Econ 355W – Prof. Karaivanov – Fall 2016
Final Examination
TWO HOURS. 100 POINTS IN TOTAL

I. TRUE/FALSE (5 pts each; correct answers without justification receive zero credit)

1. GDP growth and income inequality are always negatively correlated in cross-country data.
2. The Harrod-Domar model implies that poorer countries grow slower than richer countries.
3. Requiring collateral can help with moral hazard in the credit market but not with adverse selection.
4. Mutual insurance through reciprocal transfers can be used to smooth out individual shocks to the incomes of people in a village.
5. If insurance markets are perfect, a fixed rent agricultural contract should be used instead of sharecropping to achieve efficiency.
6. In the Harris-Todaro migration model people would not leave the rural areas if there is urban unemployment.

II. MULTIPLE CHOICE (3 pts each; no need to justify your answer)

1. The term *demographic transition* is best described by:
(a) the focus on pro-social policies aiming to spur development
(b) the decision of people to have fewer but more educated children vs. more but less educated children
(c) the observed trend of falling birth and death rates as incomes have grown after the Industrial revolution
(d) the aging of the population observed in developing countries

2. Adjusting GDP per capita using the *purchasing power parity (PPP)* method:
(a) results in higher GDP per capita in richer countries compared to using the official exchange rate
(b) results in higher GDP per capita in poorer countries compared to using the official exchange rate
(c) corrects for omitted household production and tradable goods
(d) takes into account the large informal sector in developing countries

3. Sharecropping can be observed in developing countries when:
(a) there are imperfect insurance markets
(b) there is risk of crop failure
(c) there is limited enforcement in the credit market
(d) a and b
(e) a and c

4. *Moral hazard* in the credit market can be a situation in which
(a) the borrower may choose a riskier project after receiving the loan
(b) the borrower's project riskiness is unobserved to the lender before making the loan
(c) the borrower can default on the loan even if she has money to pay back
(d) the borrower can shirk on costly effort before taking the loan
(e) a and d

5. The majority of foreign aid is allocated:
(a) to the countries with the lowest GDP per capita
(b) based on political and strategic considerations
(c) to countries experiencing natural disasters
(d) to non-corrupt governments conditional on good policy performance

III. QUANTITATIVE PROBLEM (30 pts) Explain your answers!

A person wants to start an own business. The business requires start-up funds I. The person has savings S, where $0 \leq S < I$. This means he needs to borrow $I - S$. Suppose the interest rate is r, that is, the person needs to pay back $1 + r$ for each dollar borrowed. If started, the business generates total revenue M for sure, where $M > (1 + r)I$. There is a *limited enforcement* problem in the credit market – the person can strategically decide to default on his loan. In case of default, he is caught with probability $1/2$ and subject to a monetary penalty F.

(a) Show that the person's expected income if he decides to default is $M - \frac{F}{2}$. What is the person's income if he pays back the loan?

(b) Write down the condition, in terms of the person's savings S, under which he will choose to default. For given S and holding all else constant, does default become more or less likely as I increases? As r increases? As F increases? Explain the economic intuition.

(c) Suppose $M = 10$, $S = 2$, $I = 3$, $r = 0.5$ and $F = 6$. Would the lender lend to such person? What if $S = 0.5$ instead (all other numbers stay the same)?

(d) Given your answer in (b) and $M = 10$, $I = 3$, $r = 0.5$, how large should be the enforcement penalty F so that for *any* savings amount $S \geq 0$ the person would **not** default? Discuss briefly the implications for credit market efficiency.

(e) *[harder]* Suppose the person has no savings, $S = 0$ and there are **two** time periods. The business can be run in both periods; in each period it still requires I to be run and yields M. The interest rate is r. Suppose $F = 0$ (no formal enforcement). However, if the person does not pay back his loan in the *first* period, he cannot get a new loan in the *second* period (and so cannot run the business then). Would the person pay back the loan in period 2? Why or why not? Find a condition on M, I and r under which the person would pay back the loan in period 1. *[Hint: compare the total income the person would get by paying back in period 1 and receiving a new loan with the income obtained if he defaults and receives no loan in period 2]*

IV. SHORT ESSAY (25 pts) – answer in NO MORE THAN ONE (1) PAGE

In class and tutorials we talked about *microfinance* as a policy aiming to reduce poverty and promote development. Briefly discuss and give your interpretation of the basic theoretical ideas behind microfinance, its main advantages and disadvantages, and the evidence on its performance. Mention any potential problems and discuss whether, according to you, there is a need to reform how microfinance is implemented. Support your answers as well as you can by using theory or empirical evidence from the lectures, tutorials or assignment readings.