

Discussion of Costa and Kahn, “The Rising Price of Non-Market Goods”

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Stunning results both in cross-section and over time

- The value of life has increased by a factor of 28 over the 20th century.
- By comparison, per-capita income increased by a factor of 6 (updated Maddison)
- Income elasticity of value of life = 1.7, a true luxury good



Implications in paper

- Increases in life-expectancy in raw years per person are greater 1900-1960 than 1960-2000.
- Value 1900-20 increase in life-expectancy is more than double 1980-2000 when using constant value of life
- Same ratio changes from 2.2 to 0.15 when taking account of paper's estimated value of life in each decade.

Basic result must be right

- Rosen: value of life can be expressed as the MRS between wealth and the probability of survival
- Increase in real wealth increases VL
- Increases real wage increases VL
- So does
 - Income, wealth, quality of life in retirement

Perils of backward extrapolation: the Hulten-Bruegel Paradox

- Nordhaus on the History of Light
- Hulten as Discussant, one pound of potatoes per day, no clothing, no shelter
- Why Stop in 1800, let's look at a few Bruegel paintings
- $\frac{1}{4}$ pound of potatoes per day, no clothing, no shelter
- What is solution? Clearly CPI bias must be a function of the rate of technological change

Extrapolating Life Expectancy

- What was life expectancy in 1800?
Extrapolated back at the 1900-1950 rate of +0.7 percent per year, 1800 LE was 24!
- Why fastest in 1900-1950, ask Joel Mokyr (same volume as Nordhaus): Pasteur's germ theory, soap, urban sanitation infrastructure, indoor plumbing, conquest of communicative diseases

Are the elasticities exaggerated?

- Do these regressions of wages on fatality rates really measure value of life?
- James Lipton on “The Actors’ Studio”
- Do I have “coal miner aversion” because of death rates or the daily grind of a horrible workplace existence?
- What if I have zero knowledge of fatality rates, I still don’t want to be a coal miner!



An Alternative Interpretation

- Costa: “labor markets are perfectly competitive, workers are informed about actual industry risk levels,”
- Alternative
 - Workers have no information on death risks, so compensating differentials cannot provide an evaluation of the value of life
 - Workers have complete information on disamenities of particular occupations, esp. coal mining and construction

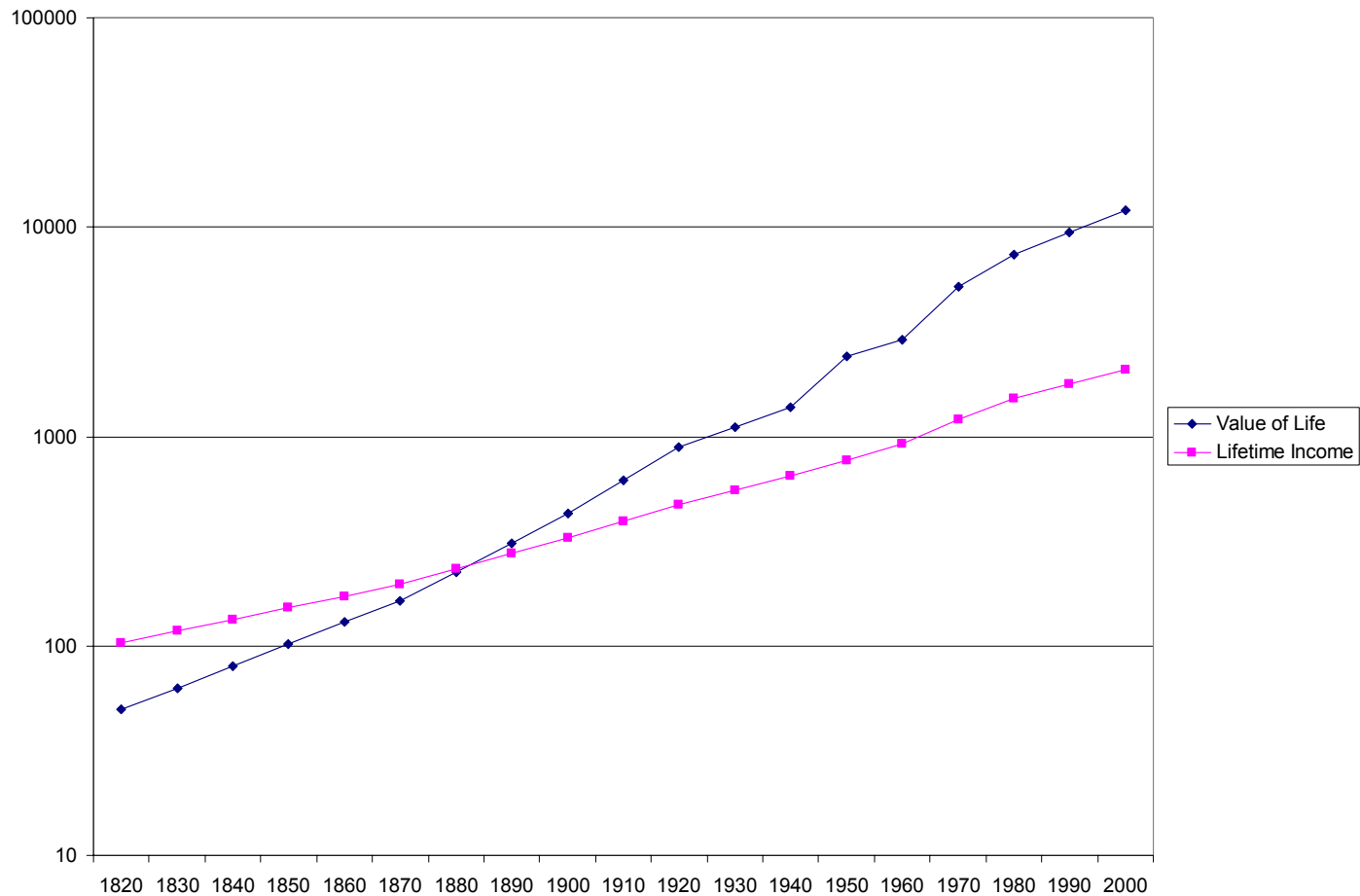


Disamenities or Death Risks?

- At one extreme, if disamenities were perfectly correlated with fatality rates and workers had highly imperfect knowledge of fatality rates, the coefficients would just measure aversion to disamenities, not value of life
- Circumstantial evidence that changes in value of life are exaggerated: the dangers of backcasting

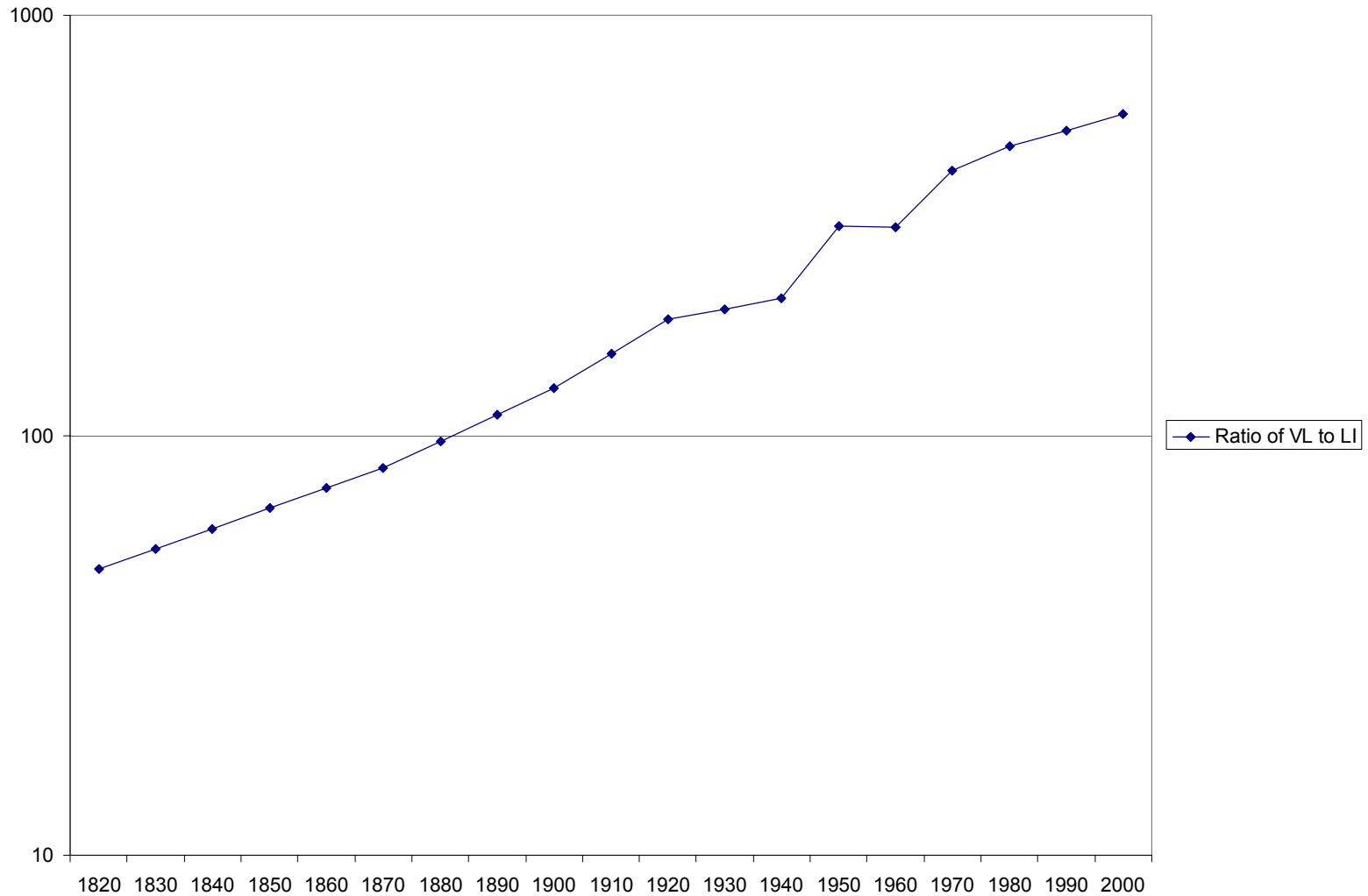
Backcast to 1820 using Maddison

Value of Life vs. Lifetime Income



Ratio of Value of Life to Lifetime Income

Ratio of Value of Life to Lifetime Income



Thinking about these differences

- When value of life \gg lifetime income, this presumably reflects the value of nonmarket activity
- More leisure, more valuable leisure
 - Becker: Value of nonmarket time = $F(X, T)$
 - Was TV a more valuable invention than the internet?
 - More than anything, electric light made leisure time more valuable
- But backward extrapolation implies zero value of leisure time and household production at turn of century. Credible?

Conceptual Issues regarding Life Expectancy

- Thought experiment (from Nordhaus), constant consumption, lifetime of 50 (“short”) vs. 60 (“long”)
- Standard flow definition of consumption considers Long = Short in terms of consumption *per year*
- Opposite extreme considers Long = 1.2 Short in value of flow consumption *per year*
- Is either extreme right, or an intermediate solution?

Issues in thinking about life expectancy

- Does retirement age increase with life expectancy?
If not, consumption per year goes down
- Much of consumption at any age is maintenance – food, uniforms, commuting, raising children.
Shouldn't value of life expectancy be evaluated in terms of increased leisure adjusted for diminishing quality of life?
- How to deal with major portion of increasing LE coming from reduced infant mortality
 - Birth rate is endogenous to infant mortality

Climate has become more valuable

- What is climate?
- Cool summers and warm winters
- The Silicon Valley/SF Effect
- Does the Fact that IT and biotech investment has clustered around Stanford, Cal, and UCSF indicate a pure climate effect?
- Boston vs. Chicago, yet suddenly MA has the highest YPC of any state
 - Moving Boston → Chicago in 1968
- Ireland vs. England. Bangalore India

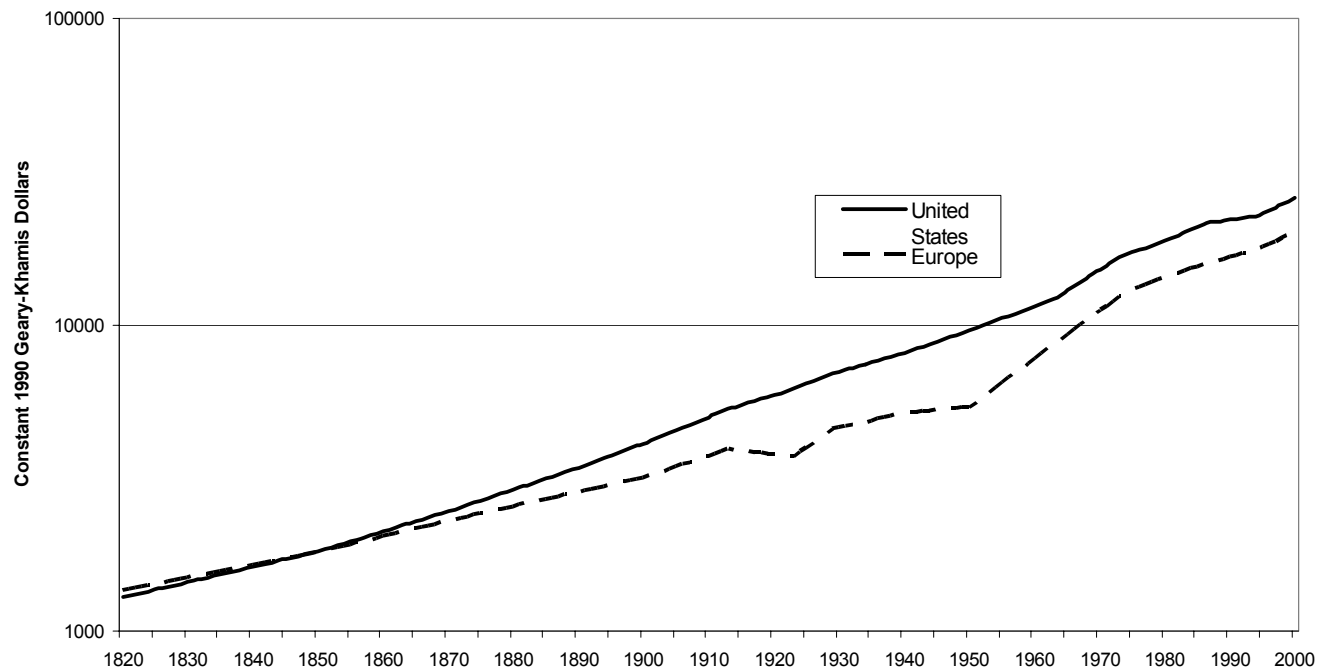


Voth on Standard of Living, Industrial Revolution

- This is a Fascinating Paper, but mainly about theory
- Facts refer to growth rates
- What about levels?

Maddison, U. S. vs. Europe

Figure 1
per Capita Real GDP, Europe and the United States,
Selected Years, 1820-2000



UK YPC in 1820 = \$1750

- What Does this Mean?
- Claire Brown U. S. Budget Study shows 1918 average family spent 80% on food, clothing, shelter
- Would a Hypothetical Budget Study for 1770 reveal plausible expenditures on food, clothing, shelter?
- How Much Was Non-market Home Production?