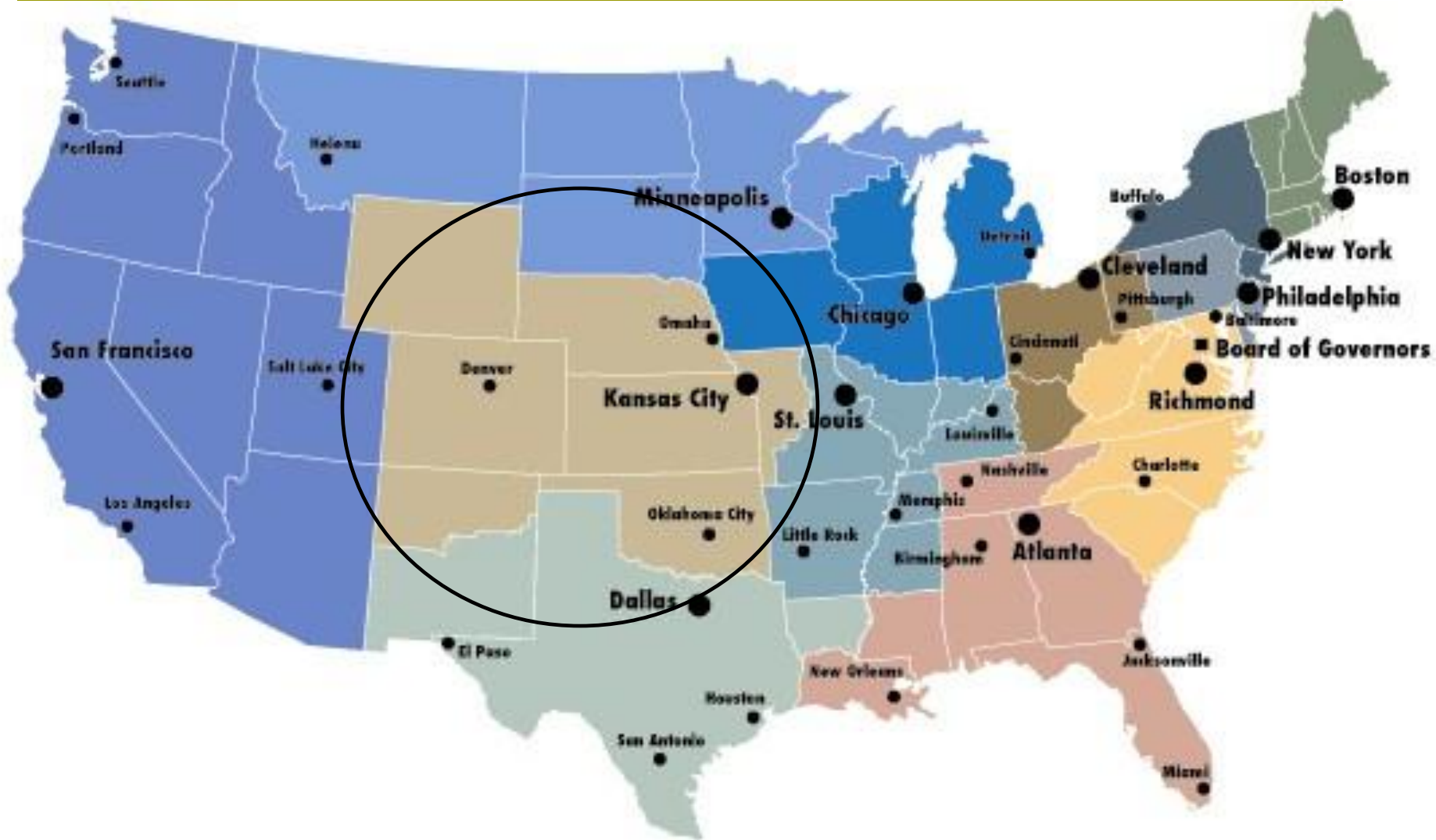
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Where is the Tenth Federal Reserve District?

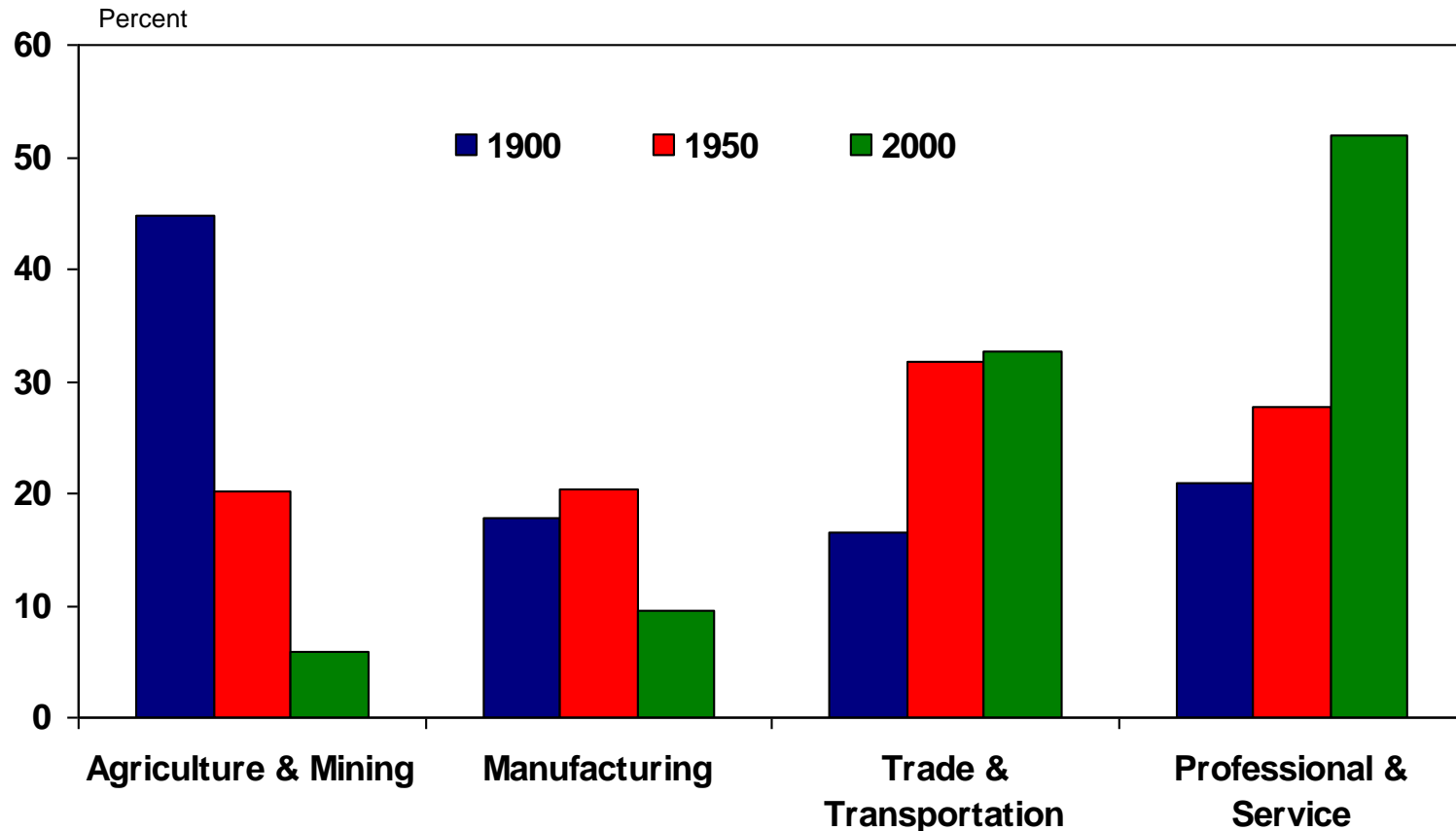


Why is it important for the central bank to understand changes in regional economies?

- For some of the same reasons as local policymakers and economic development professionals:
 - Helps to explain differences in conditions and sentiment between regional/local economies and the national/media experience
 - Helps to identify how policies or shocks could impact different areas in different ways
 - Constraints in local economies, such as labor, can provide insights about the nation's long-term growth prospects

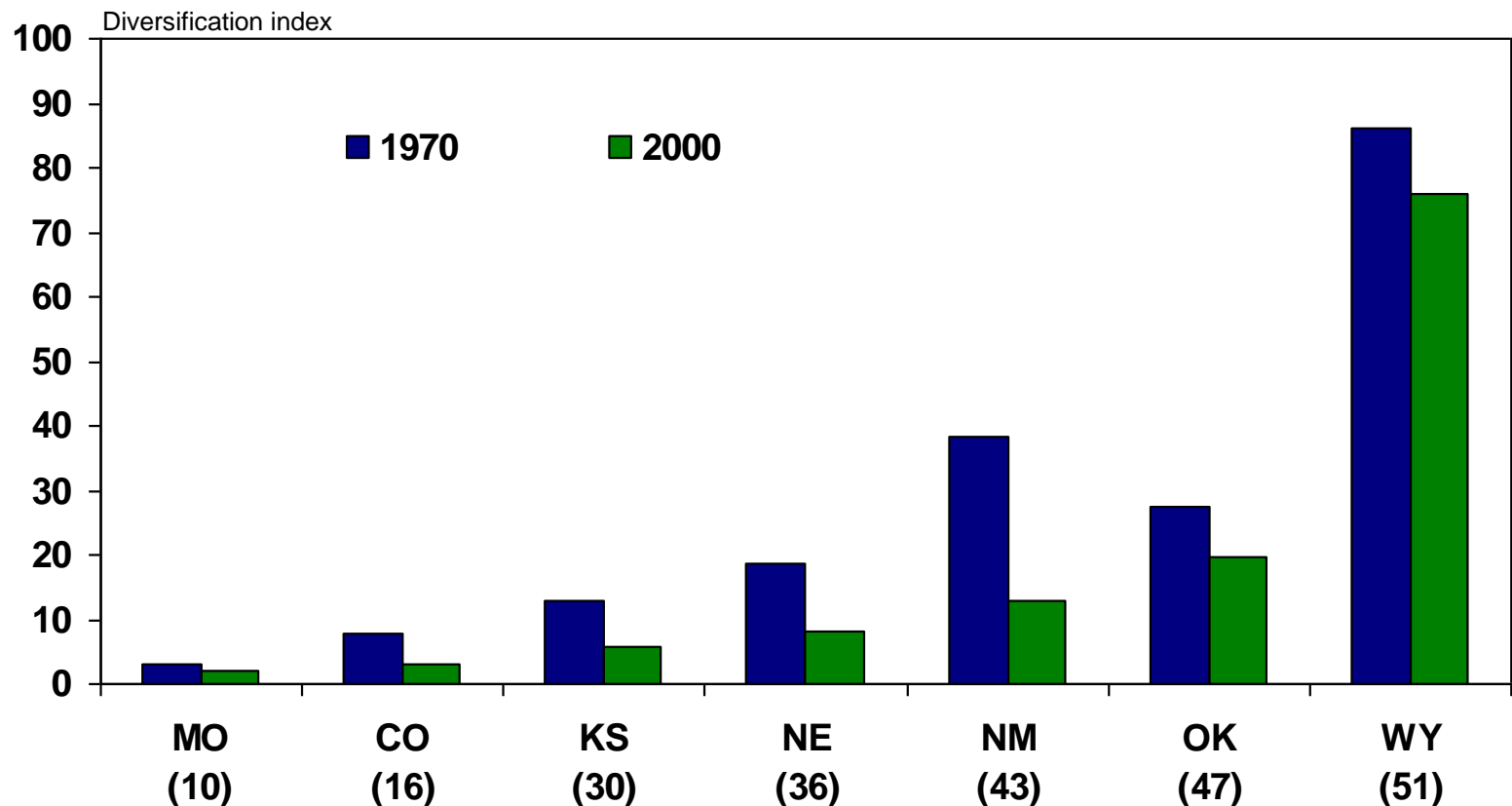
The Tenth District's industrial structure changed considerably during the 20th Century

Share of Tenth District Employment by Major Industry Sector
1900 to 2000



The region has become more like the nation in recent decades, but many differences persist

Differences from U.S. Industrial Structure,
1970 - 2000



Note: Number in parentheses denotes ranking of state's similarity with the nation in 2000, including D.C.

Source: Bureau of Economic Analysis

How important is it for states and localities to be diversified (that is, more like the nation)?

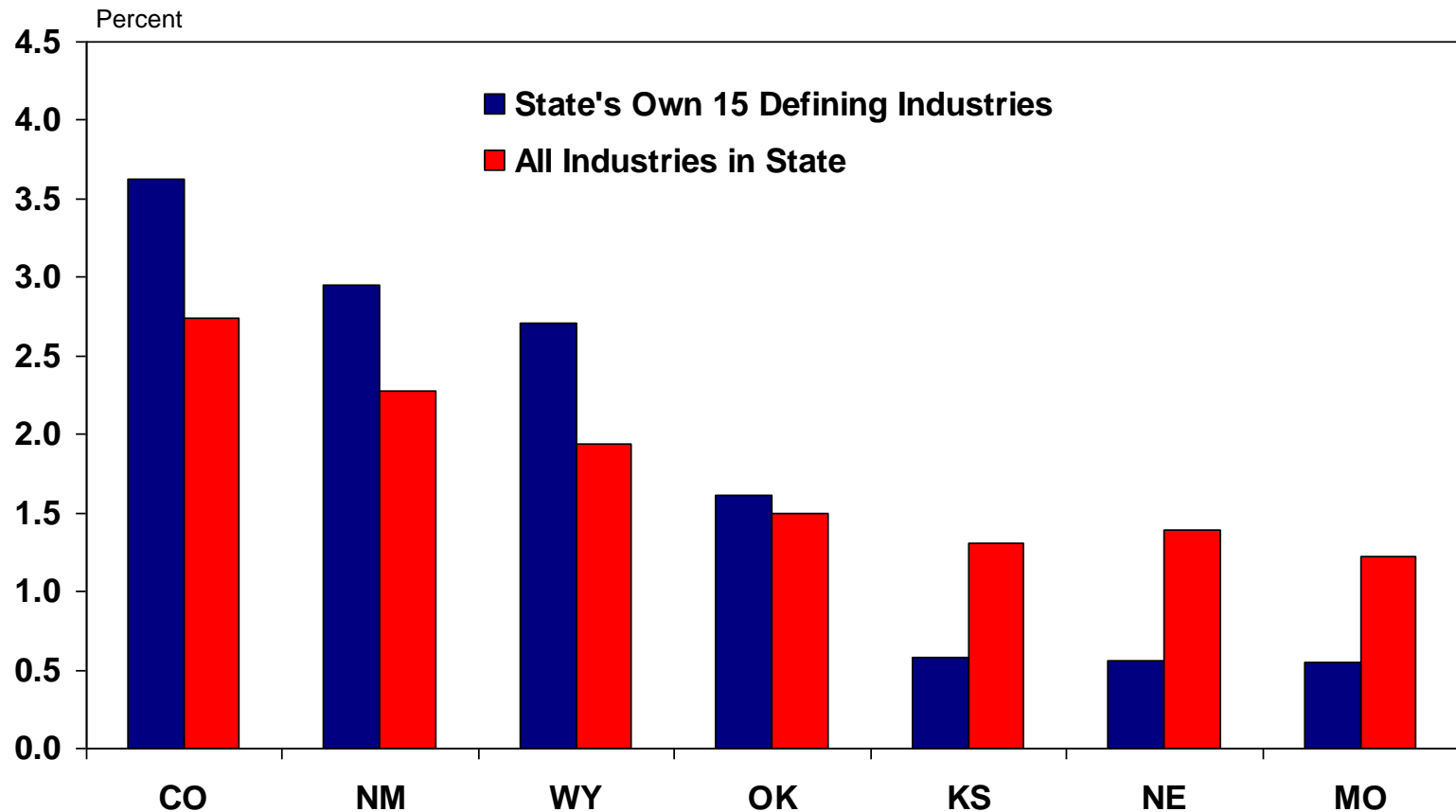
- Some studies say very important (e.g., Glaeser et al 1992; Coffey and Sheamur 1998)
- Others recommend greater specialization and focus on key comparative advantages (e.g., Porter 1990; Penfold 2006), perhaps with “vertical diversification”
- Increasingly, an area’s quality of life attributes are also important considerations, and rightly so
- Regardless, each state maintains some key “defining” industries, and these are worth understanding

What are defining industries?

- ❑ Those that are more heavily concentrated in a state or local area relative to the nation
- ❑ A common measure is location quotient (LQ), or the ratio of an industry's share of state or local income or employment to its share in the U.S. as a whole
- ❑ The higher its LQ, the more “defining” an industry is
- ❑ “Industries” can be broadly or narrowly defined, but in this analysis industries are fairly detailed

Why are defining industries important?

Average Annual State Job Growth,
1990-2005



Which industries define the Tenth Federal Reserve District?

| Rank | Industry Name | LQ, 2005 | LQ, 1990 | Primary States | Avg. Pay, 2005 |
|------|---|------------|------------|---------------------|-----------------|
| 1 | Oil & gas extraction* | 3.1 | 2.8 | WY, OK, NM | \$65,265 |
| 2 | Farm proprietors | 2.2 | 2.2 | OK, NE, KS | \$8,311 |
| 3 | Animal slaughtering & processing | 2.0 | 1.9 | NE, KS, OK | \$29,716 |
| 4 | Rail transportation | 1.9 | 1.9 | WY, NE, KS | N/A |
| 5 | Aerospace product & parts mfg. | 1.9 | 1.6** | KS, MO | \$69,313 |
| 6 | Wired telecom. carriers | 1.7 | 1.6 | KS, CO, MO | \$70,794 |
| 7 | Gambling industries | 1.7 | 0.4 | NM, OK, MO | \$25,340 |
| 8 | Highway, street, & bridge const. | 1.5 | 1.4 | NM, WY, OK | \$39,923 |
| 9 | National parks and forests | 1.5 | 1.6 | WY, NM, CO | \$46,300 |
| 10 | Business support services | 1.4 | 1.5 | NE, OK, NM | \$27,111 |
| 11 | Data processing & related services | 1.4 | 1.0 | NE, MO, CO | \$60,928 |
| 12 | Other general merchandise stores | 1.4 | 1.1 | All 7 states | \$18,715 |
| 13 | Military and national security | 1.3 | 1.4 | OK, NM | \$55,928 |
| 14 | Specialized freight trucking | 1.3 | 1.2 | WY, MO, NE | \$33,679 |
| 15 | Gasoline stations | 1.3 | 1.3 | WY, NM, NE | \$16,147 |

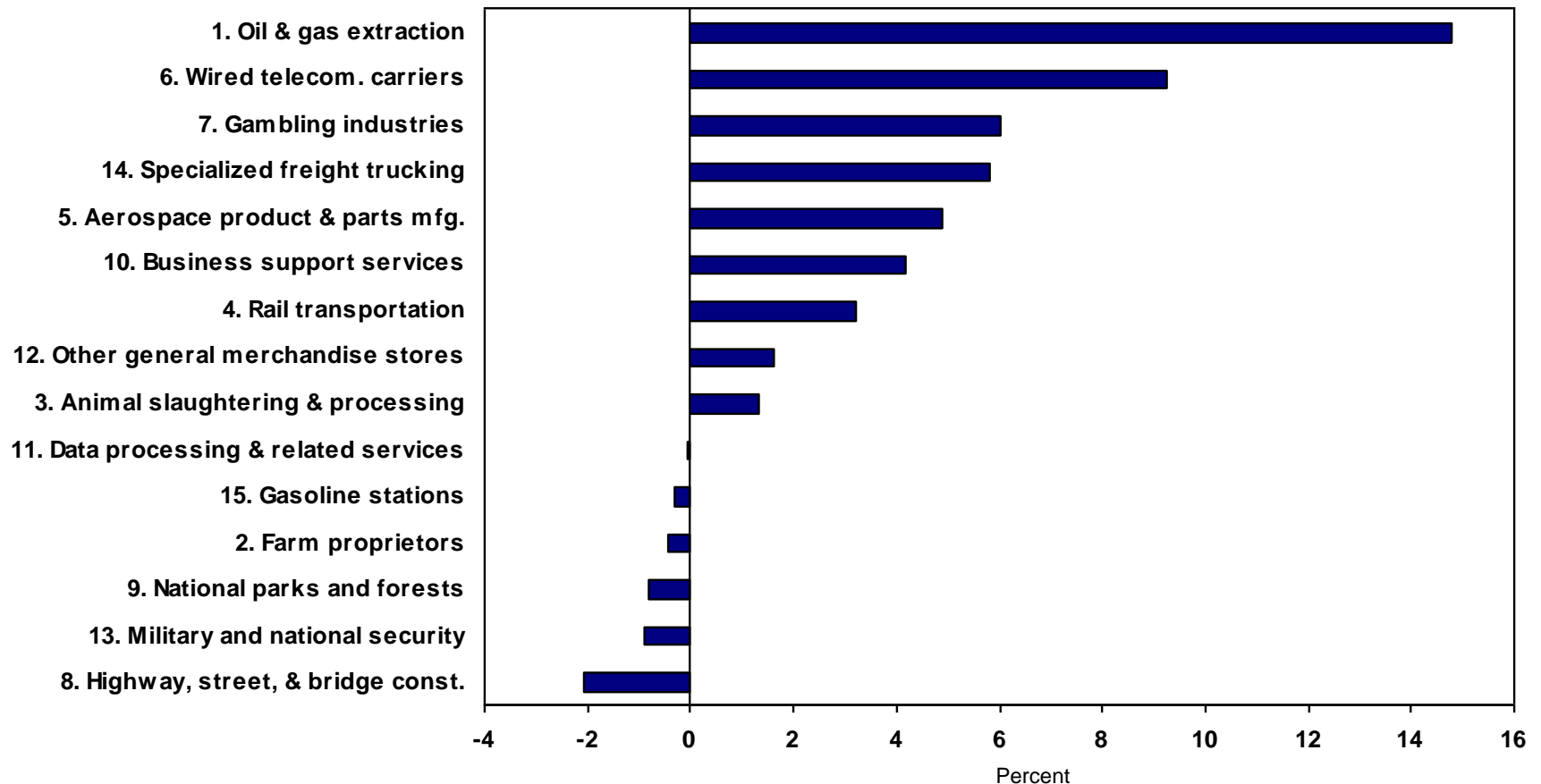
*Also includes "Support activities for mining" (NAICS 2131), which would rank #2 but is virtually the same industry, except on a contract basis

**Does not include Colorado or Missouri, where information was not disclosed in 1990

Sources: Bureau of Labor Statistics, Bureau of Economic Analysis, Railroad Retirement Board

Recent job growth has been fairly solid in most of the region's defining industries

Tenth District Defining Industries
Average Annual Job Growth, 2006 & 2007

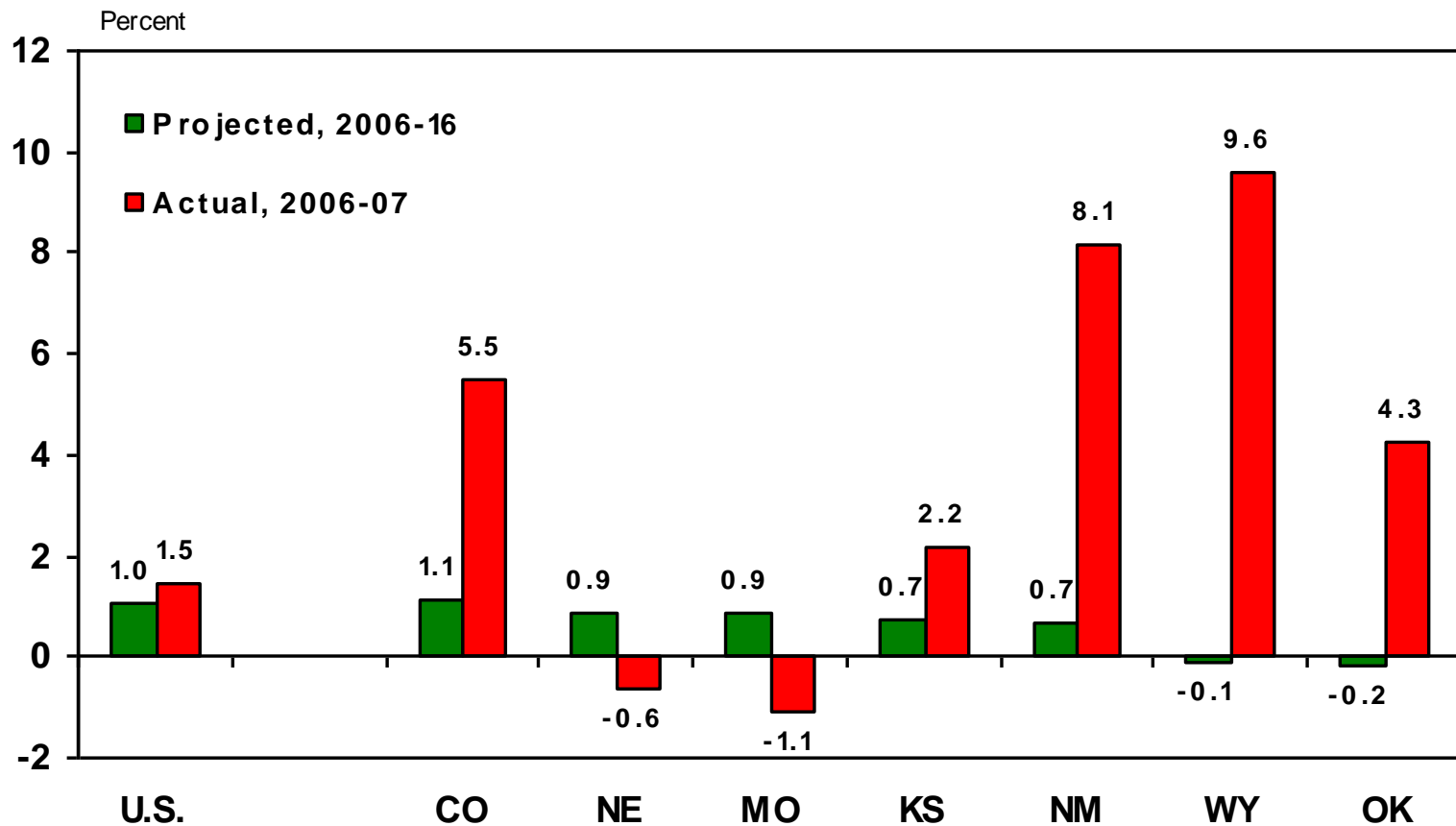


But what is the intermediate-term outlook for the region's defining industries?

- In most states, it is about average relative to the nation for the 2006 to 2016 period, according to BLS
- Regional job growth in 2006 and 2007 has generally exceeded these projections
- Heading forward, growth is expected to be strongest in high-tech, health, and business services
- By contrast, many types of manufacturing could struggle, and retail may also be in for sluggish growth

Recent defining industry growth in the region has differed from longer-term projections

Projected and Actual Defining Industry Job Growth (Annual)



Which U.S. industries are projected to add jobs the fastest through 2016*

High-tech services

1. Mgmt, scientific, & technical consulting
5. Computer systems design
7. Software publishers
8. Specialized design services

Business services

4. Facilities support services
10. Other support services (incl. trade shows)
11. Architectural & engineering services
12. Office administrative services

Health and social services

2. Individual and family services
3. Home health care services
6. Child day care services
14. Waste treatment & disposal

Manufacturing

13. Pharmaceutical and medicine mfg.

Education services

9. Other educational services (incl. trade and tech schools)

Recreational activities

15. Spectator sports

* Among industries with more than 100,000 employees
Source: U.S. Bureau of Labor Statistics

Which U.S. industries are projected to shed jobs the fastest through 2016*

Nondurable manufacturing

1. Cut and sew apparel mfg.
3. Rubber product mfg.
5. Forging and stamping
6. Other chemical product mfg.
8. Synthetic materials mfg.
10. Coating and engraving
14. Converted paper product mfg.

Durable manufacturing

2. Computer mfg.
4. Foundries
7. Motor vehicle parts mfg.
11. Electrical equipment mfg.
12. Metalworking machinery mfg.
13. Industrial machinery mfg.

Natural resources

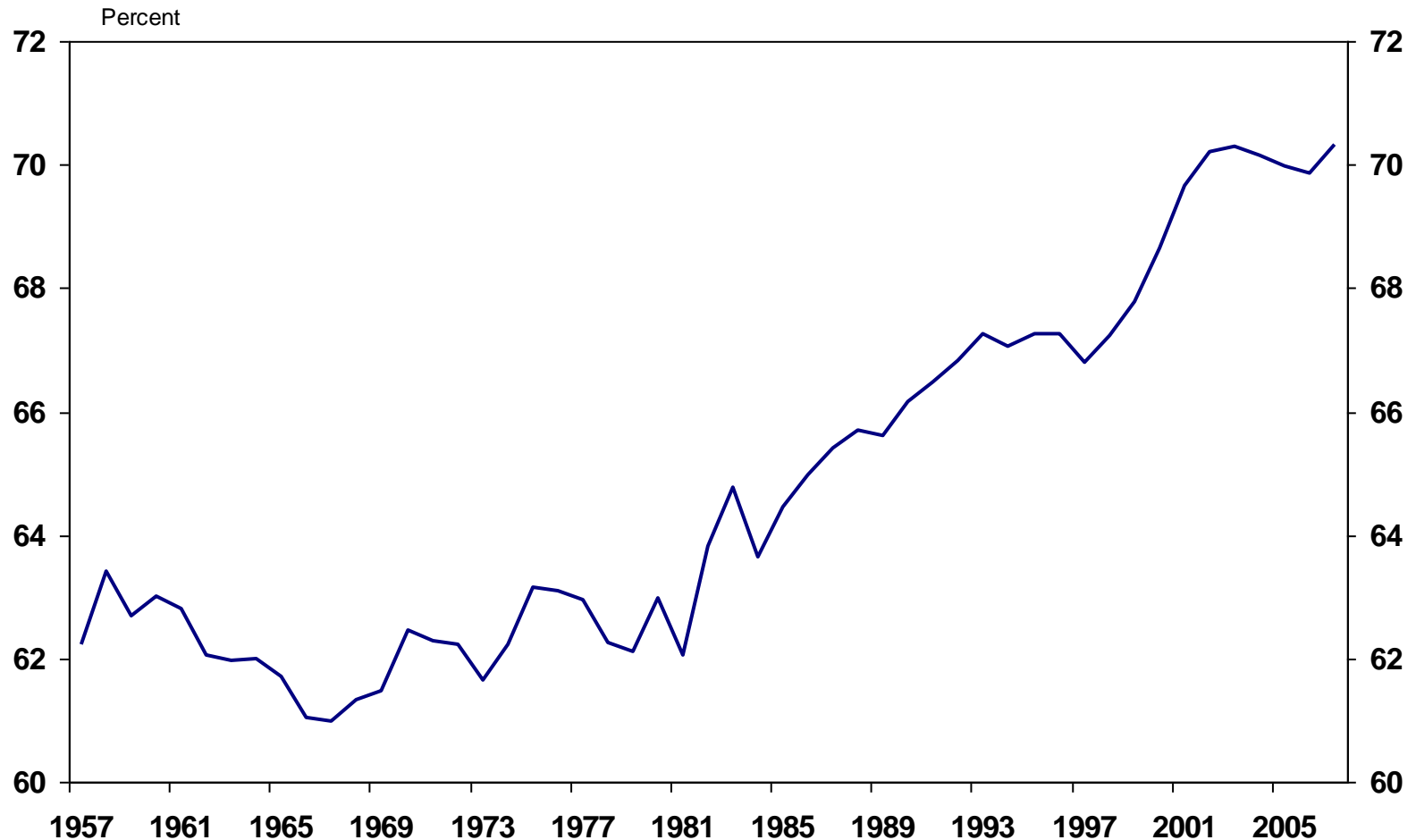
9. Sawmills & wood preservation
15. Natural gas distribution

* Among industries with more than 100,000 employees

Source: U.S. Bureau of Labor Statistics

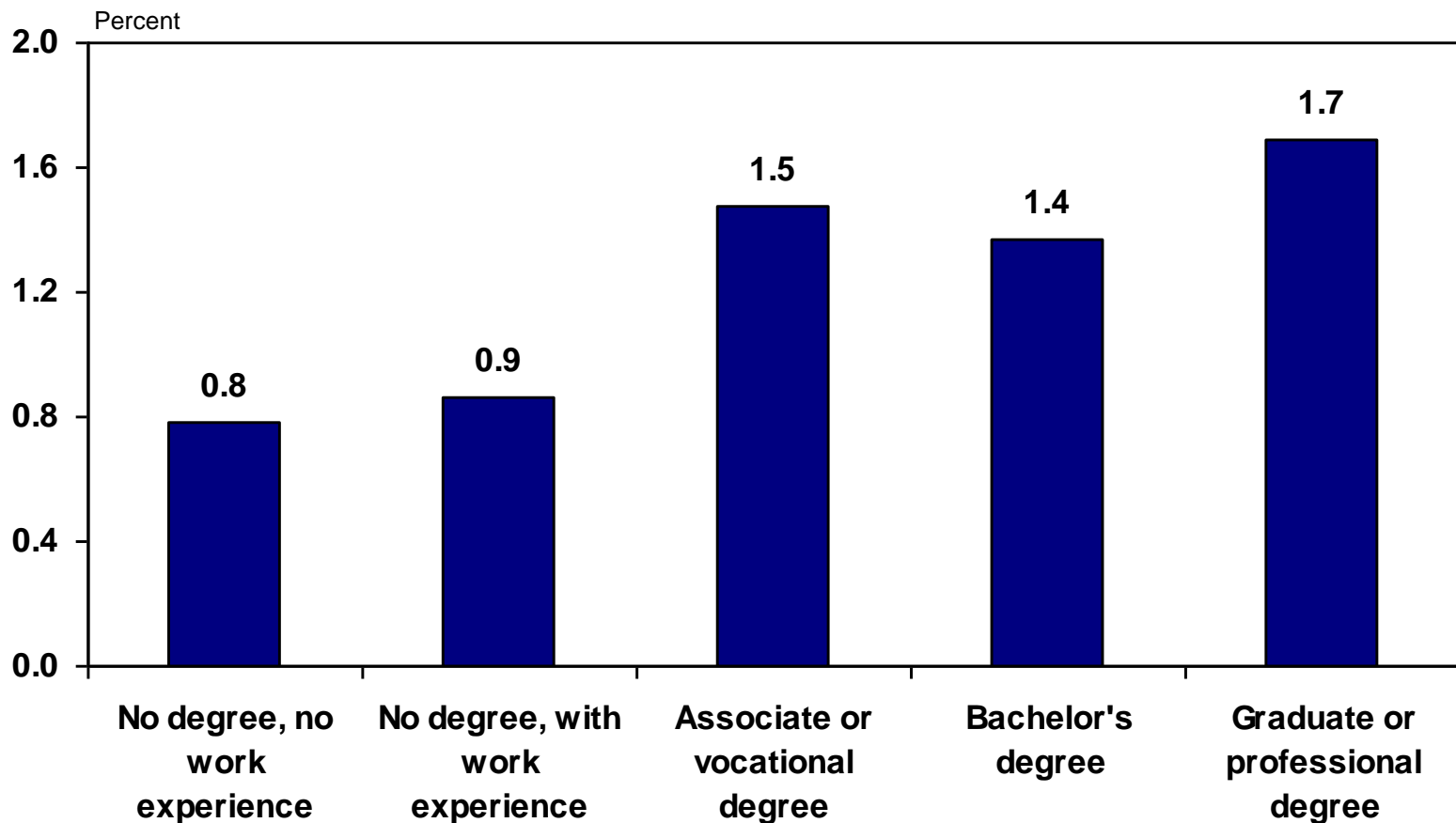
Another industry that may struggle to maintain rapid growth is retail

Consumer Spending As a Share of Gross Domestic Product



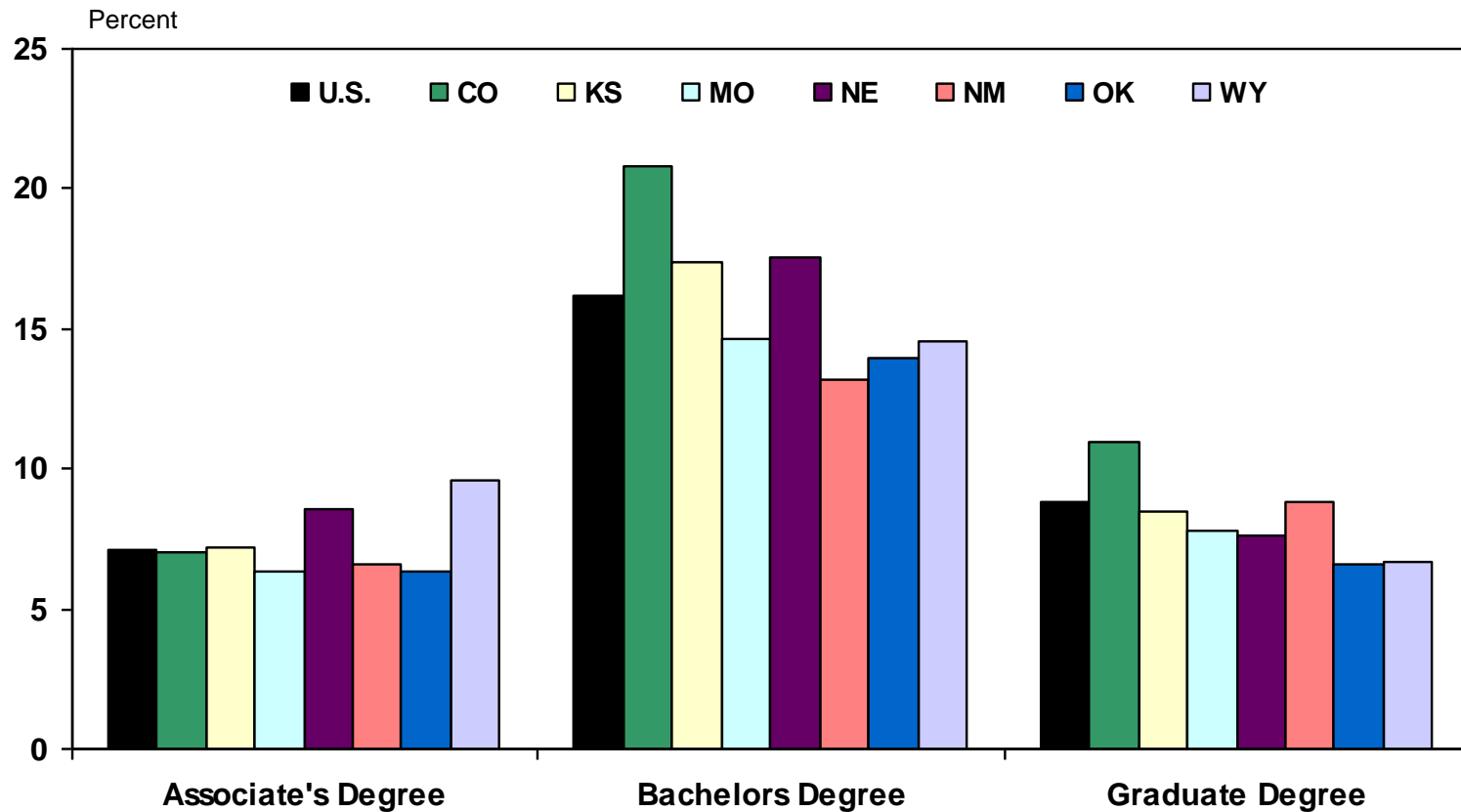
In general, jobs requiring advanced education are expected to grow fastest

**Projected Annual Employment Growth 2006-2016,
by training needed to qualify for employment**



Most states in the region have below-average educational attainment

Educational Attainment of Population 18 Years and Over



Implications

- ❑ Most states in the Tenth District maintain unique industrial structures, often providing important comparative advantages
- ❑ Recently, this has been good for the region
- ❑ Longer-term, though, the outlooks for the region's defining industries are more uncertain
- ❑ So focusing on improving the quality of life and workforce skills of the region remains important