Development Theory and Experience - I

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ABOUT THE AUTHORS

The authors of the book are BA (Hons) Economics students from St. Stephen’s College, Delhi. Having scored more than 80% in their university examinations, the original trio has been vying for spreading the concept of knowledge sharing and this book is a step in the direction, an attempt to make life simple for the upcoming batches of economics. This version of the book has been written by enthusiasts of this subject in an attempt to break it down into an easily digestible format.
PREFACE

Dear Junior,

The subject in third year which boggles most of us is Development theory, not because of terminology that is bombastic, or concepts which are Greek and Latin, but solely because of the sheer vastness and the feeling of helplessness when we ponder on about ‘Where to start?’

The current edition is an attempt to carry forward the legacy of Eurekawow and keep serving the student community at large. We have revised the book and added new chapters as per the latest minutes of the department meetings.

We have consolidated, crystallized, summarized and organized the material to be read in a friendly format. The book will provide a heavenly respite from the spiral reading and in some probability act as a substitute to the reading, as far as the examination is concerned.

However development lovers are strictly warned against the shallowness of the text. Probably you could search for some extra references on the subject in the library for strengthening your knowledge and then get back to us for helping write the successive editions of this book.

How to Study?
1. It is advisable to read the prescribed reading to get a feel of the concepts that have been described.
2. Then check out the corresponding chapter in your EurekaWow help book and go through thoroughly. You will find that the chapter in many places may be a repetition of the original reading but that it very elegantly puts paras and paras of useless babbling in the text in perspective and arranges them in neat paragraphs.

Since most economics students are not adept at the art of writing long digressive answers, we offer you enough material to remember for writing your final answer in the exam. Since the material is structured, you would be able to have the twin qualities of length and structure in your answer!

A word of advice - shh...please don’t tell anyone
Logically thinking, an individual would get tired of reading sheets after sheets of cursive writing blurring out the same thing. The trick to score is – product differentiation. Make your answer different from a clichéd one. Write the same material, don’t digress much, but write it in a manner that pleases the eyes of examiners. Leave enough spacing, margins at the corners, give a lot of sub headings, try making little flow charts here and there just to put your point across and be sure to extract a decent score for each answer :p

P.S. Any opinions expressed are those of the authors. All errors are our own.

Sincerely,
The Eurekawow Team

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SYLLABUS

1. Conceptions of Development
   i) AVSI, pages 1-29: Characteristics of Development
   ii) DE, chapter 2: Some historical explanations for differences in development indicators.
   iii) Human Development Report, relevant tables from latest edition, plus technical report with HDI formulae and examples

2. Growth Models and Empirics
   DE, chapters 3 and 4.

3. Poverty and Inequality: Definitions, Measures and Mechanisms
   i) DE, chapter 6 on inequality measurement, chapter 8 on poverty measures and correlates (8.1, 8.2, 8.3 and appendix for FGT measures)
   ii) Angus Deaton, “Measuring Poverty”, chapter 1 in UP (on defining poverty lines)

4. Political Institutions and the Functioning of the State
   i) AVSI, Chapters 2 (Trust), 3 (Communities) and 4 (Markets) (pages 30-89)
   ii) Thomas C. Schelling, Micromotives and Macrobehavior, chapter 1,
   v) Dani Rodrik, “Fifty Years of Growth (and lack thereof): An Interpretation” (Chapter 1 of One Economics, Many Recipies: Globalization, Institutions and Economic Growth.
UNIT 1

Conceptions of Development

i) AVSI, pages 1-29: Characteristics of Development

ii) DE, chapter 2: Some historical explanations for differences in development indicators.

iii) Human Development Report, relevant tables from latest edition, plus technical report with HDI formulae and examples

Chapter 1
Characteristics of Development

Scholars and Economic historians have attempted to uncover the secrets of how and why economic growth/development reached some places and neglected the others, creating an unequal social order.

Jared Diamond argues that people from Eurasia have enjoyed advantages over the others in that:

- Geographically, Eurasia is unbound by natural barriers which would prevent dispersion of people and ideas and it lies in the temperate zone
- There is a presence of domesticatable animals which widen the horizon of opportunities

Measuring Rod – GDP

The Gross Domestic Product (per capita) is a common yardstick to measure the performance of different regions or economies. It is the value of all final goods produced by the residents of a country. It is taken in real terms, to correct for inflation. It can be arrived at by looking at the production, incomes or expenditures, via macroeconomic aggregation.

GDP, meant for market economies, entrusted the value of the good to be the market price. However, in economies where most activities are carried on through non-market institutions that aren’t formal or organized, a system of notional prices (or shadow prices) has been developed.

2000 years ago, the per capita income of the world was a mere $515 a year in today’s prices. Moreover, it was distributed highly equally. Over a 1800 year period, this income grew by only 0.02% annually.

[Note: When GDP grows at g% per annum, it doubles (or halves) in 70/g years]

Regional disparities in income are merely 200 years old. However, if you notice, there is a bipolar distribution with a cluster of countries (Sub Saharan Africa, Indian Subcontinent, South East Asia, Central America) who produce only $2,100 per year per person, whereas another cluster (Europe, North America, Japan, Australia) have the figure at $30,000. The middle income nations (China, Venezuela, Brazil) are thinly scattered.
Why the difference?

1. Physical (Manufacturing) Capital: In rich countries, the work force has better tools and machines to work with and enhance their productivity.

2. Human Capital: This has a dual perspective. In terms of both Education and Health, the rich countries come out on top. They are better suited to generate and implement ideas and also learn from and teach to the rest of the world. Undernourishment, endemic in poor countries, affects the cognitive skills of the people.

3. Ideas: It is well known that the countries who became rich are the ones who had ideas to develop something new, or to produce an existing good in a more efficient way. Tertiary education plays an important facilitating role here.

4. Population: An increase in population growth rates directly implies a need for an increase in capital assets to maintain living standards. A country that has a low growth rate of population can therefore have a higher standard of living. Poor countries have a higher population growth rate, which can be decomposed into fertility rate and net immigration. The fertility rate in poor countries is 3.7 live births per woman, as opposed to 1.8 in rich countries. This has a direct impact on the ability of women to enter the workforce given the fact that they spend majority of their prime time birthing and rearing children (especially in Sub Saharan Africa).
All these factors work together in sync, to create a virtuous cycle of prosperity that pulls an economy out of the underdevelopment. On the flipside, even if one link is missing, the cycle is reversed and there is a vicious cycle of poverty.

Total Factor Productivity is the general rise in efficiency with which goods are produced. Solow, and other economists, showed that if individual factor contributions are summed, and they still fall short of Real GDP growth, then it is due to this rise in efficiency. It comes about with ‘technological progress’ or ‘improvement of institutions’. In UK, ideas and technology led to an increase in TFP, whereas in sub Saharan Africa the local institutions under performed, because of civil strife.

**Institutions**

All the factors that have been elucidated above have worked in rich countries because of the existence of dedicated institutions that have mobilized and catalyzed these forces. The growth of these rich countries can be analysed in terms of these institutions and policies. An institution is an established law, custom, usage, practice, organisation or other element in the political or social life of a people. They govern collective undertakings, and also their relationships with outsiders.

The rules and the adherence to them determine the effectiveness of the institutions. An index of corruption shows the poor countries to be at 3.5 on a scale of 10 (0 being the most corrupt, and 10 being clean). This corruption is directly related to the inefficiencies of the government, which forces people to take measures such as bribery. Such inefficiencies can be clubbed as social infrastructure or social capital.
Chapter 2
Characteristics of Development

What is Economic Development?

Economic Development is often thought of as growth in per capita income. But this is not the end of the story. Development in its true sense would comprise of betterment on varied factors like mortality rates, literacy levels, healthcare availability and many others.

Income & growth:

Measurement Issues:

- **Exchange Rate Method**: In this method, incomes of different countries are converted into one common currency (generally U.S. Dollars) and then divided by the respective population to arrive at per capita incomes accordingly.

- **Purchasing Power Parity Method (PPP)**: The PPP of any country is the ratio of its domestic currency expenditures to the international price value of its output. International prices are calculated for a huge basket of goods and services by averaging the prices (in common units) for each of these goods over all the countries in the sample set.

The World Development Report conveys large disparities among income levels of different countries in both absolute and per-capita terms. The differences are large enough that no amount of bettering of measurement measures can remove them. Some possible reasons for the disparities seen could be:

- Large under-reporting of incomes in developing countries due to inefficient tax collection systems. Hence, national accounts figures may not be free of such errors.

- A large portion of output in developing economies is for self-consumption and thus might not be reported accordingly.

- Since exchange rates depend only on goods that are traded internationally, they might not truly reflect the prices of non-traded goods. Fairly common in poor countries, their low incomes are not enough to pull up the prices of such goods. Hence, the exchange rate method might underestimate the real incomes of lower income countries.

- A rather subtle issue here could be that we are comparing highly different goods using market prices. Main points of debate about the rightfulness of this could be:
  - Markets with imperfect competition like monopolies, oligopolies, govt. enterprises
  - Inflexible prices of some goods like public goods

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Externalities like environmental damage, resource depletion

**Historical Experience:**

Over the period 1960-85 the entire distribution of incomes remained constant as the richest 5% of countries bore the same ratio of incomes relative to the poorest 5%. Underneath this constancy in distribution, the East Asian Economies rose tremendously even through the nineties whereas the Latin American and Sub-Saharan African countries slowed down similarly. Such diverse growth experiences could change the world scenario in a few decades. We use ‘**doubling time**’ (number of years it takes for income to double at a given growth rate) to see such an effect.

**Mobility Matrix:** These are used to comprehend the movements of countries up and down the world income ladder.

First, the incomes of different countries are converted to fractions of the average world income (**both in per-capita terms**). Next, we create categories for countries to put into, like \( \frac{1}{4}, \frac{1}{2}, 1, 2 \). All countries in label ‘2’ have indexes between 1 and 2, ones in \( \frac{1}{4} \) label would have an index lower than \( \frac{1}{4} \). Now doing this exercise for two points in time will tell us whether any country(ies) have transitioned from one label to another.

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The mobility matrix is of significance when analysing the transition of countries from one income bracket to a higher or lower bracket given their initial endowment. Each cell contains a number that represents the percentage of countries who have transitioned from the income bracket corresponding to the row in which it lies to the income bracket corresponding to its column. For example, 26% of the countries which were at par with the world average per capita income previously are now twice the world average. However, if the numbers along the main diagonal are large, it means that there is low mobility. If every cell is equal then it means that mobility is extremely high.

**Observations:**

* Middle-income countries have greater mobility than either poor or rich countries. Thus extreme poverty puts one in a disposition.

* Poverty, intuitively, should feed on itself. But it can also be that they can easily take advantage of the technology of the developed countries and grow faster. Even the marginal product of capital would be high, given its scarcity.
* There are certain countries that don’t move upwards, but can also drop to a lower income category over time.

* Over 1960-85, the distribution of world income seemed to be rather stable. However, the inequality has been staggering, as the per capita income of the 5% richest countries is 29 times that of the 5% poorest countries.

* Even within one group of countries and the corresponding mobility figures, there is immense variation in the countries. In the 1980s East Asian countries prospered whereas Latin American and Sub Saharan Economies languished

* There appear to be no traps to underdevelopment although very poor countries are at a clear disadvantage. However this needs a deeper investigation given the relative advantages to a poor country.

**Income Distribution in developing countries:**

Even though there exist income differences within the developed countries, differences of similar magnitude in developing ones are more visible through the medium of adverse poverty and destitution. We also observe that the poor 40% are among the worst hit due to two factors:

- Firstly, by living in poor/less developed economies
- Secondly, being among the poor in those economies

and thus face high levels of domestic inequality

Also, as we move across countries in increasing order of income levels, the inequality within those countries first rise and then fall thus indicating an inverted – U shape with inequality on the Y-axis and per capita incomes on the X-axis. This indicates the possibility that as economy grows it first benefits the richest groups thus leading to higher incomes for them in relative terms as the incomes for poorer people does rise in absolute terms. Then the growth benefits start to spread out more evenly across the economy. **BUT,** this hypothesis may not always hold true. Different policies of the government clubbed with respective socio-cultural scenarios can lead to completely different results.

**The many faces of underdevelopment**

- **Human Development**

  Income is not everything people need. Poor or middle class people still might not be able to have access to education, healthcare and other essential human development factors. Other factors like socio-economic empowerment of women may lead to lower infant mortality rates, better nutritional outcomes, etc. So a country faring well in income levels might be poor in the other factors. However it is safe to say that human development factors will ultimately depend on per capita incomes to an extent.

  **Index of Human Development**

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Human Development Index as provided by the UN report has three components:

- Life Expectancy at Birth (to indirectly reflect infant and child mortality)
- Weighted average of adult literacy (weight = 2/3) and a combination enrolment rates in primary, secondary & tertiary education (weight = 1/3)
- Per Capita Income (somewhat adjusted after a threshold of around 5000 PPP Dollars, 1992) (as incomes go up lesser weight is given due to diminishing returns)

The HDI is calculated by defining some notion of a country’s achievements in each of the above three and then averaging the three out.

The credibility of a composite index like the HDI is questioned since three fundamentally different factors of development are combined into one final value but the advantage lies in its simplicity and its political power in this era where how the news sound does matter. However, the weighting scheme used in the calculation can very well be questioned because it is ad hoc in the true sense. HDI values vary from 0 to 1 as it is said to be a fraction of ultimate development.

Comparing two countries by just looking at the HDI value might not make much sense. However comparing ranks of countries according to income levels and the HDI values simultaneously will tell us the country’s human development progress compared to the its income level.

**Per capita income and human development:**

Though we have shown that income is not a guarantee for successful human development, it is arguable that it is a fairly good proxy for most factors of development. Scatter diagrams help hear by enabling us to see the dependency of one variable over another.

Studying cross-country data tells us that as we go to very high levels of income, performances on all three fronts go up. Thus to avoid such extreme effects, we leave out countries with per capita GDP higher than 9000 PPP dollars at 1993 level. The variation among the rest is somewhat less and thus this makes the case against that just per capita income matters, stronger.

Thus, we should not rely only on one kind of aspects like HDI factors and simply ignore the rest (per capita GDP)

**Structural Features**

- **Demographic Characteristics**

Different countries have different patterns of population growth. Developing countries tend to possess high birth and death rates. As they develop further, both these rates tend to come down over time though not in the same proportion. This lag in adjustment of these above rates leads to high population growth in developing countries which could have the following effects:
To keep the per capita income from falling, overall output/income should grow faster than population. Higher population growth also has a positive effect since there is a greater supply of labour.

High birth rates (fairly common in developing countries) tend to make the population dominated by young people which in turn makes it worse for poor people since the young population can’t provide for itself making it difficult for the sole bread earner.

Empirical results show that as per capita income increases the population growth subdues over time.

**Occupational and production structure**

Empirical results state that as we move from low income to middle and then high income countries, the share of agriculture in the total output comes down. What is also seen is that a much higher share of the labour force lives in rural areas in low income economies. The ratio for high income is around 20% which could be said to be biased due to the 'commuter effect'. The 'commuter effect' characterizes labour engaged in non-agricultural activities as rural labour even though they just live non-urban areas.

**Rapid rural-urban migration**

Migration occurs due to two forces:

1. **PUSH** from agriculture due to extreme poverty and growing landlessness
2. **PULL** of the urban sector due to factors like relatively high wages, worker protection, desirability of urban lifestyle as showcased by the media

As expected this trend of migration is much more present in lower income countries. This is measured by comparing the population growth rates in urban population and the overall population. As for the developed nations both these population rates seem to be almost comparable in magnitude.

However, we do not mean to say that migration is bad or undesirable after all this could have been one of the driving forces behind the success of developed economies. The issue at hand here is that such processes when a lot of strain on the economy as a whole sped up.

One place where it is highly visible is that a bulk of the population is categorized under the 'services' sector. The striking fact about this is that portion for the services should be much higher in developed economies but empirical results show that even developing countries fair quite similarly in this regard, to the former. The reality behind this finding is that services comprise also of the fall back options for labourers lacking an industrial job. This large size of services sector in developing economies shows this inability of industry to accommodate the high pace of rural-urban migration.

**International Trade**

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The main difference between developing and developed countries in this matter comes out when we look at the composition of trade.

- **Export**: Developing countries generally export primary goods like raw materials, cash crops and even food. Developed countries on the other hand export finished goods ranging from capital goods to consumer durables. Also there are some developing economies which have a low ratio of primary exports because they are attempting to diversify away from primary goods. The reason behind the above finding is that due to abundance of unskilled labour developing nations have comparative advantages in production of primary goods.

Also, the importance of primary goods may in itself determine the growth and development of these developing nations as the primary goods are on the receiving end of large fluctuations in world prices and thus disrupts the stability in the export earnings.

**Terms of trade**: It is the ratio of price of exports to the price of imports of a country. Empirical results show that this ratio is positively correlated with per capita income. This could be because the demand for primary goods subdues as incomes go up leading to a decline in their prices. As a result poor countries would find it harder to improve their terms of trade.

- **Import**: Unlike exports, the composition of imports across countries is much more similar as even developing countries often need to import other primary products. Similarly developed economies might need to import other manufactured goods.
Chapter 3
Pranab Bardhan: India and China

Economic Reform and Growth

China

In the 1980s, economic growth picked up in both India and China. In the nhui province in China, a group of brave farmers launched a movement to undertake private property of the land on which they worked, subject to taxes and high procurement charges by authorities. The agricultural output increased from 2.7% in 1970-78 to 7.1% in 1979-84. Half of this can be attributed to the Household Responsibility System of private ownership.

In non-agricultural sectors too, reforms picked up but were integrated into the state policy without any devolution of state ownership. As the momentum of resistance increased the dual character of the reforms combined into one, which was in favour of the market. Soon, The Special Economic Zones attracted foreign investment at a time when private property rights generally were not protected by the legal system.

The most dynamic part of the Chinese economy in the first two decades of reform were the township and village enterprises (TVEs), largely under the control of local governments which provided the leadership in the labor-intensive rural industrialization of China. It had all the characteristics of a market-based industry. The capital was raised from the now rich farmers, and the rural labour force was used. The local government had rigid budgets, which couldn’t bail out the sick units, and thus competition was fierce. But still, in the initial levels, the state retained all ownership. After the mid-1990s, as markets developed and as outright privatization was no longer taboo, the special advantages of local government ownership in terms of protection and access to resources declined.

In the 1980s, analogous to the household responsibility system in agriculture, regional and local governments experimented with different kinds of "managerial responsibility systems," by which SOE (State Owned Enterprise) managers often signed performance responsibility contracts and were given more autonomy in decisions, financial incentives tied to enterprise performance, and profit retention for investment and worker bonuses. At times the managers were chosen according to the bids they made regarding their commitment to growth targets. The other route to revolutionize SOEs was privatization. By 2005, more than two thirds of the regional SOEs had been privatized and were under new managers.

Industrial output grew at an annual rate of 9.3 percent between 1978 and 1993, and at 11 percent between 1993 and 2004. Total factor productivity (TFP) in industry grew at the annual rate of 3.1 percent in the first period and at twice that rate in the second period.

However, this was misleading as China was considered to be the world's manufacturing workshop and a lot of assembling happened there. The manufacturing value added (worldwide) in 2004 was only 9% compared to Japan’s 21%.

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Although FDI and exports helped in employment, they were not the major drivers of economic growth, since China had not liberalized to that extent. It supported a maximum of 15% of GDP growth, at the very best. As Chinese goods become more sophisticated and skill-based, the employment for untrained workers is likely to stagnate or fall. Thus labour intensive export goods will shift to other countries where unskilled labour is cheap. But given its size and capacity it is likely to continue production of both kinds of goods side by side for some time at least.

India

In India, after some deregulation of industry and trade liberalization in the 1980s, the pace of reform accelerated in the 1990s, and afterward, involving abolition of most licensing of industry, most other restrictions on entry or capacity expansion for large firms, and quantitative restrictions on trade and exchange control; substantial scaling down of import tariffs and restrictions Lin foreign investment [in most economic activities (with some exceptions in financial services, media, and retail trade); and significant lowering and restructuring of direct and indirect taxes (along with some streamlining of tax administration); and some reorganization of the public sector and opening of most areas to private investment that were formerly earmarked for the public sector (and a modest amount of privatization of public enterprises).  

As compared to China, India still had a tighter reign over tariffs and the FDI in China was many times more than that of India. The openness to trade was also seen on a larger scale in China. Industrial output grew at the annual rate of 5.4% between 1978 and 1993, and at 6.7% between 1993 and 2004. TFP grew at 0.3% and 1.1% in those two periods, respectively. Even though these rates are much lower than those in China, compared to the past these represent a significant advance for India.

In India reforms sparked and were pushed by a huge boost to entrepreneurial spirits. This created linkages across sectors and across formal and informal sources of organisation. India was all set to grow at a rapid pace with reductions in controls and increase in market forces but it was dampened by the utter lack of good human capital and social/physical infrastructure.

Comparison

Apart from the macro trends that we have touched upon, a detailed analysis required a conversion of metrics into a common ground for comparison, like the PPP. Data from 1980-2004, for four different industry groups, is summarized as follows:

The first group consists of machinery and equipment (including electrical, information/communications, instrumentation/measuring, and transportation equipment). In this group, industries in India were more productive than those in China at the beginning of the period but the gap declined over time and even became negative in some cases.

The second group includes food and beverages, chemicals, building materials, and metal products. In this group, industries in India remained on a par with those in China until very recently.

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The third group includes textiles, apparel, wood products, leather and leather products, rubber, plastics, and basic metals. Industries in this group showed strong TFP growth performance in India relative to China in the first half of the period but their relative performance has been declining rapidly since the mid-1990s.

The fourth group includes a few sectors in which Indian industries have been performing better in terms of TFP over the whole period, such as paper and printing, or have caught up with and remained more productive than China, such as tobacco, petroleum, and coke.

Growth in India has been service led, as is evident from the increase in Total Factor Productivity over time. However, Chinese growth has been manufacturing led. India’s growth comes not only from the much acclaimed IT and BPO sectors but also majorly from the services provided by small enterprises who are largely in the informal sector. They enjoy spillovers from technological leaps but are unaffected by foreign trade and government policies.

**Why didn’t India see Labour Intensive Manufacturing Growth?**

Most people agree on the problems of inadequate long-term finance for small firms and of infrastructural deficiencies in India. Many economists point to the dilapidating effects of two long-standing policies in India:

- Reservation of a large number of products for small-scale industries: It prevented small firms from taking advantage of economies of scale and compete in world markets
- Rigid labor laws: It induces capital intensity in production because the laws make it too difficult to fire someone or redefine their job, even in recession or declining markets

The adverse effect of these two policies is particularly visible, critics point out, in the textile and garment sector, where China’s success in recent years has far outstripped that of India. Others argue against this by exclaiming that the large industries aren’t kept out of the reserved categories, and that economies of scale have been achieved, especially in the textile industry, which is globally competitive.

On labour laws, studies have found that the Indian variables testing for strict labour legislation were found to be statistically insignificant. More recent case studies of labor practices in ten states and nine industries over the period 1991-1998 by Deshpande (2004) also suggest that the Indian labor market is not as inflexible as it often is made out to be: many firms were able to change employment as they wanted or increase the share of nonpermanent (casual and temporary) workers. The interpretation and implementation of these laws are also suffering under the state legislation.

One of the most detailed econometric, studies of industrial growth based on state-level Annual Survey of Industries data is by Gupta, Hasan, and Kumar. They found that States with less competitive product-market regulations have experienced slower growth and states
with more inflexible labor-market regulations have experienced slower growth, particularly in labor-intensive industries.

The labor market may be more "flexible" in China than in India, but one should not exaggerate the difference in job security and benefits. As Cai, Park, and Zhao (2008) point out, until the late 1990s the government tightly restricted the dismissal of workers in China. Large scale layoffs came at the end of the 1990s, but along with massive public subsidies to those who lost their jobs.

In India the trade unions exerts a lot of pressure on labour regulations. However, the ease with which new unions can be formed keeps the movement fragmented. This hurts because the unions are anyway only in the formal sector which is a minority. The politicians should come up with a system of relatively easy hiring and firing but along with unemployment assistance and adjustment compensation, to be made from a fund to which both the employer and employee contribute.

The efforts to induce competition have not shown results in India, even in the Herfindahl index of industry concentration, which has not fallen. China also experienced little major change in industrial concentration between 1993 and 2002, reflecting, the conflicting forces of opportunities for new entry and pressure for consolidation. For example; in recent years concentration increased among manufacturers of home appliances and beer, while both car and steel industries experienced an upsurge of new entrants.

Herfindahl Index scores of industrial concentration suggest that India's share of highly concentrated industries is more than three times that of China creating an environment unfit for competition and growth. The OECD's 2007 report provides a comprehensive measure of product market regulations based on several indicators relating to state control, barriers to entrepreneurship and trade, and so on for many countries. By this measure, even after many years of considerable deregulation, product-market regulation is much more restrictive in India than in South Korea, Brazil, Mexico, or Turkey.

China had a very shadowy and small informal sector whereas almost 90% of India is unorganized and manufacturing is concentrated in firms of size smaller than 10, or microenterprises. 42% of all manufacturing was in the range of firms with 6-9 workers, which include a hired worker. So this excludes all primitive household work. On the other hand 23% firms employed more than 500 workers. This suggests two things:

(1) There is a bipolar distribution—with what has been called a "missing middle"—in the Indian firm structure, particularly compared to China and other developing countries

(2) The trade and deregulatory reforms and the slowly declining small-scale reservation, have gone along with a decline, not a rise, in the employment share of large firms. This is particularly important with the large productivity gap (about 10 times) between the two ends of the bipolar distribution.

Many factors may be responsible for the missing middle and the decline in the employment share of large firms such as the labour laws that restrict mobility, the infrastructural deficit that hinders growth, and access to credit facilities.

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China- the Difference

The one thing China did differently was that it tested all its policies and programs in local regions before giving it political legitimacy. This was the case in agriculture, Special Economic Zones, privatization and so on. This experimental approach—in Deng Xiaoping’s phrase “crossing the river groping for the stones”—has served China very well, diffusing political resistance to reform and convincing the undecided. But this approach would not have worked if China had a less decentralized system. They have a low interregional dependence, which makes it possible to isolate the effects of certain policies.

India also has a low degree of interregional interdependence, and there have been a few cases of the spread of regional experimental success (one of the most prominent being that of the green revolution technology) but it isn’t accompanied by the vertical fiscal independence seen in Chinese regional levels. India has much more of a top-down fiscal system. Local governments in India do not have the financial means for carrying out local experiments, and upper-level governments in India are more wary of such experiments, since they would be under pressure to bailout the failed projects. In a democracy such pressures are inexorable; it is always difficult to cut losses and let go once a project starts.

Local officials in China also have built-in career incentives within the Party, which uses rewards based on interregional competition to encourage local economic performance. Thus decentralization of resources, rents, and responsibility, combined with centralized personnel control where local performance is rewarded by promotion, serves as a major engine of growth in China. The Indian governance system is quite a contrast in this respect: resources at the disposal of local governments are scanty, and officials are not rewarded for local economic performance.

However, even in the Chinese case, the local governments at times opted for local protectionism and barriers to interregional integration. Poncet finds increasing provincial border effects on trade over the 1990s, despite all the liberalization. Also, there may be an upward bias in Chinese official data on rates of growth, particularly attributable to the price deflator used for the industrial sector—and the fact that earlier a large part of income was received in the form of noncash subsidies, which may not have been fully entered in income accounting.
Looking to the Future: Through the Lens of Political Economy

Introduction

This reading attempts to gauge the changes in the economy’s structure and the political economy in the near future for both India and China. It talks about how the development and growth will be affected. This will obviously involve a discussion on the linkages between democracy and development. In particular it is suggested that democracy unleashes both positive and negative forces for development, and that there is some tension between the participatory and procedural aspects of democracy in matters of governance as well as economic management, and yet that authoritarianism is neither necessary nor sufficient for development.

India has the checks and balances of a democracy that China lacks, but China has a homogeneous society, which is less conflict-ridden, and policies are thus more effective on a mass scale. China has a weak accountability, but the local governments have a lot more independence from the central fisc than in India.

Between the two countries, China’s economic performance has been on balance much better than India's, particularly in rates of economic growth and (rural and labor-intensive) industrialization, in mass poverty reduction, and in the development of physical and social infrastructure. India’s fiscal health is much poorer than that of China’s. The financial infrastructure, however, is weaker in China. The Indian capital market is much more vigorous, with a generally healthier and more active stock market, with less of a burden of bad loans/ and with innovative private banks beginning to energize the whole financial services sector.

China is predicted to reach its demographic dividend way sooner than India will because of the improvements in infant mortality and family planning. India will need to be ready to take advantage of the dividend through creation of employment opportunities. The decline in workforce in China, once the window closes will be offset by a better education system. India needs to go a long way in promoting women’s participation in economic activities and both countries will face a problem because of their adverse sex ratios soon.

Although both countries are facing some shortage of skilled labor in a few specific industries and occupations, there is some talk about China’s soon running dry in the supply of low-skill labor, which has been a source of high growth there. But China’s agriculture is still very crowded. In fact, how and where the hundreds of millions of peasants will be absorbed will remain a worrisome question in both countries for the foreseeable future. The problem is, of course, likely to be more acute in India, because of the higher growth rate of population.

Chinese household savings have sustained its growth for long. However, increased urbanization and the changing demographic moving out of the working age foretell a dip in this precious savings pool. Household savings as a proportion of GDP is already significantly lower in China than in India, whereas enterprise saving and public sector saving as proportions of GDP are lower in India. Increasing competition from other countries might also lead to a fall in export revenues for China.
In the long run, the growth performance of an economy depends on technical progress or total factor productivity (TFP) growth. This increase in China is because of the shift of investment from the state sector to the non-state sectors. This will exhaust itself in the future, but not in the short term. Both countries are concentrating on human capital, technological growth and research and development, but India remains behind China in these concerns.

The severe environmental damage that acts as a drag on effective economic growth and human welfare may in the near future be larger in China than in India. In contrast to India’s (relatively) slower depletion of natural capital than China’s, India’s human capital supply chain is seriously broken (particularly in terms of quantity and quality of primary and secondary school education and of basic health and nutrition).

**Equity**

Equity and efficiency thus often go together, contrary to the presumption of much of mainstream economics. In India, however, considerations of equity have often been used as an excuse for all kinds of regulatory excesses. In the name of helping the poor and small farms and firms, many restrictions on private initiative and on capacity expansion and many programs of government subsidies and handouts have been launched and prolonged. The search for equity hampers the economic incentives in the economy without directly helping the poor.

In a country with so much inefficiency and inequity, economic reforms are a must. However, the proponents of reform are unaware of how unpopular they are with the masses. Also, the government, even if they support reform, drops the plans during elections. Economic reform, as it aims to bring about more competition, inevitably causes job disruptions and displacements that raise the level of anxiety among workers, particularly in a country of very little general social protection. In India, there is unanimous consent to not further privatize or reduce the size of the government among trade unions and political parties.

Antireform populism is partly a product of the manifold inequalities and conflicts of Indian society. The severe educational inequality, for example, makes it harder for many to absorb the shocks in the industrial labor market, since education and training could provide some means of flexibility in adapting to market changes. In China the disruptions and hardships of restructuring were rendered somewhat tolerable because of a minimum rural safety net. So the resistance to the competitive process that market reform entails is that much stiffer in India.

In the heterogeneous economy that India is, there is difficulty in reaching a consensus about the sharing of the costs and benefits of economic reform. Thus, people tend to go for the easier option of going along with the program and subsidies that are currently in operation. This becomes a particularly acute political-economic problem in the matter of long-term public investment in infrastructure (power, roads, transportation, telecommunications, ports, irrigation, etc.) Coordination on current sacrifices for future infrastructure growth is not possible/feasible.

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Of late, the rent sharing equilibrium in the economy has shifted in favour of the capitalists. Their hegemony is reflected in the more general acceptance of pro-business policies and reform in trade and industrial policy without a great deal of opposition in policy circles. Inflation remains a macroeconomic concern for all, but there has been less agreement on a whole range of other reforms. There are two kinds of collective-action problems. One relates to sharing the costs of bringing about change (the "free-rider problem"); the other relates to sharing the benefits (the "bargaining problem").

As smaller groups become more and more important they demand representation and the central political authority Congress is no longer the stable system that it was in the two decades after independence. The proliferation of small and regional parties and their increasing importance for the survival of coalition governments at the center have often meant that catering to particularistic demands overrides coordination for the long haul. Autonomy of a local government may allow it to take advantage of the malleability and fragmentation of interest groups to diffuse some resistance to reform and that particular reform measure generates a chain reaction of demand for more reform from within.

There is a growing body of public opinion that the state should mainly be a facilitator in the industrial and service economy and reorient its role away from public ownership and control of business enterprises and toward more focus on health, education, and other basic social services for the poor, and that even when the state is to be the major funding agency for some of these services, it does not necessarily mean that the actual provision of the services has to be bureaucratically managed, instead of being contracted out to the private sector or some form of private-public partnership. But, in spite of some progress, the political implementation of this view in large parts of India has been slow and fitful.

The marginalized urban squatters and environmentalists are also against market reforms. They have poor standards of living and the replacement and rehabilitation rates in India for government projects are dismal. This is the context of wide-spread opposition, to land requisition for commercial purposes in India. The Indian government's attempt to replicate the Chinese-style Special Economic Zones has hit this formidable roadblock in some, though not all, states.

Chinese inequality is severe when looking at rural-urban divides, though the respondents to surveys claim that they are enjoying a better standard of living. This is expected in a growing economy. Also, the Chinese rural people may perceive more opportunities opening up with the relaxation of restrictions on mobility from villages and improvement in roads and transportation. There is more unrest and despondency in the urban areas due to fear of asset bubbles and financially shaky public banks. Farmers are more concerned about land acquisition and compensation than inequality. But in most of the scattered incidents of rural unrest, the central government has so far succeeded in keeping public wrath focused on the local officials, and containing it and not allowing it to snowball.

When China started the reforms, it provided a lot of social security and benefits. However, with time they started to fall apart but the ones at loss were absorbed by the growing economy instead. The government also assuaged grievances in recent years by announcing policies to abolish agricultural taxes and fees and to introduce free education (up to ninth
grade) and some rudimentary social insurance, and of attempting to lessen the discriminatory treatment that many migrants face in cities.

In India, the reforms of the kind that have a larger potential for disrupting the livelihoods of a substantial number of people such as labor reform, or price reform in water and electricity, or large-scale privatization and streamlining of the public-sector enterprises, or the entry of large retail chains in marketing-have so far been successfully resisted. The main resistance is from people who distrust official promises of compensation and rehabilitation, are wary of environmental damage to their familiar habitat, and whose low level of education and skills make them unlikely to be direct beneficiaries from the new, more productive jobs to be created.

Democracy and Development

China's dramatic success has revived a hoary myth that particularly in the initial stages of economic development authoritarianism delivers much more than democracy. But the relationship between authoritarianism or democracy and development is not so simple. Authoritarianism is neither necessary (We have Botswana, India as examples) nor sufficient (Disastrous African regimes) for economic development.

Advantages of Democracy:

- Democracies are better able to avoid catastrophic mistakes, and they heal better from such mistakes or shocks
- A better capacity for managing conflicts, which in the long run makes possible a more stable political environment for development.
- Some degree of tolerance for diversity and dissent has historically been the safety valve for India's extremely heterogeneous society. Indian history is replete with cases of polyglot profusion, dissenting sects rebelling against Brahminical high culture, and a multiplicity of syncretic folk traditions. For many centuries, on the contrary, Chinese high culture, language, and political and historiographic tradition have not given much scope to pluralism and diversity, and a centralizing, authoritarian Communist Party has carried on this tradition.
- In recent years, China has diffused and contained many conflicts by localizing them. To make them serve national goals through tournament-like competition in regional economic performance, centralized control was maintained through the channels of promotion and the system of rewarding local officials from above. Democracies are more directly answerable to the people and thus the dissipation of benefits is more efficient and there is a direct social impact.
- Nurtures the development of information and related technologies, a matter of some importance in the current knowledge-driven models of growth. State control of information also sometimes makes for delay in official recognition, and thus handling, of a developing crisis.

Disadvantages of Democracy:
• Competitive populism and short-run handouts to win elections may hurt long-run investment, particularly in physical infrastructure, which is the key bottleneck for Indian development. It also makes it harder for the government to introduce pilot projects and withdraw them if they don’t work out, as was done in China.

• Electoral politics, particularly in a divided society with a weak civic culture of pursuit of general welfare, can also give rise to clientelism, in which there is an implicit quid pro quo between voter support and official disbursement of benefits specific to some individuals or a particular social group, at the expense of broader-based benefits from public goods

• The legislature has become an arena for slogan-mongering, shouting matches, and a generous display of the theater of the absurd. On many controversial issues, the opposing parties do not try to resolve them in legislative deliberations but quite literally take to the streets for this purpose. This is over and above the general case that democracy’s slow decision-making processes can be costly.

• The opposition can get away with being irresponsible if the general awareness, civic sense and participation of the population is low

• There is an opportunity for the government to segregate and rule on the basis of race, age, ethnicity and so on.

• There is no spirit of nationalism and pride like that in China. The urban upper and middle classes in many parts of India are impatient about climbing the global ranks of the big powers and often regard the numerically large poor outside their gated communities, with their all too visible squalor and messy democratic politics, as a hindrance and a liability.

The Democracy Puzzle in India

Democracy has reached far and wide, with more and more people believing that their vote makes a difference. But the great puzzle of Indian democracy is why the poor people, who are so assertive when election time comes, often seem not to punish politicians who are ineffective in resolving the endemic problems of poverty, disease, and illiteracy. Low literacy and civic consciousness leads to concentration on the leaders and their speeches and not on the effectiveness of their policies. Particularly in northern India there seems to be a preoccupation with symbolic victories among the emerging lower-caste political groups. This is the first step towards more substantial victories like the ones in South, as they always were more open to the development and inclusion of the poor in the society.

Even though endemic poverty isn’t punished by the voters, certain macro variables that have concentrated effects are. Inflation, especially, is not tolerated by anyone given the low incomes, which are not even indexed.

At any given moment in India an election somewhere is not far off (as national, state, or municipal or village council elections are staggered) and, as in election times everywhere in the world, short-term calculations dominate. Short term and private benefits take precedence over long term and infrastructural investments.
Decentralization of governance in the sense of devolution of power to elected local governments was constitutionally adopted in India around the same time as economic reforms. It was supposed to increase accountability of the service bureaucracy as well as generate resources to address felt needs at the local level. But this particular governance reform as yet remains largely ineffective, except in three or four states, and in this sense local democracy is still rather weak in India. A large number of local governments simply do not have adequate funds, or the appropriate delegated functions, or competent functionaries to carry out locally initiated autonomous projects that could make a significant difference in the lives of the poor; and there is considerable misappropriation of funds and delivery of services to non-target groups, sometimes giving decentralization a bad name.

In China decentralization has been successful, as pointed out earlier, in providing incentives (and discipline) for rural industrialisation but decentralization has increased regional inequalities, with richer coastal regions having better ability to fund social services. In spite of the fiscal recentralization of mid-1990s and a great deal of central transfers to local areas, there is a widespread rural budget crisis in China. The tensions of fiscal federalism are increasing in India too.

**Contrasts between India and China**

- In China there is more decisive policy initiative and execution than in India. This is not all due to an authoritarian setup. In general, collective-action problems in goal formulation and policy enforcement are, as indicated earlier, less severe in China than in the conflict-ridden and extremely heterogeneous society of India, where any major controversial decision is preceded by endless discussion and loud agitation.
- Ethnicity-based dignity politics, group upliftment, and other sectarian issues that crowd the political agenda in India are less of an encumbrance on the pursuit of those goals in China; on the other hand, the global slump is less regime-threatening in India.
- Chinese politics have become more professional and corporate like with incentives and performance based promotions even for the government authorities. Rotation and temporary sojourns of Indian bureaucrats in a given job inhibit on-the-job learning of their increasingly complex tasks. Nepotism in state appointments may have, however, gone further in China than in India.
- Corruption in China is different in the sense that:
  - (a) There is a distinct line of authority and it is known exactly who to bribe, whereas in India the number of officials asking for bribes for the same purpose keeps increasing and all of them have to be appeased.
  - (b) Because of performance based promotions, the Chinese officials will keep sight of overall development even while taking bribes.
  - (c) Indian politicians want to collect more money keeping in mind the increasing costs of elections.
- India’s heterogeneous mix means that highly corrupt politicians are regularly reelected by their particular ethnic or local constituencies. Personal extravagance at state expense by particular ethnic leaders is often a source of community pride for historically disadvantaged groups.
Fundamental tension between the participatory and procedural aspects of democracy in India: the unfolding of the logic of populist democracy has itself become a threat to democratic governance. The now democratic society has made government functioning even more difficult, given the expectations.

In India's multilayered social structure, by the time one self-aware group settles down and learns to play by the institutional rules, other newly assertive groups will come up and defy those rules, often in the name of group equity.

This institutional insulation is much weaker in China, and the "culture of impunity" of company officials is more prevalent. But there has been discernible progress in the legal system: as disputes become more complex, political interference, though still substantial, is declining, particularly in manners of commercial law. The media and the NGO movement as watchdogs are, of course, more active in India.

Young and ambitious local politicians, finding their path of upward mobility blocked within the larger parties, often are inclined to go out and form their own party, and acquire quite a bit of leverage in the coalition politics of India. This is one source of the increasing political fragmentation in India that makes purposive governance more difficult.

For over more than a quarter century now the Chinese central leadership has shown a remarkable adaptability to changing circumstances and capacity to mobilize new support coalitions to protect its political power. Keeping the main focus on economic growth and national glory as the source of its political legitimacy, it moved away from its earlier constituent groups among peasants and workers in allowing urban-rural disparity to grow and presiding over massive layoffs of workers; it accommodated the erstwhile "red-hat capitalists" in symbiotic relationship with state officials, and gradually coopted the new private entrepreneurs and professionals (including much of the intelligentsia); through its control of bank lending and regulatory approval of investment it has skillfully balanced regional and factional interests.

As the economy becomes more complex and social relations become more convoluted and intense, the absence of transparent and accountable processes and the attempts by a "control-freak" leadership to enforce conformity and lockstep discipline will generate acute tension and informational inefficiency. Several alternative political scenarios for the future in China have been depicted by political speculators, none more plausible than the others; some (wistfully) predict the eventual outbreak of Taiwanese- or Korean style democracy but only on a large scale, starting with the big cities.

Although both China and India have done much better in the past quarter century than they did in the past two hundred years in the matter of economic growth, and although both polities have shown a remarkable degree of resilience in their own ways, one should not underestimate their structural weaknesses and the social and political uncertainties that cloud the horizon for these two countries- It will indeed be a sign of "vain perplexity" to pronounce judgment on how and when these clouds will clear.
UNIT 2

Growth Models and Empirics

DE, chapters 3 and 4.
Chapter 4
Growth Models and Convergence

The study of economic growth has an extraordinarily large payoff - if only one were to discover the exact combination of circumstances that engender growth. One cannot, however, expect a single theory, or even a set of theories, to explain a very complicated economic universe. The present theories do take you quite far in understanding the development process at an aggregate level.

Modern Growth: Basic Features

“Modern economic growth was born after the Industrial Revolution in Britain.”

Throughout most of human history, growth has been at levels we would consider ridiculously low. Consider the following time periods, and the fastest growing economies of that period - their growth rates (in terms of growth of real GDP per worker-hour) would today seem stagnant -

Netherlands (1580-1820): 0.2%
United Kingdom (1820-1890): 1.2%
United States (1890-1989): 2.2%

But it is this economic growth - however slow - that transformed the now-developed world within the space of a century (even a 2% growth can double your GDP in 35 years!). But this “takeoff into sustained growth” occurred only in Western Europe and North America. For the “third-world” this process has started only after de-colonization post-World War II.

Therefore, the developing world has a lot of catching-up to do - and this must occur in an environment already dominated by the developed countries.

Theories of Economic Growth

The starting point is that economic growth is the result of abstention from current consumption. Households save (net national savings are positive) and this allows firms to use this pool of savings to invest in capital goods that enhance productive capacity in the future (i.e. grow). Economic growth is positive when investment exceeds depreciation.

The Harrod-Domar model

The Harrod-Domar equation: 

\[ g = \left( \frac{s}{\theta} \right) - \delta \]

where \( g \) is the growth rate of income, \( s \) is the constant savings-output ratio, \( \theta \) is the constant capital-output ratio (\( \theta = K(t)/Y(t) \)) - the amount of capital stock required to produce one unit of output) and \( \delta \) is the rate of depreciation.

Deriving the Harrod-Domar equation:
Let $Y$ denote total output, $I$ investment, $K$ capital stock, and $S$ savings. Then,

$$K(t+1) = (1-\delta)K(t) + I(t)$$

Assuming macroeconomic balance (that $I(t) = S(t)$)

$$K(t+1) = (1-\delta)K(t) + S(t)$$

But $S$ is a constant fraction $s$ of output $Y$ and $K(t) = \theta Y(t)$ for all $t$. Then,

$$\theta Y(t+1) = (1-\delta)\theta Y(t) + sY(t)$$

This implies,

$$Y(t+1)/Y(t) = 1-\delta + (s/ \theta)$$

or,

$$(Y(t+1)-Y(t))/Y(t) = (s/ \theta) - \delta$$

Therefore, the growth rate of income $g = (s/ \theta) - \delta$

Incorporating the effects of a population growth $n$,

$$\hat{g} = (s/ \theta) - \delta - n$$

Where $\hat{g}$ is per capita income growth instead.

**Implications:** Basically, the Harrod-Domar model states the rate of per capita economic growth is determined by the rate of savings and the capital-output ratio and that it gets pushed down by depreciation and population growth. Mobilizing higher savings results in a higher growth rate. This influenced central planning in both India and the Soviet Union.

**Critiques of Harrod-Domar**

The Harrod-Domar equation tells us that if $s$, $\theta$, $\delta$ and $n$ are such and such, then the resulting growth will be these many percentage points. But this is not very useful if the very parameters $s$, $\theta$ and so on, are *endogenously* determined (determined by economic growth itself). The Harrod-Domar model is a *neutral* theory of growth, i.e., growth rates are not dependent on the current level of income. But once the effect of income on the different parameters affecting growth is admitted, this neutrality is then destroyed. Looking at the sources of endogeneity of different parameters:

**Endogeneity of savings**

It is believed that the savings rate may be influenced by the level of per capita income as well as the distribution of income.

1. At very low levels of income, all one’s income may towards subsistence resulting in low
savings, making it difficult for poor countries to save domestically and grow.  
2. If the distribution of income within the country is unequal, this may increase savings too - with the middle class saving in order to increase their wealth. This may apply to middle-income countries as well - they are capable of saving, and desire prestige and power in the global economy.  
3. Richer countries are capable of even more saving, but as they are already so far ahead, current consumption may be more attractive. 

**Endogeneity of Population Growth**

Population growth may depend on the level of income as well.

1. In poor countries, death rates will be high (famine, undernutrition, disease). Consequently birth rates will be high too (families must procreate more to have surviving offspring). Therefore, the net population growth rate will be low.  
2. With increase in living standards, death rates fall but birth rates do not fall immediately. Therefore, population growth is high.  
3. At higher levels of income, birth rates fall as well and net population growth is again low.

Therefore, as shown in the diagram, population growth rate is a curve. Total growth rate of income is a flat line (\(g = \frac{s}{\theta} - \delta\) and is unaffected by per capita income). Per capita income growth rate is the difference between the two and is positive if \(g\) exceeds \(n\), and is negative.
otherwise. If per capita income is below the threshold level, population growth rate is greater than total income growth rate, per capita income growth rate is negative and per capita income tends to fall till it reaches the “trap” level. However, once the threshold is crossed, population growth rate is less than the total income growth rate - hence per capita income growth rate is positive and per capita income grows in a sustained manner.

Implications:

A temporary boost that pushes the economy to the right of the threshold can mean that the economy permanently escape the trap and grows continuously after that. This can be done either by -

1. A temporary rise in the savings rate (this increases $g$ so that it is greater than $n$, which means that per capita income growth rate is positive and as per capita income rises, $n$ is reduced endogenously, further increasing per capita income growth in a virtuous cycle)
2. A fall in the population growth rate (similar reasoning as above - per capita income growth is positive, per capita income rises and $n$ falls of its own accord).

Thus, a strong family planning policy or a policy that temporarily boosts savings might have a huge long-run effect on per capita income.

**1. The Solow model (endogeneity in the capital-output ratio)**

**Solow Model without Technical Progress**

Solow’s model incorporates the law of diminishing returns to individual factors of production into the Harrod-Domar model. Specifically the capital-output ratio $\theta$ will tend to increase with greater levels of capital stock because of diminishing returns to capital, given a fixed quantity of labour.

The Solow equations:

From our earlier Harrod-Domar model, we have -

$$K(t+1) = (1-\delta)K(t) + sY(t)$$

Dividing throughout by population $P(t)$, and that population grows at a constant rate so that $P(t+1) = (1+n)P(t)$, we get per capita magnitudes $k$ and $y$ -

$$(1+n)k(t+1) = (1-\delta)k(t) + sy(t)$$
Assuming a production function with diminishing returns to per capita capital, we will have concave graph of $y$ with respect to $k$. Hence, the graph of $(1-\delta)k + sy$ will be a curved line as well, as shown in the diagram. Plotted also is the straight line $(1+n)k$.

The steady state level of capital is $k^*$. This is where both lines intersect each other and where $k$ will converge.

Suppose we initially start at a low level of capital stock ($k<k^*$). Then -

1. The new capital stock supplied will be greater than the per capita erosion in capital stock due to population growth.
2. Therefore, $k(t+1)$ will be greater than $k(t)$.
3. This process will continue in each period but due to diminishing returns to per capita capital, there will come a point where the capital stock added per capita exactly equals the erosion caused by population growth. This is the steady state $k^*$.

A similar reasoning holds for when $k>k^*$. Therefore, starting from any initial level of capital stock, you will finally converge to $k^*$.

**Effects of parameters on steady-state**

In the steady-state, $k(t+1) = k(t) = k^*$. Substituting this in the equation 

$$(1+n)k(t+1) = (1-\delta)k(t) + sy(t),$$

and rearranging, we get -

$$k^*/y^* = s/(n + \delta)$$

Effect of rise in $s$ -

1. The left-hand side term must rise
2. The new steady-state capital-output ratio must be higher
3. Due to diminishing returns, this can only happen if the new steady-state $y^{*'}$ is greater
4. The economy moves to a higher steady-state level of per capita income.

A similar logic applies to a rise in \( n \), which leads to a lower steady-state level.

**Implications of the Solow model without technical progress:**

1. There is no long-run growth of per capita output (without incorporating technical progress).
2. Total output grows at the rate of population growth.
3. The savings rate has no effect on the long-run growth rate of output but has a level effect of increasing the level of per capita output (in the short-run a rise in savings leads to higher-than-normal growth rates but this is killed off in the long-run).
4. Population growth has both a level and a growth effect.

**What are growth and level effects?**

Growth effects change the rate of growth of a variable. For example, in the model above, savings has only a growth effect.

Level effects leave the rate of growth unchanged but shift up or down the entire path traced out by the variable over time (lift it to a higher/lower level).

**The Solow Model with Technical Progress**

Let \( L(t) \) be the “effective population”, i.e.

\[
L(t) = E(t)P(t)
\]

Where, \( E(t) \) is the efficiency or productivity of a worker in the time period \( t \). It grows at the rate \( \pi \). This \( \pi \) is the rate of technical progress.

Dividing the old equation \( K(t+1) = (1-\delta)K(t) + sY(t) \), by the effective population \( E(t)P(t) \), we get output and capital per efficiency unit of labour — \( \hat{y} \) and \( \hat{k} \):

\[
(1+n)(1+\pi)\hat{k}'(t+1) = (1-\delta)\hat{k}'(t) + s\hat{y}'(t)
\]
If capital per efficiency unit of labour is above the steady-state level $k^*$ the amount of capital per efficiency unit of labour tends to fall because of diminishing returns the expansion of capital is less than the erosion due to population growth and technical progress.

Therefore, at $k^*$ the capital per efficiency unit of labour is constant -however at this steady state:

1. Capital and output per capita is growing at the rate $\pi$
2. Total output is growing at the rate $n+\pi$

**Convergence**

**Unconditional convergence**

**Theory**

1. If countries, in the long run, have no differences in the level of technical knowledge (and its change), savings, population growth, and capital depreciation, then all the countries - according to the Solow model -capital per efficiency of labour converges to a common value $k^*$.
2. This will happen irrespective of the initial state/starting income of these countries.
3. A country that starts off above the steady-state level per efficiency unit will grow slower than a country that starts off below -and both will eventually converge to a common level of per capita income.
4. Convergence therefore is indicated by a negative relationship between growth rate of per capita income and the initial value of per capita income; this is the hypothesis that will be tested using empirical data.

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Evidence

1. Baumol (1986) - a small set of countries over a long time horizon

- Baumol uses data from the work of Maddison (1982, 1991) to plot the 1870 per capita income for sixteen of the richest countries in the world today, with their growth rates over the period 1870–C1979 on the vertical axis.
- A strong negative relationship is seen which seems to corroborate the unconditional convergence hypothesis.
- There is a major statistical problem, though - “selection bias.” Because Baumol only considered the countries that already had similar income levels in 1979, their supposed “convergence” is nothing but statistical regularity.
- De Long (1988) added seven more countries, which in 1870 had seemed to have very favourable growth prospects. Repeating the regression, he found that there was very little systematic relationship between growth rate and per capita GDP in the cross-section of countries.

2. Parente and Prescott (1993) - a large set of countries over a short time horizon

- They study 102 countries over the period 1960–C85 and look at each country's per capita real GDP as a fraction of US per capita GDP. They then calculate the standard deviation of these values separately for each year.
  - As the convergence hypothesis says that countries move closer over time in terms of income levels, we expect the standard deviation of relative incomes to fall over time. They, however, observe that it has actually increased by 18.5%
  - Similarly, Barro (1991) finds the correlation between average per capita growth 1960–C85 and per capita GDP in 1960 to be only 0.09 - practically no correlation at all.

Conditional convergence

Theory

1. We retain the assumption that technical progress and technical knowledge is same for all countries but allow other parameters such as savings rate and population growth rates to differ.
2. This implies that while the long-run or steady-state per capita incomes of countries may vary from country to country (because of difference in parameters s and n), the growth rates will converge.
3. We can visualize this thus - each country has different steady-state paths of per capita income over time - but all these paths are parallel to each other. A country will grow slower (or faster) than the common growth rate π, depending on whether it is above (or below) its...
own steady-state path
4. The hypothesis we are testing with the data is this - controlling for the position of different steady states (due to difference in parameters) and then examining if convergence occurs.

In the steady-state, \( k(t+1) = k(t) = k^* \). Substituting this in the equation
\[
(1+n)k(t+1) = (1-\delta)k(t) + sy(t)
\]
and rearranging, we get:
\[
k^*/y^* = s/(n+\delta)
\]
\( \pi \) is the rate of technical progress.

Dividing the old equation \( K(t+1) = (1-\delta)K(t) + sY(t) \), by the effective population \( E(t)P(t) \), we get output and capital per efficiency unit of labour – \( y^* \) and \( k^* \)
\[
(1+n)(1+\pi)k^*(t+1) = (1-\delta)k^*(t) + sy^*(t)
\]

**Examining the Data:**

**Finding a relationship between per capita income and various parameters**

In the steady-state, \( k(t+1) = k(t) = k^* \). Substituting this in the equation
\[
(1+n)(1+\pi)k^*(t+1) = (1-\delta)k^*(t) + sy^*(t)
\]
and rearranging, we get the approximation -
\[
k^*/y^* = s/(n+\delta+\pi)
\]

By specifying the production function to be Cobb-Douglas, and if \( Y \) denotes total output, \( K \) total capital, and \( L \) effective labour; we have,
\[
Y = K^\alpha L^{1-\alpha}
\]
Dividing throughout by \( L \), the production function can be written in per effective labour terms -
\[
y^* = k^\alpha
\]
or,
\[
y^*/k^* = y^{(1-\alpha)/\alpha}
\]
As this holds for all levels of \( y \) and \( k \), it also holds for their steady-state values, so
\[
y^* = [s/(n+\delta+\pi)]^{\alpha/(1-\alpha)}
\]
Expressing this in logarithmic form, we have -
\[
\ln y^* = [\alpha/(1-\alpha)] \ln s - [\alpha/(1-\alpha)] \ln (n+\delta+\pi)
\]
We can rewrite $y^*$ in per capita form,

$$y^* = \frac{y(t)}{E(t)} = \frac{y(t)}{E(0)}(1+\pi)^t$$

or,

$$ln y^* = ln y(t) - ln E(0) - t ln (1+\pi) = ln y(t) - A$$

where, A is just a collection of the terms $ln E(0) + t ln (1+\pi)$; Substituting the last equation into the equation for $ln y^*$, we get -

$$ln y(t) = A + [\alpha/(1-\alpha)] ln s - [\alpha/(1-\alpha)] ln (n+\delta+\pi)$$

Now we look at the actual data which gives us information on $y(t)$, $s$, and $n$, and then regress $y(t)$ along the parameters as suggested by the previous equation. We will then expect -

1. The coefficients on the term $ln s$ are positive and that for $ln (n+\delta+\pi)$ is negative -capturing the Solow prediction that savings have a positive level effect and population growth rate a negative level effect.

2. The estimated coefficients have the same approximate magnitude. As the share of capital in national income or $\alpha$ is one-third, we expect $\alpha/(1-\alpha)$ to be around 0.5.

Results of the regression -Mankiw, Romer, and Weil (1992)

Mankiw, Romer, and Weil used the Heston-Summers data set to test these predictions. They took $\delta+\pi$ to be 5%, and used the average of investment-GDP ratios over 1965-85 to form an estimate of $s$; $y$ was given by the per capita GDP in 1985.

1. More than half the worldwide variation in $y$ was explained by $s$ and $n$.

2. The coefficient on the term $ln s$ significant and positive and that for $ln (n+\delta+\pi)$ was significant and negative, as was predicted.

3. However, the coefficients were much larger than 0.5; and moreover, they were not even equal to each other -the coefficient on savings was 1.42 and on population was -1.97.

Criticism of the Solow model -

1. The larger-than-predicted coefficients observed from the data imply that the actual discrepancy in incomes among countries is too large relative too those predicted by the theory.

2. The assumed exogeneity of savings rate and population growth rate -why do these differ systematically across countries? A better theory must account for this satisfactorily.

3. Similarly, the assumed exogeneity of technical progress -what drives technical progress is not accounted for in the model.

4. The costless diffusion of technical knowledge raises the question -won't the forces that create technical knowledge have an incentive to restrain its dissipation?
Chapter 5
New Growth Models

Human Capital and Growth

We augment the Solow model by allowing individuals to save and add to holdings of both physical capital and to human capital – for example, households can also save by investing in education which raises the market value of labour in the future.
We consider two inputs of production – physical capital k and human capital h – both are deliberately accumulated:

\[ y = k^{\alpha} h^{1-\alpha} \]

y, h, and k can stand for either aggregate or per capita magnitudes as we assume population is constant. We also assume that depreciation is zero. A fraction s of output y is used to augment physical capital, and a fraction q is used to augment human capital. Therefore,

\[
\begin{align*}
  k(t+1) - k(t) &= s \ y(t) \\
  h(t+1) - h(t) &= q \ y(t)
\end{align*}
\]

Let \( r \) denote the ratio of h to k in the long run (in the long-run this ratio converges to constant). Dividing the previous two equations by \( k(t) \) and \( h(t) \) respectively, we get -

\[
\begin{align*}
  \frac{k(t+1) - k(t)}{k(t)} &= s \ r^{1-\alpha} \\
  \frac{h(t+1) - h(t)}{h(t)} &= q \ r^{-\alpha}
\end{align*}
\]

Because these two growth rates are constant in the long run (so that the ratio of human to physical capital also stays constant) we must have \( s \ r^{1-\alpha} \) and \( q \ r^{-\alpha} \) as equal.

Thus, \( r=q/s \)

This implies that the larger the ratio of saving in human capital relative to that of physical capital, the larger is the long-run ratio of the former to the latter.
By substituting \( r \) into the equation for the growth rate of k, we get

\[
\frac{k(t+1) - k(t)}{k(t)} = s^{\alpha} q^{1-\alpha}
\]

The long-run growth rate of all variables, including per capita income is given by

\( s^\alpha q^{1-\alpha} \)

Implications of the model –
- Although physical capital may have diminishing returns, there may be broadly constant returns to physical and human capital combined. Therefore, there need be no convergence, which explains the paradox – actual data seems to behave as if there were constant returns to scale in capital, but direction observation of production processes contradicts this.
- The rate of savings and the rate of investment in human capital have growth-rate effects, and not just level effects (this model is therefore an endogenous growth theory – the pace of growth is determined within the model).
• If we introduce a third factor of production such as unskilled labour, the effect of constant returns goes away, and physical and human capital together exhibit diminishing returns.
• It explains why the anomalies in the Romer, Mankiw, and Weil regression described earlier –
  1. Savings rate (measured as investment-GDP ratio) has a higher-than-expected coefficient because an increase in savings raises national income and provokes greater accumulation of both physical and human capital, so the net predicted effect is higher
  2. The population growth-rate coefficient is higher than the savings rate coefficient – savings s does not account for accumulation in human capital q whereas an increase in n lowers per capita income and cuts into both q and s
• It explains why rates of return to physical capital in poor countries are not as high as predicted – the scarcity of physical capital relative to unskilled labour raises the rate of return, but low-income countries also tend to have low human capital relative to unskilled labour and this has a depressive effect on the rate of return to physical capital – the net effect is ambiguous.
• The model predicts –
  a) Conditional convergence after controlling for human capital
  b) Conditional divergence after controlling for the initial level of per capita income – countries with more human capital tend to grow faster

2. Conditional Convergence with Human Capital
Barro [1991] plotted growth rates against per capital income and found no evidence of unconditional convergence – he then tested to see if this effect persisted when conditioned for different levels of human capital:
• As the dependent variable he took the average of growth rates in per capita real GDP from 1965–85; the independent variables were baseline per capita GDP in 1960 and the school enrollment rates (rough proxies for the total stock of human capital)
• With the conditioning for human capital as done above, the coefficient on initial per capita GDP was negative and significant. The coefficient on the enrolment variables was positive and significant
• The result suggests that the unconditioned plot of growth rates on per capita GDP picks up two effects – high per capita GDO in itself slows down growth, but countries with high income tend to have high stocks of human capital which speeds up growth – so the two effects cancel each other out when lumped together.

3. Technical Progress
• Technical progress and human actions
  R&D can happen due to scientists and researchers hired by companies in order to increase economic productivity, or by the public sector; it also occurs on job – learning by doing, or advances in technology in some sectors can trigger advances in others. Technical progress can be classified into two categories -
1. Deliberate: This is the deliberate diversion of resources from current production in the hope that it will increase the profitability of production in the future – as in product innovation or process innovation.

2. Diffusion (transfers/externalities): Knowledge from the innovating firm is transferred to the rest of the world – either they profit from it directly, or it lays the groundwork for other innovative activity.

While the second component has the immediate effect of faster technical progress, it might also slow down “deliberate” technical progress. However, it might spur more innovation as technological leaders struggle to compete with rivals who have picked up technology.

- Model of deliberate technical progress

This is along the lines of Romer (1990). Human capital \( H \) can be devoted either to current production or to the research sector. This research can be thought of as creating blueprints for newer and better machines. The same units of foregone output can be used to create a new unit of “capital” or machines – but the machines have greater joint productivity with research. So we can think of the quantity of capital \( K \) as the total stock of machines, and the state of technical knowledge \( E \) is given by the joint productivity of these machines. Then we have the production function –

\[
Y(t) = E(t)^{\gamma} K(t)^{\alpha} [uH]^{1-\alpha}
\]

The rate of growth of \( E(t) \) is \( \pi \), and can be written as some constant \( a \) times the fraction \( u \) of \( H \) devoted to research -

\[
\pi = a (1-u) H
\]

There is a tradeoff on human capital between production today and better technology tomorrow. What determines the choosing of \( u \) –

- A benevolent government might choose \( u \) to maximize social welfare.
- In a market economy, \( u \) might be determined by the joint decisions of private economic agents seeking gains – in this case, the degree of patent protection and the rate of diffusion become important factors.

The implication of this theory is that in a world of perfect competition where a blueprint, which costs nothing to be replicated would be costlessly disseminated (price equals marginal cost) – would imply no technical progress. Some monopolistic power is therefore necessary, at least temporarily, in these models of deliberate technical progress.

- Model with technical progress as externality

Suppose we look at each firm having the following production function –
\[ Y(t) = E(t) K(t)^\alpha P(t)^{1-\alpha} \]

where \( Y(t), K(t) \) and \( P(t) \) are output, capital, and labour employed by the firm at time \( t \). \( E(t) \) is the overall productivity – common to all firms in the economy. We assume that \( E \) is a positive externality generated by joint capital accumulation of all the firms in the economy. If \( K^*(t) \) denotes the the average capital stock in the economy, then:

\[ E(t) = a K^*(t)^\beta \]

Substituting this into the firm's production function we get,

\[ Y(t) = a K^*(t)^\beta K(t)^\alpha P(t)^{1-\alpha} \]

How the externality affect decisions –

- A benevolent planner would choose capital investment such that overall profitability of all the firms was maximized – she would have internalized the externality.
- If the firms were all privately owned, no firm would value the positive externality of its own capital investment on the other firms because it has no way to extract this as profits – therefore, they would underinvest in capital relative to the optimal amount.

The second implication is that while the individual production function is constant in capital and labour, the macroeconomic production function yields increasing returns to scale – if we assume all firms are identical, then:

\[ K(t) = K^*(t), \] and the social production function is -

\[ Y = a K^{\alpha + \beta} P^{1-\alpha} \]

which exhibits increasing returns to scale. Under these conditions, per capita income growth would tend to accelerate over time (with time, capital stock per capita rise, and as capital stock per capita rises, growth rates rise too).

- **Complementarities**

A complementarity is an externality which does not relate to the level of utility when the action is taken but to the ranking of alternatives they have. An example of this can be seen in collective saving decisions –

An individual firm accumulates capital depending on future productivity – given \( E(t) \) as a function of the average capital stock \( K^*(t) \), this future productivity depends on the future path of the average capital accumulation by all the firms in the economy.

- If the firm believes that future productivity is rising in the future it will be more willing to save and invest in capital accumulation as this will yield higher profits with higher future productivity.
• Therefore, if the firm believes that the average savings rates of the firms in the economy are high, then it will choose a larger $s$.
• But the average savings rates in the economy is itself the average outcome of all individual investment choices
• In the case where all firms are individual, the equilibrium average must be where $s^*$ equals $s$.
• You can thus have a low-level equilibrium, where all the firms believe that $s^*$ will be low – consequently their own $s$ is low – and then $s^*$ itself is actually made low – a self-fulfilling prophecy
• Extending this to economies, two identical economies might grow at different levels depending on the historical context in which expectations were developed.

4. Total Factor Productivity

We write the production function $Y(t)$ as a function $F$ of capital stocks $K(t)$, labour force $P(t)$, and knowledge $E(t)$ -

$$Y(t) = F[K(t), P(t), E(t)]$$

While we have data estimates for $Y$, $K$, and $P$, we obtain estimates for $E$ or the growth in output attributable to $E$ in the following manner: we assume that there is no change in $E$, so the total increase in output is made of up of the total increase in the other inputs weighted by their marginal product -

$$\Delta Y(t) = MP_K \Delta K(t) + MP_L \Delta P(t)$$

Dividing throughout by $Y(t)$ and multiplying and dividing by $K(t)$ and $P(t)$ in their corresponding terms, we get -

$$\frac{\Delta Y(t)}{Y(t)} = \left[MP_K \frac{K(t)}{Y(t)} \right] \frac{\Delta K(t)}{K(t)} + \left[MP_L \frac{L(t)}{Y(t)} \right] \frac{\Delta P(t)}{P(t)}$$

Under the assumption of constant returns to scale and perfect competition, factors are paid their marginal products – so $MP_K$ and $MP_L$ are the payments to a single unit of capital and labour, respectively. The terms in the square brackets then become the income share of capital in total output $\sigma_K(t)$ and the income share of labour in total output $\sigma_L(t)$ – these are directly observable from the data
TFPG(t) is the growth in TFP in period t, and is defined as the “residual” in the growth of output, once the contributions from labour and capital have been accounted for.

Points to be noted –

• The concept of the TFP level, as opposed to its growth, is not important as it can be chosen arbitrarily – what matters is how the level changes over time.

• A proxy for increase in \( P(t) \) or labour force can be population growth – this causes an error in countries where the participation rate in the labour force has altered significantly

• Aggregating stocks of capital that are growing at different rates is done by expressing the aggregate capital growth as the weighted sum of different subgroups of capital. Similarly, it is important to correct for changes in the quality of the labour force while measuring its growth – this can be done by looking at the proportions of the population at different stages of education

• We cannot estimate TFP if the factors of production are not paid their marginal products or if the production function is not constant returns to scale

5. Total Factor Productivity and the East Asian Miracle

Eight economies – Japan, Hong Kong, Korea, Taiwan, Singapore, Indonesia, Thailand, and Malaysia – enjoyed spectacular rates of growth from 1965–90. Understanding the sources of growth –

The East Asian Miracle, published by the World Bank argued that growth in TFP accounted for a significant fraction of the phenomenal growth. The study coined the phrase “productivity-based catching up” for the rapid TFP growth. It emphasised that the growth was largely the result of openness – specifically openness to international trade that allowed the world’s technological frontier to be rapidly absorbed by the East Asian economies.
The above study claimed that one-third of the observed growth in these economies could be attributed to TFP, and the rest could be attributed to the accumulation of physical and human capital, of which primary education was the largest contributor. Careful TFP accounting—as in Young (1995)—makes an effort to properly measure changes in the production inputs— it accounts for rising participation rates, changes in the education levels, and so on. Young’s study shows that these influences noted above “chip away” at the productivity performance, showing that TFP growth was not such an extraordinary contributor— the East Asian economies grew in the old-fashioned way—through “an extraordinary process of improvement of labour force, as well as sustained capital accumulation.”
UNIT 3
Poverty and Inequality: Definitions, Measures and Mechanisms

i) DE, chapter 6 on inequality measurement, chapter 8 on poverty measures and correlates (8.1, 8.2, 8.3 and appendix for FGT measures)
ii) Angus Deaton, "Measuring Poverty", chapter 1 in UP (on defining poverty lines)
Chapter 6
Debraj Ray

Economic Inequality

Economic growth is about changes in aggregate or average income. It is a good measure of a country's development, but it is not the only one. An equally important measure is economic equality, or the distribution of income or wealth among different groups in society.

This is important on an
i) Ethical level – It is unfair that some people are denied access to economic resources simply because of worse luck, or because they have been deprived from birth due to poor parents. It would also be unfair to not give them due credit due to hard work, and to deprive parents the opportunity to provide for their children because of it.
ii) Functional level – Inequality might not be important for its own sake, but because it might have an impact on other economic features leading to reduced overall growth.

Ultimately, inequality is the fundamental disparity that permits one individual certain material choices, while depriving another individual of the same choices. Inequality is linked to concepts like lifetimes, personal capabilities (like handicaps) and political freedom (like caste discrimination) economic inequality represents all these differences.

Depending on the context, we are interested in
i) the distribution of current expenditure or income flows
ii) the distribution of wealth or asset stocks
iii) the distribution of life time income.

These move progressively from short term inequality (due to sudden change in market scenarios, which is relatively manageable) to long term inequality (which requires greater effort and intervention to overcome).

At any given point of time, when we measure cross-sectional inequality mobility is a key determinant. This is the ease with which people can get new jobs, which depends on whether job categories are “sticky” - hard to change in bad times - or “fluid” - easily changed to a better paying job.

It is not only important how much people earn but how it is earned. This distinguishes between
i) Functional income distribution – Factor returns - It describes the returns to different factors of production (labour skills - wages, capital - profits, land - rent.) Ownership of factors - Different categories of income are channeled to households, the magnitude and direction of the flows due to ownership of factors of production.
ii) Personal income distribution – It combines the functional distribution of income with the distribution of factor ownership to give the description of income flows to individuals or households, not factors of production.
We break personal distribution up into the two step process since:

i) Knowledge of income sources influences the outcome. Money from charity is viewed differently from earnings.

ii) To understand the relationship between inequality and other features of development, like growth, we need to know how factors are both paid and owned—hence the functional distribution.

**Measuring Economic Inequality**

In an economy of \( n \) individuals, where each individual \( i = 1, 2, ..., n \), and income distribution is a description of how much income \( y_i \) is received by each individual \( i \): \( (y_1, y_2, ..., y_n) \).

An inequality measure assigns a degree of inequality to a given distribution. A higher value means greater inequality. The index can be interpreted as a function of the form \( I = I(y_1, y_2, ..., y_n) \) defined over all conceivable distributions of income \( (y_1, y_2, ..., y_n) \).

To compare the relative inequality of two income distributions, the measure must fulfill the following criteria:

1. **Anonymity Principle**: It does not matter who is earning a given income in the income distribution. From an ethical standpoint, the income distribution is viewed without bias. It is arranged as 
   \[ y^1 < y^2 < ... < y^n \]
   which is the ranking of individuals from poorest to richest.

   The inequality measure \( I \) must be completely insensitive to all permutations of the income distribution \( (y_1, y_2, ..., y^n) \) among the individuals \( (1, 2, ..., n) \).

2. **Population Principle**: Absolute population size does not matter, only the proportions of the population (or relative shares) that earn different income levels matter. Thus inequality does not change if the population doubles but the proportion of income levels is the same.

   The inequality measure \( I(y_1, y_2, ..., y^n) = I(y^1, y^2, ..., y^n) \)
3. **Relative Income Principle**: Absolute incomes do not matter, only *relative* incomes. If absolute income levels of the *entire* population is doubled, inequality does not change.

For every positive number $\lambda$, $I(y_1, y_2, ..., y_n) = (\lambda y_1, \lambda y_2, ..., \lambda y_n)$.

4. **The Dalton Principle**: Let $(y_1, y_2, ..., y_n)$ be an income distribution and consider two incomes $y'$ and $y'$ with $y'<y'$. A transfer of income from the “not richer” individual to the “not poorer” individual is called a *regressive transfer*.

The Dalton Principle states that if, with a given income distribution, a sequence of regressive transfers are undertaken, the resulting income distribution is more unequal than the original.

Simply put, if transfers are made from the poor to the rich, inequality rises.

For every transfer $\delta > 0$, $I(y_1, ..., y_i, ..., y_j, ..., y_n) < I(y_1, ..., y_i - \delta, ..., y_j + \delta, y_n)$ for whatever $y'$, $y'$

**The Lorenz Curve**

On the horizontal axis we depict cumulative percentages of population in increasing order of income, and on the vertical axis, we depict the cumulative income (totaling to national income) accruing to any particular fraction of the population thus arranged. By plotting the shares of the population and their corresponding shares of income, and connecting the points, we get the Lorenz Curve.

![The Lorenz Curve](image.png)
The slope of the Lorenz curve is the contribution of the person at that point to the cumulative share of national income. Since the individuals are grouped from poorest to richest, the “marginal contribution” cannot fall, and hence the Lorenz curve cannot get flatter from left to right.

The 45-degree line represents a state of complete equality, where every person earns the same income (10% of population earns 10% income, and so on.) Thus the overall distance between the 45-degree line and the Lorenz curve is indicative of the amount of inequality. The greater the distance, the greater the inequality, which brings us to the Lorenz Criterion: If for a given Lorenz Curve for a given distribution, a second curve whose every point lies to the right of the given curve is produced for a different distribution, the second distribution is more unequal.

An inequality measure is Lorenz Consistent if for every pair of income distributions \((y^1, y^2, ..., y^n)\) and \((z^1, z^2, ..., z^m)\), \(I(y^1, y^2, ..., y^n) \leq I(z^1, z^2, ..., z^m)\) whenever the Lorenz curve of \((z^1, z^2, ..., z^m)\) lies everywhere to the right of \((y^1, y^2, ..., y^n)\). It is consistent with the Lorenz Criterion iff it is simultaneously consistent with the given four principles – Anonymity, Population, Relative Income, and Dalton Principles.

A new distribution can be created from a given distribution through a series of regressive transfers. But if the Dalton curves cross, then we must have both regressive and progressive transfers to go from one distribution to the other, and the Lorenz Criterion does not apply.

The inequality index the Gini coefficient can be estimated from the Lorenz curve. It is the ratio of the area between the Lorenz curve and the 45-degree line, to the area of the triangle below the 45-degree line.

**Quantitative Measures**

Consider m distinct incomes, and in each income class j, the number of individuals earning that income is denoted by \(n_j\). The total number of people \(n\) is equal to \(\sum_{j=1}^{m} n_j\), where the symbol \(\sum_{j=1}^{m}\) is the sum over income classes one through m. The mean \(\mu\) of any income distribution is average income or \(\mu = \frac{1}{n} \left[ \sum_{j=1}^{m} n_j y_j \right]\).

1. **Range**
   
   It is the difference in incomes between the richest and poorest individuals, divided by the mean.
   
   \[ R = \frac{1}{\mu} (y_m - y_1) \]
   
   This is crude and fails to satisfy the Dalton Principle as it cannot capture transfers from anyone except the richest group and the poorest group.

2. **Kuznets Ratio**
   
   It is the ratio between the share of income owned by the richest \(x\)% and the poorest \(y\)%.

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3. **Mean Absolute Deviation**
Inequality is proportional to the distance from mean income, so it takes uses the income distances from average income.

\[
M = \frac{1}{\mu n} \left[ \sum_{j=1}^{m} n_j |y_j - \mu| \right]
\]

It does not satisfy the Dalton Principle unless an individual above the average income falls below the average income after a regressive transfer.

4. **Coefficient of Variation**
Weightage is given to larger deviations from the mean by squaring.

\[
C = \frac{1}{\mu} \sqrt{\frac{1}{n} \left[ \sum_{j=1}^{m} n_j (y_j - \mu)^2 \right]}
\]

This satisfies all the required principles.

5. **Gini Coefficient**
It takes the difference between all pairs of incomes and totals the (absolute) differences. It measures inequality as pairwise comparisons between two individuals.

\[
G = \frac{1}{(2n^2 \mu)} \left[ \sum_{j=1}^{m} \sum_{k=1}^{m} n_j n_k |y_j - y_k| \right]
\]

This satisfies all the required principles.

It can also be estimated from the Lorenz curve (see above).
Inequality, Income, and Growth
The Kuznets curve looks at whether inequality increases or narrows over time.

In 1955, he used the ratio of income share of the richest 20% of the population to that of the poorest 60% of the population as a measure of inequality. He found that developed countries had lower inequality than developing countries. Further investigating, he found that the income shares of the upper income groups were lower in developed countries than in developing countries.

He concluded that the population benefits from economic growth in stages. First certain groups benefit, and inequality widens, and then the benefits spread out and the other groups catch up and inequality falls. If per capita income is plotted on one axis and inequality on the other, the resulting graph is an “inverted U”.

Inverted U-Hypothesis: Economic progress, measured by per capita income, is initially accompanied by rising inequality, but then the disparities ultimately go away as the benefits of development spread out.

Tunnel Effect:
It explains the tolerance of inequality in income distribution along the development path.

Consider an individual stuck in a traffic jam in a one-way, two-lane tunnel. He is in the left lane. If the right lane starts to move, he will be pleased as he expects that soon, traffic in his own lane will move.

Similarly with economic position. A poor individual is pleased at the improvement at others' economic standing – despite the fact that this increases his relative poverty – as he is hopeful of overcoming his own poverty. This increase in utility (and thus tolerance of greater inequality) resulting from the improvement in others' economic status is the Tunnel Effect.
Poverty: First Principles

A Poverty Line is a critical threshold of income, consumption, or more generally, access to goods and service below which individuals are declared to be poor. It is the “acceptable” leval of economic participation in a given society at a given point of time.

Indian poverty lines have traditionally been drawn by using estimates of expenditure necessary to guarantee a minimum consumption of calories.

Basis of Poverty Lines:

1. Item-by-item consumption vs. Overall expenditure

   *Item-by-item consumption* is the actual, observed consumption of a basket of goods that are the threshold of consumption. It is harder to measure.

   *Overall expenditure* measures the total expenditure on items required to meet a threshold of consumption standards. When it falls below a certain threshold a person is considered poor. It measures the capacity to consume not the consumption itself — for instance, nutrient levels might not rise with a rise in income (consider processed foods). However, it is more commonly used as it is easier to measure.

2. Absolute vs. Relative Poverty Indices

   *Absolute poverty* reflects that there are some items like food, clothing, and shelter necessary for well-being. It would be universally applicable.

   *Relative poverty* reflects deprivation in the socio-economic context. This is better as it has certain absolute components but other factors which vary from country to country. It is not the same as *inequality*. A very equal but very poor society would still suffer from famines.

3. Temporary vs. Chronic Poverty

   The measures taken by the government in tackling the two are very different.

   *Temporary Poverty* can be faced by individuals very near the poverty line whose income fluctuates with the market cycle or agricultural output.

   *Chronic Poverty* or Structural Poverty is long-term. Friedman's *Permanent Income Hypothesis* reflects the idea that income in a given year cannot reflect the lifetime consumption of an individual. A temporary spike in earnings might occur in a household who still suffers from chronic poverty based on lifetime consumption.

4. Households vs. Individuals

   *Household Data* reflects the expenditure and consumption patterns of a group of individuals together. However, it neglects

   i) the idea that the *distribution* of income in a family might be skewed (for example, in favour of males).

   ii) the number of children, who consume less than adults. This can be corrected using *adult equivalence scales* — a conversion factor that expresses the consumption of children as a fraction of the representative adult.

   iii) fixed costs of setting up and running a household. Smaller households cannot spread this
date out over a larger number of members.

*Individual Data* solves these problems but is harder to collect.

**Poverty Measures**

Let $y$ denote income (or expenditure) and $i, j, ..., n$ the individuals. Let $p$ be the poverty line and $m$ the mean income.

1. **Head Count (HC)**
   This is simply the number of people below the poverty line.

2. **Head Count Ratio (HCR)**
   A relative measure of poverty, it is the ratio of the number of people below the poverty line to the total number of people in the population.
   
   $$
   HCR = \frac{HC}{n}
   $$
   
   It fails to capture the *extent* to which poverty falls below the poverty line. Use of HCR as a policy tool biases policy in favour of those individuals closest to the poverty line (thus lowering HC) without aiding the most poor.

3. **Poverty Gap Ratio**
   It measures the average income shortfall from the poverty line, and is the ratio of the *average* of income (or extra consumption needed) to get all poor people to the poverty line, divided by *mean* income (or consumption) of the population.
   
   $$
   PGR = \frac{\sum_{y_i < p} (p - y_i)}{nm}
   $$
   
   It gives us an idea of how large the gap is relative to the resources that can potentially fill the gap.
   
   This is misleading in societies with some extremely wealthy individuals and a large number of poor, as the mean income might still be quite high (and PGR small).

4. **Income Gap Ratio**
   This is similar to the PGR, except we divide the shortfall by the *total* amount needed to bring all poor people to the poverty line ($HC*p$)
   
   $$
   IGR = \frac{\sum_{y_i < p} (p - y_i)}{(HC*p)}
   $$
   
   Relative deprivation is inequality *among the poor*. HC, HCR, and PGR do not capture this.

**Poverty around the World**

The World Development Report (World Bank, 1990) had chosen a poverty line of $275 and $370 per person per year, expressed in 1985 PPP prices. The range was chosen since the poverty lines of some of the poorest nations fall between the two limits.

India’s poverty line actually coincides with the lower limit of $275. And in 1990, over 1 billion individuals were estimated to earn less than $370 per year.

1. **Demographic Features**
   
   Larger families tend to fall under the poverty line. They are poorer, due to larger dependent
members. The burden of poverty falls dis-proportionately on the young, with lower levels of education and nutrition, important factors of productivity later in working life – thus leading to chronic poverty.

However, larger families also have significant economies of scale. Also, children consume less than adults, so sometimes per capita expenditure measures overstate poverty.

**Households led by women** without male earners are also found to be poorer (Fishlow study in Brazil – also found in Latin America, Africa, South and East Asia.

2. Rural and Urban Poverty

As reflected in the table below, poverty in rural areas is significantly higher. This is visible in countries even with advances in agriculture.

<table>
<thead>
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</tr>
</thead>
<tbody>
<tr>
<td>India</td>
<td>77</td>
<td>79</td>
<td>105</td>
<td>57</td>
<td>50</td>
<td>76</td>
</tr>
<tr>
<td>Kenya</td>
<td>80</td>
<td>96</td>
<td>59</td>
<td>57</td>
<td>21</td>
<td>610</td>
</tr>
</tbody>
</table>

3. Assets

Poverty is both a cause and consequence of lack of assets.

The bulk of poverty is rural, so poverty is associated with the landless. In India, it is also associated with owners of small holdings. However, as land holdings increase, poverty decreases.

There are not only low levels of physical capital, but also human capital. Since acquiring human capital (an education) requires removing oneself from the labour force for a certain time period, the opportunity cost is too high for the already poor. Illiteracy rates are high, school enrollment beyond primary levels is low.

4. Nutrition

Poverty lines in many countries are often described as the expenditure needed to obtain a certain minimum level of food or nutrient basket. “Adequate” food differs based on the activities the individual is engaged in, as well as the person’s nutritional history. Poverty and under-nutrition are those closely related.

Undernutrition in
i) Children - leads to muscle wastage, stunting, and increased susceptibility to illness. It affects cognitive skills.
ii) Adults – diminishes muscle strength, immunity, and the capacity to do productive work.

However, as average income rises, poverty, as measured by household or per capita consumption, exhibits less of a correlation with anthropometric measures of under nutrition like stunting, wasting, or low weight in children.

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Although poverty and undernutrition are ordinally related (a poor person is likely to be undernourished) the relationship between increases in income and increases in nutrition are not unambiguously strong. Two possible cases are:

a) Increase in income -> Increase in nutrition  
i) Desire for nutrition – It leads to better health, stamina, and mental capacity.  
ii) Functional value - Better nutrition increases productivity and earnings.

b) Increase in income -> Decrease in nutrition  
Higher income broadens a consumer's set of choices. He might choose food on the grounds of:  
i) Culinary pleasure – Better tasting food rather than more nutritional food.  
ii) Social standing – Certain food is associated with higher social standing (for example, more meat) or highly advertised food that is reflective of a desired status in life.

The cases a) and b) generally combine to give an intermediate reaction of nutrition to income.

Elasticities and Nutrition

If nutrition is measured in terms of calorie intake, income has a significant impact on nutrition. This is measured in terms of elasticities – the percentage change in consumption of calories when household budgets change by one percentage point.

η = 1 implies that there is an equivalent percentage change in nutrition when budgets change. This is unlikely as there is a subsistence level of nutrition below which it cannot fall. If income falls, nutrition is obtained by other sources – relatives, neighbours, and friends – to survive. As income rises, individuals substitute away from these sources. Thus 0.6 < η < 0.8 is a reasonable assumption.

In actual observation, η lies in the full range between close to zero and one. These contradictory findings can be explained by the fact that:  
1. Poorer households react more strongly to changes in budget by purchasing more nutrients  
2. The change in date across peak and lean agricultural seasons skews estimates. In slack agricultural seasons, especially with imperfect credit markets, η is high.
Chapter 7
Angus Deaton

MEASURING POVERTY

The goal of the World Bank is "a world free of poverty". In 2000 the General Assembly of the United Nations adopted a set of Millennium Development Goals, the first of which is to eradicate extreme poverty and hunger. In order to meet these goals, we need reliable systems of measurement to estimate poverty.

A participatory rural assessment is used by researchers and NGOs to estimate poverty in rural areas. This is a local estimate.

Researchers have one-on-one conversations with villagers and find out who is wealthy and poor, and map the schools, water supply, agricultural activities, and other data.

Example: Antyodaya (Last Man First) food program relies on local councils to identify the poorest households who receive subsidized food rations.

Merits:

Though there are some errors, villagers are well-informed about their local conditions. Specific data can be accumulated (incidence of handicaps, unsupported widows, etc) to formulate policy measures.

Demerits:

If a policy of transfers to the poor is adopted in these villages, there is an incentive to misreport the poverty of relatives and friends, and more villagers report themselves as poorer than they actually are, to take advantage of the benefits.

In India, the government subsidizes food provision to state Governments according to the fraction of the population which is poor. For this we need reliable national estimates.

Micawber Problem

Although the poverty line is arbitrary, small differences in income make the difference between being above and below the poverty line (and thus receiving the benefits of any government policy).

In this context, governments often make policies that only aid those already close to the poverty line. This reduces the poverty head count but does not help the poorest of the poor.

Thus the degree of poverty is of great importance.

Poverty and Nutrition

At very low levels of income, not have enough money is the same as not having enough food as the majority of the budget is allocated to food.
As people become better off, even they are poor by most standards, they spend a smaller fraction of their budgets on food. This is known as Engel's Law.

Because of the relationship between poverty and nutrition, poverty lines are often the expenditure needed to obtain a minimum threshold of calories required for a healthy lifestyle. Different lifestyles (based on occupation, age, and gender) thus require different calories intakes.

The Food and Agricultural Organisation (FAO) of the UN recommends 2000 calories.

Calculating the Cost of Calories

The minimum expenditure needed to buy a bundle containing 2000 calories George Stigler discovered that this is not accurate as it does not take into account the fact that people desire taste, variety, and flavor in their diet.

Observation of the total expenditure (or income) level at which people get 2000 calories

For this, we plot calorie Engel curves.

Problems with Calorie-Based Poverty Lines

1. Over Time

Lines are rarely updated. They are held constant in real terms, so that the poverty lines are the original lines updated for inflation.

However, calorie requirements have changed as fewer people are engaged in manual labour and thus need less energy (calories). In this case, poverty lines would be revised upwards.

2. Over Space

Urban people are more sedentary (require less calories) than rural people. A single national poverty line skews estimates.

If one recognizes that poverty lines are arbitrary and that within a range, a number of different poverty lines serves the purpose, this can be corrected. This is reflected in the Indian Poverty Line which has different rural and urban estimates.
Poverty and Growth

It is argued that growth benefits all, and that lower-incomes grow at the same rate as mean income. However, growth can lead to rising inequality. This is especially true in poor countries with agricultural economies where growth does not come from agricultural innovation.

Poverty and Capabilities

Poverty need not be in terms of income only. It can also be the deprivation of facilities and opportunities for individuals to develop their full potentials and capabilities. A person can be poor in terms of health, mobility, education, or political participation. This is Amartya Sen's idea of poverty.

These additional measures of well-being need to be taken into account when formulating measures that attack poverty. For instance, better health care through taxes may make people poorer in income but better off in terms of health. Similarly, growth in the higher-income classes through exploitation of the lower-income classes increases poverty.

The multiple-aspect approach is captured in several measures like the Human Development Index that considers income, health, and education to arrive at its measure.

However income gives us a good idea of poverty as those who are low-income earners generally also suffer from other types of poverty.

Relative poverty measures must be used in those countries where people are generally well-off, but some of whom are deprived of certain rights or facilities (for example, Jews in Hitler's Germany).

International Poverty

The World Bank does not simply add up the national poverty estimates of different countries, as poverty lines differ. Rich countries are excluded altogether; middle and low-income countries are studied.

A common international poverty line reflecting extreme poverty, that is, poverty in the poorest of countries, is used. Purchasing Power Parity (PPP) rates are used to convert this line into the currencies of different countries.

This corrects for the fact that conversion using market exchange rates reflect imports and exports of a country. The poorest people consume goods that are not internationally traded (housing, food), thus these exchange rates do not reflect their purchasing power.

The problems faced are that
i) PPP rates are not constructed for the purpose of measuring poverty
ii) Irregular updates of PPP rates
iii) Unavailability of data due to sample errors, inadequate statistical methodology
iv) Variability of data due to survey questions (example, 7 day vs. 30 day recall period)
Chapter 8
Amartya Sen

POVERTY AND CAPABILITY DEPRIVATION

Poverty need not be in terms of income only. It can also be the deprivation of facilities and opportunities for individuals to develop their full potentials and capabilities. This type of poverty analysis shifts attention from the means (income) to the ends (freedom to pursue a fulfilling life).

The capability deprivation approach is argued on the grounds that:

1. It considers deprivations that are intrinsically important (health, education) and not only low income which is only instrumentally important for its functions.
2. There are influences on capability deprivation other than low income.
3. The relationship between low income and low capability varies between communities and individuals.

The reasons for variation in the income-capability relationship are:

1. Age, gender, social roles, location, health of environment.
2. Combinations of disadvantages between i) income deprivation and ii) inability to convert income into fulfilment of capabilities. For example, handicap, age, and disease make it i) hard to earn income ii) hard to use income.
3. Distributions within the family may vary. For example, the girl child in India is often deprived of resources.
4. Relative deprivation of income leads to absolute deprivation. For example, a poorer person in a rich community might not be able to afford access to healthcare as the hospital fees are very expensive. More income is needed to buy commodities with the same social functioning.

Thus even those households with high incomes may have incidences of capability deprivation, and the relationship is ambiguous.

**Income Poverty and Capability Poverty**

There is a two-way relationship between income and capability.

Income is an important means to capability. It enables access to more resources.

Higher capability typically leads to higher income. This is because the more capabilities a person has (education, health) the higher his productive potential. Providing access to capability enhancement is thus one way of overcoming income poverty.
For instance, the 1991 reforms have mainly benefitted only higher and middle-income groups. They could have reduced poverty if the social infrastructure to support the economic opportunities had existed. This has been seen in the East Asian countries and China.

States in India vary in terms of income and poverty. Kerala has the lowest poverty measures but the least income growth. If countries have strong social security programmes with unemployment benefits, unemployment need not lead to capability deprivation. However, in the long run, unemployment also causes mental and physical degeneration, which could lead to capability deprivation.

**Comparison of inequality in USA and Western Europe**

The type of access to resources that enhance capabilities in USA and Western Europe vary due to their policies. USA is high capitalist, and Western Europe is more welfarist.

<table>
<thead>
<tr>
<th>USA</th>
<th>Western Europe</th>
</tr>
</thead>
<tbody>
<tr>
<td>High income inequality, due to highly capitalist and non-welfarist policies.</td>
<td>Low income inequality, due to social security systems.</td>
</tr>
<tr>
<td>Low unemployment.</td>
<td>High unemployment in the double digits.</td>
</tr>
<tr>
<td>Low medical coverage.</td>
<td>Medical coverage as a basic right.</td>
</tr>
<tr>
<td>High inequality in capability.</td>
<td>Lower inequality in capability.</td>
</tr>
</tbody>
</table>

**Relative Inequality of African Americans in America**

Though the African American group is richer in absolute terms than those in developing countries, they suffer from *relative* poverty, in terms of both income and capability deprivation.

Black men suffer from 1.8 times the mortality of white men.

Black women suffer from 3 times the mortality of white women. In fact, they have higher mortality than women in Kerala.

Even after adjusting for income, they have higher mortality measures.

**Poverty and Deprivation in India and Sub-Saharan Africa**

According to a 1991 study by Jean Dreze, South Asia and Sub-Saharan Africa have:

1. Among the lowest levels of per-capita income in the world
2. 46 of the 52 countries in which life at birth was below 60 years: the whole of South Asia (except Sri Lanka) and the whole of Sub-Saharan Africa (except South Africa, Zimbabwe, and

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a few more countries were among these 42. However, there is variation due to higher incomes within these countries. India accounts for more than half of the combined population of these 42 countries.

The states in India have very low indicators compared to the Sub-Saharan countries with corresponding population. However, overall there are several similarities.

<table>
<thead>
<tr>
<th>(Note: 1991 figures)</th>
<th>India</th>
<th>Sub-Saharan Africa</th>
</tr>
</thead>
<tbody>
<tr>
<td>Population (in millions)</td>
<td>846.3</td>
<td>488.9</td>
</tr>
<tr>
<td>Infant Mortality Rate (per 1000 births)</td>
<td>80 Highest IMR in the world is in Ganjam district of Orissa.</td>
<td>104</td>
</tr>
<tr>
<td>Adult Literacy Rate (female/male)</td>
<td>39/64 Lowest Female Adult Lit Rate in the world is in Barmer in Rajasthan.</td>
<td>40/63</td>
</tr>
<tr>
<td>Life Expectancy</td>
<td>60</td>
<td>52</td>
</tr>
<tr>
<td>Median Age of Death</td>
<td>37</td>
<td>3</td>
</tr>
<tr>
<td>Undernourishment (% of child population)</td>
<td>40-60</td>
<td>20-40</td>
</tr>
<tr>
<td></td>
<td>Less political and military turmoil, absence of famines.</td>
<td>Wars, unrest, famine, economic decline due to instability.</td>
</tr>
</tbody>
</table>

Overall, India has a **survival advantage** in terms of the different criteria of
i) Mortality
ii) Nutrition
This is brought out not only through life expectancy but also mortality statistics like Median Age of Death. On average, Indians live longer.

However, India also has higher undernourishment in children.

Also, India has a gender-bias at death, which is not prevalent in Sub-Saharan Africa.

Thus, it has hard to assert which one has lower capability deprivation.

**Gender Inequality**

In Europe and North America, women tend to outnumber men. In the UK, France, and USA, the ratio of women to men exceeds 1.05.
The reasons for this are:
1. Typically, 5% more girls than boys are born everywhere.
2. Women are “hardier” and given the same care as men, they tend to survive longer.
3. Higher incidence of male death due to smoking, violence.
5. Remaining impact of male deaths in past wars.

In Asia and North Africa, the ratio of women to men is much lower: 0.95 in Egypt, 0.93 in India. This indicates the influence of social factors. It is easily calculated that if these countries had the female-male ratio of Europe and North America, there would have been millions of more women in these countries.

**Missing Women Phenomenon**
A shortfall in the number of women relative to the number that would be expected, if there were no sex-selective abortion or female infanticide or if the both sexes received similar levels of health care and nutrition. This is seen as excess mortality and artificially lower survival rates of women.

**Calculating Expected Female-Male Ratios**
1. Comparisons to Sub-Saharan Africa
Due to the impact of i) past wars and ii) longer life expectancies, a lower ratio is expected in North Africa and Asia. To overcome this, comparisons are made with Sub-Saharan Africa with a female-male ratio of 1.02. Here this is little female disadvantage in relative mortality rates but life expectancy is no higher and fertility rates are no lower than the Asian and African countries it is compared with.

2. Calculation of the Ideal
The expected number of females, assuming to female disadvantage in survival, is calculated, given the actual life expectancy and the actual fertility rates in the country. Using this estimate the number of “missing women” is found – 29 million in China and 23 million in India.

**Reasons for Missing Women Phenomenon**

1. Maternal mortality – These countries also have high fertility rates, thus weakening mothers. However, this does not explain lower survival rates of female infants and children.
2. Female infanticide – It is prevalent in Northern India, and in China with the one-child policy. However, this does not explain the magnitude or age distribution of female mortality.
3. **Comparative neglect** of female health and nutrition, especially during childhood – This is the most likely culprit.
Chapter 9
Thomas Picketty

THE KUZNETS CURVE

The Kuznets Hypothesis: Income inequality should follow an inverse-U shape along the development process, first rising with industrialization and then declining, as more and more workers join the high productivity sectors of the economy.

This theory is under dispute, because of a reversal in inequality trends. Particularly in the USA, inequality fell till the mid-20th century and began rising again post 1970s.

Reasons to still consider the Kuznets Hypothesis:

1. Many poor countries might have still not passed the pre-industrial stage, and are thus still on left part of the curve with rising inequality.
2. In developed countries, a new industrial revolution due to technical innovation might have taken place, leading to rising inequality. These could decline over time as more workers benefit from these innovations.

Though Kuznets considered the hypothesis as moving from agricultural to industrial economies, it can be consider for any two-sector economies with an "old economy" sector and a "new economy" (like IT) sector due to technical change.

Basis of Kuznets Hypothesis

In the 1950s, Kuznets formulated his hypothesis based on data from the 1913-1948 US top income shares, with a general presumption that inequality had risen through the 19th
century, with the turning point around 1900. Research has been conducted since then, but no time series data exists prior to the 1950s.

Trickle Down Theory: Policies that benefit the incomes of the top-income earners gradually improve the status of lower-income earners through overall investment and growth.

Kuznets missed several points of data leading his "overly optimistic" trickle-down hypothesis:
1. Since his data stopped in 1948, Kuznets was unable to see that the inequality decline in the US and other developed states stopped soon after World War II.
2. The income inequality trends could not be broken up into labour income and capital income components.

To overcome this, the data in France is used.
1. French tax administration makes it possible to view data on income, wealth, and wage inequality over the 20th century.
2. In the early 20th century France had a large agricultural workforce (30% in 1900) that fell over time (1% in 2000) so it can be used to test changes in inequality due to migration to non-agricultural sectors.

Findings in French Data:

Though top income shares declined substantially between 1900-1950, wage inequality remained stable. The decline in inequality was for the most part a capital income phenomenon.

These findings are confirmed by data from the US, UK, Germany, and Canada.

1. The richer class was badly hurt by major shocks in the 1914-45 period (wars, inflation, recession) so the top income shares fell. After WWI, top capital incomes and income inequality fell sharply. There was a partial recovery in the 1920s, but then they fell sharply again during the Great Depression and then even more during WWII.
2. The labour market and rural-urban migration process played no role in falling inequality: low wage rural workers were replaced by low-wage urban workers.

Further explanations:

3. The rise of progressive income and estate tax partly explains why top capital incomes could not fully recover from the 1914-45 shocks and capital concentration could not return to a pre-war level. Progressive tax can have a long-term impact on inequality.
4. The structural decline of capital concentration in developed countries had no negative impact on their later growth: per capita growth rates have been higher in the post War period than before.

This is consistent with the theory of capital market imperfections: In the presence of credit constraints, excessive wealth inequality leads to lower social mobility and growth.

As wealth inequality fell due to fall in capital concentration, new entrepreneurs took

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advantage of the opportunity and replaced old capitalist dynasties at a faster pace than usual, further decreasing inequality.

**Technical vs. Institutional Change**

The impact of technology on inequality depends on a large number of institutions, institutions aiding the supply and structure of skills (education, job-training schemes). These institutions vary across space and time.

The dynamics of labour market inequality depend on the difference between the demand and supply of skills.

New technologies tend to raise the demand for skills, but the impact on inequality depends on the supply of skills rising at a faster rate.

**Education:**

**France:**

The migration from rural to urban areas with the spread of industrial technology did not lead to a fall in wage inequality. Though the demand for new skills was increasing, the supply was *just enough* to prevent variation in wages (*wage dispersion*) from increasing. Wage dispersion would have increased if there had been institutions to enhance the workers’ skills at a faster pace.

**USA:**

Wage dispersion has been seen since the 1970s, with rising inequality. This is arguably because of technical change that requires specific skills.

However, the education-wage gap (impact of different levels of education of wages) rose for younger workers and not older workers. This suggests that the changes are driven by the lower rate of growth of educational attainment (number of college graduates, etc) for the younger generation. Thus institutions have not supplied skills at a fast enough pace (in the younger age group) to meet demand, leading to higher wages for skilled workers.

**Minimum Wage:**

This suggests that changes in the minimum wage (and not market forces) drive changes in inequality. Though IT is continuously advancing, inequality between the bottom wages and medium wages rose only during the 1980s (when minimum wage fell) and stabilised in the 90s (when minimum wage stabilised).

Minimum wage changes can have an impact on the direction of technical change: lower wages lead to higher profits, which encourages investment in technologies, which in turn increases the productivity of less-skilled workers.

**Governance:**

Between 1970-2000, the average real wages of CEOs rose more than 30 times, while the
average age in the US economy increased by only about 20%. This seems more likely to be due to bad governance and poor regulation than an increase in CEO efficiency and productivity. This wage disparity is also due to social norms, as it is difficult for board members to actually measure CEO productivity.

**Social Norms:**

The huge rise in top incomes in post-reform India is not due to supply-demand alone. There is a wider acceptance of inequality in today's world. This is particularly relevant in developing countries.
Unit 4

Political Institutions and the Functioning of the State

i) AVSI, Chapters 2 (Trust), 3 (Communities) and 4 (Markets) (pages 30-89)

ii) Thomas C. Schelling, Micromotives and Macrobehavior, chapter 1,


Chapter 10
AVSI- Trust, Communities and Markets

Trusts

Introduction
There are always mutually advantageous courses of action that can range from actions that are enforced at a national level to actions that are enforced at the minute local level.

In an agreement, when two parties reach unanimity over a certain course of action, trust is formed when (a) at every stage, it would be in the interest of each party to plan to keep their word, and (b) at every stage of the agreed course of action, each party believes that every other party will keep their word. Condition (b) is necessary but not sufficient for ‘belief’ which must be justified.

Satisfaction of condition (a) is a must for a Nash Equilibrium of cooperation. However, condition (a) alone is also non-sufficient, in that non-cooperation from both sides could also be a Nash Equilibrium. Which NE to be expected is studied through analyzing human behavior in non-NE situations, and in case there are more NEs than one, which can be expected for the economy to approach, is also determined by beliefs held by people and how well they have revised them with respect to the present day patterns.

Institutions that support cooperation
A. Mutual Affection – Household is the most obvious example of an institution based on affection. Huge negative payoffs for players to ‘break a promise’ because of the factor of ‘affection’ + chances of being caught misbehaving is high => tendency to misbehave or ‘break trust’ is low. Problem of trust reappears at the inter-household level as households engage in business with other households.

B. Pro-social Disposition – Development psychologists say that we typically display pro-social disposition and have a natural tendency to reciprocate, enhanced by our communal living. Culture helps shape preferences, expectations and what constitutes fairness. Selection pressure induces feelings of shame, guilt, fear, affection, anger, reciprocity, etc. Our cultural background shapes our actions and our perception of events and situations. People typically have a disposition to obey personal and social norms and rationalize his / her acts. Pro-social disposition induces trustworthiness to people to varying degrees. Social and cultural evolution incentives inter-individual business and breaking ‘agreements’ without cause are punished.

C. Laws and Norms – Two ways – External enforcer (the rule of law) and mutual enforcement (social norms). The rich typically rely on the former while the poor rely on the latter.
**External Enforcement**: If an agreement is enforced by an established structure of power and authority (often the State, tribal chieftains, village elders, etc.), then mutual trust can be generated for compliance with agreement clauses, especially when agreements are drawn up as a legal contract. If A and B are entered into a ‘contract’ and the punishment for violation of agreement for A is severe, as perceived by A, then A will be less tempted to violate. B will trust A to not renege. Formal markets establish every transaction over legal contracts protecting all stakeholders, and such markets function because they enforce agreements as *purchase* and *sale*. Trust in the enforcer is also imperative for the business to happen. This trust is generated from understanding that the State must cater to maintaining their reputation and hence, enforce legal contracts through a structured judiciary – a trend that Democracy can implement. When each stakeholder knows that the other stakeholders know that the State can enforce the contracts, reneging on agreements fall. Legal practitioners come into the picture by assisting in verifiability of agreement clauses, from every stakeholder’s perspectives.

**Mutual Enforcement**: In rural societies, or societies deprived of the facility of external enforcement due to logistical reasons or otherwise, social norms and codes become essential internal checks to malicious behavior. Mutual enforcement amongst society members is ensured by converting collateral from physical capital to social capital of an individual or a household. Communal labor and social ostracism are punishments, whose threat keeps households from deviating from their deliverables in such communities. Social norms are typically accepted rules of behavior. For a rule of behavior to be a social norm, it must be in the interest of each player to act in accordance with the rule if all others do so too. It should be a NE from a social perspective and studies on sustenance of long term relationships may help ascertain the tendency of a rule to become a norm.

Where formal markets and long-term relationships coexist, ‘grim’ can be expected to be in operation as a NE. Grim is the long term commitment to the action of withdrawal of cooperation in an agreement. In societies where long term relationships are essential, grim is less likely to be observed. Social norms of behavior are able to sustain cooperation if people care sufficiently for the long term benefits of cooperation. However, despite high valuation of these benefits, non-cooperation might be a NE in a society where every player expects the others in a business transaction to renege from the agreement. Cooperation, thus, ultimately depends upon mutual beliefs.

Economies could skid from cooperation to non-cooperation due to a lot of factors – Ecological stress (increasing population, prolonged draughts), Political Instability and lack of faith in the Government can go a long way in causing the society to reach its bifurcation or tipping point between cooperation and non-cooperation. Tipping point can also be reached by change in preferences and beliefs. Reverse tipping is also a possibility, although, it takes longer.

**D. Communities and Markets** – People engaged in long-term relationships based on social norms typically form communities, which are personal and exclusive. In contrast, the hallmark of transactions enforced by rule of law is the presence of markets where people interact with
others they don’t know. Markets are impersonal and inclusive and very often involve just-once transactions.

E. **Property Rights** – PRs to a commodity include rights, restrictions and privileges to the use of a commodity. Ownership of a commodity, for example, encompasses the right to use it in a way the owner chooses and the right to exchange it for some other commodity. Here we talk only of private properties. Some properties are also *communally owned*. These are Common Property Resources (CPR) – grasslands, ponds, fisheries, etc. CPRs are open to those only who have historical rights and transactions involving them typically don’t involve the markets. Gender, income and class inequalities often play a functional role in stake of CPR leading to bad management of CPRs. Classification of ownership as private, communal or open access, depends in part, on the commodities’ characteristics.

**Goods and Service: Classification**
Kenneth Arrow showed that commodities should be distinguished more finely by certain contingencies in which they appear. Planning requires ensuring provisioning of goods and services in the future. **Private Goods**: Goods whose uses are both excludable (provisioning could be restricted against non-payment) and rivalrous (one person’s usage eliminates other person’s usage of the same commodity). Food is a quintessential example of private good. **Public Good**: Non-excludable and Non-rivalrous. Example – National Defense.

In contrast to open access resources where overuse is a problem, public goods are undersupplied if market agents are left to their own devices. The prime reason of undersupply is people’s tendency to free ride (Knut Wicksell and Paul Samuelson). The economists argued that such a problem can be eliminated through – public provision or publicly subsidized private provision. The private provision of public goods induces externalities. They could be either *positive* or *negative*.

**Money**
In a world where all agents are ‘utterly trustworthy’, Money would not be necessary. Money is used as a medium of exchange that enables people to do business. It is also a legal tender. It gives purchasing power to its holders because of its intrinsic characteristic of being a store of value enforced by the government (and hence, a legal tender).

Money not only comprises of notes and coins, but also of cheques drawn from banks and current account balances. The working of Money as a contract to conduct business or trade is essentially based on the *trust* of market agents on the government issuing the money. Money enables transactions to be anonymous and allows trade between participants who don’t know each other.

**Culture**
Mostly, we have read about cooperation which depends upon enforcing and regulatory institutions. However, what people do depends upon their beliefs about one another, that is, self-conformity. Economists call them *rational beliefs*, where rational simply implies self-conforming.

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Max Weber defined culture as the community’s shared values and dispositions, not just beliefs. Recent economic literature has seen the revival of the argument of economic performance being based on cultural foundations. From the World Value Survey (WVS) in the early 80s and 90s, we observe positive correlation between trust and judicial efficiency, tax compliance, bureaucratic quality, civic participation, infant survival rate, educational achievements, performance of large firms and GDP per capita. Trust and Government corruption saw a negative correlation. Thus, trust is good for economic performance.

The WVS also surveyed a list of character traits and practices and created an index of culture that reflects personal motivation to ‘achieve’. The motivation to succeed depends upon several factors like the expected payoff to hard work, parental instillation of personal ambition, position of women in the social order, and other social attitudes towards human environmental factors. Culture’s ‘relationship’ to several of these social attitudes is significant. Social culture shapes an individual’s preferences (including the presence and role of motivation) and individual’s tendency to ‘trust’, which in turn, plays a significant role in economic performance.

**Socially Influential behavior**

Social conformity plays a huge role in determining behavior of individuals. There is, for example, a high tendency for individual’s preferences over fertility to depend on the community’s fertility rate – because the latter serves as a conformity mechanism. Conformity, thus, could be a reason for the multiple reproductive equilibria we observe around the world. This implies, communities that are separated from each other, but are otherwise identical, can behave very differently.

People tend to identify with different groups and pick up the social tendencies. Habits (work, food, relationships) can be shaped by interaction with different groups. Conformism here becomes a tool to attaining status and acceptance than our actions or signaling willingness to be a part of a group. Conformist behavior would change over time with reference groups undergoing changes. Reference groups widening and development may change social attitudes in due course of time. These are foundations of demographic transition. Between 1870-1960, Western Europe showed a remarkable shift in attitude towards the Fertility Rate. Prior to 1870, severe distortions existed within countries and across countries with respect to the TFR. However, within the next 90 years, growth of nationalism (widening reference groups) brought about convergence of TFR within countries.

Fads and Fashion are more transient forms of herd behavior. People choose option A over B when x% of the population intrinsically prefer A over B. x% here becomes a critical mass (a separatrix). If everyone follows similar strategies, herd behavior can lead everyone to choose A if the proportion is indeed above x%. Competitiveness can also lead to socially influential behavior. Especially, when income levels are reasonably high, one’s happiness is also a function of his income relative to the average income of the reference group. Such ‘rat races’ lead to wastage of resources and multiple equilibria of growth rates in income are

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established, where in each equilibrium, people grow richer on average and consume more but don’t feel any happier.

**Communities**
Cooperation can be through making benefits and burdens of a transaction between two people depend, not only on that transaction, but also a secondary transaction.

**Networks**
Interpersonal networks are systems of communication channels linking people to one another.

These can be families or kinship groups (more important in developing countries) or extensive like memberships to clubs. Networks can be born into or established later in life. They are essential because they are channels to acquire information.

**Personal relationships** are important for a network to be effective. They imply trust without needing an external enforcer (village chief, lawyer, etc) or agreements (contracts, etc).

Trust has a *positive feedback mechanism* – “Trust begets trust” In this idea, the more people trust each other, the more trustworthy they become. If all people think that they can trust each other, they will not re-engage on contracts and will thus become more trustworthy.

In this process, more engagements and transactions will be undertaken.

This positive feedback is limited by the cost of additional transactions – which is mainly time. The more engagements a person is involved in, the less time he has for new engagements.

Trust is a *moral good* according to Albert Hirschman. It grows with use but reduces with disuse. Unlike other goods in economics, there is no need to economise on trust due to scarcity.

**Weak Ties**
Weak ties connect people to a wide variety of other people to form an information base. They are established by "knowing someone who knows someone". Example: A knows B but does not know C. B knows C. A acquires information from C through B. These are more useful in the developed world. Professional ties can be exited whenever someone wants to leave their job.

**Strong Ties**
These evolve through tied relationships or long-term relationships, or through ethnic and kinship lines. If engagements are made only with people with whom one has strong ties, they are limited. Thus there are less opportunities for material advancement. Example: Family A and Family B have known each other for two generations. They know no one else...
as well, so they only transact between each other. These are more useful in the developing world.

In developing countries, the strong ties of ethnicity or kinship are important as membership is verifiable. Membership of a family is defined by birth, and cannot be exited. This, along with proximity in the village, reduces the problems of asymmetric information.  
1. Adverse selection: Members of the village know each other well, so they know who is a bad risk. A person A invests in B because he is reliable, but not C, who is not.  
2. Moral hazard: Members of the village know what the others are doing. Hence it is difficult for a person B to make risky decisions with A’s investment, without A’s knowledge.

Tied long-term relationships make networks multi-purpose and dense. They might also impose constraints on choices like education, food, marriage.

**Inheriting Networks**

It is difficult to exit from strong ties like kinship. However, it is possible to not use the networks that parents have formed in urban areas. The reasons most people keep inherited networks are:

1. Relationships cannot be costlessly redirected. Investments are specific to the personal relationship.  
2. The cost of maintaining a relationship declines with repeated use. For example, old friends are more flexible than new friends.  
3. The benefits from new relationships are lower compared to old relationships. That is, the cost of not using inherited relationships is high.

**MARKETS**

Understanding ideal markets helps us to understand how actual markets can improve (assuming ideal markets are a good thing). Departures of markets from the ideal form are market failures.

**IDEAL MARKETS**

**Single Market**

Consider a single non-durable commodity X. It is a private good, so there are no externalities in consumption and production. The market for X is studied in isolation iff:

i) Resources dedicated to X production are small compared to the resources dedicated to production of all other commodities.  
ii) Expenditure on X is a small fraction of the household’s budget.  
These imply that prices of all other goods and services are relatively unaffected by the market for X.
Households and firms are price-takers. The quantities purchased and sold, and the quality of X, are verifiable. Payments are enforced by an external agency like the government.

A firm is willing to produce a good up till the point where marginal cost of production equals the price. Market clearing equilibrium is where the demand and supply curves intersect. In the ideal market, equilibrium supplies and demands are chosen by a planner, whose objective is to promote household interests by maximizing joint wealth. It does this by instruction each firm on how much X to produce and households how much X to consume.

The most efficient plan for:

i) Firms: equality in the marginal cost of production among all firms producing X.
ii) Households: equality of marginal willingness to pay among all households.

In an ideal market, household's marginal willingness to pay equals marginal cost of production.

Total quantity produced must equal total quantity consumed. If the common value of marginal cost of production and marginal willingness to pay is P, the regulator sets the price of X at P. This is the equilibrium price.

Advocates of central planning argue that an enlightened planner could realise the virtues of markets while avoiding their weaknesses. - "Market socialism"

Advocates of markets argue that to get the same outcome in both a planned economy and a market economy, different amounts of information are required. A central planner requires detailed information from every single household, which is not feasible. However, planners can select policy weapons that require less information.

Interdependent Markets

As markets of all goods are interdependent, they are studied together. Markets are open for every commodity at the given point of time (primary, intermediate, and final goods). Sales of goods available in the future involve forward markets. Contracts over their purchases and sales are signed in contingent markets. People are able to purchase or sell goods at quoted prices that are insured for any eventuality, so households are not uncertain about their budgets and firms about their profits.

The reasons we study so many markets for different goods are:

1. Realizing what features of the economy (like bankruptcy) are due to missing markets.
2. Understanding the losses from these missing markets.
3. Exploring policies and institutions that compensate for the missing markets.

Firms are owned by households, and profits are distributed among them. Households have legal rights to their own commodity – human capital. Households and firms are both price-takers. Households must be aware of their endowments and the prices of the final goods they consume. Firms must be aware of technology, the price of inputs, and the price of the
final good. Equilibrium prices coordinate the production and allocation of all goods and services.

**Competitive equilibrium is not unique.**

The existence of multiple equilibria reflects the fact that there is usually more than one set of prices at which demand for goods equals their supply. An *allocation* of goods and services is the complete specification of who produces what and who consumes what. And allocation is *feasible* if, given the economy's endowments of assets, it can in principle be created in the economy. An *efficient* allocation A is one in which there is no feasible allocation that *all* households would choose over A.

This is **Pareto Efficiency.** A competitive equilibrium is Pareto Efficient.

**MARKET FAILURE**

There are several reasons for the inability of the market to function.

**I. Public Goods**

Public goods face the following problems with markets:
1. "Free-riders" are citizens who do not pay for the provisioning of public goods but who benefit from them.
2. Some goods cannot be marketed, like the rule of law.
3. Environmental services which create externalities no matter how hard the government attempts to define property rights.

**II. Monopoly**

Some industries have monopolies or oligopolies. These are not efficient in terms of an ideal market because of retained profits. However, they are a "necessary evil" because of:
1. Research and Development: The high cost and risk of R&D requires a strong incentive provided by the profits monopolies enjoy.
2. Economies of Scale: These are found with commodities whose cost of production per unit falls with output.

**III. Macroeconomic Fluctuations**

Markets can support transactions only when they are verifiable. Moral hazard and adverse selection prevent markets from being formed. Households and firms make decisions on the basis of their current value of assets, the spot prices of goods, and their expectations. Macroeconomic fluctuations can cause imbalances in their decision making process.
Expectations play a large role in bringing about slumps. They are often self-fulfilling prophecies.

Problems are worse if prices or wages are sticky and it is hard for households and firms to readjust to macroeconomic changes. Due to stickiness there is often involuntary unemployment in macroeconomic crises.

Active government engagement can help change the expectations people have of the future and reverse an economy's slump.
Chapter 11
Schelling: Micromotives and Macrobehaviour

Schelling, in his narrative essay, describes the linkages which bind individual actions to the perceived aggregate and questions the institutions of microeconomics, that we all know and believe in their efficacy to generate macroeconomic outcomes that reign supreme for all.

His argument can be summarized in a nutshell by his experience at a lecture theatre wherein the first 12 rows were empty, and the remainder of the hall was densely packed. There was no discriminating factor in the arrangement of the people with respect to income, age, race, class and so on. It was certain that they filled from the back to the front as it is improbable that the first would choose such a seat that would exactly fit in the incoming people behind him.

Pondering, he came to several alternate hypotheses, some of which I recount below:

- Everyone likes to sit as close to the rear as possible
- Everyone wants to sit close to someone else, and the first person did not choose a front seat
- Everyone wants to sit behind someone else, and the first chose a middle row, believing that someone would occupy the seat ahead of him
- Everyone likes to watch people come in, and do not want to crane their necks to see them come in from the back

Why delve into these hypotheses? The answer is clear. This situation represents the aggregating of individual preferences, which does not result in an optimal outcome. Each individual is happiest in his place, given the others’ places. However, if everyone were to shift 12 rows ahead then everyone’s utility would increase or remain the same. More importantly, the utility of the lecturer would magnify.

What’s important to take away from this example is that there are situations in which people’s choices depend on the behaviour of other people, and thus, a simple summation to the aggregates is not permitted. Thus, analysis is difficult.

Behaviour

Every action of an individual player is determined by some notion of utility, whether it comes from pursuing goals, minimizing efforts, and so on. This behaviour is purposive. But we typically have what is a mode of contingent behaviour that, as explained above, is dependent on others. A pure ‘purpose’ is very one-dimensional in the sense that it is the purpose of the sunflower to follow the sun. However, with people, there is the question of immediate goals and adaptations along with the overall purpose. This is the vicarious problem solving, wherein a problem is solved by putting oneself in the shoes of the perplexed. It is the basis of microeconomic decisions.
The evaluation of such behaviour becomes more difficult when looking at the satisfaction as a whole, and not the microeconomic fulfillment of individuals. How well each does for himself in adapting to his social environment is not the same thing as how satisfactory a social environment they collectively create for themselves.

Market Behaviour

Our daily lives have us so used to the comforts and luxuries of an efficient system, that we do not realize the magnanimity of the economy that we are part of. The ‘invisible hand’ that Adam Smith spoke of displays its veracity in every action that an individual undertakes. Thus, at the end of the day, we have an economy where products (goods and services) are made, distributed, bought, consumed, and then the process starts all over again. At each step there are innumerable variables that adjust themselves automatically and which such speed and accuracy that we don’t realize how all the pieces of the puzzle assemble. It is akin to an ant colony wherein an ant is oblivious to the macroeconomic (colony-wide) set of actions, but it carries on its own duties.

Economists often infer a behaviour pattern from what they believe is the true scenario and deduce evaluative conclusions. This is summarized as the ‘market is working’. The market is the entire complex of institutions within which people buy and sell. It synthesizes and harmonizes the wants of self serving individuals, but it doesn’t care for equal distribution of opportunity, correction for self-indulgence, or rectifying asymmetrical relationships. Even in non-economic scenarios, the precedence of individual interests continues.

Equilibrium Analysis

Equilibrium is a state of rest, when all things are in balance. It is always being approached, it is seldom reached. A common fallacy faced by economists is the misconception that equilibrium is ‘right’. It is simply a result; there is nothing particularly attractive about it. It neglects the process of adjustment and the shifts in parameters assumed to come to the equilibrium. Venturing back to the seating problem, equilibrium was reached, but it wasn’t quite ‘right’.

Exchanges and other transactions

Before we delve into economics, it is important to recollect that every action is influenced by all other actions. In Economics however, every transaction is such that whoever is affected is a voluntary participant in the transaction. There are negligible implications for those who didn’t partake in the transaction or had no opportunity to veto it. In order for this to work, a number of facilitating institutions are needed such as physical protection, contract enforcement, enough information, development of property rights, standardized goods and services and so on. Thus, markets may not work to everyone’s satisfaction due to lack of any such factors. On the other hand, certain markets, which we do not want, may thrive, like kidnapping and thievery.

There are certain systems which are non-market in nature and hence do not work optimally. Sending of Christmas cards is done mainly out of obligation to relatives and senders of such cards to reciprocate. Everyone wants this system to end but societal pressure urges him or
her to continue. In this case, the absence of a system of incentives (the market mechanism) means that there are sub-optimal outcomes. It also means that there isn’t enough incentive to push out of the system.

Often, markets may have to be brought into existence through the creation of necessary circumstances. This has been the case when the copyright was created and it generated a market for the written word. This is a contrived market.

Partial markets are those that appear to work towards greater harmony than they actually do. The housing market allocates flats, but it doesn’t account for the needs of different cultures, locales, ethnic and cultural patterns and so on. The institution of marriage can be thought of as a market for voluntary long-term contracts between people who are free to ‘shop around’. However, this is a limiting definition as it fails to capture the genetic, social and cultural impact of marriages (especially if they are inter-caste, inter-race and inter-religion).

**Interactive Behaviour**

Spatial distribution, as discussed in the first anecdote can be generalized to the way people form crowds, assemble, choose residence and so on. There is no universal rule to decode such situations. The following example will illustrate this spatial distribution along with the reconfirmation of the flaws of equilibrium analysis.

There are 120 women and 100 men. In order to dine, they have to assemble themselves in two halls and each individual prefers an equal ratio of men and women. Suppose at a point there are 60 women in each room and the men (those who have arrived) are split 40 and 35. From now on, all the men that arrive will choose to go to the first room as that has a more equitable ratio. Even men from the second room will choose to migrate to the first. The women will follow suit, wanting the equal ratio of sexes. Ultimately, they all end up in one stuffy room whereas they all could have benefitted by dividing themselves as 60 girls and 50 boys in each room.

There are underlying mechanisms that segregate people according to age, sex, language, religion and so on. There is no single phenomenon that explains all the segregations, thus the analysis becomes very complicated.
Chapter 12
Mancur Olsen: Big Bills left on the Sidewalk

At the very outset, let us explore an anecdote. Two economists are walking down the street and they see a $100 bill. One goes to pick it up, but the other exclaims, “Don’t! It must be a counterfeit. If it had any value, it would have been picked up already.”

**CRUX: Any benefits that can be exploited are exploited.**

When there’s a monopoly, there exists a scope of social loss. Sensing the benefits to be accrued, firms move in to exploit this and thus turn it into a competitive market, determined not to leave any bills on the sidewalk.

Even in bargaining between two parties, as in Coase’s theorem, there is no doubt that rational beings will not leave any resources unused. They will not leave money on the table. Applying Coase’s theorem to the macro economy, we see the Government as one player and the citizens (voters) as the other. In a democratic government there is bargaining until resources are exhausted in a socially beneficial way. This seems to point to the conclusion that whether there is rampant interventionism or laissez faire, we are already as efficient as we will be.

Although this idea must be taken with a pinch of salt, we use it in a number of economic analyses. The aggregate production function, the growth accounting empirical studies both assume that we are on the frontier of our aggregate production possibility curves. If this is true, then the economy is never really far from the efficient state and thus economists are ‘no more important for the future of the society than dentists’.

**Boundaries of Wealth and Poverty**

In order to compare societies who have achieved as per those who haven’t, we should study the borderlines of two countries to see what institutional differences are found. There are major income level differences between different countries but they seldom share borders. However, we see differences on both sides of the river like Rio Grande or in North and South Korea. The reasons for such differences might be:

1. Difference in scarcity of productive resources, which includes human capital and technology. Thus, by coase theorem, each society reached its potential, but the potentials might be different.
2. Beyond the national boundaries, the policies and institutions might be better/worse. There is an absence of a structure of incentives in poorer countries that leads to bills dropped by the sidewalk. They depend on the economic policies and long-term goals.

The alternatives can be judged by decomposing the aggregate production function. Considering the capital, labour scarcity, and technology separately, we can get a better idea of what factors determine the differences.
Access to Productive Knowledge

Basic knowledge, which comprises general advances in science and technology, is often unprotected by laws and copyrights. This is easily transferrable and spread worldwide. However, sometimes the legal protection kicks in. At times, even if the knowledge is freely available, it takes capital purchases from rich countries for the poor countries to use this knowledge.

The exceptional growth of certain poor countries instigated a research into the foreign technology inflows that made the growth possible. In Korea, from 1973 to 1979 payments for disembodied technology (royalties and all) was one thousandth of the GDP. Even taking all FDI, the percentages are small. The cost we see, are relatively modest. The differences in income cannot be explained through technological differences.

Overpopulation and Diminishing Returns to Labour

Usually poor countries have the problem of overpopulation, which results in a low per capita availability of land and other resources. If this were the problem, then we can verify it by checking for the change in marginal productivities of labour when they migrate from a poor country to a rich one.

We can check for the ‘big bills on the sidewalk’ or missed opportunities once we look at the migration patterns and consequences. Imagine there to be two regions in the world, North and South. Each has its own downward sloping Marginal Product of Labour Curve, which determines the wage rate. If North is lesser populated, the marginal product is higher and so are the wages. If someone from South migrates to the north they earn an increased wage. This increase in wage represents the missed opportunity that is now taken care of. However, this is a very simplified version of the actual migration scenario.

The optimal scenario is for migration to continue until wages rise in the emigrating country and fall in the immigrating country until they equalize. This is the underlying reason for the resource to population ratio. However, in Ireland, where emigration took place in large numbers, the growth rate in per capita income did not keep in pace with the income growth in London, where immigration was rampant. Thus, even when the resource to population ratio rose in Ireland, it couldn’t explain income differences. This phenomenon can be made concrete by the example of European emigrants into America also. Even the migration from Mexico to America did not reduce income differentials.

Density of Population

For cross sectional evidence on the availability/scarcity of resources, we would ideally want an index that would reflect the natural resource endowments that would change with the price. However, given that its not available, we can look at population density instead. In most poor countries, the density is low (Argentina, 11) and in the most developed regions it is quite high (Hong Kong >5000).

Even if we disregard these as outliers, a simple regression will shed more light on this relation. The natural log of per capita income is regressed upon the independent variable,
which is the natural log of population per square kilometer. There is a positive and statistically significant relationship between the two. Intuitively there should be a negative sign as higher population density means lower per capita resource availability. This paradox is explained by a two-way relation between the variables. The effect of better institutions and policies dwarfs the population effect. Transportation of technology and products has made the availability of natural resources a secondary matter as is seen in Hong Kong.

**Diminishing returns to Capital**

Most of the world’s capital is concentrated in the major developed regions of the world. Thus, the marginal product of capital has become very low there in comparison to poor countries. It is 58 times higher in India than in America. This leads to huge migration of capital to poorer countries by profit seeking businessmen. Just as capital seeks to move into poor countries, labour seeks to move into rich countries.

However, the striking difference in the stick of capital shows that the marginal product has not been equated to the price of capital on a global scale. Thus, individual countries are not on the production frontier. There is the scope of capital flows leading to substantial profits, which come from the ‘bills left on the side of the road’. The institutions and governments of the countries hinder this appropriate transfer of capital. The policies against liberalization and openness keep the country away from equilibrium. Thus, capital cannot be taken as exogenous in the explanation of growth differentials.

**Distinguishing Private Good and Public Good Human Capital**

Per capita Human Capital is defined as the culture and other traits and skills of the people of a country. The culture and ethics of rich countries make them hard workers and give them a higher payoff. ‘Culture’ can be broken down into two base concepts:

A) Marketable Human Capital (Personal culture): This increases the individual’s money income, like skill or a propensity to work hard

B) Public Good Human Capital (Civic culture): This is the knowledge of the people with respect to governance and public policies. It is not marketable but it improves the standard of living and real income.

**Migration**

An adult migrant comes with a host of marketable skills or personal culture that has been developed in the originating country over time. What changes is the institution or public policies under which this new immigrant operates. It was seen, in United States, that inspite of a new environment, the immigrants earned significantly more than similar workers in the original countries. There is no selective screening in choosing who migrates, thus the differences are attributed only to the changes in policy and institution.

The marketable human capital can also be compared by looking at the difference in income levels of those who are emigrating from poor countries as opposed to the rich countries. In America, Haitian immigrants had lesses income than the Germans. In fact, the German emigrants made twice the amount than their Haitian counterparts. This seems to point to
the fact that Germany has double the marketable capital. However, their per capita income is ten times that of Haiti. So even after accounting for human capital differences, there is still a five-fold difference in income. Thus, personal culture doesn’t explain all.

Wars and segregation of countries have reinforced this fact over the years. The personal culture being the same, differences were noted in performances of Hong Kong/Taiwan and China, North Korea and South Korea and so on after they separated and came under separate governance.

**Importance of Institutions and Economic Policies** is relevant, especially along the borders. The only remaining cause for differences is the quality of institutions and economic policy.

**Growth Theory and Facts**

The lack of a tendency for poor countries to catch up with rich countries using their growth opportunities is against the old theory.

The new theory explains how rich countries can grow as fast or faster than poor countries due to externalities or stocks of human and productive capital.

The actual phenomenon observed is that the countries growing at the fastest rate are never the ones with the highest per capita income, but are a subset of the lower income countries. The underlying cause being the poor institutions and policies in the poor countries. As soon as they change policy, they can use the opportunities for growth and catch up. In the 70s, South Korea grew as fast as the US.

As the poor countries fall behind their potential, their scope for higher growth rates keeps increasing. The rate at which it can gain with respect to the higher income countries increases.

**Picking up the Big Bills**

It is important for economists, inside and outside the government to wise up and turn the situation around. All the evidence points towards the framing of a structure of incentives to be the difference between a rich and a poor country, just across the border.

We know that masses of the people are willing and able to pick up the bills, as is seen in the consequences of migration. But such large amounts cannot be picked up by uncoordinated individual action. It requires the intricate social cooperation that comes with integrated markets and public policies. Thus, it has been seen in history, that individual rationality is not at all sufficient for social rationality.
Chapter 13
Albert O. Hirschman

Background

Hirschman’s paper starts with what events and experiences have taught him. The events in France (1930s) taught him to suspect both gold standard orthodoxy and populist simplicities. During the slack of 1930s, Hirschman observed the power of the price system and the dangers of thoughtless interventionism.

Hirschman became, if not an elasticity optimist, at least a devaluation-optimist. He discovered that the worse the current account situation was, the more likely was its improvement following devaluation. Marshall Plan experiences reinforced his doubts about planning exercises.

With all this learning, Hirschman went on to search for hidden rationalities. And this is what he came up with!

Unbalanced Growth

The theory of unbalanced growth was given by Hirschman and a few others. It is a strategy of development to be used by the underdeveloped countries.

Key principles of the theory:

- Need of investment in strategic sectors of the economy instead of all the sectors simultaneously. Strategic sectors in the economy should get priority as resources are scarce.
- Other sectors would automatically develop themselves through “linkages effect”.
- Creating imbalances in the system is a suitable strategy for growth when the resources are scarce as in the case of underdeveloped countries.

Hirschman states, “Economic growth follows the course of imbalances in the system. Competitions, tensions as well as inducements are the inevitable outcome of the unbalanced growth, and more these are, greater the prospects of growth.”

The core idea of how unbalanced growth works!

The growth of one industry, say industry A, stimulates the growth of industries B, C, D etc. The growth of industries B, C, D will lead to the growth of industries E, F and so on. Thus, growth of strategic industries apart from providing the benefits of itself also stimulates the growth of other set of industries. Growth of output of industry A may generate the demand for the products of B, C, D, etc. and also may reduce the marginal cost of production in these industries.
Understanding how imbalances work!

Suppose there can be two types of investments – One is Public investments like the expenditure on roads, bridges, etc. The other is investment on productive activities which results in final goods and services.

Now, what does the unbalanced growth theory tell us? It tells that, as resources are scarce, we can’t afford both. So, we create imbalances in the economy and Hirschman says this works because:

- Growth of public infrastructure stimulates investment in productive activities. Example: The development of irrigation works is expected to stimulate the growth of agriculture.
- Investment in productive activities would demand for investment in public infrastructure. Hence, the economy will grow.

Explaining diagrammatically
These diagrams will help us understand better.

In the first diagram, UG represents Unbalanced Growth and BG represents Balanced Growth. As can be seen, balanced growth results in increase in the output in both the sectors as investments are made in both the sectors.

However, Sector A is the strategic sector for unbalanced growth. Hirschman says that when we have scarce resources we should invest in Sector A, the output of which increases. This stimulates growth of Sector 2 (non-strategic sectors), which in turn stimulates the growth of strategic sectors. Hence, we get a step like curve. The unbalanced growth works as well as the balanced growth approach.

However, things are not so easy. Hirschman through his experiences pointed out a different path trajectory, shown here in figure 2. This is known as antagonistic growth.

Here at each stage in the sequential growth process the income receivers of one of the two sectors are gaining at the expense of those of the other sector. However, there is an all-around increase in output.
The incomes received in both sectors are growing in the course of the process as a whole, but at any one point Sector A is gaining at the expense of Sector B or vice versa. This is called an **antagonistic** growth process. It is NOT zero-sum (gains cancel loses) since net overall growth being achieved (Look at the starting and the ending points of the graph in Figure 2 and convince yourself that it’s not Zero Sum!)

A certain level of tolerance for increasing inequality in the course of growth appears to be required. This has political consequences.

**Sailing against the wind!**
Let the two coordinates (in Figure 2) represent not the incomes of two important social groups, such as workers and capitalists, but more generally two important social objectives such as economic stability and growth, or growth and equity or equity and stability. In order for the economy to move forward, indeed, as Hirschman says, we have to sail against the wind!

» When one sector receives utmost concentration of intellectual energies and political resources, it results in neglect of other crucial objectives, a neglect which subsequently comes to public attention.

» According to Hirschman, “the sailing-against-the-wind pattern is friendly to the democratic form of government, and particularly to the two-party system of democratic governance. If, in such a system, each of the two parties retains an ideological consistency of its own, then each party will give very distinct priorities to such social objectives as growth, equity, and stability; with the parties alternating in power, society is likely to move, in the best of circumstances, as though it were sailing against the wind!”

**Balanced Vs Unbalanced Growth**

<table>
<thead>
<tr>
<th><strong>BALANCED GROWTH</strong></th>
<th><strong>UNBALANCED GROWTH</strong></th>
</tr>
</thead>
<tbody>
<tr>
<td>Advocates the simultaneous growth of all sectors of the economy</td>
<td>Focuses on the growth of some key sectors of the economy (strategic sectors)</td>
</tr>
<tr>
<td>Seeks to accelerate the process of growth through simultaneous investment across all sectors of the economy</td>
<td>Seeks to accelerate the process of growth through imbalances in the system</td>
</tr>
<tr>
<td>Requires a lot of capital investment right from the beginning of the growth process</td>
<td>Requires relatively much less investment</td>
</tr>
<tr>
<td>Long period strategy of growth</td>
<td>Short period strategy of growth</td>
</tr>
<tr>
<td>Size of the market is the important limiting factor</td>
<td>Decision making and entrepreneurial skills are the key factors</td>
</tr>
</tbody>
</table>

**LINKAGES**

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The above diagram is self-explanatory and clearly explains why Hirschman emphasized on linkages. In order to identify the activities with which to create imbalances in the system, the knowledge of inter linkages across different sectors of the economy is needed.

**Backward linkages** - Growth of a set of industries stimulates the growth of those which supply raw materials. For example - setting up a steel plant would stimulate the demand for coal and other related goods. Production of these goods will accordingly increase.

**Forward linkages** - It refers to the growth of certain industries owing to the initial growth of those which supply raw materials. For example - Expansion of steel industry will encourage industries making machine, tools, etc. using steel as their basic input.

Study of these linkages facilitates the choice of activities through which growth with imbalances should be generated in the system. Industries with maximum linkages ought to be developed first – that is, they should be the strategic sectors.

**Merits of Unbalanced Growth**

1. The theory suggests proper use of scarce resources in less developed countries. The theory considers all aspects of growth planning – seems realistic!
2. Gives importance to the growth of basic industries in the growth process.
3. Generates economies of large scale production – Increase in income and employment!
4. New innovations and inventions by creating pressures in the system.
5. Expected to generate greater surplus in the system and have large multiplier effects.

**Criticisms of Unbalanced Growth**

1. While focusing on some industries, resources may not be appropriately utilized. Some sectors of the economy will grow at faster rates while other sectors will remain neglected.
2. Which sectors will be strategic sectors? – No mention! – Is it an easy task?! – No.
3. The theory assumes that the success of the growth process depends on external trade and foreign aids. This increases uncertainty of the growth process.
4. Are imbalances actually needed to be deliberately put? - Imbalances are caused on their own due to technical indivisibility and uncertain behaviour of demand and supply forces.

5. Imbalances – Ok! But to what extent? – No mention of this in the theory.

6. No empirical work to show the linkages effect.

7. This theory assumes the availability of certain basic facilities in terms of necessary raw materials, technical knowhow, etc. But we know that in less developed countries these are lacking.
Chapter 14
Laffont- Corruption and Development

“Corruption is defined as the use of public office for private gains”

Part 1 - The Need for a Theory of Corruption

Suppose I am a chief of a village (known as the principal). I do all the work myself and ensure they are done properly. Now, as the work increases, I start delegating the work to other people (known as intermediaries). These intermediaries now have a choice to perform their duties or not. Basically, the delegation creates discretion and this leads to corruption. Of course, the chief himself might be corrupt! But the fundamental idea remains the same.

Now suppose the chief can monitor or regulate the work of the intermediaries. This will reduce the level of corruption. Hence, we can say that corruption is created by asymmetry of information. The chief needs to give suitable incentives to the intermediaries to perform their tasks properly.

Should we get rid of all corruption?
However, it is not possible or not advisable to give incentives which will reduce corruption to 0%. While fighting corruption, we are moving towards 0%, away from 100% corruption point. As we move, the cost associated with fighting corruption also increases as attempts to remove smaller traces of corruption will be expensive. Therefore, we reach a point in between where benefits from reducing corruption by one point will outweigh the cost associated with anti-corruption strategies. Therefore, basic economics tells that it’s not sensible to get rid of all corruption.

Part 2 - Corruption and Development

At an early stage of development, it is difficult to fight corruption because:
1. Resources - both human and technical are scarce
2. Financial resources to reward the intermediary are scarce
3. Economic agents being poor, financial penalties for corrupt activities are limited.

As development takes place, two things happen in opposite direction:
- Number of transactions affected by corruption increases, and corruption should increase.
- Per transaction corruption is stable or decreases due to increase in resources to fight corruption.

Whenever there are changes in institutions, corruption increases. Once the society progresses, there are more resources to fight corruption. Intermediaries are richer and hence can be fined a larger amount. This results in (1) Decrease in the corruption per transaction (2) May also decrease the volume of corruption.

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To conclude, there is an inverted U-shaped relationship between development and the amount of corruption. As development increases, initially corruption increases as there are more opportunities for corruption, but with further development, the resources to fight corruption also increases and the corruption level goes down.

In order to study the correlation, we can take per capita GDP to be a proxy for the measure of activity open to corruption. Then, we can multiply this by the level of corruption (COR) to get the measure of per capita amount of corruption. This measure, as expected, should first increase and then decrease with development. This has been found true in studies conducted by various economists.
Chapter 15
Shleifer and Vishny- Corruption

Government Corruption is the term used for the sale of government property by the officials for ‘personal’ gain. This mostly includes government property that will help private agents to pursue their own economic interests. Thus, licenses and permits, passports and visas, which can restrict the ability of private agents to work to their satisfaction, are often the scene of corruption.

It is pervasive in developing economies though it is found in developed countries also. However, economic theory has not focused on corruption studies much. The research is predominantly on the relation between the government top level and the government agent (official) who indulges in corruption (takes bribes). It talks about how to make these agents honest and efficient, but Shleifer and Vishny concentrate on the consequences of corruption on resource allocation, comparing it with its sister, taxation. There are two issues to be addressed:

1. Organisation of the corruption network: There are several alternatives here. In Korea, once you pay a bribe, you earn full property rights. That’s a vastly different case than say in India, where one bribe can lead to another and even after paying ‘x’ number of bribes, you can still be asked for more. Full property rights aren’t transferred. A third case might be of provision of government goods without any bribe.

2. Comparison of Distortion effects with taxation: Some economists support organized corruption due to the enhanced effectiveness of the bureaucratic worker and the ease of opportunity for an entrepreneur to overcome legal hassles. However, the imperative secrecy causes additional distortion, as will be argued later.

Basic Model of Corruption

- One government produced good, i.e., passports
- The good is homogeneous and faces a downward sloping linear demand curve
- It is sold by an official who CAN restrict output of the good, by virtue of denying access to certain players
- There is no fear of detection or penalization from above, or the top level government
- The official is a monopolist who wants to maximize the value of the bribe
- The official government price is ‘p’ and the cost of production is immaterial as it is borne by the government and not the agent (This excludes services like that of policemen where cost is determined by personal effort and is borne by the agents)
- The marginal cost for the agent himself has two sub cases.
  - Corruption without theft: Here the agent does not hide the sale of the good. He pays the government ‘p’ but keeps the extra money he takes as a bribe for himself. Thus, the total bribe is always greater than the government price and the marginal cost of accepting the bribe is ‘p’
- Corruption with theft: Here the agent doesn’t report the sale of the good. He merely sells it in exchange for a bribe and pockets the entire sum of money. The government is in the dark. Thus, the marginal cost of accepting the bribe is nil and the bribe can be below the ‘p’ level also.

- The marginal revenue is the payment received for every additional unit of good sold to a bribing customer
- As a non-discriminating monopolist, the official sets MC=MR

This model suggests that bribes are similar to commodity taxes. The differences lie in that taxes are not pocketed by bureaucrats, and taxes might be non-profit-maximizing.

Penalizing the corrupt official doesn’t attack the base problem, but it does alter the level of bribes accepted. Given the probability of detection and a low penalty, he will continue the same levels. If the penalty (or probability of detection) varies with the size of the bribe, then the bribe will go down, but number of units sold will increase. Analogously, if it varies with the number of corrupt trades, then output will be restricted but bribes will be high.

Why does corruption spread?

- Competition between officials: If the officials have to bid for their preferred jobs, then there will be increased competition between them. Each will want the maximum resources to bid and thus will aim to enhance their revenues through bribery.
- Competition between buyers: If the buyers can obtain the government good cheaply because of corruption, then there will be more incentive for their competitors to also engage in corruption so that they too can produce their goods at a cheaper rate. It is assumed that these buyers use the government goods as inputs in their production process and the final market for their products is very competitive. This isn’t applicable to corruption without theft because then the bribe is more than the government price and thus there is no advantage to the buyer.

Thus, the first step is to ensure that thefts from the government are made difficult because if theft is not involved then the buyers themselves have an incentive to report the corrupt official because they are being forced to pay more than the government ordered price.

**Industrial Organization of Corruption**

The two assumptions that may not hold in real life are:

1. There is only one public good involved: Usually, the private player will want to obtain a host of complementary government goods in order to fulfill his economic objective. An importer might want a range of licenses and permits to bring in goods, unload, ship, dock and so on, each of which requires bribes to different agencies
2. The official is a monopolist: The same permit or government good (passport) might be available at different agencies or through interactions with different ages. With perfect competition and lack of coordination amongst agents, the bribe required goes down to zero.
Structures with multiple goods

1. Collusion between separate agents which supply complementary goods
2. Independent sale of complementary goods by separate agents
3. Sale of complete sets of goods by different competing agents

Considering the first two structures, we can compare the returns and distribution efficiency through some preliminary calculus. There are two goods, whose bribe prices are $p_1$ and $p_2$ respectively. The quantities sold are $x_1$ and $x_2$ and the marginal costs are denoted by $MC_1$ and $MC_2$. The bribes per unit are thus the difference between the bribe price received and the marginal cost incurred.

The revenue of the colluded sellers of goods one and two is:

$$MR_1x_1 + MR_2x_2$$

The costs faced by the colluded sellers to produce good one is:

$$MC_1x_1$$

Thus, when determining what level of $x_1$ to produce, they will choose that amount which will maximize their combined revenue, accounting for the fact that $x_1$ affects $x_2$ as the two goods are complementary. The expected profits, when differentiated with respect to the choice variable $x_1$ give the following:

$$MC_1 = MR_1 + MR_2 \left( \frac{dx_2}{dx_1} \right)$$

So, when the two firms collude, they know that the goods are complements and so $dx_2/dx_1$ is positive. Thus they charge a bribe at which $MR$ is lower than the $MC$. The prices are thus kept down so that total revenues can be maximized.

However, if the firms operate individually, then they take the $x_2$ to be given, and thus the $dx_2/dx_1$ is 0 for them. They will charge a price at which $MR$ and $MC$ are equal for them, which maximizes their revenue given the other firms output, but it does not maximize the total revenue. By acting independently, the two firms hurt each other.

This problem is worsened because of free entry into the collection of bribes. The list of complementary goods required (the list of permits and licenses) are not fixed and as the bribes increase officials make new regulations that require more bribes to be paid. As the bribes increase to infinity, the output falls to zero, and revenues too. Free entry also harms the development process by raising the prices of the final product by raising costs for the producer. Along the Seine, there were once so many tolls (entry points for bribery) that the cost of shipping a good 20 miles was equal to the value of the goods shipped.

Going back to the third alternative structure, we saw a case wherein each complementary good could be provided by any one of many competing agents in the market. As in the passport market in the US, the bribe competition drives the bribes down to zero due to the Bertrand competition. Even if there aren’t any competing agents, but there is a looming threat of entry, this condition is satisfied. If any agent starts accepting bribes, and a new
agent offers the good at the government price/ at a lower bribe, then the competition will again drive bribes down.

<table>
<thead>
<tr>
<th>Factors of comparison</th>
<th>Case 1: Collusive Agents</th>
<th>Case 2: Independent Agents</th>
<th>Case 3: Competing Agents</th>
</tr>
</thead>
<tbody>
<tr>
<td>Level of Bribes (Amount per bribe)</td>
<td>Intermediate</td>
<td>Highest</td>
<td>Lowest</td>
</tr>
<tr>
<td>Total amount collected by bribes</td>
<td>Highest</td>
<td>Lesser than case 1</td>
<td>Low</td>
</tr>
</tbody>
</table>

The result in the above table seems intuitive as in case 2, the bribe levels become so high that they output gets restricted and total collections go down.

**Analogy in Industrial sector**

There’s a carmaker who needs two complementary inputs, glass and steel. Suppose there is one monopolist who sells both of these inputs. He knows that by raising prices of glass, the demand for steel will also fall. Thus he will price it accordingly. If both inputs are sold by separate manufacturers, then they will charge higher prices for steel and glass respectively, not caring about the effect it will have on the cumulative demand. The combined profits will be lower. If separate manufacturers can sell both glass and steel together, then the price competition between them will eliminate all profits and they will sell at their marginal cost. Profits will be lowest, but output will be highest.

**What determines the Organizational Structure of Corruption?**

Enforcing a structure of collusive bribery is analogous to maintaining a collusive oligopoly structure. The bribes must be maintained at a certain level, and not increased, just like oligopoly prices shouldn’t decrease. The increase in bribes should be easily detectable and punishable. But, how?

1. If the government has an effective policing machine to monitor the action of bureaucrats like the KGB in Soviet Union
2. If the ruling elite is small and deviations are easily noticeable
3. If the society is homogeneous and closely knit such that news of bribe changes spread rapidly
4. If the leader of the cartel can exclude the defaulter from further association. Political modernization (transition from autocratic to democratic states) leads to a weaker government which calls for corruption initially. Even in Africa, post independence a large number of corrupt individuals took the position left vacant by the colonial corrupt government.
5. If the profits from being part of the cartel are very high, then chances of default are low

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6. If there is extensive political competition, then the constant check on the ruling party through debates and free press leads to a natural check on corruption. The bribes are lower, which keeps potential competing agents out of the bribe market, which leads to lower overall corruption.

Thus, the best way to reduce corruption without theft is through increased competition between officials, which will drive down the bribes to zero. In the case of theft, the bribes do fall, but the stealing from the government increases.

Corruption and Secrecy

Mauro did the first systematic analysis between corruption and levels of economic growth. He used the index of corruption from Business International, a publication of Economic Intelligence Unit. It is the degree to which business transactions involve corruption and questionable payments. The index for growth is taken as the total and private investment to GDP ratio. There was found an inverse relation that was statistically significant.

The reason underlying the above result can be the free entry of officials into the bribe market, which reduces productive output by raising prices. Thus, corruption has detrimental effects.

However, in certain cases, where the corruption proceeds ultimately go to only one pocket, like to Marcos in the Philippines, then bribes and taxes are very similar.

Similarities:

- A monopolist agent will accept bribes to maximize revenue, and the sovereign also taxes goods optimally
- With multiple monopolists, bribes and taxes are still similar. The taxes are deduced independently, not accounting for cross elasticity and reducing aggregate revenues
- Competing monopolists are similar to the federalist idea of competing jurisdictions

Differences:

- Taxes are markups which go to the treasury, whereas bribes are markups that go into the pockets of bureaucrats
- The distortions in corruption are greater because of the resources that are allocated to cover up the corruption and prevent detection, as corruption is illegal. This element of secrecy motivates agents to drive buyers to those goods where bribery is more discreet. The secrecy also involves the cost of keeping potential entrants away by creating a hostile environment.

Example to compare taxes and bribes:

A country can import cars – either red or green – the prices at the border being Rs. 5 each. The demand is for 10 cars, and the respective valuations are Rs. 15 for a red car and Rs. 10 for a green one. Ideally, 10 red cars would be imported, and sold at Rs. 15 each. There would be a social surplus of 10 X (15-5) = 100.
If the ministry taxed cars at the rate of Rs. 10 per car, then the cars would still sell at the same price but now the social surplus is 100 because of government revenue and not customer surplus. In case of bribes, the government accepts a bribe of Rs. 5 each from a green car to ban the imports of red cars altogether. Thus, the government gets (10X5)= 50 as surplus, but the consumers buy green cars at Rs. 10, getting no surplus. Thus, the surplus has halved.

The situation becomes even more chronic if part of this surplus is used to cover the tracks of the parties guilty of corruption. There can be cases where surplus is completely eradicated.

Other examples can show that at times unnecessary technology is chosen for implementation because special technology can be purchased from only a few places, which increases the scope for corruption through internal deals such as overinvoicing for the deal. The bribe for overinvoicing might be a small percentage of the total deal, but it leads to a large loss in surplus because it forgoes the use of simple technology that was needed. Thus, the goods available in the economy say through imports are those in which corruption is possible, and not those that are needed by the economy. Sectors like education and health, wherein scope for corruption is less than that in infrastructure is neglected.

**Conclusion**

Thus, the costs of corruption boil down to two major factors – territoriality (expansion of bureaucracy into new regulations) and secrecy. Economic and political competition can reduce the level of corruption, as has been argued in detail throughout the text.
Chapter – 16
Dani Rodrick

Fifty Years of Growth (and lack thereof) by Dani Rodrik

A | Introduction

1. The four and a half decades (1960-2005) saw an impressive world growth rate of 2.1% with incomes doubling every 33 years (70/2.1). This growth saw a simultaneous improvement in the performance of social indicators like literacy, infant mortality and life expectancy.

2. However, growth has been highly skewed in favor of advanced economies (AEs) and very few countries (like Far East or South East Asian countries) could manage to significantly close the gap between themselves and the AEs.

3. Growth story across the world has seen significant variation and oftentimes, an aggregate picture distorts the reality of inequality in growth. This essay tries to check the growth strategies that were used and what we have learnt from what has happened in the last four and a half decades.

4. Rodrick defines growth strategies as “economic policies and institutional arrangements aimed at achieving economic convergence with living standards prevailing in AEs).

5. Two central arguments of the chapter –
   a. Neoclassical economic analysis is more flexible than policymakers give it credit for. Good institutions are those which provide the first order economic principles – contract enforcement, property rights protection, market based competition, etc. There is no direct correspondence between the functions performed and the form that these institutions take => Local factors must be molded into structuring institutions that can provide for these principles.
   b. Igniting and sustaining growth are two distinctly different tasks which need a different set of policy reforms (short term and limited range versus long term focus on institutional infrastructure).

B | What we know that (possibly) ain’t so!

1. Development Policy trends –
   a. 1950s/1960s – Import Substitution Industrialization and planning in poor economies.
   b. 1970s – Market oriented policies emphasizing role of the Price system and outward orientation.

   The Washington Consensus’ desirable framework – Privatization, deregulation, security of property rights, fiscal discipline, public expenditure reorientation, interest rate liberalization, tax reform, unified and competitive exchange rates, trade liberalization and openness to direct foreign investment.

2. Towards end of 1990s, the Washington Consensus saw an augmented list of 10 new desirable aspects concentration more on governance and removal of leakages and inefficiencies in the economic policy framework.

3. Need for the second generation reforms:
   a. The broad realization that market-oriented policies were inadequate without institutional transformation. For example, trade liberalization would not be able to allocate the economy’s resources efficiently without labor market flexibility.
b. The threat that financial liberalization can lead to crises and excessive volatility in the absence of a macro-framework and prudential regulations. Hereunder, non-intermediate Exchange Rate regimes, Central Bank independence and adherence to international financial standards became key reforms.

c. The need to address the critique that the Washington Consensus’ policy framework tackled poverty in a trickle down approach. This was done by initiating social policies and anti-poverty programs.

4. Against the key policy propositions under the WC framework, the East Asian countries showed significant divergence in their growth strategies. South Korea and Taiwan stand out as countries which neither deregulated nor liberalized their financial systems or trade till well into the 80s.

**East Asian Anomalies**

<table>
<thead>
<tr>
<th>Institutional Domain</th>
<th>Mainstream Ideal</th>
<th>East Asian Pattern</th>
</tr>
</thead>
<tbody>
<tr>
<td>Property Rights</td>
<td>Private, enforced by law.</td>
<td>Private, but occasional overriding by Government authorities (Korea).</td>
</tr>
<tr>
<td>Corporate Governance</td>
<td>Shareholder (outsider) control.</td>
<td>Insider Control.</td>
</tr>
<tr>
<td>Business-Govt relations</td>
<td>Rule based.</td>
<td>Close interactions.</td>
</tr>
<tr>
<td>Industrial Organization</td>
<td>Decentralized, Competitive markets, strong antitrust enforcement.</td>
<td>Horizontal and vertical integration in production and government mandated cartels.</td>
</tr>
<tr>
<td>Financial Systems</td>
<td>Deregulated, securities based, free entry, prudential supervision.</td>
<td>Bank based, restricted entry, heavy Government control, direct lending.</td>
</tr>
<tr>
<td>Labor Markets</td>
<td>Decentralized, Flexible.</td>
<td>Lifetime employment in core enterprises (Japan)</td>
</tr>
<tr>
<td>Public Ownership</td>
<td>None in productive sectors.</td>
<td>Heavily in upstream Industry.</td>
</tr>
</tbody>
</table>

5. Beyond East Asia, India and China provided other intellectual challenges to WC’s prescription through their growth stories. India had staggered deregulation and very little privatization even in the 80s, when it broke out from the Hindu rate of growth for the first time. China didn’t even adopt private property rights. In sharp contrast, Latin American economies, which replicated the WC’s “desired model” more than any other region saw very little growth during the 70s and 80s. Lora (2001a) attempted rating countries’ extent of trade and financial liberalization. Latin America saw an improvement in the scoring from 0.34 in 1985 to 0.58 in 1999, but growth remained just a fraction of the pre-1980 level.

These observations put significant weightage to the claim that high order economic principles of – semblance of property rights, market-oriented incentives, sound money and fiscal solvency are essential for economic growth. But supporting principles are imperfectly related to economic success and must not be considered to be ‘essential’ as the high order principles.

C | Intermediate Mapping from Economic Principles to Institutional Arrangement
A western economist’s solution to the Chinese economy’s gridlock in the late 70s would involve the following:

a. Low agricultural productivity -> Price liberalization of agricultural products.
b. Lack of Production Incentives -> Privatization of Land
c. Loss of Fiscal Revenues -> Tax Reformation
d. Low level of Urban wages -> Corporatization  
e. Building of Monopolies -> Trade Liberalization  
f. Need to restructure enterprises -> Financial Sector reforms  
g. Rising unemployment -> Social Safety nets.

In fact, China took a very different approach to reform which departed greatly from the ‘Western’ norms, while consistently ensuring that end goals were achieved (for a couple of decades at least). These reforms typically covered market oriented reforms (with agricultural liberalization at the margin, allowing farmers to sell surplus in the market – a brilliant move which provided micro incentives along with macro stability ensuring full allocative efficiency) and property rights which came through a system of decentralized equity ownership through Towns and Villages Enterprises – TVEs – instead of privatizing land and industrial assets, forming the essential driver of growth for China till mid-90s).

China employed several traditional institutions to fuel economic growth, including fiscal contracts between central and state governments, anonymous banking and development of SEZs. These policies worked because they were unusual, non-standard and yet, produced orthodox results. They weren’t necessarily the ‘mainstream’ ideas, but worked better nonetheless.

Other examples of inconsistencies in growth strategies for East Asian economies –

a. Financial Restraint – Interest rate controls below market clearing levels and blockage of competitive entry. Financial intermediation through the State by Bank rents can incentivize better monitoring of borrowers and mobilization of deposits. Financial Intermediation, in direct contrast to Financial Liberalization serves better under preexisting institutional landscape of lack of privatization and restricted external capital account.  
b. Coordinated Industrial Policy (South Korea and Taiwan) – The Central Government took active measures to coordinate private investment in targeted sectors. Socially profitable business sustenance is the key driver for such a policy stance that ensures that characteristics like scale economies and inter-industry linkages do not depress private returns below social returns.  
c. Institutional foundations and internal organization of workplace (Japan and Mauritius) - Set up to facilitate wartime mobilization, Japan’s institutional foundations and internal organization chiefly encompassed a team-centered approach and redistribution of resources from advanced to backward sectors, an arrangement termed as ‘horizontal hierarchy’ or ‘bureau-pluralism’. Another institutional innovation was observed in Mauritius in the 1980s with the creation of Export Producing Zones (EPZ) enabling an export boom across the board while keeping Import Substituting protection for domestic industries.

However, in reviewing such cases, a few points must be noted:

a. A combination of form and function that works for a country may not be generic and depend on historical and demographic factors.  
b. The successes of East Asian economies are not sourced to their institutional anomalies. Many of such anomalies, when applied elsewhere have resulted in perverse results.

The key driving point in the analysis of the anomalies lies in recognizing that principles such as property rights, incentives, sound money and fiscal solvency can all come institution-free. Different packages, with different costs and benefits can provide the right results. As a corollary, there is only a weak correlation

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between the higher order economic principles in neoclassical economics and the specific policy prescriptions recommended as means to achieve those ends.

D | The Real World Growth Experience Trends
1. In practice, growth spurts are associated with a narrow range of policy reforms – When data from 83 countries and their growth spurts (GDP growth more than 2% for 8 consecutive years) is analyzed, it is observed that shocks from policy or otherwise were pretty mild.
2. The policy reforms associated with these growth transitions are typically a combination of orthodox and unorthodox institutional practices – Taiwan and Korea went for import liberalization along with selective subsidization of exports, Singapore attracted foreign investment by increasing public investment through generous tax incentives, Botswana has kept the largest export industry under state ownership and maintained capital controls on financial inflows, etc. Hong Kong’s policy closeness to Laissez Faire is underscored by context-specificity Hong Kong’s important role in trade, Capital flight from China and institutions left by the British.
3. Institutional innovations do not travel well - China’s two track strategy of reforms differed widely from India’s gradualism, and yet both succeeded relatively to the rest of the world’s experiences with liberalization. Attempts to emulate successful policies often fail elsewhere. USSR’s attempt to copy China’s two track reform strategy failed. ISI worked in Brazil but failed in Argentina.
4. Sustaining growth is tougher than igniting it, and requires more extensive institutional reform – Sustainability of any growth strategy is the ultimate test of an economy’s durability. Growth in the short or medium doesn’t guarantee success in the long term. Growth collapsed in several developing economies during 1970s and 1980s (Africa and Latin America) and in Indonesia in 1997-98 (when Institutional weaknesses enforced Indonesia to face and withstand the crisis).

E | A Two Pronged Growth Strategy
A. An investment strategy to kick-start growth – In the short run, for a low-level equilibrium economy, Investment must be incentivized. Investment here encompasses activities like expanding capacity, employing new technology, producing new products, searching for new markets, and so on. Such investment can either be encouraged by limiting government imposed barriers to entrepreneurship (like policy biases or regulatory barriers or institutional failures) or by implementing reforms that ensures government’s gradual movement away from the private sector’s way by increasing crowing in investment and entrepreneurship with positive inducements.

Approach I: Government Failures
Major failures that inhibit a sound investment climate include macroeconomic instability, high inflation, high government wages that distort the functioning of labor markets, large tax burdens, arbitrary regulations, burdensome licensing requirements, corruption, etc. Stern (2001) emphasizes need for enterprise surveys and other techniques to uncover which of these problems are most responsible.

Approach II: Market Failures
Market imperfections inherent in low-income environments can block investment and entrepreneurship in non-traditional activities. Natural barriers to industrialization may include absence of learning by doing, absence of human capital externalities and inefficient learning about costs, besides coordination failures like wage premium in manufacturing, under-optimal infrastructure, absence of specialized intermediate inputs and absence of spillovers associated with wealth distribution.

The first set of issues relate to adapting of existing technologies while the second set deals with innovation to create newer technology. The first type of learning is essential in the early stages of development.
Coordination failures induced by scale economies deals with moving out of a low-level equilibrium economy to a high level equilibrium. If the profits in a given modern-sector depends upon \( n \), where \( n \) is the proportion of the economy already engaged in these activities, \( \pi^m(n) \) with \( d\pi^m(n)/dn > 0 \). If profits in traditional sectors is \( \pi^t \), and if \( \pi^m(0) < \pi^t \) and \( \pi^m(1) > \pi^t \), then \( n=0 \) and \( n=1 \) are both possible equilibria and industrialization will not happen in an economy with \( n=0 \).

**Where to Start?**

The two approaches above can help frame policy decisions and think about priorities in the short run. Local conditions would determine which approach would bear most fruitful results. While creative ideas like China’s TVEs could be a brilliant policy decision, traditional strategies may sometimes be ineffective, as in Latin America in the 90s.

**B. Institution-Building Strategy to sustain growth.**

In the long run, it is mainly the acquisition of high-quality institutions that will ensure convergence with the living standards of advanced countries. High quality institutions both informal (moral codes) and formal (legal rules enforced through third parties) would induce socially desirable behavior on part of the economic agents. Emphasis is placed on democratic institutions and civil liberties which are important by themselves and also because they help societies choose from the available economic institutions.

There are large differences between the institutional arrangements across countries with only modest convergence noted in the recent years and largely in financial market practices. Reasons for institutional non-convergence include differences in social preferences resulting in different institutional choices and complementaries among different parts of the institutional landscape that can generate hysteresis and path dependence. Economic literature has recognized that high quality institutions can take a multitude of forms and economic convergence need not necessarily entail institutional convergence. There are costs and benefits associated with ‘experimentation’ and ‘copycatting’. Institutional arrangements than prove successful in one country may have negative and positive spillovers in other countries.

Best of Luck 😊

EurekaWow Team

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