Written Exam for the B.Sc. in Economics summer 2011

Development Economics

Final Exam – Suggested Answers

June 7th, 2011

(3-hour closed book exam)

Problem A

Please explain briefly:

1. How the “poverty headcount ratio” and the “squared poverty gap” are defined.

   The headcount ratio is the share of the population below the poverty line. The squared poverty gap is the Foster-Greer-Thorbecke poverty index with parameter equal to 2, i.e.

   $$P_\alpha = \frac{1}{N}\sum_{i=1}^{H}\left(\frac{Y_p - Y_i}{Y_p}\right)^\alpha$$

   With alpha = 2. It can be also be written as $P_2 = \frac{H}{N}\left(NIS^2 + (1-NIS)^2 C_p^2\right)$ *, where H is the number of people below the poverty line, N is the size of the population, NIS is the “normalized income shortfall” and C-squared is the coefficient of variation of income among the poor. In words, the squared poverty gap is the sum of squared, relative deviations from the poverty line among the poor, divided by the total population size. A verbal explanation of the squared poverty gap is sufficient, if it captures the idea that the measure puts disproportionately more weight on large- than on small deviations from the poverty line.*

2. The main assumptions and messages of the Harris-Todaro model.

   The Harris-Todaro model describes rural-urban migration in developing countries. The key assumptions are, first, that people base migration decisions on the EXPECTED rather than the actual wage gap between rural and urban areas, and second, that the actual wage gap between rural and urban areas is positive. The expected urban wage is the actual, urban wage rate times the probability of finding employment in urban areas. The key message of the model is that there might be significant migration from rural to urban areas, even if there is high unemployment in cities. Programs to generate more urban jobs may lead to HIGHER urban unemployment because more jobs attract even more new migrants.

3. The meaning of the term “population growth momentum”.

   The term captures the idea that populations continue to grow for a long time after replacement fertility rates of approximately two children per woman have been reached. The reason is that high fertility rates in the past mean that generations currently having children are larger than previous generations, and therefore more children are born now than in the past, even at fertility rates around 2.

4. Why common property resources are often over-exploited.

   In common property resources, the extraction activities of one agent has a negative effect on the productivity of other agents’ extraction activities. The failure to take this negative

externality into account leads to over-exploitation. Examples include fishermen's joint use of a fishery with limited capacity, or herders joint use of common grazing area.

5. The main meaning of the term "import-substitution strategy".

   The idea of an import substitution strategy is to replace imports with locally produced goods. Typically, the idea is to reduce dependence on imported, industrial goods by stimulating a local, industrial sector. This is supposed to address problems stemming from adverse trends in developing countries' terms of international trade.

6. The main theories and evidence on the relationship between farm size and agricultural productivity.

   Theoretically, the expected effect of farm size on agricultural productivity is ambiguous. On the one hand, there may be technologically driven returns to scale, which would favor large farms. On the other hand, incentive problems related to motivating the work force should be most important on farms that are too large to rely on family labor. Most empirical evidence suggests that small, owner-operated farms are more productive than larger farms, although estimation of this relationship is fraught with difficulties due to the possible effects of unobserved land characteristics.

7. The main barriers to transfer of technology from developed- to developing countries?

   The main barriers to technology transfer discussed in the course were a) appropriateness of technology and b) tacit knowledge. With regards to the former, technologies invented in developed countries may often not be appropriate in environments with much more labor intensive modes of production than typically found in the countries where the technologies originate . With regards to the latter, the successful operation of many technologies rely on a number of unstated assumptions shared by operators in developed countries, but not by potential operators in developing countries.

8. The rationale for microfinance institutions to use group lending rather than individual lending.

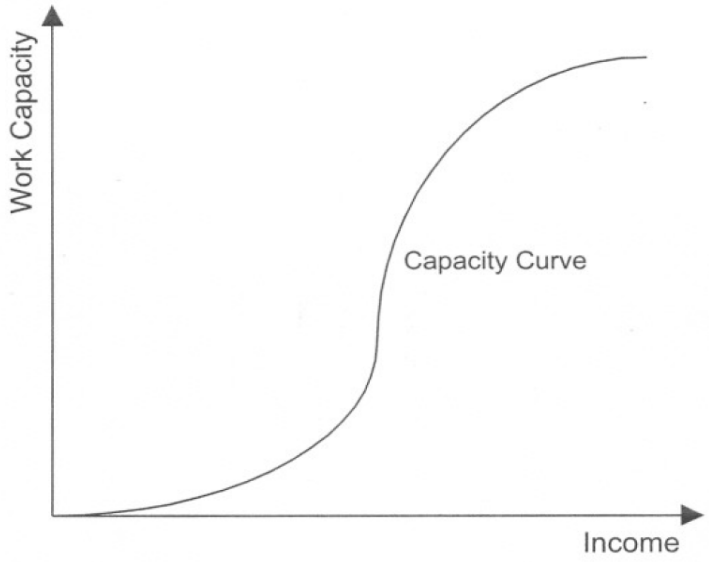
   The main rationale for using group lending is to overcome problems of asymmetric information. Borrowers in a group lending scheme have an interest in screening and monitoring each other, which means that lenders avoid the cost of these activities.

Problem B

Please outline the theory of work capacity, nutrition and wages and explain how it may aid us in understanding poverty, labor supply, unemployment and the effects of asset redistribution in developing countries.

This question refer to the model presented in section 13.4 in the textbook by Ray. The theory of work capacity, nutrition and wages assumes that the relationship between income and work capacity is S-shaped, as in Figure 1:

Figure 1



This is based on the assumption that income is largely used to satisfy nutritional needs. At low levels of nutrition, additional income/nutrition is simply used to maintain the body's resting metabolism and therefore generates little extra work capacity. After the needs for maintaining resting metabolism have been met, there is a sharp increase in work capacity. Thereafter, diminishing return set in.

The model also assumes that workers are paid piece-rate wages, as in figure 2:

Figure 2

The combination of these assumptions lead to the conclusion that labor supply is a discontinuous function of piece rates, as illustrated in figures 3 and 4:

Figure 3

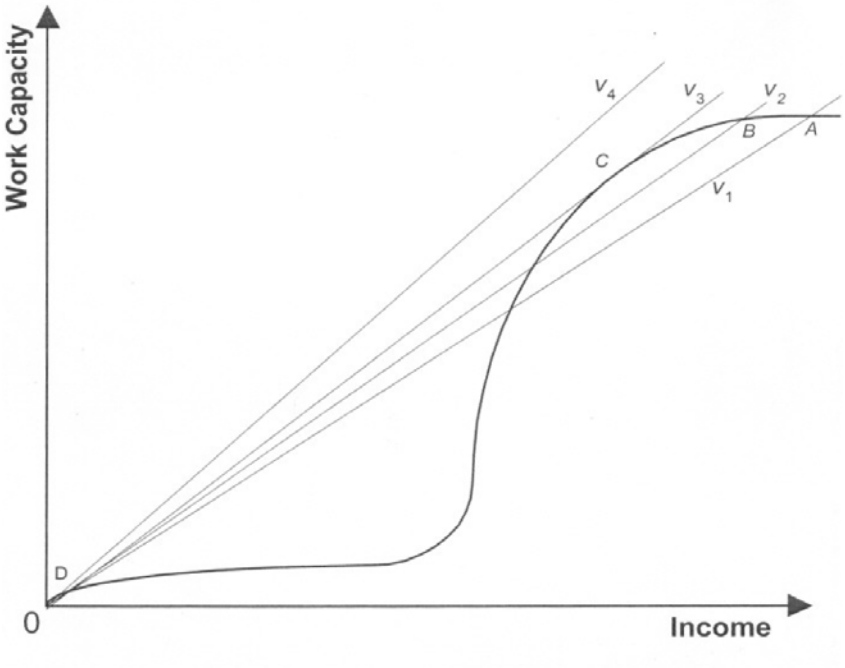
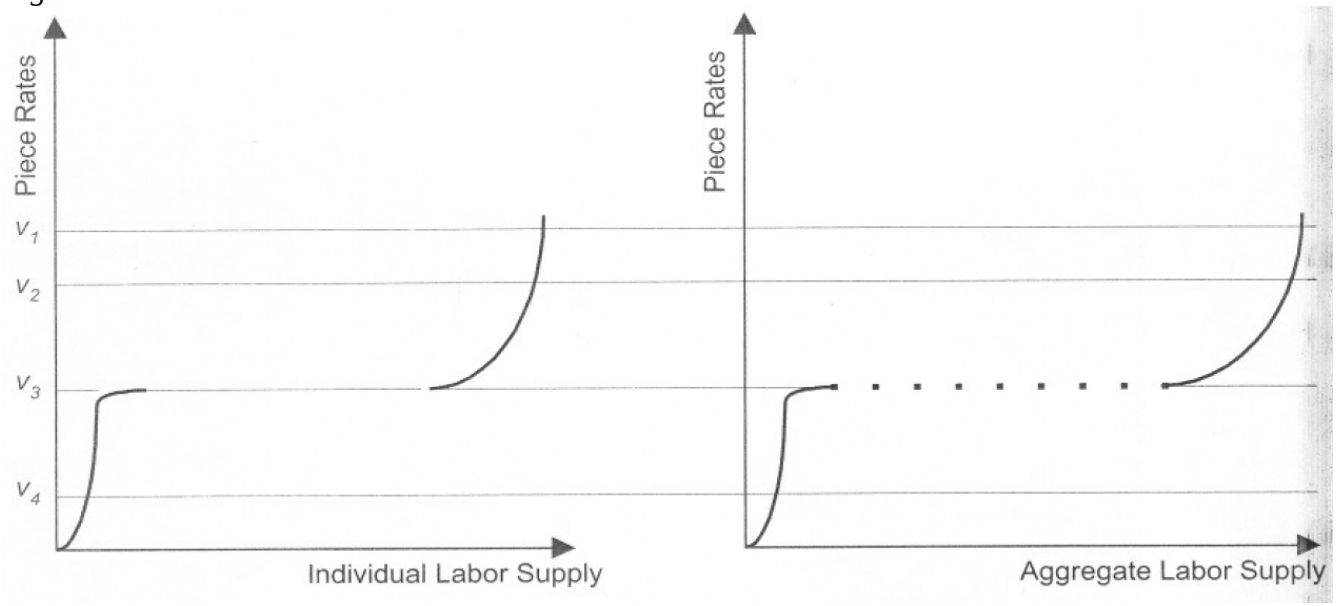


Figure 4

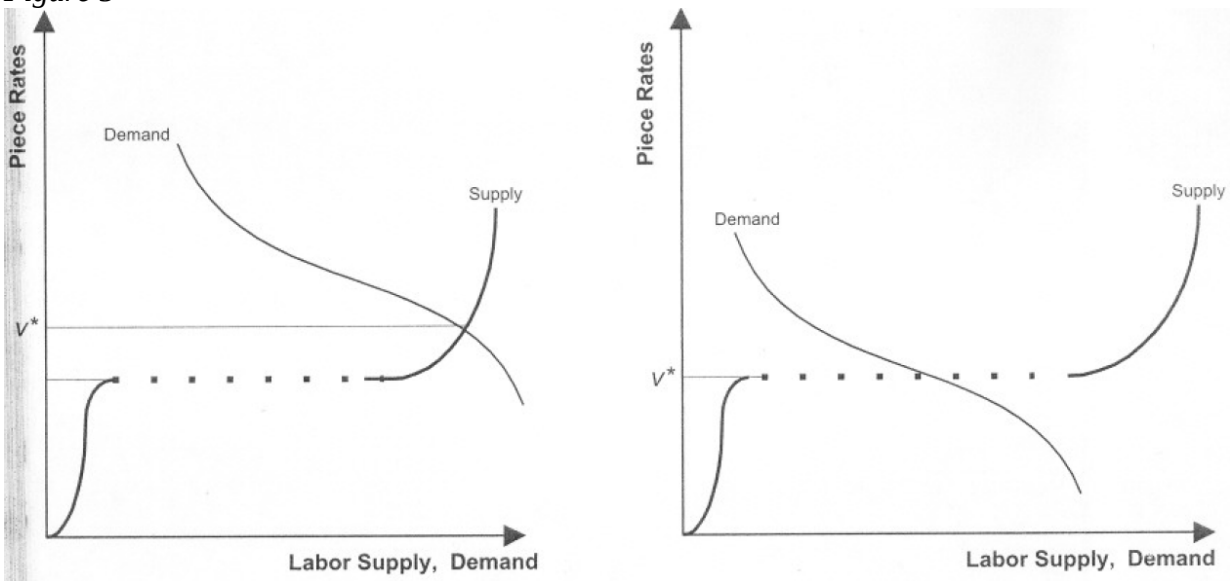


When the piece rate drops below a certain minimum (represented by the line labelled V3 in figure 3), income is not sufficient to meet basic nutritional needs, and work capacity drops sharply. This implies discontinuities in individual- as well as aggregate labor supply.

This implies, first, that there is a potential, vicious cycle of malnutrition and poverty: low income leads to malnutrition, which in turn leads to low work capacity, which leads to low income and so

on. Second, the model implies that an equilibrium with involuntary unemployment and subsistence wages might prevail, as in figure 5, right panel:

Figure 5



Unemployment is generated by the fact that wages cannot be pushed lower without inducing a sharp drop in labor supply.

<u>The effects of asset redistribution:</u> The receipt of an income generating asset, such as a plot of land, pushes the work capacity curve to the left. Therefore, asset redistribution, such as land reform, may lead to increased labor supply from beneficiaries of redistribution. Therefore, land reform and other types of asset redistribution potentially increases total production as well as equality.

Presentation of the above graphs is not required if the student is able to clearly convey the basic assumptions and implications of the model in a purely verbal and/or formula-based presentation.

Problem C

Please provide a discussion of the importance of economic inequality in the process of economic development.

The course has dealt with the issue of inequality in a number of ways. Answers to this question may focus on:

<u>The effects of economic inequality on growth:</u> Early theorists believed that economic inequality may be a necessary precondition for growth because richer households have higher savings rates and therefore contribute more than the poor to asset accumulation and therefore growth. Later research, on the other hand, has tended to stress the potential, negative effects of inequality on growth. For example, Persson and Tabellini and Alesina and Rodrik argued that higher inequality leads to more redistributive taxation. Taxation in turn depresses returns to investment and therefore reduces growth. Engerman and Sokoloff emphasize the negative effects of inequality on the

development institutions and human capital in Latin America. Banerjee and Newman (and Galor and Zeira) argue that higher inequality exacerbates the negative effects of imperfect credit markets, because higher inequality means that more people are excluded from borrowing du to lack of collateral assets. Other researchers have stressed the negative effects of inequality on political stability.

We have also the negative relationship between farm size and agricultural productivity, which implies that a more equal land distribution may increase efficiency in agriculture.

Finally, in addition to analyzing the effects of inequality on development, we have also discussed how the distribution of income is affected by the process of development. Simon Kuznets argued forcefully that the evolution of inequality in the process of development describes and inverse U, the "Kuznets curve". Empirical evidence, however, does not lend strong support to this hypothesis.