Neo Malthusian Theories of Famine

Geog 10001: The Geography of Scarcity

Today we will cover…

- Today's lecture
  - Recap
  - Malthusian explanations of famine
  - Neo-Malthusians
  - Population and Demographic Transitions
  - Population and Consumption

Chris Martenson:
The power of exponential growth

Malthusian Recap

Malthus - recap

- Malthus
  - Population grows geometrically; agricultural production arithmetically
  - point of crisis, food keeps population in check
  - Solution? Moral choices, abstinence

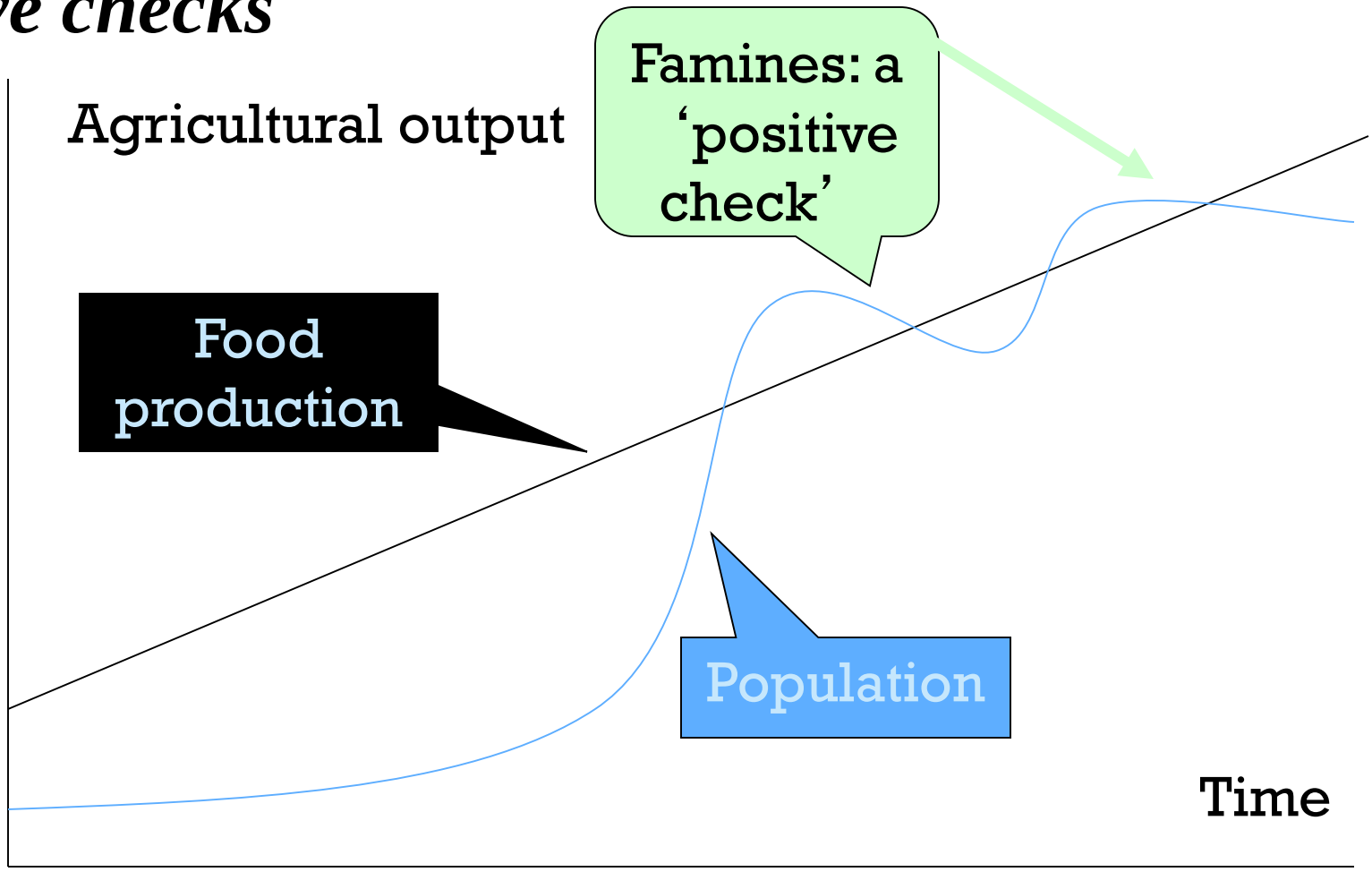
Relative abundance argument (Malthusian)

- Neo-Malthusians:
  - Revival in the 1960s and 1970s
  - Malthus with an eco-slant
  - Population + consumption = destruction
  - Neo-Malthusians had a revival in the 1970s as a result of increased understanding on global ecological crises (what about 2000s?)

?

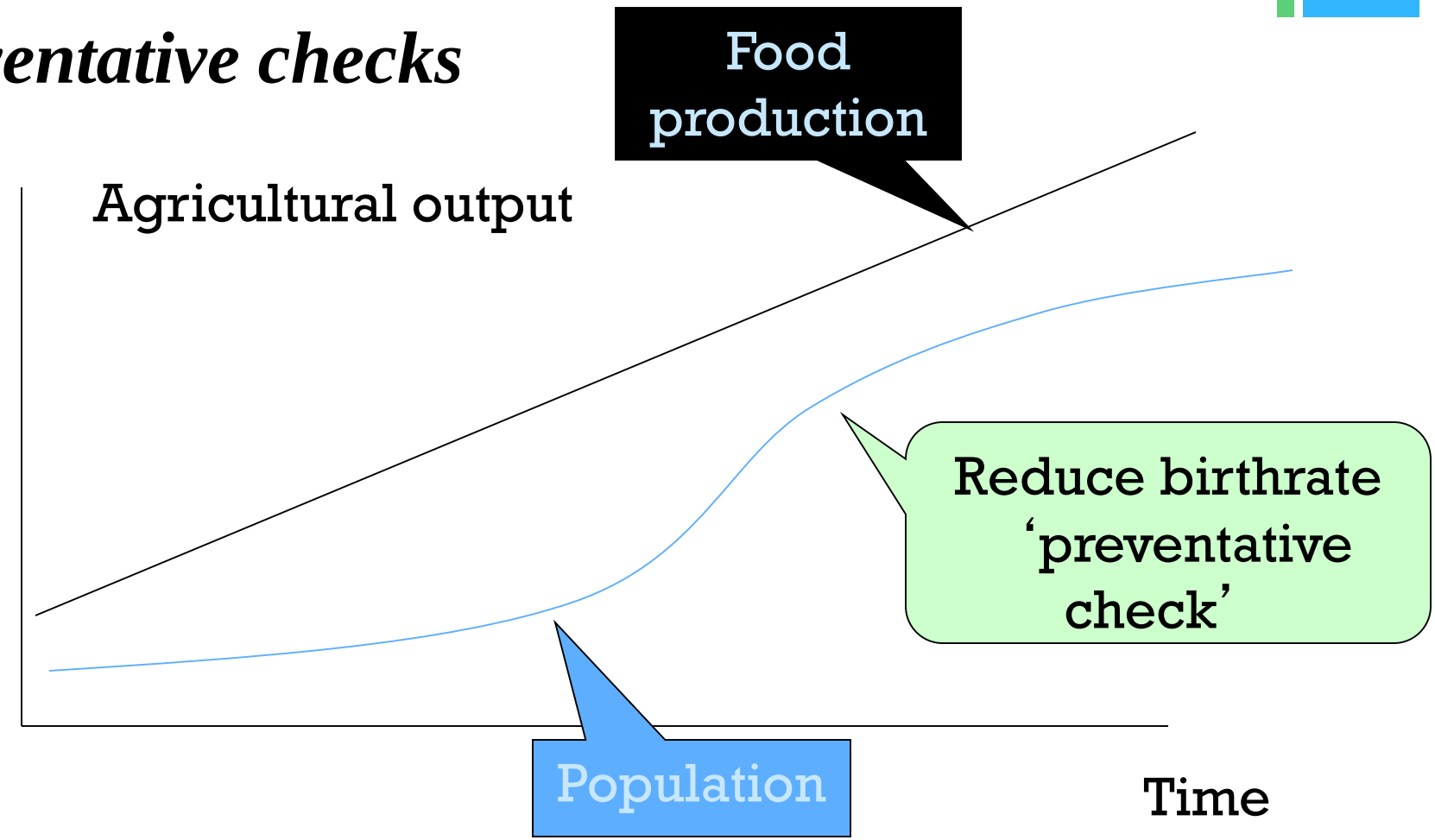
The problem according to Malthus

Positive checks



The problem according to Malthus

Preventative checks



Neo-Malthusians and current debates

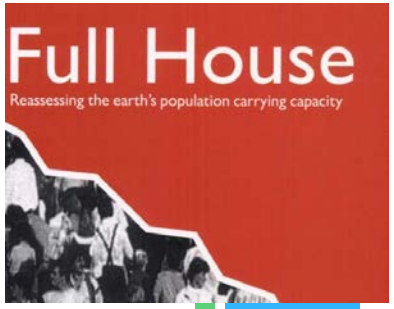
Population as environmental pressure

Impacts and their measurement

Can view population as a ‘meta-pressure’ on the environment

Environmental issues:

Water	Is there enough?
Land & food	Will we be able to feed ourselves? Will land degradation be exacerbated?
Waste & pollution	Will we overload the environment?
Fuels & other resources	They’ll run out quicker - problem?
Biodiversity	Will development pressures cause extinctions?
Quality of life	Congestion, pollution, densification, resource-use conflicts … what sort of environment do we want?



LESTER BROWN AND HAL KANE

FULL HOUSE (1995)

SIX NEW CONSTRAINTS ON THE PLANET'S CAPACITY TO SUPPORT MORE HUMANS

1. the backlog of unused agricultural technology is shrinking
2. growing demands press the limits of fisheries & farm land
3. demands for water are at limits of yield
4. grain yields are stabilising - additional fertiliser of no impact
5. densely populated countries are losing farmland to living space and threatening food production
6. social disintegration is undermining food production

SAME MALTHUSIAN STORY?

Neo-Malthusians

Solutions for Neo-Malthusians:

- Lower population growth rates

OR ELSE!

Neo-Malthusianism and Malthus

Both agree that:

- Population growth is the problem
- Food production is insufficient
- Birth control is the humane answer
- Population > food = famine

Neo-Malthusians

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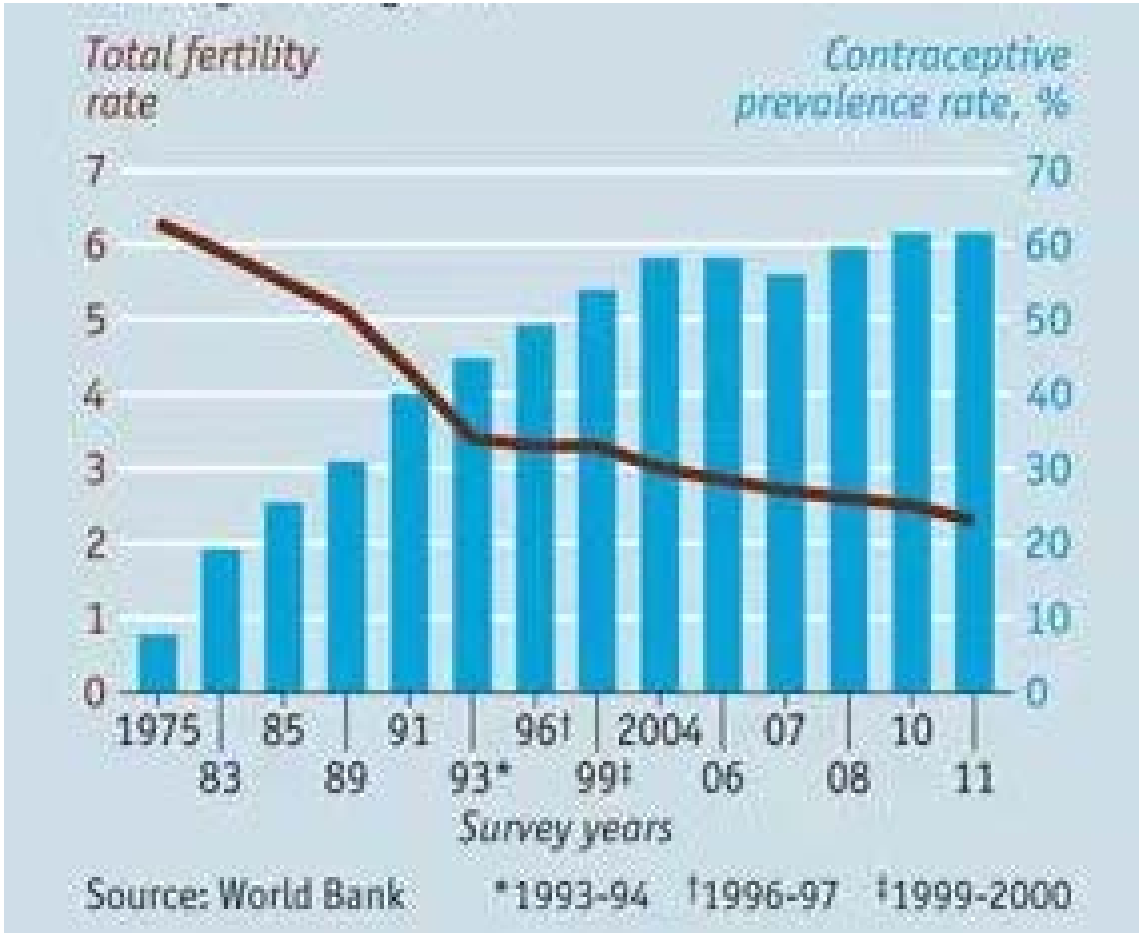
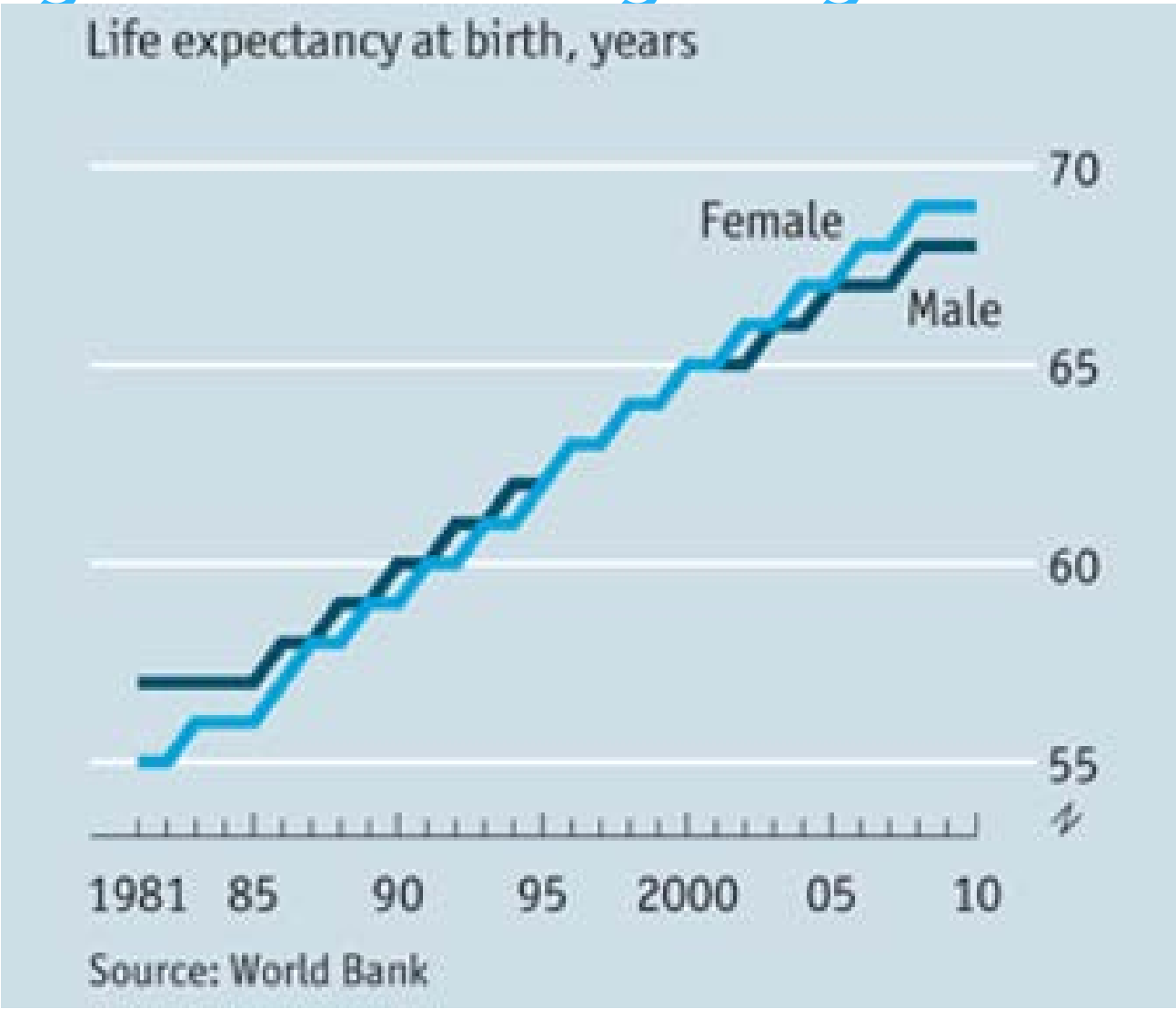
DEMOGRAPHIC TRANSITIONS

Bangladesh – fertility free fall



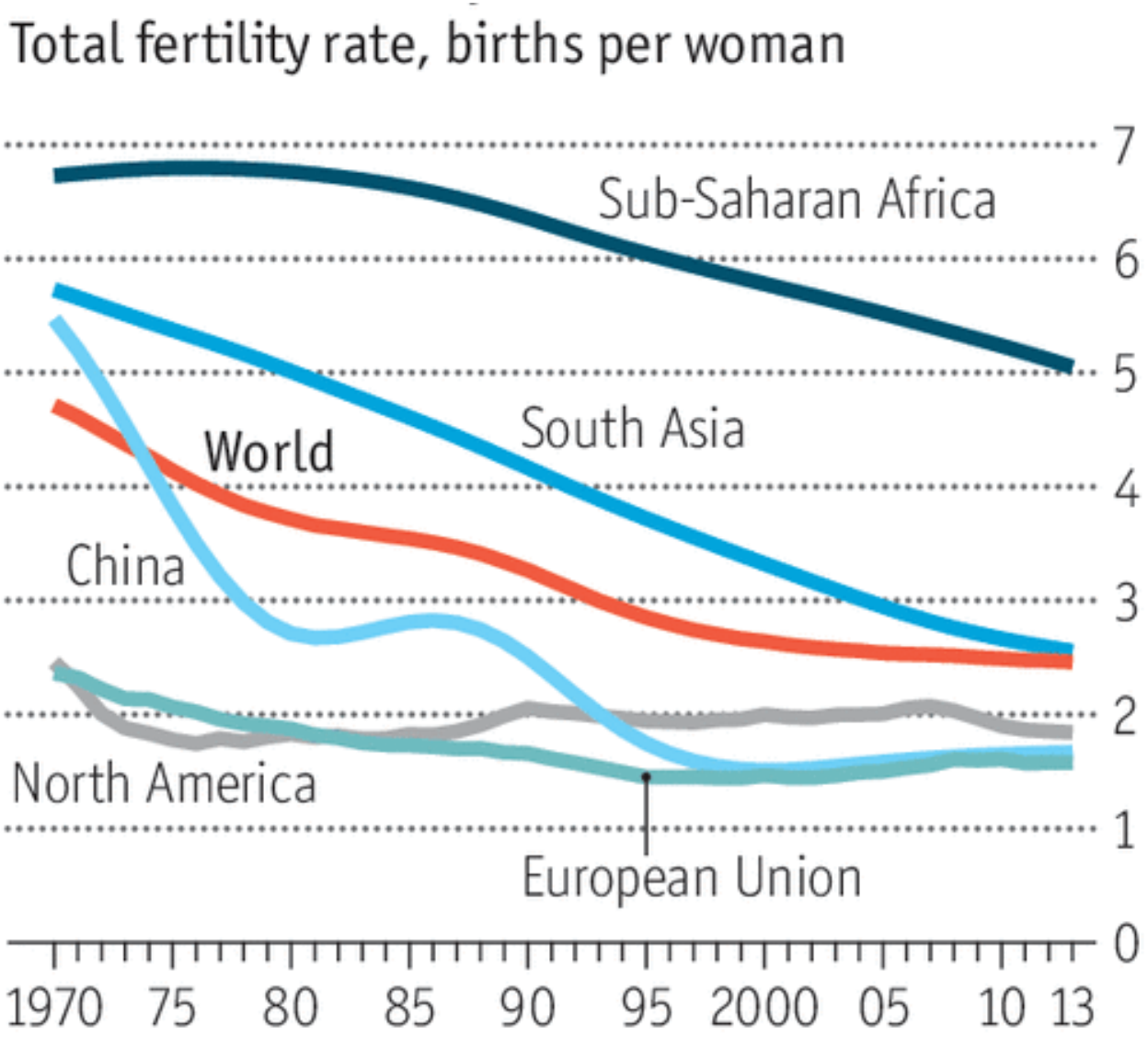
The Economist (2012) "The Path Through the Fields"

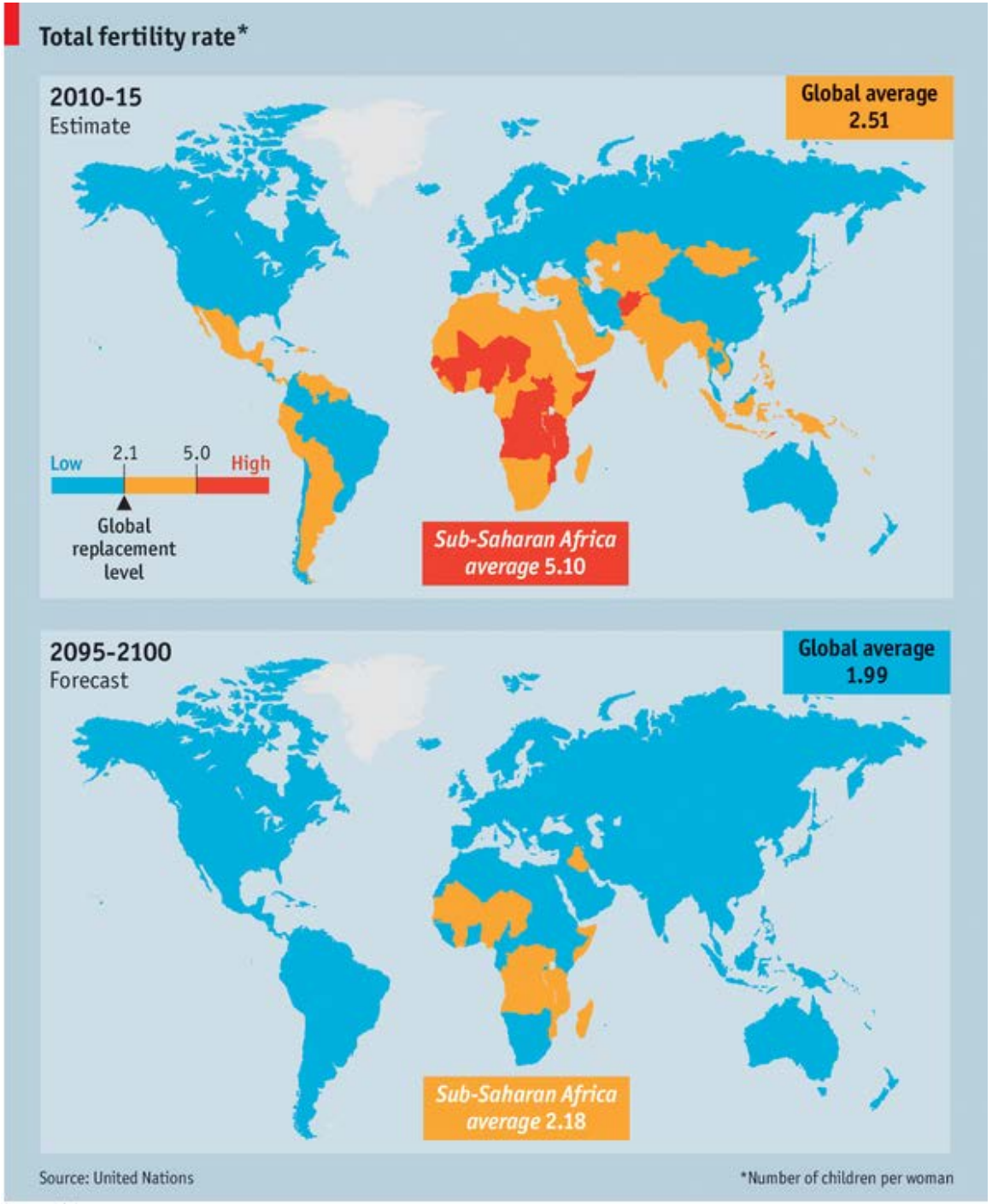
Bangladesh – living longer



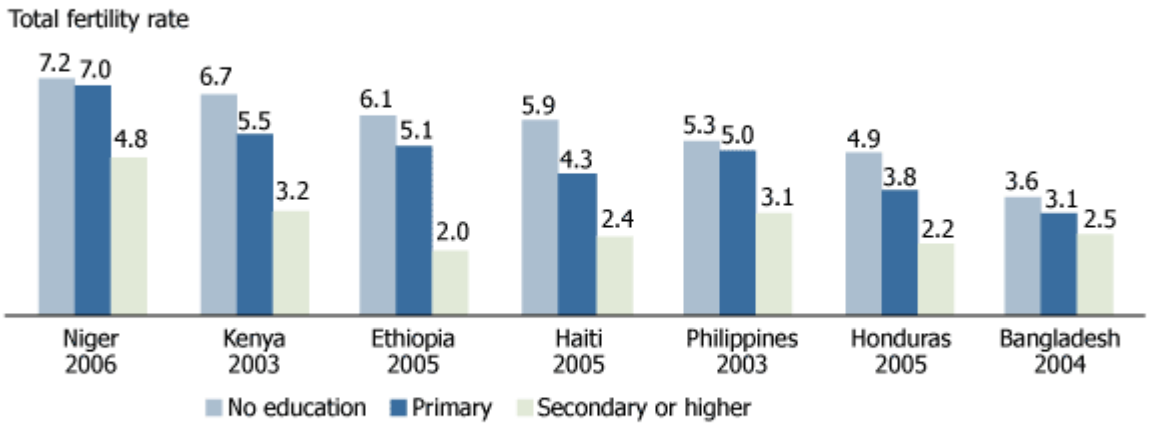
The Economist (2012) "The Path Through the Fields"

Larger trend of declining fertility

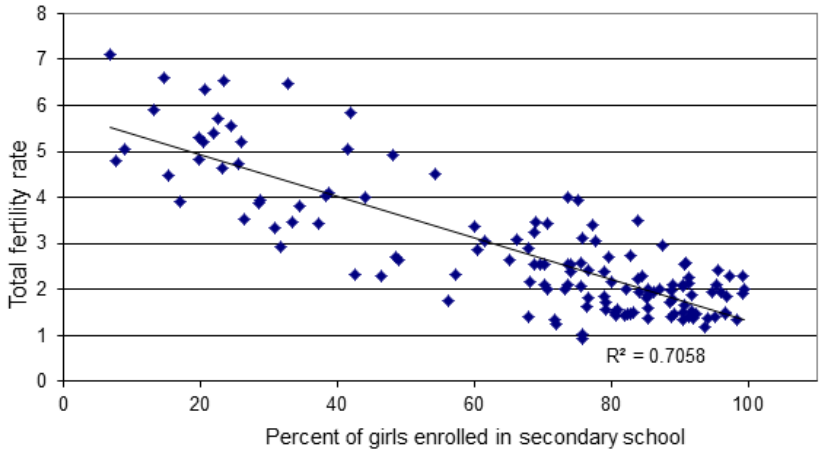

Total fertility rate, births per woman
7
6
5
4
3
2
1
0
Sub-Saharan Africa
South Asia
World
China
North America
European Union
1970
75
80
85
90
95
2000
05
10
13
Source: World Bank



Women's Education and Family Size in Selected Countries, 2000s



Source: Demographic and Health Surveys, 2003–2006.



Source: Earth Policy Institute from UNESCO Institute for Statistics

The Demographic Transition

BUT can we avert food shortages simply by controlling population?

Consumption and affluence

$$I = P.A.T$$

I = environmental impact
P = population
A = affluence ($ per person)
T = technology (impact per $)

Paul Ehrlich

Growth in population and consumption

- POPULATION AND GROWTH causes systemic problems
- WHO is consuming
- WHAT are they consuming
- Global CONSUMPTION: 1.7 billion are in the global class of consumers
  - US and Europe - greatest proportion of consumption
  - China and India - emerging consuming class
  - BUT on average consume substantially less than the average European

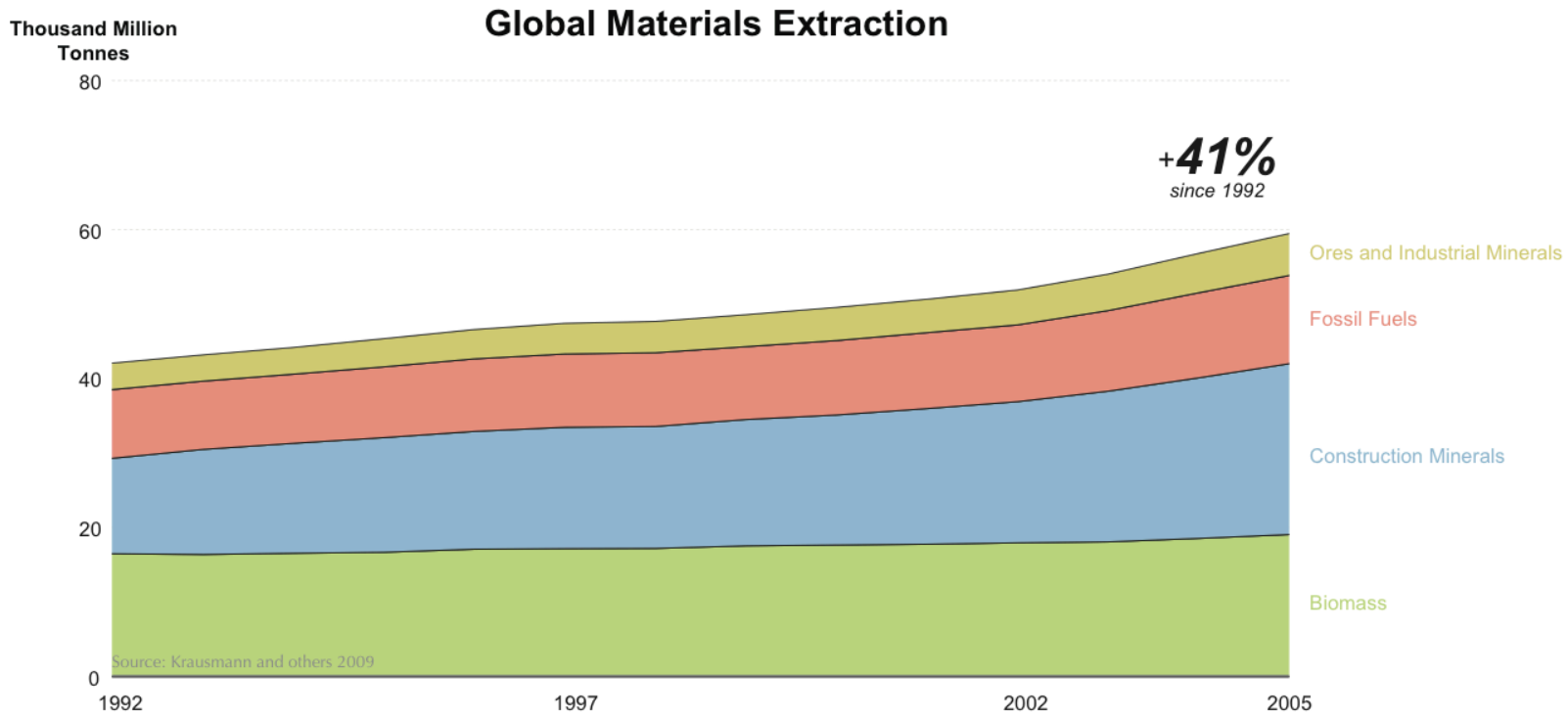
"If the consumption aspirations of the wealthiest of nations cannot be satiated, the prospects for corralling consumption everywhere before it strips and degrades our planet beyond recognition, would appear to be bleak." – WorldWatch 2011

Concept of **CARRYING CAPACITY**

- **Carrying Capacity**
  - the physical, chemical and biological environment;
  - technology;
  - social, political and economic institutions;
  - levels and styles of living; and
  - values, preferences and moral judgments
- E.g. if all lived like USA: **total pop'n = 2 billion**
- Tough ethical questions

Growth in population and consumption

- *As societies grow and become wealthier, demand for basic materials is further increasing*



UNEP 2011: Keeping Track of Our Changing Environment: *From Rio to Rio+20 (1992-2012)*. Part of Global Environmental Outlook 5 (GEO-5), May 2012

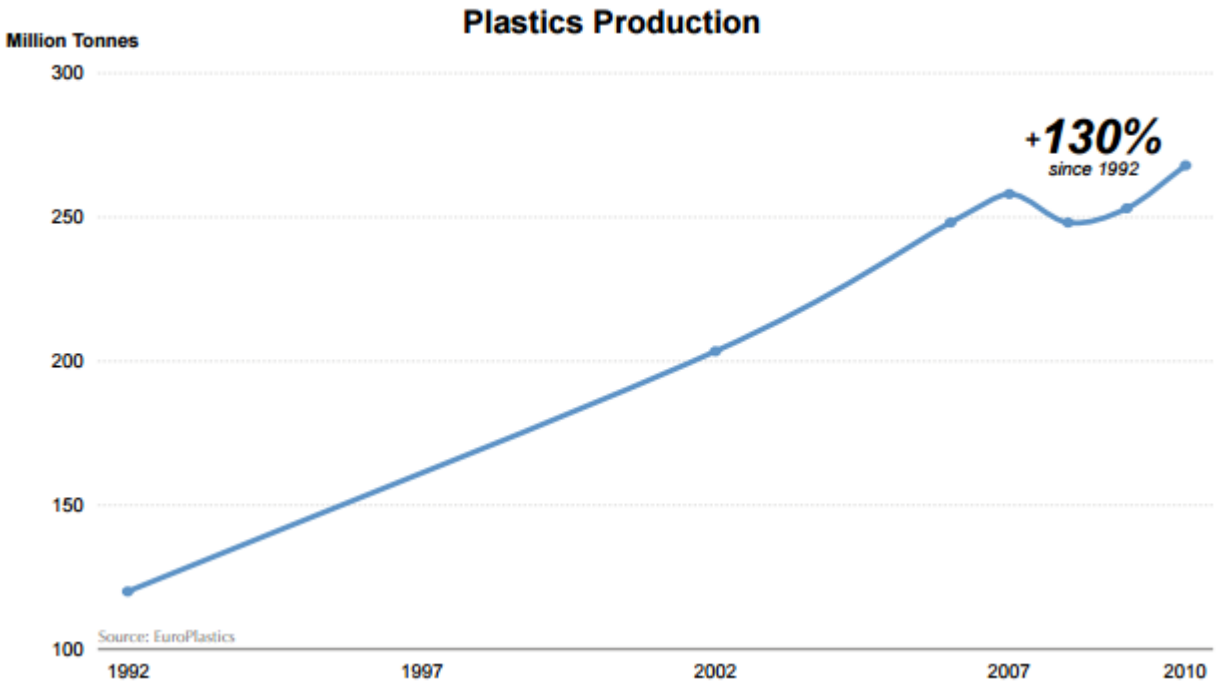
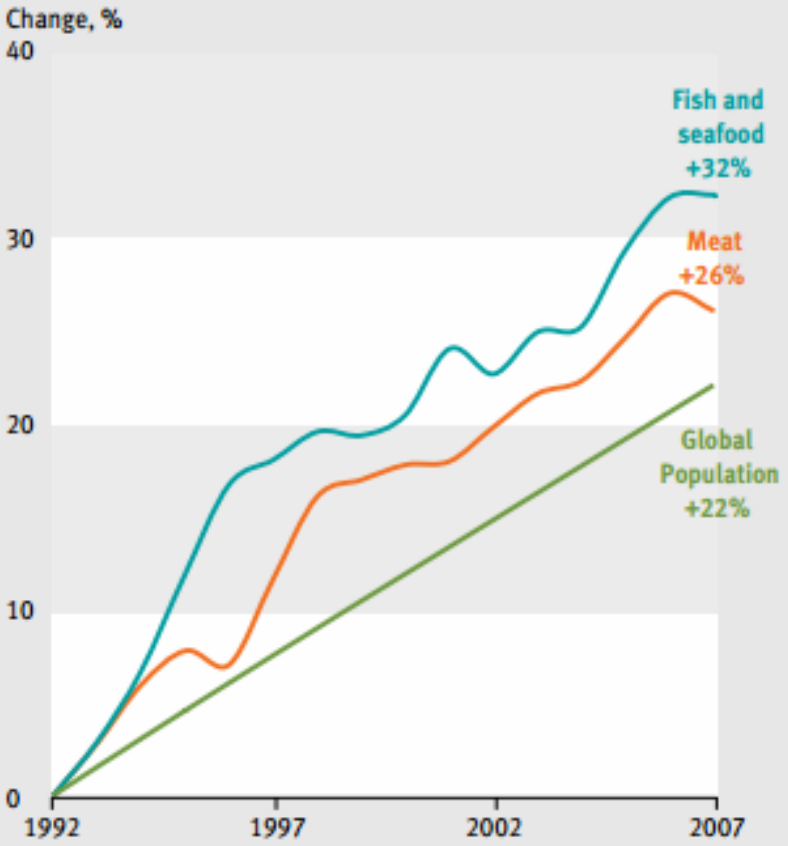
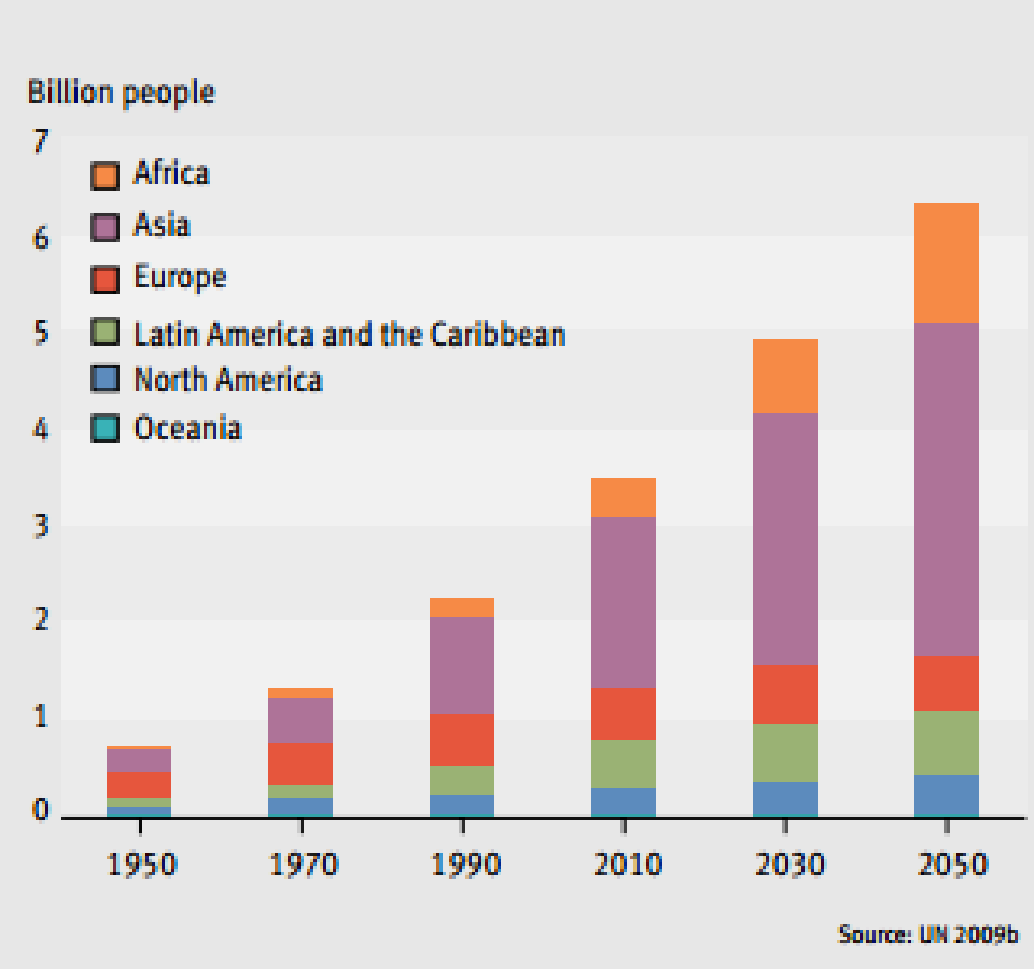

Plastics Production
Million Tonnes
300
250
200
150
100
+130%
since 1992
Source: EuroPlastics
1992
1997
2002
2007
2010

Figure 3.12 Change in global population and in meat, fish and seafood supplies, 1992–2007



Source: UNEP 2011c

More people living and consuming in cities (1950-2050)



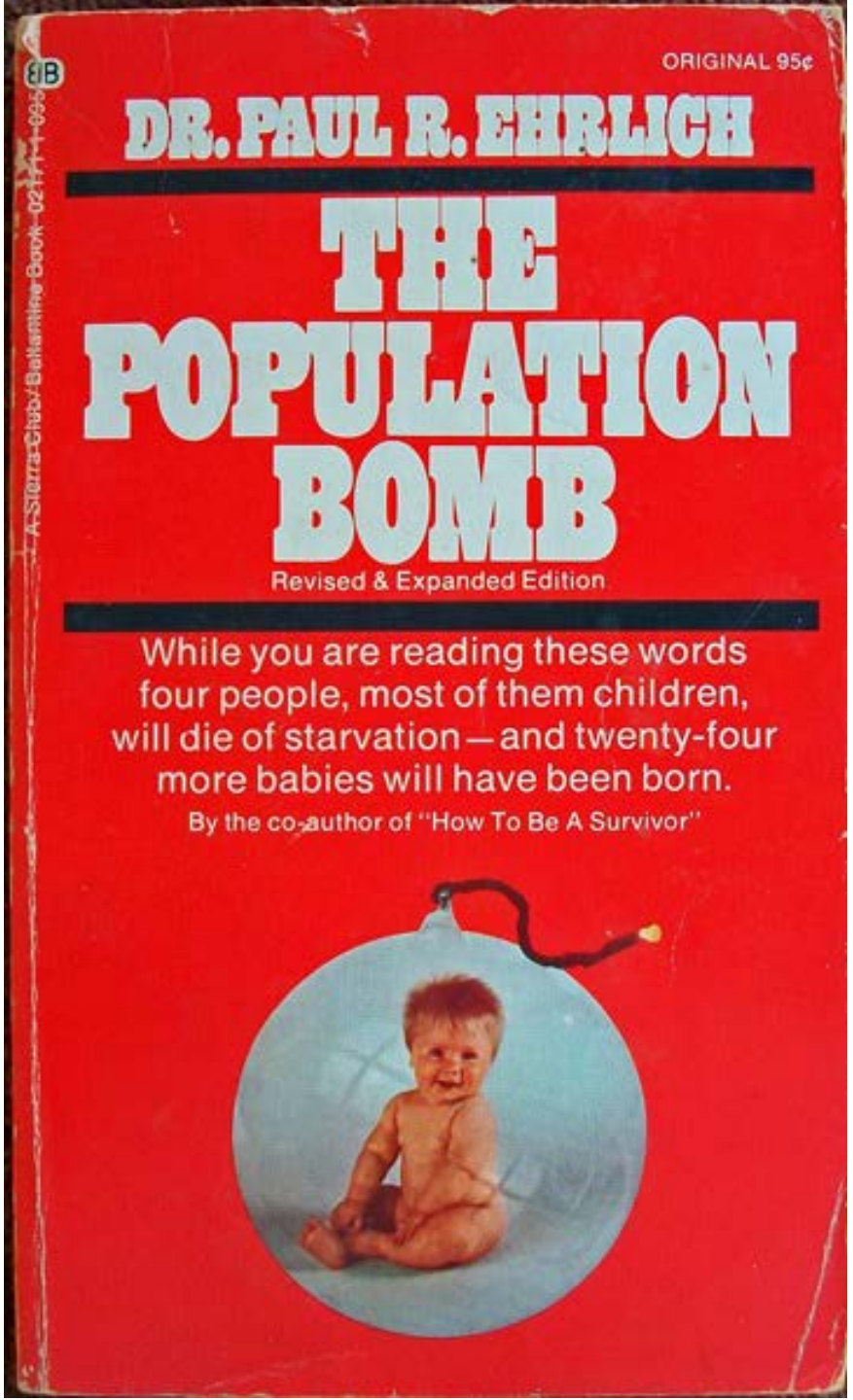
Birth control or reduce consumption?

- **Which one is more effective – increase birth control (A) in developing countries or reduce consumption (B) in developed countries?**
- **Which one is more politically feasible - increase birth control (A) or reduce consumption (B)?**

Interdependence: Poverty, fertility and consumption

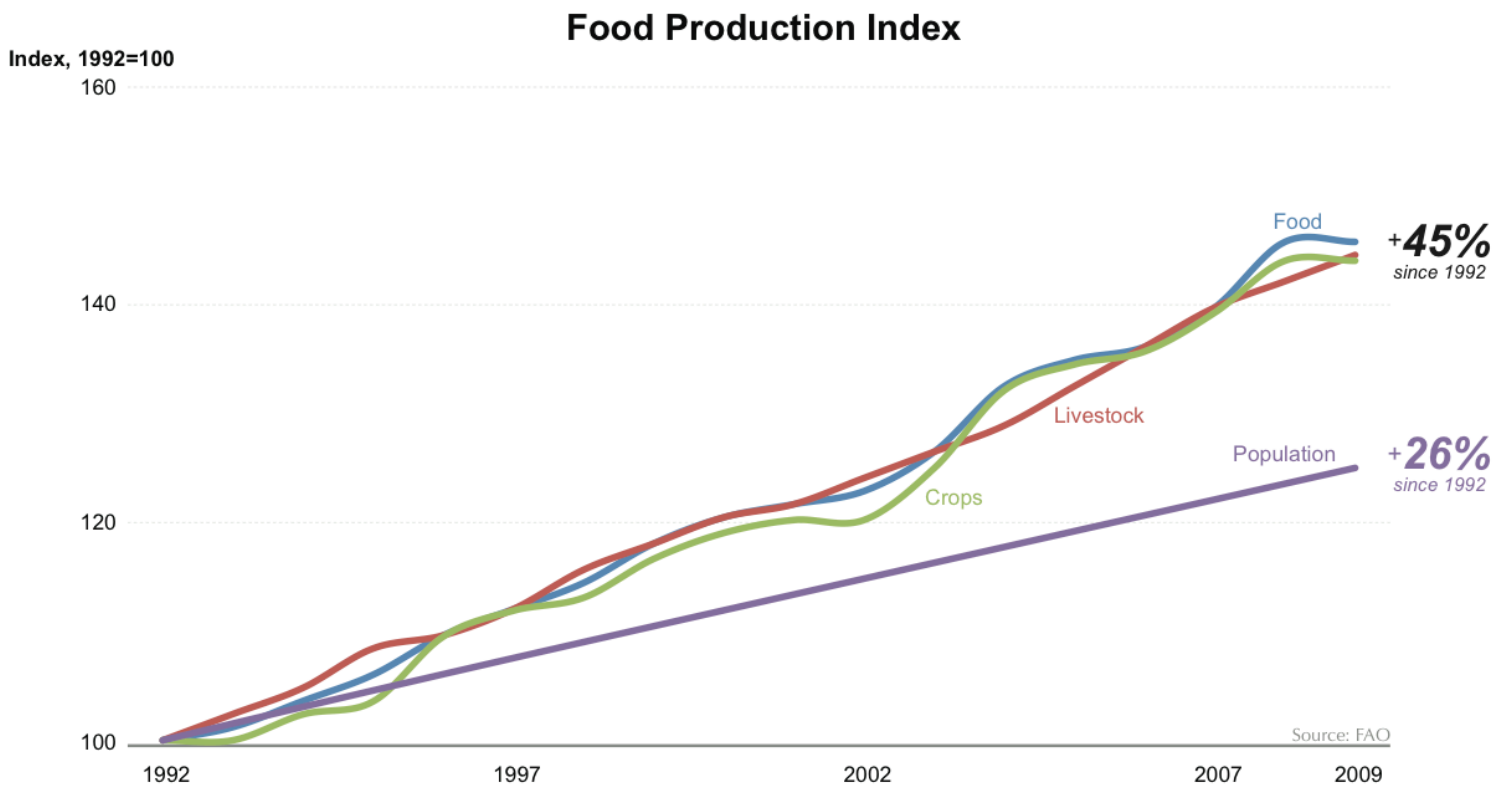
Technology and Population

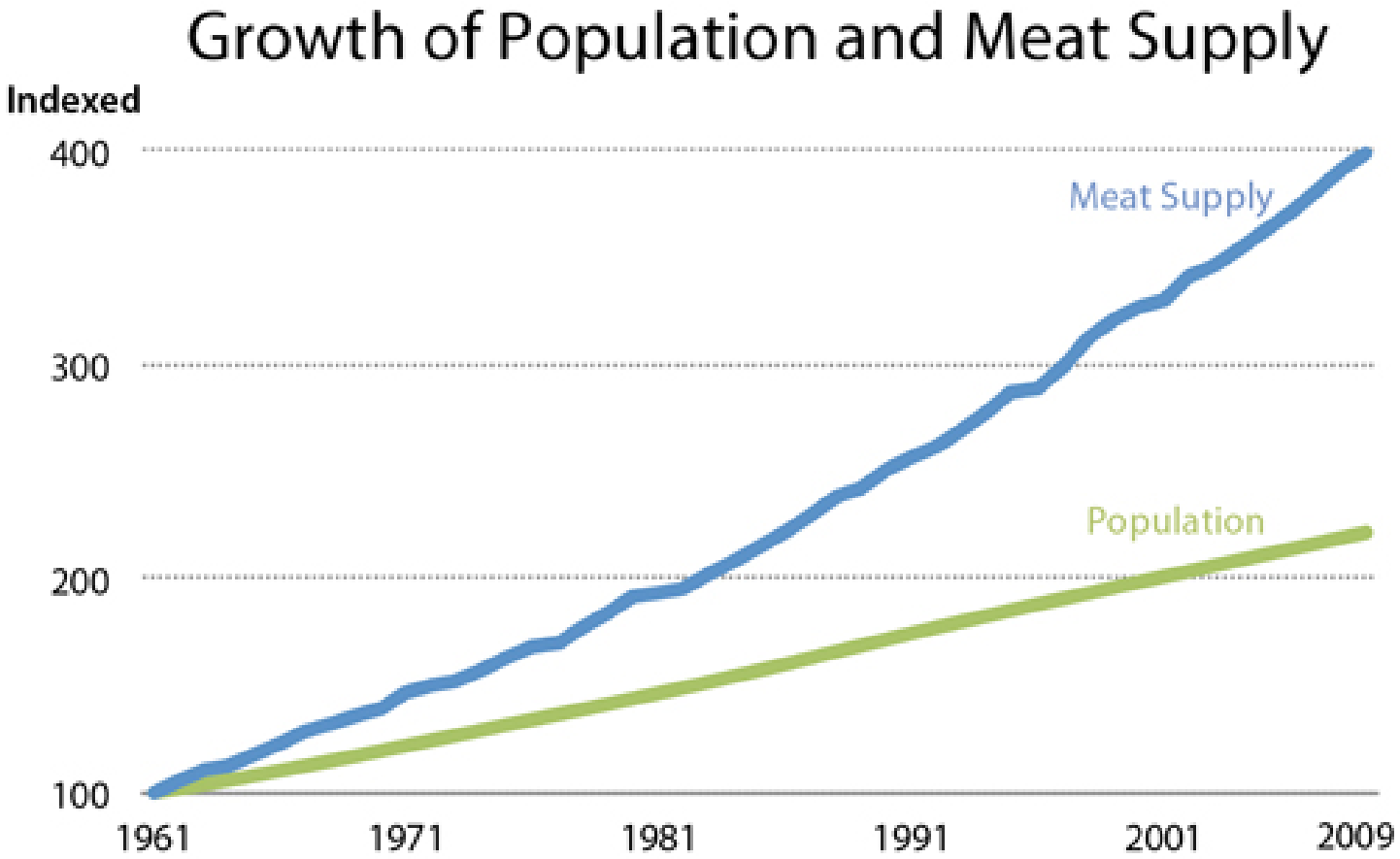

POPULATION
WELL, IT APPEARS TO HAVE LANDED...
BUT IT DIDN'T EXPLODE!


ORIGINAL 95¢
DR. PAUL R. EHRLICH
THE POPULATION BOMB
Revised & Expanded Edition
While you are reading these words four people, most of them children, will die of starvation—and twenty-four more babies will have been born.
By the co-author of "How To Be A Survivor"

Food production

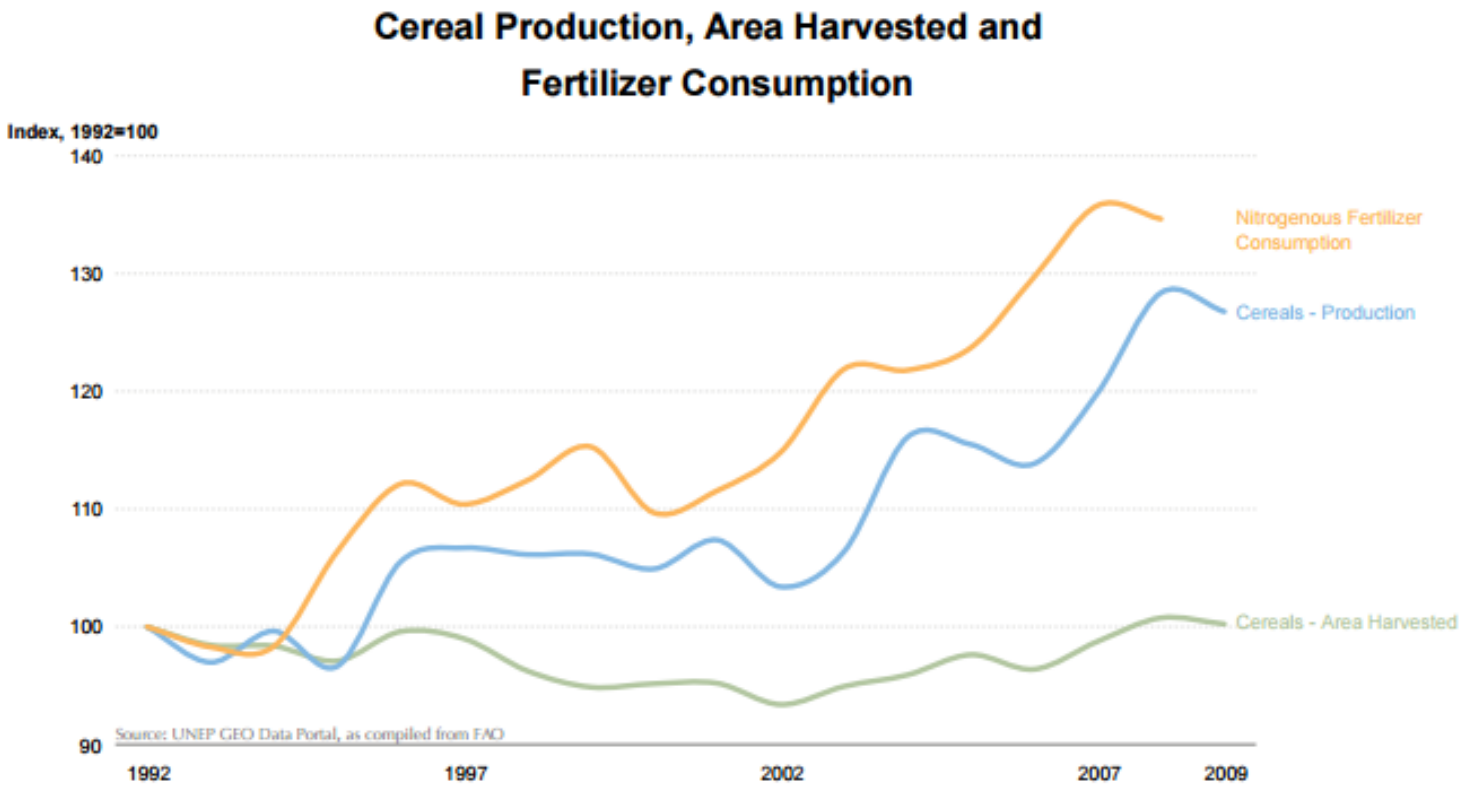
- Steadily exceeding population growth



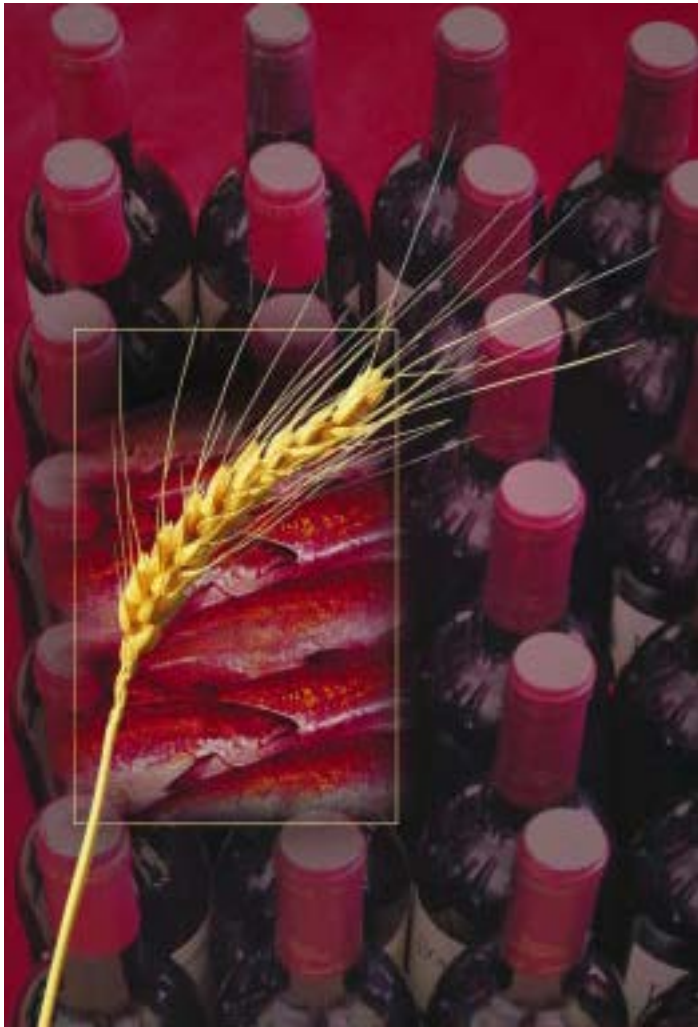


Growth of population and meat supply, indexed 1961=100 (FAO 2012a, UN 2012)

Higher agricultural yields depend heavily on the use of fertilizers



Technological innovation and the Green Revolution

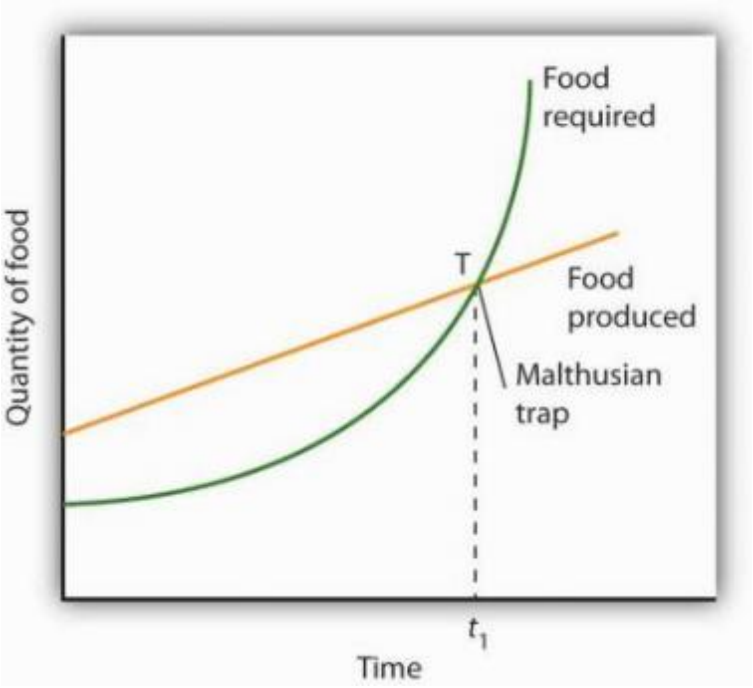


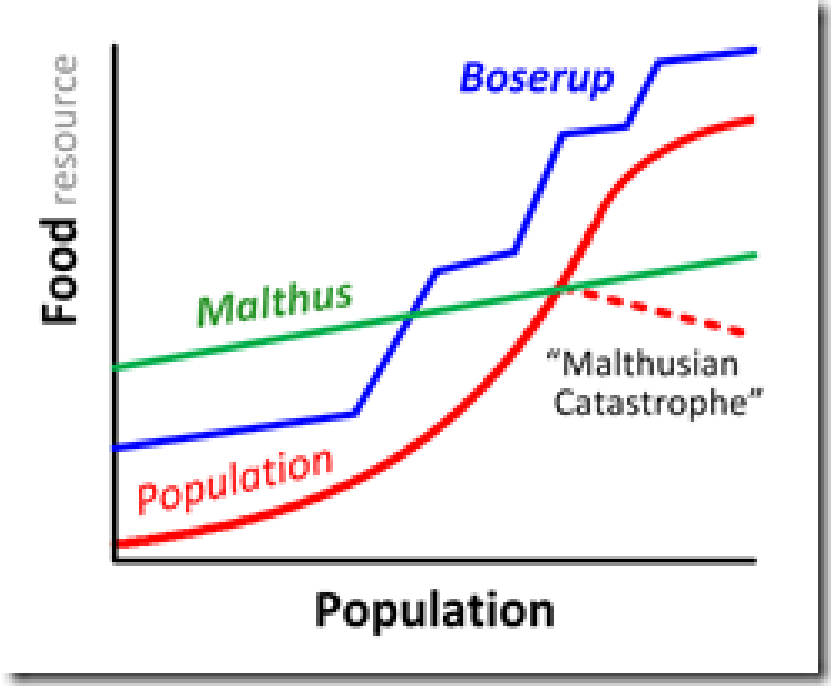
Side effects of intensification

The Economist 2015

Two contrasting views

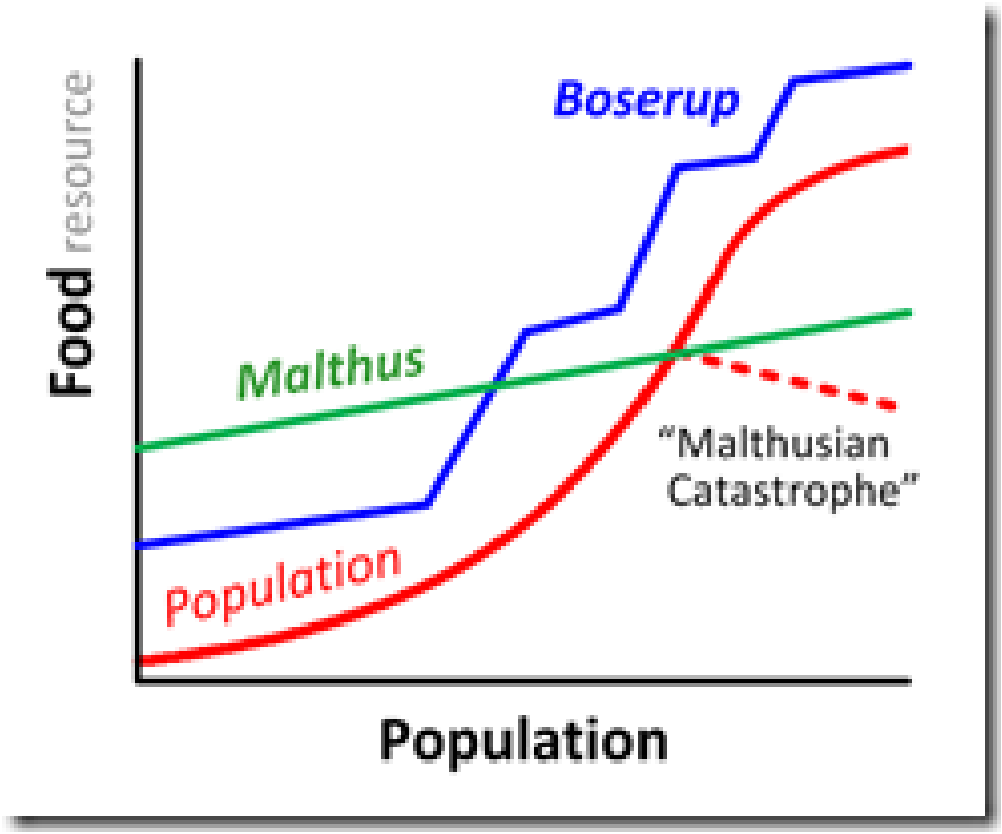
- Malthus (1798): food production cannot keep up
  - Boserup (1965): people will innovate when needed.





Boserup

- Malthus (1798): two incompatible trends.
  - Boserup (1965): people will innovate when needed.
- Perhaps this has happened…



But, are we reaching ever scarcer materials…?

- Rare earth metals
- Fossil fuels
- Water (?)
- Perhaps not starvation, at first, but resource wars?
- The specter of Malthus has not entirely left

In countless ways, we have not gotten more for less but rather more for more, as we've converted rich stores of natural capital into high flows of current consumption.

- Sachs 2008

Benefits?

Population Pessimists

- Humanity has lived on ideas **and** rampant and ongoing depletion of natural resources
- Can't overcome natural limits, just mine fast enough to stave off collapse
- Person jumping from 30th floor, 10th floor "so far so good!"

Population Optimists

- Technology will keep ahead of curve
- More people = more geniuses

Technical solutions, but complex and evolving problems

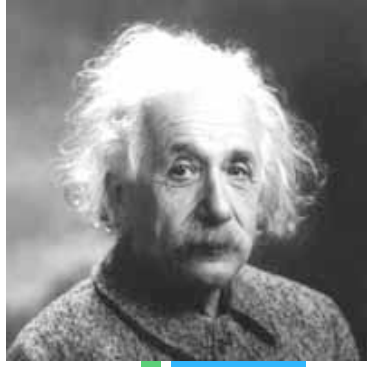
- Production and technical solutions have done much to address scarcity and famines.
  - Transportation
  - Vaccinations etc
- Capitalism, globalization, and entry into the market

In addition… perhaps population not so bad?

- incomes per person have increased
- raised the number of geniuses in similar proportion
- large population is needed to propel progress?

"Successive lurches in population number have driven the development of new agricultural technologies designed to provide food for growing populations" (Trewavas, 2002: 669)

Population = more geniuses?



- Population increase = more genius?
  - 0.05% of a given population are geniuses
  - 2% are possessors of gifts – talented
  - 10% have higher than average capacity for inventions

SO

- Keep the absolute population going up, and absolute numbers of geniuses will rise!
- Get us out of our predicament?

SEPTEMBER 23, 2009, 6:00 AM

The More the Merrier: Population Growth Promotes Innovation

By CASEY B. MULLIGAN

- "Plus, the more people on earth, the larger are the markets for new innovations" (NY Times 2009)
- Incentives depend on size of market, and innovation comes from incentives

"The same genius that allowed us to achieve that dominance now must be harnessed if we are to prevent our very success from sealing our doom."

- Ehrlich and Ehrlich 2009, p 69.

Population problem

- **Population growth is a good thing for the world?**

A. Strongly agree

B. Agree

C. Neutral

D. Disagree

E. Strongly disagree

Outcomes and conclusions

Conclusions

Malthus and Neo-Malthusians

- Famines occur when population growth exceeds food supply
- Population growth puts pressure on the environment, which limits food production
- The solution is to reduce birth rates (or deal with consequences)

Today

- Are we witnessing a demographic transition? Is this the Malthusian preventative check?
- Have we averted crisis?
- Is it more complex than population growth alone – consumption?
- Can we innovate our way out of this?

Outcomes

To assess the claims of these 'abundance theories' we need to know about:

- Population change
  - Key variables that drive it
  - Its history and geography
  - Forecasts of future change
- Controls on food production / distribution
  - Technical possibilities to increase output
  - Environmental limits
  - Who gets what, and *who gets to decide this?*

More on this next time…

Questions