

The Price of Nails since 1695: What Can We Learn from Prices of a Simple Manufactured Product?

Dan Sichel
Wellesley College & NBER

Development of the American Economy SI
June 13, 2021

Why nails?

- Basic, non-revolutionary manufactured product
- Form and quality have changed little in 300+ yrs
- Process for producing them changed dramatically:
 - Nails produced in one minute of worker time increased 3500x.
- Useful prism for changes in manufacturing and implications

Bottom Line

- Real nail prices fell dramatically: about **10x** from late 1700s to mid 20th century
- Share of nails in GDP dropped from **0.4 percent** in 1810 to *de minimis* share today.
- Implications:
 - Downstream effects
 - “Precious” to “throw-away”
- What accounted for price declines?
 - Materials prices ↓ and **MFP** ↑

Hand forged; Machine Cut, & Wire

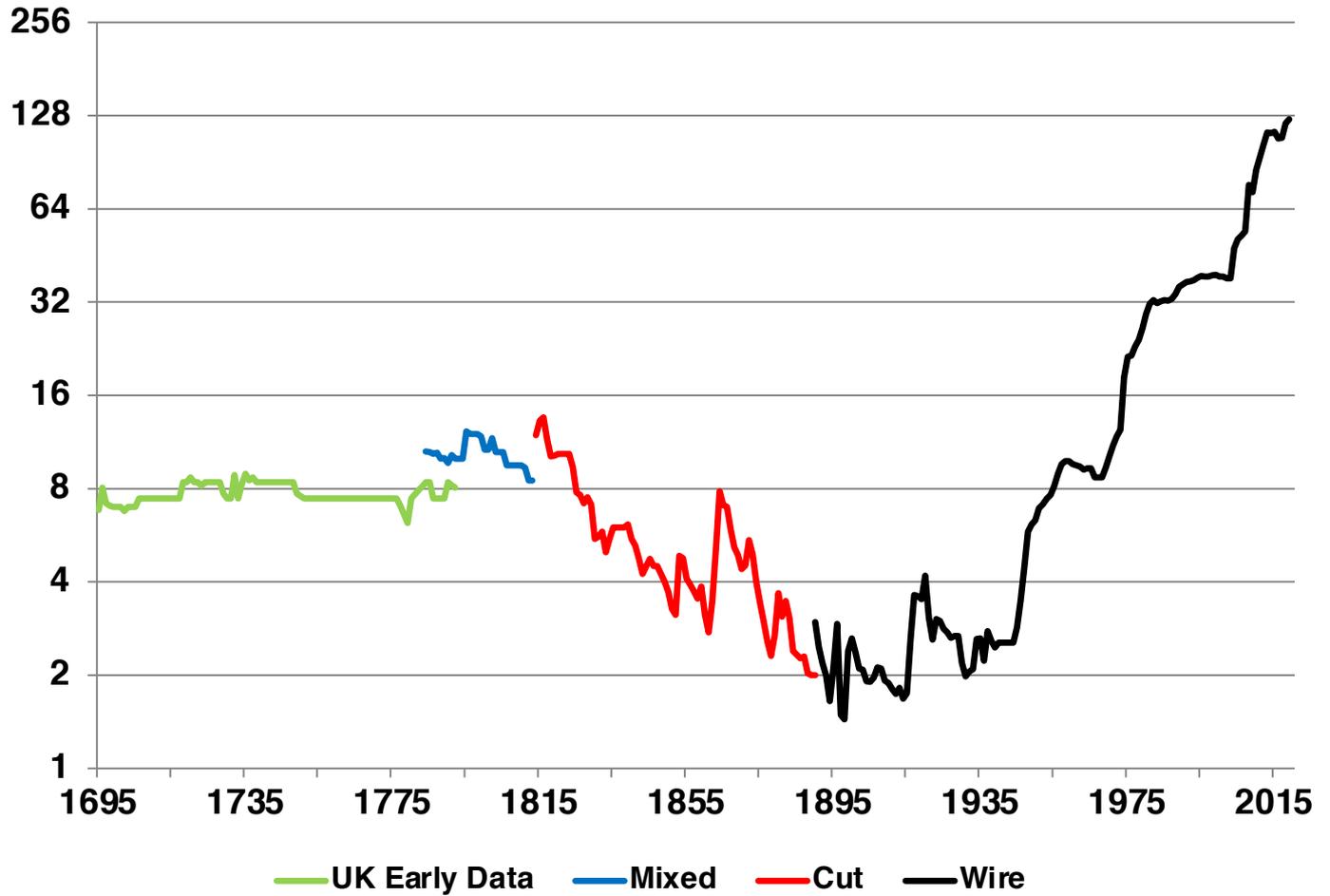


to early 1800s

to about 1890

modern era

Nominal Price of Nails, 1695-2018 (cents/lb)



Adjustments to Nominal Prices

- cents / lb → cents / nail
- Nominal → Real (relative to consumer prices)
- Matched-model index (linked segments)

Real Price of Nails: Matched-Model, 1695-2018

cents/nail 2012 \$

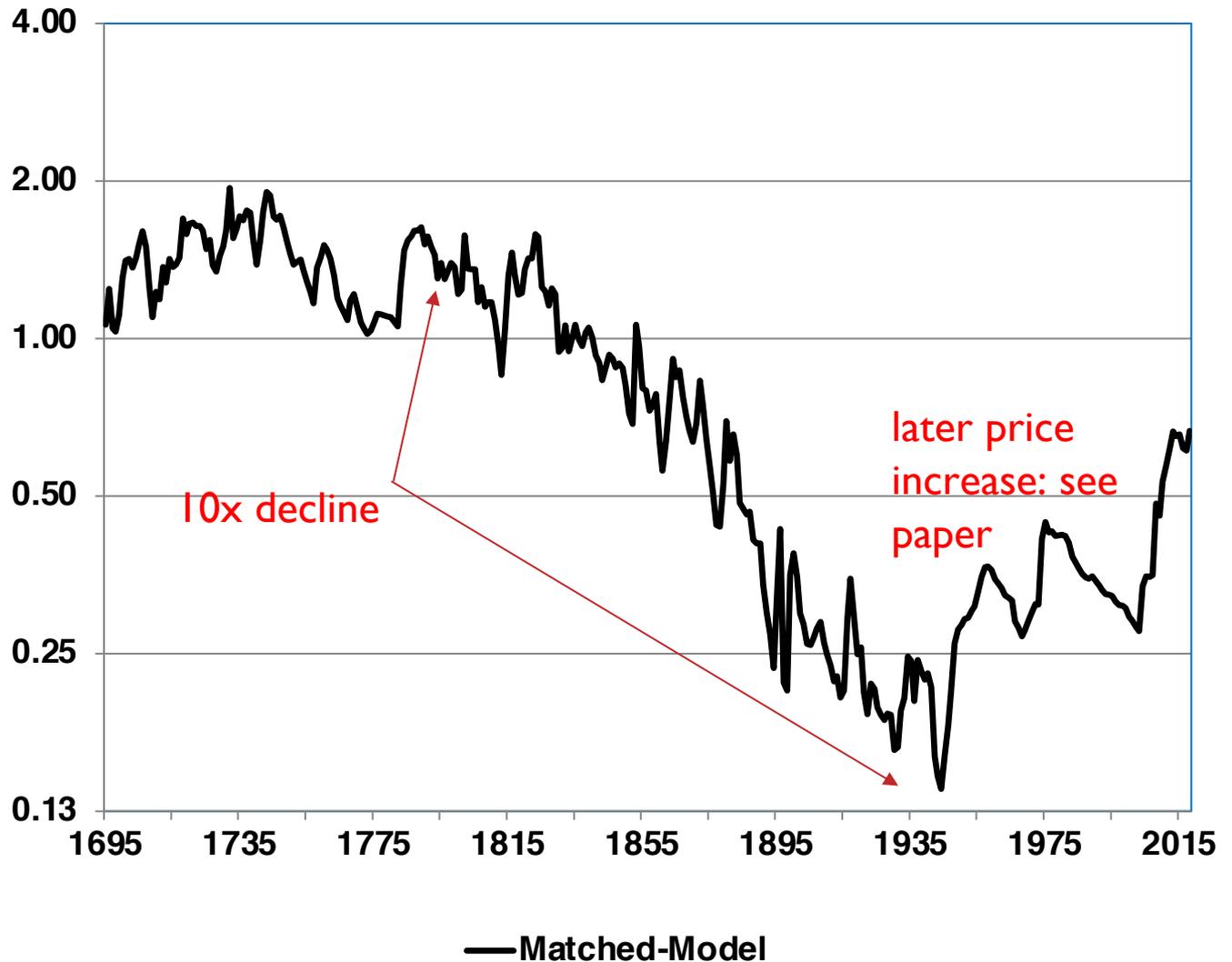
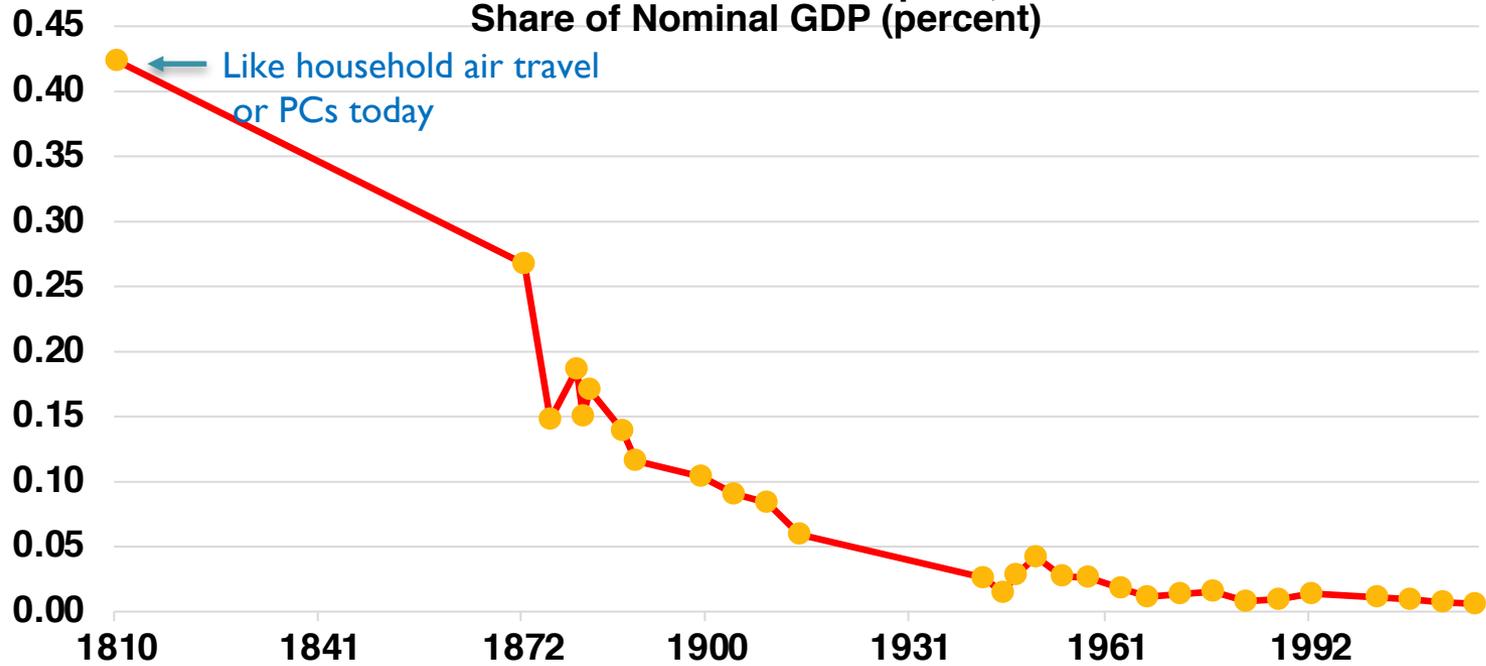


Figure 1
Nails Domestic Absorption,
Share of Nominal GDP (percent)

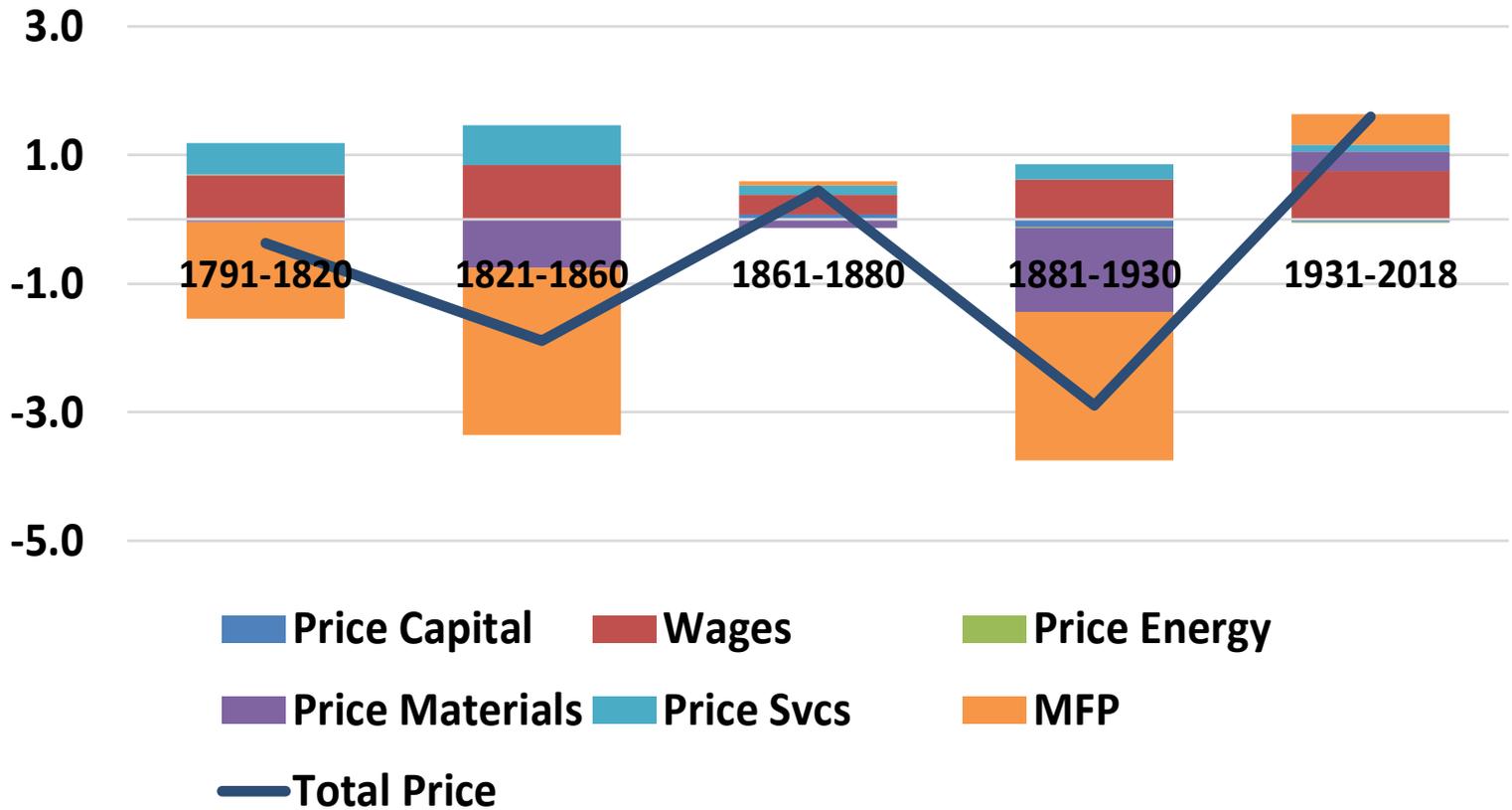


- Downstream changes (esp. balloon-frame construction)
- Nail go from “precious” to “throw away”

What Accounted for Price Changes, 1790-2018?

- Decompose price changes into proximate sources: **capital, labor, energy, materials, purchased services, & multifactor productivity**
- Use dual of 5-factor KLEMS production function with data on factor prices and factor shares.
- Relied on wide range of well-known sources

Figure 8
Nails: Contributions to Real Price Change, 1791-2018
 (annual rate, percentage points)



Paper in 17 syllables: HAIKU

Nails for long span

Prices down; precious to not

Simple, but insights