Trees, Mind, & Economy
Enriching Our Citizens

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CURRENT RESEARCH

HUMAN HEALTH & WELL-BEING
SOILS
MATERIALS
VEGETATION
HYDROLOGY

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Social Science Contributions

Human Capital and Economics

- stock of skills and knowledge embodied in a person’s ability to perform labor so as to produce economic value

- direct - education and training
- indirect – professional development, computer training, medical care plan, life skills workshop, day care, & urban greening!
city trees as indirect benefit for human capital

Basis of U.S. Economy?

built capital – 20th century

human capital – 21st century
Richard Florida
the Creative Class

City Trees & Nature

= human capital investment

= economic value for enterprise, business & community
City Green & public health mental health healing therapy

research evidence!

Americans travel 2.3 billion miles per day on urban freeways & highways
Roadside Landscape & Traffic Stress Response

- Roadside Features - Driving Simulations
  - Forest, golf course, strip mall

- Physiological Response
  - E.g. heart beat, blood pressure

- Results
  - Nature scenes - return to baseline faster, less response to new stressors
  - Immunization effect

Workplace Nature Views

- Well-being
  - desk workers without view of nature reported 23% more ailments in prior 6 months

- Job Satisfaction
  - less frustrated and more patient
  - higher overall job satisfaction and enthusiasm
Plants in Workplace

- **Productivity**
  - 12% quicker reaction on computer tasks
  - Reports of being more attentive

- **Less Stress**
  - Lower systolic blood pressure

*Lohr et al. 1996. J. of Environmental Horticulture*

directed attention fatigue
mental restoration
reflection

Japan: compact cities
Namba Parks, Osaka
view from nearby hotel
interior retail space

ground level

small plazas, retail entry
passive nature experiences

Namba Parks: retail success & nature experience benefits
Trees Mean Business!

• Research Questions •
  trees and visual quality?
  trees and consumer behavior?
  trees and product pricing?

• Methods:
  mail out/in surveys
  national or local sample
  residents/nearby city residents

sponsors: US Forest Service, Natl Urban & Community Forestry Council

Image Categories (sorted by ratings)

Pocket Parks
mean 3.72
(highest)

Full Canopy
mean 3.63

Scale: 1=not at all,
5=like very much,
26 images
Enclosed Sidewalk 3.32

Intermittent Trees 2.78

No Trees mean 1.65 (lowest)
(high - 3.72)
1. Place Perceptions
   • Place Character
   • Interaction with Merchants
   • Quality of Products

2. Patronage Behavior
   • travel time, travel distance
   • duration & frequency of visits
   • willingness to pay for parking

3. Product Pricing
   • higher willingness to pay for all types of goods
   • higher in districts with trees – 9-12%

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Physical Inactivity & Obesity

majority of Americans not active enough
goal-30 minutes per day of moderate activity
to reduce risk factors for chronic diseases
(heart, stroke, cancer, diabetes)
significant costs to national health services

310,580,000 deaths per year
$100 billion medical costs (1995)
9.4% of all U.S. medical costs
Obesity Trends* Among U.S. Adults

1985

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

No Data           <10%          10%–14%

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults

1986

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

No Data           <10%          10%–14%

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

1987

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.

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Obesity Trends* Among U.S. Adults

1988

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults  

1989

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults  

1990

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

1991

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

1992

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults
1993
(*BMI ≥30, or ~ 30 lbs overweight for 5’4” person)

Obesity Trends* Among U.S. Adults
1994
(*BMI ≥30, or ~ 30 lbs overweight for 5’4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

**1997**

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults

**1998**

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

2001

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults

2002

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

2003

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

No Data          <10%           10%–14%           15%–19%           20%–24%           ≥25%

Source: Behavioral Risk Factor Surveillance System, CDC.

Obesity Trends* Among U.S. Adults

2004

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

No Data          <10%           10%–14%           15%–19%           20%–24%           ≥25%

Source: Behavioral Risk Factor Surveillance System, CDC.
Obesity Trends* Among U.S. Adults

2005

(*BMI ≥30, or ~ 30 lbs overweight for 5’ 4” person)

Doubling of adult obesity rate since 1980.

Source: Behavioral Risk Factor Surveillance System, CDC.
parks, open spaces & trails
need access & facilities
make room for pedestrians
+ walk to school, Naderi et al. 2008, ITE Jrnl

Nature, Human Health & Walkable Neighborhoods

- Environments: Neighborhood Streets (Tokyo)
  - tree – lined streets
  - nearby parks
  - vs. barren streetscapes

- Outcomes: Elderly People & Walking
  - less illness
  - lower mortality rate

Takano, Nakamura, Watanabe. 2002.
Journal of Epidemiology & Community Health
walkable places = health & happiness

Beauty & more . . .
trees must be a part of our cities!
Trees, Mind, Citizens . . .
Economic Vitality

- Ecosystem services (e.g. air & water)
- People are the U.S.’s greatest asset
- Also nurture social & human capital
- City trees & natural resources are essential!

- People think, learn, work well & are healthy?
  = economic vitality!

Nearby Nature

- not distant places
- in our yards
- on our streets

invest in human habitat
Human Dimensions of
Urban Forestry and
Urban Greening

Features research on people's
perceptions and behaviors
regarding nature in cities

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www.naturewithin.info