

The Growth of Obesity and Technological Change

NBER Working Paper # 8946 [www.nber.org]

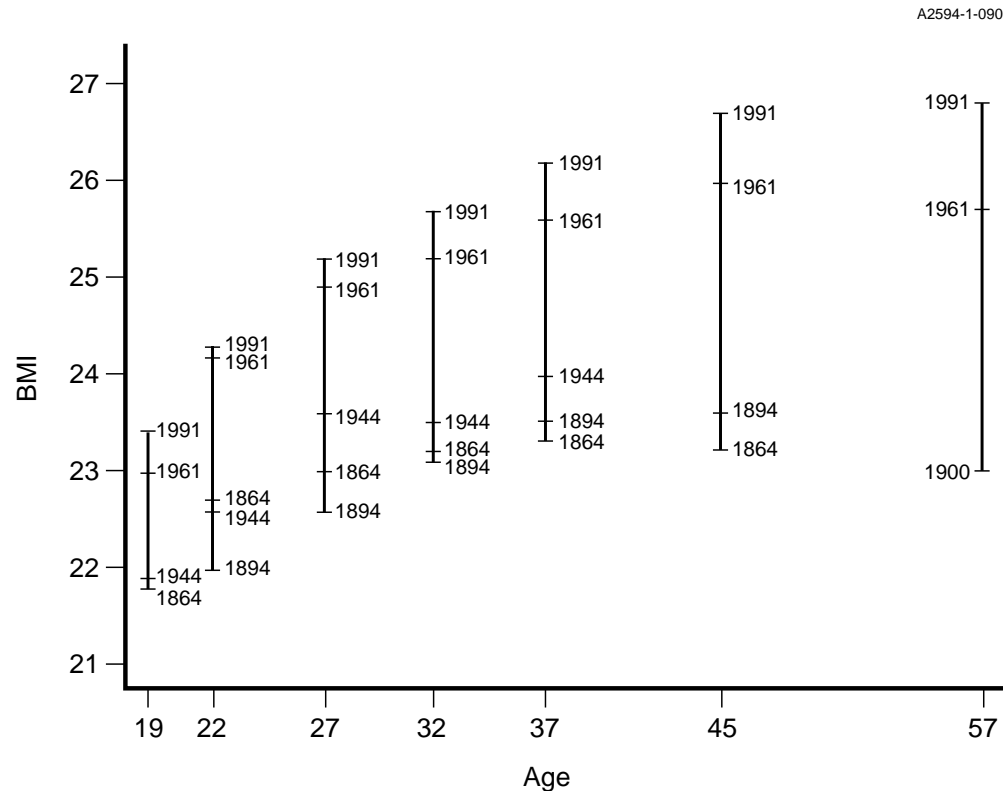
Darius Lakdawalla
RAND

Tomas Philipson
University of Chicago

Disclaimer

The views expressed are my own and do not necessarily reflect an official position or policy of the FDA.

Historical Growth in Weight



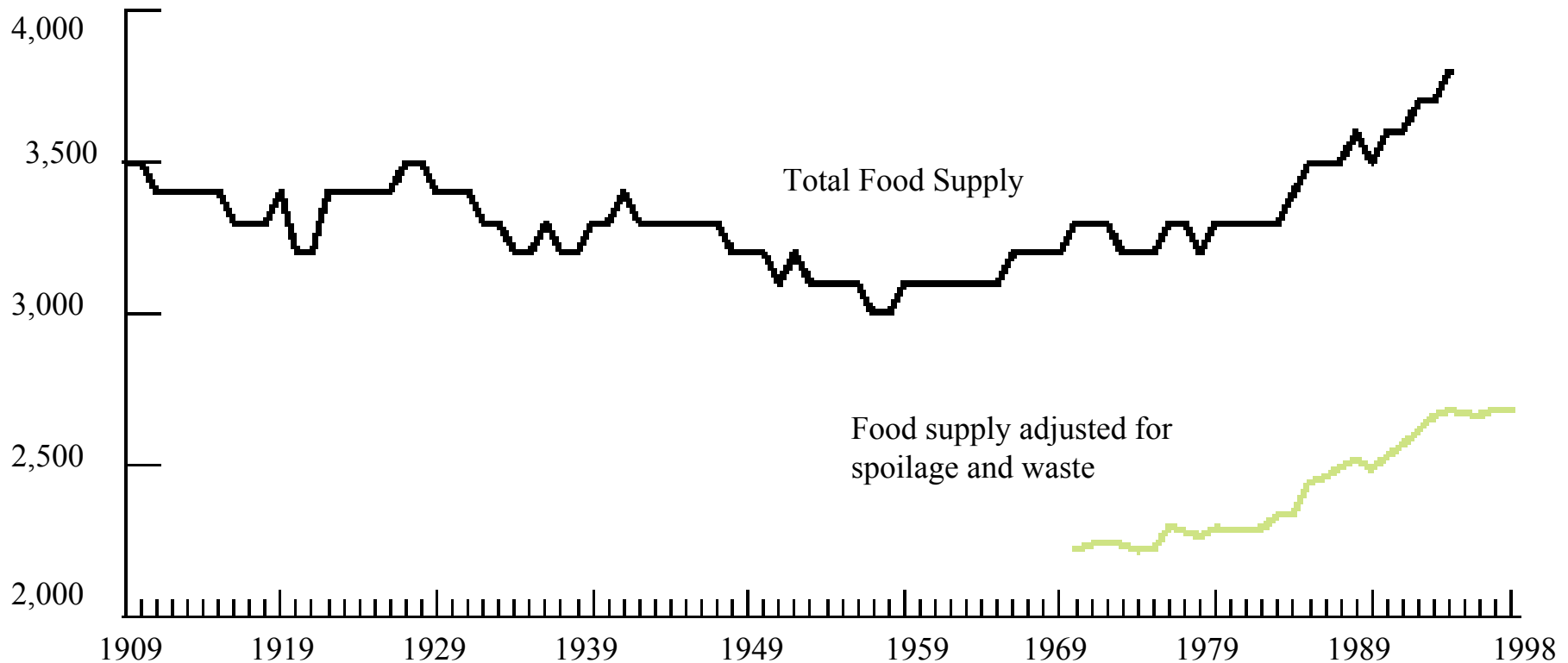
SOURCE: Costa D. and R. Steckel (1995), NBER Historical WP #76.

Mean BMI by Age Group and Year, 1863-1991

Calories Produced per Person-Day, 1906-1998

Calories Available

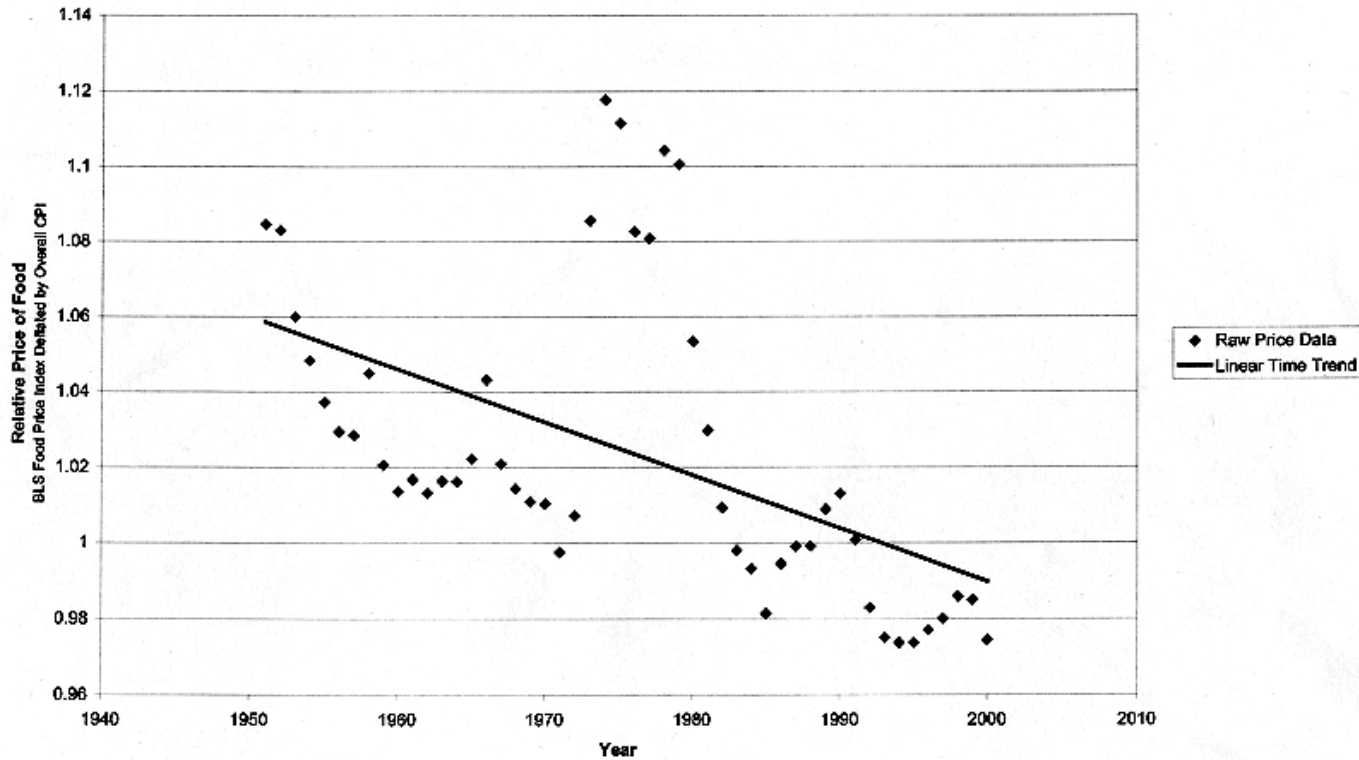
Calories per person per day



Source: USDA's Economic Research Service

Food Price Time Series

Figure 3: Changes in the Relative Price of Food in the US, 1951-2000.



Technological Change & Obesity

Economic Forces Have Been Neglected

- Agricultural TC: Price of Calorie Consumption Fallen
 - Specialization In Production: Agriculture
 - Specialization in Preparation: Home vs Market (Speed)
- Productivity Enhancing TC: Price of Calorie Spending Has Risen
 - *Pay*, as opposed to get *Paid*, to Exercise
 - Labor to Leisure : Gym +Jogging (Total Up)

Why Both Forms of Technological Change ?

- Together Imply: weight rises, calorie intake ambiguous, and price falls
- Agricultural TC Alone:
 - Cannot Explain Lack of Time Series Correlation Between Weight and Calorie Intake
- Productivity Enhancing TC Alone:
 - Cannot Explain Increases in Calorie Intake
- Demand Explanations (“Food Culture”):
 - Demand increase alone cannot explain the 3 time trends together

Earned vs Unearned Income Effects

- Asset Market vs Labor market Effects
- Income Effects Within vs Across Countries
- Public Redistribution Effects
- Future Time-Series dependent on which effect dominates.

Empirical Analysis

- Main Results : Work Effects & Decomposition
 - Weight differences due work-career 3.3 BMI
 - Large relative to secular trends
 - Supply and demand Effects decomposed
- The Effect of Physical Activity at work on BMI
 - Strenuousness from *Dictionary of Occupational Titles*
 - Merge with data from NHIS (1976-1994) and NLSY
- Exploit NLSY features
 - Estimate long-run effects of occupation on weight
 - Assess Endogeneity of occupation and weight

Public Policy and Obesity

– *Positive Analysis*

- Programs Assessed in Light of Forces of Growth
- *Example: Public Education & Food Labeling*
 - Information Ability to Explain Time Trend ?

- *Normative Analysis*

- Over-weight in Pareto Sense ?
- Addiction and Government
- Insurance Externalities: Medicare and Social Security
- Obesity Public Health Problem ?