



Measuring Resilience Among Oregon Counties

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Joint Study with Oregon State University

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Measuring Resilience Among Oregon Counties

<https://www.qualityinfo.org/-/measuring-resilience-among-oregon-counties>

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Data through September 2016.

Motivation slide

Great Recession renewed interest in resiliency as a key economic indicator

Understanding how local business cycles differ from regional and national cycles and what drives these differences

Does measuring resiliency add to our understanding of regional economies in Oregon?

Multiple Components to Measuring Resilience

When do you first start to lose jobs?

How many and what types of jobs do you lose?

How long does it take you to start adding jobs again? What types of jobs come back compared to what you lost?

How soon do you regain all lost jobs?

Do you resume your previous growth path or adapt to a new growth path?

Hans and Goetz method was adapted by Ron Martin et al.
for a study of major regions of the UK.

“...focus on how regions react to recessions defined by the national downswings from peak to trough, and recoveries defined as the national upswings from trough to peak.”

- **Resistance**
 - Did the region do better or worse than expected during the recession?
- **Recoverability**
 - Did the region do better or worse than expected during the recovery?

Predicting the Economic Resilience of US Counties from Industry Input-Output Accounts
Southern Regional Science Association Annual Meeting, Washington, D.C. 2013
How Regions React to Recessions: Resilience and the Role of Economic Structure
Regional Studies, Vol. 50, No. 4 561-585, 2016.

County level measure of Resilience

$$\text{Resis}_r = \frac{(\Delta E_r^{\text{Contraction}}) - (\Delta E_r^{\text{Contraction}})^{\text{expected}}}{|(\Delta E_r^{\text{Contraction}})^{\text{expected}}|}$$

- Resistance

- Contraction is the percent change in county employment from December 2007 to January 2010.
- Expected contraction is the percent change in statewide employment from December 2007 to January 2010.

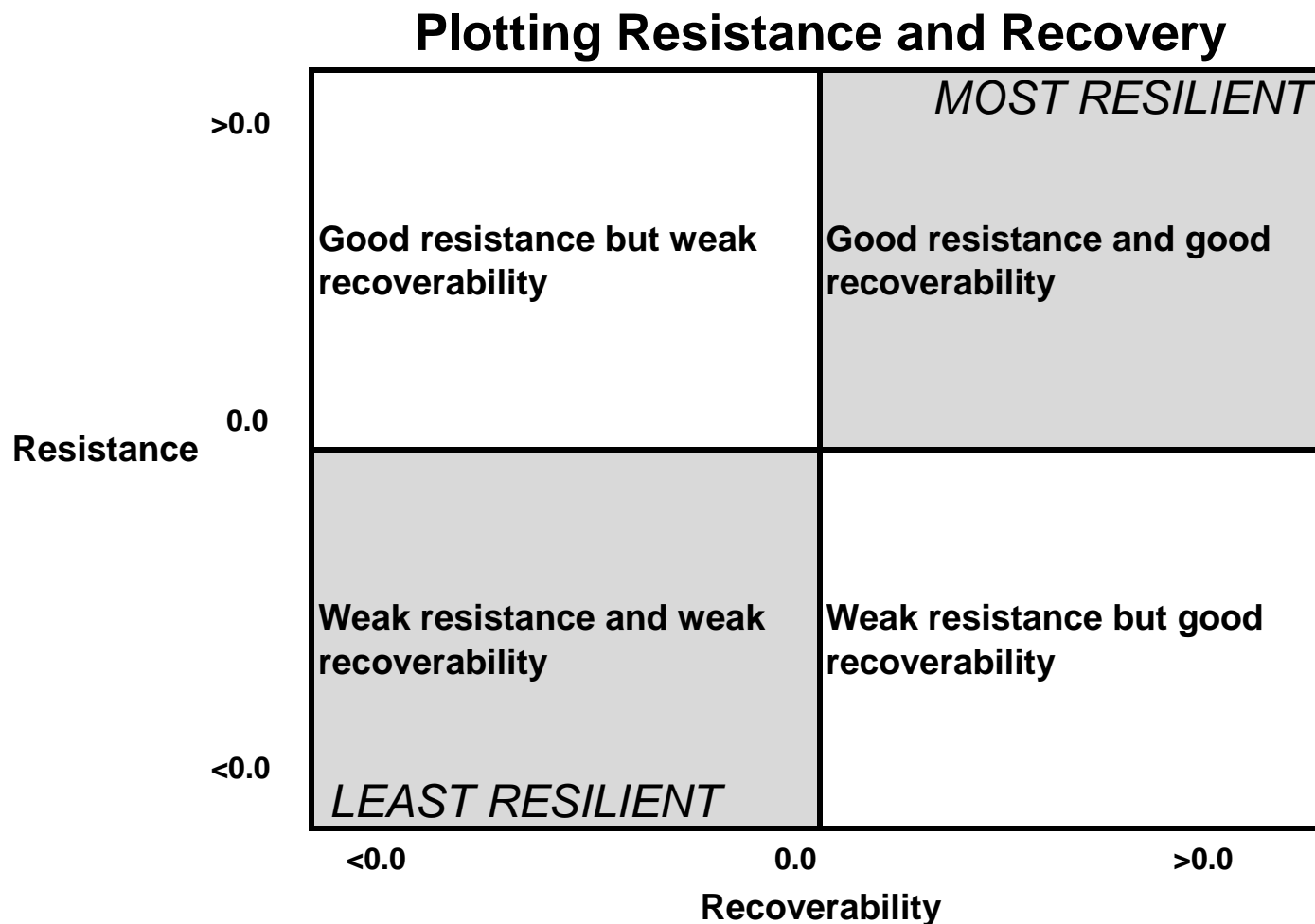
$$\text{Recov}_r = \frac{(\Delta E_r^{\text{Recovery}}) - (\Delta E_r^{\text{Recovery}})^{\text{expected}}}{|(\Delta E_r^{\text{Recovery}})^{\text{expected}}|}$$

- Recoverability

- Recovery is the percent change in county employment from December 2007 to January 2010.
- Expected recovery is the percent change in statewide employment from December 2007 to January 2010.

How Regions React to Recessions: Resilience and the Role of Economic Structure
Regional Studies, Vol. 50, No. 4 561-585, 2016.

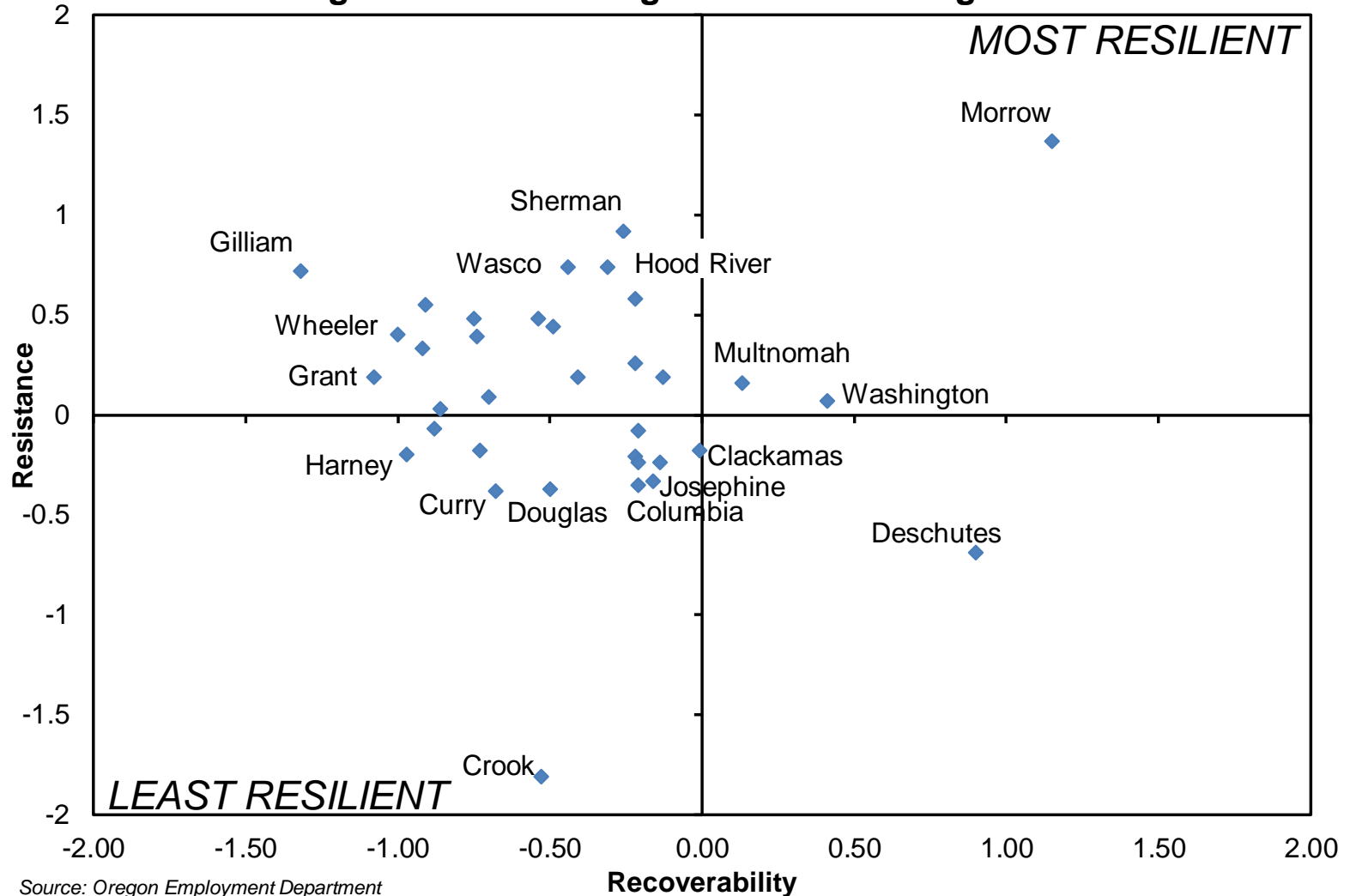
Ron Martin et al. added this neat grid approach to quickly illustrate which regions were most or least resilient.



Source: Martin et al. *How Regions React to Recessions: Resilience and the Role of Economic Structure*, 2016

Let's try that with total nonfarm employment!

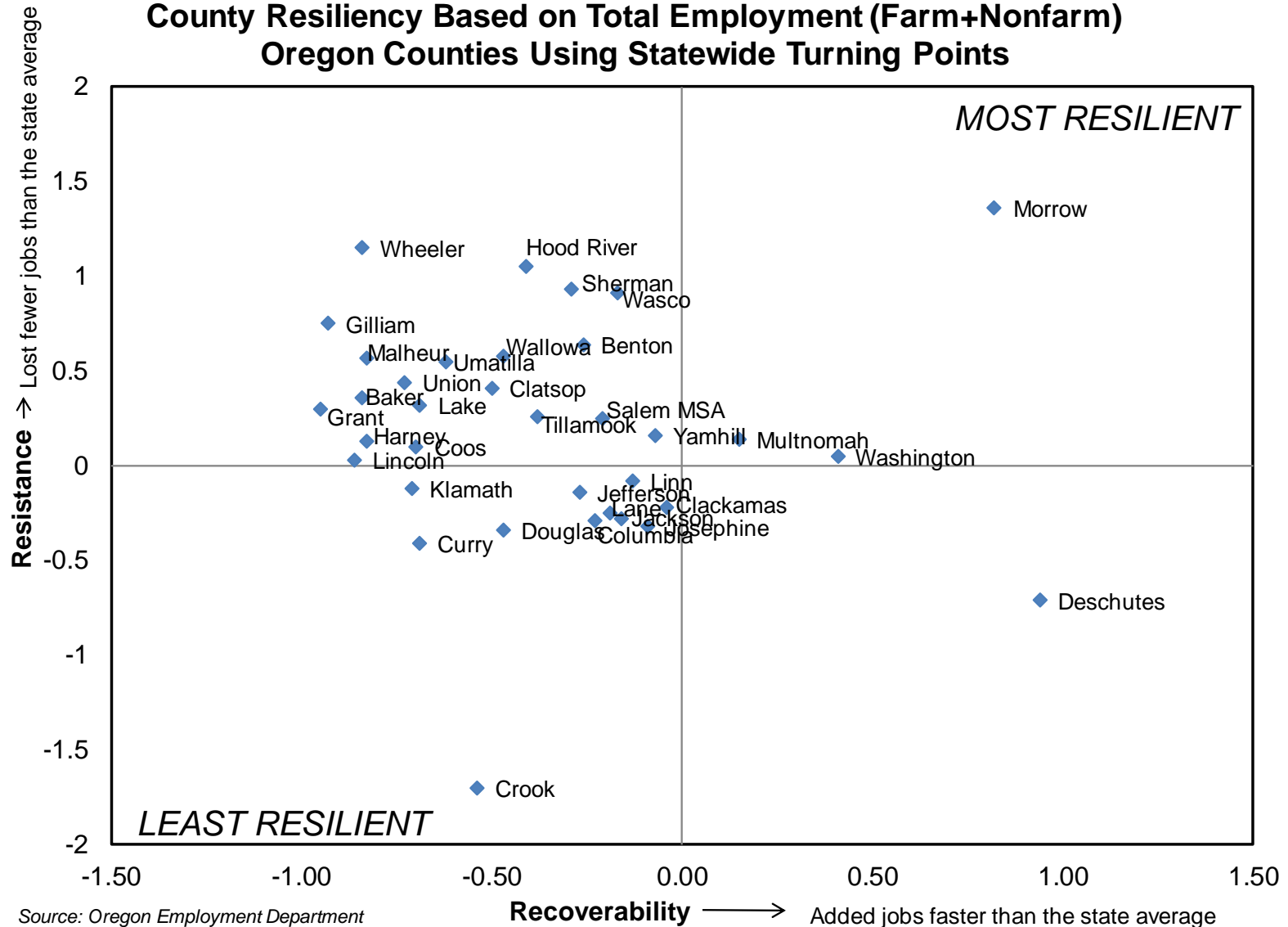
Combinations of Resistance and Recoverability Oregon Counties Using Statewide Turning Points



Source: Oregon Employment Department

Now let's include agricultural employment!

**County Resiliency Based on Total Employment (Farm+Nonfarm)
Oregon Counties Using Statewide Turning Points**

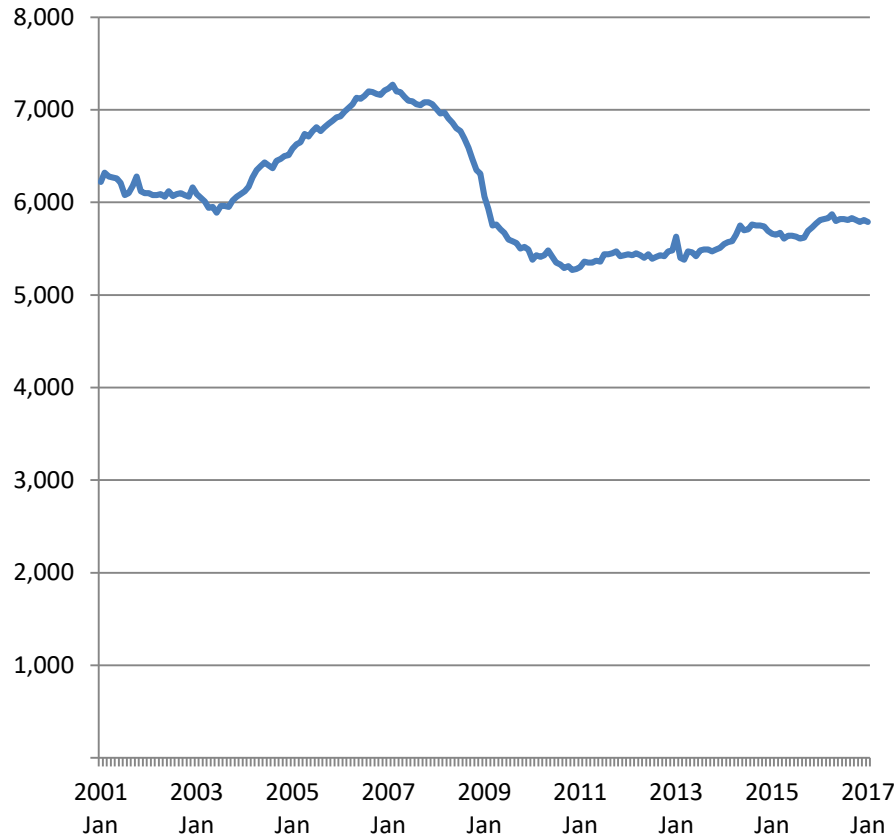


What can this analysis tell us?

- Ag jobs improve the recession resistance scores of rural counties.
 - Lake and Harney counties moved from not-resistant to resistant.
 - Wheeler, Hood River, and Wasco counties were already resistant, and their scores improve when ag jobs are included.
- Ag jobs improve the recoverability scores of rural areas.
 - No county has a better than expected recoverability score.

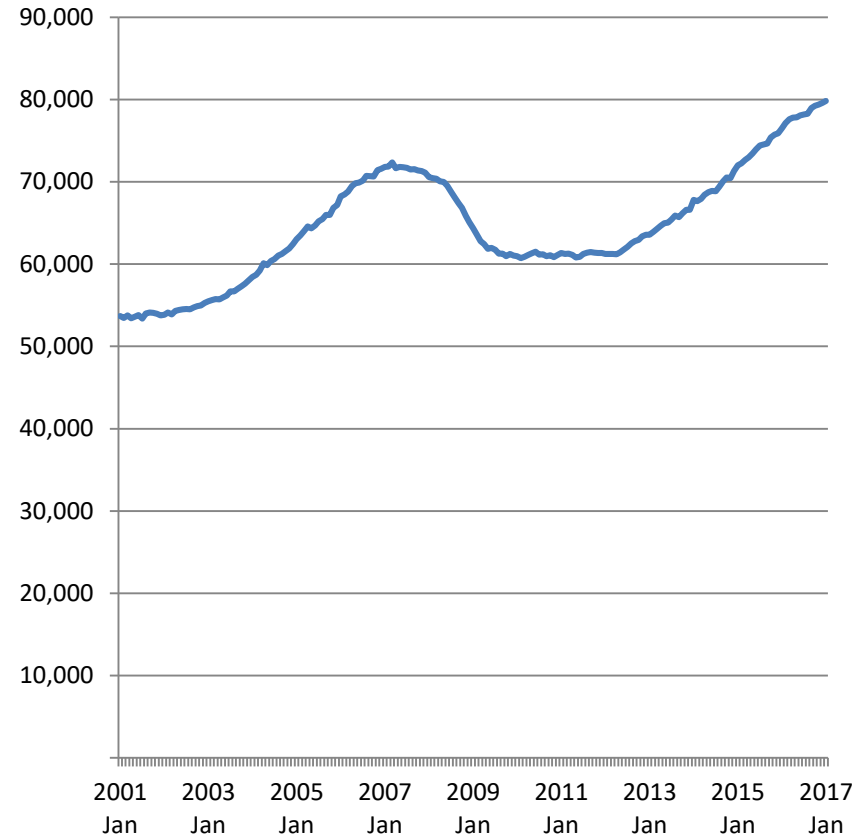
Outliers – in our midst

Crook County



Largest decline in employment – slow and smaller recovery (but not the smallest).
Fewer jobs than before.

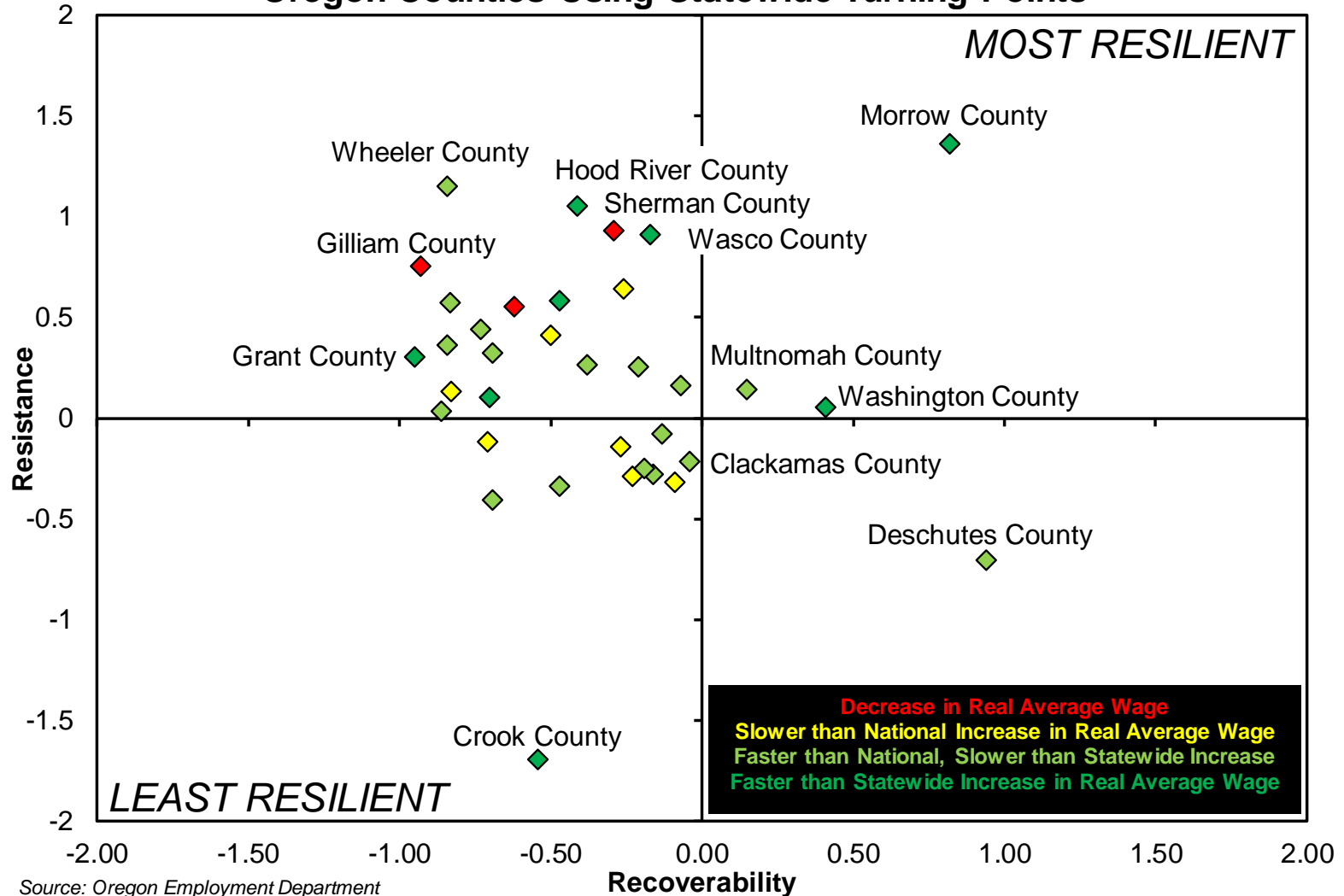
Deschutes County



2nd largest decline in employment – with a delayed recovery. More jobs than before.

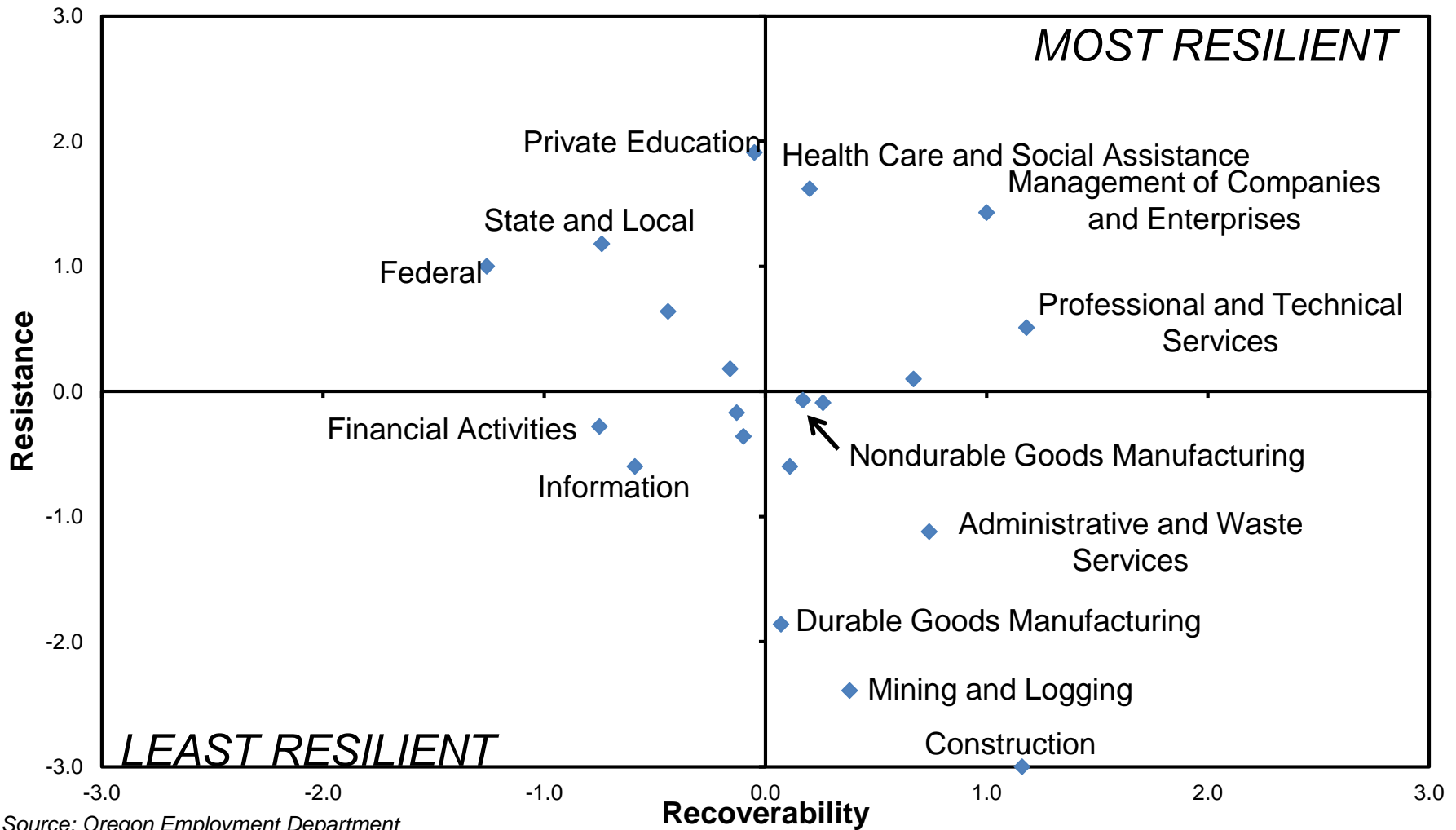
Was there an impact on average wages?

Combinations of Resistance and Recoverability Oregon Counties Using Statewide Turning Points



Replicating the Grid Approach for Industries

Combinations of Resistance and Recoverability Oregon Industries using Statewide Turning Points



What can this industry analysis tell us?

- Most resilient industries – lost the fewest jobs and has had the strongest recovery.
 - Management of companies, professional and technical services, health care and social assistance
- Government sector was relatively stable during the recession, but has had slower growth since.
- Four industries that lost the most jobs are all adding jobs back faster than the state average.
- Least resistant – information and financial activities.

Should resilience look alike for all counties?

Need to incorporate additional measures of job change: incomes gained and lost, industry portfolios, productivity of remaining businesses

Is employment growth the one adaptation?

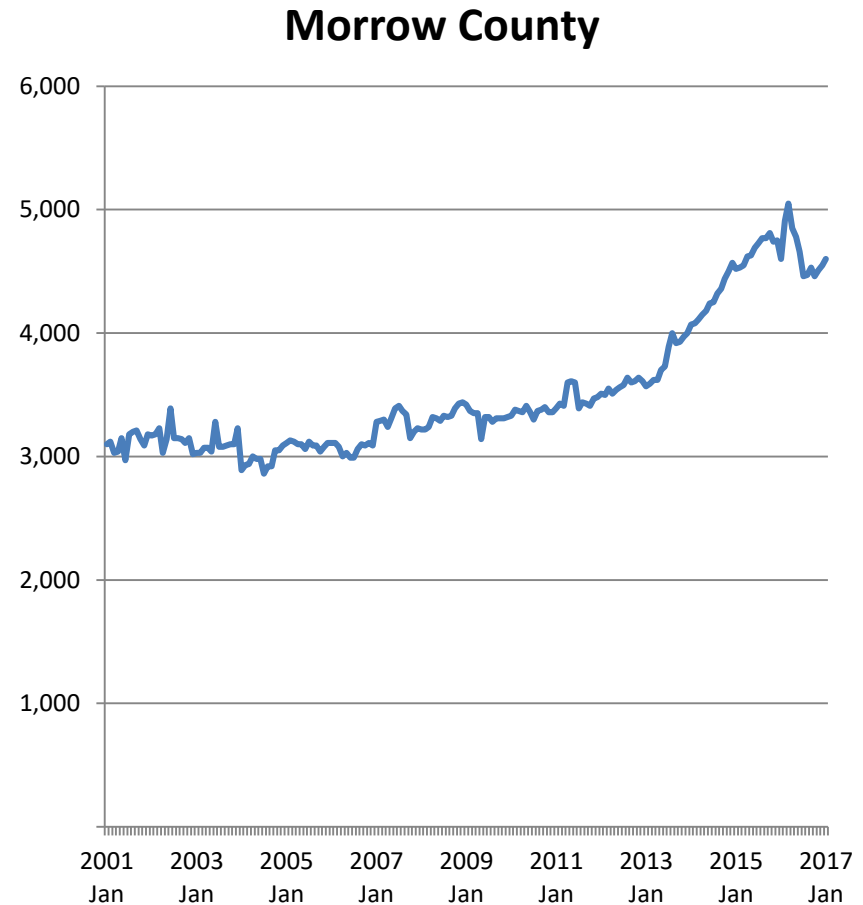
- Migration, commuting – acceptable adaptations?
- Health of the regional economy and not just physical location of jobs
- Volatility of the adapting economy

Replicability of success?

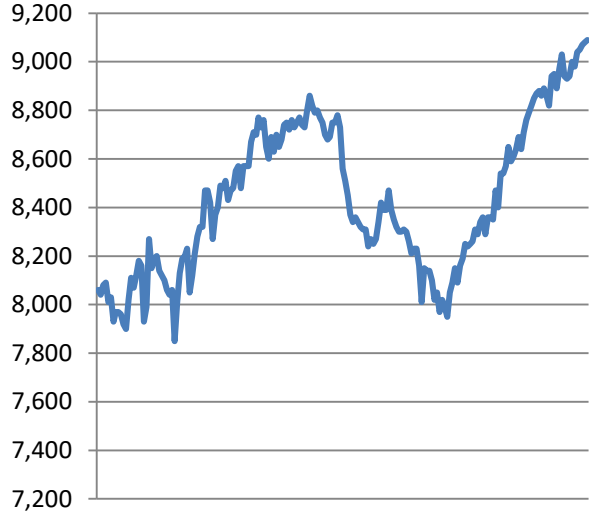
“Morrow County is outright exploding”

“few [rural areas] are blessed to be on a rail line and surrounded by an interstate and a gigantic navigable river.”

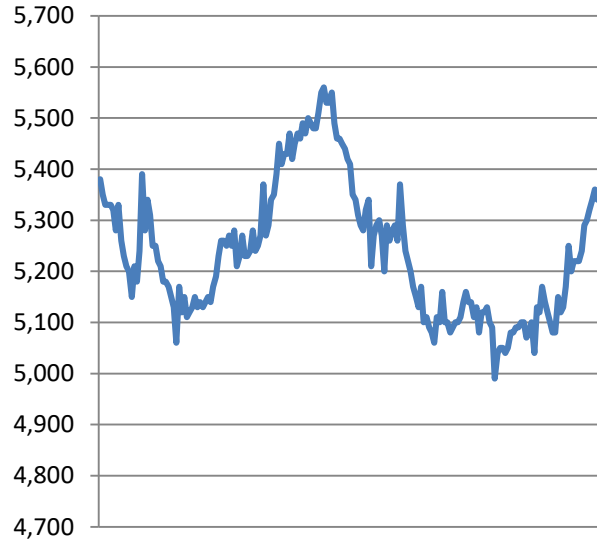
- Data centers
- Power plant construction
- Food manufacturing



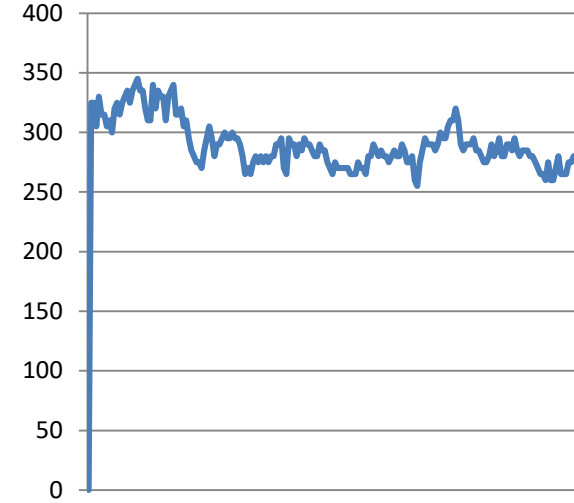
Tillamook County



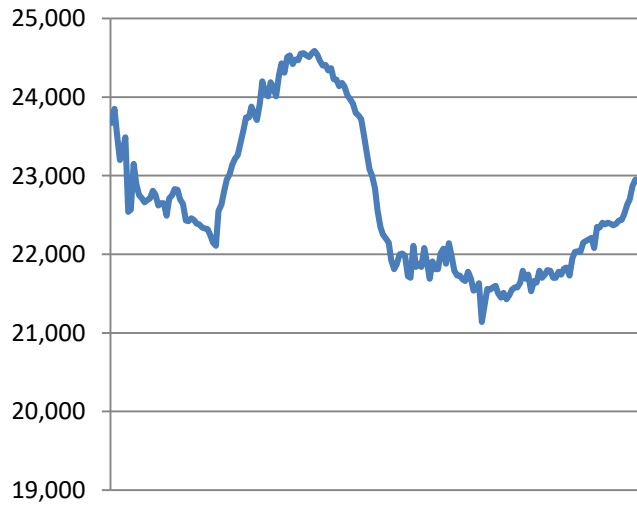
Baker County



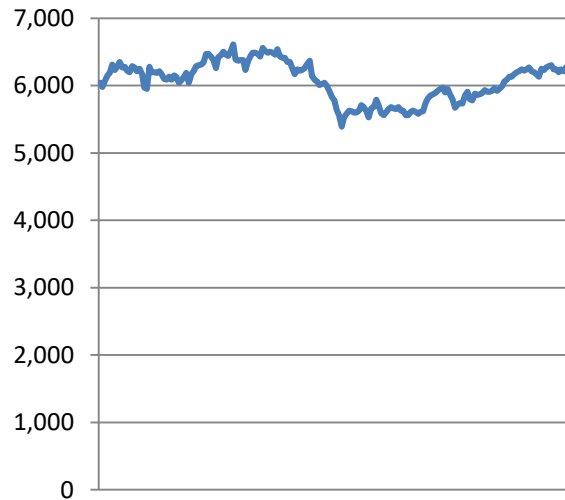
Wheeler County



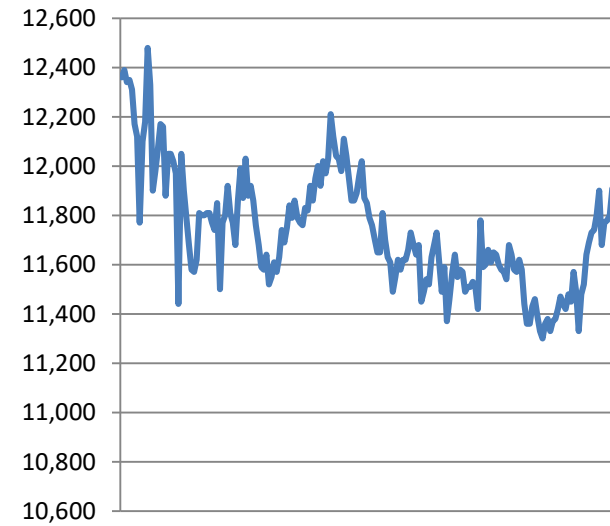
Klamath County



Jefferson County



Malheur County



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References

Hans Y. and Goetz S. J., 2013, Predicting the economic resilience of US counties from industry input-output accounts. Paper presented at the Southern Regional Science Association Annual Meeting, Washington, DC, April 3, 2013.

[http://www.nardep.info/uploads/Predicting the Economic Resilience of US Counties by Han and Goetz SRSA 2013B.pdf](http://www.nardep.info/uploads/Predicting_the_Economic_Resilience_of_US_Counties_by_Han_and_Goetz_SRSA_2013B.pdf)

Martin, Ron, et. al., 2016, How regions react to recessions: Resilience and the Role of Economic Structure. *Regional Studies*, 50:4, 561-585.

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Rahe, Mallory and Beleiciks, Nick, 2017, Measuring Resilience Among Oregon Counties, <https://www.qualityinfo.org/-/measuring-resilience-among-oregon-counties>