

FINAL EXAM (April 21, 2018)

This is a closed book examination. Please **always explain** how you obtained your answers – no credit will be given for numerical or other answers with no explanation. There are **120 POINTS** in total. You have **TWO HOURS**.

I. TRUE or FALSE (5 pts each) – no points will be given for correct answers without explanation

1. The switch to the “household responsibility system” in China led to higher crop yields, primarily because of the effect on farmers’ incentives.
2. Socially beneficial economic reforms would always be passed in a democracy but not in a dictatorship.
3. Compared to individual lending, joint-liability group lending in microfinance can alleviate moral hazard, adverse selection and debt enforcement problems.
4. Fixed rent contracts in agriculture are the most efficient.
5. The data show that poverty and income inequality in the world have increased over the past 30 years.
6. Foreign aid has been very successful in generating economic growth in developing countries.

II. Concepts (5 pts each)

Give an example or explain in your own words the following concepts. You **DO NOT** need to provide a formal definition.

1. coordination failure
2. credit rationing
3. mutual insurance

III. Quantitative Problem (45 pts) Default and payment holidays

A person takes a loan and operates a business over two periods, 1 and 2. The business yields revenue y_1 in period 1 and y_2 in period 2. If the person does not make the required loan repayment in a period (strategic default), a penalty $F > 0$ is imposed. The borrower is risk-neutral, that is, she maximizes her net income.

A. Suppose first that the person must repay the loan in **equal payments** of size l each period, where $l \leq y_1$ and $l \leq y_2$ (the person’s income each period cannot be negative). That is, conditional on repayment, the person’s net income over the two periods is

$$y_1 - l + y_2 - l$$

Suppose that if the borrower fails to repay in period 1, her business is closed and she cannot generate the second period revenue y_2 .

(i) Explain that if the borrower defaults in period 1, then her net income would be $y_1 - F$. Find the maximum repayment amount (call it l^*) for which the borrower will not default in period 1.

(ii) Explain that if the borrower repays in period 1 but defaults in period 2, her income would be $y_1 - l + y_2 - F$. Find the maximum repayment l^* for which the borrower will not default in period 2.

B. Suppose now that the person has a **payment holiday** in period 2, that is she must repay L in period 1 only and her net income would be $y_1 - L + y_2$.

(iii) Show that the maximum repayment amount for which the borrower will not default is $L^* = y_2 + F$.

C. Now compare the borrower's net income with equal payments vs. payment holiday.

(iv) Suppose first the penalty for default is low, $F < y_2$. Prove that $l^* = F$ with equal repayments. Compare the borrower's net income with equal repayments vs. payment holiday. Which repayment scheme would the borrower prefer? Explain the economic intuition as well as you can.

(v) Suppose now the penalty for default is high, $F > y_2$. Prove that $l^* = y_2$ with equal repayments (remember that l cannot exceed y_2). Compare the borrower's net income with equal repayments vs. payment holiday. Which repayment scheme would the borrower prefer and why? Explain.

(vi) [bonus points] Without solving anything, discuss briefly what additional consideration(s) regarding the trade-off between equal payments and payment holiday would become important if the borrower was **risk-averse** instead of risk-neutral.

IV. Long answer – please answer in NO MORE THAN ONE page (30 pts)

In class we discussed various theories and policy prescriptions trying to explain why some countries are poorer or growing slower than other countries. Pick **one** theory or policy that you think is essential in explaining the observed cross-country differences and **one** theory or policy that you think should be abandoned as incorrect or ineffective. Support your answers as well as you can using models and data from the lectures, the discussion papers and the class presentations.