A Study of US Coal Mine Closures since 1994

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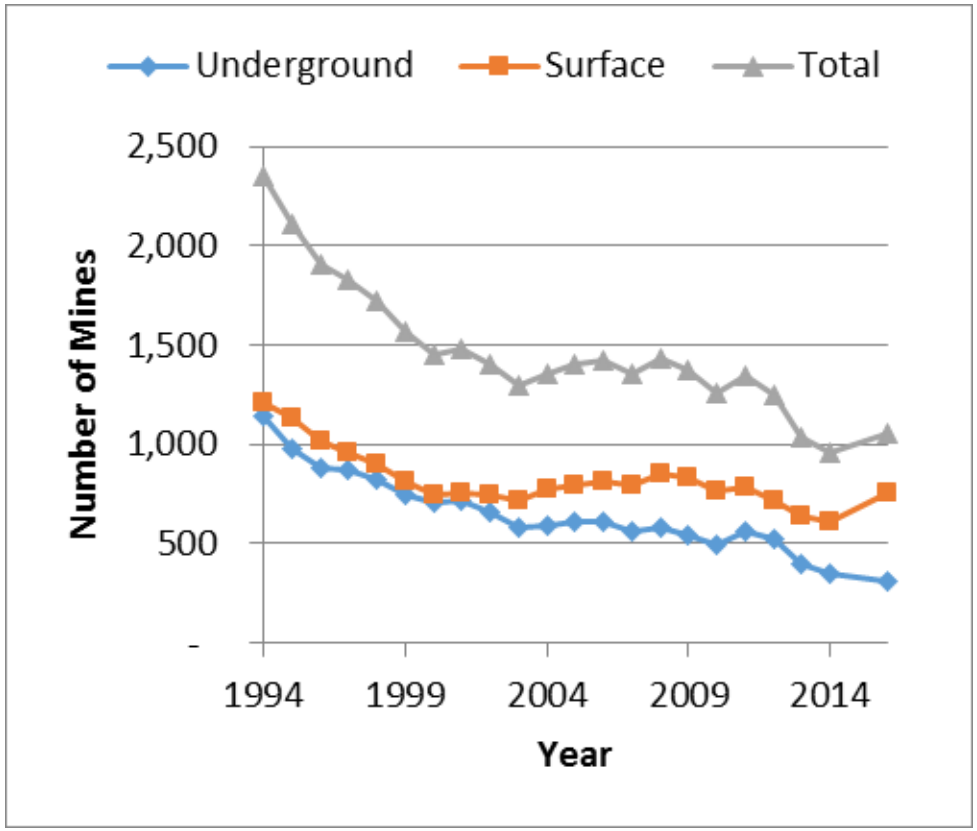
Outline

- Trends since 1994
  - Number of Active Mines
  - Coal Production
- Impacts
  - Mine Properties
  - Commodity History
  - Regulations
- Summary

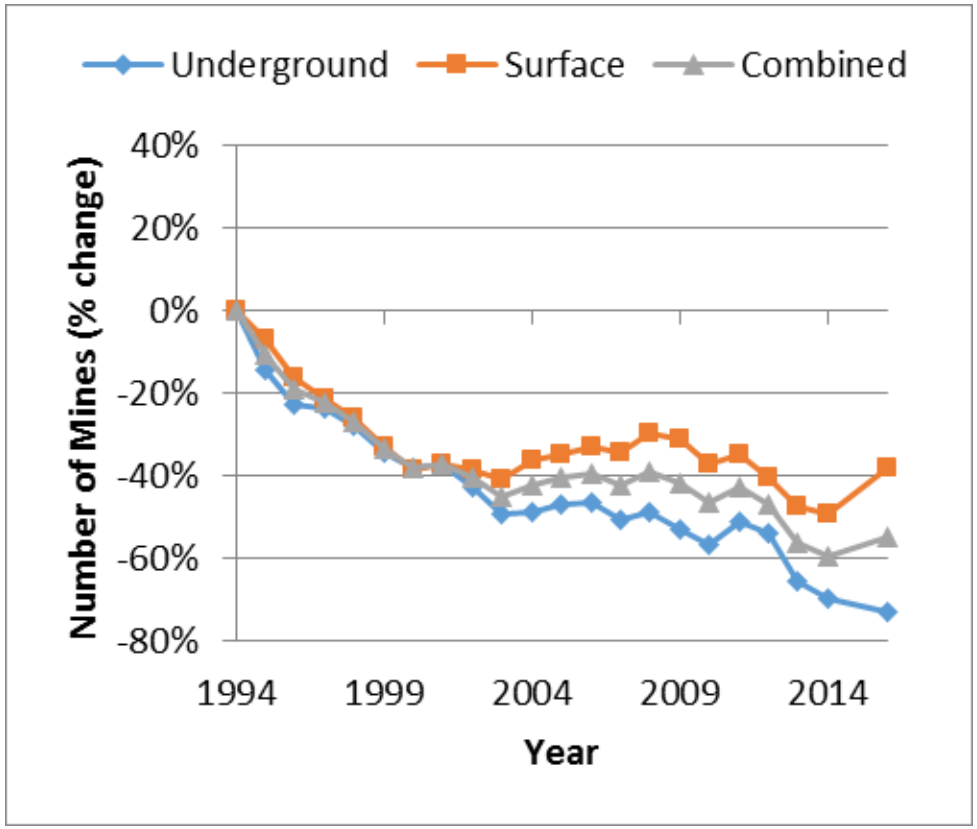
Number of Active Mines

- Decreased overall by about 1300



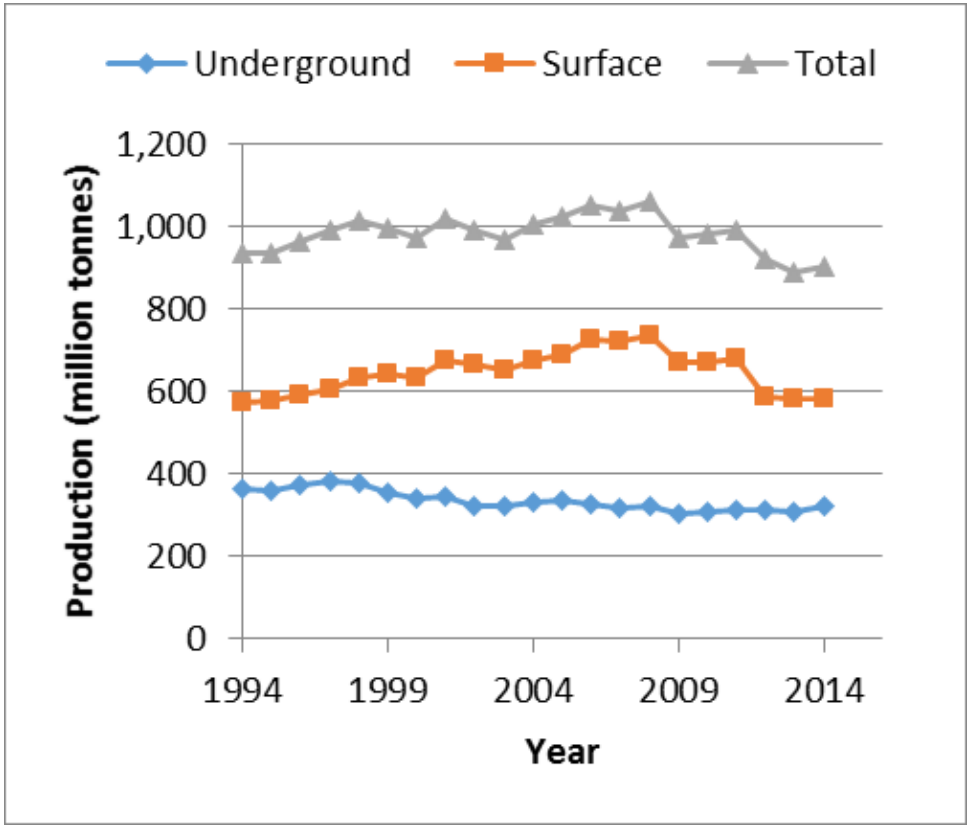
Number of Active Mines

- Decreased 55% overall
  - Surface mines decreased 38%
  - Underground mines decreased 73%



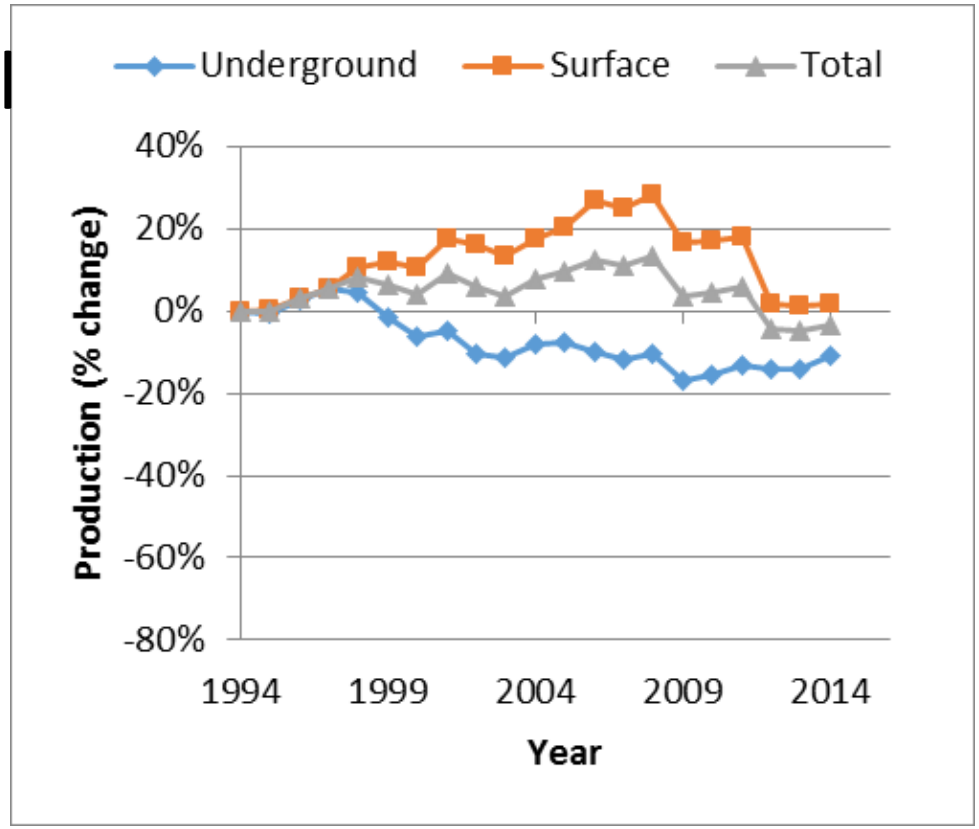
Coal Production

- Decreased 32 million tonnes overall



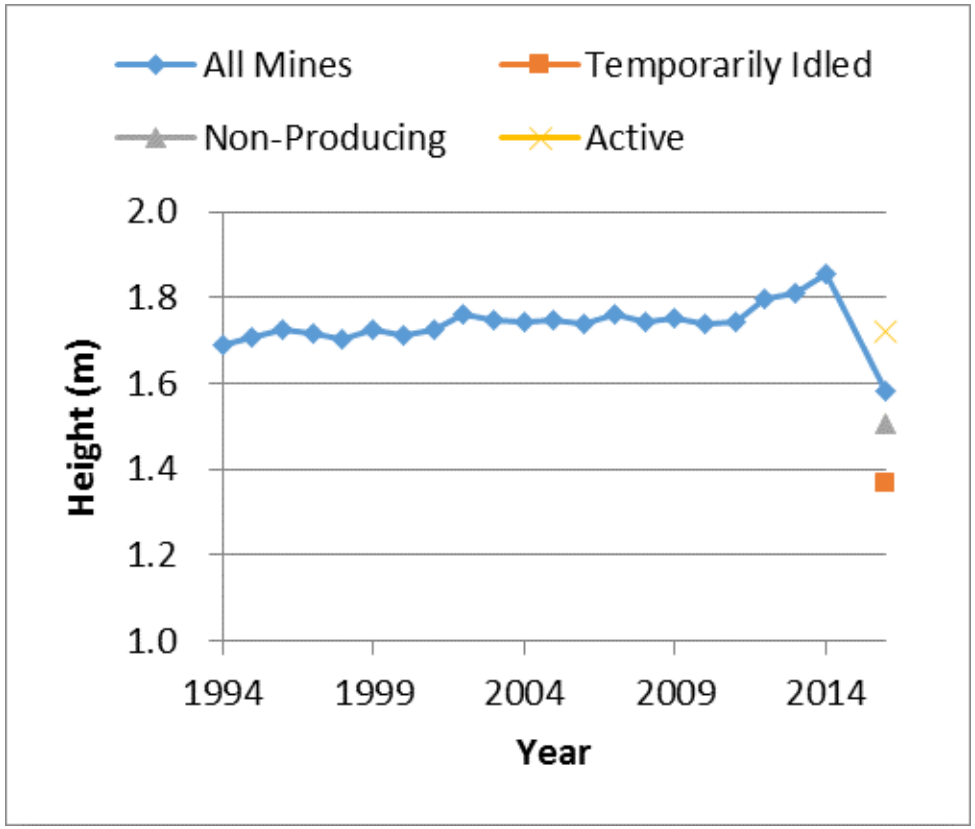
Coal Production

- Decreased 3% overall
  - Surface mines increased 1%
  - Underground mines decreased 11%



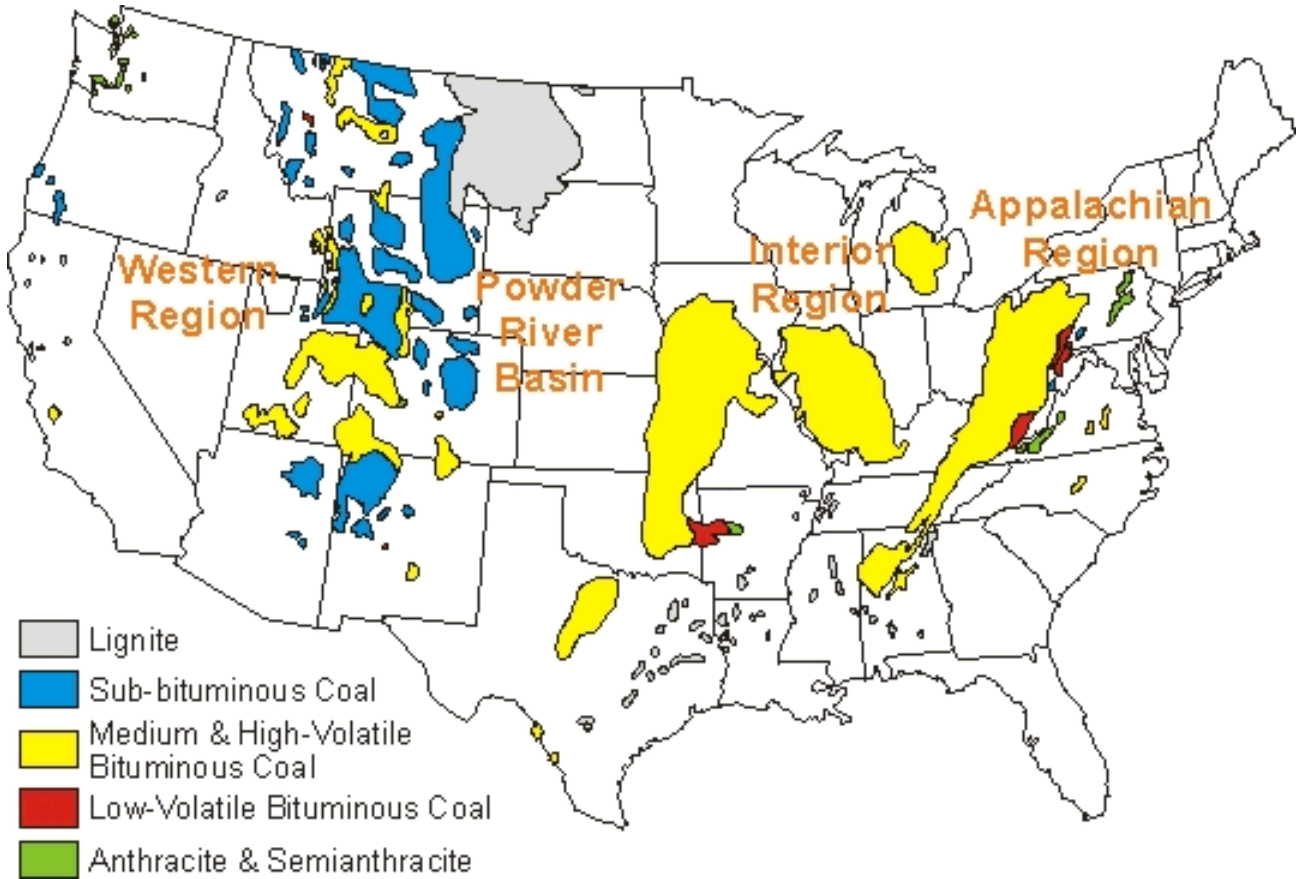
Impacts of Mine Properties

- Avg UG Mine Height
  - Increase 10% overall
  - Mines with greater height are more likely to remain active



Impacts of Mine Properties

- Coal Classification



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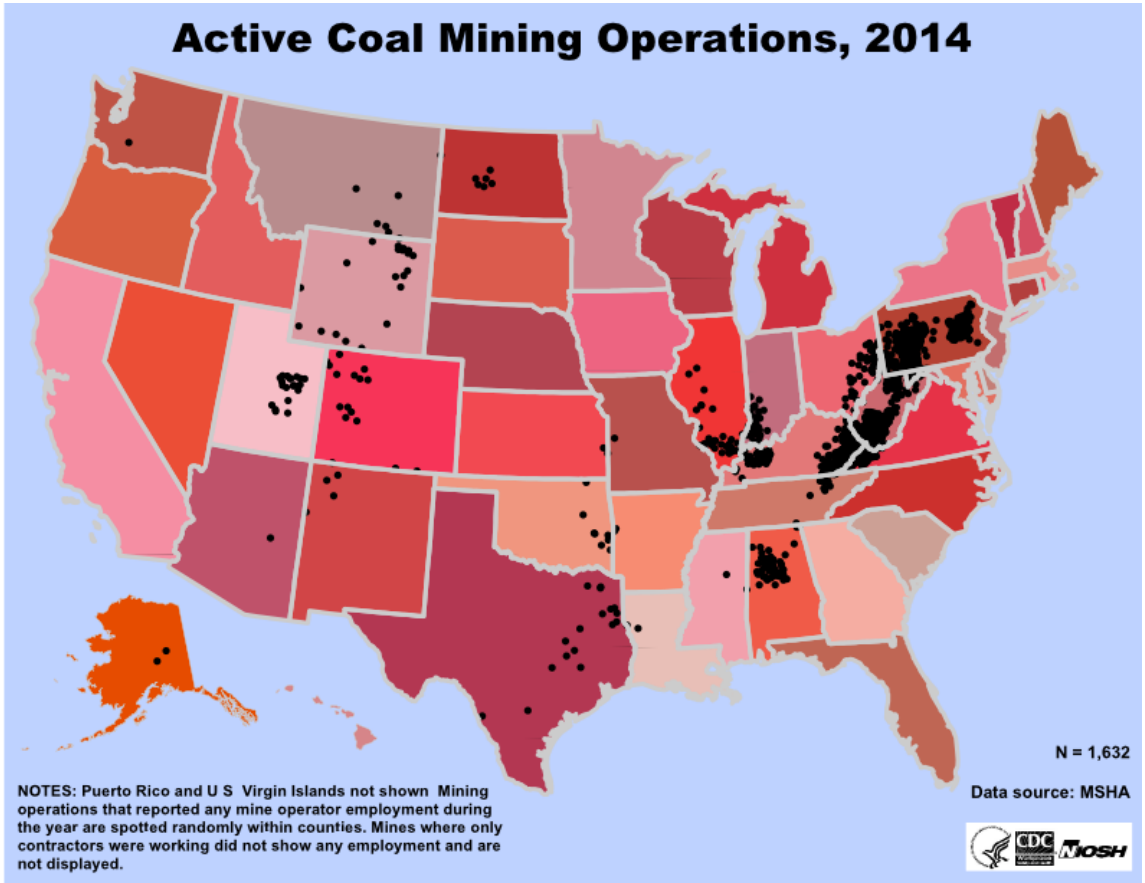

Impacts of Mine Properties

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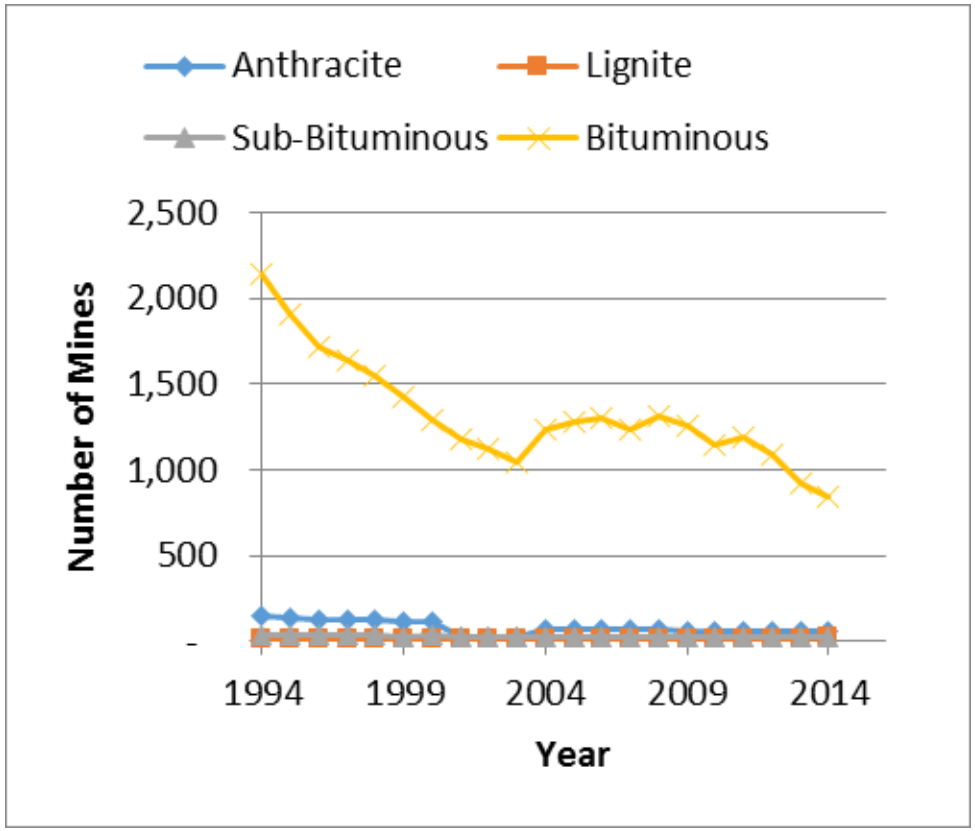
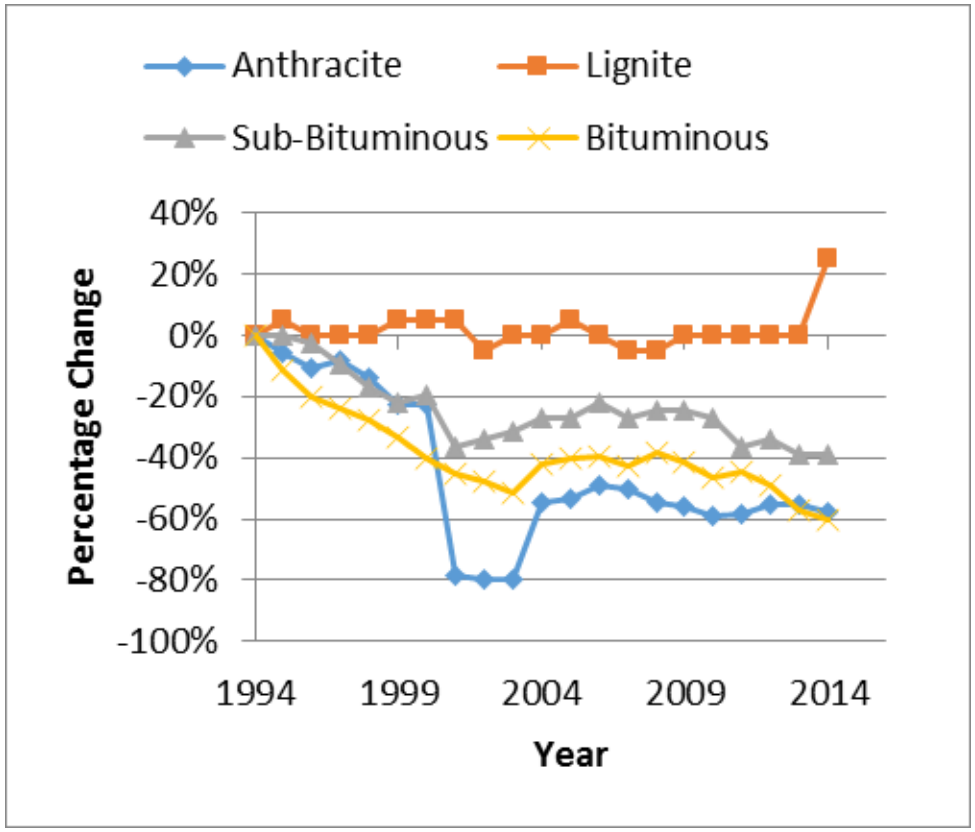


Impacts of Mine Properties

- Coal Classification
  - Number of mines generally decreased for each coal rank
  - Greatest effect from decrease in bituminous mines



Impacts of Mine Properties

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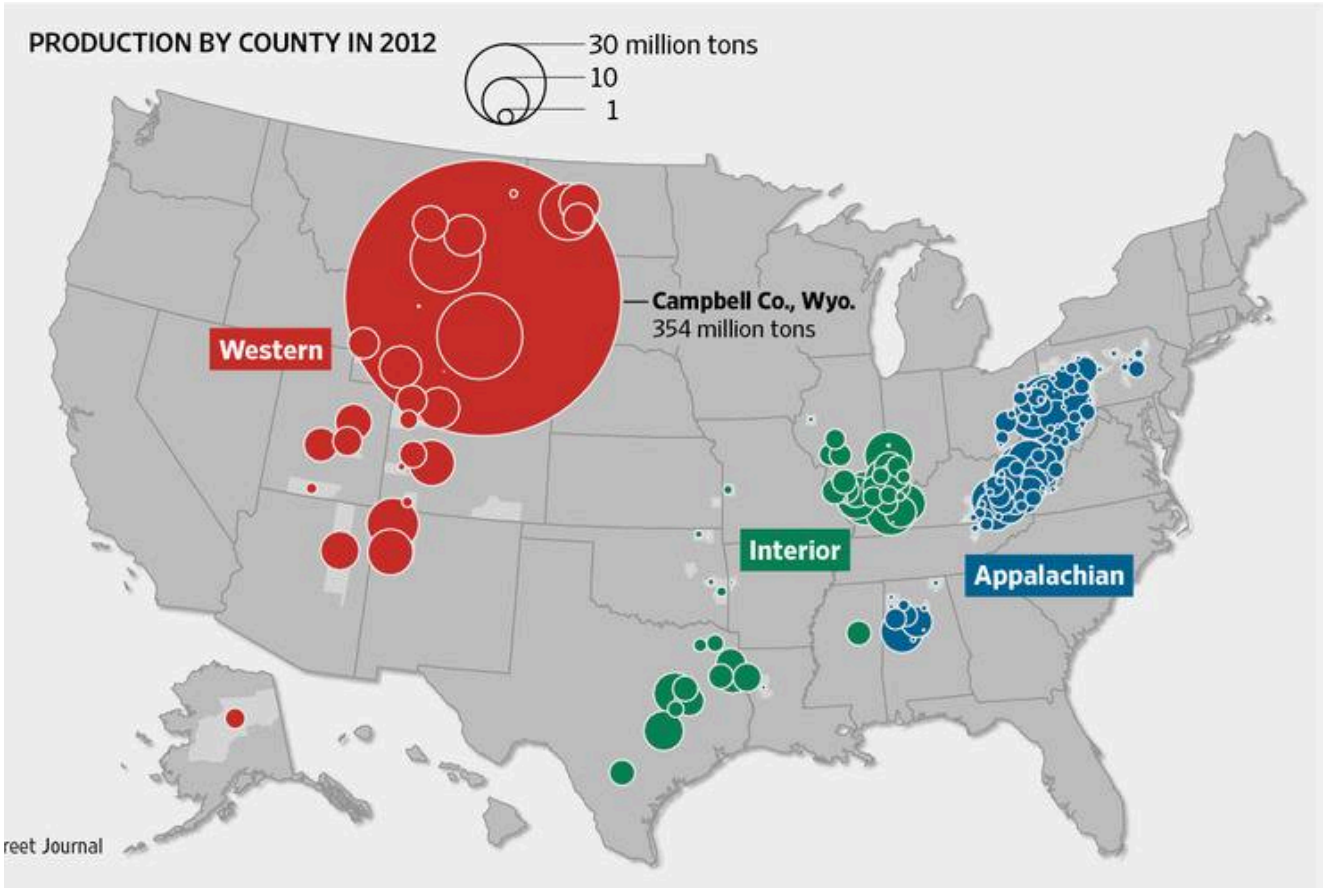

Impacts of Mine Properties

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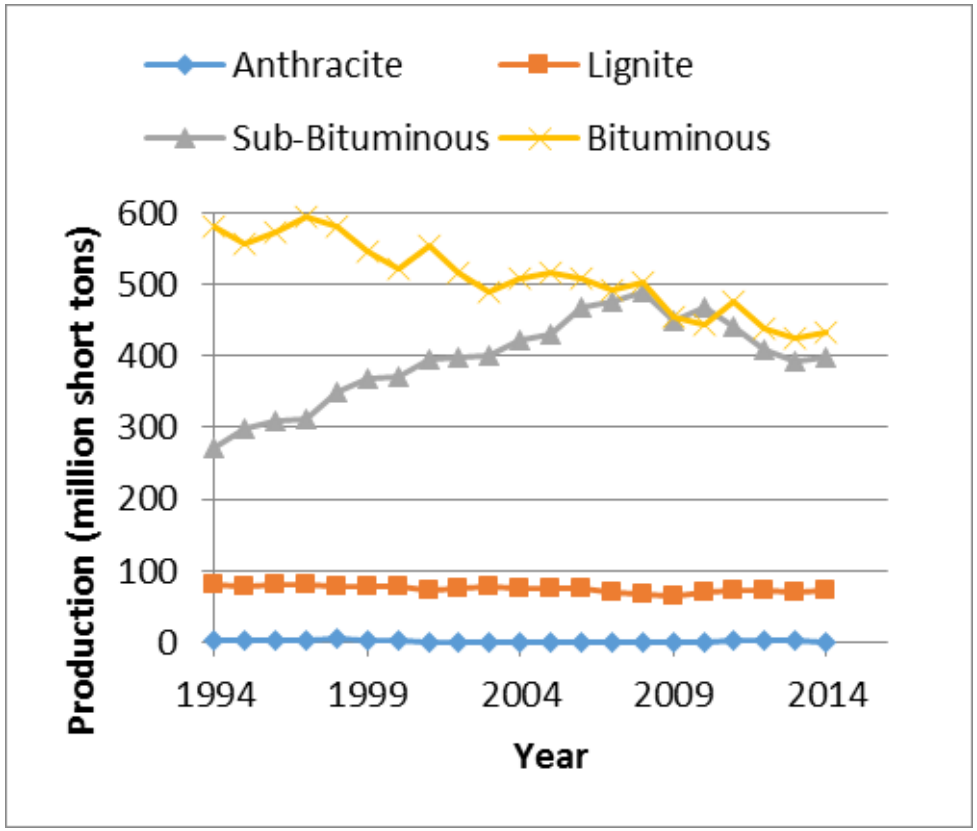
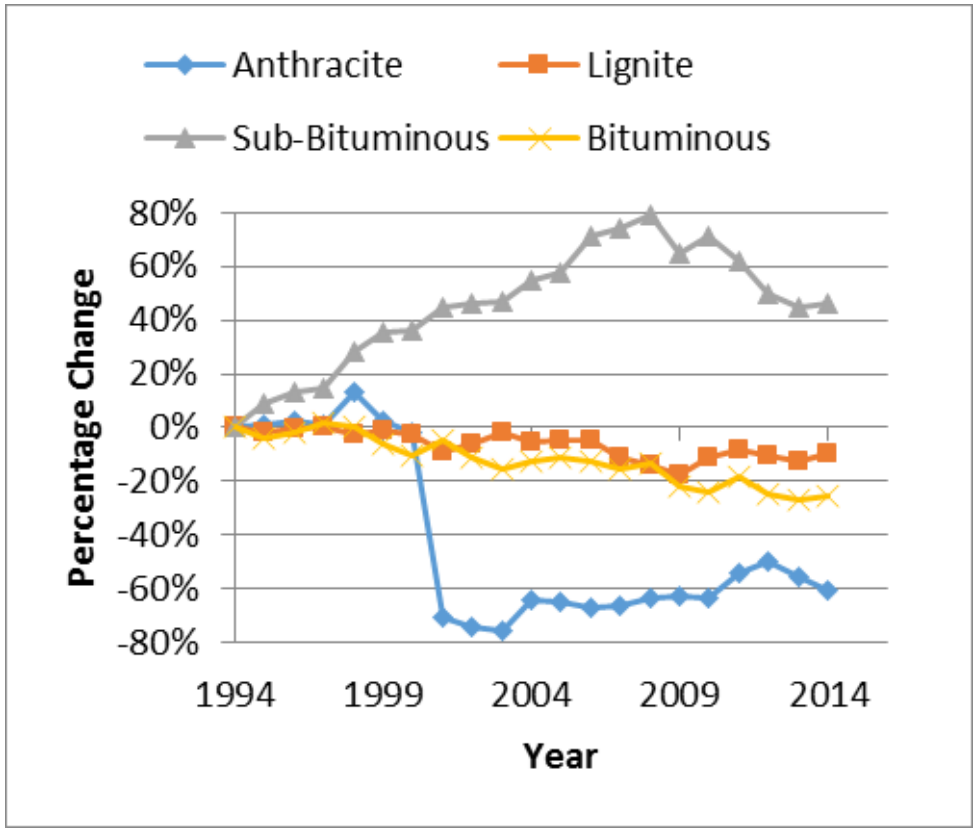


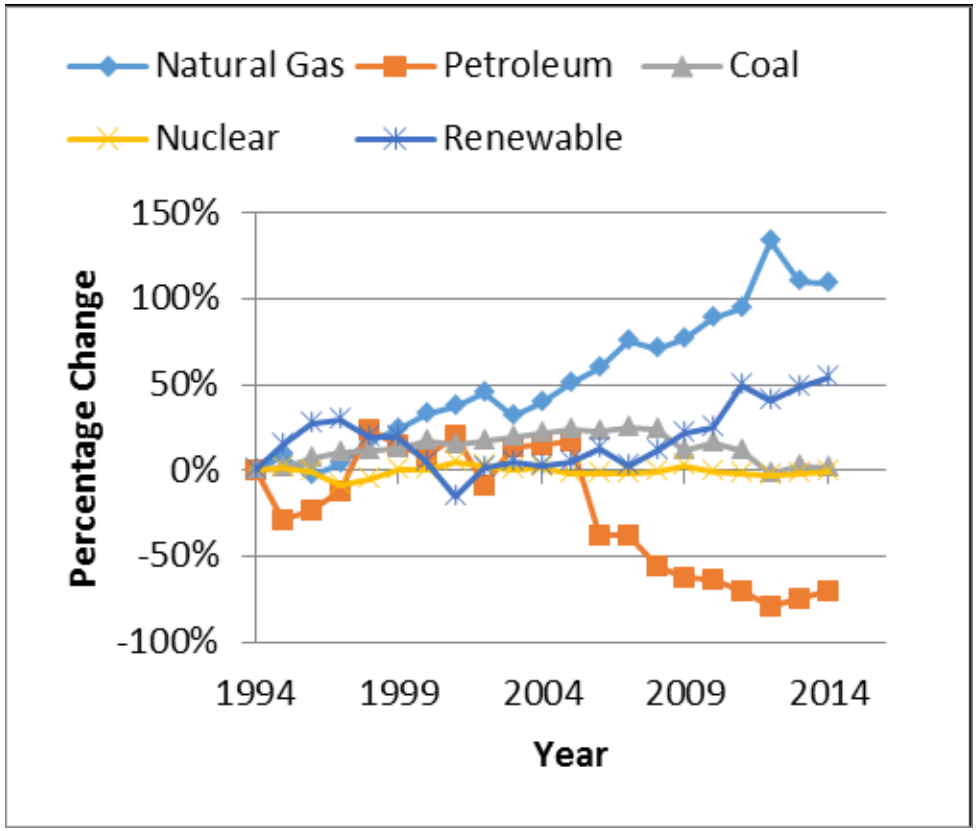
Impacts of Mine Properties

- Coal Classification
  - Demand for sub-bituminous caused production increase



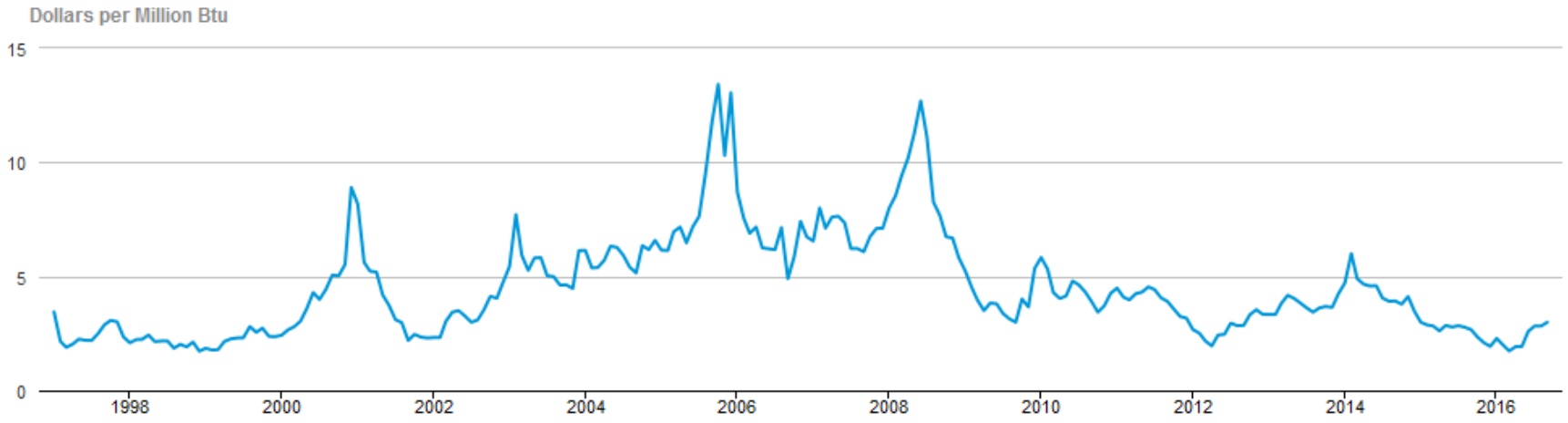
Impacts of Commodity Demand

- Steam Coal
  - Demand increased until 2008
  - Natural gas and renewables showed large increases



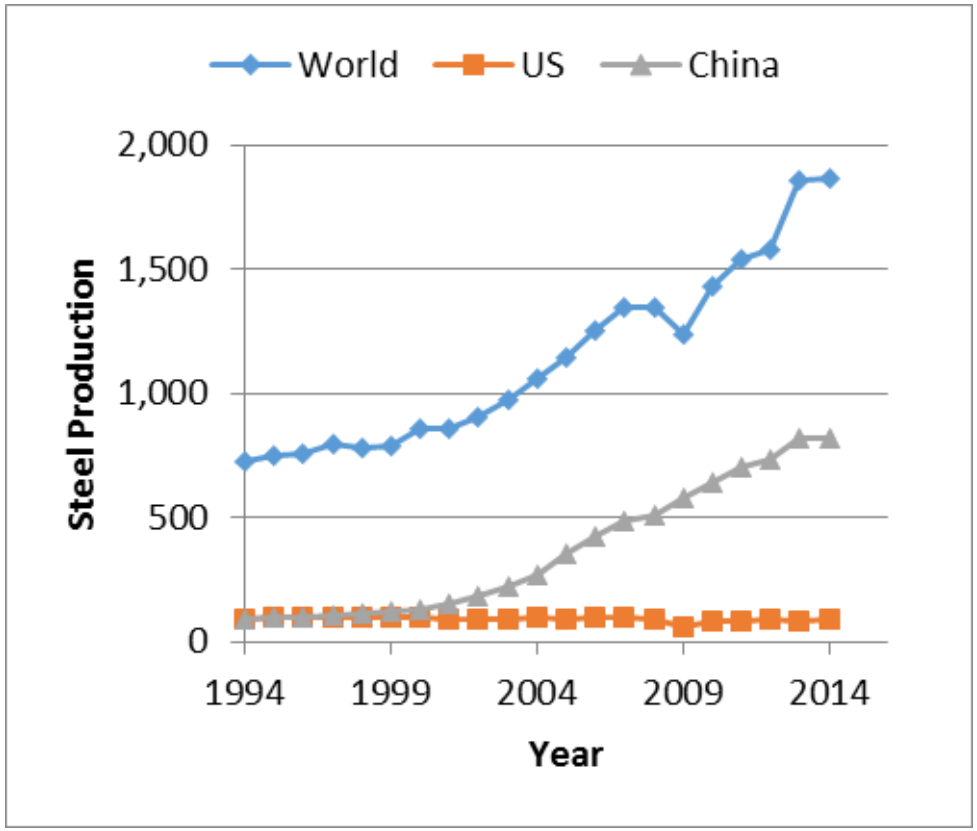
Impacts of Commodity Demand

Natural Gas Prices



Impacts of Commodity Demand

- Steam Coal
- Coking Coal
  - US decreased demand for building material
  - China greatly increased steel production



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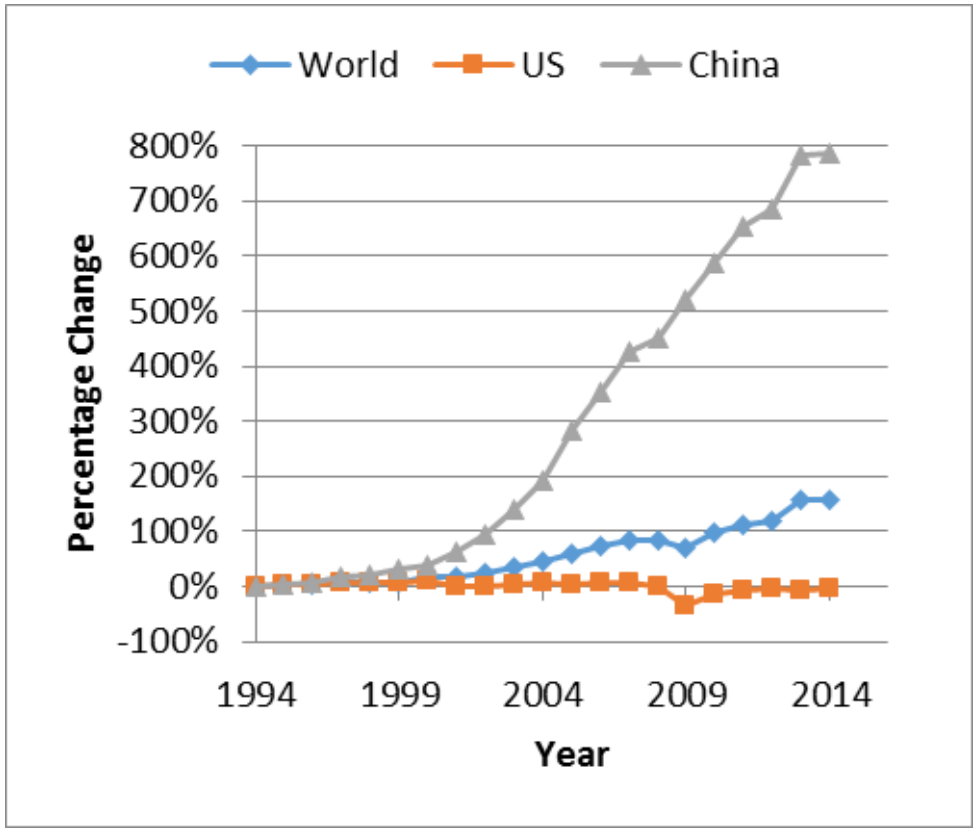
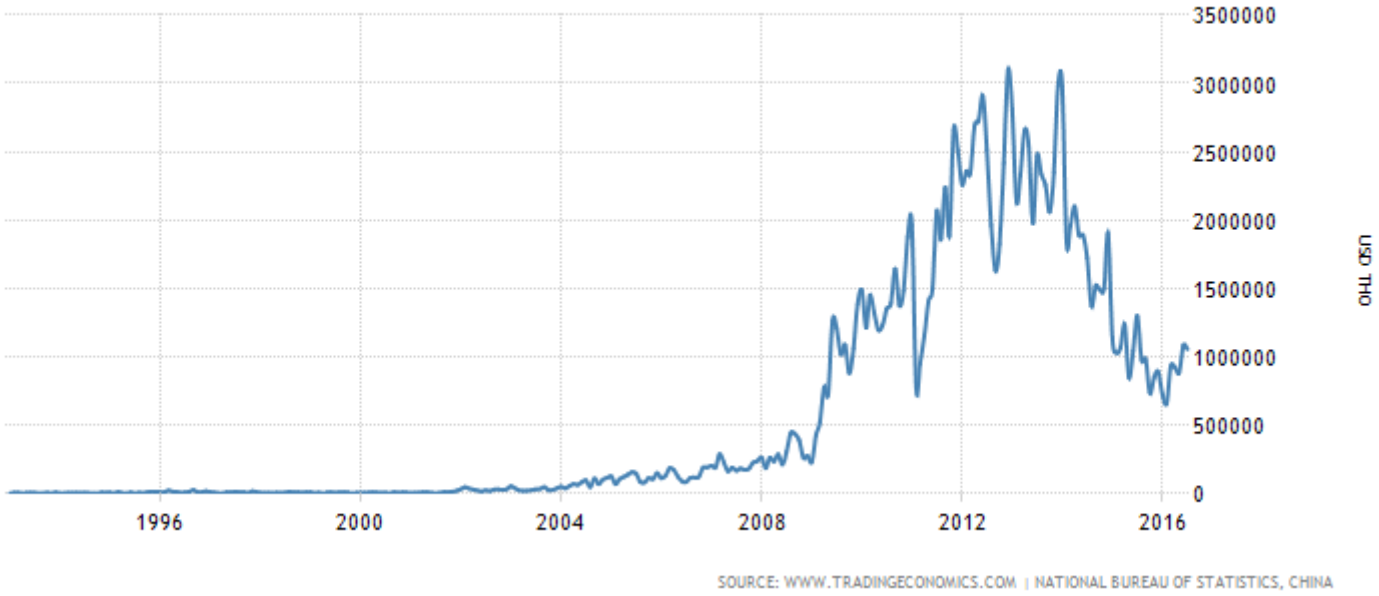


Impacts of Commodity Demand

China Coal Imports



Impacts of Regulations

- Air pollution regulations
  - 2010 – Tailoring Rule
  - 2011 – Mercury and Air Toxics Standards
  - 2011 – Cross-State Air Pollution Rule
  - 2013 – New Source Performance Standards
  - 2015 – Clean Power Plan
- Water pollution regulation
  - 2009 – Clean Water Protection Act

Summary

- Causes for declining numbers of US coal mines
  - The Great Recession and Chinese coal production decrease coking demand
  - Regulations
- Causes for declining coal production
  - Cheap natural gas decreases steam coal demand
  - Regulations

Thank You

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