Exam SØK2007 May 2021, 4 hours

Answer all 4 questions. Weights for all questions given in parentheses.

Question 1 (25%) Income and population

Why is it difficult to compare income per capita between low and high income countries?

A range of reasons including

- *(i) The need to convert all values into a common denomination via exchange rates. This naturally leads to concerns regarding the effect of exchange rate volatility*
- *(ii) Differences in purchasing power across countries. Notably, purchasing power is likely to be higher in low income countries. This leads simple comparisons of income per capita to potentially overstate differences in living standards across countries. Ideally incomes should be purchasing power adjusted*
- *(iii) Informality. A greater share of production in low income countries is likely informal and hence not accounted for in standard national accounts.*
- *(iv) Subsistence/own consumption production. A greater share of production in low income countries will be for own production (i.e. not transacted in a market).*

Again (3) and (4) tend to lead to cross-country differences in income levels per capita that are too large

Why might low income countries experience rapid population growth as their income increases?

This rapid growth primarily reflects declines in mortality (especially infant mortality) as incomes moves from very low levels. This reflects a range of factors, for instance basic public health factors that are relatively cheap to provide (clean water, basic preventative care), but also the effects of better nutrition.

At the same time birth rates / fertility choices are very slow to respond. This is less well understood but at high levels of infant mortality and an absence of social security (i.e. old age pensions) parents may choose high fertility levels as a form of precautionary behavior akin to insurance.

Very good answers may demonstrate (a) how increased income may lead to higher fertility and / or (b) how increases in female labour opportunities may lower demand for children. For instance, using the microeconomic model of fertility covered in class.

Question 2 (25%) Growth

What do we mean by steady state growth in a Solow Model?

Steady state growth is where capital growth (per capita) is just enough to cover depreciation and population growth. At this point there is no more growth in per capita income. Good answers might show the path towards the Solow Steady State. It could also be shown how changings the savings rate (for instance upwards) increases the level of steady state per capita income, but still leads to no income per capita growth in the long run (albeit at a higher level of income per capita)

What prediction does this give regarding convergence.

Define convergence, highlighting that the Solow Model predicts conditional convergence. That is two countries with the same key parameters (s, depreciation, population growth) will eventually converge to the same steady state level of per capita income. This means that, for instance, initially poorer countries (with the same parameters) will grow faster than initially rich countries.

How does this prediction change if countries can accumulate both physical **and** human capital?

If countries can also accumulate human capital this means that there is a steady state ***rate*** *of growth (i.e. growth is not zero in the long run). This also changes the convergence predictions. Countries with initially less physical capital will grow faster than those with higher physical capital (all per capita). But countries with initially higher human capital will grow faster than those with lower human capital. If rich (high physical capital) countries in general have higher capital then the predictions over overall convergence are ambiguous.*

Question 3 (25%) Labour

How can undernutrition lead to a poverty trap?

Demonstrate (a) a nutrition capacity curve (b) plot piece rates onto this (c) show how for given changes in piece rates (increases) this has little/no effect on work effort. Then show, using the broken labour supply function set out in class, how this means that very large increases in demand will be needed to generate any labour supply response. The key point then is that undernutrition leads to a poverty trap through the inability of workers to respond (in any sizeable way) to increases in labour demand (and accompanying higher wages). This traps them (and the economy) in a low wage, low productivity trap.

How could long term contracts reduce these problems and why might firms be unwilling to provide them?

There are a few ways to answer this. One standard approach is to discuss how long term contracts could overpay workers (relative to their productivity) earlier. This would would provide workers with sufficient nutrition to escape nutrition-poverty traps. The key problem relates to the training contract nature of this. If some firms overpay in the initial periods, in equilibrium they will under pay in the latter period, this will lead to other firms being able to poach these workers. This can be also discussed in the context of long term (2 period) contracts that smooth over seasonal variation in labour/agricultural productivity.

Question 4. (25%) Transformation

Describe the process of transformation of an economy from a traditional agricultural setting to a more modern manufacturing economy. Why is the presence of surplus labour important and why does the process of migration to urban areas eventually slow down?

The primary was to answer this is to use the Lewis model where the key points are (a) discuss how surplus labour in the agricultural sector leads to the (initially smaller) urban sector being able to hire as many workers as it wants from the agricultural sector (b) demonstrate how in each period the urban manufacturing sector grows each period (shifts out in the demand curve) and (c) how this will eventually slow down as the surplus labour in the agricultural sector is exhausted and wages start to go up in the agricultural sector (very good answers might mention that the cost of agricultural production is going up that erodes the real wages of the manufacturing workers).

Good answers could also critically discuss the assumptions of surplus labour and xplain why there is surplus labour (productivity sharing) rather than rural unemployment.

Some of these points could be covered using the Harris-Todaro model to make some of these points.