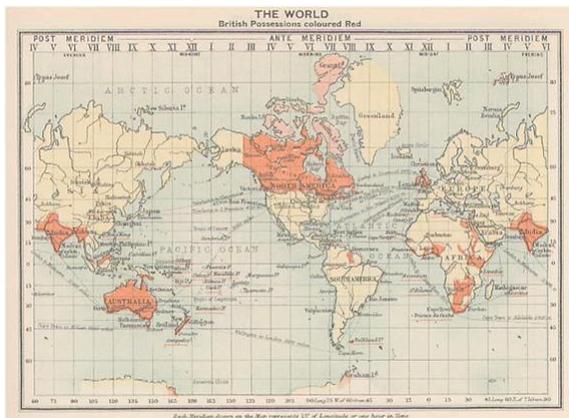


Study Questions for Midterm #2

1. Suppose that there are two countries, X and Y , that differ in both their rates of investment and their population growth rates. In Country X investment is 20% of GDP and the population grows at 0% per year. In Country Y , investment is 5% of GDP, and the population grows at 4% per year. The two countries have the same levels of productivity, A . In both countries, the rate of depreciation δ is 5%. Use the Solow growth model to calculate the ratio of their steady-state levels of income per capita, assuming that $\alpha = 1/3$.
2. In a certain country, the population consists of five blue people and five green people. Each green person has an income of \$1 per year. Each blue person has an income of \$3 per year.
 - (a) Draw the Lorenz curve for the country.
 - (b) On your diagram from (a), indicate what area you would divide by what other area to calculate the Gini coefficient.
 - (c) Calculate the Gini coefficient. [HINT: RECALL THE AREA OF A TRIANGLE EQUALS ONE-HALF THE BASE TIMES THE HEIGHT.]
 - (d) Calculate the Range, the coefficient of variation, the mean absolute deviation¹ and the Theil Index.²
3. Figure 1 shows the British Empire in 1900 (shaded areas on map). According to Rosenstein–Rodan’s theory of economic development, how might the British Empire help Britain overcome *coordination failure* which is commonly cited by authors such as D. Ray as an important reason for underdevelopment of many modern countries?



4. Rosenstein–Rodan introduced the idea of the BIG PUSH. Briefly define and discuss important features of the Big Push.
5. Identify and describe two economic mechanisms in which inequality affects economic development.
6. Evaluate the following statements by providing a brief explanation or analysis.

¹The formulas for these measures are on pages 187–188 of the textbook.

²Recall that the Theil Index is $T_T = \frac{1}{N} \sum_i^N \left(\frac{x_i}{\bar{x}} \cdot \ln \frac{x_i}{\bar{x}} \right)$, where x_i is income of person i ; N is the total number of people, and \bar{x} is the mean income, $\bar{x} = \frac{1}{N} \sum_i^N x_i$.

- (a) The income gap ratio and the head count, as measures of poverty, may lead to very different uses of antipoverty resources by policy makers.
 - (b) World poverty shows a steadily diminishing trend over the last forty years (1970–2010).
 - (c) The poverty gap ratio and the income gap ratio focus attention on different aspects of the poverty problem.
 - (d) Both the poverty gap ratio and income gap ratio are insensitive to the inequality among the poor.
7. Explain why a moneylender who relies on future credit cutoffs to enforce loan repayment today will be less willing to advance loans to a poor individual for projects that guarantee future income security.
 8. Sketch a causal mechanism of economic development that generates a pattern of inequality consistent with the Kuznets curve.
 9. *fashion trends* Think of fashion trends (e.g., women's dress type, hemlines, shoe style) as an outcome of coordination games. What would we mean by multiple equilibrium in this context? Discuss this answer with respect to the role of the media.
 10. *contraceptive usage* Consider a poor developing country with strong social norms established for high levels of childbearing and with equally well-defined gender roles. Women receive less formal education than do men. Within marriage, a woman's bargaining power varies from marriage to marriage and does the husband's monitoring of his wife's behavior. Social and kin networks within villages are pervasive. Describe a mechanism of how contraceptive usage could be an outcome of a coordination game. Why might informal kin and social networks be an important element of the coordination game?
 11. Consider two otherwise identical countries *A* and *B*. Country *A* has had a long history of stable monetary policy and low variability in the annual rate of inflation. Country *B* has had an equally long history of volatile monetary policy and large variability in the annual rate of inflation. In response to a global recession the Central Bank in each country engages in a forceful "quantitative easing" action (of the same relative magnitude). In which country will the effect of the easy monetary policy increase economic activity the fastest and to the largest extent? Why; explain your answer.
 12. In a world with human capital accumulation, self-perpetuating inequality can only happen if poorer people in the society are excluded from acquiring certain skills. How does collateral serve to lock out from the credit market certain segments of the population.
 13. Explain why insurance companies require a *deductible* for most types of health, property and automobile insurance.
 14. Why are formal insurance markets relatively "thin" or rare in most developing countries, and particularly among the poorest countries?
 15. In a society which exhibits neither daughter or son preference a family must have n children for the couple to have probability q as the minimum probability the couple will receive to receive old age support from at least one offspring where survival probability (both sexes) is S . That is, n is the minimum number such that

$$1 - (1 - S)^n > q. \quad (1)$$

- (a) Determine n if $S = .5, q = .95$.
 - (b) The expression above in equation (1) tacitly assumes that every surviving child is certain to provide care. Continue to assume that girls are certain to provide old age care, while boys are **certain** not to provide care. How many children will the couple have to have? Will the sex ratio (males/females) increase, decrease or remain the same?
 - (c) If a new technology becomes available that can determine the sex of a fetus, (at no cost) will the number of pregnancies increase or decrease? Number of births?
16. The 1918 Flu Pandemic killed more people worldwide than were killed in World War I. In the U.S. duration of the epidemic was relatively brief with the highest death rates concentrated from September 1918 into the spring 1919. The epidemic was also unusual in that it was particularly deadly among young adults (people in their 20s) whereas other flu viruses kill the most vulnerable — the young and the old. Yet, like other flu viruses it was more lethal in cities than in the country side.

Question:

- (a) Assume the Harris–Todaro model of the urban and rural labor markets is correct. Over the short–run, how will wages in the urban and rural markets change in response to the flu? Be clear about any assumptions you make in answering the question.
 - (b) If urban areas have higher mortality rates (all ages) than rural areas, what would the labor market equilibrium look like compared to the standard Harris–Todaro (in which there is no difference in mortality rates between cities and the countryside).
 - (c) Continuing with the assumption of higher mortality rates in the city, but this time assume that urban mortality rates are higher only for males ages 15–30. Now, how does the labor market equilibrium and rural–urban migration flows compare to the standard Harris–Todaro model?
17. **True, False and Uncertain** Please label the following statements as either TRUE, FALSE or UNCERTAIN (i.e., sometimes true or sometimes false) and briefly support your answer. UNSUPPORTED ANSWERS RECEIVE NO CREDIT.
- (a) In an economy with extensive possibilities for perfect crop insurance, fixed–rent tenancy must be dominant irrespective of whether potential tenants are risk–averse or risk–neutral.
 - (b) The Head Count satisfies the population, anonymity, and proportionality principles.
 - (c) In Hirschman’s model of development *backward* linkages influence the demand while *forward* linkage increase supply.
 - (d) It is possible that the crude birth may change from one period (e.g., year or decade) to the next with no change in the total fertility rate.
 - (e) Cohort fertility is the more informative measure of reproductive behavior with respect to formulating government policy.

- (f) From say 1800 to 2000 income inequality and wealth inequality has increased across countries.
- (g) Define R_x to be the ratio the Gini Coefficient for country X in 2000 divided by country's X Gini Coefficient in 1900. Then, $R_{US} \geq R_{Afghanistan}$.
- (h) In an economy where risk is a major factor, where tenants are risk-averse, and where inputs of the tenant can be costlessly monitored by the landlord (and verified in court), sharecropping will be preferred to fixed-rent tenancy.
- (i) The mean absolute deviation inequality measure, M , does not satisfy the Dalton Transfer principle.

$$M = \frac{1}{\mu n} \sum_{j=1}^m n_j |y_j - \mu|$$

where, m is the number of income classes, y_j is the income in class j , n_j is the number of people in income class j , n is the total population (i.e., $\sum_j n_j$), and μ is mean population income.

- (j) When their own income is under consideration, preferences of most people do not satisfy the anonymity principle.
- (k) According to Hirschman's theory of development it is most efficient to control the development process such that growth is balanced across segments or sectors of the economy.
- (l) History and expectations interact and operate through two main channels: *complementaries* and increasing returns.
- (m) In a small open economy the return on physical capital is set by the international capital market. Consequently, a policy that attempts to coordinate investments to obtain increased returns from size economics (i.e., increasing returns to scale) are fruitless for small countries.
- (n) The Kuznets ratio satisfies the Dalton transfer principle.
- (o) In an economy where risk is a major factor, where tenants are risk-averse, sharecropping will be preferred to fixed-rent tenancy.