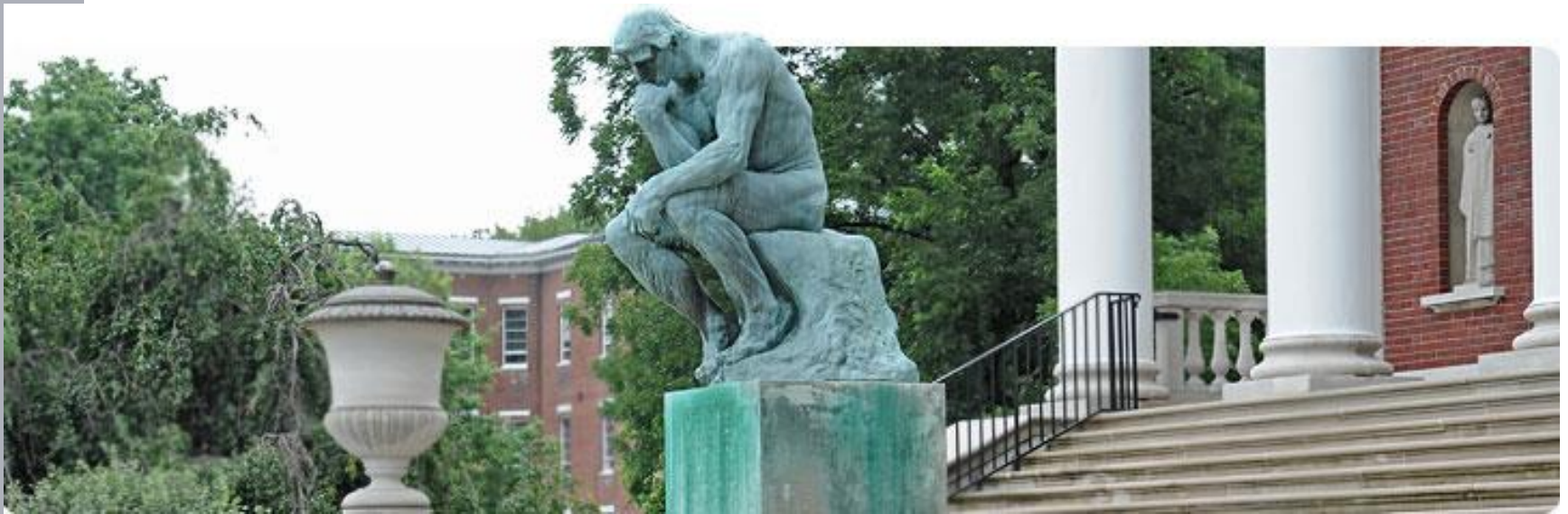# Logistics and Distribution Institute

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Brief Information about the University of Louisville

- **louisville.edu**
- **louisville.edu/lodi**

Goals

- Develop a Logistics and Distribution (*LoDI) index* to gage the logistics and distribution activity in the greater Louisville area AND the US

- The LoDI index is predictive in nature

- The index is released monthly

- The LoDI index will be represented as a number between 0 and 100.
  - Lower values (below 50) represent a decline in the logistics and distribution activity in the region for the upcoming quarter.
  - Higher values (above 50) represent an increase in the logistics and distribution activity

Motivation

- Various methods of measurement have been utilized to provide an improved understanding of the relationship between risk and reward for businesses. e.g. Consumer Confidence Index (CCI)

- The ability to measure changes in the logistics and distribution industry via the LoDI index could be important to many local and national businesses.

- This index will be useful for important investment decisions of individual companies as well as planning and budget allocation of governmental agencies.

Existing Indices

- Consumer Confidence Index (CCI):
  - Based on the University of Michigan's Index of Consumer Sentiment.
  - Measures how confident consumers are in the economy each month.
  - Uses subjective survey responses to calculate an index value.
    - (Percentage of positive answers – percentage of negative answers) + 100 scaled by base year value

- Other Indices which utilize similar methods to the CCI:
  - University of Michigan's Index of Consumer Sentiment (CCI is based on this index)
  - University of Michigan's Index of Consumer Expectation (utilizes forward looking survey questions only)
  - Business Ethics Index (BEI)
  - Regional CCI Indices: CCI of Florida (CCIF) and CCI of Ohio (OCCI)

Existing Indices

- Consumer Price Index (CPI):
  - Measures expected changes in the cost of monthly household expenditures (cost-of-living index).
  - As a cost of living indicator, the CPI can be used to measure inflation.
  - Price data collected based on point-of-purchase surveys and utilized in the calculation of the CPI.
  - A modified Laspeyres formula and the geometric mean formula, along with hedonic regression techniques are used to calculated the index value.

- Producer Price Index (PPI):
  - Measures changes in prices of goods in the manufacturing industry.
  - Pricing data is collected from manufacturing companies based on stage-of-processing (raw materials, intermediate goods, and finished goods) and is the basis data used for calculations.
  - Some qualitative survey responses are also collected for inclusion.
  - The Carlson-Parkin procedure is utilized along with similar methods from the CPI to calculate the index value.

Benefits

- The LoDI Index will have a strict focus on the logistics and distribution industry

- Raw data from the industry is utilized for calculations, this is more reliable than subjective survey responses that are used in many other indices

- By using a combination of methodologies from current indices, the LoDI index is a strong indicator

- Provides a yardstick by which logistics and distribution companies can make investment decisions

- The LoDI Index will also be helpful to governmental agencies for infrastructure planning and budgeting decisions

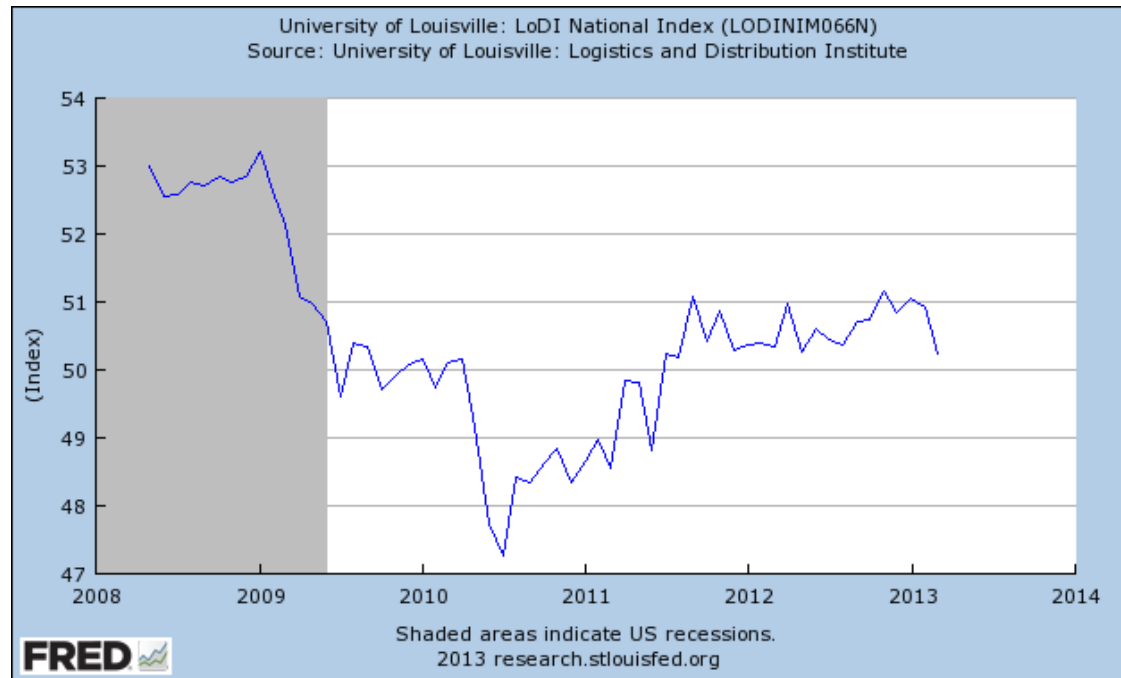UNIVERSITY OF
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Input Data

- Greater Louisville Inc., categorizes the areas of logistics and distribution via the four R's: Rail, Runway, Road, and River, Real Estate and Router

- Information from each of the "physical" R's (Road, River, Rail, and Runway) will be utilized in the *LoDI index*

- Secondary Data
  - Other secondary data pertaining to changes in the logistics and distribution industry, that is not highly correlated with primary data (e.g. unemployment rate or PPI)

Analysis

● A linear regression model predicts the level of activity for the upcoming month

University of Louisville: LoDI National Index (LODINIM066N)
Source: University of Louisville: Logistics and Distribution Institute

Shaded areas indicate US recessions.
2013 research.stlouisfed.org

Benefits

- The LoDI Index will allow users to monitor the overall health of the logistics and distributions market.

- The index will help companies determine an appropriate level of investment in the logistics and distribution sector for the upcoming quarter (or month).

- The index will provide information on the need for additional infrastructure planning to governmental agencies.

- This project is scalable and/or repeatable for other metropolitan areas.

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