

Name & Brown ID:

Ec151 Midterm

Total points: 80 Total time: 80 minutes

I. True/False (10 points each)

Indicate whether each statement is True or False and explain your answer. If your answer is true, state the reason/justification. If the answer is false, **provide a counter-example**. If you need to make additional assumptions to answer the question please state these clearly. A good answer will provide precise reasons/counter-examples incorporating **economic concepts and diagrams discussed in class**.

1. The capacity curve we studied in class illustrated the relationship between nutrition (or income) and labor. Under that particular relationship, dividing food equally among all members of a household will guarantee that the household is maximizing its total labor output.

2. A well-implemented ban on child labor will reduce fertility rates in a developing country.

3. For a sample of countries, you run the following regression:

$$G_i = a + by_i + cy_i^2 + e_i$$

for a sample of i countries, where G_i represents the Gini coefficient and y_i represents income per capita in country i .

You find that $b > 0$ and $c < 0$. This means that there is a causal inverted-U shaped relationship running from income to inequality.

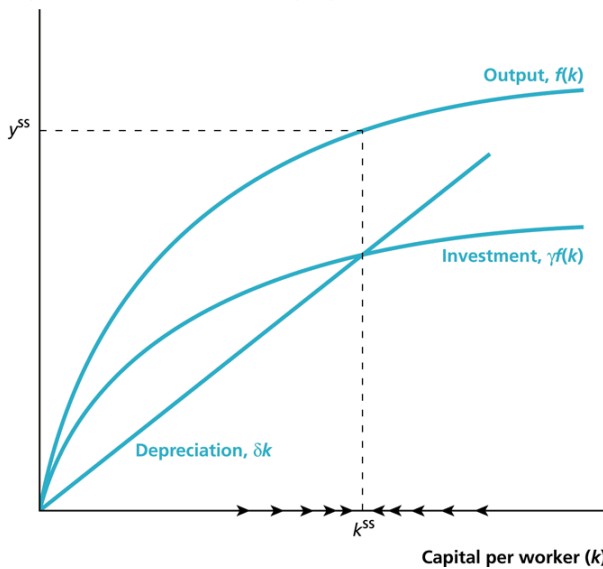
4. There is no such thing as surplus labor because that means the marginal product of labor is zero, and thus such labor would not be hired at any positive wage.

II. Growth Dynamics in Solow Model (10 points each)

On the following pictures of the standard Solow model, show what happens in each of the following scenarios. In particular, show if/how a curve shifts/changes, the new steady state state(s) of capital per worker and the new steady state state(s) of income per worker.

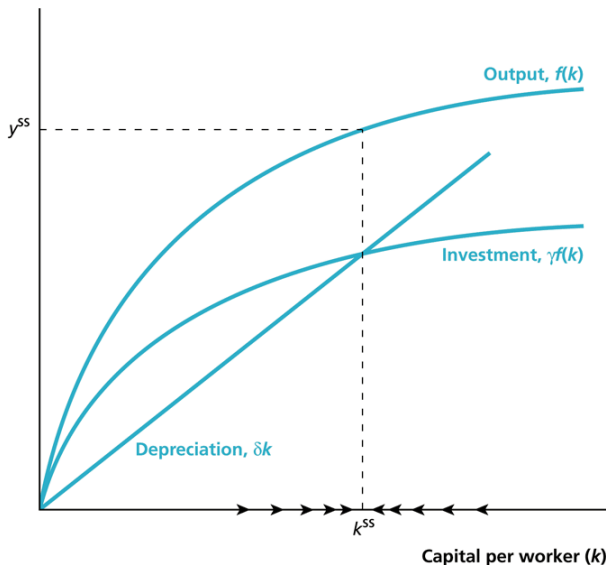
- a) Say there are two rates of depreciation in a country δ_L and δ_H where $\delta_L < \delta_H$. So, for values of k below k^* , the country will continue to use capital per worker for a long time—that is, depreciation is δ_L . For values of k above k^* , the country will replace capital per worker quickly—that is depreciation is δ_H . Also assume $\delta_L k^* > \gamma f(k^*)$ and $\delta_H k^* < \gamma f(k^*)$.

Depreciation, investment, and output per worker



- b) A country is at the steady state level of capital and income depicted in the diagram. Suddenly, a meteor strikes and destroys half of its capital.

Depreciation, investment, and output per worker



III. Essay Question (20 points)

Paul Krugman, the 2008 Nobel Prize winner in economics, has thought extensively about the impact of trade on income distribution in a country. His work has centered about the theory that while trade brings gains to the economy as a whole, it can have substantial effects on the distribution of income as well.

In this sense, what does trade or openness to the global economy imply about changes in *within*-country inequality and what does it imply for *between*-country inequality? Specifically, how can openness to exchange of goods, capital and ideas impact average income and distribution of income? And how do these distributive effects impact growth?

Tying together concepts of growth, poverty and inequality that we have discussed in class, address the above questions by writing a 3-4 paragraph essay on the interplay between openness to the global economy, growth, poverty and inequality. Please make sharp and clear statements supported by economic concepts (figures welcome).