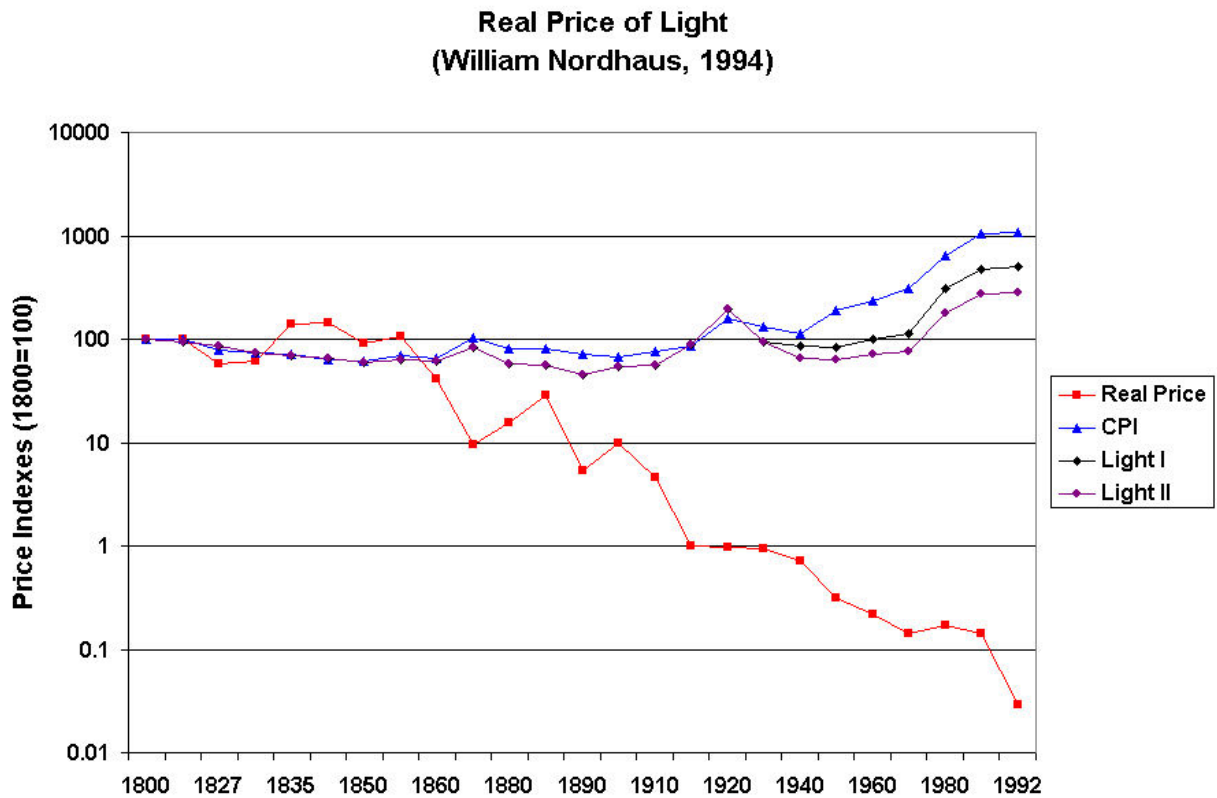


Political System \leftrightarrow Economic System

The Unanticipated Political and Economic Effects of Inventions and Entrepreneurial Activity

Can we even measure the effects?

Consider the *Price of Light*



The Importance of the Price of Light Example

1. Real Income Growth Over Time is Almost Certainly *Underestimated*
2. Real Price Indexes Over Time are Almost Certainly *Overestimated* Because they Oftentimes do not Capture Qualitative Changes in Goods and Services
3. **The Perennial Gale of Creative Destruction --**
Unanticipated Economic Change due to Entrepreneurial Activity

More Examples (William Nordhaus, 1994, Table 7)

Invention and Treatment in Price Indices

Aeronautics, helicopter – Except for lower transportation of intermediate goods, lower prices not reflected in price indexes.

Air Conditioning – Outside of refrigerated transportation and productivity increases in the work place, amenity and health effects are not captured in price indexes.

Continuous casting of steel – A process innovation that would show up primarily in lower costs of intermediate goods and thus would be reflected in price indexes of final goods.

DDT and pesticides – Some of (now questionable) benefits probably included in higher yields in agriculture and therefore included in price indexes; health benefits largely excluded from price indexes.

Diesel-Electric Railway Traction – A process innovation that would show up primarily in the price of goods and services.

Insulin, Penicillin, Streptomycin – Improved health status not captured in price index.

Internal Combustion Automobile – Except for lower transportation of intermediate goods, lower prices not reflected in price indexes.

Long Playing Record, Radio, Television – Major product inventions that are completely omitted from price indexes.

Photo-Typesetting – Largely reflected in reducing printing costs.

Radar – Wide variety of improvements. Some might show up in lower business costs and prices (such as lower transportation costs or improved weather forecasting).

Rockets – Wide variety of implications. Major application in telecommunications would show up in consumer prices; improvements in television not captured in price indexes. Improved military technology and nuclear-war risk not reflected in prices.

Steam Locomotive – Reduced transportation costs of businesses are reflected in price indexes, while expansion of consumer services and non-business uses are not.

Telegraph, Telephone – Largely unreflected in price indexes.

Transistor, Electronic Digital Computer – As key inventions of the electronic age, impacts outside business costs largely omitted in price indexes.

Xerography – Major process improvement. Some impact would show up in reduced clerical costs. Expansion of use of copied materials not captured in price index.

Zipper – Convenience over buttons omitted from price indexes.