

Economic Indices: An Analysis of the Space Industry

Emily Sexton, Economics & Computational Analysis

Brinda Mahalingam, Ph.D., Economics & Computational Analysis

Overview

What is an index?

- A statistical measure of change that aggregates a large amount of information into a single quantity.
- Useful for analyzing changes in data collected on one or more variables over time, especially in macroeconomics.

How is it constructed?

- Establish a base period and base value.
- The value of each subsequent period is compared to that base value.

Select indices reviewed:

- ISM Manufacturing Index
- Federal Reserve Industrial Production Index
- Kensho New Economies Space Index

Select companies researched:

- Aerojet Rocketdyne
- Boeing
- Lockheed Martin
- Northrop Grumman

Objectives

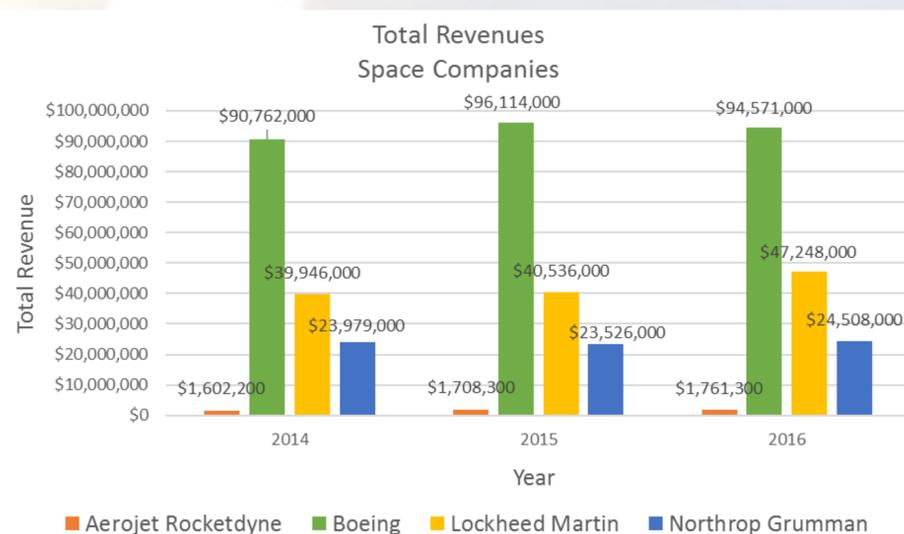
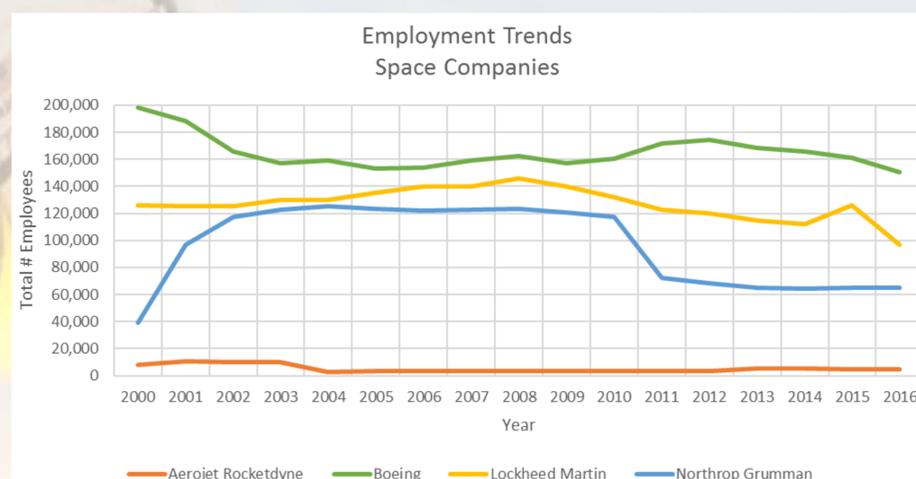
- Research the methodology of existing indices and what is learned from them
- Collect data on a sample of space companies to determine what types of data are available on the space industry (employment, revenues, etc.)
- Determine how this information can be used to construct an index on the space industry

Key Findings

- The ISM Manufacturing Index captures employment, production, inventories, new orders, and supplier deliveries of over 300 manufacturing firms. It reflects economic conditions in the U.S. and serves as a signal to investors about changes in the stock and bond markets.
- The Federal Reserve Industrial Production Index captures industrial production and capacity utilization, which covers manufacturing, mining, and electric and gas utilities. It measures real output as a percentage of real output in a base year, and it consists of two main types of data: output (physical product) and input (production-worker hours).
- The Kensho New Economies (KMARS) Index is a stock index for the space industry. It currently captures 30 companies in the space sector, which focus on space exploration and building rockets, launch vehicles, and satellites. While this index sheds some light on the space industry, it is lacking information, such as employment, revenues, production, etc., that is present in the ISM Manufacturing Index and the Federal Reserve Industrial Production Index.

Key Findings

- Employment and revenue data was collected on a sample of four space companies: Aerojet Rocketdyne, Boeing, Lockheed Martin, and Northrop Grumman. The trends in the data are shown in the charts below. The first chart shows trends in employment from 2000 to 2016. A fall in employment can be seen following the 2008 recession.



Conclusions and Future Directions

- The ISM Manufacturing Index and the IP Index show how businesses perform over time. They both track employment, production inventories, new orders, and supplier deliveries in their industries.
- The Kensho Space Index is focused on space-related activities such as space exploration, satellites, launch vehicles, and companies that enable space travel. It tracks the price and number of shares on a given day.
- An index that tracks economic activity in space companies could be a useful tool since the space sector is showing signs of expanding.

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