

Written Exam for the B.Sc. in Economics summer 2013

**Development Economics**

Final Exam/ Elective Course/ Master's Course

June 14<sup>th</sup>, 2013

(3-hour open/closed book exam)

Suggested Answers

**Problem A**

Please explain briefly:

1. What is the poverty head count ratio?

*Suggested answer:* The poverty head count ratio is the share of the population below the poverty line.

2. The main messages of the Harrod-Domar model.

*Suggested answer:* The H-D model says that economic growth ( $g$ ) depends on two factors: the capital-output ratio ( $c$ ) and the savings rate ( $s$ ):  $g = s/c$ . Therefore, the model emphasizes the importance of savings and capital accumulation for economic growth.

3. The main explanations for high interest rates in informal credit markets in developing countries.

*Suggested answer:* There are two main explanations for the fact that interest rates are often higher in informal than in formal credit markets: a) "Lender's monopoly": In some cases, lenders have monopoly power in their local communities and therefore they are able to charge high interest rates. b) "Lender's risk": In many cases, the risk of default in informal credit markets is high. At the same time, lenders often have limited opportunities for enforcing repayment or seizing collateral. High interest rates can be seen as a response to the high risk of default.

4. The meaning of the concept "terms of trade".

*Suggested answer:* In the context of international trade, "terms of trade" is an index of the price of a country's exports, relative to an index of the price of its imports.

5. What is the "demographic transition"?

*Suggested answer:* The demographic transition is the process by which a country moves from an initial situation with high birth- and death rates to an ultimate situation with low birth- and death rates. In this process, the death rate almost always drops faster than the birth rate. Therefore, the total population increases very significantly in almost all demographic transitions.

6. What is an “institution” in the context of economic theory? Give at least two examples.

*Suggested answer:* Following Douglass North, institutions may be defined as “formal and informal rights and obligations that shape pay-offs to economic activities – the rules of the game”. Examples of institutions include property rights, contract law, form of government (e.g. democracy or dictatorship, parliamentary or presidential system), dowry customs and many more.

7. David Weil’s equation:  $A = T \times E$ .

*Suggested answer:* The letters of the equation stand for: Productivity = Technology x Efficiency. The idea is that the total factor productivity term (A) in growth accounting models is the product of both technology (how are factors of production combined to make output?) and efficiency (Are the most appropriate technologies used? Are all factors of production employed? Are factors employed for their most productive use?). A boost to technology pushes the production-possibilities frontier outward. A boost to efficiency moves a country closer to *being* at the production possibilities frontier. Sources of inefficiency include, among other things, rent seeking activities, unemployment and collusion.

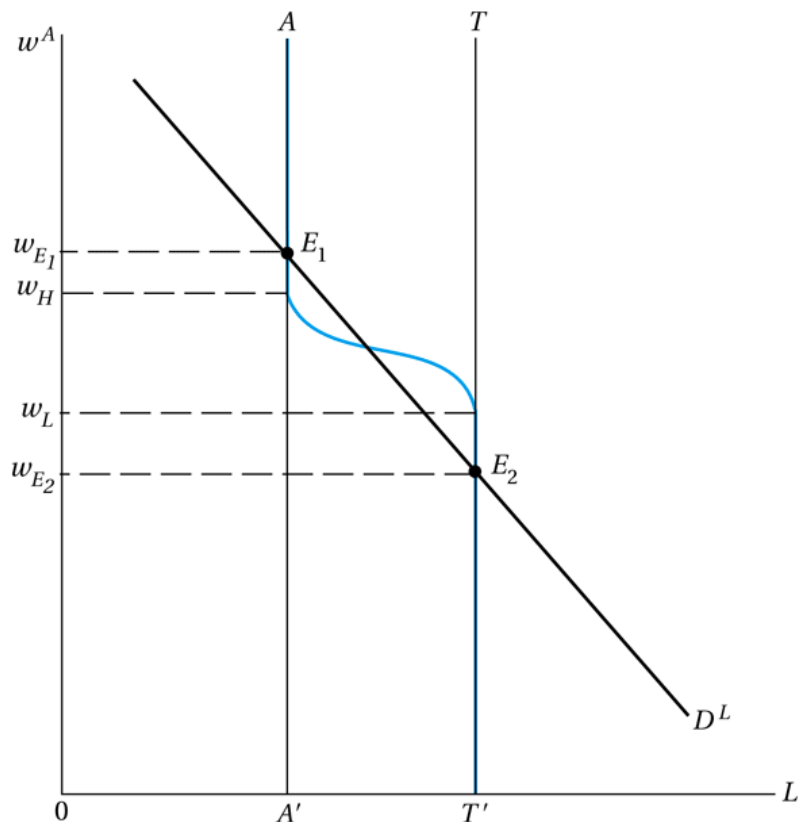
## **Problem B**

Please explain Kaushik Basu’s model of child labor. Discuss the main assumptions, conclusions and policy implications of the model.

*Suggested answer:* The main assumptions of the model are:

- a) Child- and adult labor are substitutes.
- b) Adult labor supply is inelastic.
- c) Families with sufficiently high income do not send their children to work

These assumptions give rise to the total labor supply curve  $AE_1E_2T'$  in the figure below (a “backward-bending” labor supply curve). The figure has labor supply and demand on the horizontal axis and wages on the vertical axis. The idea is that at a wage higher than  $w_H$ , all families earn sufficiently much from adult labor alone to prefer keeping their children out of the labor market. When the adult wage drops below  $w_H$ , some families start sending their children to work. When the adult wage reaches  $w_L$ , the maximum number of child workers is reached.



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Assume that the labor demand curve,  $D^L$ , has the standard, downward-sloping form. When the demand curve intersects the labor supply curve three times (as in the figure above), there are two stable equilibria, at  $E_1$  and  $E_2$ . At  $E_1$ , wages are high and there is no child labor. At  $E_2$ , wages are much lower and there is extensive child labor. The idea is that the presence of children in the labor markets increases total labor supply and therefore drives wages down. This is a case of “multiple equilibria”, with  $E_2$  being a “low-level equilibrium” or “poverty trap”. In this case, a possible policy implication is that there should be a ban on child labor. If a ban is effective, it moves the economy from the bad equilibrium at  $E_2$  to the good equilibrium at  $E_1$ . Once the economy has settled at  $E_1$ , the child labor ban is self-enforcing – wages are so high that no families wish to send their children to work. Of course, it is an open question whether in any specific case it is possible to make a child labor ban (or a campaign for voluntary abstention from use of child labor) sufficiently effective to move the economy to the high equilibrium.

Policy implications change if the labor demand curve is situated differently than in the figure. Consider the case where the demand curve only intersects the supply curve above  $w_H$ . In this case, the only equilibrium involves no child labor and interventions to prevent child labor are redundant. On the other hand, consider the case where the only intersection is below  $w_L$ . In this case, there is much child labor, but a ban on child labor cannot move the economy to a higher equilibrium. In this case there is a risk that a ban actually worsens the welfare of children in poor families, either because children are sent to work in informal and un-monitored work-places, where wages and

conditions may be particularly poor, or because families now earn too little to finance even basic consumption.

### **Problem C**

Does foreign aid to developing countries cause economic growth? Please discuss the evidence for and against this proposition. Also discuss whether aid is more effective in some circumstances than in others.

*Suggested answer:*

This question can be answered in different ways. It is of course relevant to draw upon the material for lecture 11 on foreign aid, but an answer may also focus on material from other lectures, e.g. the discussion on multiple equilibria and “big push” strategies, or the material about conditional cash transfer programs or micro-credit programs.

In general, there is no strong consensus on whether aid has a causal impact on economic growth. In a very influential paper, Burnside and Dollar (2000) present results from growth regressions based on a panel of countries and argue that aid has a positive impact on growth, but only in “good policy environment”, which is defined as an environment with low inflation, low budget deficits and high openness to trade. Many papers have challenged this conclusion. For example, Rajan and Subramanian (2008) look at long-run effects of aid on growth and find no significant effect. Easterly (2003) extends the sample of countries used by Burnside and Dollar and also finds no statistically significant effect. Hansen and Tarp (2000) find that aid does have a significant, positive effect on growth, but that marginal returns to aid are diminishing. They find no support for the idea that the effect of aid depends on macroeconomic policies. What explain the differences between the findings of these studies, which are all based on country-level, multivariate growth-regressions? First, the sample of countries and years varies. Easterly and co-authors expanded the sample used by Burnside and Dollar and showed that this led to significant changes in the results. Second, the strategy for dealing with the timing of potential effects of aid differ. Burnside and Dollar and Hansen and Tarp use five-year averages, while Rajan and Subramanian consider average values of aid and growth over periods as long as 40 years. Third, there are important endogeneity problems in growth regressions where foreign aid is an explanatory variable. Low growth is one of the *reasons* for giving aid, and there may therefore be a causal impact from growth to aid. Therefore, most studies use instrumental variables techniques, where aid is instrumented by a set of variables that supposedly affect aid but not (directly) growth. Examples of such instrumental variables include country size and colonial history. Differences in the choice of instruments explain some of the differences in results between different studies. Fourth, the choice of control variables in some cases differs.

While there is no strong consensus on whether the effect of aid on growth statistically significant, the point estimates of the magnitude of the effects are remarkably similar across several different studies, which all find that the elasticity of GDP per capita with respect to aid is no higher than 0.2 – 0.4. One conclusion may therefore be that aid probably does have a positive effect on growth but that this effect is of moderate size.

Is aid more effective in some circumstances than in others? As discussed above, Burnside and Dollar found that aid only works in an environment of “good” macroeconomic policies. As also discussed, this results has been heavily challenged. The finding of diminishing marginal returns (Hansen and Tarp 2000) suggest that the effect of additional aid is weaker in countries that already receive large amounts of aid. One reason may be that bureaucracies in developing countries often lack the capacity to effectively absorb very large amounts of aid.

At the micro-level, there is a wealth of evidence to suggest that some policy interventions (whether financed by aid or by other means) are more effective than others. For example, conditional cash transfers (where families receive cash transfers conditional on, for example, sending their children to school or attending health check-ups) have been shown to have positive effects on school enrolment and other desirable outcomes. Dietary supplements are an other type of intervention, which often exhibits high returns. An example of a program that did *not* work is the Bangladesh Integrated Nutrition Program, which offered counselling on child nutrition to mothers. The program had little effect on child health, perhaps because the mothers counselled were rarely the actual decision makers in their households.

At the theoretical level, theories of coordination failure in development imply that countries may be caught in low level “development traps/poverty traps”. In this case, only interventions at a large scale (“big push strategies”) are effective. (An early example of such a theorist with these views is Rosenstein-Rodan). In this view, aid that supports comprehensive, sustained development programs is more effective than small-scale interventions. Hansen and Tarp’s finding of diminishing, marginal returns to aid may be said to contradict this view.

Another view is represented by Hausmann, Rodrik and Velasco’s “growth diagnostics” framework. In this perspective, only some constraints to growth are binding at any given point in time. Therefore, aid is most effective if it is directed at loosening the particular constraints (e.g. low access to credit, low supply of skilled labor, poor infrastructure etc.) that hold back growth. In general, this analytical framework also emphasizes that different policies (and therefore different strategies of aid distribution) are effective in different circumstances.

Again, students are *not* necessarily required to include all the points discussed in this suggested answer in order to receive a high number of points for this question. They may also include other issues than those included here.