What is Dev Econ?

- Drawing on traditional economics
    - Efficient allocation of scarce resources
    - Utility, profit maximization, equilibrium outcomes
    - Assumes rationality in economic decision making
    - self - interest
- Political Economy
    - Political context
    - Concerned with role of power and influence on the allocation of resources
- Development Economics
    - An extension between traditional and political economy
    - Effecient allocation of resources
    - Sustain growth
    - Economic social political institutional mechanisms that are needed to improve levels of living
    - Improve standards of living
- Values
    - Concepts and issues and the goals of Dev Econ are coming from **value judgments**
    - We believe that the reduction of poverty is good
    - Development is including these value judgments
- Social systems
    - Values, attitudes and power structures of a society are going to have an interdependent relationship with economic factors
        - Prices, incomes, and etc
    - Values attitudes and power structures should not be ignored and is critical to the success or failure of development efforts
-

Growth and Development

- Income per capita
    - Economic well being is measured by levels and growth of Gross National Income per capita
        - This is supposed to trickle down in the economy
    - Focus on industrialization
- The reduction or elimination of poverty, inequality and unemployment
    - Alongside growth

Core values and objectives of development

- Sustenance
    - Ability to meet basic needs
        - Food, shelter, health
    - Objectives of Dev is to increase the accesibility and distribution of basic goods and services

- Self esteem
    - Respect, dignity, self determination
    - Objectives of dev is to enhance self esteem alongside material well being
- Freedom
    - Involves an expanded range of economic and social choices
    - Objectives of Dev is to expand the range of choices that are available
        - Freedom from misery
        - Political freedoms

Read 2.2

Indicators of Development

- Gross National Income
    - Overall level of economic activity
    - Total domestic and foreign output of the residents of a country
    - We might want to compare GNI per capita of countries to compare the well beings of citizens in each country
    -
- Purchasing Power Parity
    - What you can do with your income...
    - More accurate comparison of living standards across countries
    - Simplest verson
        - Number of units of foreign currency which is required to purchase the identical quantity of goods and services in the country as $1 would buy in the states (USA)
    - Amount of goods and services that can be bought with ones income in a certain country
- Health and Education
    - Health
        - **The under five mortality rate**
        - **Malnutrition**
        - **Life expectancy**
            - This can all tell us about the relative average health of countries
        -
    - Education
        - **Literacy rates**
        - **Primary school completion rates**
    - If we were to compare groups of low and high income countries
    - Low income
        - High rates of Malnutrition
        - Low primary completion rates
        - Lower life expectancy
            - There will be diversity in development in development challenges, we cannot focus on one indicator since there'll be diversity

The New Human Development Index

- Dimension indexes (health, education, income)
    - 0 is low and 1 is high
    - 2 parts:
        - Dimension index shows the countries distance from a min to max level and will be a percentage
        - If we were to look at the education index

            - (Mean years of schooling - min educational attainment)/(max educational attainment - min education attainment)
        - How do each of the dimensions come together?
            - Overall index (NHDI)
- Overall Index (NHDI)
    - NHDI = H^⅓ x E ⅓ x I ⅓
        - This is the geometric mean
        - All of these pieces are working together
    - Well being in all three dimensions are very important
    - Health and educational are social data
    - Income index is economic data
-

Diversity within Commonality - Characteristics of developing countries

- Productivity (output per worker)
    - Generally lower in developing countries
- Average levels of nutrition, health, education
    - Developing countries will experience lower levels of human capital
- Inequality and extreme poverty
- Population growth rates
    - Low income developing countries will higher birth rates
- Social divisions (fractionalizations)
    - More than half of developing countries have experienced interethnic conflict
- Rural populations and urbanization
    - Developing countries mostly are located in more rural areas and theres usually rapid urbanization
- Agriculture and Industry
    - Agriculture will share a greater share of unemployment
    - Tend to have lower levels of industrialization
- Geography *
    - Tropical and subtropical
    - Theories of comparative development
        - Role of geography on development outcomes both indirectly and directly through the type of colonies that were established
    - **Types of institutions/colonization that favoured extraction**
- Imperfect markets*
    - Legal and institutional foundations which may be weak in many developing countries
    - Weal property rights
    - Poor infrastructure
    - Not efficiently
- Colonial impacts*

- International relations*

Convergence

- Why cant we expect convergence between the states of countries
- Technology Transfer
    - High productivity technology
    - Without taking the R&D into technology then this would slow them down
    - We could expect faster growth with step by step innovation in technology processes
- Factor/Capital accumulation
    - If capital in developing countries is scarce
        - Then impact of additional capital to be greeter in developing countries
        - Then we would see high rates of investment such that their capital would grow faster
        - It would continue to grow until the levels of capital and marginal productivity reaches the same levels of developed countries
    - This would lead to faster growth with capital accumulation
- These are two factors that will allow developing countries to reach faster growth and developed countries

- Relative Convergence
    - Do we observe convergence with developing and developed countries
    - Figure 2.7 a (pg 82)
    - Countries with lower income per capita, would have higher avg per capita growth in income
    - If there was a tendency for convergence → then it would look like a negative relationship
    - When looking at just developing countries, the middle income countries are growing faster than the lower income countries
        - We actually see **divergence instead**
- Absolute convergence
    - Even if a poorer country was growing rapidly
        - It would take a long time to catch up to richer countries with absolute income
    - Suppose we have a $1 and increases by 100% every year
        - 1 → 2 → 4 ….
        - Our neighbour has $1000 and increases by 50% every year
            - 1000 → 1500 --> 2150
- Population weighted convergence
- World as one convergence
- Sectoral convergence

Classic Theories of Economic Development

- Main approaches to economic development 1950s - 1990s
  - Linear Stages of Growth Theories
    - Development as sequential stages of economic growth
    - Development = rapid aggregate economic growth
    - Historical experience of developed countries
    - Focused on accelerated capital accumulation
    - Development could be achieved with the right mix of **savings, investments and foreign aid**
  - Structural Change Models
    - 1960's - 1970s
    - Used modern economic theory + econometrics
    - Focus on transformation (internal) domestic economy
    - Agricultural to industrialized manufacturing and service economy
    - Generate rapid, sustained economic growth
  - International Dependence Revolution
    - 1970 + new interest
    - Radical and political
    - Institutional, political, and economic rigidities
    - **Saw underdevelopment because of institutional, and domestic power relationships**
    - Dependence and dominance relationships between developing and developed countries
    - Focused on eliminating poverty, employment opportunities, reduce inequality in growth
    - Three schools of thought:
      - **Neocolonial dependence mode**
      - False paradigm model
      - Dualistic development thesis
  - Neoclassical Free market counterrevolution
    - 1980 -1990
    - Underdevelopment bc economic regulation, and government intervention
    - Focus on having freer markets, privatization, deregulation
    - Economic efficiency and economic growth
    - Three component approaches
      - Free market approach
      - Public choice approach
      - Market friendly approach

The Harrod-Dumar Growth Model

- This model dsecribes that investment leads to growth
- Y = output
- K = capital stock
- L = labour stock

- A = fixed technological coefficient
- B = fixed technological coefficient
- c = capital output ration →
    - capital needed to produce a unit of output over a given period of time
- s = saving ratio
    - proportion of income saved over period of time
- No substitutability in the factors of production
    - No way to compensate for a lack of capital by hiring labour
- Aggregate production function with fied technological coefficient
- Capital is the limiting factor AK < BL
    - Y = AK → assumption here is that labour is abundant
        - Production is determined by the level of technology and the stock of capital
        - Abundant amount of labour, but my production is determined by how much capital i have and labour is not a limiting factor
    - Im going to be limited in production by the capital at my disposal and the technological coefficient for transforming capital into production
- Net saving → S = sY
    - Proportion of income being saved of national income
- Net investment → I = change in K
    - New investments are needed to replace capital that is depreciating and new capital
- Capital output ratio
    - Change in K / change in Y
    - If i need three more units of capital for one more unit of production than c is 3
- Savings equals investment
- Growth rate of GDP
    - Change in Y / Y = s/c
    - Simplified version of harrod dumar model
- Growth rate of GDP is determined by net savings ratio and capital output ratio
- In order to grow: you need to save and invest a certain proportion of GdP
- Two other important things
    - To grow savings investments are needed
    - The greater the savings, the faster the growth
    - Two other important components of economic growth: labour and technological process
- PPF model (Appendix 3.1) (149)
- Savings and investments are important for growth
    - But not sufficient (p 123 /124)

Neocolonial Dependence Model

- The primary cause of and reason for continued underdevelopment is a highly unequal international capitalist system of rich and poor countries
    - Underdevelopment is externally induced
- The international system of equality
    - The international system is dominated by unequal power relationships between “center” (developed) and “periphery”(developing)
    - Makes self reliance of poor countries difficult or impossible
    - **Dominant countries exploit dependent countries**
- The center: developed
- The periphery: developing
- Elites
    - A small privileged ruling class in developing countries
    - High incomes, social status, political power
    - Benefit from the international system of inquality
    - Serve and are rewarded by international special interest groups
        - Multinational corporations, the world bank, the IMF
    - Discourage reform efforts and perpetuate underdevelopment
    - **underdeveloped countries are externally induced phenomenon**

Challenging the Statist Model

- Underdevelopment caused by poor resource allocation
    - Incorrect pricing policies
    - State intervention
- Economic efficiency and economic growth
    - Eliminate government regulations and price distortions (factor, product and financial markets)
    - Privatize state-owned enterprises
    - Promote free trade and export expansion
    - Promote foreign investment from developed nations
- Free Market Analysis
    - Markets even in developing countries are efficient
    - Markets alone are efficient
    - Competition is effective
    - Technology is freely available and nearly costless
    - Information is freely available
- Public Choice theory
    - politicians , bureaucrats, citizens and states are self-interested
        - Use power and authority to selfish ends
        - Citizens are going to be leveraging political influence
        - Politicians expoit government resources
        - States abuse power

        - This all results to a decrease in general freedoms
        - This calls for governments to hold less power
- Market friendly approach
    - Recognizes that developing countries market are imperfect
        - Market failures
        - Information is costly
    - role of government intervention
        - There is a role for governments to play and
            - is useful in providing investments in health care or in physical infrastructure

Production Possibilities Frontier

- Components of economic growth
    - Capital accumulation
        - Capital goods to create other goods and services
        - All these components lead to capital accumulation within a country
        - Physical capital
            - Factories and machinery
        - Social and economic infrastructure
            - Investments in roads, electricity, sanitations, water
        - Human resources
            - Include things like schooling, training, augmenting skills
    - Growth in population
        - economic growth is ^ which leads to growth in labour force
        - This is the economy's ability to absorb and efficiently employ new workers
    - Technological progress
        - Netral technological progress is a higher output of achieved using the same quantity and combination of factor inputs
        - Laboursaving technological progress
            - This results in savings of labour
            - Higher output is achieved by innovation in a certain product
        - Labour augmenting technological process
            - Upgrades quality and skills of labour
                - Video tapes, and brighspace
                - Things that are improving the quality of instruction
        - Capital-saving technological progress
            - Increases output for the same amount of capital
        - Capital augmenting technological progress
            - More productive use of existing capital goods
- Production Possibilities Curve
    - Shows the max attainable output combinations of two commodities that can be produced
    - When all the available factors of production are fully and efficiently employed
    - Given available physical and human resources and technology needed

- Frontier
    - Rice on x axis and radios on y axis
    - Our curve is non linear and all of the combination of rice and radios outside the curve is unattainable
    - Points along the curve will show the max units of product when all resources are efficiently employed
- What happens if there is an increase in quantity of available resources (physical and HR) double?
    - Maybe there is investment in new land and capital
    - Our curve will shift outwards of the production possibilities frontier
    - This is going to mean that we can increase output
        - Corresponds to economic growth (the shift)
- Underutilized resources
    - This is when we are producing inside the production possibilities frontier
    - Better utilization of resources might look like a outwards of that point
- Increase in one factor of production
    - Radios are capital intensive
    - Rice is land intensive
    - If there is an increase in capital
        - This increase in capital will shift towards the outer ends of the radio axis
-

Coordination Failures and Complementarities

- Coordination failures occur when agents inability to coordinate their actions leads to an outcome that makes all agents worse off
    - Agents are firms nations, consumer
    - This can occur when actions are complementary
    - Actions taken by one agent reinforces incentives for others to take similar actions
- Many new theories of development emphasize complementaries
    - When complementarities are present one firms action increases the incentives for other agents to take similar actions
    - Two big models: Big Push and O-ring
- Coordination problems can leave an economy stuck at a bad equilibrium
    - With low avg income, low growth, extreme poverty
    - With a region stuck in subsistence agriculture, where farmers have little incentive to specialize
        - This can lead to a underdevelopment trap
    - With individual firms underinvesting in a new technology that benefits other firms, or unwilling to invest first
- There can be an important for govt policy interventions
    - To have a better equilitbrium

The Big Push Model

- Coordination failure associated with initializing industrialization
    - We start with subsistence economy
        - Where workers have no money to buy goods to buy from first firm
    - As each industrialized firm opens, workers spend their money on goods
    - The profitability of one industrialized firm depends whether other firms industrialize
    - First firm needs to pay for training of workers
    - Other firms attract trained employees with higher wage
    - There is a positive externality of industrialization by an individual firm on other firms' profitabilities
    - This can lead to multiple equilibria

The Big Push Model

- Coordination failure associated with initializing industrialization
    - There is a positive externality of industrialization by an individual firm on other firms' profitabilities (percuniary externalities)
    - This can lead to multiple equilibria
    - In some cases, a big push may be needed to get a sufficient number of sectors to industrialize, in order to generate enough income (though higher industrial sector wages and industrial sector profits) to get industrialization underway.
    - A pig push as a concerted economy-wide and probably public-policy led effort to get development under way.

Further problems of Multiple Equilibria

- Ineffiient Advantages of incumbency
    - Increasing returns in the modern sector can lead to a bad equilibrium
    - A large incumbent modern firm may have advantage over a new smaller firm employing a new and better technology
- Behaviour and Norms
    - High corruption or low corruption
        - Should I trust the people around me?
        - Do no trust highly corrupt people/institutions
    - The importance of good institutions
    - Cooperative norms encourage cooperation
- Linkages
    - One way is to solve coordination problems is to focus policy on encouraging industries with key linkages
    - When certain industries are developed first, their interconnections of linkages with other industries will facilitate or induce development of new industries
- Inequality, Multiple Equilibria and Growth
    - High income and low income equilibria, related to access to credit
    - Poverty trap related to lack of access to schooling across generations due to a lack of access to credit

The O Ring Model

- A model with strong complementarities among inputs in production
    - Firm with high productivity can afford to hire more high productivity workers
        - Because the value of the firms output is higher
    - As a result, high prod work with high prod workers and low prod workers with other low prod workers
    - Some firms and workers or even an entire economy can fall into a trap of low productivity while others enjoy high productivity

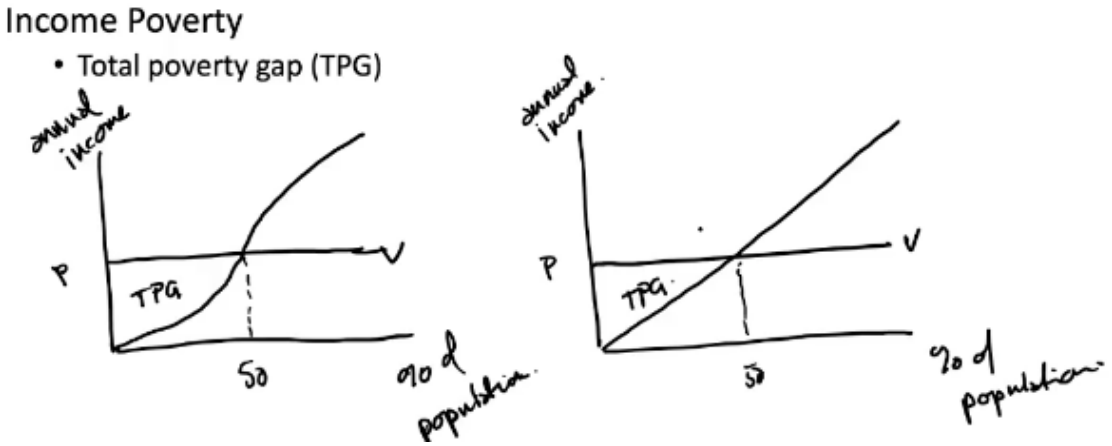
Measuring Inequality:

- Size distributions
    - Total incomes received by individuals or households
    - Source, location and occupational source of income is ignored
    - Total population is divided into groups / sizes
    - Determine the proportion of income received by each group
    - Kuznets ratio:
        - Measure of degree of inequality between high and low income groups in a country (ratio of income received by top 20% and bottom 40% of population)
    - Lorenz Curves:
        - Horizontal axis: income recipients in cumulative percentages
        - Vertical axis: share of total income received (%)
        - Perfect equality
            - When the line is diagonal and that income is evenly distributed
            - 50% of population is receiving 50% of income
        - The further the actual line is from the diagonal, the greater degree of inequality there is
    - Gini Coefficients
        - Area between the diagonal and the Lorenz curve divided by the total area of triangle in which the curve lies
        - An aggregate measure of inequality between 0 and 1
            - 0 corresponds to perfect equality
            - 1 corresponds to perfect inequality
        - Highly unequal distribution might be between 0.5 and 0.7
        - More equal would be 0.2 and 0.35
    - Lorenz Criterion
        - When one curve lies above the other curve, the former is more equal than the latter
        - If curves cross when comparing, we might need more information or make more assumptions
    - Gini Coefficient Properties
        - Anonymity principle:
            - The measure does not depend on who has the higher income
            - Who is actually receiving the income is not a factor here
        - Scale independence
            - Currency does not matter
        - Population independence principle:
            - The measure does not depend on the size of the population
        - Transfer principle:
            - If some income is transferred from a rich person to a poor person, the new income distribution is more equal now
        - Gini coefficients could be the same for two countries
            - Lorenz curves that cross

    - Lorenz curves can be used to compare inequality
- Functional Distribution
    - The total share of income received by each of the factors of production (land, labour, capital)
    - Income is distributed by function: labourers receive wages, land owners receive rents, capitalists receive profits
    - Each and every factor is paid in accordance to what it contributes to national output
    - Does not take into account the important role and influence of non market forces
    -

Measuring Absolute Poverty:

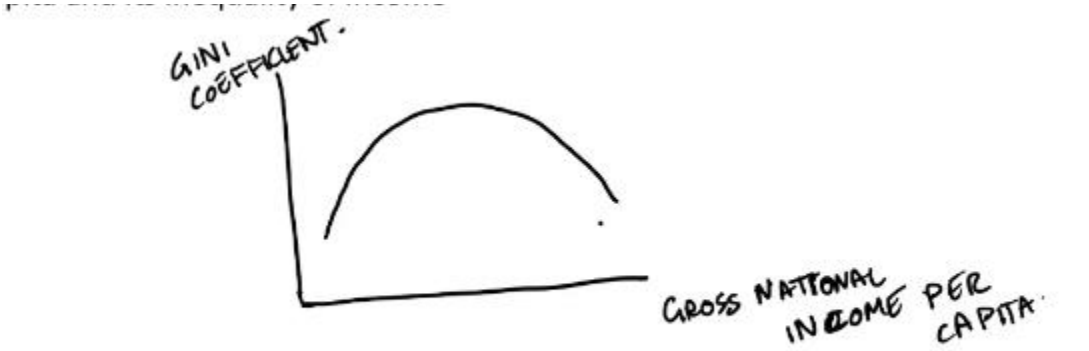
- Income poverty
    - The number of people who are unable to command sufficient resources to satidy basic needs
    - The total number, H whose incomes are below the absolute poverty line Yp
    - Total poverty gap measures the total income necessary to raise those below the poverty line, up to the poverty line
    - Total Poverty Gap (TPG)
        - First graph has a larger poverty gap



        - TPG = sum of all individuals E (Yp - Yi)
            - Yp absolute povert line
            - Person i's income
        - Average poverty gap (APG) = TPG / N (which is total population)
        - Normalized Poverty Gap
            - NPG = APG / Yp

Kuznets Inverted U Hypothesis:

- In early stage of economic growth, distribution of income worsens and then improves at later stages
- The curve reflects the relationship between a countries income per capita and its inequality of income



- Why is this the case?
    - Validity of the curve is an empirical question
    -

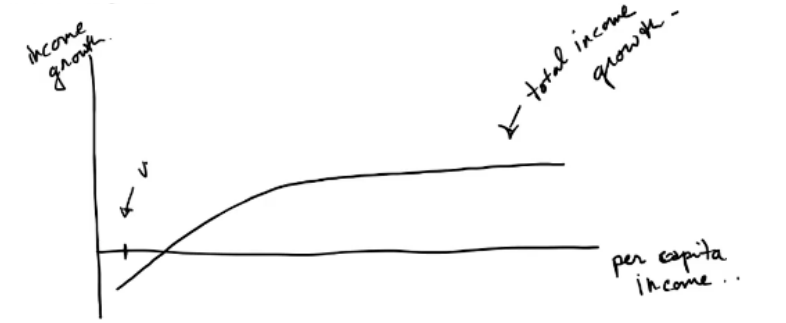
Growth and Poverty:

- Reducing poverty need not lead to slower growth

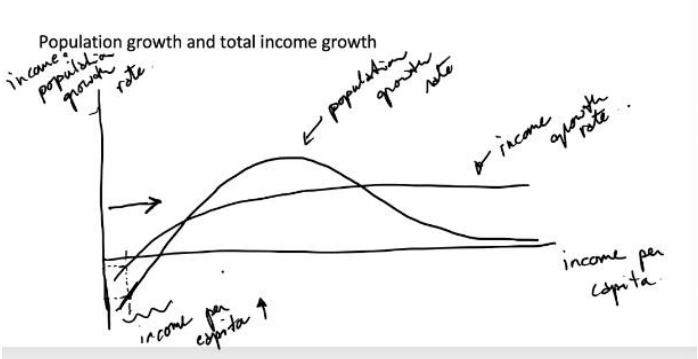
1) Widespread poverty creates conditions in which the poor have no access to credit
2) The rishc in poort countries do not save and invest substantial proportion of their incomes
3) Low incomes and low levels of living can lower economic productivity, leading to slower growth
4) Raising incomes of the poor will increase demand for locally produced necessities
5) A reduction of mass poverty acts as a powerful incentive to participate in the development process

Malthusian Population Trap

- Thomas Malthus proposed a relationship between population growth and economic development
    - In which growth in food supply > population growth
- Land is fixed
    - As population grows, each member of the population has less land to work
    - Each members marginal contribution to food production declines
    - Per capita food production declines
- Growth in food supply falls behind population growth
- The result is a stable population living at or slightly above subsistence level ("Malthusian population trap")
- Population growth
    - Population growth rate = vertical axis, income per capita = horizontal axis
    - When income per capta is low population growth is actually shrinking or negative
        - Because of nutrition or illness, pregnancy issues
    - As income per capita gets larger, the more the population will grow to a certain point and afterwards population will slow down as income per capita grows
- TOtal income growth
    - Income growth is now the vertical axis, same horizontal
    - At some level of income per capita, income growth will grow at a higher rate



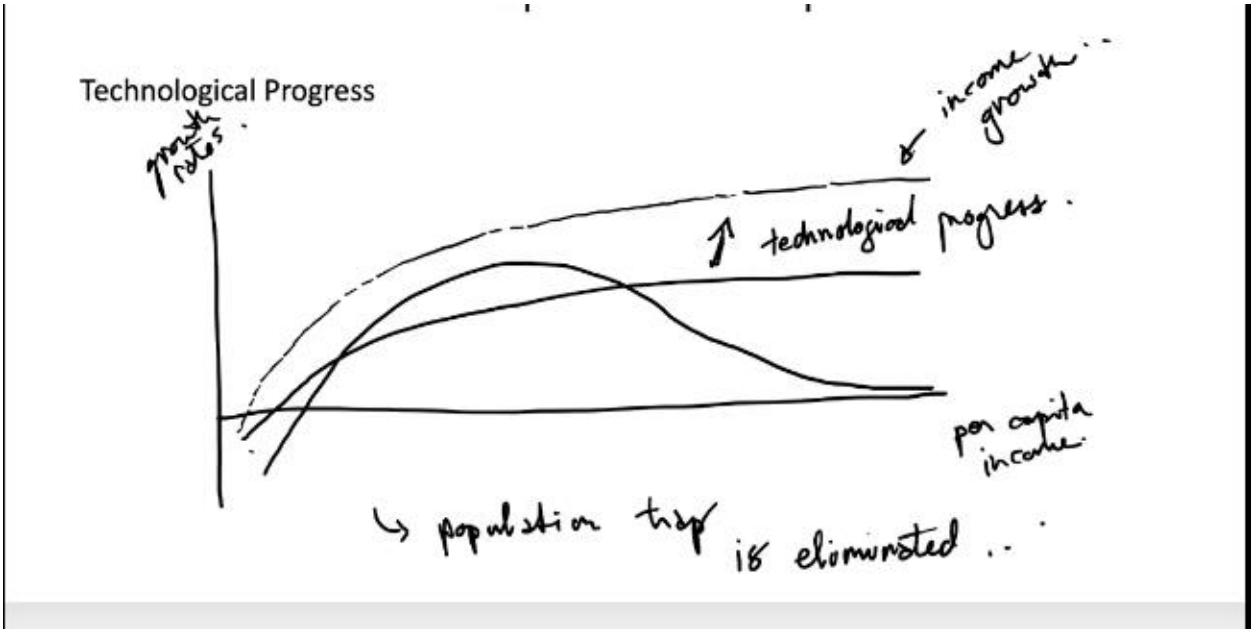
- population growth and total income growth
    - Income per capita increases when population growth rate is lower than the income growth rate at any time of the graph
    -



- The stable equilibrium

- Income per capita increases before the intersection of the stable equilibrium and decreases when its after equilibrium
- Population growth rate > income growth rate = decrease income per capita

- Technological progress
  - The model above is not taking into account the technological process in the country



  - When there is technological progress, the income growth rate increases therefore the population trap is eliminated
- Social Progress
  - Social progress will have a downward effect on the population growth rate
  - Usually this will make income growth > population growth
  - Therefore population trap will be eliminated

Criticism of Malthusian Population Trap

1) Technological progress ignored
   a) Land is fixed and decreasing returns to scale
   b) Technological progress can augment quality of land (productivity increases)
2) Population increases with per capita income
   a) No clear correlation between population growth and income per capita levels
   b) Household income levels, not per capita income, matters for fertility rates

- Limited applicability to contemporary developing nations

The Microeconomic Theory of Fertility

- Microeconomics principle and optimization to explain family size decision-making
- Fertility as a rational economic choice
- A household chooses how many children to consume as part of their utility maximization problem
    - Children are a special kind of good
    - A household has a given set of preferences for children and other goods
    - Maximizes utility derived from consuming these goods subject to a budget constraint
- Graph coefficients
    - Cd: the demand for surviving children
    - Y : level of household income
    - Pc: the net price of children
        - The opportunity cost and old age security
    - Px: the price of all other goods
    - Tx : the tastes for all other goods relative to children
    - Gd: the total quantity of other goods consumed by the parents
- The budget constraint
    - horizontal = number of children desired by household, vertical = goods consumed by parents of household
    - Steeper budget line means children are more expensive than goods consumed by parents

- Household preferences
    - This can be represented by difference curves
    - Household will be indifferent between alternative combinations of goods and children
    - Combinations on higher difference curves will yield higher utility
- Increase in household income
    - If theres an increase in household income then budget line will shift outwards and will let the household yield a higher rate of utility of both combinations
    - Increase in Gp and Cd from inc in household income
    - Children are assumed to be normal goods

        - Where increase in income == increase in children demanded
- Increase in net price of children
    - The budget line will be more steeper relative to the original budget line
    - Lower budget curve is the result
    - Quantity of children demanded falls
- Increase in the price of other goods
    - The budget line becomes flatter with the same length as the original curve
    - Goods consumed decreases, children demanded increases
- Increase in income and net price of children
    - The line will move outwards however it will also be steeper than the original one
    - We might have a higher indifference curve here
- The demand for children in developing countries
    - Choice of first two or three children not very responsive to relative price changes
    - The theory applies to additional (marginal) children
- Implications (to reduce family size):
    - Increase education of women
    - Increase womens non-agricultural wage employment opportunities
    - Increae family income levels (employment and / or redistribution of income)
    - Reduce infant mortality rates
    - Develop outside of the family old age security system for parents
    - Expand schooling opportunities

Urbanization

- The more developed, the more urbanized
- Some argue, developing countries are excessively urbanized or urbanizing too quickly
- Rapid urbanization has seen growth of massive urban slums and shanytowns
- Accelerated migration of rural migrants to urban areas
- Growth in the informal urban sector
- Development policies need to worry about the character of development policies

The Todaro Model

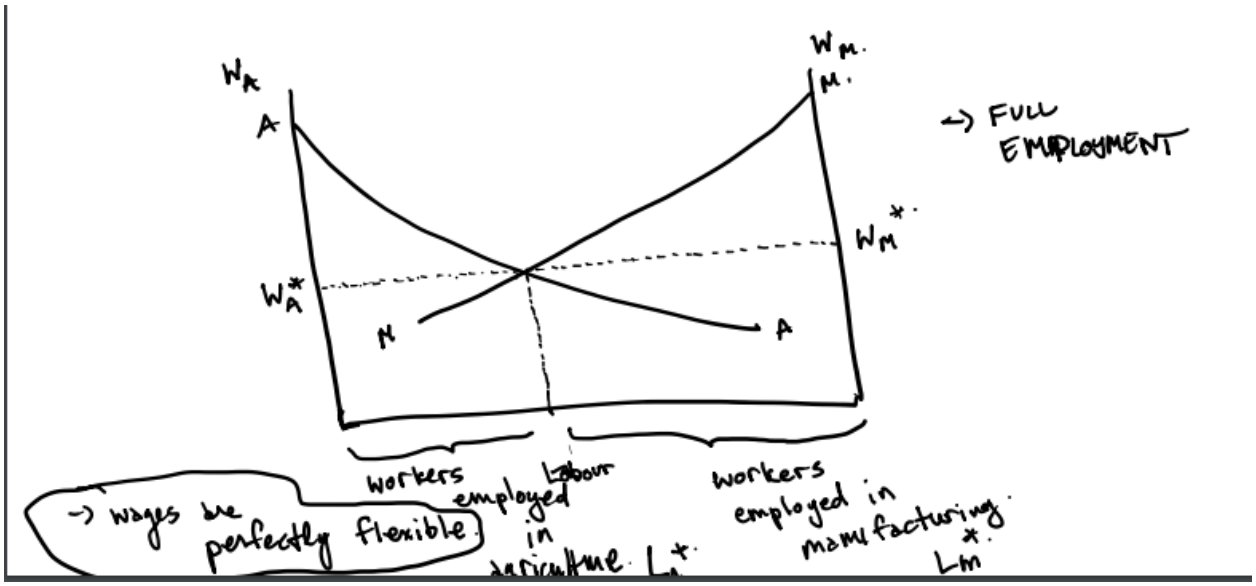
- Attempts to explain rural urban migration as a economically rational process
- Migration is an economic phenomenon
- Migration is a rational individual decision despite urban unemployment
- Migration depends on **expected**, rather than actual differences in urban and rural incomes
- Potential migrants consider the labour market opportunities available in rural and urban sector and choose the option that maxximizes expected gains
- A potential migrant migrates if the expected income in the urban sector (for a given time horizon) exceeds the rural income
- The individual compares:
    - Expected “Net” Urban Income vs. Rural Income
    - Expected Urban Income depends on the probability of being employed in the urban sector, as well as the average real income of individuals employed in that sector
    - Rural income is the average real income of individuals employed in the rural sector
    - The individual is choosing to migrate if the expected income in the urban sector less the costs of migration exceeds the average income in the rural sector
- Migration can continue even when unemployment is high
- Migration or not is the result of a rational decision to maximize the expected gain from migration

Example of Todaro

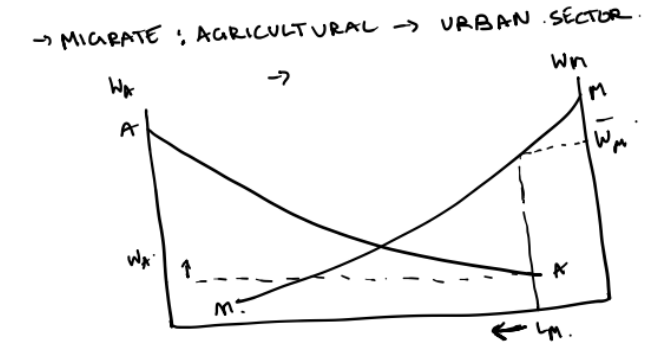
- Looking at whether a individual should migrate or not
- The average annual income in the rural sector is 50$
- The average annual income in the urban sector is 100$
- Probability that the individual finds a job in urban sector is 20%
- The expected income is 20$ if they were to migrate, so it would not be rational for them to migrate
- The choice would be based on the present value of the net stream of expected urban income
    - You find a job and expect incomes yearly.

The Harris-Todaro Model

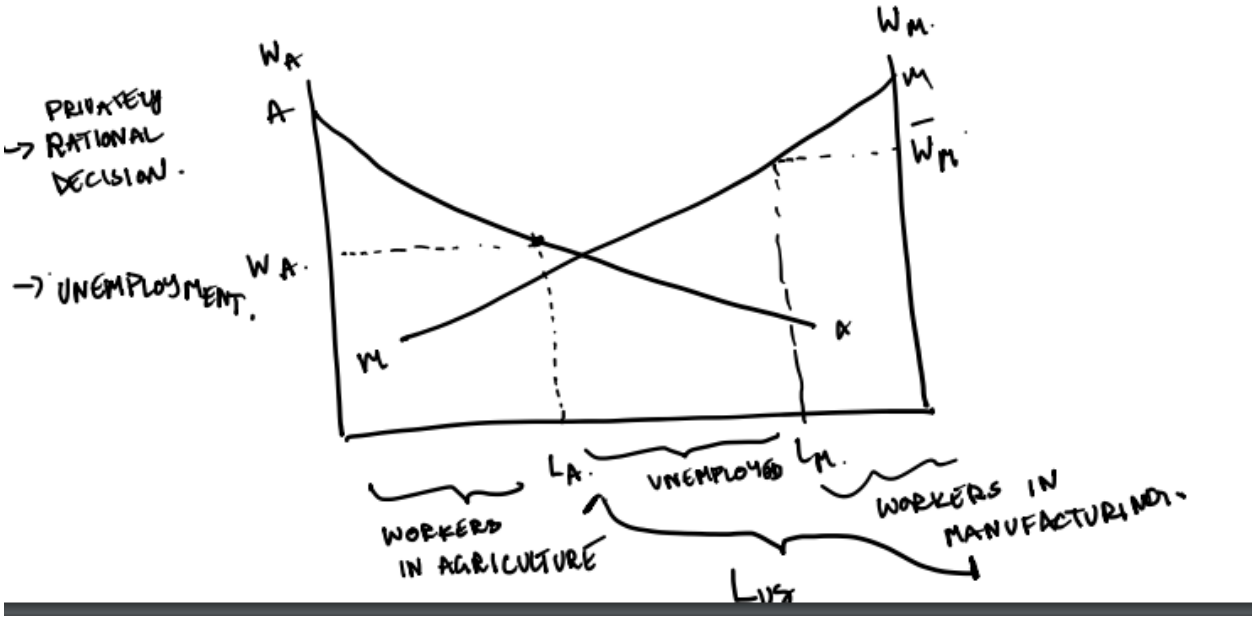
- Unemployment equilibrium
- This is the equilibrium version of the Todara Model
- The model assumes 2 secoors: agricultural (rural) and manufacturing (urban)
- Worker can work in one sector at a time
- Workers in the agricultural sector earn agriculture (rural) wages
- Figure 7.12 in the textbook
- Quantity of Labour Demanded at any given wage
    - As wages go higher, the quantity of labour demanded is lower
    - As wages increase, demand for labour decreases
- We look at two sectors:
    - Agricultural Sector
        - Demand for labour goes down as wages go higher
    - Manufacturing Secotr
        - Demand for labour goes down as wages go higher
- Harris Todaro Model



- If wages are perfectly flexible and if theres full employment
- Migration and Unemployment
    - Workers are going to be free to migrate from rural to urban sector in order to try to get one of these manufacturing jobs
    - Lm / Lus
        - Lm = Manufacturing employment
        - Lus = total urban labour pool
    - If Lm / Lus = 0.5 == then you have a 50% chance of securing a job
- **As workers migrate from the agricultural sector to the urban sector we are going to see that the number of workers in the urban sector will increase and that will decrease the wage of urban workers and increase the wages of agriculture workers**



- At some point a rural worker will be just indifferent between migrating or not
- Wa = Lm/Lus x Avg(Wm)
- So at some point this will be equal, and at this point the worker will be indifferent from working in the urban sector or agriculture sector (no difference their opinion)
- At the Wa point below, workers will be indifferent on whether they want to migrate or not
- This is a privately rational decision
- The effect of the graph below is socially costly and it will lead to unemployment

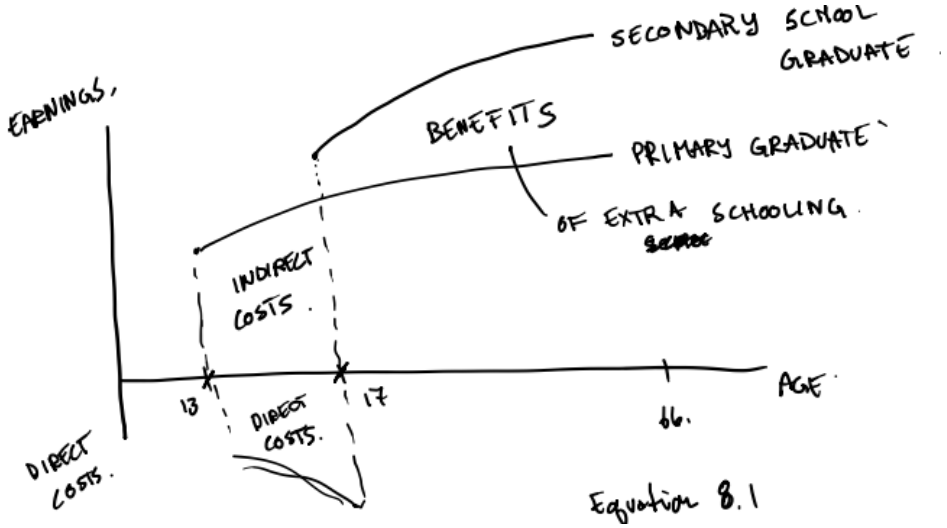


- Example of Harris Todaro Model
  - Wa = (Lm / Lus) * Wm
    - Wa = agricultural wage
    - Wm = manufacturing wage
    - Lm = employment in manufacturing
    - Lus = total urban labour pool
  - Wa = 1.50
  - Wm = 3$

    - Prob of getting job = ⅔
    - 1.5 < ⅔ (3)
        - Therefore the individual would migrate
    - When leftside = rightside the individual would be indifferent b/w migrating or not

- Extensions of the model
    - Informal Work: a migrant may find informal urban work if they were to migrate
    - Human capital: potential migrants to have different levels of education
    - Positive externalities: migrates from one region could benefit future migrants from the same region
    - Fixed manufacturing wage: high urban sector wages as a result of imperfect information, efficiency wages
- Policy implications
    - Minimize rural urban economic opportunity imbalances
        - The imbalances between both sectors need to be minimzed since they drive unemployment
    - Urban job creation can lead to higher levels of unemployment due to induced migration
    - Indiscriminate education expansion can lead to increased migration and unemployment
    - Wage subsidies can lead to more unemployment due to induced migration
        - Govt provides incentives to employers to hire more workers leading to more unemployment due to this induced migration
    - Integrated policies (urban + rural development) are needed

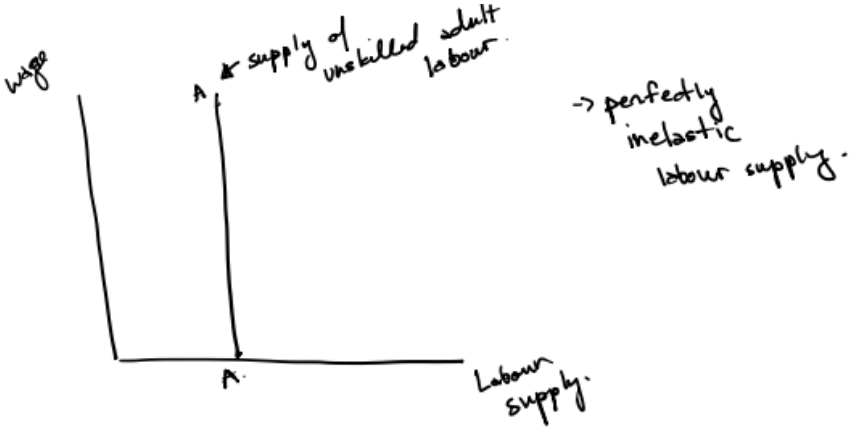
- Investment in education and health
    - Human capital refers to human capacities that can raise productivity
    - This includes health, edication, and etc
    - Health and education enhance well being and are complementary
    - Human capital investment can lead to higher future incomes
    - Gains: higher income from education
    - Costs: direct costs (intution) and indirect costs (foregone earnings)
    - Gains:
        - E = Income with extra schooling
        - N = Income without extra schooling
        - I = discount rate
        - T = the years
        - (Et - Nt) / (1+i)^t
        - Sum of all the present value of earnings will show us the benefit of extra schooling in terms of income gains
    - Costs:
        - Direct costs
        - Indirect costs
    - Figure 8.2
        - Indirect costs for continuing school after primary school for foregoing work opportunities
        - Direct costs for continuing education after primary by buying textbooks, tuition and etc
        - However when the begin working, they will earn a higher income and will grow until the end of their working life
        - Equation 8.1 from textbook



        - (Et - Nt) / (1+i) ^t vs indirect and direct costs

        - The gains from extra education and forgoing the income after primary education, there are benefits for continuing education but there are direct and indirect costs that comes with it
        - Benefits increase when either Et increases or Nt decreases and also if the discount rate decreases
    - The figure is showing the tradeoffs between the higher future earning against the costs of extra schooling

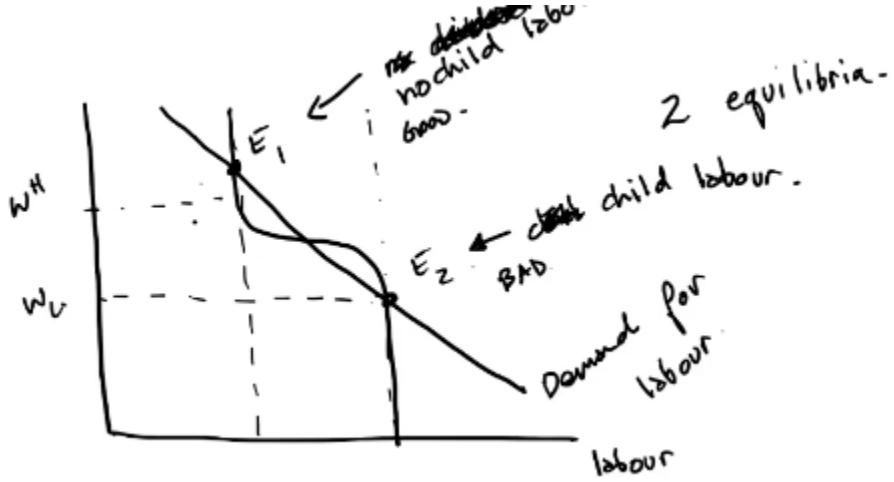
- The child labour model (**discusssion period)**
    - Widespread problem
        - Poor health of child workers
        - Work instead of attending school
        - Includes hazardous work
    - Child labour model
        - 2 possible equilibrii: **bad (child labour),** good (no child labour)
        - All families are better off when all refuse to send children to work, but **there is a coordination problem**
        - Good equilibrium in which no children work may be achievable through effective ban on all child labour
        - Good equilibrium is self enforcing: wages are high enough such that not child works
    - 2 important assumptions
        - Household has a high enough income, then they would never send their children to work
        - Adult labour and child labour are substitutes
            - If theres no child labour then adults are assumed to be doing all the work
            - Adults are more productive
    - All adults are working, it doenst matter where wages are



    - If wages are high enough, there would be no child labour
    - Here workers are working more than enough but what happens if wages fall

- As wages fall, some families send their children to work but as more wages fall then most families send their children to work

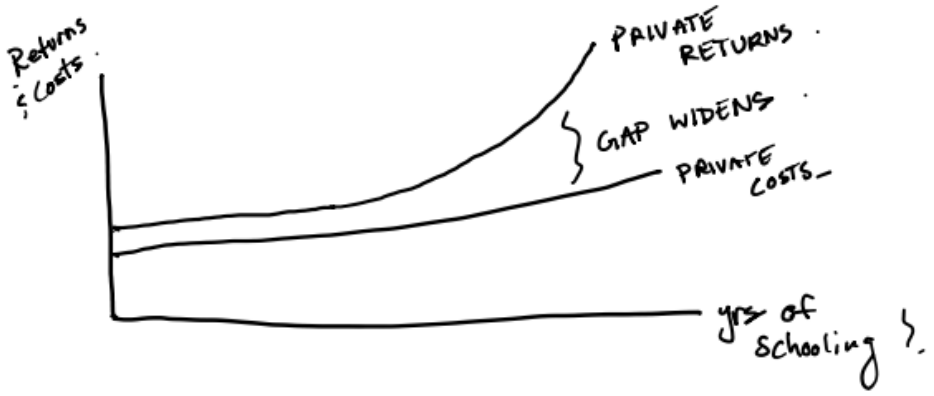
- At T all children are working or all families are sending their children to work sense wages are extremely low
- The curved line is the supply of labour
- And then the straight line is the demand for labour
- These two lines create 2 equilibria: a good one and a bad one
    - At E1 = no child labour



    - At E2 = all families have to send their children to work
- **How do you get from E2 to E1?**
    - If there is an effective ban on child labour, then we can move to the good equilibrium in which there is no child labour
    - **The new equilibrium is self enforcing** since the family is earning sufficient wages
    - All families are better off in this situation

        - Employers would be faced with paying higher wages to employees
    - Attempting to ban child labour will see some backlash from employers

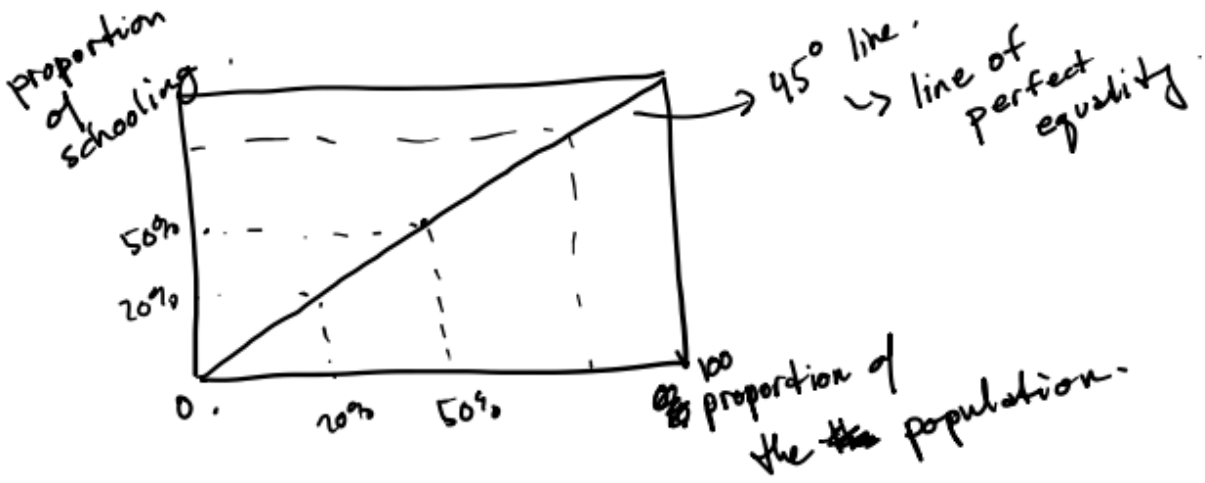
- Educational systems and development
    - Private vs Social Benefits and Costs of Education
    - Private
        - Private benefits of education: individuals higher wage employment opportunities
        - Private costs of education: individuals direct and indirect costs of education



        - If costs for higher education is subsidized for instance, then the costs to the individual will not increase that rapidly

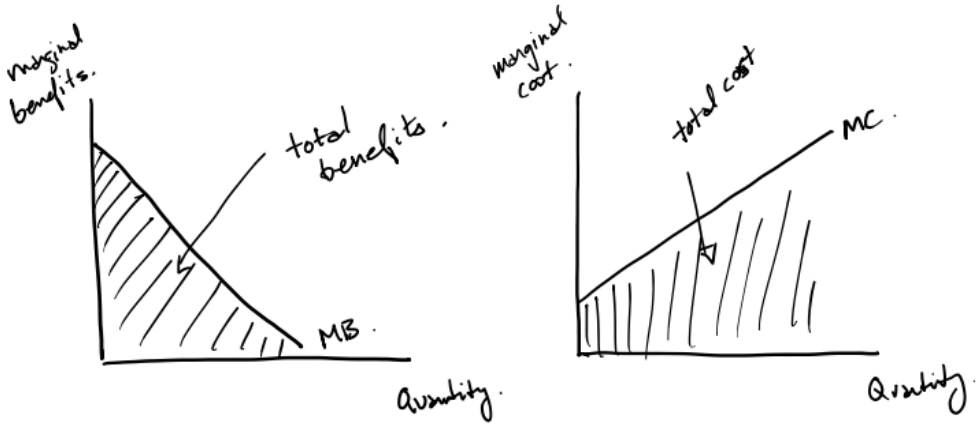
    - Privately Optimal Strategy
        - Will be to pursue the highest level of education possible
    - Social
        - Social benefits: benefits of individuals education to the entire society, including benefits to the individual and to others
        - Social costs: costs of individuals education to the entire society, including costs to the individual and to others
    - Socially optimal strategy
        - At least B (8) years of schooling
        - Varies on economic conditions and society
        - Pg 404

    - Lorenz Curves for the distribution of education
        - 45 degrees is absolutely perfect equality



  - More equal distribution of education line is very close to the 45 degree line and curves slightly below perfect equality
  - It is possible for some % of the population has not received schooling so we would start from the x-axis of that percentage
  - The more unequal education distribution is, the more the lorenz curve will start closer to the left side of the x-axis
  - Gini coefficient → education inequality
    - Calculated by dividing the area between lorenz curve and 45 degree line by the total area underneath the 45 degree line
- Also years of schooling does not matter if the quality of education is not held to a high standard

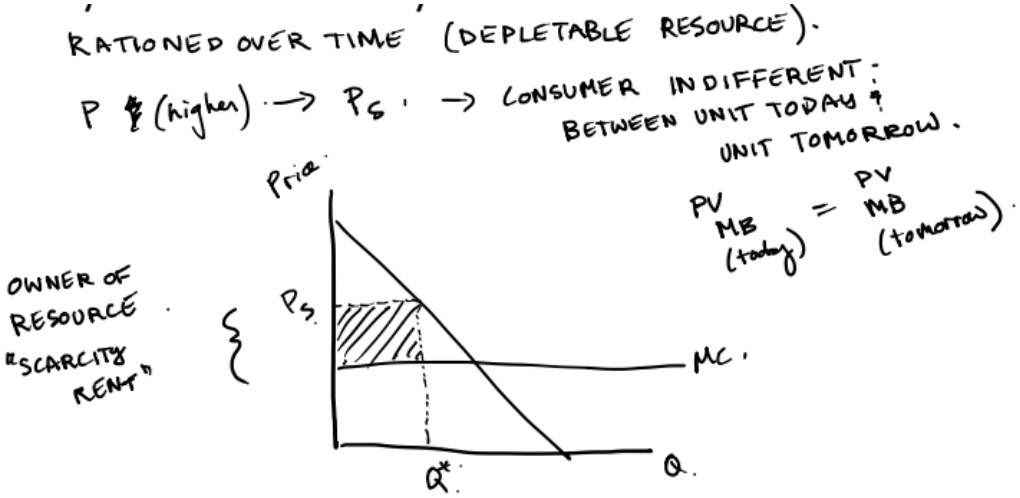
- Economic Models of Environmental Issues
    - Market Failure occurs when the market does not allocate scarce resources to generate the greatest social welfare
        - This could mean the loss of biodiversity
        - As well as the extinction of certain species and so on
        - This is a public good
        - Goods and services provide benefits that are non rival and non excludable
        - Non rival = benefits of one individual does not decrease the benefits of another individual
            - Lighthouse on pier
        - Non excludable = not limited to those who contribute
    - Public Goods and Bads
        - Goods
            - Provides benefits to all (non-excludable)
            - Enjoyment (or use) by one individual does not diminish enjoyment (or use) by others (non-rival)
        - Bads
            - Decreases well-being of others
            - Non-excludable and non-rival
            - An example would be pollution (regional envirnmental degradation)
                - The harm of pollution will extend to the people who do not contribute to the creation of pollution
    - Static efficiency
        - Pareto - efficiency
            - Where one person cannot be made better off without making another person worse off
        - Natural Resource
            - Units of natural resources



        - Allocation of resources will be efficient if it maximizes the net benefits
        - The area where MB > MC == net total benefits

- Efficient resource allocation: static (at some given point in time)
    - The market determines the optimal consumption of a natural resource
- Static efficiency
    - Total net social benefits are maximized when MC = MB of extracting one more unit
    - This occurs at Q*, the optimal quantity of units extracted
    - At Q*, total net social benefits are maximized

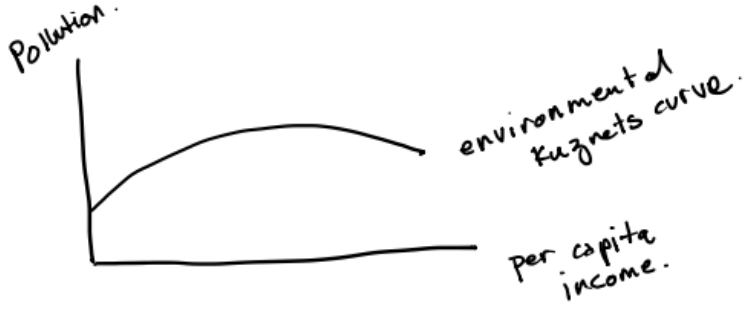
- Dynamic efficiency:
    - Need to consider the future availability of the resource and compare the net benefits in different time periods
    - Will call for the maximation of PV of net benefits over time
    - Unit today vs Unit tomorrow
        - We cannot use the same unit today and tomorrow
    - Assuming the resource was not depletable and you can consume as much as you want
    - Optimal allocation in this case would be MB = MC
    - However at some point in time, the resource will be rationed meaning that its a depletable resource
        - Some of the resource will be consumed today and some will be left for the future
        - Maximized the net benefits over time
    - P(higher) → Ps → this will make the consumer indifferent on using the unit today or tomorrow
    - If the price is lower than this then another unit of resource can be used today rather than tomorrow
    - The price equates the PV MB (today) == PV MB (tomorrow)
    - Q* will be consumed today



- **Optimal Resource Allocation over time**

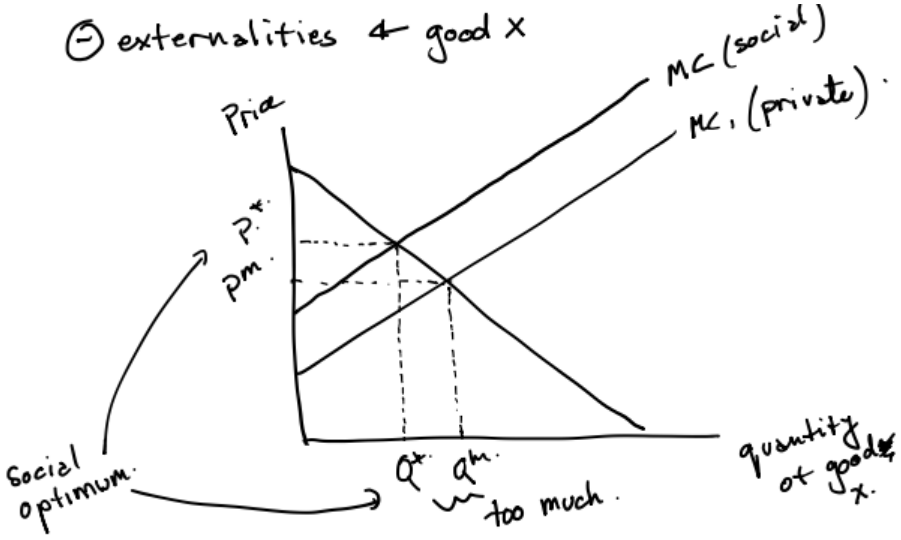
        - The resource is scarce: greater use today means less opportunities for use tomorrow (non-renewable resource)
        - Efficient allocation over time: present value of net benefits over time are maximized
            - Resource is rationed over time: some of the resource is sold today, some is saved for tomorrow
            - Limiting the portion of the resource sold today allows the owner to collect “scarcity rent” due to the higher scarcity price

- Environmental Kuznets Curve
    - Pollution and other forms of environmental degradation increase and then decrease as per capita income increases
    - Inverted u pattern: environmental protection is desired and affordable when incomes are high
    - This is the relationship between income and pollution
        - Inverted u curve
    - When incomes are higher they are willing to pay for environmental protection
    - Evidence for environmental problems
        - Holds for some pollutants: sulfur dioxide, nitrogen oxides
        - Does not hold: unsafe water, sanitation increase with income at low income levels
        - Does not hold: some forms of environmental damage increases at high incomes levels
        - Does not hold: some environmental damage, such as loss of biodiversity



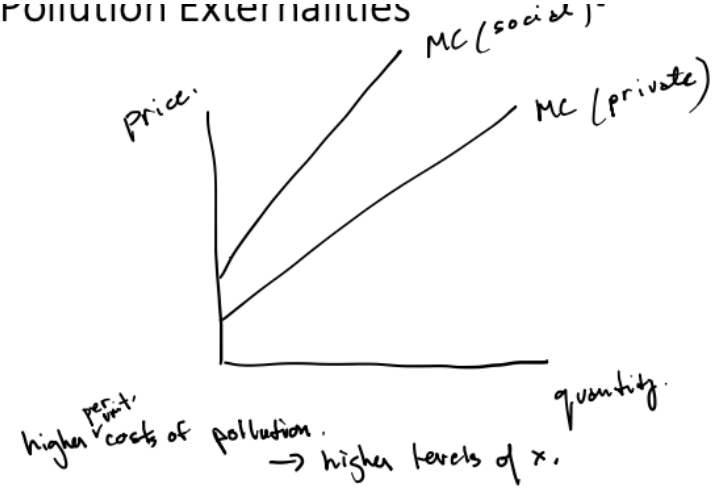
- Externalities
    - Classic case of market failure
    - Any benefit or cost borne by an individual economic unit that is a direct consequence of anothers behavior
    - These are cost or benefits accrued without compensation and without consent to an economic unit which will be a direct consequence anothers behaviour
    - These can be positive or negative

- Positive
    - Accrue benefit to another individual without compensation / without them paying for the benefit
    - Education
- Negative
    - Cost on another person without compensation
    - Pollution
- Pollution Externalities
    - Too much of the good would be provided by the free market



    - Imagine if a pollution tax was imposed on good x, each unit of good x is taxed on this negative externality
    - The supply with tax would overlay the MC (social)
    - The tax would reduce the quantity of good x and consumers would experience a higher price (p*)
    - A more realistic curve of MC(social) and MC(private) will be steeper
        - Because we would see higher per unit costs of pollution at higher levels of production

Pollution Externalities



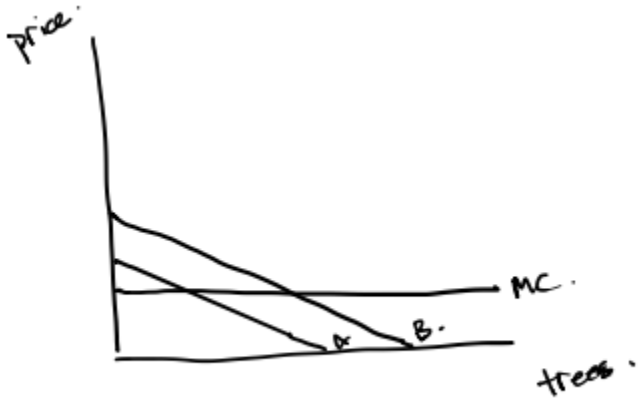
higher per unit costs of pollution.
→ higher levels of x.

Policy Options

- Developing Countries
    - Proper resource pricing
        - Removing environmentally damaging subsidies
    - Community involvement
    - Property rights and resource ownership
        - Investment in environmental upgrading
    - Improve economic alternatives of the poor
    - Raising economic status of women
    - Industrial emissions abatement policies
    - Proactive policies: climate change and environmental degradation
- Developed Countries
    - Removing agricultural subsidies in their own countries and encouraging developing countries to import their goods
    - Trade policies
    - Debt relief
    - Development assistance
    - Emissions controls
        - Reducing harmful emissions and undertaking R&D to make affordable and clean technologies as well as altering their environmentally damaging consumption patterns

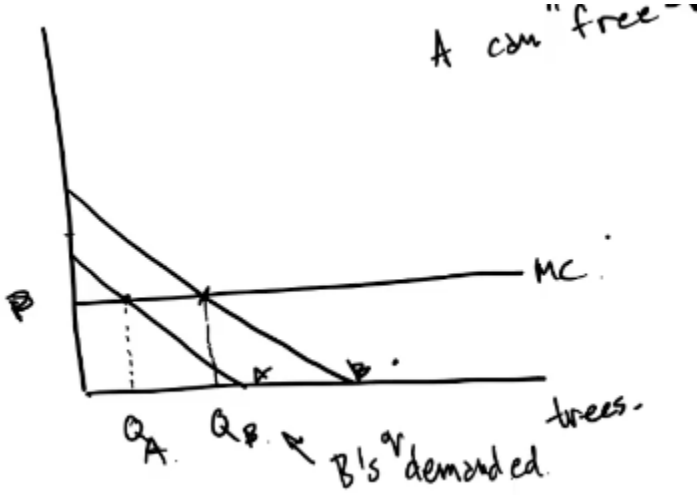
Free-rider problem

- Protection of forest is seen as a public good
    - These are non-excludable and non-rival
        - Non-excludable: Those who do not contribute cannot be prevented from benefitting
        - Non-rival: one person's benefit does not reduce the benefit to others



    - Theres a constant marginal cost for protecting trees
    - Both a and b have a demand for protecting trees at different prices and amount of trees

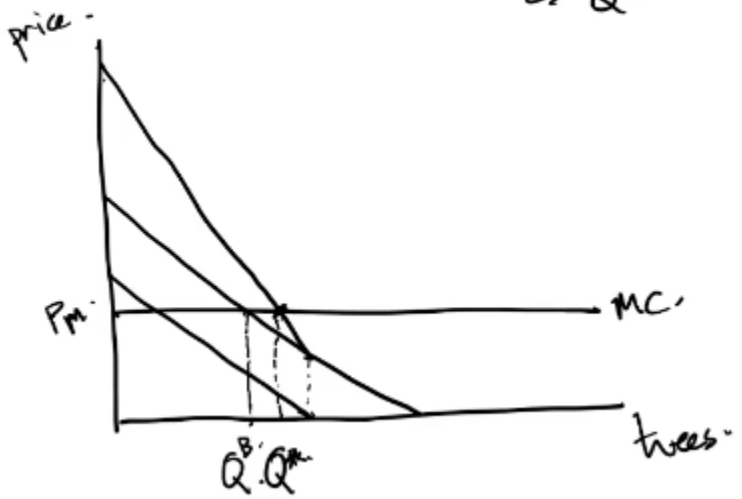
- The price of protecting trees will equal to the marginal cost of protecting trees
- At a price of P, intersection of MC and B will give us a quantity of trees being protected by B's demand
    - B is going to be paying a price of P to protect a quantity of B's demand
    - A is going to benefit from B's protection efforts and A cannot be prevented from benefitting from this
- A benefits from B's trees, and therefore they dont have to contribute and A has a free-ride



- This is a market failure in which people benefit from the contribution of others and have the incentive to under contribute
    - Under contribution
- We get Q* when MC = Aggregate demand and this is the optimal demand for trees and since A does not contribute we fail to reach this optimal net benefits

forest as a public good

optimal trees
↳ Q^*

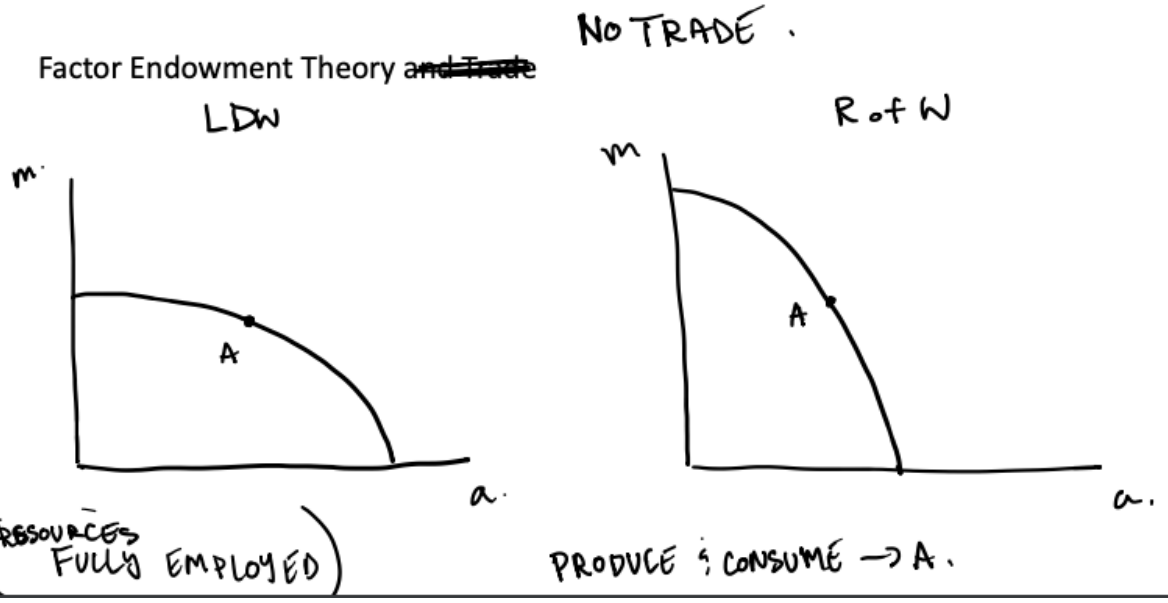


        - If a and B contribute their fair share
- Common Property Resource
    - Common resource will be used by multiple individuals and these individuals will fail to take into account of using this commodity and the negative externalities
        - Leading to overusage of what would be socially optimal
    - Negative externality
    - Lack of coordination leads to an inefficient outcome (market failure)
    - Privatization to achieve efficient allocation and increase in net social benefits
        - Does not address income inequality: owner of resource benefits

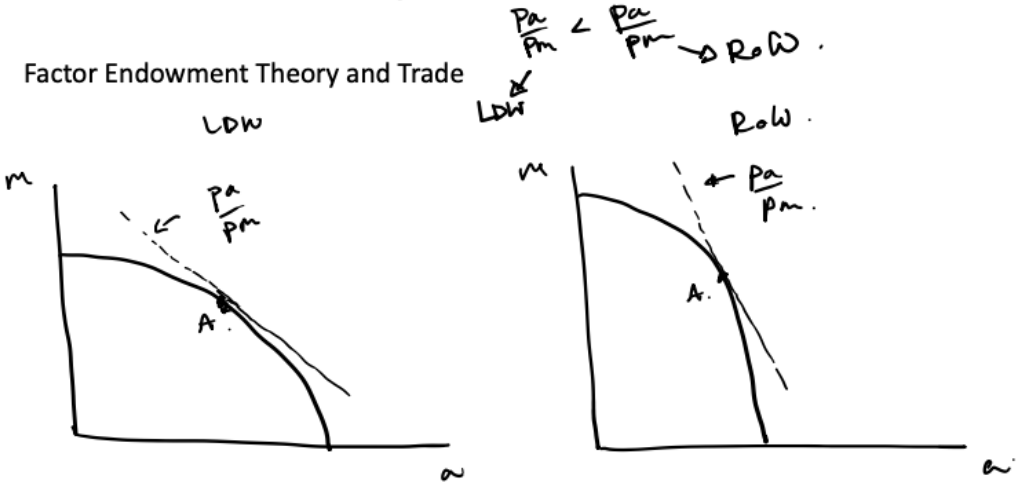
Chapter 10: International Trade and Development

- Traditional Theory of International Trade
    - Absolute advantage
        - The ability to produce more of a good or service than others, with a given amount of resources given to another producer
    - Comparative advantage
        - Production of commodity at a lower opportunity cost than others
    - Specialization
        - Concenttration of resources in the production of relatively few, specific goods
    - Countries specialize in activities where the gains from trade are the greatest
    - The principle of comparative advantage
        - Under perfect competition, a country should (and will) speccialize in the export of products that it can produce at the lower relative cost
    - Terms of trade
        - The ratio of a country's average exports price to its average import price
    - Neoclassical Factor Endowment theory
        - All countries have access to the same technology for the production of all commodities
        - Countries are endowed with different factor endowments
            - Some have an abundant of labour (labour abundant countries
                - Developing countries
            - Some have an abundance of capital (capital abundant countries)
                - Developed countries
        - Relative factor prices differ according to relative factor endowments
            - Capital will be relatively inexpensive in a developed country
            - Labour will be relatively inexpensive in a developing country
        - Countries will have a relative cost and price advantage in commodities that use the relatively greater endowed factor
            - Goods that use capital intensely will be relatively more expensive in developing countries
        - Countries should specialize in commodities that use the relatively abundant factor and export the surplus, in exchange for imports of the commodities that use the relatively scarce factor
            - Capital abundant should specialize in capital intensive goods
            - Labour abundant should specialize in labour intensive goods
            - With each country exporting the surplus goods more intensively in return for imports that use the relative less factor
        - According to the theory developing countries should focus on primary products for manufactured imports
        - Developing countries encouraged to focus on production of labour and land intensive primary products for export
        - And import manufactured goods (capital intensive) from developed countries

- Factor endowment theory
  - 2 countries
    - Less developed world (LDW)
    - Rest of the world (RoW)
  - 2 commodities
    - Manufactured goods (m)
    - Agricultural goods (a)

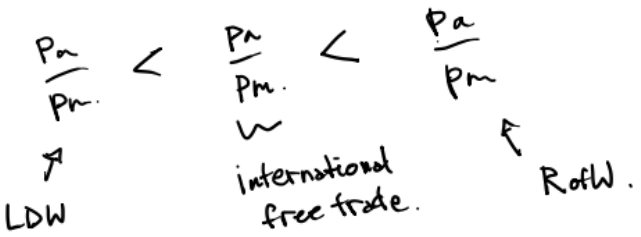


- Resources are fully employed ^ and that theres perfect competition
- Each country **will produce and consume** on the production possibilities frontier or point A in this case

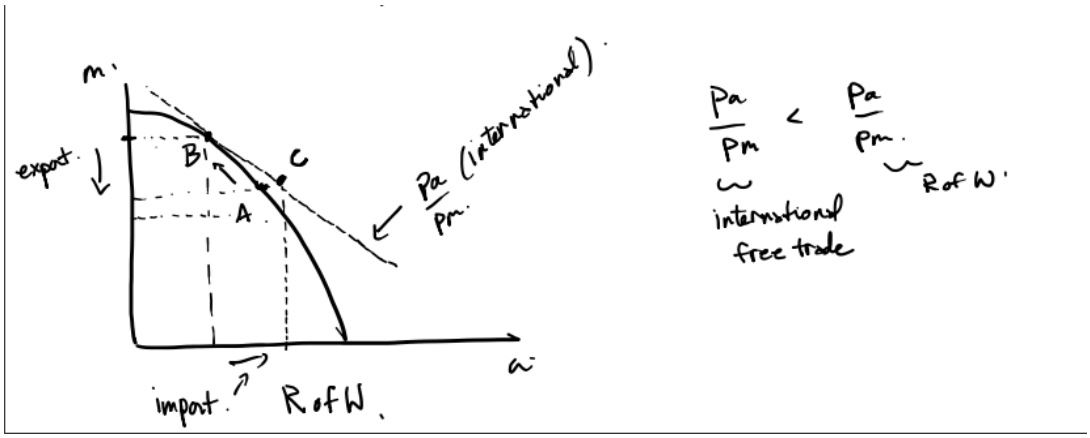


- Slope at point A will be the relative price ratio of the goods A and M
  - Slope is Pa / Pm
  - Pa and Pm is the domestic price of product
  - Pa / Pm for developing world < Pa/Pm for developed world

- Factor Endowment Theory and Trade
    - International price ratio (Pa/Pm) this will lie somewhere between the relative price ratios of the two countries LDW and RoW ‘



    - Pa / Pm LDW / Pa / Pm International
        - The higher international price ratio will encourage developing countries to reallocate resources to agricultural goods so then its closer to the international free trade ratio
        - What they can do is to export agricultural goods in return for manufactured goods from elsewhere



    - Pa / Pm international < Pa/Pm Row
        - The lower price of international agricultural goods in terms of manufactured goods, this encourages the rest of the world to reallocate towards manufactured goods
        - They will import more agricultural goods and export manufactured goods (their specialty product)
- Factor Endowment Theory COnclusions
    - Consumption increases
    - Complete specialization does not occur: partial specialization in goods that use the abundant factor intenslvely
    - Export goods that us the abundant factor intensively
    - Import goods that use the scarce factor intensively
    - Factor prices will equalize across trading countries
    - Trade promotes more equal income distribution within a country

        - Because owners of abundant resources will gain relative to the owners of the scarce resources
    - Implications of Neclassical trade theory for development
        - Trade promotes economic growth
        - Trade promotes international and domestic income equality
        - Trade helps to enable development
        - Government policies should not interfere with the principle of comparative advantage
        - Outward looking international policy promotes growth and development

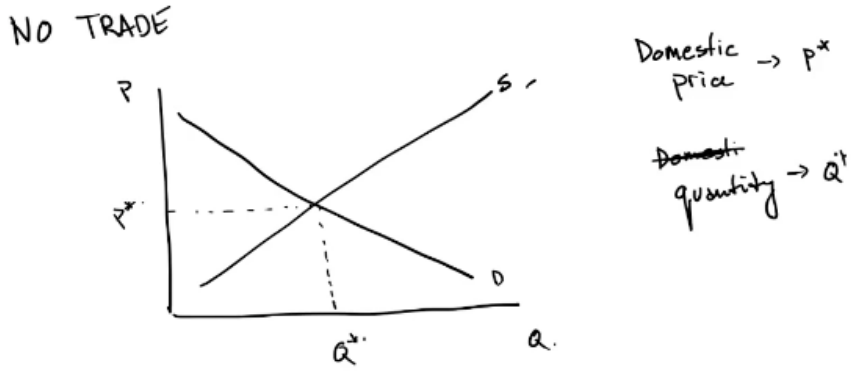
- Critique of the traditional theory
    - Critieque of the assumptions of the traditional neoclassical model of trade
    - 1) Neoclassical model assumes commodities are Fixed, fully utilized internally immobile resources
        - Not fixed or fully employed
        - **Often determined by specialization**
        - Exacerbates inequality
        - Static efficiency, not dynamic efficiency
        - Alternative models: dynamic factor accumulation and uneven development, and qualitative differences
            - North-south model look at this uneven development and exchange
        - Production for export markets
            - Model assumes that resources are fully deployed and in reality this may not be the case
            - A country might be consuming and producing less than their full productive capacity
                - This means production can be expanded for export
            - The benefits from this expanded production can potentially accrued to non-national rather than developing country nationals
            - It could pivot the economic structure towards the export of primary products
    - 2) Assumes that technology is fixed and consumer tastes and preferences
        - Rapid technological change in reality
        - Consumer tastes and preferences are very much influenced by advertising
    - 3) Economic structures, diminishing returns to scale
        - Inflexible economic structures in reality
        - Rigid economic structures can make it difficult for developing countries to adjust to changing economic conditions
        - Economies of scale are common
        - Monopolistic and oligopolistic market control in international commodities
        - Uncertainty due to Instability in world markets for primary commodities
            - This could pose difficulties to impose investment strategies
    - 4) No role of national governments

        - The model assumes that the national governments dont play any role but it does and usually national govts will employ their own policies to protect their industries
        - Government instruments: tariffs, quotas, and etc
        - Developed country government protect own industries, influence world affairs
        - Government role in successful rapid development
    - 5) Balanced Trade
        - Balanced trade will not hold at all times
    - 6) Trade gains accrue to national
        - Foreign owned operations
            - Gains may be directed to foreigners
        - Few linkages to wider economy
        - If GDP >GNI then large sector of economy is foreign owned
        - Gains from trade accrue largely to nonnationals

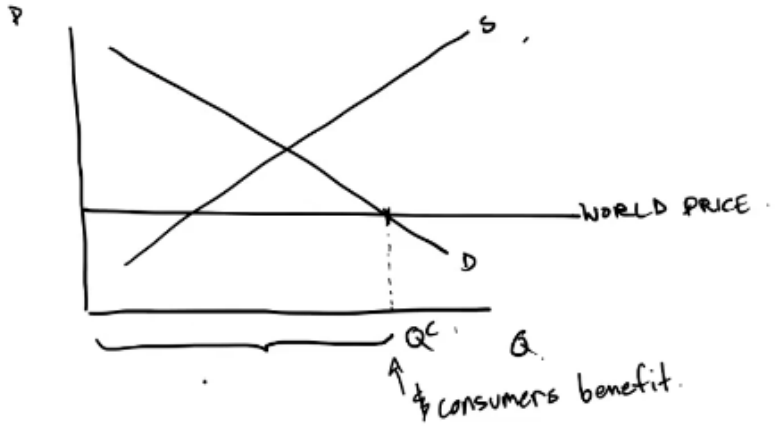
- Import substitution and the theory of protection
        - Import Substitution
            - An attempt to replace importation of commodities with domestic production (usually manufactured consumer goods)
            - Replace imports with domestic production of goods
        - Strategy
            - Tariff or quota on imported goods
            - Set up industry to produce goods (infant industry)
        - Goal
            - Eventually infant industry grows up and is competitive on world market
            - Therefore government protection is not needed anymore
    - The strategy is largely unsuccessful in practice
    - Import substitution results
        - Largely unsuccessful
        - Inefficient and costly
        - Benefits foreign firms and wealthy nationals
        - Government subsidized inputs from foreign firms
        - Overvalued exchange rate hurts primary product exports
            - This will inturn penalize exports by raising those prices
        - Forward and backward linkages inhibited
            - Industries that use infant industry products as inputs
            - Whereas the inputs in the infant industries use inputs from foreign industries

Theory of Protection

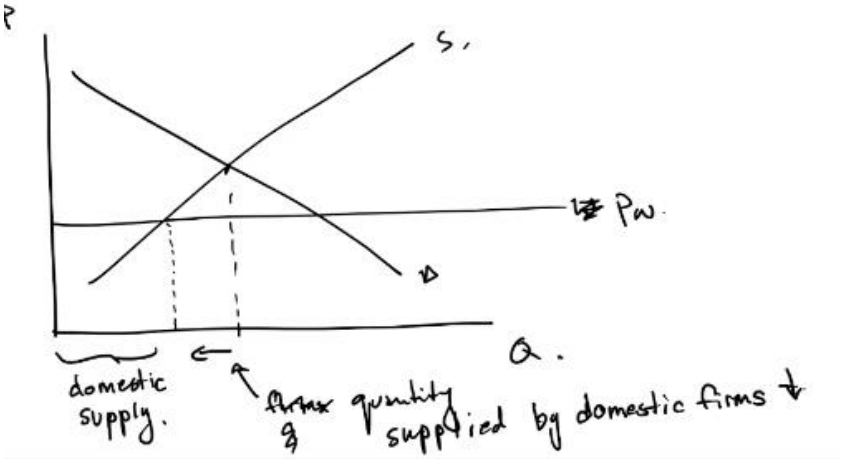
- This is the domestic market



-
- Now suppose country is open to trade and suppose that the world price will be less than the equilibrium domestic price
- What happens is that consumers will benefit and can achieve a quantity demanded



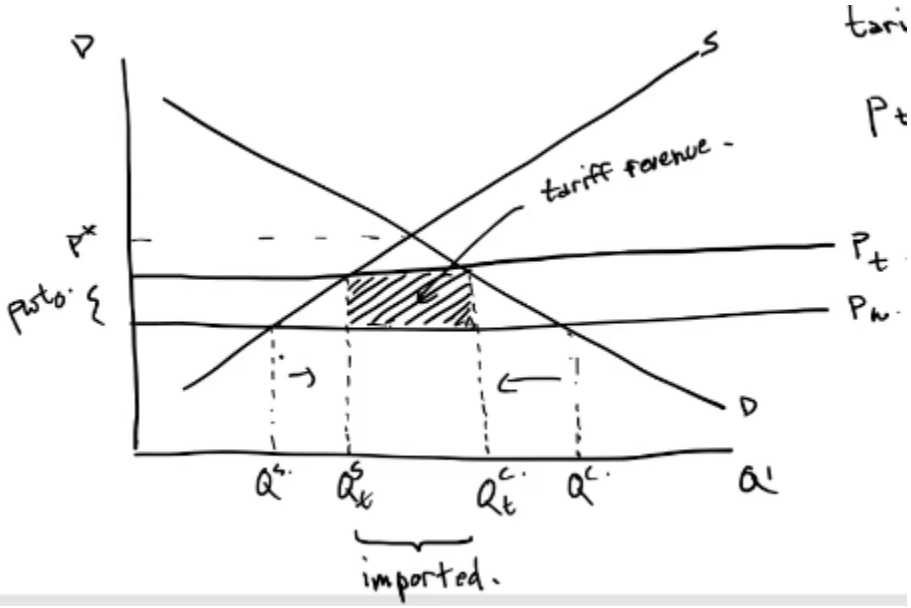
-
- They can consume more at a lower price



-
- Rest of the demand from Domestic supply to Qc will come from imports

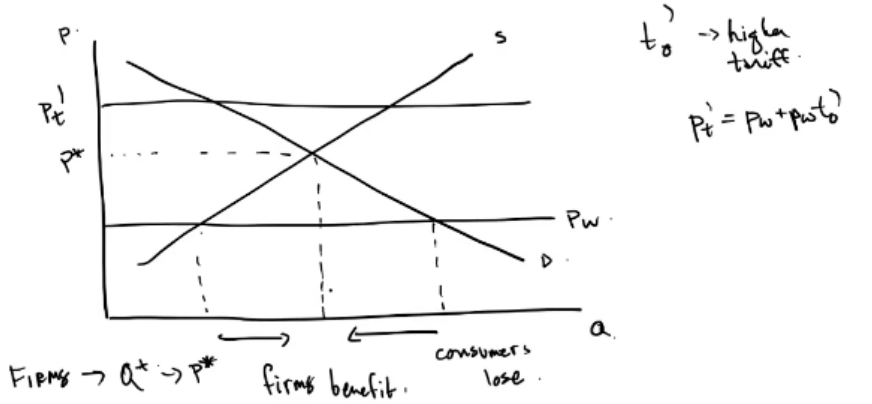
- Lets see the effects of imposing a tariff

- Tariff == t0
- Pt = pw + pwto
    - Pw = world price
    - Pwto = tariff
- The effect of the tariff is that domestic firms production increases and the quantity consumed by consumers (Qc) will decrease and the government will also collect revenues from units sold



- p* is the domestic equilibrium price if there was no trade
- Domestic industry here is not fully protected

- Prohibitive tariff (fully protected)
    - Pt1 = price including the new higher tariff
    - Firms can sell the quantity of goods at the domestic equilibrium price
    - Compared to no tariff, firms benefit however, it will be in the expense of consumer since they will pay the domestic equilibrium price compared to the world price

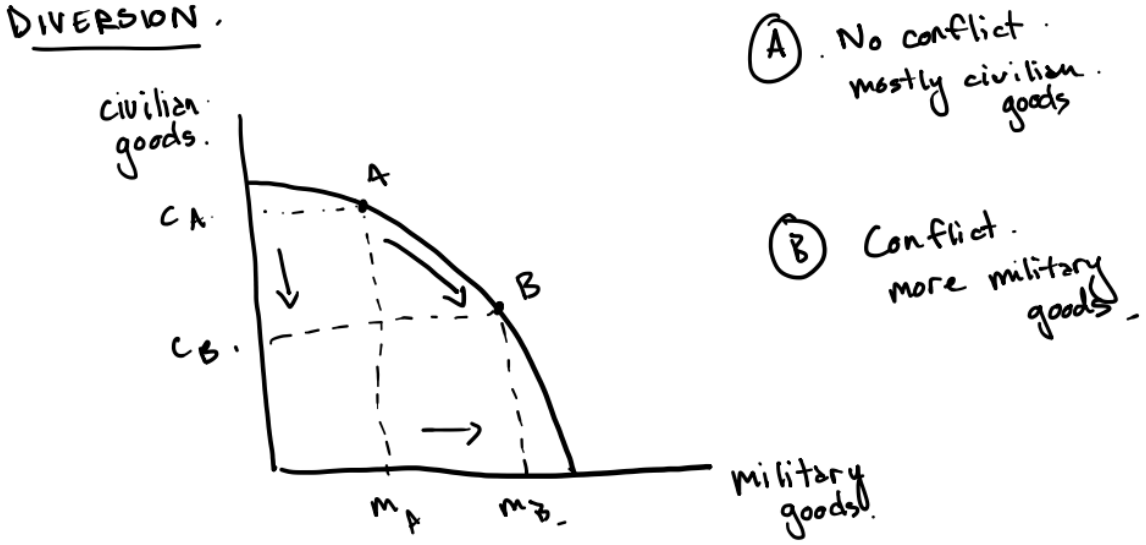


- What is foreign aid?
    - Takes the form of loans or grants
    - Foreign aid is the direct or indirect international transfer of public funds from one government to another through agencies like the World Bank
    - Which transfers should be included or not?
        - Implicit capital transfers
            - Preferential tariffs are not foreign aid but it should be
        - Not commercial flows of private capital
            - Foreign direct investment should not be thought of as foreign aid
    - Foreign aid in economics
        - Non commercial objective / non military purpose
        - Concessional terms
            - It should feature favourable interest rates or repayment periods so this is what is referred to as concessional terms
    - Official and unofficial aids
        - We calculate foreign aid in nominal terms vs real terms
        - Official development assistance or by NGO (unofficial aid)
    - Donor motivations for aid
        - Moral and humunaitarion
        - Political
            - Some aid may have been oriented in the interest of the donor's national security by providing aid or to promote state stability to reduce refugees or discouraged migration from the recipient country
        - Economic: two gap model
                - Savings gap
                    - Inadequate savings for investments
                - ForeignExchange gap
                    - Export revenues are insufficient (imports could be boosted through foreign exchange)
                - Fiscal gap
                    - Public investments, infrastructure, human capital to complement private investments
            - The model proposes that the first two gaps may be constrained
            - Consideratiosn
                - Skills gap
                    - Technical assistance to train workers
                - Absorptive capacity
                    - How much financial assistance can be used productively
    - Recipient motivations for aid
        - Economic

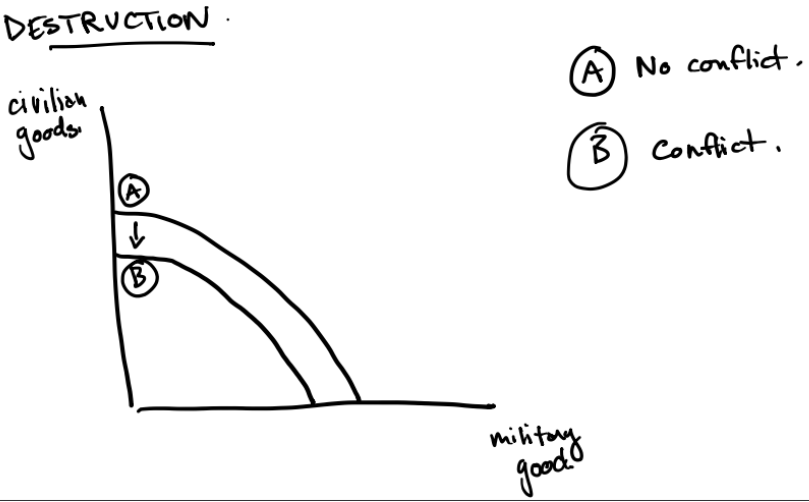
        - Financial assistance can lead to economic growth
    - Political
        - The potential political leverage that can be attained by the donor country
    - Moral and humanitarian
        - These responsibilities of developed nations to developing nations
- NGO
    - non-profit organizations involved in financial and technical assistance to developing countries
    - Less politically constrained
    - Work with local organizations
        - May be perceived in a better light since they are helping locals
- Economic effects of aid
    - Controversial, subject to criticism
        - Aid works against economic growth
        - Aid can increase income inequality within a country by focusing on the modern sector
        - Aid can be corrupt or appropriated
    - Evaluation of development assistance
- Consequences of violent conflict
    - Death
    - Sexual violence / sexual exploitation
    - Reduced health / harsh living conditions can be a cause of serious illnesses or infectious diseases
    - Wealth destruction / diversion of resources to destructive activities
    - Food insecurity / land and livestock are lost due to fighting or occupation of land bc of conflict and may be slow to recover
    - Lost schooling
    - Displacement of persons and create refugees
- Causes of conflict
    - Horizontal inequalities
        - Inequalities among groups:
    - Resource scarcity (shortages of basic needs)
        - May increase risk of violent conflict
    - High value exportable resources
        - There being a lack of security of resources
    - Military expenditures
    - Commitment problems
        - Theres an incentive to renege on an agreement means that the agreement lacks credibility
    - Coordination problems
        - Bad equilibrium == conflict

- Prevention and Resoultion
    - Strong institutions
    - Engagement and coordination by all levels of government

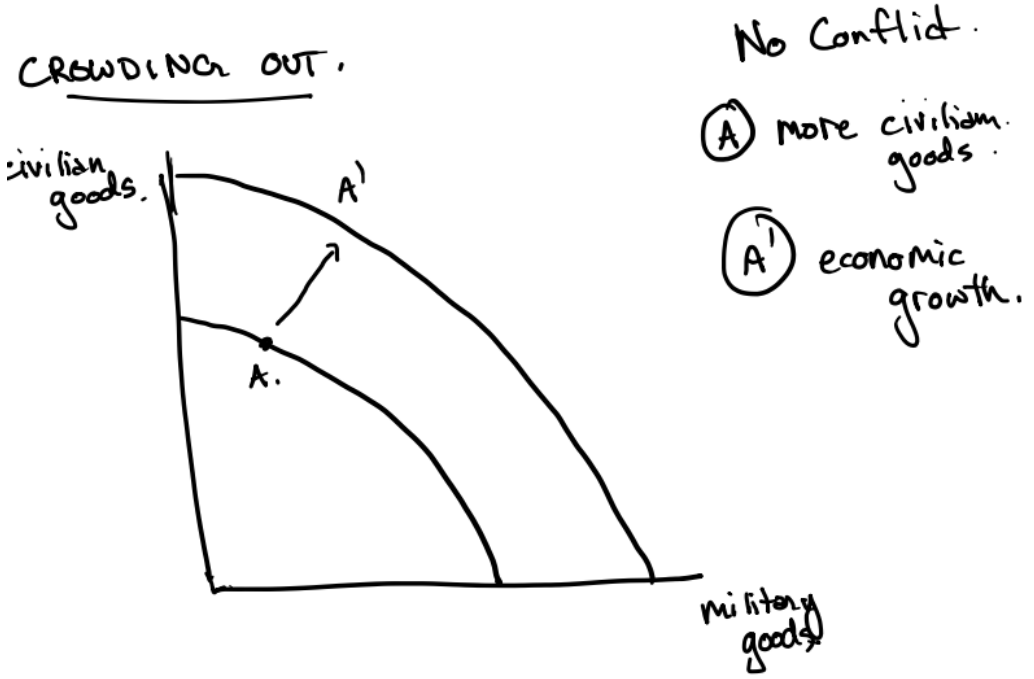
- Production Possibiities Model and Conflict
    - Economic costs and consequences of conflict
        - 1) Diversion of resources to the military
            - Civilian goods or military goods



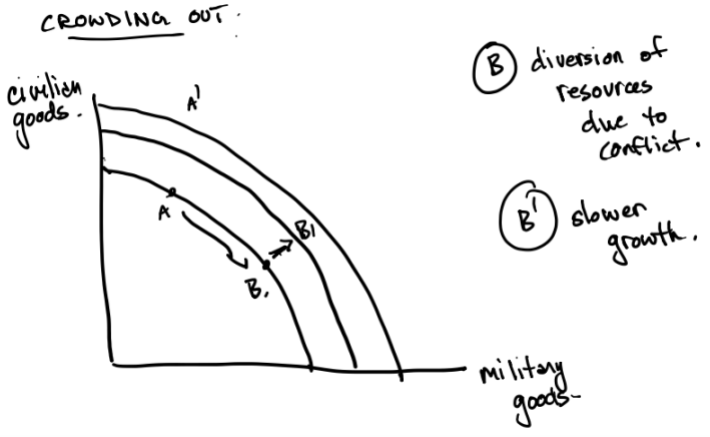
- 2) Destruction of people and property
    - Violence leads to injuries, deaths, and damaged roads and land



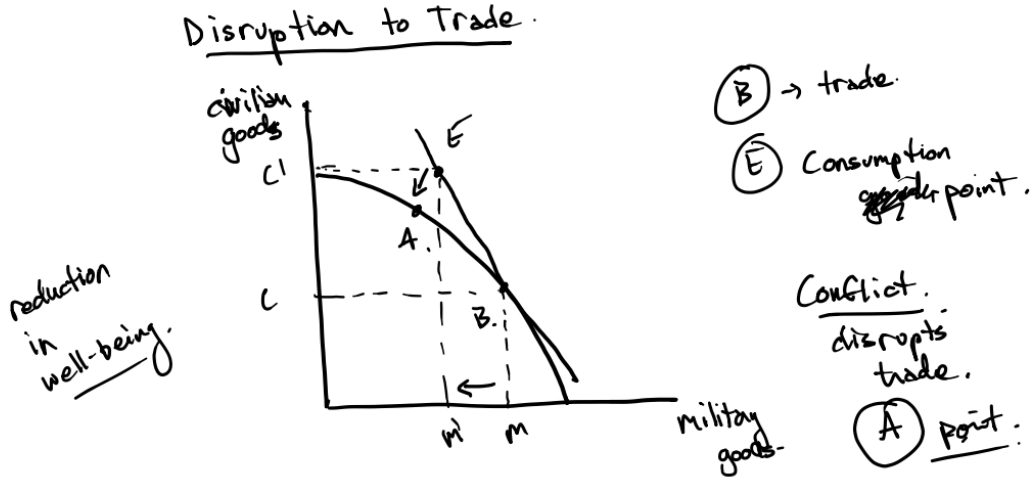
- 3) Crowding out of investment
    - Conflict disrupts investment and slows growth
    - No conflict



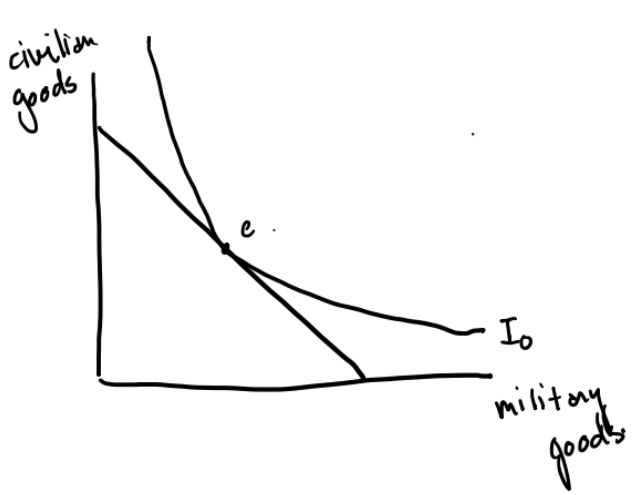
- Conflcit scenario



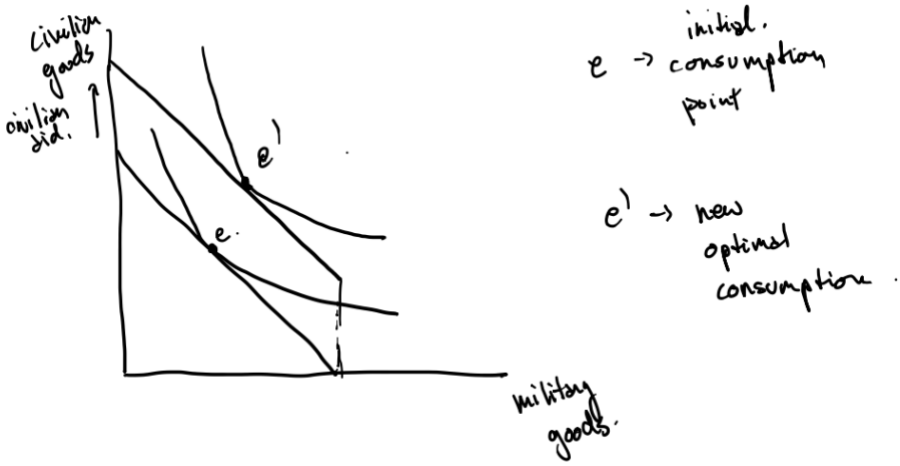
- Disruption to trade
    - Producing military goods to export the surplas and getting imported civilian goods
    - We have a reduction of well being because of conflict



- Fungibility of Foreign Aid
    - The straight line is the budget constraint anything below the line is affordable
    - E = optimal consumption point
    - The country spends a part of the budget to military goods and the other part to civilian



- If the country gets all aid from civilians
    - There will be an increase in the budget constraint and cause an increase in civilian goods but not as much in military goods



- Civilian aid has allowed the country to increase its consumption in civilian and military goods