

NOTE!

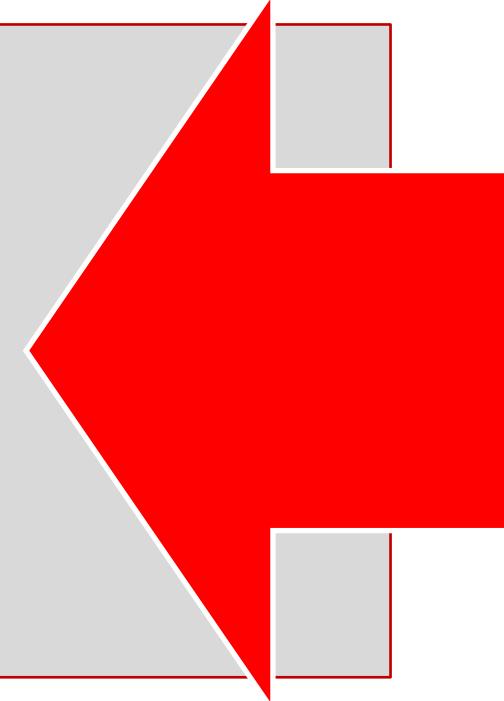
Assignment 7 has 31 questions, but it counts for 10 points in my final grade calculations.

Note that the calculation in Blackboard may show less than 10 points... but...

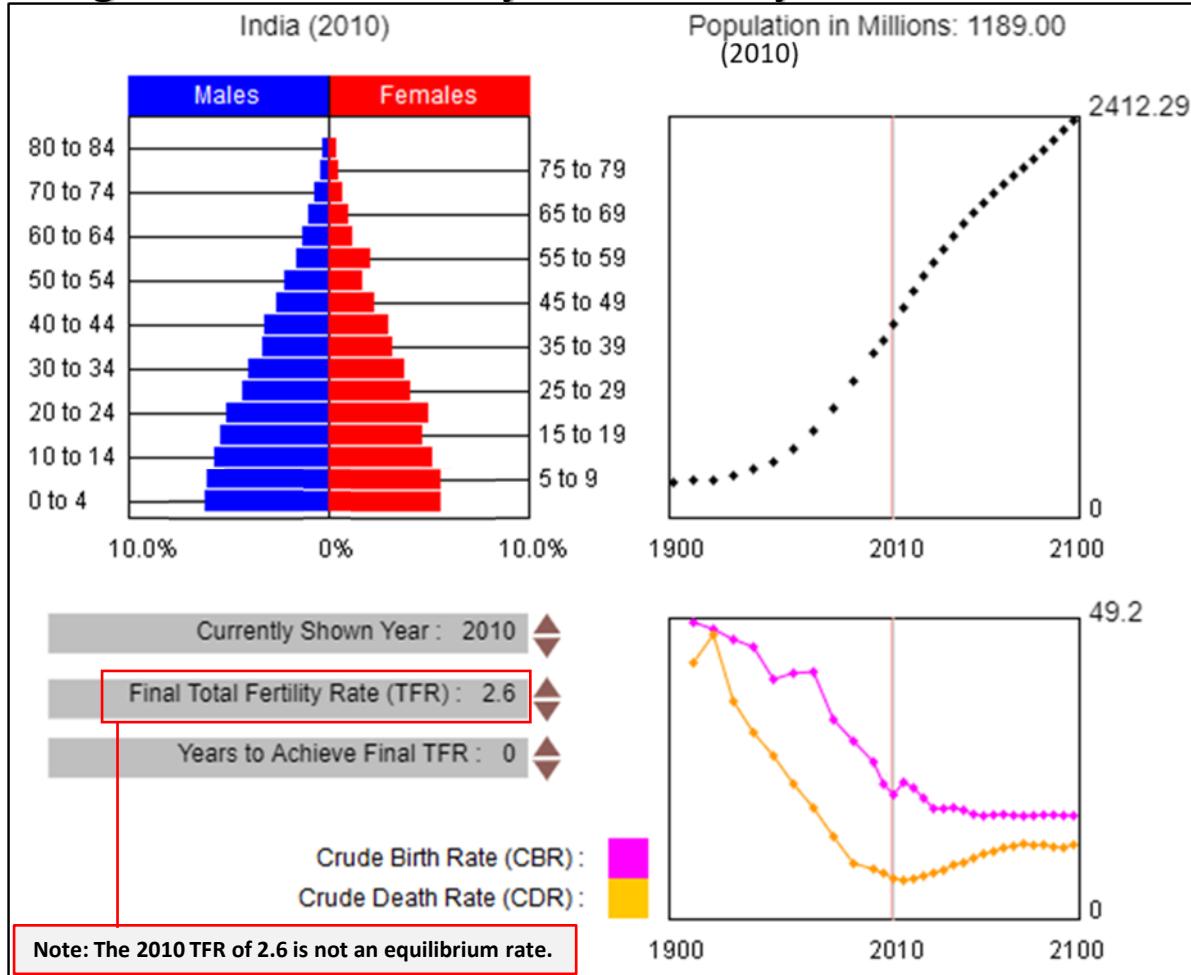
submitting Assignment 7 will earn 10 points if it is complete!

(I will change this in my gradebook.)

You must submit your answers to the questions in Assignment 7 in Blackboard.



Assignment 7. Case Study – India Today



The beginning (2010) population data for all of the info presented in all the graphs is the same.

→ What will change is the TFR (Total Fertility Rate) – the expected or average number of children a women will have during her child-bearing years (usually from 15-45, some studies may use different start and end ages), and the Time to Achieve Final TFR (where appropriate).

→ Answer the following questions and then go to Blackboard to submit your answers.

- What is the population of India in 2010? Note: 1000 million = 1 billion
- What does the shape of India's population pyramid tell us about the growth rate in 2010?
- Note the graph in the bottom right for the CBR and the CDR. If the TFR stays the same as shown here, will the CBR and CDR curves ever reach equilibrium?
- India's current CBR is 22 and the CDR is 7. What is the RNI?
- Based on your answer to Question 4... what is the PGR (growth rate in percentage terms)?
(See also the Additional Readings on my website about converting RNI to PGR.)
- Based on your answer to Question 5... what is the DT?
(See also the Additional Readings on my website on how to calculate the Doubling Time.)
- Based on your answer to Question 6... in what year would the population double in size if the PGR remained constant?
- If the CBR in 2100 drops to 15 by 2100, and the CDR in 2100 is 11, what is the RNI?
- Based on your answer to Question 8... what is the PGR in 2100?
- Based on your answer to Question 9... what would be the DT in 2100?
- From Question 10... in what year would the population double in size from the 2.41 billion in 2100?

TFR = Total Fertility Rate

CBR = Crude Birth Rate

CDR = Crude Death Rate

RNI = Rate of Natural Increase

PGR = Population Growth Rate

(RNI converted to percent)

ZPG = Zero Population Growth

DT = Doubling Time (in years)

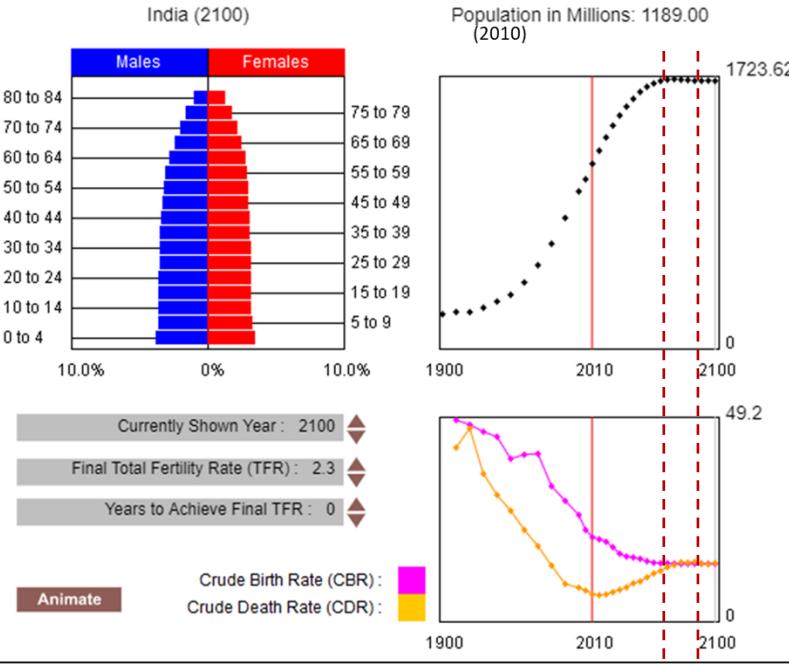
RNI = CBR – CDR

PGR = RNI/10

DT = 70/PGR

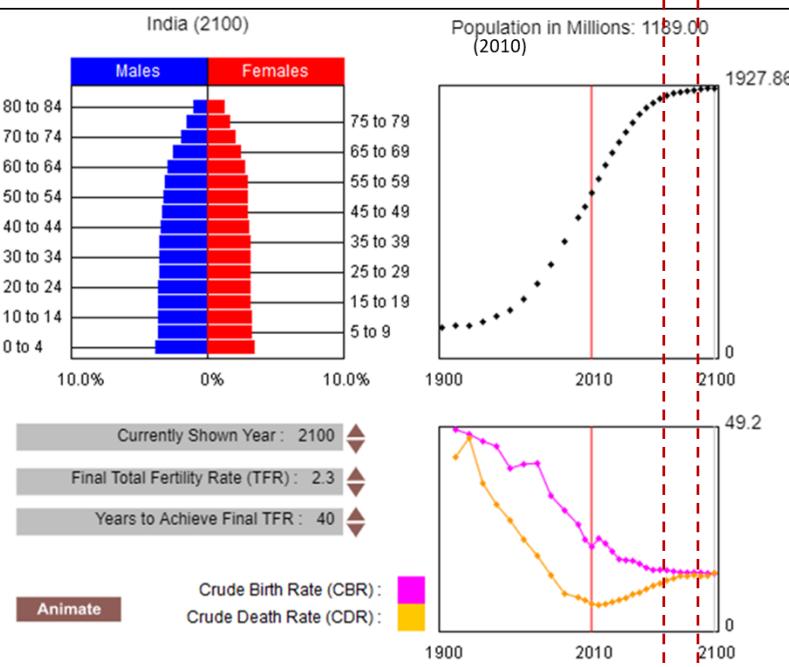
Note: Ignore the % sign

Assignment 7. Case Study – India and ZPG



In the top set of graphs, the TFR has been changed to the estimated Population Replacement Rate (the equilibrium rate) of 2.3.

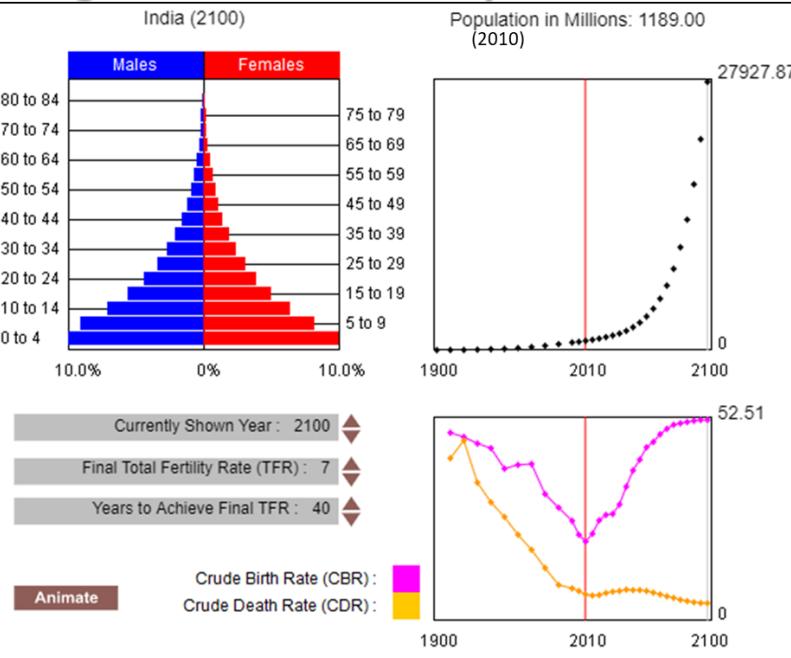
12. What does the shape of the 2100 population pyramid for India tell us about the population?
13. What is the total population of India in 2100?
14. If the CBR is 9 and the CDR is 9, what is the RNI?
15. Based on your answer to Question 14... what is the PGR?
16. Based on your answer to Question 15... what is the DT?
17. Is it possible in a democratic country like India to bring the TFR to an equilibrium rate overnight – “0” Years to Achieve Final TFR?



In the bottom set of graphs, the TFR has been changed to the estimated Population Replacement Rate (the equilibrium rate) of 2.3, and the Years to Achieve Final TFR is 40. 40 years to an equilibrium TFR is about two generations to educate people and gain acceptance that this is both desirable and beneficial.

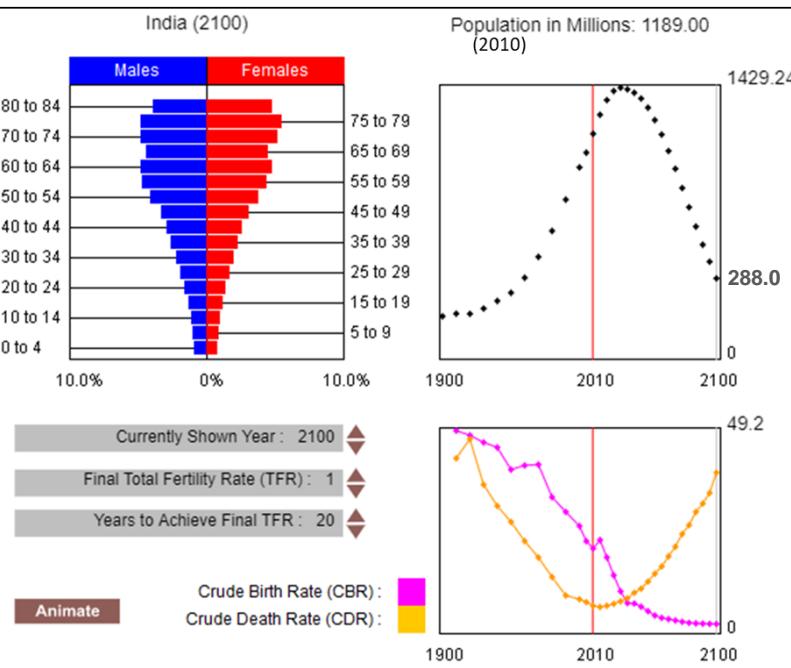
18. Is the shape of the population pyramid in 2100 any different?
19. What is the difference in the total population in 2100 if it takes 40 Years to Achieve Final TFR?
20. Note the red dotted lines connecting the top and bottom CBD/CDR graphs. The gap between them represents the _____, the “continued population growth long after replacement-level fertility rates have been reached.” (This is the time it takes the children of the last higher fertility rate generation to move through their child-bearing years, often also combined with longer life expectancies for that older generation.)

Assignment 7. Case Study – India ... “What if...?”



In the top set of graphs, the TFR has been changed to 7. This is currently the world's highest TFR, in Niger in north-central Africa. Imagine what would happen if India's TFR went up to 7 over the next two generations instead of dropping to an equilibrium rate!

21. What does the shape of the population pyramid tell us about population growth in India in 2100?
22. How many more people would be added to India's population between 2010 and 2100?
23. If the CBR in 2100 is 53, and the CDR was 10, what would the RNI be?
Note: 27972.87 million = 28 billion (rounded up)
24. Based on your answer to Question 23... what would the PGR be?
25. Based on your answer to Question 24... What would be the DT?
26. Based on your answer to Question 25... When would the population double in size again after 2100?



In the bottom set of graphs, the TFR has been changed to 1. This would be the equivalent of enacting a 1 child per family policy (like what China attempted to put in place in 1980), and rigidly enforced within 20 years (Years to Achieve Final TFR).

27. What does the shape of the population pyramid tell us about population growth in India in 2100?
28. What would be the difference in the size of the population from 2010 to 2100?
29. If the CBR in 2100 is 2 and the CDR is 25, what would the RNI be?
30. Based on your answer to Question 29... what would the PGR be?
31. Is this a sustainable population model?

Submit your answers in Blackboard.