

Written Exam for the B.Sc. in Economics summer 2012

Development Economics

Final Exam

June 14th, 2012

(3-hour open/closed book exam)

Suggested Answers

Please answer ALL questions.

Problem A

Please explain briefly:

1. The relationship between the Gini coefficient and the Lorenz curve.

The Gini-coefficient is the area between the 45-degree line and the Lorenz curve, divided by $\frac{1}{2}$ (the entire area under the 45-degree line).

2. The definition of the “poverty gap”.

The poverty gap is the average, difference between the poverty line and per capita consumption (or income), relative to the value of the poverty line. The formula is:

$$\text{Poverty gap} = \text{Normalized Income Shortfall (NIS)} = \frac{1}{N} \sum_{i=1}^H \left(\frac{Y_p - Y_i}{Y_p} \right)$$

where N is population size, H is the number of persons below the poverty line, Y_p is the poverty line and Y_i is the consumption of person i .

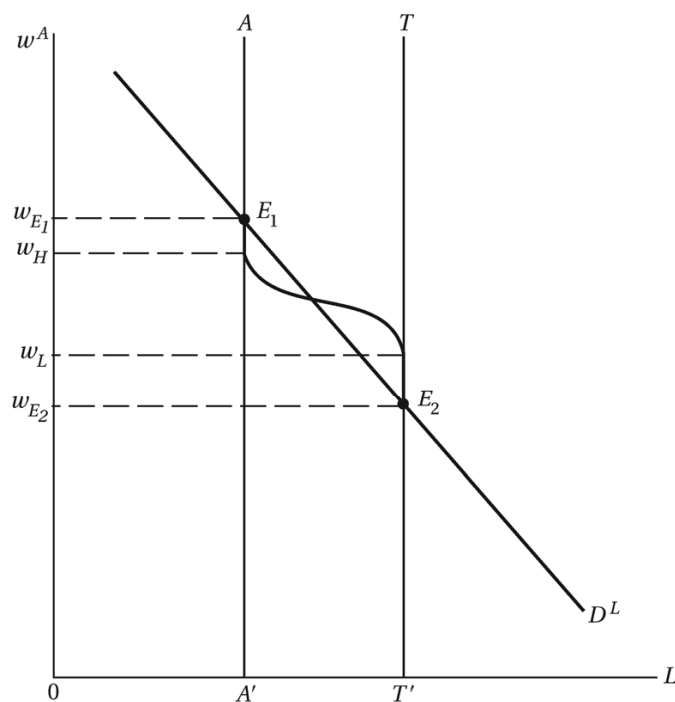
3. Major trends in population growth in developing countries over the last three-four decades.

Populations have grown fast but the rate of growth has decreased significantly. Population growth has slowed much more in Asia and Latin America than in Africa.

4. The main assumptions and conclusions of Kaushik Basu’s model of child labor.

Main assumptions: 1. Adults supply labor inelastically. 2. Parents send their children to work only if adult wages (and therefore household income) is sufficiently low. 3. Child and adult labor are substitutes.

Main conclusions: 1. When labor demand is neither very high nor very low, multiple, stable equilibria arise: one with child labor and low wages and another with only adult labor and high(er) wages. In this case, a ban on child labor improves welfare, because it acts as a coordination device: If no families send their children to work, adult wages are sufficiently high that no families want to send their children to work. 2. If labor demand is so low that only the equilibrium with child labor and low wages is stable, a ban on child labor is difficult to enforce and might decrease welfare, because child workers are pushed to the informal sector. See figure:



Source: From Kaushik Basu, "Child labor: Cause, consequence, and cure, with remarks on international labor standards," *Journal of Economic Literature* 37 (1999): 1101. Reprinted with the permission of the American Economic Association.

where AT' is the labor supply curve and D^L is the labor demand curve.

5. The meaning of the term "development accounting".

Development accounting is a method for determining how differences in income levels across countries can be accounted for by differences in, respectively, factor accumulation (labor, capital, human capital) and total factor productivity.

6. What the "Kuznets curve" shows.

The Kuznets curve shows the relationship between income per capita and economic inequality. According to Kuznet's hypothesis, this relationship traces an inverse U (although this hypothesis tends to find little support in the data).

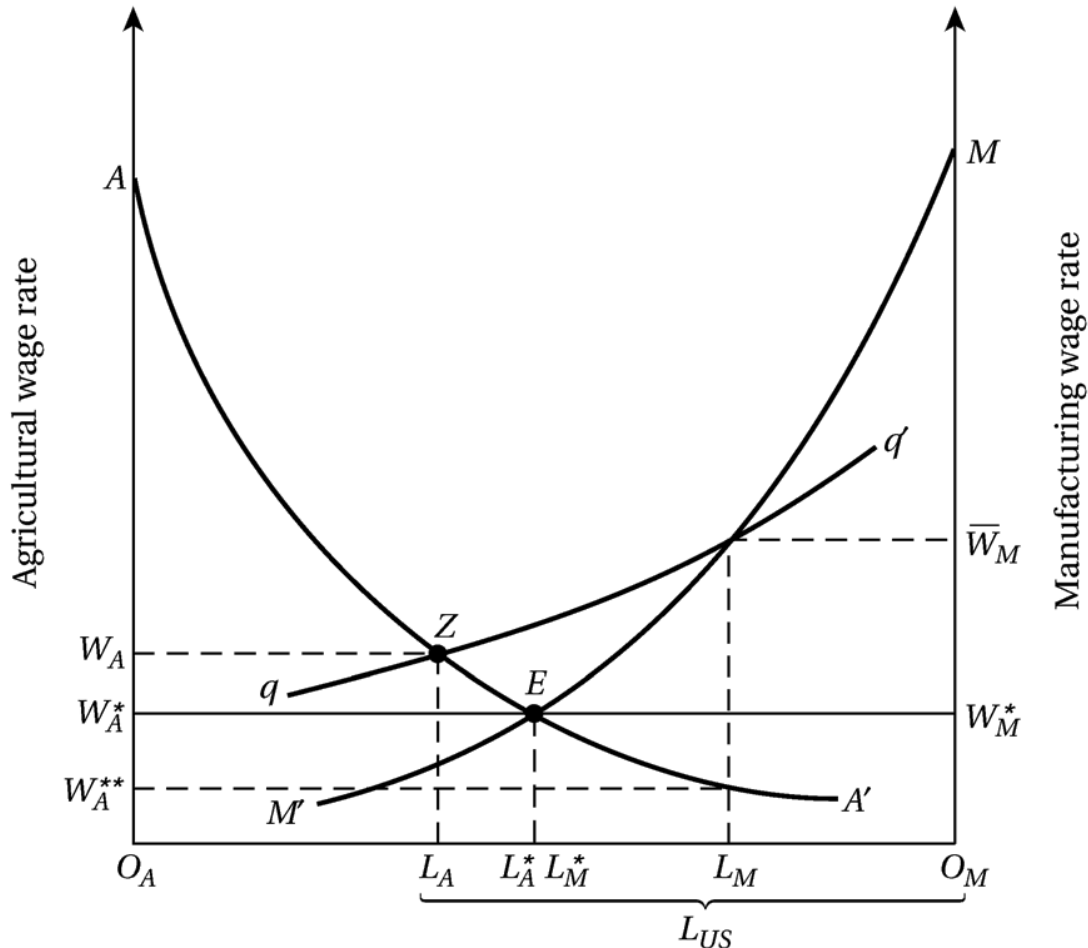
7. The definition of a country's "commodity terms of trade".

“Commodity terms of trade” is defined as (an index of) the prices of commodities a country exports, relative to (an index of) prices of commodities the country imports.

Problem B

Please outline the Harris-Todaro model of rural-urban migration. Explain the main advantages and limitations of the model.

The Harris-Todaro model assumes that migration from rural to urban areas relies on rational, economic decisions based on expected rather than actual wages differences between rural and urban areas. The probability of finding a job in the city is assumed to be inversely related to the urban unemployment rate. In particular, the probability of finding a job in manufacturing equals L_M/L_{US} , where L_M is total employment in manufacturing and L_{US} is the total, urban labor pool. The figure below illustrates the model. AA' is the demand curve for labor in agriculture. MM' is the demand curve for labor in manufacturing. \bar{W}_M is the minimum wage in manufacturing.



People are assumed to continue migrating to urban areas until the expected, urban wage equals the agricultural wage, that is until the following condition is met:

$$W_A = \frac{L_M}{L_{US}} (\bar{W}_M)$$

where W_A is the agricultural wage. The qq' schedule in the figure traces the points where this condition is met. The equilibrium is found where the qq' schedule intersects with the agricultural labor demand curve (Z'). The equilibrium is characterized by a) strictly higher wages in urban- than in rural areas, b) unemployment in urban areas.

A main advantage of the model is that it explains continued, rapid migration from rural to urban areas, even in a situation of high, urban unemployment. The model has a number of interesting implications: 1) to reduce migration, it is necessary to reduce "urban bias" (the wage gap between rural and urban areas), 2) Creating more urban jobs may not reduce urban unemployment, because more jobs attract more migrants. Wage subsidies in urban areas may have the same effect. 3) The best means to tackle urban unemployment may be programs aiming at rural development, because such programs raise wages in agriculture and therefore reduce incentives to migrate.

Important limitations include: 1) The model assumes that the probability of finding a job in the city is the same for all members of the urban labor pool. Realistically, the probability of having a job in the next period is much higher for workers already employed in this period than for recent migrants from rural areas. 2) Workers are assumed to be risk-neutral. Assuming risk aversion might be more realistic, especially in cases where wages are close to subsistence level.

Problem C

Please provide a discussion of the role of institutions in economic development.

This question may be answered in different ways. The course adopted the New Institutional Economics' definition of institutions as "Formal and informal rights and obligations that shape pay-offs to economic activities – the rules of the game" (Douglass North). We distinguished between formal and informal institutions (e.g. constitutions, laws, decrees versus unwritten social norms), and between economic and political institutions (e.g. property rights, contract law versus form of government).

In general, institutions affect economic development by shaping incentives to invest, innovate and trade. We discussed the following model of how property rights affect investment:

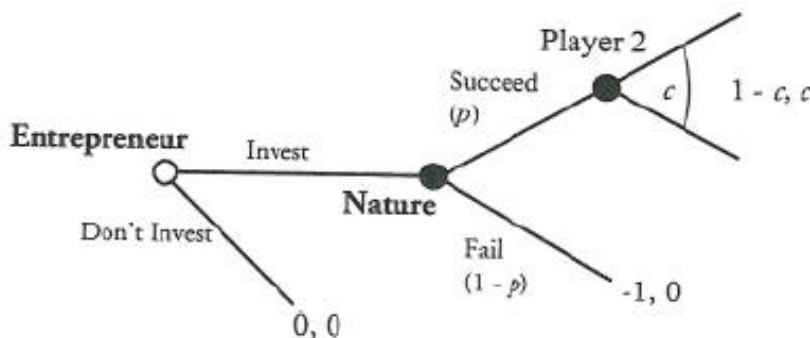


Figure 9.2. Investment and Property Rights Game

where p is the probability than an invest,ent project succeeds and and c is the share of profits grabbed by "Player 2". Player 2 can be interpreted , depending on circumstances, as fellow community or family members, petty thieves, organized criminals, corrupt officials or taxation. Investment occurs only if $p \geq (1+c)/2$.

We considered the following model of legal institutions and market exchange:

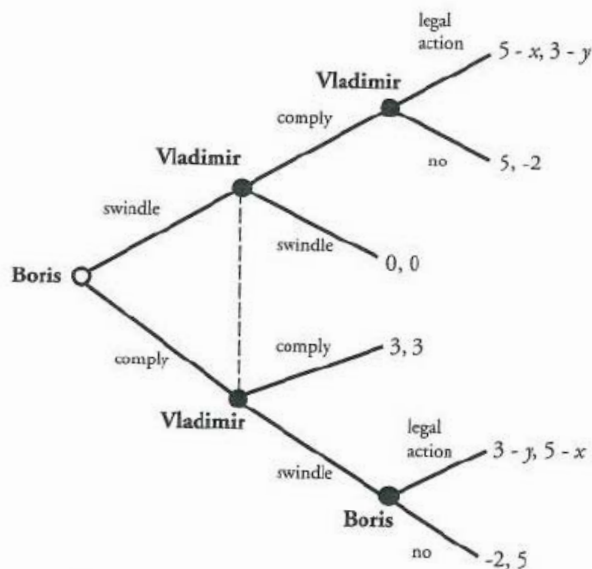


Figure 9.1. Market Exchange Game with Legal Institutions

where x is punishment levied on a swindlers if his or her trade partner pursues legal action after being swindled, and y is the cost of pursuing legal action. As x goes up and y goes down, the game is transformed from a "prioners dilemma", where "swindle-swindle" is the unique equilibrium, to a more benign game, where other equilibria exist. The model highlight two important dimensions of legal systems: 1) severity (how hard are transgressors punished?) and 2) cost of using the system.

As an important example of the effects in institutions, we discussed how land property rights may affect agricultural investment through three channels: 1) the assurance effect: higher probability of claiming the return to an investment increases the incentive to invest, 2) access to credit: documented and secure property rights ease access to loans, 3) land market efficiency – secure property rights increase the probability that land markets allocate land to the most efficient users.

Another important institutions discussed in the course is patent systems. We looked at Khan and Sokoloffs comparison of patent systems in the U.K. and the U.S. in the nineteenth century (summarized in the syllabus article by Hoff), which presents superior U.S. patent institutions as a potential explanation for the rise of the U.S. to the position of global, technological leader during this period.

In terms of general, empirical evidence in support of the view that institutions are important for economic development, we discussed Acemoglu and Robinsons "Reversal of Fortune" paper, summarized in Hoff. Acemoglu and Robinson's argument is that among the countries colonized by the Europeans, the countries that were most advanced economically (as measured by urbanization

and population density) around the year 1500 tend to be the poorest today. The alleged explanation is that European settlers tended to set up “extractive” political and economic institutions in areas with high population density (where local populations could be exploited), and “inclusive” institutions in less populated areas (where it was necessary to attract European immigrants). These institutions persisted after the Europeans had left and affect current levels of economic development.

We read Williams Easterly’s article, “Inequality Does Cause Underdevelopment”. In this paper, Easterly argues that high, initial inequality leads to slow economic development. Inequality affects growth through two, principal channels: a) schooling, b) institutions. High inequality leads to poor institutions because powerful elites in unequal societies tend to set up and maintain institutions that protect their own privileges rather than promoting broad-based, economic development.

A good answer does not need to include all the elements listed above, and may include other elements. Some students may base their answer on the lectures given by Daron Acemoglu at the Department of Economics in May 2012. This is fine, but not required.