

THE GLOBAL BENEFITS OF PHASING OUT LEADED FUEL

Peter L. Tsai
Thomas H. Hatfield

California State University, Northridge

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Key studies

- Schwartz: Health effects per 1 mg/dl BLL
- Grosse: 15.1 mg/dl BLL
- Hashisho: Calculations based on GDP
- Muir: Estimates for Canada and US
- Gould: Societal effects (crime, ADHD)

Extrapolation

Benefits / 1 mg/dl
* 15.1 mg/dl
= Total Benefits

Benefits/GDP_{for US} = Benefits/GDP_{for world}

Benefits/GDP = %GDP

Testing with Muir:

- 1999 Benefits/GDP

- Canada = $20.7/651$ = 3.2%
- US = $275 / 9216$ (low) = 2.98%
 $327 / 9216$ (high) = 3.55%

Global Benefits in \$USD

- Global Benefits:

\$2.44 trillion / year

- $\$2.44 \text{ trillion} / \$60 \text{ trillion} = 4\% \text{ GDP}$

Disaggregating by GDP

- Developing Nations:

4% GDP = \$702 billion / year

- Developed Nations:

4% GDP = \$1.74 trillion / year

Disaggregating by Regions

- Asia: \$945 billion/year
- Europe: \$626 billion/year
- North America: \$562 billion/year
- South America: \$189 billion/year
- Africa: \$92 billion/year
- Oceania: \$32 billion/year

Additional
effects...

Unknown Effects

- Hearing
- Cancer
- Reduced growth rate and stature
- Pain and suffering from medical treatment
- Limited activity after heart attack and stroke

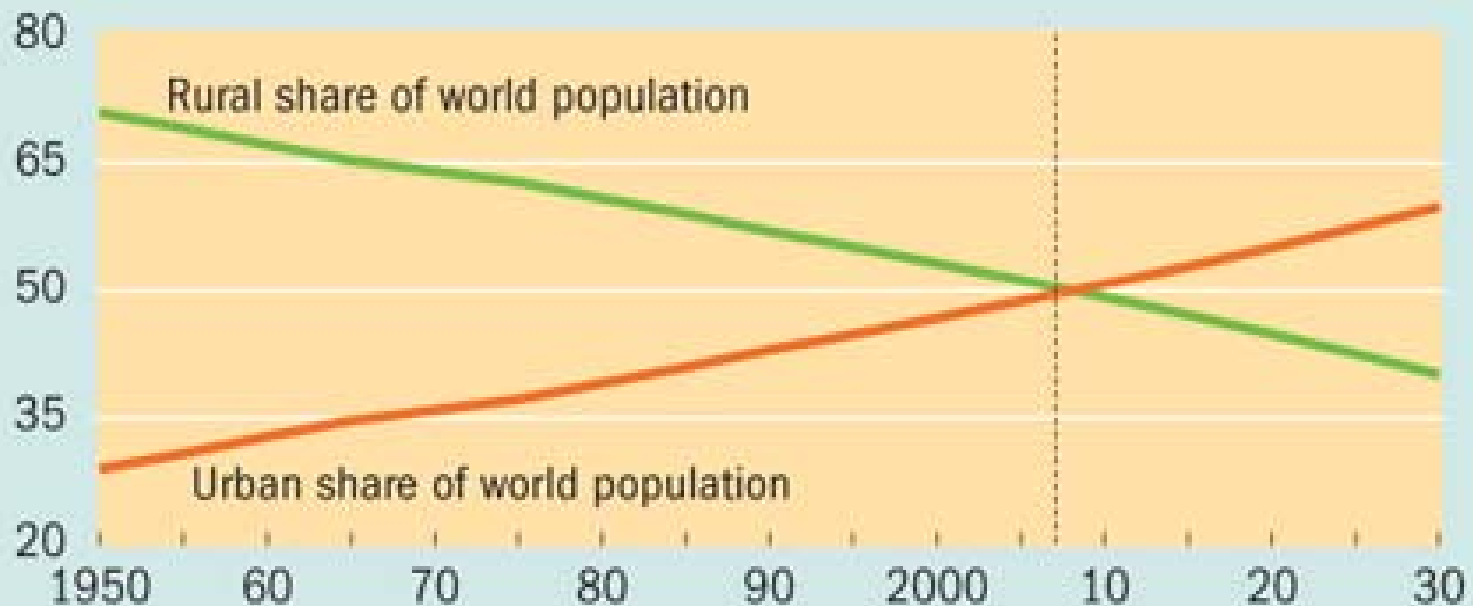
The Urbanization Effect

Chart 1

Tipping the scale

Next year, for the first time in history, more people will be living in urban than in rural areas.

(percent)



Source: United Nations, Department of Economic and Social Affairs, Population Division, *World Population Prospects: The 2006 Revision* (2007).

The Population Effect

GDP does not reflect population:

- IQ = 322,286,258 points/year
- Adult mortality = 1,089,028 deaths/year
- Child mortality = 125,403 deaths/year
- Crime = 58,691,014 cases/year

The Population Effect



The Information Effect

In emerging economies, information must be:

- *Accessed*
- *Processed*
- *Applied*

The Outrage Effect

Outrage affects willingness to pay:

- Children are innocent victims
- Lead harms the poor
- Exposure is entirely preventable

Human Rights:

- "Everyone has the right to education."

Article 26

The Universal Declaration of Human Rights

UN General Assembly, December 10, 1948

- Lead robs people of the capacity to learn.

Other Limitations:

- GDP limitations
- GDP sectors

Advantages :

- The benefit/cost ratio is at least 10 to 1.
- Lead affects both health and the economy.
- Health has societal effects on:
 - Families
 - Communities
 - Nations
- The benefits will grow with each generation.