Malthus and the Demographic Approach to History

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Approaches to History/Economics

Malthus was the greatest social scientist to probe the connections between population and the rest of society.

He wrote the *Essay on Population* in 1798. Why?

Malthus's Life, 1766-1834

- Born at the Rookery in Dorking, Surrey
- The second son of a country gentleman who was a disciple of Rousseau.
- 1784—entered Jesus College, Cambridge
- 1788—ordained a priest in Church of England
- 1791—MA degree
- 1793—fellow of Jesus College, Cambridge
- 1796—curate in Albury near Dorking

The French Revolution

- Malthus argued interminably with his father, who was an enthusiast for the French revolution and the perfectibility of society.
- Malthus developed his demography to show that perfectibility was impossible.
- 1798—first edition of *Essay on Population*
- 1803—second edition (lots of facts!)
- Malthus became very famous.

Malthus became very famous.

- 1805—Professor of Modern History and Political Economy at the East India Company College in Haileybury.

- Became a friend of Ricardo's

- Participant in public policy debates

Now we'll look at Malthus' demographic theory.

Population grows when births exceed deaths (when there's no migration).

- Change in pop = births – deaths
- Divide this equation by the population:

$$\frac{\text{Change in pop}}{\text{pop}} = \frac{\text{births}}{\text{pop}} - \frac{\text{deaths}}{\text{pop}}$$

This means:

Rate of change of population = CBR – CDR

CBR = crude birth rate
CDR = crude death rate

Vital rates are usually expressed as events per thousand people

- CBR is births per thousand people.
  - The maximum CBR is about 50 per thousand
  - This is based on Hutterites and some observed populations.
- CDR can vary enormously.
- If the CBR is 50 per thousand, and the CDR is 30, the population will grow at 20 per thousand or 2% per year. This is the 'natural rate of increase'.

Malthus believed that population would grow indefinitely until something <u>checked</u> its expansion.

- Positive check
  - Events that raised the mortality rate: famine, disease, war

- Preventive check
  - Behaviour that lowered the fertility rate: delaying marriage or not marrying at all.

In Malthusian models, the population expands until it reaches an equilibrium.

- The size of the population depends on the size of the economy as determined by technology and capital accumulation.

- Industrial revolutions, therefore, cause population explosions since the larger, more productive economy can support more people.

The level of income is determined by which check is restraining population growth.

- Societies where the positive check operates have a low level of average income since population expansion is only restrained by mortality.

- Societies where the preventive check operates have a higher level of average income since the birth rate falls if income drops and the fall in fertility relieves the population pressuring, thereby, cushioning the income drop.

These results are usually shown graphically (in the manner of economists).

- The horizontal axis is income.
- The vertical axis shows vital rates (CBR and CDR).
- CDR is always plotted as a downward sloping line—at higher incomes there is less mortality.
  - Older people live longer
  - Infant mortality is lower.
- With the positive check, CBR is always at its maximum--50 per thousand.

Here is the graph of a positive check equilibrium level of income.

Vital
rates

50 ————————————————————————— CBR

30

CDR

W-pos   income
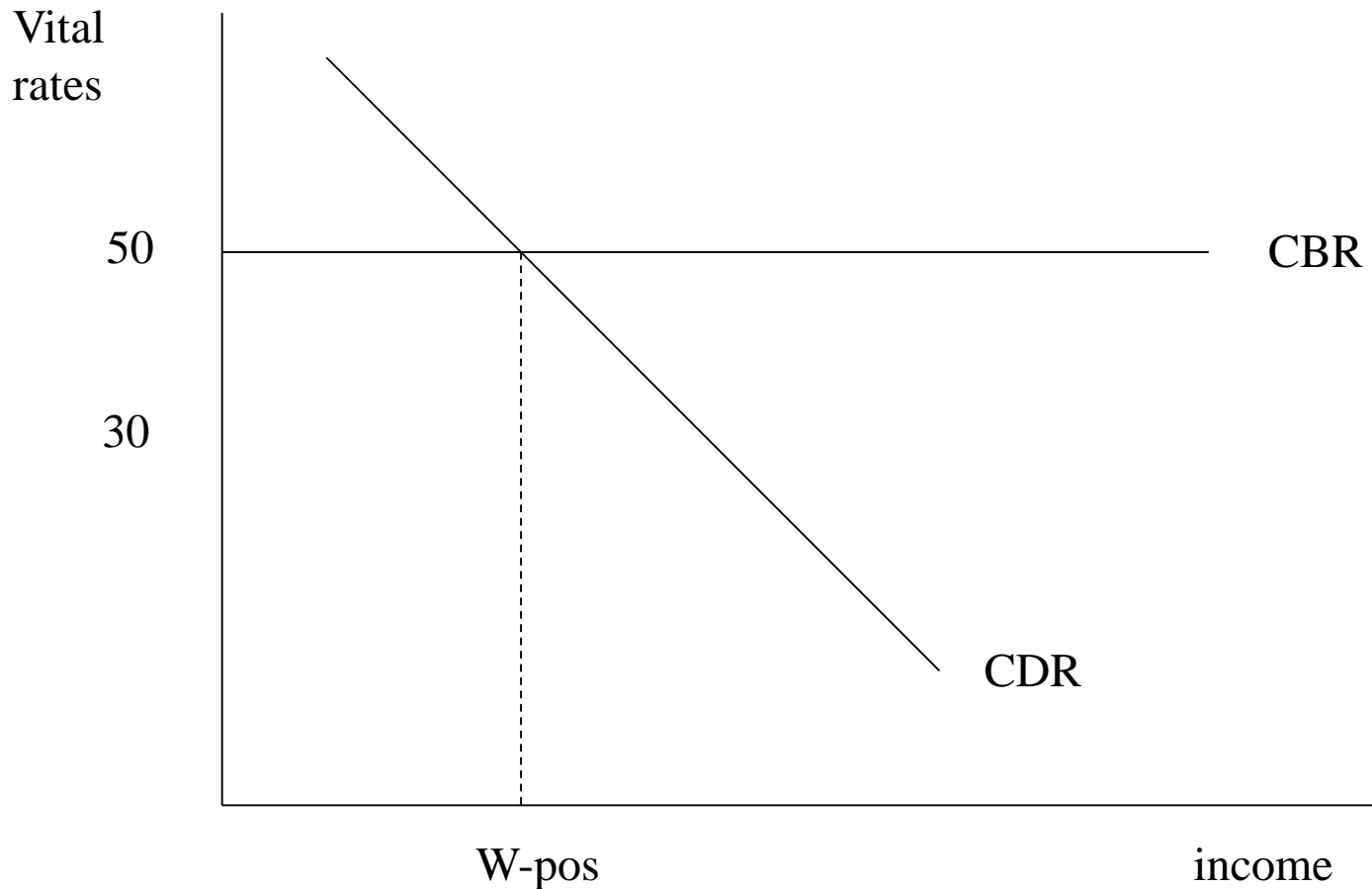
The intersection of the two lines determines an equilibrium because at that point births equal deaths.

- Therefore, the population is constant, so the system doesn't evolve.

- If income exceeds W-pos, births exceed deaths and the population grows.

When income W* exceeds w-pos, the population grows:

Vital rates

50 .... CBR

← —————— Now births exceed deaths by 20 per thousand.

30

CDR

W-pos   W*   income
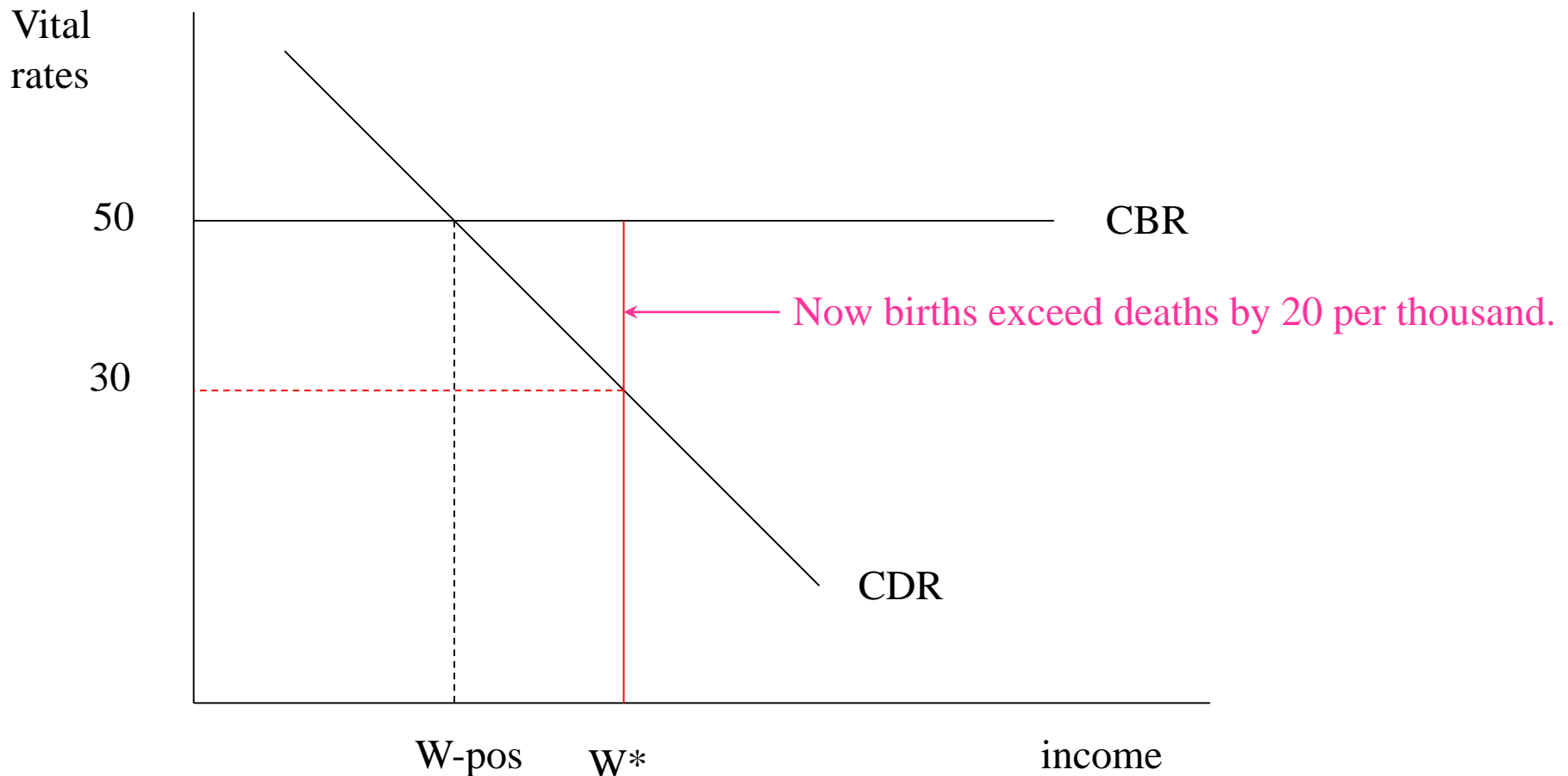
The CBR line is kinked in the preventive check model:
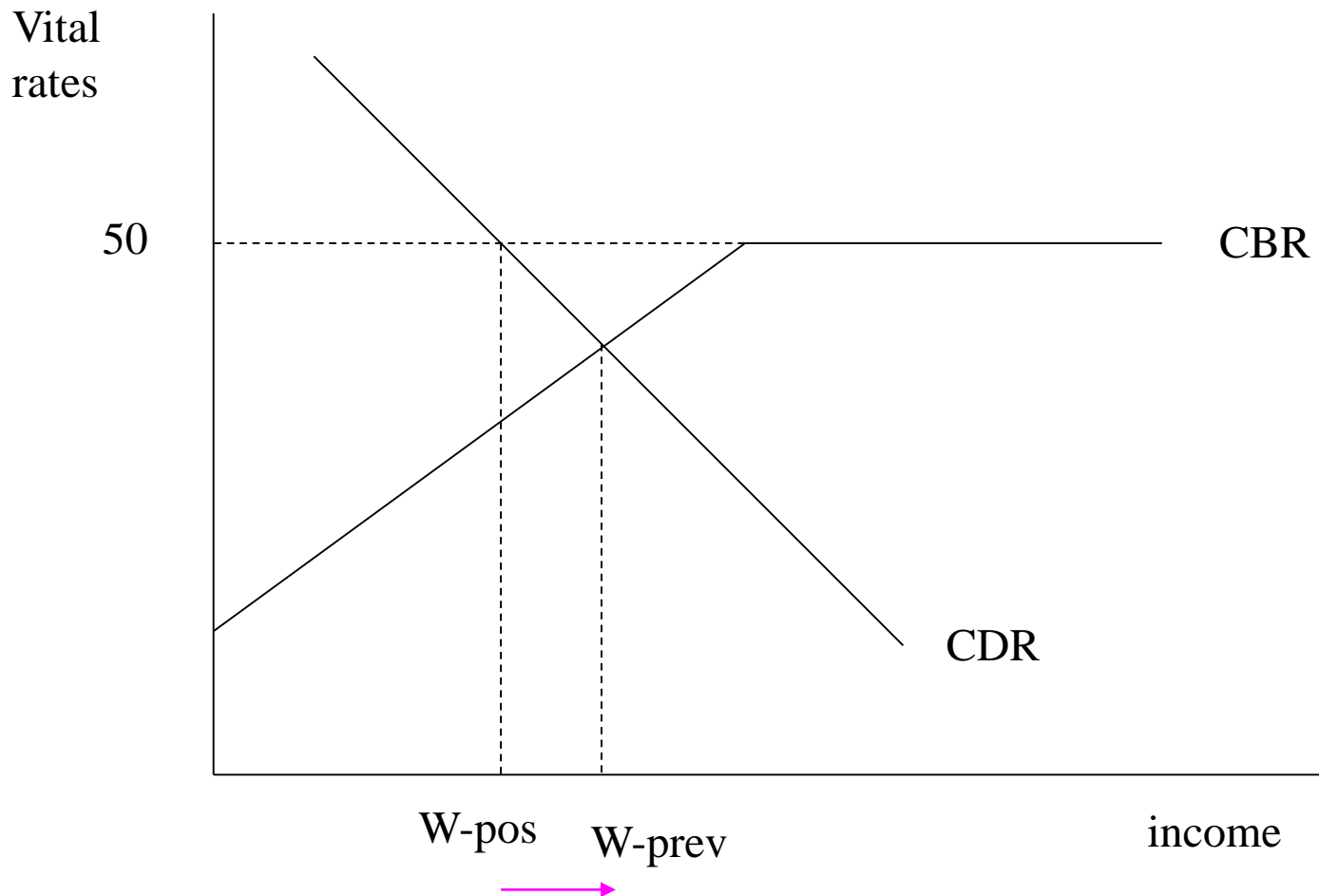
Two things about the preventive check model:

- The sloping part of the CBR curve represents the preventive check—if income falls, fertility falls.

- The intersection of the CBR and CDR lines gives a higher equilibrium income (W-prev) that *is greater than* the income with the positive check (W-pos).

- This is a key theoretical result!!

Malthus' theory became the standard argument against social reform:

- Anything that raised the income of the poor—poor law payments, revolution, etc--would cut the death rate and (in the case of the preventive check) raise the birth rate.
- The number of poor would then increase until there were so many that their income would fall back to the equilibrium level.
- Hence, it is impossible to raise the income of the poor.
- The moral: Don't try.
- This argument was very popular with the rich.

How can we use the theory to explain the world?

- One way is by looking at family structure.
- The idea is that children are mainly born to married couples.
- The greater the proportion of <u>women</u> who marry and the younger they marry, the higher the fertility rate.
- If all women are married between 15 and 45, the fertility rate is maximized (CBR = 50/1000).

Hajnal used censuses c. 1900 to compare the fraction of women married at different ages:

Selected European countries in 1900: percentages single at selected ages
(Single population as per cent of total population in age group)

Country	Men			Women		
	20–24	25–29	45–49	20–24	25–29	45–49
'European pattern':						
Belgium	85	50	16	71	41	17
Sweden	92	61	13	80	52	19
'Eastern European pattern':						
Bulgaria	58	23	3	24	3	1
Serbia	50	18	3	16	2	1

Note: Figures relate to territories as of 1900. For source see Table 2.

Two patterns stand out:

- In Bulgaria, all women (99%) eventually married and most married in their teens.
  - Bulgaria was a positive check society
  - CBR was very high and independent of income.
- In Belgium, 17% of the women never married and most married late.
  - Belgium was a preventive check society.
  - CBR was lowered and could rise and fall with the income as marriage ages and proportions changed.

A line from Trieste to St Petersburg divided the two family regimes. Here's western Europe:

Europe (except Eastern Europe) around 1900: percentages single at selected ages
(Single population as per cent of total population in age group)

Country	Men			Women		
	20-24	25-29	45-49	20-24	25-29	45-49
Austria	93	51	11	66	38	13
Belgium	85	50	16	71	41	17
Denmark	88	50	9	75	42	13
Finland	84	51	14	68	40	15
France	90	48	11	58	30	12
Germany	91	48	9	71	34	10
Great Britain	83	47	12	73	42	15
Holland	89	53	13	79	44	14
Iceland	92	66	19	81	56	29
Ireland	96	78	20	86	59	17
Italy	86	46	11	60	30	11
Norway	86	54	11	77	48	18
Portugal	84	48	13	69	41	20
Spain	81 (a)	34 (b)	6 (c)	55 (a)	26 (b)	10 (c)
Sweden	92	61	13	80	52	19
Switzerland	91	58	16	78	45	17

Notes: Political boundaries as of 1900

And here's eastern Europe:

Eastern Europe around 1900: percentages single at selected ages
(Single population as per cent of total population in age group)

Country	Date of census	Men			Women		
		20–24	25–29	45–49	20–24	25–29	45–49
Greece	1907	82	47	9	44	13	4
Hungary	1900	81	31	5	36	15	4
Romania	1899	67	21	5	20	8	3
Bosnia	1910	63 (a)	31 (b)	6 (c)	23 (a)	6 (b)	2 (c)
Bulgaria	1900	58	23	3	24	3	1
U.S.S.R.⁴	1926	51	18	3	28	9	4
Serbia	1900	50	18	3	16	2	1

Notes: Age groups: (a) 21–24, (b) 25–30, (c) 41–50.
Source: Same as Table 2, except U.S.S.R. figures taken from United Nations, *Demographic Yearbook*, 1949–50, Table 6.

The rest of the world looked like eastern Europe:

Africa and Asia: percentages single at selected ages
(Single population as per cent of total population in age group)

Country	Date of census	Men 20-24	Men 25-29	Men 45-49	Women 20-24	Women 25-29	Women 45-49
Morocco (Moslems)	1952	59	28	2	8	3	2
Algeria (Moslems)	1948	68	37	5	23	10	2
Tunisia (indigenous population)	1946	73	46	6	29	13	4
Egypt	1947	69	35	2	20	6	1
Mozambique	1950	54	23	4	17	7	3
Mauritius	1952	72	33	5	24	12	5
Turkey	1935	49	24	3	18	6	3
India (inc. Pakistan)	1931	35	14	4	5	2	1
Ceylon	1946	80	43	8	29	12	3
Thailand	1947	61	24	4	30	11	3
Malaya (Malays)	1947	54	17	2	7	2	1
Formosa	1930	52	19	4	15	4	0
Korea	1930	33	10	1	2	1	0
Japan	1920	71	26	2	31	9	2

Note: All figures relate to territories as of the dates stated.

Western Europe was distinctive:

- It had a preventive check demographic system.
- Birth and death rates were lower.
- The standard of living was always higher!
- The higher standard of living provided more scope for savings and investment, so western Europe's lead grew over time.
- A distinctive family structure explains the rise of the western world!

We will look more carefully at two applications of the model.

- England—did it have a preventive check demographic system?

- China—did it have a positive check system?

Wrigley and Schofield have reconstructed English population history from 1541onwards.

- They used parish registers to 'reconstitute' family trees of ordinary people.

- From these family trees, they could estimate the CBR and CDR from the 1530s to the 1830s when compulsory civil registration of births and deaths begin.

- They could also work out the national population.

Wrigley and Schofield found two periods of rapid population growth: 1550-1650 and from 1750 to the 20th century.

Population in millions
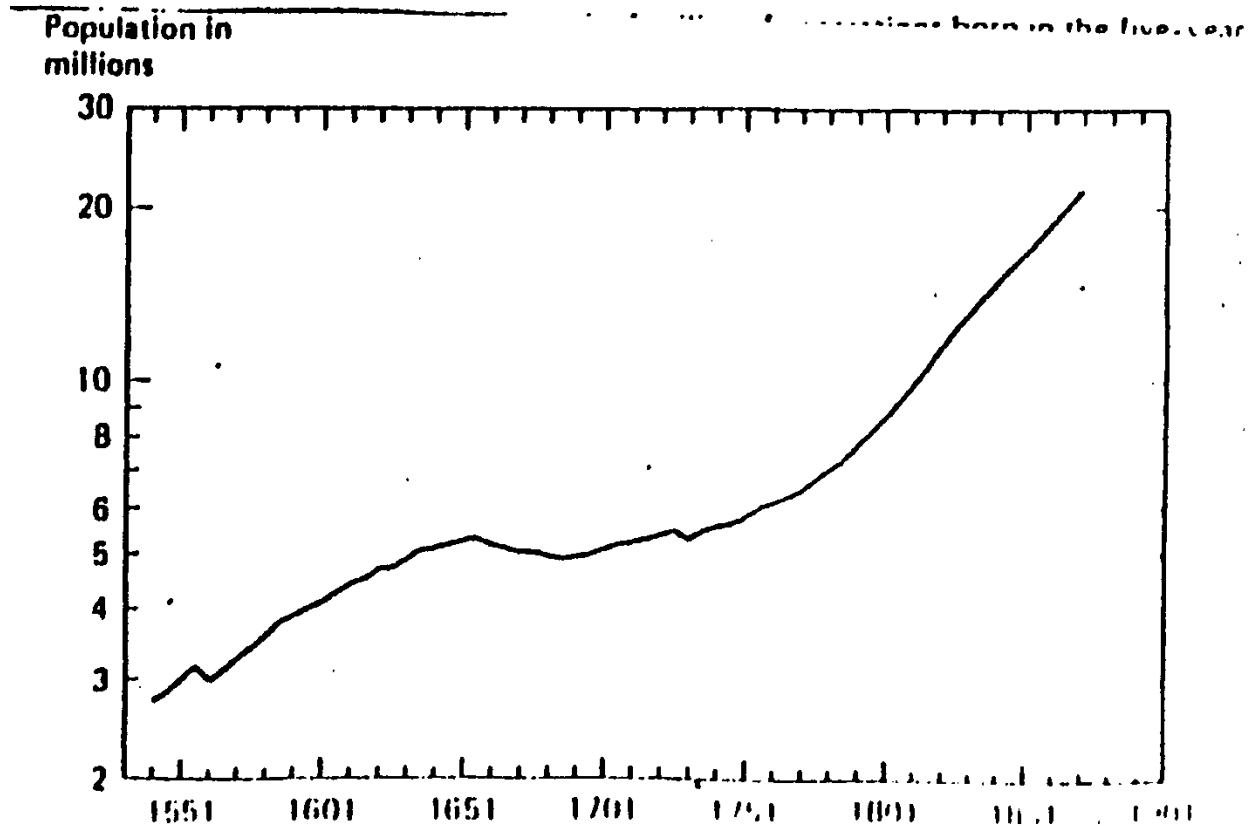
Vital rates show that England was not a positive check society:

English Birth and Death Rates, 1541–1936
includes England and Wales

□ CBR   + CDR
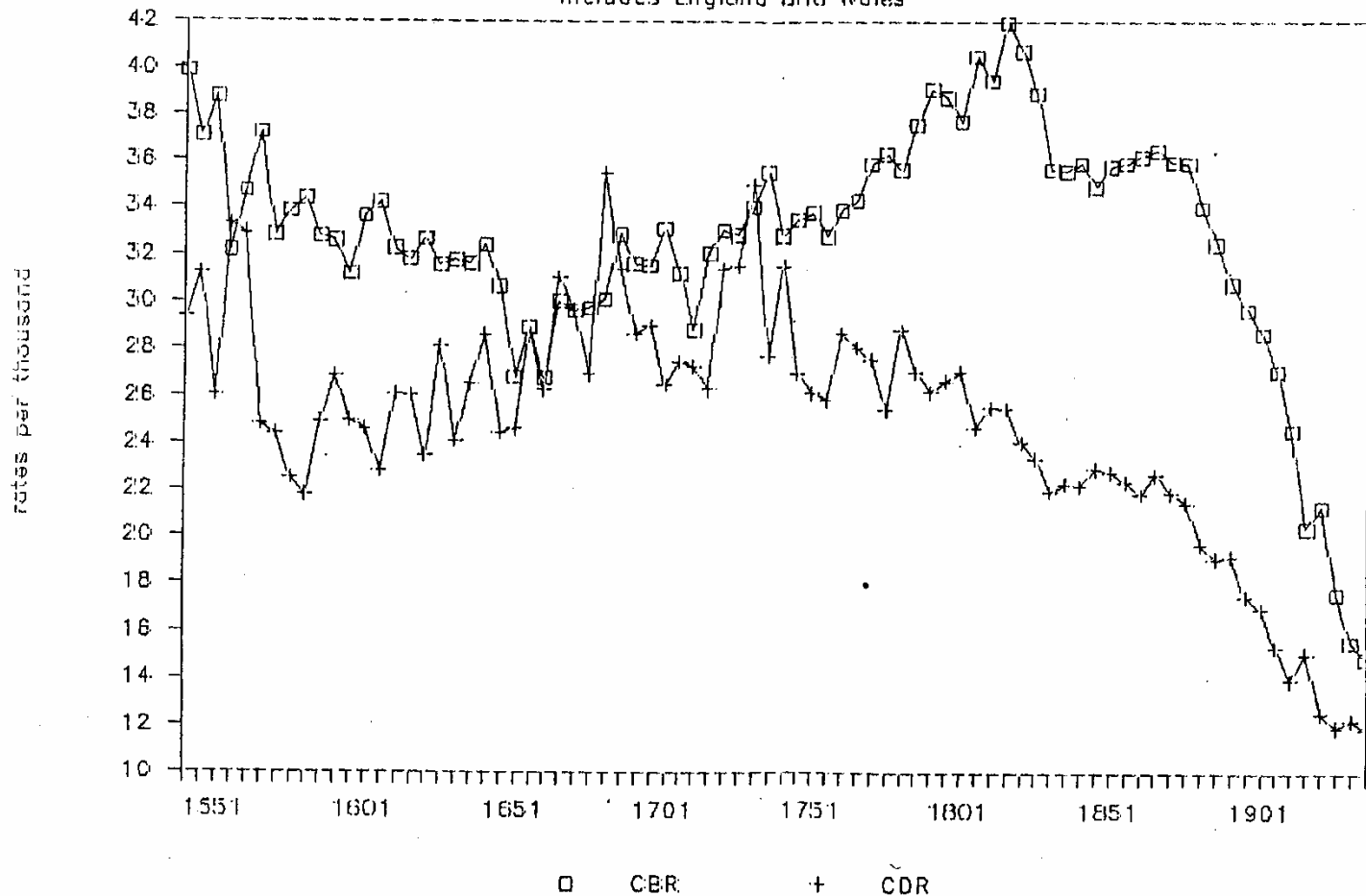
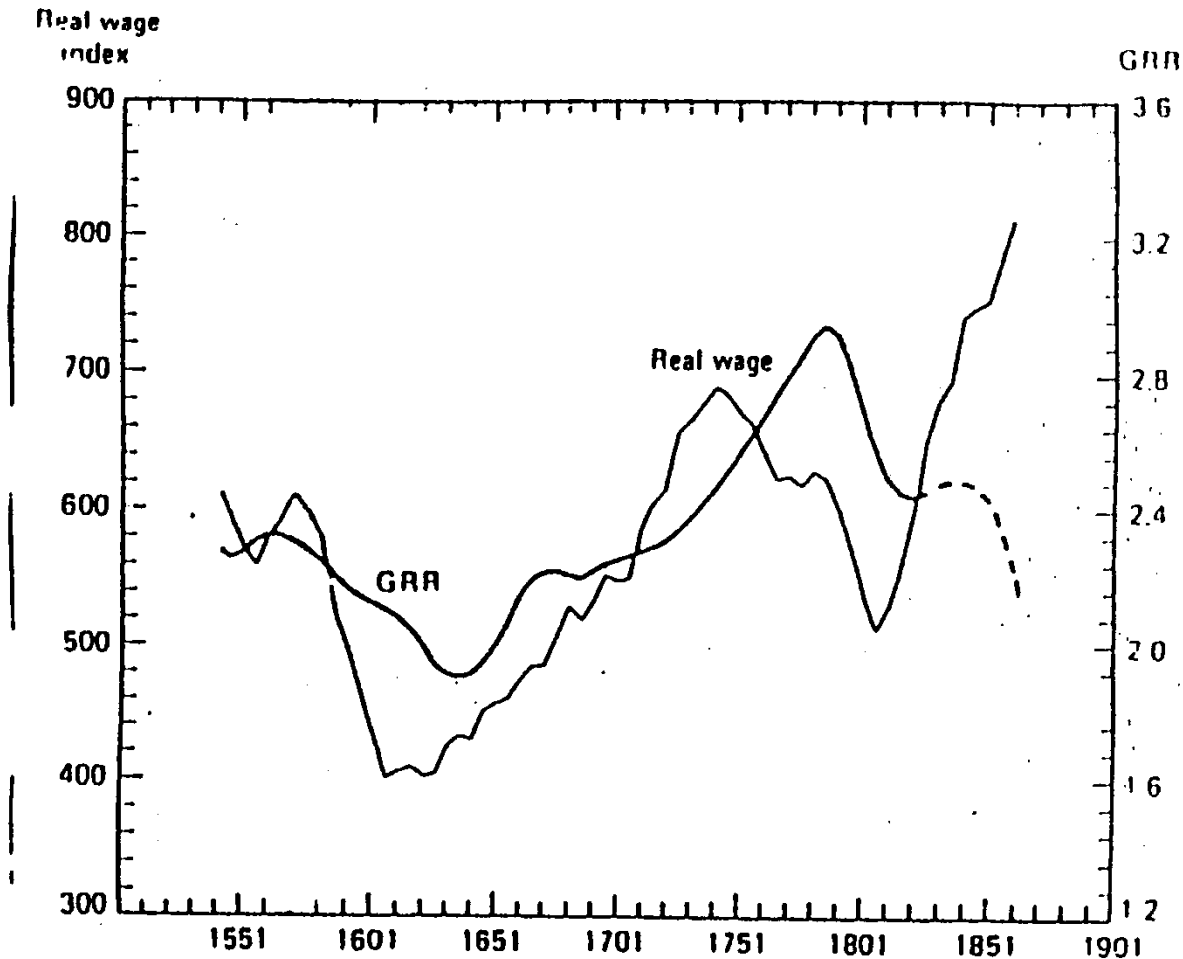# The fertility rate increased as the wage rose and fell as the wage fell.

Figure 10.7: Cohort gross reproduction rates compared with a 25-year moving average of a real-wage index

England's population explosion after 1750 was the result of the Industrial Revolution

- Economic growth increased wages.

- Higher wages raised the fertility rate and cut the mortality rate.

- Hence, the population explosion after 1750.

Hence the conclusion:

Malthus was right up to the time
he wrote:

England had a preventive check!

But later, the story was different!

- In the 19th century, wages rose.
- Fertility fell (instead of rising).
- From the moment he wrote, Malthus was wrong—<u>The preventive check ceased to operate</u>!
- Malthus' argument against social reform ceased to apply!
- What had changed? That's a big question in demography.

What about China?
It looks like Malthus in action:

- Universal female marriage—so no chance to limit fertility

- Europeans thought the country was very poor.

- Catastrophic famines in the nineteenth century.

But the situation was a little more complicated. Consider the following:

- Population growth
- Vital rates
- Real incomes

The Chinese population has not grown faster than the rest of the world.
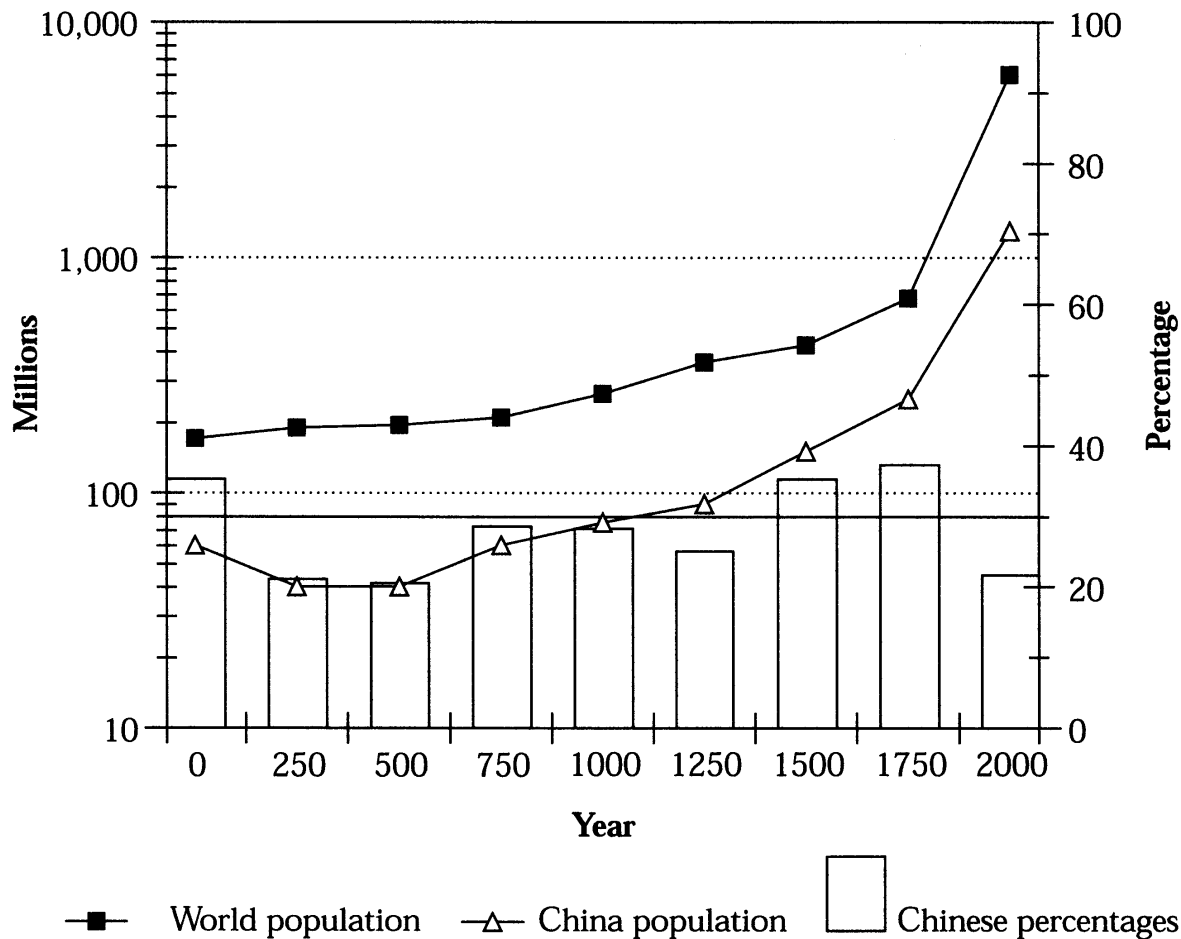

Figure 1.1 Chinese and world population, 0–2000

Vital rates were similar:

- The CBR was about 37 - 42 per thousand.
  - This is less than 50 per thousand.
- CDR varied between 26 – 41 per thousand.

Chinese and European incomes were similar in the 18th century.

- We saw some evidence for this in the last class.
- This suggests that both China and western European had a similar demographic regime.

How could China have high incomes and all women marrying?

- Universal female marriage suggests a positive check demography, which implies lower income than in western Europe.

- The answer is female infanticide.

Female infanticide was widespread.

- Infanticide was practiced especially when the economic situation was difficult.
- Infanticide was, therefore, functionally equivalent to the preventive check.
- <u>Female</u> infanticide reduce the proportion of adult women in the population, so there were many unmarried men.
- This was functionally equivalent to not all women marrying.

Female infanticide raised the equilibrium income in China above the positive check level.
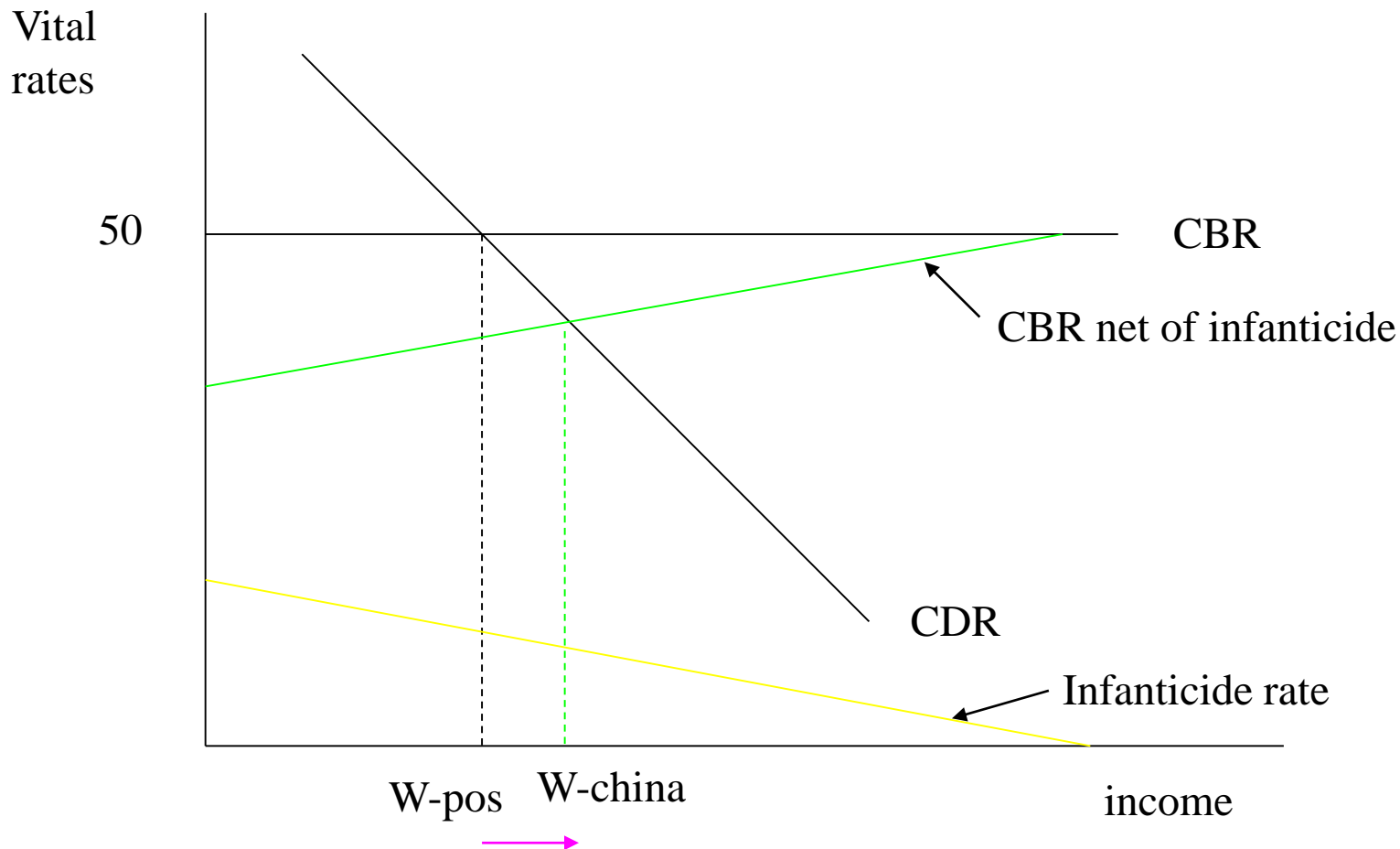
Does this vindicate or refute Malthus?

- Some historians (e.g. Lee and Feng) think this analysis refutes Malthus by showing that China had a third kind of demographic system based on infanticide.

- But Malthus might respond that this is just the positive check—poor people killing their children to avoid being poorer still.

Malthus would add infanticide line to CDR line and recreate the positive check diagram:

Vital rates

50

CDR plus infanticide

CBR

CBR net of infanticide

CDR

Infanticide rate

W-pos   W-china
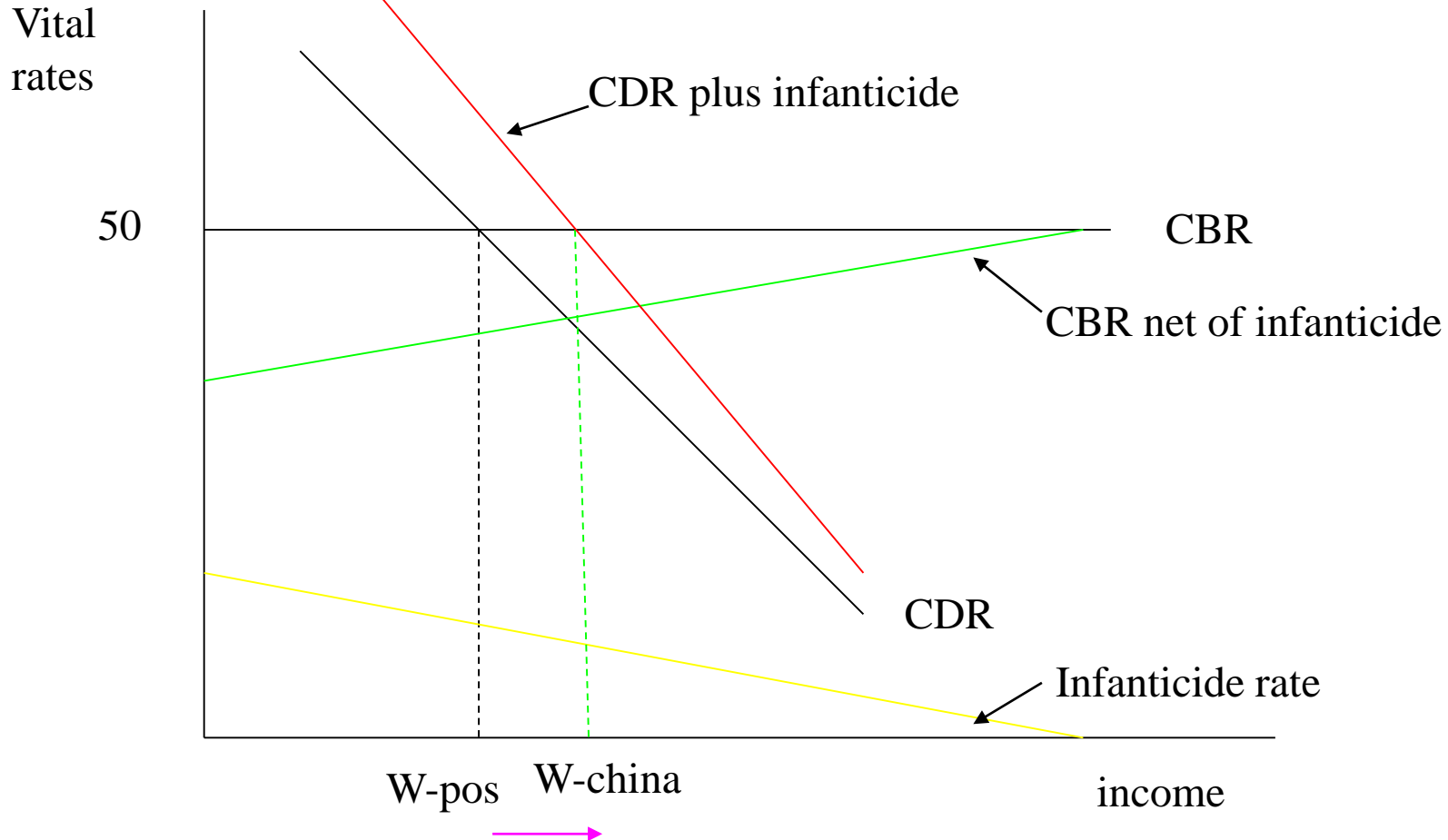
income

The analysis of Lee and Feng is equivalent to that of Malthus.

- Both point to the same—higher—equilibrium level of income.

- But the moral valuations are very different.

The idea that overpopulation explains Third World Poverty still has many believers.

Malthus ideas, thus, remain highly influential.