**Recitation 1**

Household decision-making

Budget constraint: for a given income, the amount of good x and good y the consumer can buy at given prices

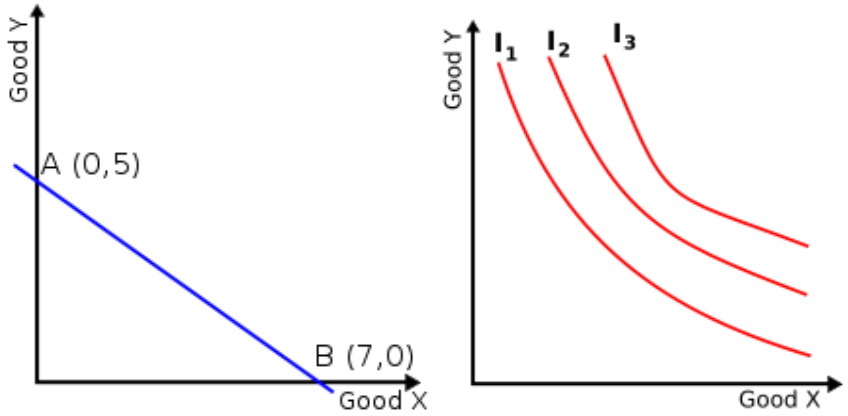
- $Y = p_1x + p_2y$

Indifference curve: bundles of goods between which a consumer is indifferent

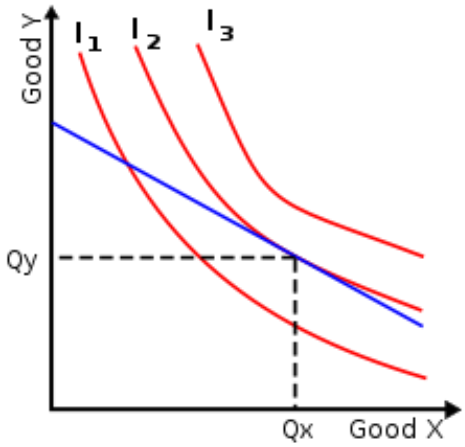
- That is, gives the same level of utility for the consumer
- Represents consumer preferences
- There are infinitely many indifference curves
- Higher indifference curves are preferred because they imply a higher level of consumption (assumption)
- Indifference curves never cross and are bowed inwards (another assumption)

Marginal rate of substitution (MRS)

- Slope of the indifference curve
- Defined as the rate at which the consumer is willing to trade goods
-




The household's problem is to maximize their utility (indifference curves) subject to their budget constraint. The household consumes at the point where an indifference curve is tangent to their budget constraint.

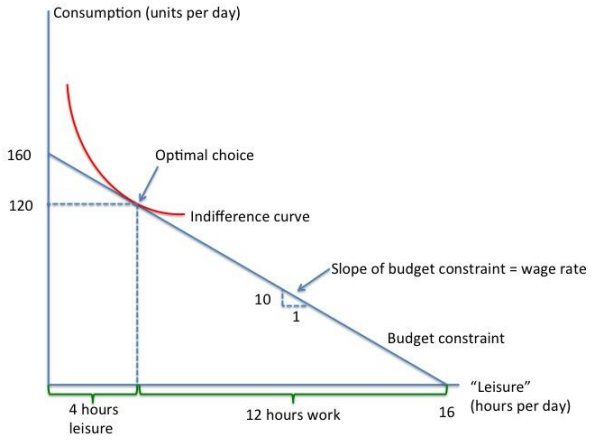



Budget constraints can change due to change in income or change in prices.

- A change in income (but no change in prices) shifts the budget constraint but the slope stays the same (why? Hint: use the equation for the budget constraint)
- A change in the price of goods leads to a change in slope of the budget constraint
- Price changes have income and substitution effects (to be covered next recitation)

Income and Substitution Effects in the Labor Market

The leisure-labor decision is typically characterized by a graph with leisure on the x axis and consumption or income on the y-axis. Moving to the right on the x axis means that the household is choosing more leisure, moving to the left means that the household is working more hours. The optimal decision for the household is where the household's budget constraint intersects with the household's indifference curve.




Note that the budget constraint is a function of the wage rate, and is negatively sloped. More leisure means less work, and less work means less money to spend on consumption.

Suppose there is an increase in the wage rate. To determine the effect on the number of hours worked, that is, the amount of leisure demanded, we need to consider two effects: income and substitution effects.

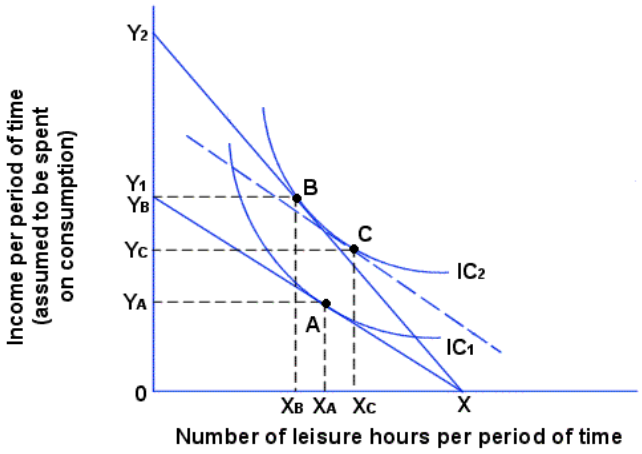
Income effects are changes in consumption due to a change in income. This effect is dependent upon whether the good in question (in our case leisure) is normal or inferior.

Recall that for normal goods, an increase in income leads to an increase in demand for that good. With inferior goods, an increase in income leads to a decrease in demand for that good. Let's assume that leisure is a normal good. (Perhaps you might like to repeat this exercise treating leisure as an inferior good.)

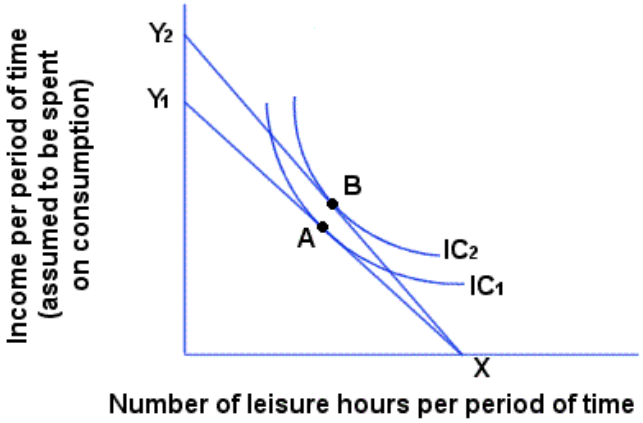
If wages increase, then the household will experience an increase in their income. This leads to an increase in consumption of all normal goods. Since leisure is normal, households will choose to demand more leisure. The income effect in this case has caused the household to *work less.* In the graph below, it is represented by the change from point A to point C.

Substitution effects are due to relative price changes, in this case, the relative price of leisure. With an increase in wages, leisure becomes relatively more expensive. Households will substitute away from leisure and choose a higher quantity of labor. The substitution effect has caused the household to *work more.* In the graph below, it is represented by the change from point C to point B.

The total effect of the increase in wages is the sum of the income and substitution effects. When leisure is a normal good, the total effect is ambiguous and depends on household preferences. The household represented by the graph below has a larger substitution effect than income effect, and therefore allocates more time to working. A wage increase for this household has led to the household *working more.*




However, it is also entirely plausible that a household will have a larger income effect than substitution effect. In this case, the household will allocate more time to leisure. A wage increase for this household has led to the household *working less*. The movement from A to B in the following graph depicts this:

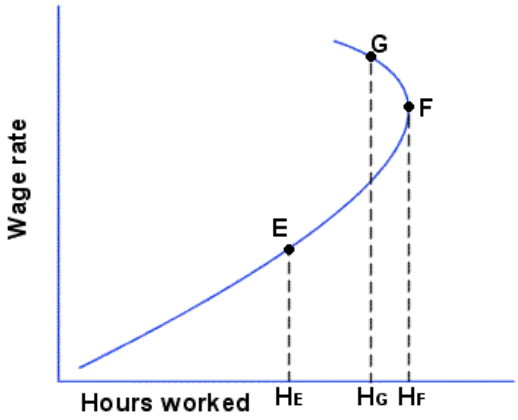



How can we relate the household labor-leisure decision to the labor supply curve? Recall that when leisure is a normal good, and when the substitution effect is greater than the income effect, the household demands more work when wages increase. That is, the labor supply curve is sloping upwards.

When a household has a larger income effect than substitution effect than substitution effect, the household demands less work when wages increase. That is, the labor supply curve is sloping downwards (as we see in Chapter 1)

In reality, it's likely that many households have an upward sloping labor supply curve up until some wage rate, then a decreasing labor supply curve (as in the graph below). Perhaps you're like me: I'm happy to increase my work hours for higher wages if I start off not making as much money as I would like. Once I work enough to reach a level of income I'm

happy with, further increases in my wage will probably lead me to enjoy my weekends and nights rather than work all the time. Of course, households can have differing labor supply curves to this one.



**Recitation 2**

Elasticity

- The concept of elasticity measures to responsiveness of a variable to a change in another.
- Elasticity of X with respect to Y is simply how much does X change when Y changes by a percent.
- For example, price elasticity of demand measures how much does the demand change when price changes by a percent.
- Elasticity of X with respect to Y **OR** Y Elasticity of X= (% change in in X% change in Y)
- Similarly, income elasticity of demand measures the relative change in the demand for a good when the income of the consumer changes.

| | Year 1 | Year 2 |
|---|---|---|
| Rent | $50 | $80 |
| Food | $20 | $30 |
| Entertainment | $10 | $60 |
| Transportation | $20 | $30 |
| Total Income | $100 | $200 |

- The income doubles from $100 to $200, that is, there is a 100% increase in income. However, the rent went up by only by 60%. Food consumption went up by 50%. The income elasticity of rent (60/100) and food (50/100) is less than one in this example.
- Calculate the income elasticity of demand for the other two goods.
- **Why is the income elasticity of food consumption usually less than one?**
  Food is a necessity. The consumers will first make the minimum purchases of food before they move on to buying other things such as "entertainment". However, once minimum food has been purchased, with a higher income they are not going to change their consumption by a lot because the minimum levels have already been met, even at a lower income. **What does this mean for the income elasticity of food demand?**
  Thus as the income would increase, the share of food consumption would fall.
  Voila!! We have Engel's Law.

**Can you think of a context when this law could be violated?**

**Professor mentioned in the class that kids are very food intensive? What do we understand by that?**

Real Variables versus Monetary/Nominal Variables

We have been using these terms in different contexts (real wages and monetary wages etc.) in the class and in the assignment a lot. What is the difference between the real version of a variable and its monetary counterpart?

The monetary version of a variable, is simple the value in money terms. An income of $100 has a monetary value of $100. The real version accounts for the general price level. Imagine an economy where you eat only apples. Price of an apple is $10. Your income of $100 is now worth 10 apples. Due to the benevolence of your employee, your income has now increased to $110. Apple orchards were affected by blight and a lot of the crop was destroyed. Price of an apple has gone up to $12. You can buy (110/12) apples now with your income. Are you richer now? **Why, or why not?**

**Can monetary income go down but real income increase?**

Utilitarianism and Inequality

If you are a utilitarian: “Income inequality lowers social welfare.”

Three key ingredients to get this result:

- Maximize aggregate social welfare, defined as the sum total of “utility” in society.
- Everyone has essentially the same utility from a given income.
- There was diminishing marginal utility of income, meaning that the extra utility from a given increase in income is greater the lower the initial income.

Consider a society where we have to divide $100 among four people who live in that society. They all have identical utility functions- $(x)^{1/2}$. Let’s start with an equal division: {25, 25, 25, 25}. The total social welfare is 20 units. Now let’s try different combinations of division of $100. Can you increase the social welfare beyond 20 units?

Note that we have diminishing returns to income in this utility function. If I make someone richer, the incremental gain to her utility would be less than the loss in the utility of the person who is made poorer.

**Professor mentioned in the class that under utilitarian paradigm, you can make the richest better off by taking away resources from the poorest, and still have an increase in the total social welfare. Is that supported by the discussion above? Why, or why not? Under which conditions is such a transfer plausible?**

# Recitation 3

Amartya Sen's Capability Approach

Capabilities are what a person is able to do or to be; functionings are those capabilities that are realized. Thus, functionings are 'beings' and 'doings'. Examples of the former (the 'beings') are being well-nourished, being undernourished, being housed in a pleasantly warm but not excessively hot house, being educated, being illiterate, being part of a supportive social network, being part of a criminal network, and being depressed. Examples of the 'doings' are travelling, working, taking part in social events, caring for a child, voting in an election, taking part in a public debate, taking drugs, killing animals, eating animals, donating money to charity, consuming lots of fuel to heat one's house.

Capabilities are a person's real freedoms or opportunities to achieve functionings. For example, while travelling is a functioning, the real opportunity to travel is the corresponding capability.

The distinction between functionings and capabilities is between the realized and the effectively possible, in other words, between achievements, on the one hand, and freedoms or opportunities, on the other.

**Which of these two concepts relate more to the idea of means (means vs ends)?**

According to the capability approach, 'functionings' and 'capabilities' are the best metric for most kinds of interpersonal evaluations. In other words, those interpersonal evaluations should be conceptualized in terms of people's functioning (their actual beings and doings) and their capabilities (the real opportunities they have to realise those functionings). These beings and doings together are held to constitute what makes a life valuable. Whereas 'functionings' are the proposed conceptualization for interpersonal comparisons of (achieved) well-being, 'capabilities' are the conceptualization for interpersonal comparisons of the freedom to pursue well-being, which Sen calls "well-being freedom" (Sen 1992: 40).

(https://plato.stanford.edu/entries/capability-approach/#FunCap)

**Basic Mathematical Concepts for Economics**

If you are interested in knowing more about mathematical economics, Simon and Blume's textbook, Mathematics for Economists, is a great starting point.

Economics uses a lot of math to derive results and explain difficult concepts. These notes are a basic overview of some of math and stats needed for this class.

Slope

Slope = change in y / change in x, or,
= change in one variable / change in the other variable

Usually, y variable is the dependent variable and x is the independent variables.
Independent variable is the one that changes independently, and dependent variable is the one that changes as a result. Dependent variable is plotted on the vertical axis, and the independent variable on the horizontal axis when plotting the relationship between variables.

**Consider the following example. Price of a candy is $2. The shop makes money only from the sale of candies. What are the total revenues when the shop sells 4 candies? 5 candies? 10 candies? Calculate the slope of total revenue with respect to the number of candies sold when the sales increase from 4 to 5. When sales increases from 4 to 20. When sales increase from 6 to 20. What do you see? What kind of 'function' is the relationship between total revenues and quantity sold?**

Probability distributions
Probability distributions assign a probability to each outcome. For example, what is the probability of heads occurring if I flip a coin multiple times? (Bernoulli distribution will tell you this). Probability distributions can be discrete (e.g. Bernoulli, binomial, Poisson) or continuous (e.g. normal, log normal, exponential). In economics we typically deal with continuous distributions, since most outcomes we look at are continuous (e.g. income or population).

In class, we looked briefly at the income distribution of a country. An income distribution tells us how a nation's GDP is distributed among the population. The following graph looks at incomes for Mexico in 2000 (this is a discrete distribution, because there are separate bins for each income).

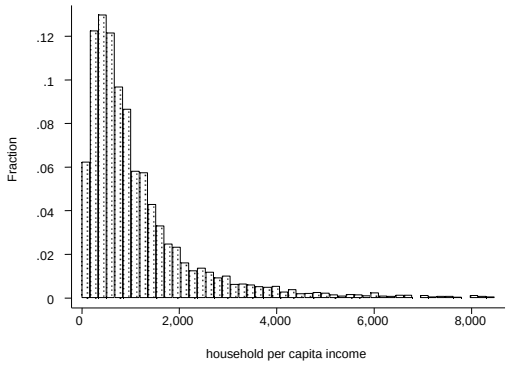
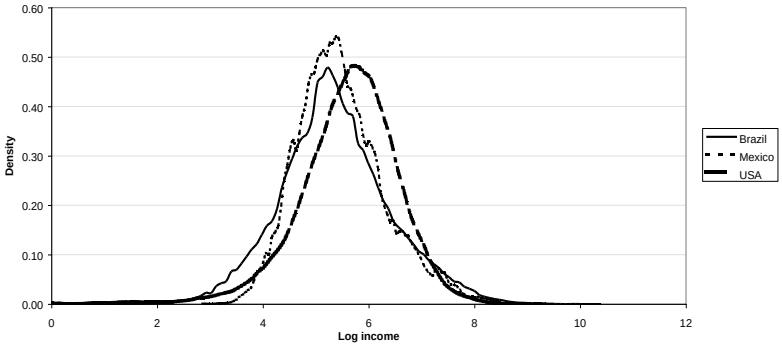



Figure 1.

Note that this graph is skewed to the right. Skewness refers to the direction that the **tail** is going in. So a right skew has a tail that extends to the right, left skew has a tail that goes to the left. Skewness is very common in many distributions involving economic variables.

**What does this graph imply about the inequality in Mexico?**

**Figure 2: Income Distributions for Brazil, Mexico and The United States**




Sources: PNAD/IBGE 1999, CPS/ADS 2000
Note: Gaussian Kernel Estimates (with optimal window width) of the density functions for the distributions of the logarithms of household per capita incomes. The distribution were scaled so as to have the brazilian mean. Brazil and Mexico are urban areas only. Incomes were converted to US dollar at PPP exchange rates (see Appendix).

Figure 2

This graph is a continuous distribution of income. Note that the x-axis is log income (rather than income, as in Figure 1).

**Why did plotting the log income instead on income removed the skewness?**
**What is the shape of these curves usually called?**
**What can you say about the average income in the three countries based on Figure 2? About the distribution of income?**

Probability distributions can be represented in two ways. Cumulative Distribution Functions (CDFs) give the probability that some number X takes on a value less than or equal to x, while Probability Distribution Functions (PDFs) gives the probability of x occurring.

(To find the PDF of a random variable, take the derivative of the CDF. To find the CDF, integrate the PDF. The CDF of a random variable x are usually written as F(x) while the PDF is written as f(x). <u>If this is confusing, don't worry too much. It's not important that you know the details, just that CDFs and PDFs exist and how they are related to each other.</u>)

If the data is discrete, we use the terminology: "probability mass function".

**An example with discrete data**

Suppose we have a family with three children. The possible permutations of different genders of the children are:

{BBB,BBG,BGB,GBB,GGG,GGB,GBG,BGG}S={BBB,BBG,BGB,GBB,GGG,GGB,GBG,BGG}

where B = boy and G = girl. Suppose the probability of having a boy is the same as the probability of having a girl.

**What is the probability mass function of the number of boys in the family?**
**What is the cumulative density function of the number of boys in the family?**
**What is the survival function of the number of boys in the family?**

**Recitation 12**

**China's Entry into WTO**

China joined WTO in 2001:

1. Prices changed before 2001 **(WHY?)**
2. Reforms affected the economy after 2001

While computing the impact of China's accession to WTO on Chinese economy, should we consider only the changes after 2001? Why, or why not?

Step 1: Price changes before 2001 to approximate what the baseline distribution would have been

Step 2: Impact of changes after 2007

**Fungibility**

Even if the aid is linked to a good project, can it still be fungible? Why, or why not?

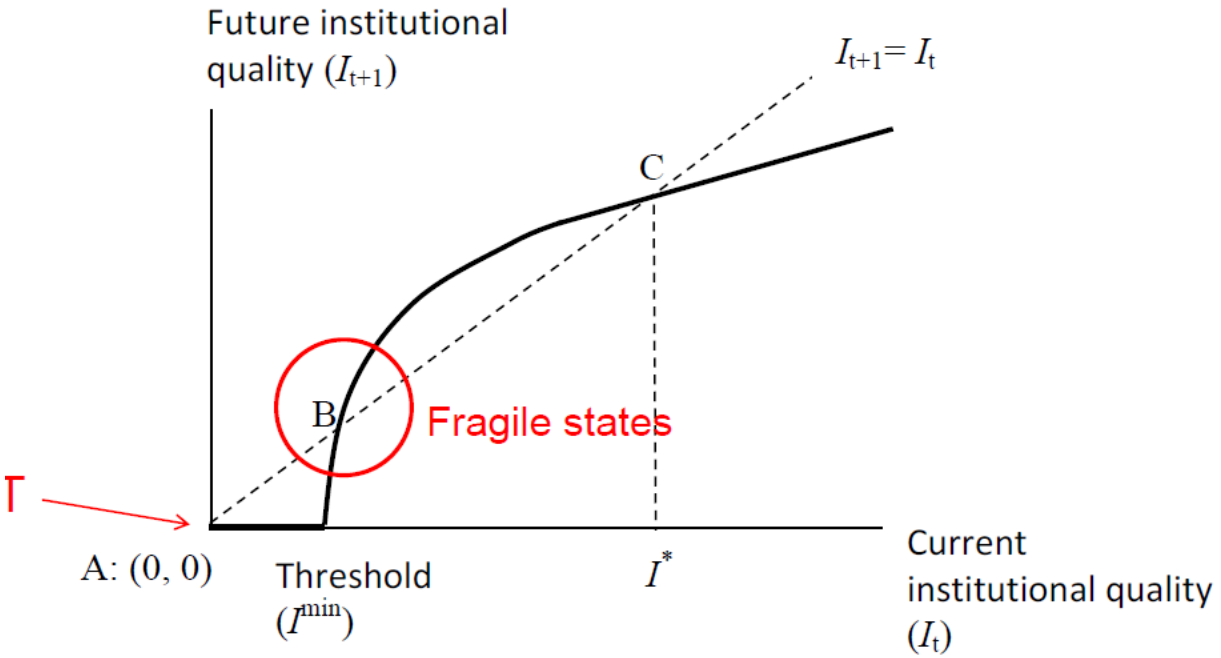
**Humanitarian Aid**

Explain how humanitarian aid in a war ravaged country can in fact be detrimental to its population.

**Resource Curse**

Explain why natural resources have been thought of as a *curse* for some countries.

**Poor Institutions Trap**

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What is $I_{min}$? Why can withdrawal of foreign aid push a country into the "poor institutions trap"?

**Poverty Elimination**

"…*the global poverty gap is roughly what Americans spend on lottery tickets every year, and it is about half of what the world spends on foreign aid*."

Does this suggest that it is easy to eliminate global extreme poverty? Why, or why not?

**Promotion Policies**

Type 1 Promotion Policies: poor people to break out of the trap, by permitting a sufficiently large wealth gain, to put them on a path to reach their (higher and stable) steady state wealth

Type 2 Promotion Policies: raise productivity

Think about the policies you all suggested in your essays. Let us discuss them. Which of these were Type 1 promotion policies, and which were Type 2 promotion policies?

**Recitation 5**

## Poverty Lines

The principle underlying the setting of a poverty line is the welfarist argument that there is some reference level of welfare below which the individual must be deemed poor. For informing anti-poverty policies, a poverty line should be *absolute* in the space of welfare.

**What do we understand by poverty lines being absolute in the space of welfare? How do we usually draw a poverty line that ensures that the poverty lines are absolute in the space of welfare? What are the underlying assumptions made in this method?**

**Explain Weak Pareto principle in the context of setting poverty lines.**

Think of a poverty line as the threshold of income or consumption expenditure at which an individual or a family barely able to meet their bare minimum needs.

A *poverty bundle* is that bundle of bare minimum needs.

Now this bundle can correspond to some *reference level of utility* for given prices. In that case the poverty line corresponds to the *consumer welfare definition of poverty*.

In addition, one can think of this bundle is the minimum set of resources required to achieve a set of functionings. In this case the poverty line corresponds to the *capability approach*.

The normative question in both these frameworks is that of the choice of poverty bundle. In the former case, one can think of this as the problem of choosing the appropriate level of reference utility. In the capability approach, one has to take a normative decision on the set of "adequate" functionings.

**Food intake method versus cost of living method and its implication for urban and rural poverty lines**

*Cost of living method* translates the principle of "fixed welfare at the poverty line" to practice by taking the minimum bundle and finding the cost of consumption for that bundle by multiplying it with the prices.

*Food intake method* translates the principle of "fixed welfare at the poverty line" to practice by finding the expenditure corresponding to the minimum energy requirement for a subgroup. This expenditure is the poverty line.

**Does this poverty line account for non-food expenditure?**

Typically, this poverty line is set separately for rural and urban areas. However, food energy intakes tend to be higher at any given level of income in rural areas. **Why?**

| | Head-count index (% poor) | |
|---|---|---|
| | Urban | Rural |
| Indonesia | | |
| Food energy method | 16.8 | 14.3 |
| Cost-of-basic needs method | 10.7 | 23.6 |
| Tunisia | | |
| Food share method | 7.3 | 5.7 |
| Cost-of-basic needs method | 3.5 | 13.1 |

**Explain FEI and CBN give inconsistent results.**

**Food share version of cost of basic needs method**

$$\text{Poverty Line} = \frac{\text{Cost of food-energy requirement}}{\text{Food-share of "poor"}}$$

**Why is the cost of minimum energy requirement divided by the share of food expenditure? Does this poverty line account for non-food expenditure?**

Example: Cost of energy requirement = $100, and food share is 0.3 for the "poor". So, cost of the full consumption bundle would be 333.3. The underlying assumption is that the "poor" have the same mapping between food consumption and food expenditure as they have between non-food consumption and non-food expenditure. This is method is usually used when you do not have price data. This method was used for deciding poverty line in the US.

**Relative Poverty Lines**

**What is difference between absolute and relative poverty lines? Can one argue that absolute poverty lines are not absolute in the welfare space but relative poverty lines are?**

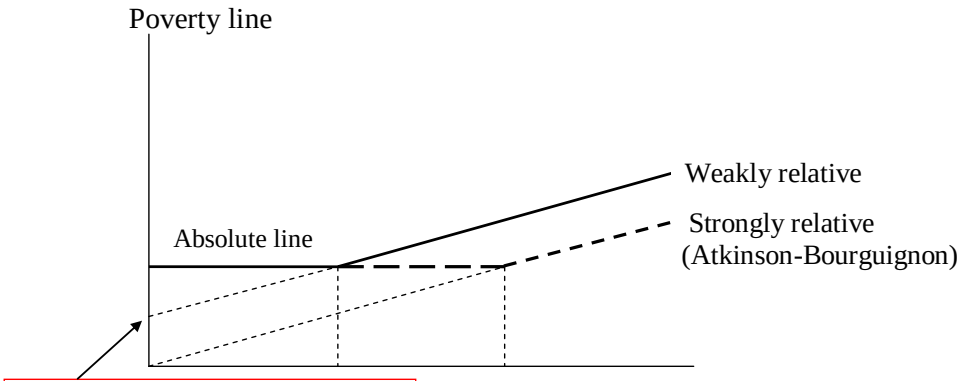
**Strongly Relative Poverty Lines**

Z = kM

where M = mean/median, and is some fraction.

**Let's say M is median and k is 1. How many people would be considered poor by this definition of poverty line?**

**UK Labour Government set poverty at 60% of the median level. Poverty among children and pensioners fells between 2010 and 2014 and started increasing in 2015. How do we interpret these? Why might this measure of poverty actually fall during recession?**




**Why might we not want to have strongly relative poverty lines?**

**Recitation 6**

**Midterm Prep + Gini Coefficient**

**GINI**

Axioms of an inequality measures

1. Anonymity: it does not matter who has which income level
    a. Does identity matter – individual incomes – within a HH – increase in income share of the women has a greater effect on the child welfare outcomes
2. Transfer Principle: transferring income from the poor to the rich must increase inequality
    a. Fairly non-controversial
3. Income Scale Independence
    a. Relative versus absolute – do you think it is the relative differences that matter or the absolute differences that matter – at all income levels?
4. Population replication independence
5. Decomposability
    a. Sum(Inequality within all groups) + inequality between groups = total inequality
    b. Why is this decomposition relevant for policy issues?

**Why does dividing my mean makes Gini scale invariant?**

$$Gini = \frac{1}{2n^2\bar{y}} \sum_{i=1}^{n} \sum_{j=1}^{n} \left| y_i - y_j \right|$$

**What does scale invariance mean?**

- ➔ Is mean scale invariance – what happens to the mean income when I multiply all incomes by 100
- ➔ And therefore what happens to Gini coefficient?
- ➔ When this sort of scaling might be relevant – currency conversion
- ➔ What happens to Gini if I give everyone an extra $10?

An example of calculating Gini:

| $\lvert y_i - y_j \rvert$ | Income = 1 | Income = 3 | Income = 5 |
|---|---|---|---|
| Income = 1 | 0 | 2 | 4 |
| Income = 3 | 2 | 0 | 2 |
| Income = 5 | 4 | 2 | 0 |

Mean = (1+3+5)/3 = 3

Gini = (1/2*3^2*3)*((0+2+4)+(2+0+2)+(4+2+0))

- ➔ Calculate Gini if all incomes are multiplied by 2
- ➔ Calculate Gini if 2 is added to all the incomes

Verify that the Gini index for an income distribution across two people of (0, *x*) is 0.5 no matter what the value of *x*

| $\lvert y_i - y_j \rvert$ | Income1 = 0 | Income2 = x |
|---|---|---|
| Income1= 0 | 0 | x |
| Income2 = x | x | 0 |

Mean = (0+x)/2

- ➔ What is Gini?

Does it depend on the values of x?

**MIDTERM PREP**

**Question 1:**

Typically, this poverty line is set separately for rural and urban areas. However, food energy intakes tend to be higher at any given level of income in rural areas. Why?

| | Head-count index (% poor) | |
|---|---|---|
| | Urban | Rural |
| Indonesia | | |
| Food energy method | 16.8 | 14.3 |
| Cost-of-basic needs method | 10.7 | 23.6 |
| Tunisia | | |
| Food share method | 7.3 | 5.7 |
| Cost-of-basic needs method | 3.5 | 13.1 |

**Explain FEI and CBN give inconsistent results.**

**Question 2:**

What are the four desirable properties in a poverty measure? Define them.

Consider the following two economies. Assume that the poverty line is fixed at 130. Calculate the head count rate, poverty gap index and squared poverty gap index. Which measure would you prefer? Why?

| Distribution | Inc1 | Inc2 | Inc3 | Inc4 | HCR | PGI | SPG |
|---|---|---|---|---|---|---|---|
| A | 99 | 101 | 150 | 150 | | | |
| B | 79 | 121 | 150 | 150 | | | |

**Question 3:**

Consider a distribution of incomes (2, 4, 6). Draw the Lorenz curve and compute the Gini coefficient. Now consider another distribution (1, 4, 7). Is it more or less unequal than the previous distribution? Use BOTH the Lorenz curve and the Gini coefficient to substantiate your argument.

**Question 4:**

How does the idea of consumption floor relate to Rawlsian idea of maximin? What do we know about the consumption floor over the past few decades?

*Lecture 3- slides 84-89*

**Question 5**

The First Poverty Enlightenment came near the end of the Age of Enlightenment. What were the historical events that were responsible for driving the First Poverty Enlightenment? After the First Poverty Enlightenment, was the poverty still seen as inevitable? What was the policy approach towards poverty now?

**Question 6**

After the Second Poverty Enlightenment, poverty was seen as a result of market failure. Give an example of a market failure that begets poverty.

**Question 7**

Recall that the concentration curve, $C(p)$, gives the cumulative share of that variable going to the poorest $p$% of the population, ranked by income. What can you conclude when $C(p)>p$ for all $p$? What about when $C_A(p)>C_B(p)$ for all $p$?

**Question 8**

Cost of participating in a survey rises with income. Why do you think that is the case? What does this imply for measuring inequality?

**Recitation 8**

**Urbanization of Poverty:**

- Poor are urbanizing at a faster rate than others
- What does this mean?
- Does this suggest that people residing in urban areas are becoming poorer?

**Poverty and Fertility**

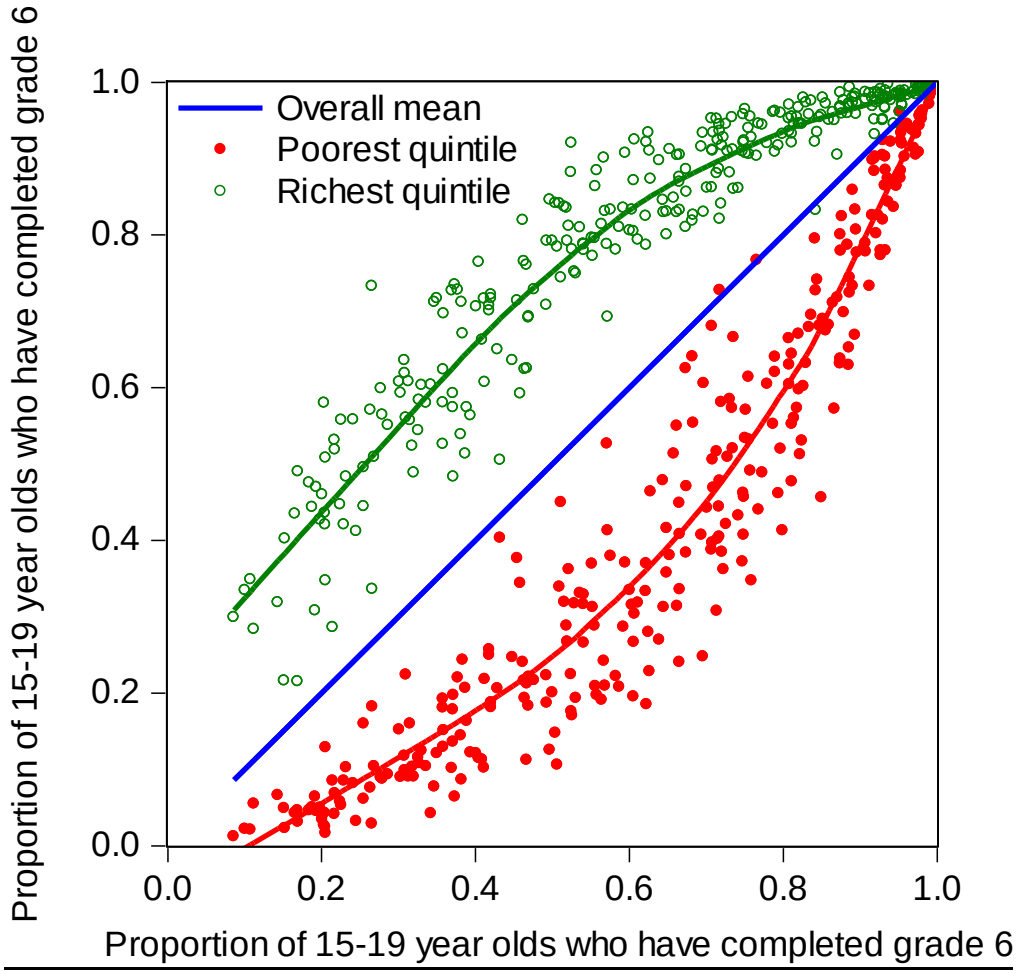
Prof mentions in the class that poor have higher fertility. Does this suggest that Malthusian arguments of poor having *base morals* are true? Why, or why not?

**Economies of Scale in Consumption**

We studied about economies of scale in household consumption. What does it mean?

What is the scale used in European and OECD countries to adjust the total household consumption? What is the scale used in developing countries?

**Schooling and Poverty**




Explain this graph.

**Nutrition and Poverty**

Wasting is usually indicated by a child being two standard deviations below the median weight given height of a reference population.

Stunting is indicated by a child being two standard deviations below the median height for age of the reference population.

Reference population is typically healthy well-nourished children in the U.S. in '70s.

**Do we understand this?** 😊

**Do poor households have poor nutritional outcomes, or poor households reside in poor countries that have poor nutritional outcomes? What is the difference between the two ideas? How do we disentangle these two effect?**

**Why cannot we rely on only income poverty to target nutrition interventions?**

**What do we understand by the idea of food deserts?**

**Recitation 9**

## Lewis Model

- Firm is competitive: MPL = W
- Population is either in urban or in rural areas
- $W_u > W_r$
- People move from rural to urban
- Rural wages don't increase – underemployment/disguised unemployment
- Until they do because enough people have moved to the urban sector – Lewis turning point
- Ultimately, $W_r = W_u$
- What can you about inequality across sectors?
- Criticisms:
    - Frictionless process of transition from the rural to the urban sector
    - No unemployment in urban sector
    - Does the demand for agricultural produce increase with higher average wages?

## Neoclassical Model

- Both rural and urban sectors are profit maximizing – $MPL_r = W_r$ & $MPL_u = W_u$
- Mean income is maximized at the equilibrium
- Can this model explain the existence of unemployment?

## Harris Todaro Model

- Urban wage is fixed. (WHY??)
- $W_r$ = Expected urban wage
- Expected urban wage = $prob_{unemp}(W_{unemp}) + prob_{emp}(W_{emp})$
- Do we have inequality in the equilibrium?
- What would happen if the government institutes a mandated wage increase?

## Kuznet's Hypothesis

- Originally for across countries: as countries develop, within country inequality first increases, and then falls; one can tolerate some inequality in exchange for growth
- Between sectors:
    - Starting with all the population in the rural sector, when the first worker moves to the urban sector, inequality must increase
    - When the last rural worker leaves, there will be two opposing effects on overall inequality:
        - The <u>between-sector effect</u> is inequality decreasing, as the last (poorer) rural resident becomes urban.
        - But the <u>within-sector effect</u> is inequality increasing (since urban sector has higher inequality).
    - Kuznets assumed that the first component dominates, so inequality falls when the last person leave rural areas
    - If inequality is sufficiently high in the urban sector then there will be no turning point: inequality will continue to rise as development proceeds

**China's Entry into WTO**

China joined WTO in 2001:

1. Prices changed before 2001 **(WHY?)**
2. Reforms affected the economy after 2001

While computing the impact of China's accession to WTO on Chinese economy, should we consider only the changes after 2001? Why, or why not?

Step 1: Price changes before 2001 to approximate what the baseline distribution would have been

Step 2: Impact of changes after 2007

**Fungibility**

Even if the aid is linked to a good project, can it still be fungible? Why, or why not?

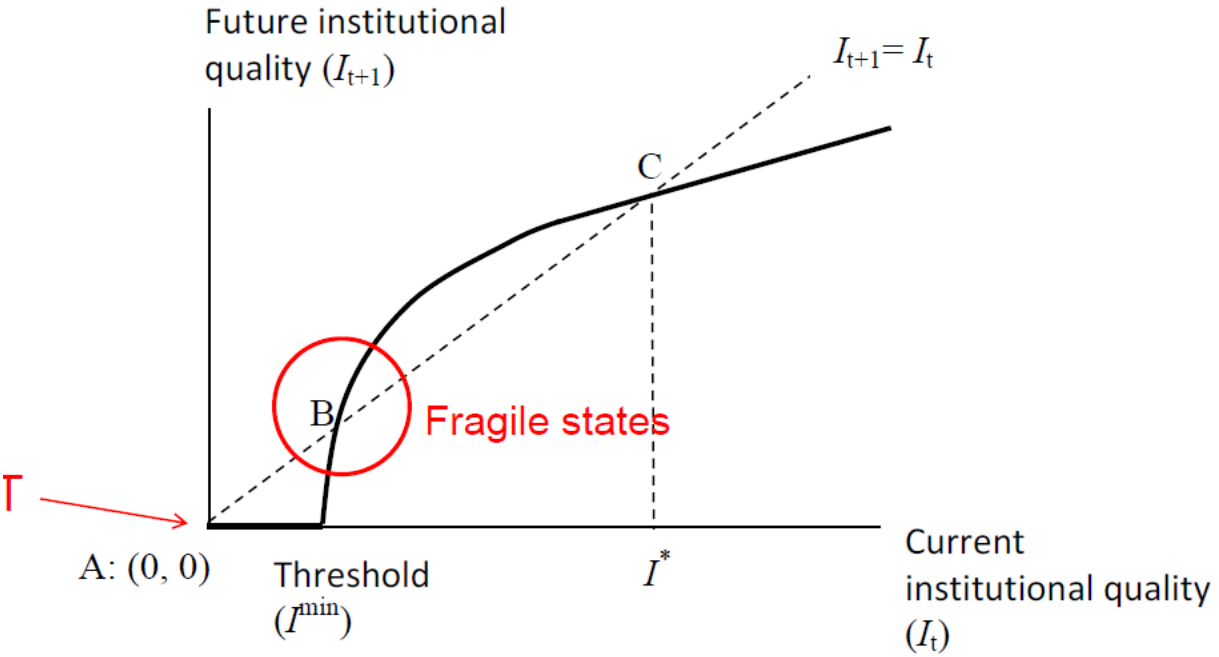
**Humanitarian Aid**

Explain how humanitarian aid in a war ravaged country can in fact be detrimental to its population.

**Resource Curse**

Explain why natural resources have been thought of as a *curse* for some countries.

**Poor Institutions Trap**

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What is $I_{min}$? Why can withdrawal of foreign aid push a country into the "poor institutions trap"?

**Poverty Elimination**

"*…the global poverty gap is roughly what Americans spend on lottery tickets every year, and it is about half of what the world spends on foreign aid*."

Does this suggest that it is easy to eliminate global extreme poverty? Why, or why not?

**Promotion Policies**

Type 1 Promotion Policies: poor people to break out of the trap, by permitting a sufficiently large wealth gain, to put them on a path to reach their (higher and stable) steady state wealth

Type 2 Promotion Policies: raise productivity

Think about the policies you all suggested in your essays. Let us discuss them. Which of these were Type 1 promotion policies, and which were Type 2 promotion policies?

# Revision Class

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## 1 Poverty Trap due to Multiple Equilibria

Before looking at the dynamics of wealth accumulation, let's think about peculiarities of credit markets, especially the informal ones.

Ms X want to take a loan. She is a young entrepreneur with brilliant ideas. She is new to the city. She goes to the friendly moneylender in her neighbourhood. He does not know her too well. She tells him that I will use this money to buy a food truck and within a few months she will be able to repay the entire loan amount and the interest rate. While he likes her, he is not sure if he should trust her or not. After all, she can take the whole amount and leave the city. Since, he is lending informally he can't make her sign a contract like a bank can. Instead, he asks her for collateral.

**WHAT IS COLLATERAL?**

It is just a mechanism to make sure that Ms X is responsible with the money she borrows. It is something that she will hand over to the moneylender until she repays the loan. It obviously has to be something that she values. Otherwise, she can still leave the city with the entire loan amount as she doesn't care about the collateral. In most cases, the collateral that moneylenders accept are goods that valued by both the money lender and the borrower. In case of default, the moneylender can liquidate that good and recover at least some of the defaulted amount.

**WHO IS MORE LIKELY TO BE REQUIRED TO GIVE COLLATERAL?**

Moneylender knows that Ms X is a young hopeful entrepreneur who neither has a job, nor any real assets in the city. She can pack her bags and leave tomorrow with the money he loaned her.

However, if she had a house in DC, the moneylender would have guessed that the likelihood that she would run away is really low.

- Often, informal credit sources are more likely to demand collateral from poorer borrowers

**WHO HAS MORE COLLATERAL TO OFFER?**

If she had a house, she could have offered the papers for her house as collateral.

- Poor people typically have lower wealth, and thus lower collateral to offer to informal lending institutions

Now, because Ms X doesn't have collateral to offer, she can never have her food truck, and can never achieve her dream of becoming the entrepreneur of the year ☹ .

This is an example of how imperfections in credit markets can add up and multiply so that it replicates the current distribution of wealth.

Before we move on to the dynamics discussed in the class, two crucial concepts:

**STEADY STATE:**

In the example discussed in the class, steady state is an equilibrium wherein the growth in the wealth levels is zero, my wealth today is the same as the wealth tomorrow.

**If I measure the today's wealth on x-axis, and tomorrow's on y-axis, what would be the locus of all steady states?**

(Hint: $w_t = w_{t+1}$)

**STABLE STEADY STATE:**

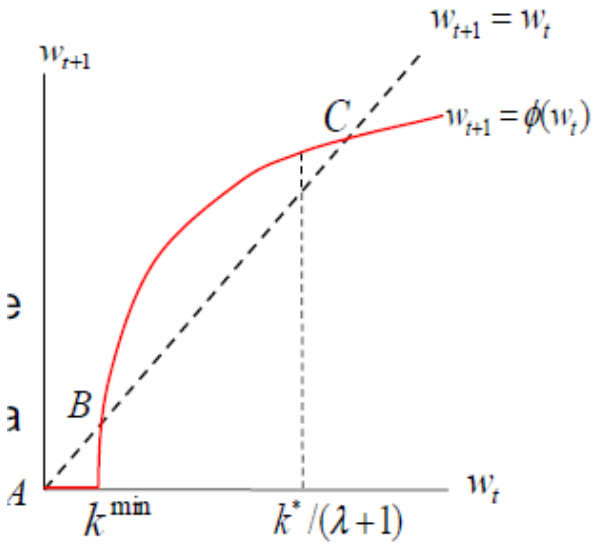
Let's imagine that we are in the steady state. The wealth levels are same across periods. Now, imagine that something happens that destroys a small part of the wealth today- a particularly harsh winter that affected the demand for the amazing food Ms X was selling in her food truck. If the steady state is stable, despite low demand, and thus a lower earnings, and thus lower wealth for a few weeks, she would eventually be able to make up for the loss and be still in the older steady state. However, if the steady state was unstable, her wealth would fall and she might be a lot poorer than she was before the start of the winters.

Let us look at the formal dynamic wealth accumulation model we studied in the class now:

**Features of the economy:**

- Everyone has some endowment of wealth, $w$
- They can use their wealth as capital to produce some output according to the production rule $h(k)$
- Higher the capital, higher the production (Duh!)
  - Greater and greater increases in capital don't increase the production at the same rate **(WHY?)**
- We need minimum amount of capital to kick start the production process: $k_{min}$ **(WHY?)**
- If Ms X doesn't have enough wealth, she can borrow from the moneylender. He will obviously not lend her all that she asks him for. As usual, richer people get larger loans. **(WHY?)**
- The amount of loan I can get is a constant proportion of my wealth: $\lambda * w_t$
- Interest rate is $r$ (marginal cost of investing capital) = marginal product of capital (marginal gain from investing capital) **(WHY)** → this gives us the desired capital stock $k^*$
- The total capital I invest then is:
  - 0 if my wealth less than $k_{min}$ DESTITUTE
  - $(\lambda * w_t + w_t) < k^*$ if my wealth is greater than $k_{min}$ but less than $(k^*/(1+\lambda))$ **(WHY)** FRUSTATED INVESTORS
    - What is the $MP_k$ in this case? **(WHY?)**
  - $(\lambda * w_t + w_t) > k^*$ → will invest upto $k^*$
    - What is the $MP_k$ in this case? **(WHY?)**

**Poverty Trap**




**What are the different steady states here?**

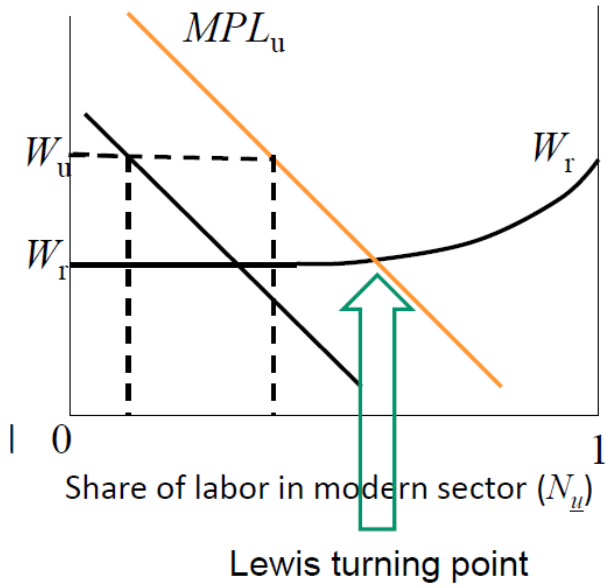
**Which of these steady states are stable?**

**What are the implications for promotional policies?**

## 2 Lewis Model

**Key Features**

- Dualistic Economy: Modern/Urban/Industrial sector AND Traditional/Rural/Agricultural sector
- Agricultural sector: low productivity + surplus labor → fixed subsistence wages
  - **Why do subsistence wages prevail in the agricultural sector?**
  - **When will wages start increasing?**
  - **What is the Lewis Turning Point?**
- **How are urban wages set in this model?**




- Equilibrium: the two wage schedules intersect **(WHY?)**
- If the two wage schedules intersect before the Lewis Turning Point → small urban sector and and large unproductive rural sector
- **How can the economy get out of an unproductive equilibrium?**

**Inequality in this Setting**

(a) **In this set-up, what is the within sector inequality?**

(b) Assume that when we start the entire population is in the urban sector

- **What is the level of inequality at this point?**

(c) Now consider an equilibrium beyond the Lewis Turning Point

- **What is the level of inequality now?**

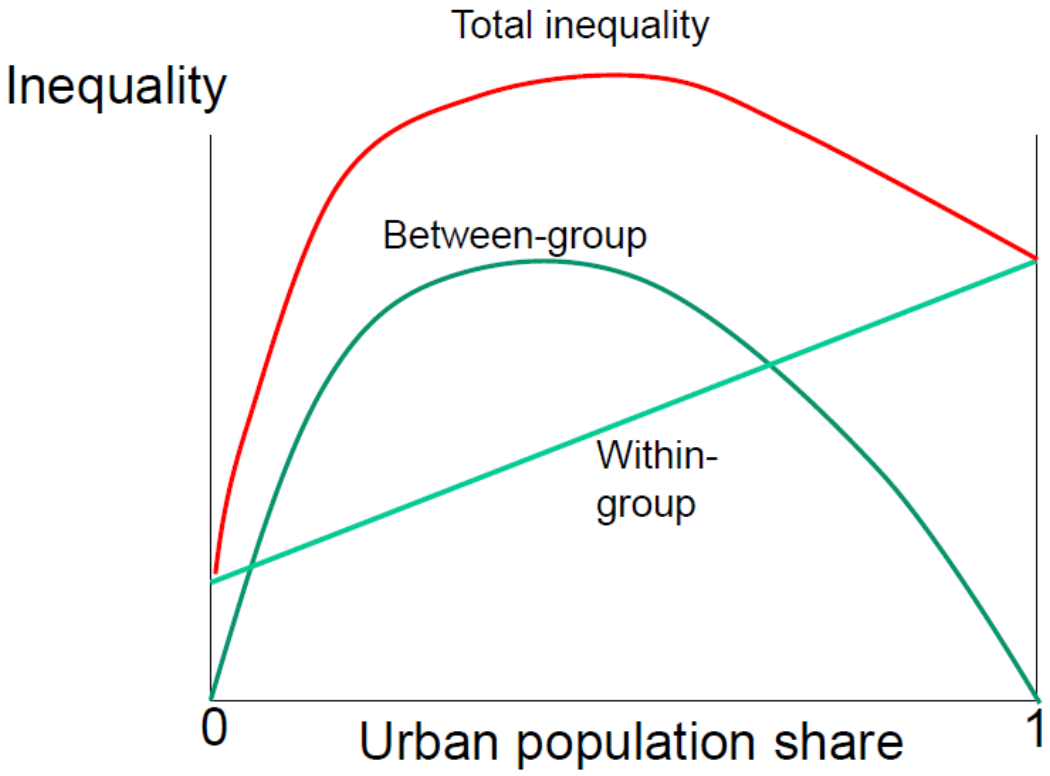
(d) **What happens to inequality when the first person moves from the rural sector to the urban sector?**

Put (a), (b), (c) and (d) together → **how will inequality evolve with development?**

## 3 Kuznets Process

Kuznets Process is based on similar principles, with one crucial difference. In this set-up, within sector inequality is allowed.

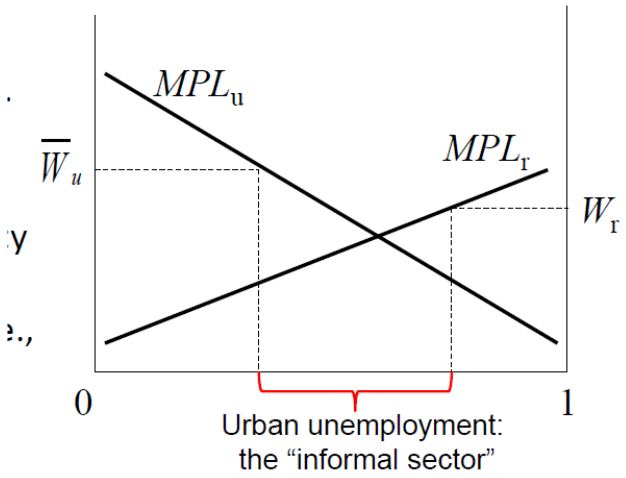
- Rural Sector: low inequality + low mean income
- Urban Sector: high inequality + high mean income
- Migration process does not change the within sector inequality → a representative sample of rural population gets transformed into urban population
- Kuznets process: how inequality evolves when people move from rural sector to urban sector and these conditions hold
  - Beginning: **Whole population is in the rural sector**
  - End: **Whole population is in the urban sector**
- Aggregate within sector inequality increases over this period. **WHY?**
- **What happens to the between sector inequality?**




- **Is it necessary that the inequality will eventually start falling?**
- **What are the conditions under which total inequality will always be increasing?**

# 4 Harris-Todaro

- Urban wages are fixed, and urban wages are *inefficiently* high. **What do we understand by wages being inefficiently high?**
- Some people in urban areas get a high exogenously fixed wage $\bar{w}_u$, and others cannot find a job and earn nothing.
- **What is the probability that a worker in the urban sector will get the formal high paying job?**
- **What is the probability that a worker in the urban sector will be unemployed.**
- **What is the expected wage in the urban sector?**
- **What is the labor market distortion in this set-up? Is it inefficient?**




In this equilibrium there is no "growth-equity" trade-off. **WHY?**

**Consider a government urban job creation program in this set-up. Will it be successful in reducing urban unemployment? Why, or why not?**

# 5 Urbanization of Poverty

Facts:

- Poverty is becoming more urban over time.
- The share of the $1.25 a day poor living in urban areas rose from 18% in 1990 to 25% in 2008 while the urban share of the population as a whole rose from 37% to 46% over the same period.
- This reflects a lower-than-average pace of urban poverty reduction.
- Urbanization of poverty is driven by rural poor moving to urban areas and NOT because the poverty has remained stagnant in urban areas.

Consider the following distribution of income: {1, 2, 3, 4}, where poverty line is 2. The last person in this distribution lives in urban areas.

- **What is the HCR for this economy?**
- **What is the urban HCR?**
- **What is the rural HCR?**

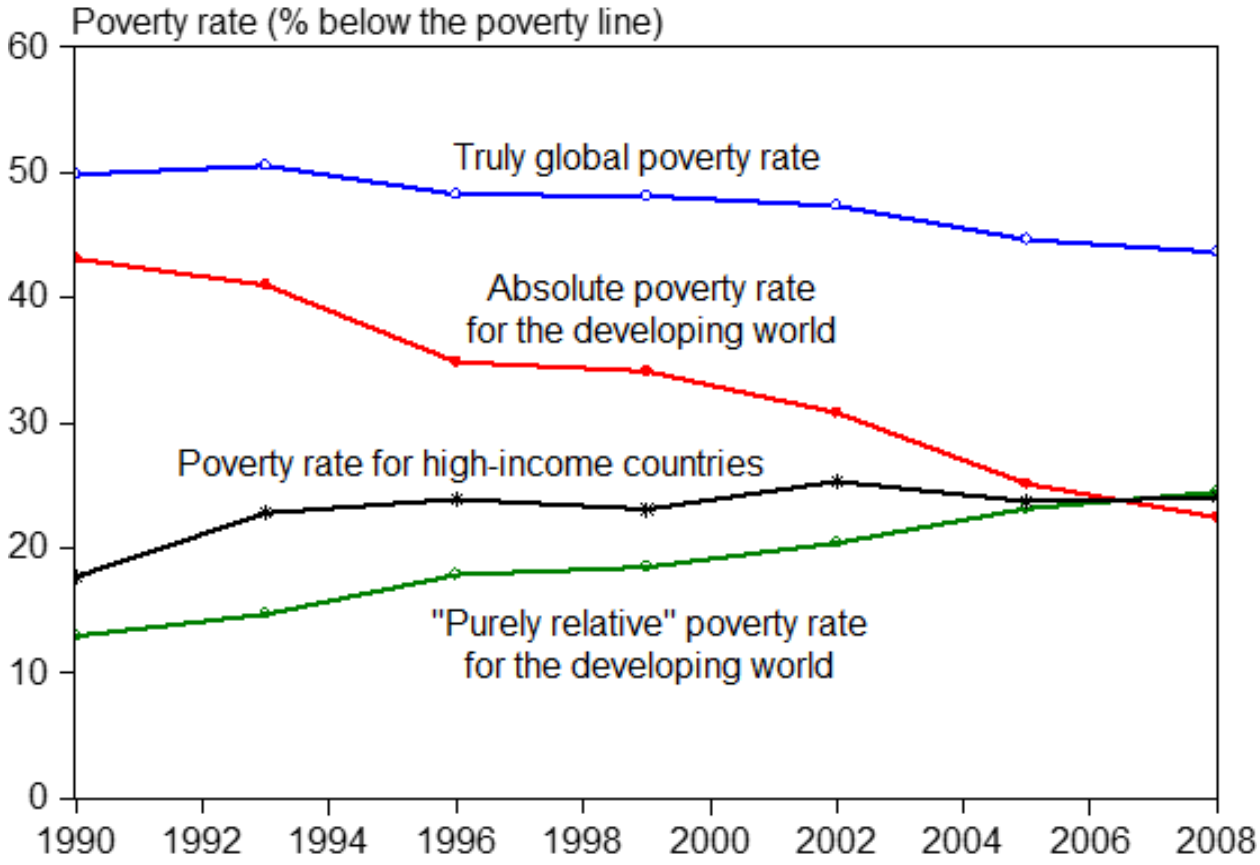
With economic development, the income distribution changes to: {1.5, 2.5, 3, 4}, and the poverty line is still 2. Mr 1 and Ms 2 have moved to the urban areas as a result of the development process.

- **What is the HCR for this economy?**
- **What is the urban HCR?**
- **What is the rural HCR?**

Note that the urban poverty has increased as a result of the development process. However, this does not imply that the development process failed to improve lives of the urban poor. On the other hand, attracted by the prospect of better life in urban areas, some rural poor moved to urban areas. But all of them could not earn enough to get out of poverty. Note that they both are are still better-off with the development process.

This example describes the process of urbanization of poverty.

## 6 Truly Global Measures of Poverty




- Absolute poverty rate in high income countries is zero
- However, one cannot deduce that there is no poverty in HICs **(WHY?)**
- Chen & Ravallion (2008) combine 1000 household surveys from 150 countries, 21 of which are HICs
- These surveys are representative of 90% of the population in the developing world as well as HICs
- Developing Country Data: PovCalNet
- HICs: Luxembourg Income Study (LIS)

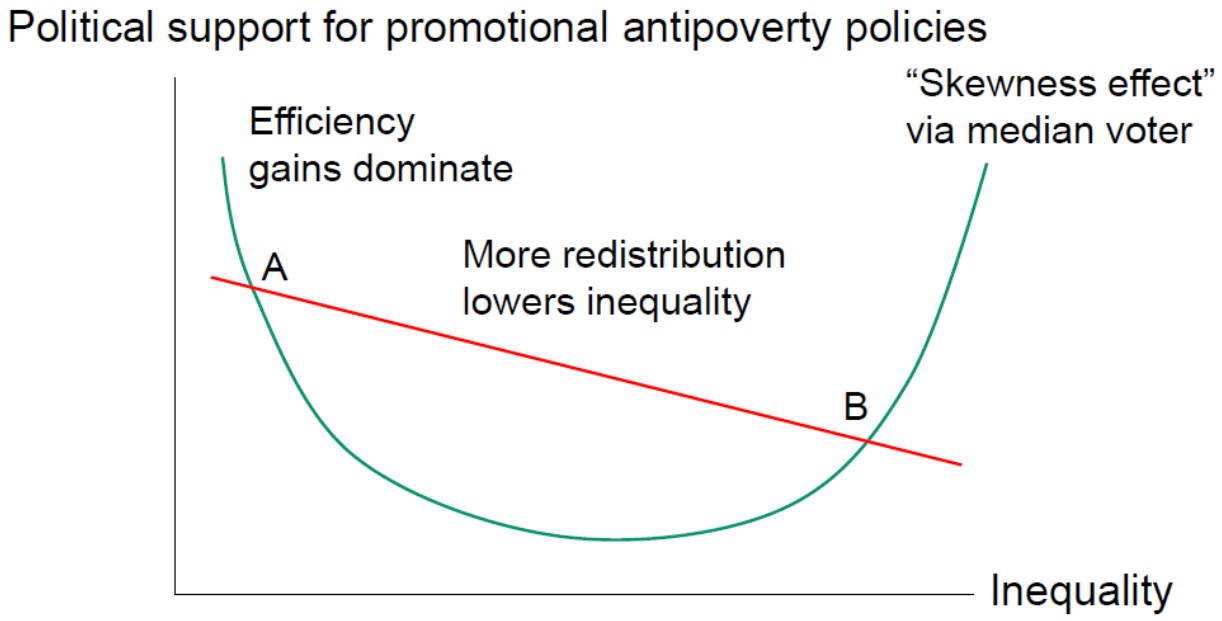
We use absolute poverty line for developing countries, and relative for HICs:

$$Z_{it} = \$1.25 + 0.5 * max(M_{it} - \$1.25, 0)$$

- **What is the poverty line when the mean income is less than $1.25?**
- **What is the poverty line when the mean income is more than $1.25?**

This lines gives us the "truly global poverty" line.

## 7 Inequality and the political support for promotional policies




Green Line: Relationship between support for redistribution and inequality

- Low Inequality → Efficiency Concerns → High Support
- High Inequality → Median Voter Effect → Low Support
- As inequality goes down from a high initial inequality → Median Voter Effect Weakens → Support falls
- As inequality goes up from an initial low inequality → Efficiency Concerns are Weaker + Median Voter Effect is Weak → Support Falls
- Therefore, a u-shaped relationship between support for redistribution and inequality

Red Line: Green Line: Relationship between *actual* redistribution and inequality

- High redistribution → Low inequality
- Low redistribution → High inequality
- Also, high(low) support → high(low) redistribution
- Therefore, a downward sloping line

Equilibria will be characterized by points where the real support and the actual support for redistribution policies will be same for: this point(s) will determine the equilibrium inequality