Malthus and the Impossibility of Progress

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Economic Demography

Econ/Demog c175

Week 2: Lecture B

Spring 2017

Announcements

- Computing session Friday
- For lab, you will need to do some reading in Malthus's 2nd edition about checks in Norway and Sweden.
- Do register for Piazza
- Piazza guideline: please be careful about asking about graded questions.
- Anything else?

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What is your major?

A. Economics

B. Economics and something else

C. Something more interesting than economics

D. Something less interesting that economics

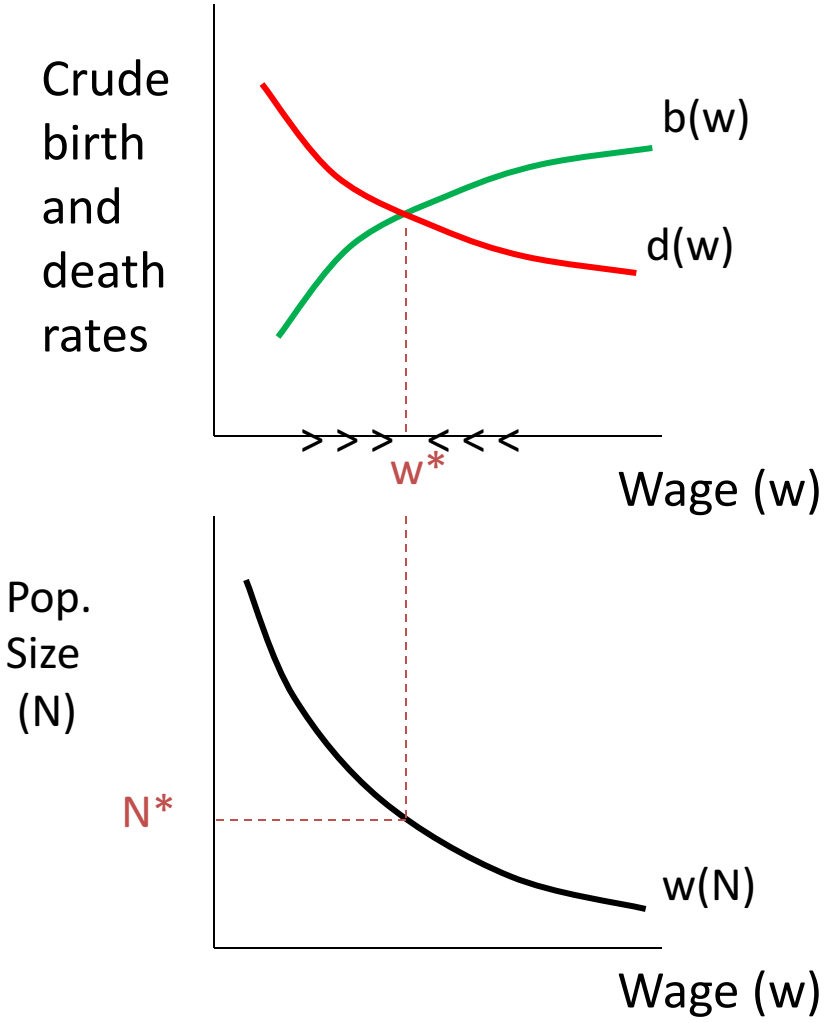
Our Agenda

- Stable equilibrium and oscillations (a comment)
- Dismal conclusions
  - Mortality
  - Fertility
  - Technology
- Was Malthus right about his own time?
- How did Malthus get the future wrong?

Oscillations and equilibrium

1. Main feature of Malthusian theory is stable equilibrium
2. After random external events (weather, disease, war) return to equilibrium
3. A more complicated model needed if you want to see Malthusian overshoot (like pendulum). But the simple model we have is enough to give us the main features of Malthusian economy.

What do we mean by stable equilibium?



- <u>Stable Equilibrium</u>
- If we are moved away from N*, we will revert back.
- Exchange the birth and death curves (so births go down with w, and deaths go up)
- Is w* still an equilibrium? Is it stable?

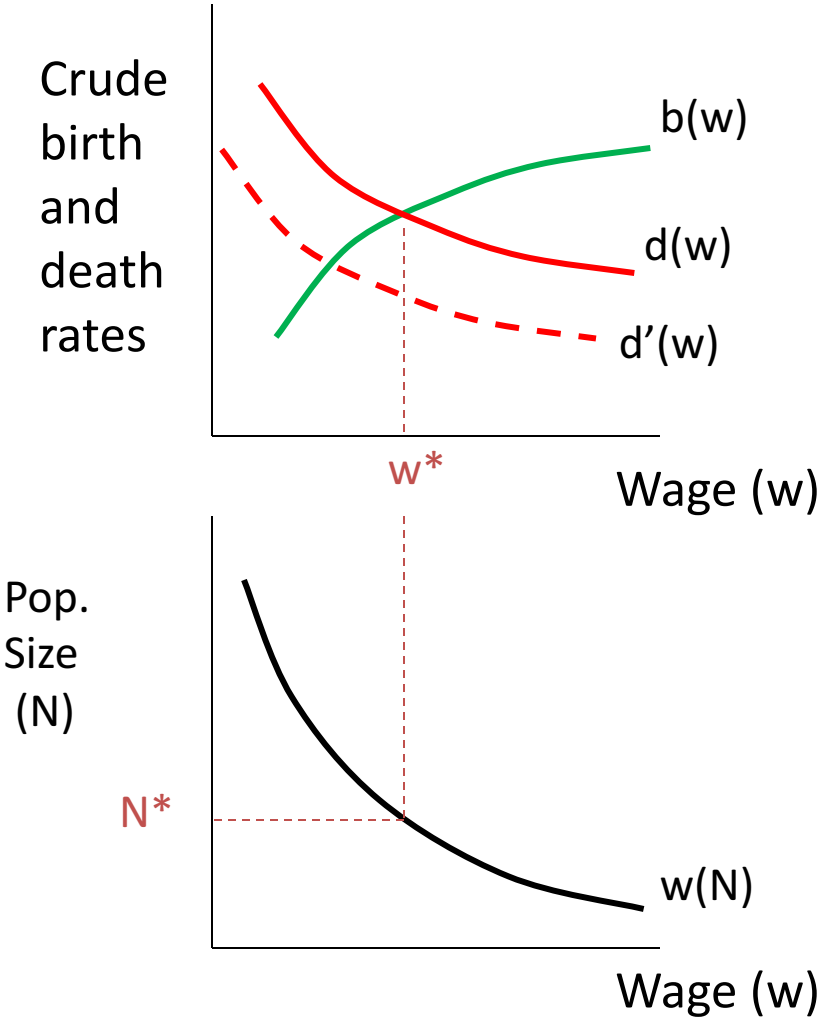
The impossibility of progress

- Some good things can be bad
- Other good things provide only temporary relief
- Is there nothing good? Is there no hope for the “improvability of mankind”?

Case 1: Can a good thing be bad?

- Vaccination against small pox started in Malthus's time (Jenner 1796). Would this improve standard of living, make life less hard?
- Let's model as a lowering of the mortality curve

Lowering the death rate



- What happens to population growth rate?
- Population size?
- Equilibrium?

[let's check with the App]

Malthusian darkness

Instead of recommending cleanliness to the poor, we should encourage contrary habits. In our towns we should make the streets narrower, crowd more people into the houses, and court the return of the plague. In the country, we should build our villages near stagnant pools, and particularly encourage settlements in all marshy and unwholesome situations

(Malthus, Essay, 2nd edition, IV.V.1)

Case 2: “Free-er love”

- Social control (church, army, village) stopped people from marrying (e.g., Norway reading)
- What if society became more free and marriage easier?

- Model this by upward shift in birth curve
- What happens to
  - (i) growth rate,
  - (ii) pop size, and
  - (iii) wages over time?
- Does the world end up improved or worse?

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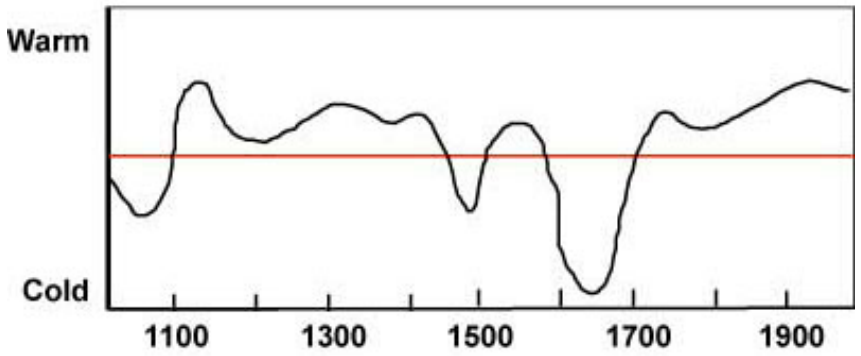
What happens to the equilibrium death rate d(w*) if the fertility curve shifts upward?

A. Nothing. (We didn't shift the mortality curve)
B. d(w*) is higher than before the fertility change
C. d(w*) is lower than before the fertility change
D. Ambiguous. Could go either way. Need more info.

Case 3. “Is Hardship cold comfort?”

- Let’s say we are in the Little Ice Age, and the productivity of farms goes down
- Model this by shifting the marginal product of labor downwards.
- Are we better off ?



Winter severity in Europe, 1000 - 1900. Note two cold periods in the 15thand 17th centuries. Based on Lamb, 1969 / Schneider and Mass, 1975.

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Technological improvements raise the standard of living only temporarily in a Malthusian economy

A. True (because population growth will eventually eat away any gains)
B. False (because wages increase, even in the long term)
C. False (because repeated technological improvements could stop wages from falling)
D. “C” sounds like it has an element of truth but I’m sticking with “A”

Empirical Explorations (and intro to our lab)

check(), please

Swedish series of births and deaths

Our scatter plot

Lab

1. You'll explore the series of births and deaths
2. Replicate the plot I just did
3. See if we can detect breaking down of the Malthusian system

What did Malthus get wrong?

Wait, who says Malthus was wrong?

- Maybe progress is really impossible.
- In the long-run, it could still be that we are overpopulated (above equilibrium) and civilization will crash.
- (We will return to this when we read Lam and look at resource constraints)

- But for now, let's see how Malthus got the last 200 years wrong.

Your ideas?

Birth function?

Death function?

Economy? (1)

- Maybe productivity increases at higher population densities?
- We can sketch
- According to this theory (which we will explore when we get to Boserup), you need a critical density to take off.

Economy (2)

- What happens if we add capital?
- Malthus has 1 fixed-resource (land), and 1 variable-resource (labor)
- What if we have 2 variable resources (labor and capital)?

Next time

- The neo-classical growth model (Solow-Swann)
- We'll see a new dynamical system, with "birth" and "death" of capital stock, and a new equilibrium
- We'll see what kind of progress is then possible