

## ECON336 HW3

**Due: Wednesday, OCT 28**

1. The following income distribution data are for Brazil.

Quintile	Percent Share
Lowest 20%	3.0%
Second quintile	6.9%
Third quintile	11.8%
Fourth quintile	19.6%
Highest 20%	58.7%
Highest 10%	43.0%

- a. Brazil's national income is about \$300 billion. What is the approximate dollar income of the bottom 20%? Bottom 40%?
- b. Brazil's population is approximately 150 million. Suppose that each household makes the average income for its quintile. What is the level of poverty if the poverty line is \$400 per capita?
- c. Suppose one percent of national income were transferred from the richest 20% of households to the poorest 20% of households. Show the effect on relative inequality.
- d. Under the same transfer, what is the effect on poverty?

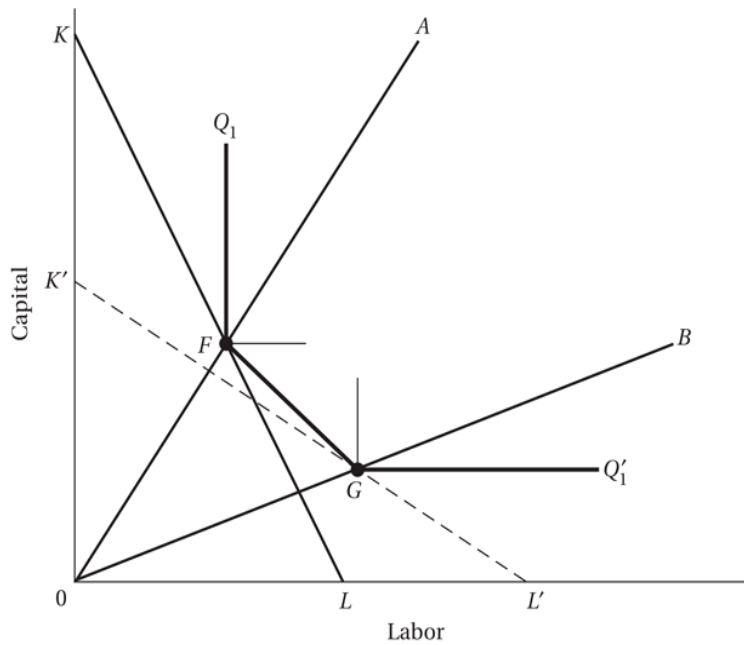
2. Iranio is a small, low-income economy where the people are divided into four income groups. The following table shows the number of people in each group, and how much the people in each group earn. The poverty line is set at \$1200. Suppose that the government has a total budget of \$2000 to use for poverty reduction, which it will use in the form of income transfers to poor people.

	Number of people in the group	Income of each person in the group
A	20	\$300
B	30	\$600
C	20	\$1400
D	20	\$2400

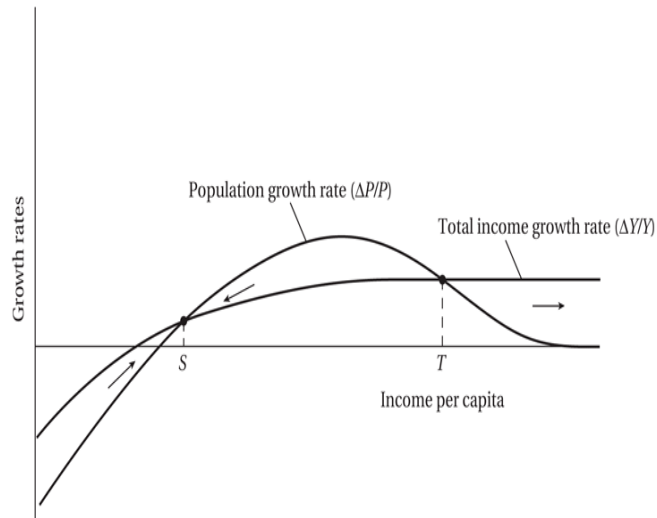
- a. Please calculate the poverty head count ratio, the total poverty gap, and the Foster-Greer-Thorbecke (FGT) index for this country, based on a poverty line of \$1200.
  - b. What is the new head count ratio if the government uses its budget to give equal size transfers to all the people in Group A? What is the new total poverty gap and Foster-Greer-Thorbecke (FGT) index?
  - c. What is the new head count ratio if the government uses its budget to give equal size transfers to all the people in Group B? What is the new total poverty gap and Foster-Greer-Thorbecke (FGT) index?
  - d. What policy has the biggest impact on the head count ratio?
  - e. What policy has biggest impact on the depth and severity of poverty?
3. For each of the following cases
- a. Find the cut-off.
  - b. Determine if the family is multidimensionally poor or not.

- A) Having a child in the family who was malnourished, while at the same time the most educated person in the family received less than five years of schooling. Also, they do not have sufficient safe drinking water.
- B) A person living in a household that had experienced a child's death and was also deprived in at least two of the six living standard indicators. Moreover, there is child in the household who is out of school for grades 3.

4. Consider the following graph. Briefly explain what the best technique of production for a developing country is. What policy implication does this graph have for developing countries?



- 5. Based on the microeconomic theory of fertility, how does the demand for children changes if there is a simultaneous increase in household income and net child price as a result of, say, expanding female employment opportunities and a rise in wages, coupled with a tax on children beyond a certain number per family? Show that graphically (you can draw your graphs on a piece of paper and upload it along with your answers. You need to explain your work).
- 6. Considering the following graph:
  - a. Determine the Malthusian Population Trap on the graph.
  - b. Briefly explain why it is a stable equilibrium.
  - c. Why the Malthus model failed to explain what happened in reality?



7. Read the article uploaded on Sakai entitled “Falling Fertility”. Answer the following questions.
- What is the difference between a poor family and a middle-class one in India and China when it comes to having more children?
  - What is the difference between poor people in developing countries and people in the US in terms of environmental impact?
  - What are the three ways to limit human environmental impact?