

Written Exam for the B.Sc. or M.Sc. in Economics summer 2014

Development Economics

Model Answer

June 10th, 2014

(3-hour closed book exam)

Please note that the language used in your exam paper must correspond to the language of the title for which you registered during exam registration. I.e. if you registered for the English title of the course, you must write your exam paper in English. Likewise, if you registered for the Danish title of the course or if you registered for the English title which was followed by “eksamen på dansk” in brackets, you must write your exam paper in Danish.

All questions must be answered.

Problem A

Please explain briefly

1. The meaning of dualism and dual societies.

This is defined in T&S, page 124-125. Dual societies are characterized by dualism. Dualism represents the existence and persistence of substantial divergences between rich and poor nations and rich and poor peoples on various levels. The traditional concept embraces 4 key arguments: 1. Different set of conditions can coexist in a given space (e.g., modern and traditional methods of production). 2. The coexistence is chronic. 3. The degrees of superiority of inferiority have an inherent tendency to increase. 4. There is no trickle down from superior to inferior elements.

2. Two possible barriers to international technology transfer.

This is given in Weil, page 244-248. One barrier is "appropriate technology": Technology is created/developed in the rich countries—hence it is appropriate for the existing rich country production mode and level, it is not necessarily appropriate for the poor country production mode and level (capital-bias, skill-bias). The second barrier is "tacit knowledge": Use of new technology requires both codified knowledge (blueprints) and often tacit (implicit, unstated) knowledge. Rich countries can only transfer the codified knowledge.

3. The principal economic characteristics of high-poverty groups.

This is given in T&S Section 5.4. i. Poverty is rural; ii. Women make up a substantial majority of the world's poor; iii. Poverty falls especially heavily on minority ethnic groups and indigenous populations. T&S also note that poor people come from poor countries. In addition, the lecture slides also point to: iv. the poorest households depend on agriculture as their primary source of income; v. People with no, or low, education have much higher poverty rates than people with more education.

4. The characteristics of those who migrate from rural to urban areas.

This is given in T&S Section 7.5. i. Migrants expect higher wages (a wage differential); ii. Migrants are fairly young and better educated than the ones not migrating (age and education; better human capital); iii. There is prior migration of family members and people from the area; iv. Migration is from areas experiencing natural disasters and other disruptions in local livelihood.

5. Why tenant laws that confer permanent use rights may have counterproductive effects on the security of the tenant.

This is question 7(a) in Ray's Chapter 12. The answer is in Section 12.3.5. First: eviction can only provide additional incentives if the tenant is strictly better off working with the current landlord than being relieved of his current contract. If eviction is banned and there is an excess supply of potential tenants, a new tenant will not be given any more than his next best alternative. Second, for potential tenants, such as those who are currently landless laborers, fresh tenancy contracts become much harder to get. Also, the threat of eviction increases the power of incentives to tenants who have limited liability. This will lead the tenant away from the riskier methods of production that are attractive under limited liability. In turn, this makes his own income less risky. Thus, the threat of eviction makes tenant income more secure, and the removal of this threat makes it less so.

6. The Prebisch-Singer Hypothesis.

This is given in T&S page 573. The Prebisch-Singer hypothesis is the argument that the commodity terms of trade for primary-product exports of developing countries tends to decline over time due to a combination of low income and price elasticities in demand.

7. Motives for allocation of foreign direct investment, remittances and foreign aid.

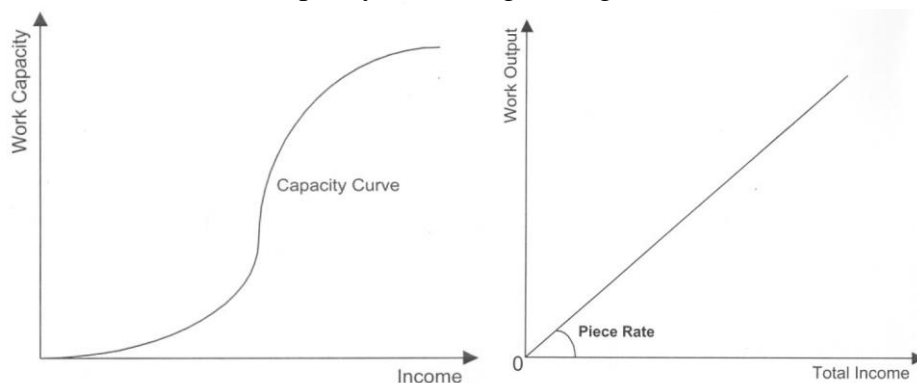
This is given in T&S Chapter 14. Motives for FDI: The overall policy framework (political and economic stability; rules and agreements regarding entry and operation; privatization policy); Business facilitation (ease of doing business; FDI promotion and incentives within the country); Economic determinants (raw materials, physical infrastructure, country size and economic growth, regional integration, comparative labor costs, level of skills and expertise, trade policy). Motives for remittances: Altruism and exchange; strategy; family credit and insurance. Motives for aid: Humanitarian, foreign policy and military (the cold war, the Middle East, the war on terror); historical (former colonies), economic (trade and export subsidies in donor countries)

Problem B

Please explain the nutrition based efficiency wage model. Discuss the main assumptions and conclusions of the model. Explain and illustrate the effect on labor supply of a reallocation of land from large farmers to landless laborers.

The model is described in Ray (1998) chapter 13.4. The text below are direct excerpts from the section.

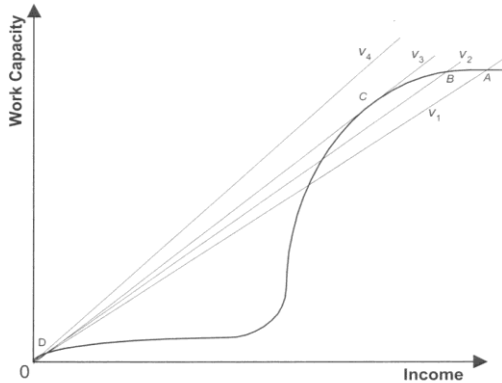
The basic underlying assumption is a functional relationship between nutrition and work capacity, which is denoted the capacity curve (Fig. 13.3 given below to the left)



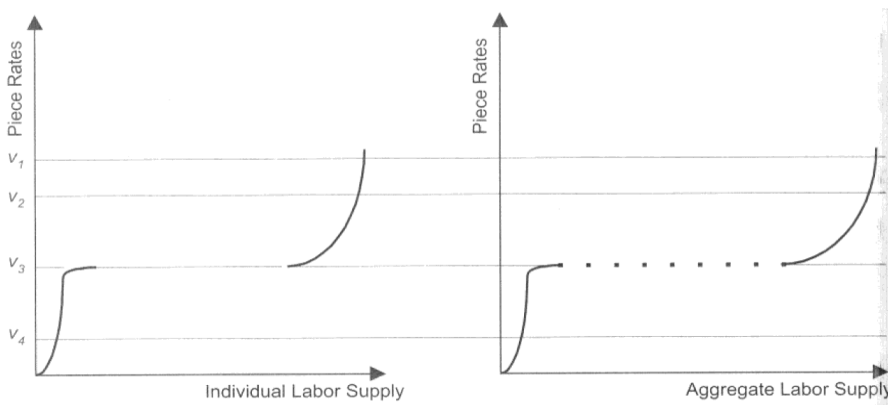
The capacity curve relates income, which is implicitly related to nutrition, to work capacity. The capacity curve is s-shaped because most nutrition initially goes into maintaining the body's resting metabolism. In this stretch very little extra energy is left over for work, so work capacity at low income is close to zero and does not increase too quickly as income change. Once resting metabolism is taken care of, there is a marked increase in work capacity with nutrition. Finally, there is a phase of diminishing returns, as natural body limits restrict the conversion of increasing nutrition to ever-increasing work capacity.

The second assumption is that incomes are generated by working in a labor market where piece rates are paid. This is payment on the basis of tasks completed. If income is paid per unit of task

then there is a relationship between the number of tasks performed and total income (Fig 13.4, shown above to the right). Joining the two effects gives Fig 13.5 below.

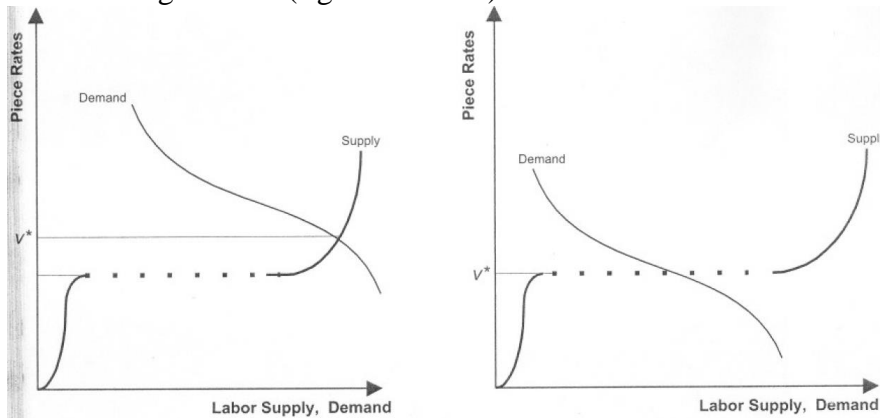


The third assumption is that all workers seek to maximize income, given the constraints in form of the capacity curve and the piece rate. Jointly, the three assumptions will generate non-standard supply curves, both for the individual and for the local economy. The supply curves have discontinuities corresponding to the "jumps" in the figure above as the piece rate changes from v_1 to v_4 (Fig 13.6).



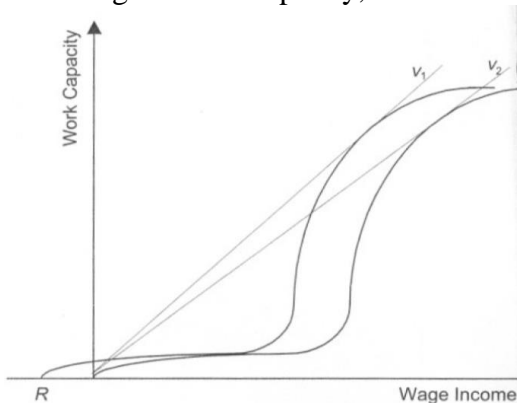
The final assumption is that the market has a standard downward sloping demand curve.

The model then leads to a labor market with the possibility of involuntary unemployment. This is shown in Figure 13.7 (right hand side). This is the main result of the model.

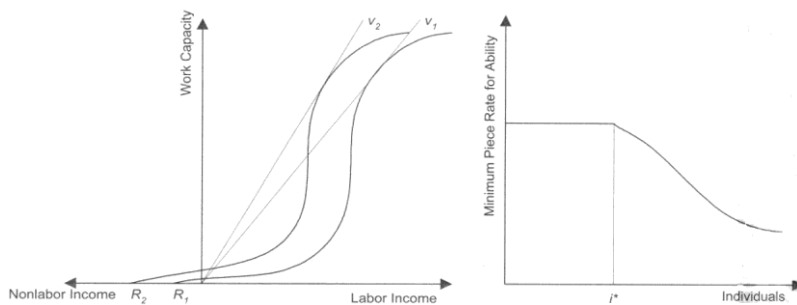


The difference in labor supply between land owners and landless can be understood from the underlying capacity curves. Land owners get nutrition from income or consumption opportunities from their land. This will affect their work capacity in the labor market relative to the work capacity

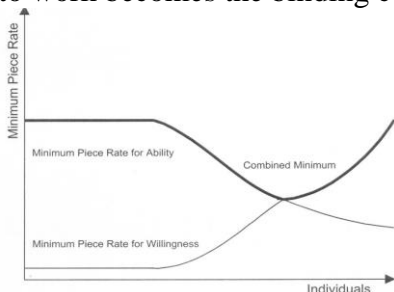
of the landless workers. At any given wage rate, land owners will have a higher total income and thus a higher work capacity, this is shown in Figure 13.8. below.



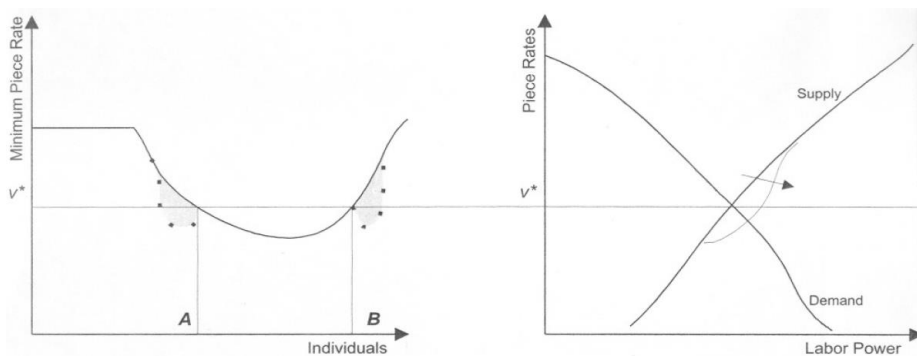
For each person we can keep track of the minimum piece rate at which he will be able to supply labor to the labor market, shown in the figure above for two individuals. Obviously, people with greater amounts of land are able to supply their labor at lower threshold piece rates, because the income from their land creates a parallel shift in the work capacity curve. Tracing the minimum piece rate we get a labor "supply curve" describing the minimum piece rate for which workers are able to work. This is shown in Fig. 13.9



In addition to the curve describing the ability to work there is also a relation for *willingness* to work. We assume the minimum piece rate at which a person will be willing to work rises with the amount of nonlabor income because a person who has other sources of income will value leisure more highly. Thus, at very low levels of nonlabor income, people will be willing to work for anything, so that the consideration that really binds is the minimum piece rate at which they are able to work. As nonlabor income increases this ability-based minimum rate falls, and at some point the willingness to work becomes the binding constraint. This combination is shown in Fig. 13.10 below.



The labor supply curve can now be derived as the combined curve, and we can trace the effect on labor supply of changes in nonlabor income. This is shown in Fig. 13.11 below.



Suppose that land holdings are transferred from the landed gentry just to the right of B, in the figure above, to the involuntary unemployed just to the left of A (they are willing, but not able to work at the going wage rate v^*). There are two immediate effects of this transfer. First, the beneficiaries of the reform become more able to work at the going market rates of remuneration. Second, the losers of land become more willing to work, because their nonlabor income has decreased. Thus land reform has the effect of bringing down the minimum piece rate for all who are directly affected by the reform.

So a judicious land reform has three effects. First, the unemployed become more attractive to employers as their nonwage income rises. Second, those among the poor who are employed are more productive to the extent that they, too, receive land. Finally, by taking away land from the landed gentry, their reservation wages are lowered, and if this effect is strong enough, this could induce them to forsake their state of voluntary unemployment and enter the labor market. For all these reasons, the number of employed labor units in the economy rises and pushed the economy to a higher output equilibrium.

Problem C

Please describe the "three worlds of agriculture" and explain for each world agriculture's role in development. Discuss the role of technological and institutional change in successful agricultural development.

The three worlds of agriculture are described in T&S chapter 9.3 and in World Development Report (2008), chapter 1. The role of technological and institutional change in successful agricultural development is given in Barrett et al. (2010).

Agriculture operates in three distinct worlds—one agriculture-based, one transforming, one urbanized. The classification is based on the share of aggregate growth originating in agriculture and the share of aggregate poverty in the rural sector. In each "world" the agriculture-for-development agenda differs in pursuing sustainable growth and reducing poverty.

In the agriculture-based countries, which include most of Sub-Saharan Africa, agriculture contributes significantly to growth, and the poor are concentrated in rural areas. Agriculture and its associated industries are essential to growth and to reducing mass poverty and food insecurity.

In transforming countries, which include most of South and East Asia and the Middle East and North Africa, agriculture contributes less to growth, but poverty remains overwhelmingly rural. Rapidly rising rural-urban income disparities and continuing extreme rural poverty are major sources of social and political tensions. Growth in agriculture and the rural nonfarm economy is

needed to reduce rural poverty and narrow the urban-rural divide. Addressing income disparities in transforming countries requires a comprehensive approach that pursues multiple pathways out of poverty—shifting to high value agriculture, decentralizing nonfarm economic activity to rural areas, and providing assistance to help move people out of agriculture.

In urbanized countries, which include most of Latin America and much of Europe and Central Asia, agriculture contributes only little to growth and poverty is no longer primarily a rural phenomenon. Agriculture acts like any other competitive tradable sector, and predominates in some locations. In these economies, agriculture can reduce the remaining rural poverty by including the rural poor as direct producers and by creating good jobs for them.

The role of institutional change: Using agriculture as the basis for economic growth in the agriculture-based countries requires a productivity revolution in smallholder farming. Premature and unduly high extraction through an urban policy bias combined with a lack of public investment in agriculture despite good growth potential are key reasons for sluggish agricultural performance in many agriculture-based countries.

The role of technological change: Barrett et al. (2010) states that in Schultz's view, new technology is the essential driver of higher farm incomes, but only in the context of new investments in human capital on the farm. Schultz rejected the notion that small farmers are poor due to cultural characteristics, deeming them instead "poor but efficient" users of long-established technologies and limited available factors of production. Farmers need new knowledge and skills to adopt new technologies, but also to cope with changing economic environments, especially with the need to exit agriculture as farm productivity increased and the structural transformation proceeded.

Estimates of considerable technical inefficiency among small farmers have often fueled arguments that investment in new technologies might not be as valuable as investment in extension services to increase adoption and improve the use of existing technologies. An opposing thread of the literature notes the many econometric problems inherent in the technical inefficiency research and demonstrates that, as one begins to control for exogenous, stochastic environmental factors which influence productivity, apparent inefficiency diminishes appreciably and becomes essentially untargetable based on farm or farmer characteristics, supporting Schultz's hypothesis.