Economic Growth and Development
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Lecture-08
Strategies of Economic Development & Growth – III

Hello and welcome to lecture 8 of the NPTEL MOOCs course on Economic Growth and Development. We are continuing with the discussion on the strategies of various economic development and growth models.

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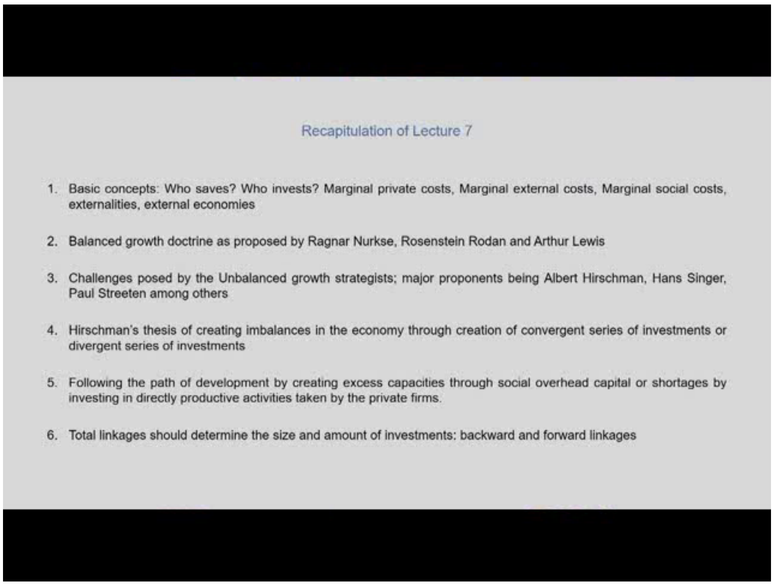

In the last class, we looked at the model of balanced growth and the unbalanced growth. The balanced growth strategy has mostly been forwarded as a doctrine, and the challenges post to the balanced growth model in the form of unbalanced growth strategy was also discussed in the last class. The last class was planned in such a manner that in the beginning we started with discussion of a few basic concepts. We looked at who are who saves? Who invest? We went into some conceptual clarity with regard to the concept of savings and investment.

We also look that some of the basic concepts that are used in economics to be able to understand growth models, such as the marginal private cost, marginal external cost and the marginal social cost. And we also saw how they give rise to external economies or and also externalities as we understand the in economics. After initiating some of the basic concepts we look at the balanced growth doctrine proponents; in lecture 5, we had gone into the details of Ragnar Nurkse contribution to balanced growth doctrine. In the last lecture in lecture 6 we looked at in lecture 7 we looked at the contributions of Rosenstein Rodan and Arthur Lewis.

We saw that Rosenstein Rodan had come up with a formulation of the balanced growth model particularly in the context of eastern and south east European countries. He was posing it as a problem of under development of these countries, which were completely cut off from foreign investments. And he was looking at international division of labour, and how complementarities in demanded and supply can be created for the large agrarian labour force existing in the eastern and south eastern, southern eastern European countries. We also look at the prepositions of Arthur Lewis in which he was talking about balanced growth or balanced development between different sectors such as agriculture manufacturing and the and the international trade sector, or the foreign as far as they exports a concerned.

So, what we were basically trying to do is, a part of balance with doctrine was that we saw that there are different forms of strategies that have been proposed as a part of this doctrine. And there are lot of differences in the way these this doctrine has been proposed; however, in the standard economic literature there all put together in the form of balanced growth doctrine. A large part of last class was also devoted to the challenges posed by the unbalanced growth strategies. And in the unbalanced growth model we looked at mainly albert Hirschman contribution to the unbalanced growth strategy. All though we in passing discuss that there are various proponents and sum of the 3 most important proponents are Hirschman singer and Paul Streeten as well as Hirschman thesis of unbalanced growth strategy is concerned, he was more for creating of imbalances within the economy through creation of convergent series of investments or divergent series of investments.

And his proposal was that convergent series of investment are something which are largely taken by the private entities the private enterprises. The divergent series of investments are taken up by the public agencies. And the question was to choose which part of development will create a smooth process of economic development. And his proposition was that this can be done by creating investments by through excess capacities, by creating infrastructures like social overhead capital, or creating shortages by investment in directly productive activities taken up by the private firms.

So, essentially what he was proposing was that if social overhead capital is created in the beginning, then the private entities will be able to take advantage or appropriate the economy is that are create economics of scale that are created by the social overhead capital. And it will be easier for them to invest in directly reproductive activities and hence create output for final consumption. However, if investments are first made on directly productive activities by creating shortages of social overhead capital, then it will be difficult for the private entities to carry on with investments, because they have to put the pressure back political pressure back on the governments to be able to create social overhead capital.

And the economic system works in such a manner that it is essentially difficult to carry out investment in social overhead capital after creation of directly productive activities or output through directive productive activities. So, the best way forward that was proposed by professor Hirschman was to be able to ensure that there is massive government investments in social overhead capital, which will then create more output and the development path can then move on to directly productive activities, ultimately leading to a growth of national income or gross national product.

After the proposition made by Hirschman with regard to investment in social overhead capital we also look that Hirschman's focus on carrying out investments in only those industries which have the maximum linkages. So, he was talking about identifying industries which have forward linkages and backward linkages. So, that simultaneous investment can be carried out in various industries. So, it was important that we look at the total linkages that are being created in the economy by adding of the backward linkage linkages in the forward linkages.

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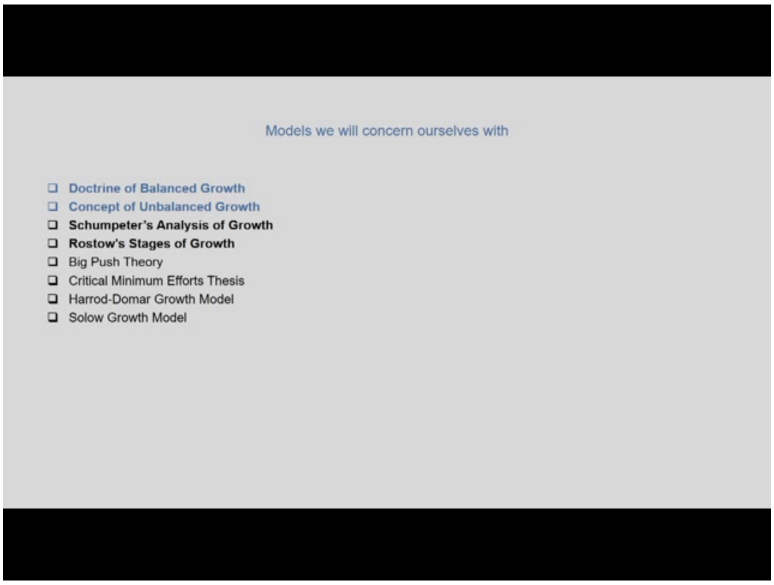

Now, today's lecture we will focus on Schumpeter's analysis of growth and Rostow's stages of growth theory. In the last class I had given you a snapshot or a timeline of development thinking that has come to be since the late 19th century. And if you look at the timeline of development thinking we can probably put Schumpeters analysis growth in the category of development thinkers, that look that development as universal history. And of course Rostow stages of growth is one of the most important structural models of growth that have come to be.

So, in this class I will, this class is divided into 2 is planned in such a manner that I will be focusing on 2 strategies of development or growth if you may like to call them. One is Schumpeter's analysis of growth, the second is Rostow stages of growth. And after discussing the major characteristics of these 2 strategies of development I will again go back to clarifying some of the basic concepts that are important to understand growth models. And that are important to understand lectures in economics. Since, and this is for the benefit of all students coming from different disciplines.

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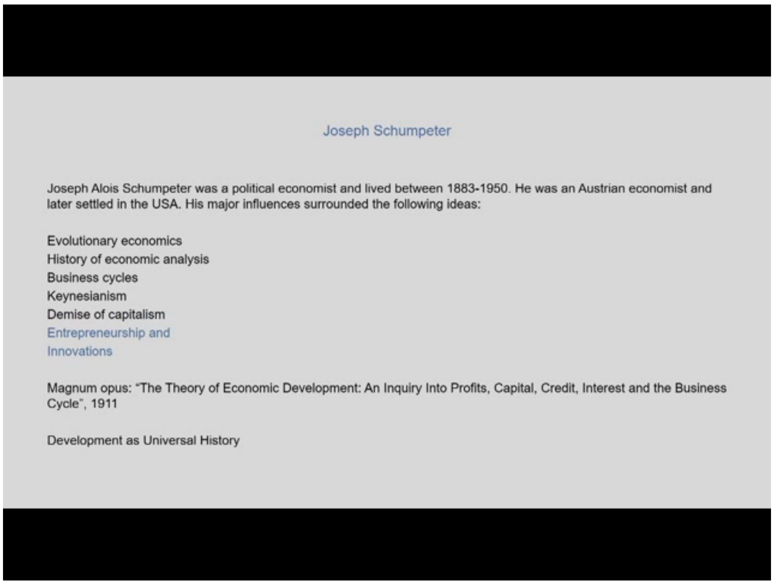

Joseph Schumpeter was can be identified as a political economist and he lived between 1853 and 1950. He was an Austrian economist.

And later went into Harvard and settle in USA. His major influences surround the ideas of what we today know is evolutionary economics. He is also written widely on the history of economic analysis in the towards the later part of his career he was writing on business cycles engaging a lot with Keynesian economics, and taking from Maxian study on capitalism. He also had a great deal to say about the demise of capitalism; however, the large part of his focus was on entrepreneurship and innovations. And some of you who are conversant with some of the basic text books of microeconomics would know that, we are introduced to; when we are introduced to the study of factors of production.

Thus, the most common example of fact is the production that are taken up are land, labour and capital. And many of you would see that in the later years the term organization also started getting added on to the fact the very basic fact is the production. This term organization or entrepreneurial activities within the economy that is a crucial factor of production is the contribution of professor Schumpeter to economic analysis.

Now, consider the situation that in the early 1960's Ghana and South Korea were almost at similar levels of development; however, South Korea the East Asian country went on to become one of the most industrialized countries of the world. Whereas, Ghana continue to be one of the most underdeveloped African countries. South Korea advanced to such a great degree that it continue it ended up providing a developmental aid and assistance to many African countries. Whereas, Ghana has gone through a series of frustrating cools that has been economic stagnation and negligible participation in the global trading system in spite of they having gold minds and world class cocoa plantations.

So, these images basically talk to us about inequality existing in the world. Now if one has to talk about economic transformation taking place or inequalities getting brazed, it is not this is not a thesis which emerged most recently a professor Schumpeter can be given the credit of talking about economic transformation well ahead of time. And the seeds of rapid economic transformation, the ideas of rapid economic transformation he brought out in his seminal work which in the form of a book which he which came out in 1911, title the theory of economic development an enquiry into profits capital credit interest and business cycle.

So, in this book, this book was considered to be ground breaking. This in this book Schumpeter outlined a very important role of innovation and entrepreneurship in economic development. He was in fact, making a very bold attempt in departing from the existing theories of economic equilibrium that dominated classical economics text of this time. And Schumpeter's work was appropriately called the theory of economic development, because it described the world that is analogous to large parts of today's emerging countries.

In fact Schumpeter's ideas on entrepreneurship and innovation have been largely concerned in the context, has been largely talked about in the context of the emerging countries. At first glance it would appear that the lack of application of Schumpeter's ideas to emerging countries was a historical oversight, given that most of them were colonies at the time of his writing. However, these countries were desperately searching for alternative development models that would free them from dependence on their former colonial masters. Now, Schumpeter was writing during the ascendancy of new classical economics. And that placed considerable emphasis new classical economics placed considerable emphasis on mathematical equilibrium models and Schumpeter was constantly rejecting them.

He tried to frame economic development as an as an evolutionary process. So, he was laying the foundations of looking at economics as a very complex system. It is therefore, not surprising that Schumpeter's work has been consistently excluded from compilation of studies on economic development. Although, it has seen reemergence in the 1990's particularly with the coming in of the new growth theory and growth models were innovations have been playing a very the knowledge economy the emergence of the, knowledge economy in contributing to economic growth and not just human capital formation.

Schumpeter's all of course, it is written widely on this subject till his death in 1950.

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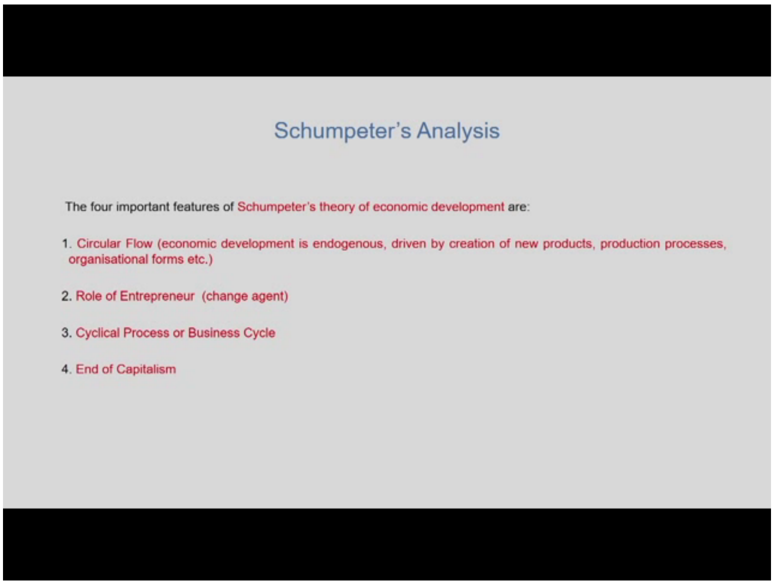

But some of the most important things with regard to ideas with regard to Schumpeter's theory of economic development that are discussed are the following. The one is circular flow, second is the role of entrepreneur or the role of entrepreneur as a change agent. Third is the cyclical process or business cycle and 4th is end of capitalism. Schumpeter taking from marks was also talking about the end of capitalism through the process of what he liked to call is creative destruction.

Now, what is this complex system? The economy as a complex system the Schumpeter was talking about. Schumpeter was mostly concerned with overall system transformation in the same way that his critics wanted to see rapid economic change in emerging countries. So, he pioneer the application of complex systems thinking to economic development. And he was mostly concerned at looking at development or change over time, which is why he adopted and evolutionary approach that recognize the importance of history.

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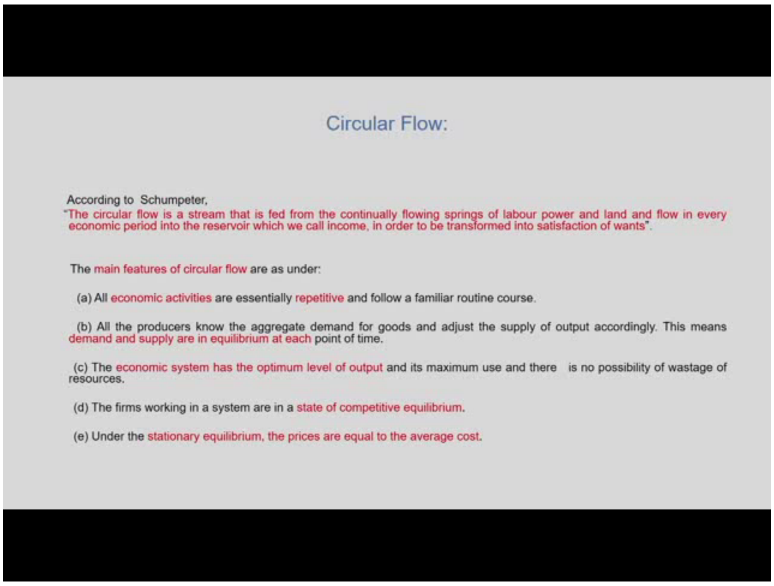

Now, in the so he his idea was that there is static equilibrium which the new classical economics were also talking about, and what were the components what were the major characteristics of this static equilibrium there is a circular flow that is taking place within this model.

A first is that all there are there is there are economic activities taking place in the static equilibrium model. And these economic activities are essentially repetitive, and they follow familiar routine course. So, there are there is a group of suppliers and there are group of consume the producers and consumers. All the producers no aggregate demand for goods and their just the supply of output accordingly. This means a demand and supply are in equilibrium at each point of time. And the production processes are such that the economic system is producing an optimum level of output. And it is maximum use and there is no possibility of wastage of resources. And the forms are working in a state of competitive equilibrium. Under the stationary equilibrium situation, the prices are equal to the average cost.

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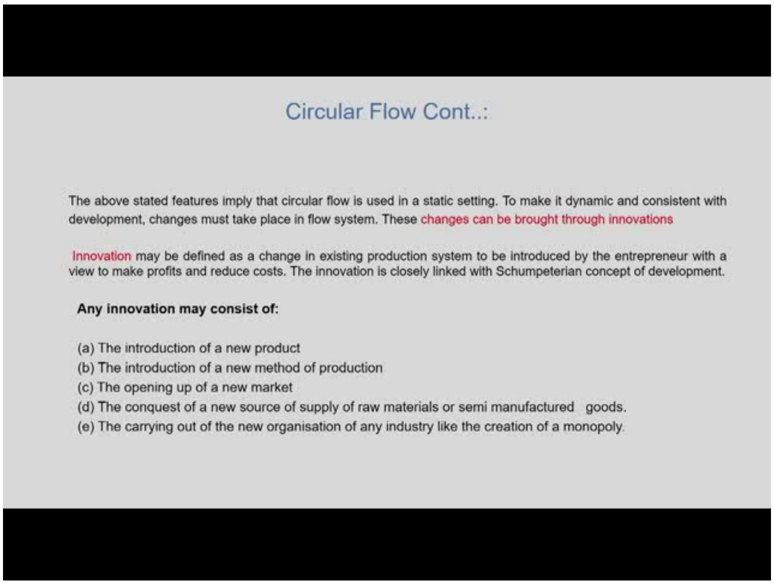

And this is the circular flow of economic activities that is taking place within this statics settings. Now given the starting statics setting, he proposes that to make a dynamic and consistent with development changes must take place in the flow system. Changes must take place in this equilibrium system and these changes can be brought through innovations. Even he is talking about innovations he is talking about different kinds of innovations here then maybe in innovation in terms of introduction of a new product. Or they may be introduction of a new method of production or opening up of new markets or finding new sources of supply of raw materials and sending manufactured goods or carrying out of new organization of an industry like the creation of a monopoly.

Definitionally inter when he was talking about innovation he basically meant that there is a change in the existing production system, and that is to be introduced by the entrepreneur with a view to making profits and reducing costs. So, this concept of innovation is closely linked with Schumpeterian concept of development. He is mostly some of the key elements here are that first. He considers the process of economic development to be endogenous. And driven by the creation of new combinations including new products new production methods new organization forms, new markets new sources of raw materials and inputs. And second these combinations are carried out by entrepreneurs who are motivated to undertake certain actions.

Thirdly the entrepreneur is a change agent here who's actions disturb the static equilibrium that we have just discussed before the steady state and because economic discontinuities. And finally, there will be the emergence of credit providing institutions such as the government that play a key role in stimulating entrepreneurial activities. In his view it is the credit providing institutions that take risk by providing funding to entrepreneurs. Let me repeat this system of circular flow proposed by Schumpeter once again. So, he saying that he is giving a very key role to entrepreneurs and innovations in creating this equilibrium within this circular flow system.

And like the neoclassical economics is also beginning his analysis with a static equilibrium position. And the static equilibrium position is a competitive equilibrium by the producers and the consumers are in full information about what is happening in the market, the producers know what is the aggregate demand for goods and they have adjusted that supply of output accordingly. Therefore, there is a demand and supply equilibrium and each point of time. And the economic system is producing optimum level of output and there is no wastage of resources anywhere which means that there is full employment equilibrium in this system.

Now, given this circular flow of economic activities that is happening within this competitive equilibrium system. If there is something that needs to make a dynamic and consistent with development if economic development has to take place, some kind of creative destruction must happen. And this creative destruction or these changes can be brought through the role of innovations. And innovation have to be carried out by the entrepreneurs is what is preposition is. And this innovation can be of various kinds, the innovation can be in the form of a new product or new production processes. It can be identification of new markets finding of new markets. Finding out new sources of supply of raw materials and semi manufactured goods and so on and so forth.

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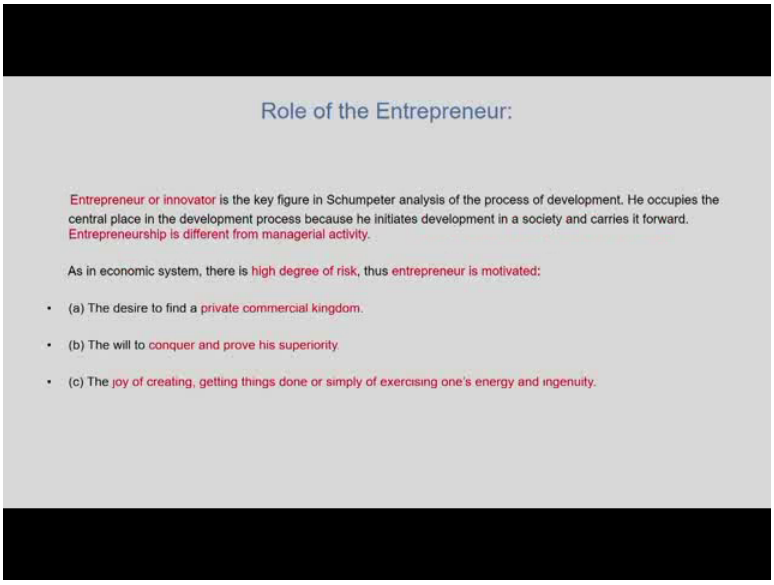

And there are certain special characteristics that that this entrepreneur or innovator is supposed to be possessing in the Schumpeterian analysis of the process of development. The entrepreneur occupies the central place in the development process, because he initiates development in a society and carries it forward. And he is very cautious in telling us that entrepreneurship for entrepreneur is very different from managerial activities of the organization.

It is not that the organization has staff and there are managerial activities being carried out by the staff, the entrepreneur is something who is a someone here who is the risk taker, and who is much superior than the managerial staff carrying out there every day managerial tasks. The entrepreneur is someone who gets a lot of joy out of creating getting things done or simply of exercising his energy and ingenuity.

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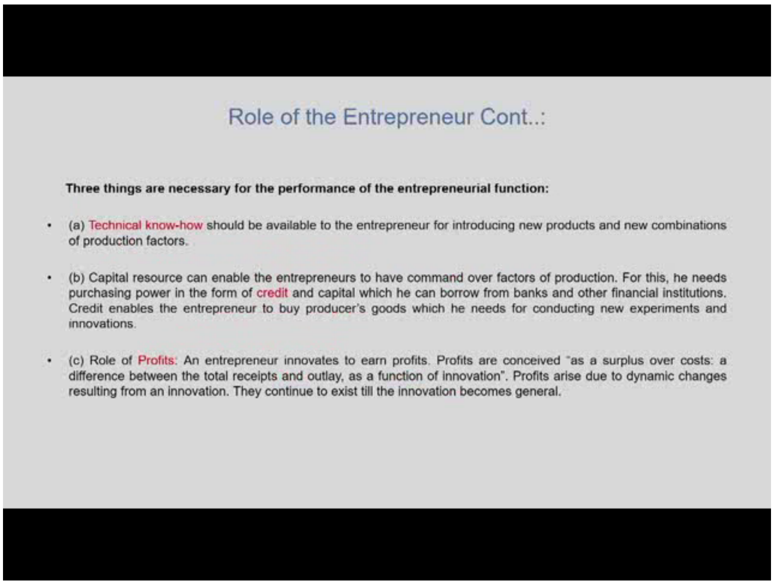

And there are number of things that are necessary for the performance of this entrepreneurial function. The one is of course, that should be proper technical know how it should be available to the entrepreneur for introducing new products and new combinations of factor products. Capital resource should be made available to the entrepreneurs through the banks and other financial institutions, because credit is the one of the factor that enables the entrepreneur to buy produces goods which he needs for conducting of new experiments and innovations.

There is also role of profits as per as the function of the entrepreneur is concerned. He says that an entrepreneur, why does an entrepreneur innovate the entrepreneur innovates, because he wants to earn profits and profits are conceived as a surplus over costs here a difference between the total receipts and outlay. So, profits arise due to the dynamic changes resulting from an innovation. So, the static equilibrium constitutes a circular flow and to be able to break the circular flow some amount of dynamism need to come into the into the system into the static equilibrium model. And this dynamism can come in by breaking the circular flow by bringing in innovations and providing a key role to the entrepreneur.

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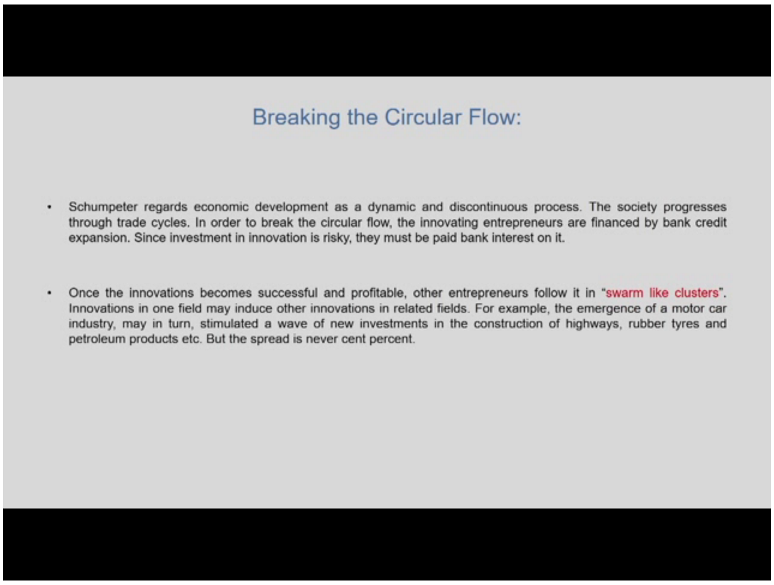

So, his theory of economic development basically says that, it is a dynamic economic development itself is a dynamic and discontinuous process, and society progressive through trade cycles. And in order to break the circular flow the innovating entrepreneurs are financed by bank credit expansion. Schumpeter took example of the emergence of railroads as one of the ways in which creative destruction can take place. In his destructive Schumpeter's destructive model was railroads, which is the key infrastructure that had profoundly transform the world he studied. For Schumpeter railroads were not just a source of economic development, but also a driving force in improving human welfare. And on rail road expansion did not involve creating new technologies, but deploying existing ones.

What did it involved it involve the leadership of groups in successfully dealing with politicians and local interest, in the solution of problems of management and development in the regions of the roads opened up. So, the entrepreneurial function was performed by either individuals or groups of people, who starts for unrelated to the act of taking financial risks. So, Schumpeter's example of railroads has 2 important policy implications. First is that it underscores the importance of physical infrastructure in emerging countries. And such infrastructure and the associated institutional changes create opportunities for entrepreneurs not only to participate in it is construction, but also to expand opportunities for new businesses.

The second implication is that infrastructure transforms the economic system in a discontinuous way, by not only disrupting previous economic practices, but also by expanding opportunities for new economic combinations. In his letter writings Schumpeter also brought in the idea of business cycle largely influenced by Keynes.

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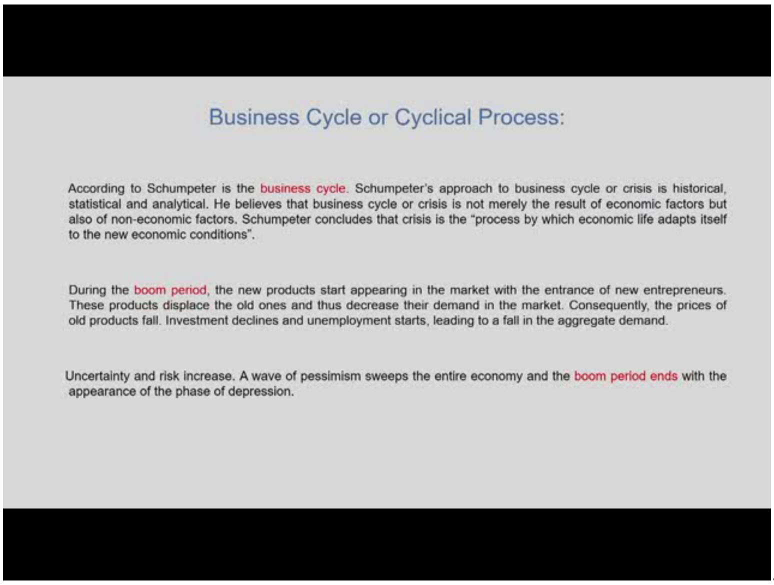

And in however, Schumpeter approach to business cycle is historical and statistical and analytical. He believed that it is not just economic factors that contribute to the corporation of the business cycle or crisis, but also noneconomic factors.

And Schumpeter concluded that crisis is the process by which economic life adapt itself to the new economic conditions. He was often making reference to economic sociology. And he was saying that there is a lot of non-economic factors that go on to the creation of business cycles within the economy. So, he will also talking about the boom periods and depression periods, during the boom period, the new product start appearing in the market with entrance of new entrepreneurs.

The old ones disappear and consequently the prices of old products fall, but at also leads to a decline in investment and leads to unemployment. And therefore, there is a fall in aggregate demand within the economy giving rise to uncertainty and risks. And then a wave of pessimism sweeps the entire economy the boom periods end and the depression phase starts.

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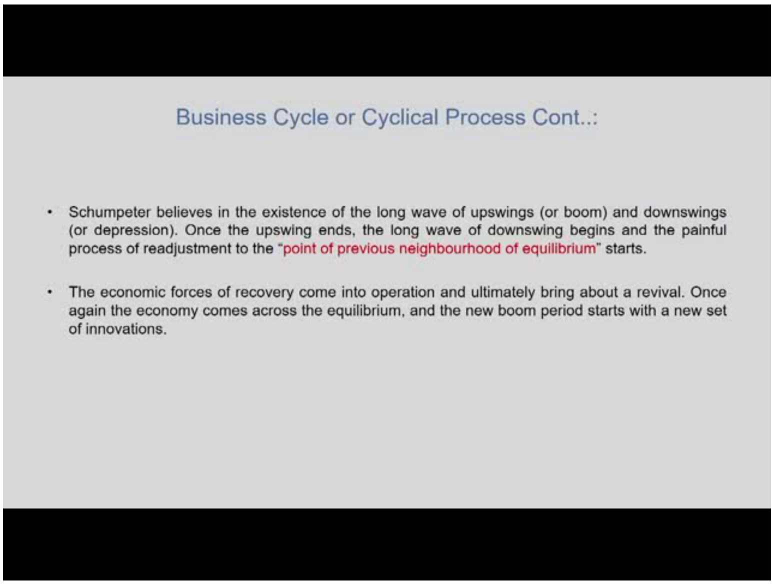

Schumpeter believed in the existence of long waves of up swings and down swings. And once the upswing ends according to him the long wave of downswing begins and the painful process of readjustment starts. And the economic forces of recovery come into operation and ultimately bring about a revival.

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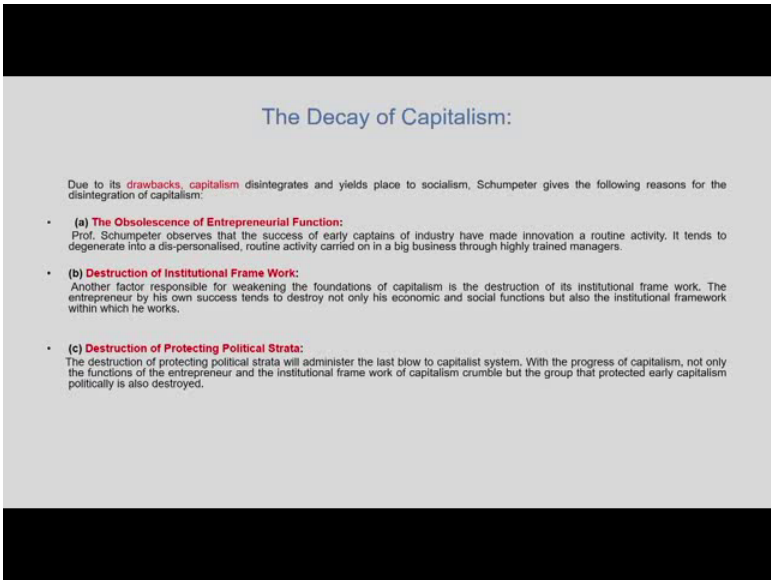

Drawing from Marx Schumpeter was also talking about the end of capitalism. He however, there is a difference between Marxian theory of end of capitalism and

Schumpeter's analysis of the end of capitalism. Marx was basically talking about the overthrow of capitalism by a class of proletarians.

But Schumpeter was talking about the end of capitalism because of institutional decay within capitalism. And these are some of important points that he was trying to make, first is the obsolescence of the entrepreneurial function. Schumpeter observed that the success of early captains of industry have made innovation a routine activity. It tends to degenerate into a dis personalised routine activity carried on in a business through trained managers. Therefore, the entrepreneurial function itself decays. There may be destruction of institutional framework, which was another factor responsible for weakening the foundations of capitalism.

The entrepreneur by his own success may tend to destroy not only his economic and social functions, but also the institutional framework within which he works. And another way in which this may become possible is the destruction of protecting political starta with the progress of capitalism not only the functions of the entrepreneur and the institutional framework of capitalism crumble, but the group that protected early capitalism politically is also destroyed. So, basically how do we fit Schumpeter analysis of economic development within the larger canvas of growth and development.

In the larger canvas of growth and development we can categorize Schumpeter under the development thinkers, who look that development as universal history. That the reason that economic development can be analyzed in an in the in an evolutionary process. And Schumpeter was giving a very big role to innovations and the entrepreneur. He says that in a static equilibrium where the producers and the consumers are in a static equilibrium where demand is equal to supply, and there is full employment of resources there is no resource wastage taking place in the economy.

Economic development can take place only if there is constant dynamism within the economy. And is dynamism can be provided not just by human capital formation, but by the role played by a superhuman, a superhuman who is basically in the form of an innovator or an entrepreneur. So, that was the important he was giving to entrepreneurship. And there are through this formulation he was also trying to say that, he was trying to lay he was trying to lay a lot of emphasis on the idea of human capabilities. And government intervention or government support that should be provided to the private entrepreneur to be able to take the risks and create discontinuity within in within the economy by disturbing the static equilibrium and bringing about economic development.

In his later writings he started writing about business cycles, but he was one of the economist who was giving a lot of importance to non-economic factors that may create business cycles. So, the and this is how we can sum up Schumpeter's analysis of economic development; that it is, innovations and support to innovations that can bring about economic development within a country. However, if we look at the debate of the development of the 1950's and the 1960's you would see that a very little attention has been given to Schumpeter's ideas and particularly in the context of the emerging countries.

And the core of the rejection was basically an epistemological clash between a Schumpeter's systems approach to economic transformation. And that of his critics who are dear to a more static linear and incremental view of economic change. So, Schumpeter central themes of innovation and entrepreneurship focused on endogenous transformation and evolution of economies; while his critics who focused on the importance of central planning relied on equilibrium models reflected in the role of bureaucracy as economic sources of stability.

Now, after having looked at the basic ideas of Schumpeter let us now move on to Walt Whitman Rostow. In the last class we categorise Rostow as one of those thinkers, who proposed classical theories of economic development, who looked at linear stages of growth models.

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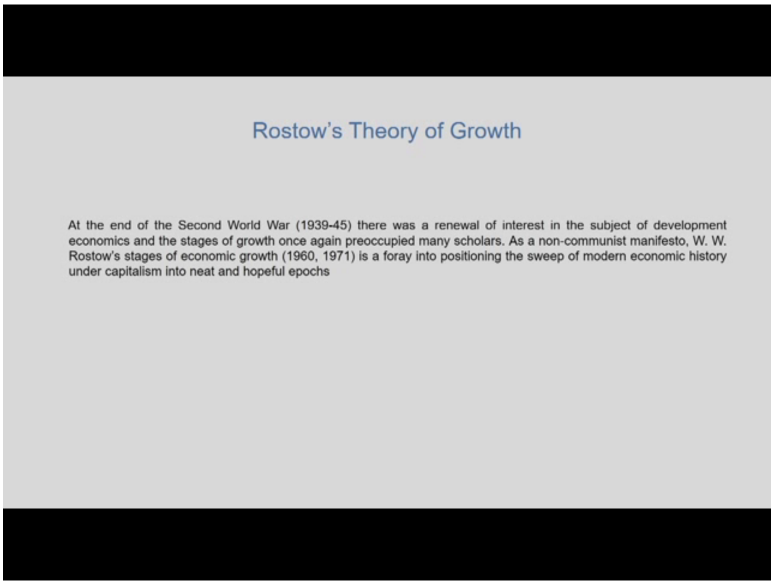

And Rostow was one of those very influential thinkers of the 1950's and 1960's, who viewed the process of development as a sequence of historical stages. And the view popularized and this view was largely popularized by Rostow. And he was writing after the Second World War and he proposed his stages of growth theory as a non communist manifesto, which is supposed to bring about a modern economic history under capitalism.

Rostow was introducing theory of growth in 5 universal stages. And his proposition was that, all countries will necessarily pass through these 5 stages. So, this was basic he was building on a historical pattern of the then developed countries, and his claim was the transition from under development would necessarily pass through these 5 stages.

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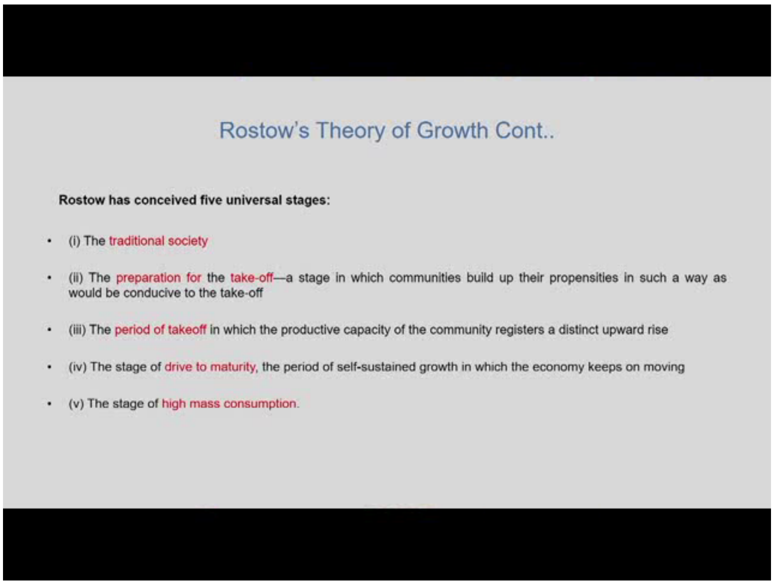

That of the traditional society, the pre-conditions for takeoff, the period of takeoff the drive to maturity and the age of high mass consumption. And the decisive stage is a take off stage through which developing countries are expected to transit considering to be considered to be necessary to induce per capita growth.

So, basically his proposition was it all and this was based upon the experiences of the then developed countries at the time when the debate on growth and development was taking momentum. These are necessarily the 5 stages of the countries will pass through. And let us look at what are the characteristics of these 5 stages and let me also bring to your attention at this point that a lot of discussion has gone on with regard to various country categorizations that, whether they have reached the take off stage and what happens after the take off stage.

So, there is a lot of debate and literature surrounding this idea of takeoff and weather some countries have taken off, and if some countries took off what are the conditions what are the pre-conditions under which they took off, and some countries are not taken off what are the conditions under which we could not take off. So, let us now look at some of the characteristics of each of these 5 universal stages that Rostow was talking about. The first was he was talking about a traditional society a traditional society is not the simplest and primitive forms of social organization.

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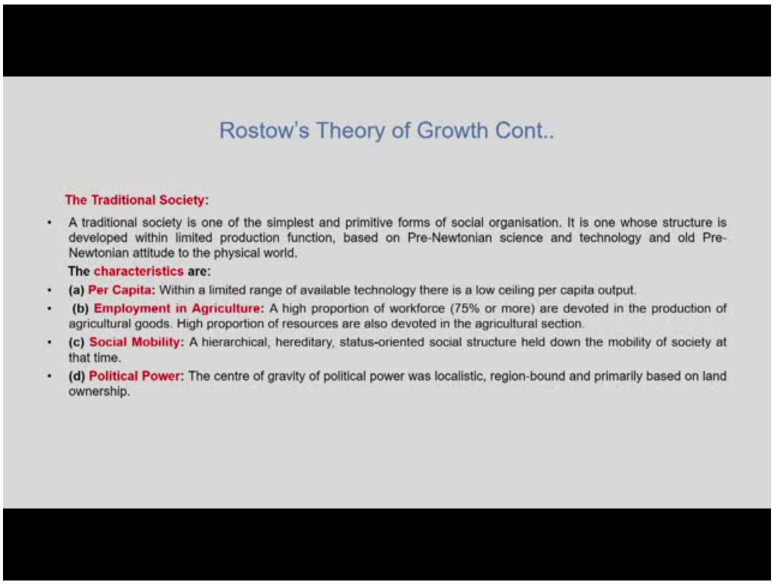

And the major characteristics of this traditional society are the they have very low per capita incomes is a very limited range of available technology.

And there is the ceiling on per capita output low ceiling per of per capita output. Second important characteristic was that a very large proportion of the workforce in this society is employed in agriculture. And they are devoted in the production of agricultural goods. High proportion of resources are also developed in the; are also devoted to the agricultural section. And careful look at these characteristics will tell you that most of the so called under developed or less developed countries of the world qualified to be categorized under this traditional society.

The third important point was with regard to social mobility. That there is very less mobility as far as the social status of individuals with in this traditional society is concerned. In other words, the traditional society is very hierarchical hereditary status oriented social structure. In the Indian context you can think of cast as one of the indicators of the hierarchy that probably Rostow is talking about. So, which means in a traditional society it is almost impossible for people to change to 2 people to move from one social hierarchy to another. Another characteristic of traditional society was political power the centre of gravity of political power is localistic region bound and primarily based on land ownership.

So, the more land ownership the more the political power. So, it is as set based land ownership it is not very democratic in nature.

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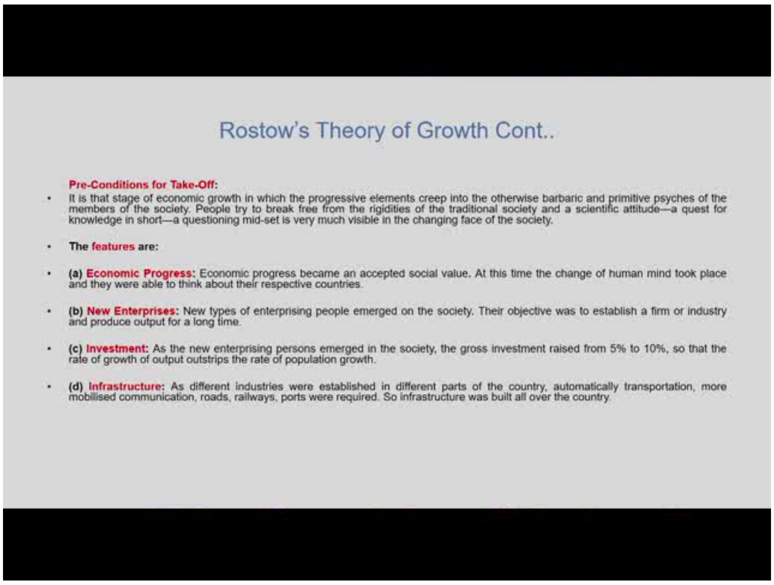

And when the movement from the traditional society to the pre-conditions for takeoff stage takes place, then there are certain progressive elements that must have creeped in into this otherwise barbaric and primitive psyches of members of society. So, people are trying to break free from the rigidities of the traditional society, and a scientific attitude or a request for knowledge and there is a questioning mindset of people which is emerging in a such a society.

And what are the features of such a society that is economic progress, modern education is being imported to the people in the society. So, economic progress becomes an accepted social value, and the change of human mind is taking place as they are able to think about the respective countries. New enterprises are emerging the objective is to establish a firm or industry and produce output for a long time.

Investments are taking place; new infrastructure is getting created. In other words, modern science and technology has made for as into the so called traditional society. And that provide the pre-condition for take-off to the next stage, which is the state that all developing countries are supposed to live to. Apart from these characteristics the other conditions of the pre-conditions for takeoff stage is that creation of credit institutions.

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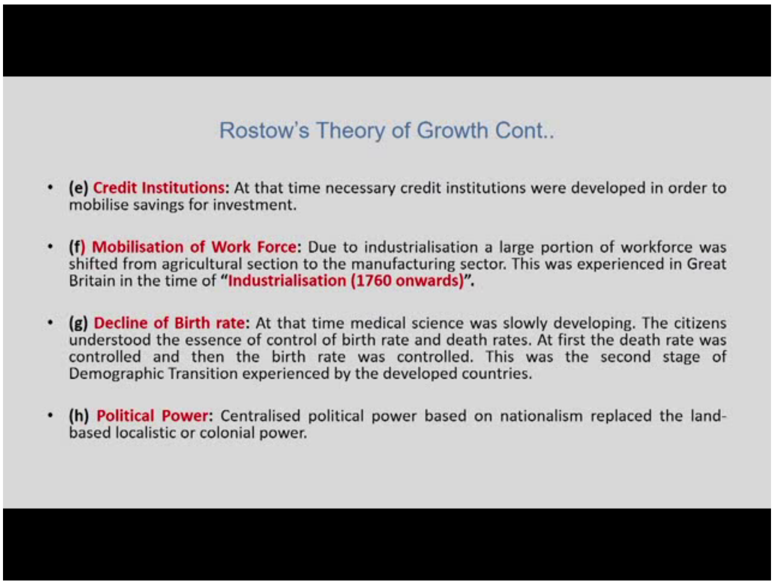

Sufficient credit institutions may be created; for example, the banking system the financial system so that investment can take place within the economy. Mobilization of work force due to industrialization a large proportion of work force can be shifted from agriculture to the manufacturing sector. And this is something which was experienced in Britain in the time of industrialization the post industrial period and so on.

Another characteristic is again the progress of modern science and technology that can bring down birth rates. So, medical science is supposed to be slowly developing during the pre-conditions to take of citizens are supposed to understand the essence of control of birth rate and the, and bringing down death rates. At first the death rate is to be controlled and then the birth rate is to be controlled. So, the second stage is a stage of demographic transition which is experience by the developed countries; where population growth is high, because both death rate and a population stabilizing because both death rates and birth dates are declining. Also political power is centralized based on nationalism replacing the land based localistic or colonial power.

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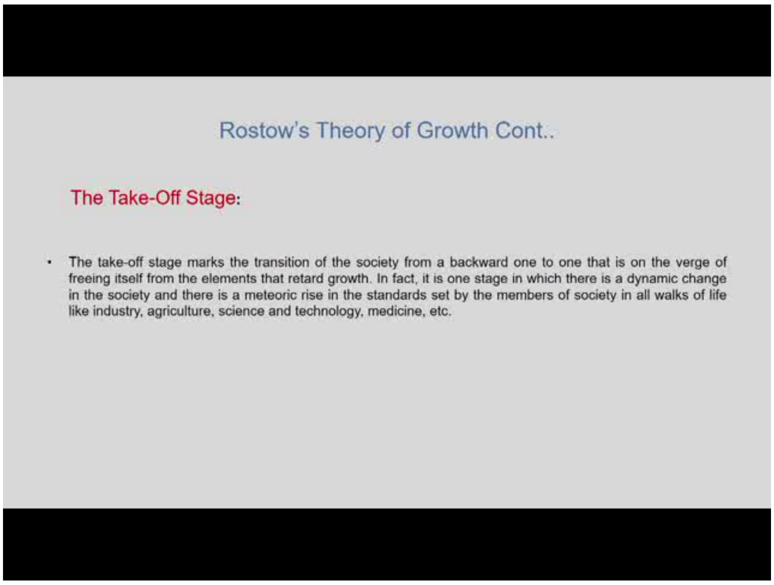

Now, after the pre-conditions of our the takeoff change, the take off stage is basically it marks the transition of the society traditional society from a backward to one which is on the verge of freeing itself from the elements that bring down it is growth. And it is one stage and which is a dynamic change in the society, and there is a meteoric rise in the standard set by the members of society in industry in agriculture science and technology medicine etcetera. And this is the path of development that was taken by the highly industrialized nations of the world.

And for a large part of the 1950's 1960's development literature actually focused on trying to device development policies or economic policies, that can at least bring about the transition of the of the so called less develop countries the traditional society stage to the stage of takeoff. So, there are certain sophisticated characteristics of the takeoff stage as well.

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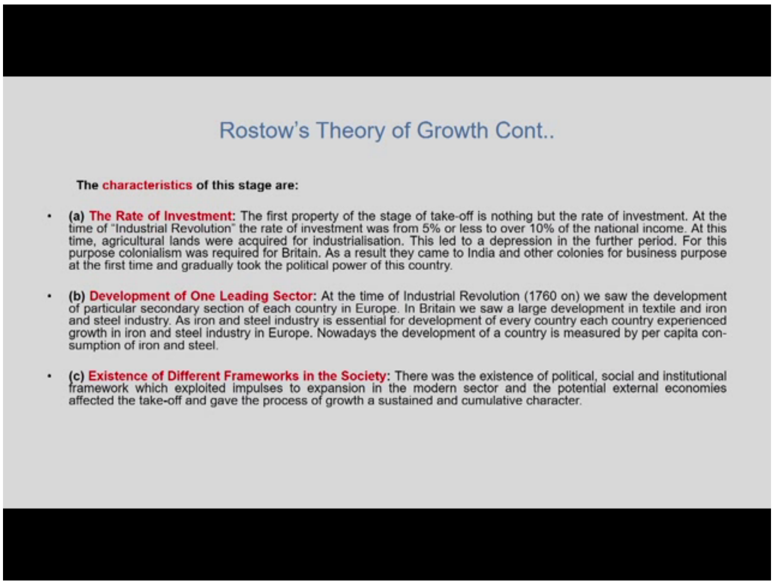

First is the rate of investment. The take off stage should have very high rates of investment. For this purpose, and for example, in India after the attainment of independence rate of investment was increased in the economy by carrying out the policy of industrialization.

Then the second characteristic is development of one leading sector. And invariably the in the take off stage the sector which receives the largest investment is the industrial sector and existence of different frameworks in the society. So, there is existence of political social and institutional framework; which exploit impulse is to expansion in the modern sector, and the potential external economies affect the takeoff and gave the process of growth a sustained and cumulative character.

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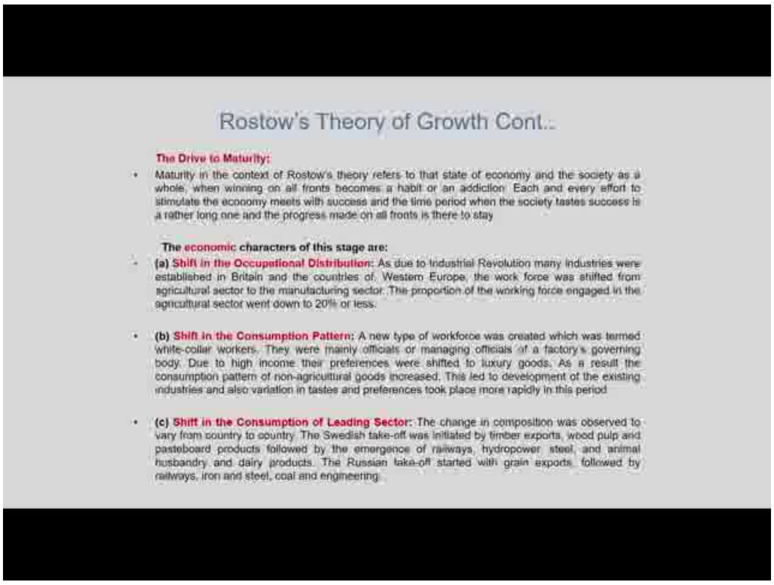

The 4th stage is the stage of drive to maturity..

Maturity in the context of Rostows theory basically means that a society is advancing on all fronts. And each and every effort to stimulate the economy meets with success, and the time period when a society takes success is a rather long one and progress made on all friends is there to stay. That is the certain economic characters of this stage, one is there is a shift in occupational distribution. For example, due to industrial revolution many industries were established in Britain and invest in European countries the workforce shifted from agricultural to the manufacturing sector. This drive to maturity is when where the shift from agriculture to the manufacturing sector is taking place or has taken place to a very large extent.

And this is something which is being seen which was claimed was being seen in the context of many so called underdeveloped countries in the 1970's in the 1980's when the boost to industrialization was taking place. The second economic character of this drive to maturity there is a shift in consumption pattern. A new type of work force gets created that are termed as white collar workers, and they are mainly officials a managing officials of factories governing body. They due to high income the preferences also shifts to necessary from necessary to luxury goods they consuming more of comfort and luxury goods.

As a result, the consumption pattern of non-agricultural goods also increase and this lead to development of existing industries, and variation and tastes and preferences taking place more rapidly in this period this also a shift in consumption of the leading sector the change in composition was observed from to vary from country. To country other for example, the Swedish takeoff was initiated by timber exports wood pulp and paste board products followed by the emergence of railways hydropower steel and animal husbandry and dairy products.

So, different countries may face may experience different kinds of development in this drive to maturity. That has to be one leading sector which takes the country, which move the country towards economic development.

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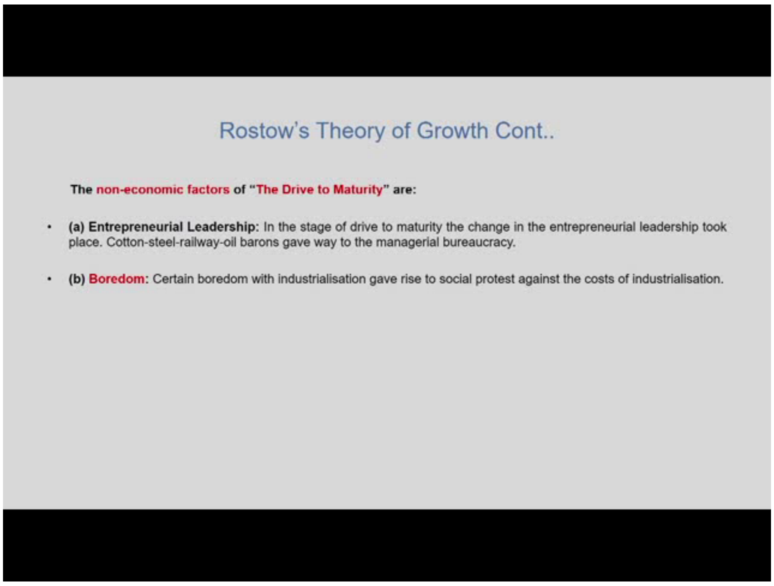

There are certain non-economic factors of the drive to maturity there are certain non-economic factors of the drive to maturity which were also identified by Rostow. One is entrepreneurial leadership which is one of the important drivers of this stage in drive to maturity. And the final stage of Rostow stages of growth was the very high stage of mass consumption where people are consuming mass it is a consumerist society and that is very high consumption of a consumer goods and services and so on.

Now, there is a lot of critique of the stages of grow theory, and I will like to pinpoint one of the criticism that has been dealt with very severely in the 1990's and the 2000; particularly is that, the stages of growth that was proposed propounded by Rostow has not been uniform in the so called developing countries of the world. Even today we see the coexistence of the traditional and the modern sector. And this is something which is also the criticism that was put forward as a challenge to Louis model of dual sector of agriculture industry.

So, there is a lot of so, there is a coexistence of the traditional and the modern sector. So, that take off to the high stage of growth weather is only consumption of high consumption of goods and services are highly consumerist society has actually not taken place in many of the and developing countries of the world. Although as per as the highly industrialized nations of the world a consent for example, Japan some of it may prove to be true. Therefore, the Rostow’s stages of economic growth model lost it is appeal among many economist particularly in the post 1980's and 1990's period.

Now, having given you a brief overview of what are the basic characteristics of Schumpeter and Rostows growth theories or theories of economic development. Let me run you through some of the very, very basic concepts which you one needs to know how to be able to have a good grasp over the growth models. In the last lecture I use the term referred to as multiplier and accelerator while I was discussing Hirschman’s thesis of unbalanced growth.

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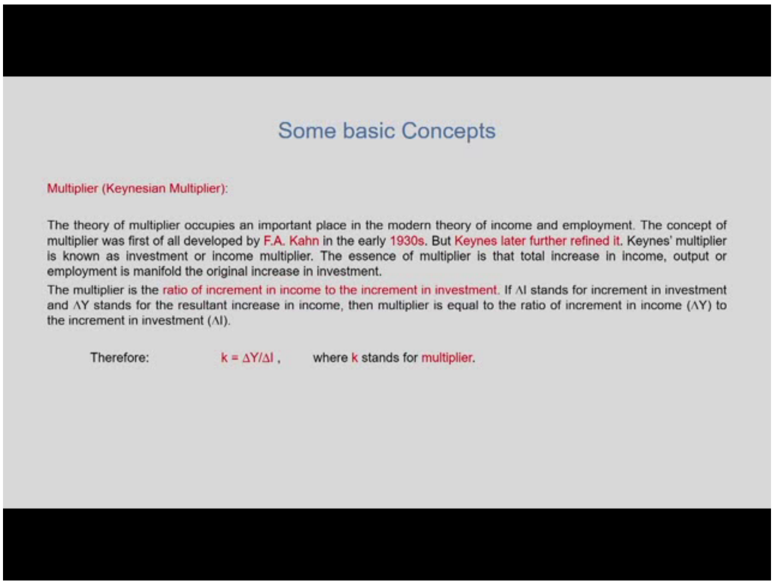

Now let me very briefly introduced to you what is a multiplier. So, in economics when we are dealing with growth models or macroeconomic aggregates we are referring to the Keynesian multiplier.

This is a concept which was worked done by Keynes, it was popularized by Keynes it was first developed by an economist called F A Khan in the early 1930's. But Keynes refined it and it basically means it is multiplied use is usually shown in the form of a ratio. And this is basically a ratio of change in income to change in investment. So, k is equal to delta Y by delta I. Here delta I stand for increment in investment and delta Y stands for the resultant increase in income. And multiplied is basically the ratio of increment in income to the increment in investment.

So, whenever there is an investment taking place in the economy, what is the rate at which income changes, and what are the forces that increases this income is what is captured by the multiplier. If as a result of for example, if as a result of investment of rupees 100 crores national income increases by rupees 300 crores in the multiplier is equal to 3. If as a result of investment of rupees 100 crores total national income increases by rupees 400 crores multiplier is 4.

So, the multiplier is therefore, the ratio of increment in income to increment in investment. And delta I stand for increment in investment and delta Y stands for increment in income. The question is why the increase in income is many times more than the initial increase in investment. Suppose government undertaker investment expenditure equal to rupees 100 crores on say some public works construction of rural roads. For this government will pay wages to the laborers engaged, prices for the materials to the suppliers, and remunerations to other factors who make contribution to the work of road building.

So, the total cost will amount rupees 100 crores. And this will increase incomes of people equal to rupees 100 crores, but this is not all. The people who receive 100 crores will spend a good part of (Refer Time: 43:50) consumer goods. Therefore, some marginal propensity to consume of the people will increase, and this 100 crores they will spend, let us say of this 100 crores they will spend rupees 80 crores and consumer goods; which would increase incomes of these people who supply consumer goods equal to rupees 80 crores. And with a every additional increase in income there will be progressive less is a part of the income received to be saved.

Thus, income will not increase will increase by only rupees 100 crores, which was initially invested in the construction of roads, but by many more times. So, the concept of multiplier is very important in macroeconomic understanding of growth, and how growth take place within the economy. Corresponding to the multiplier there is a concept of accelerator.

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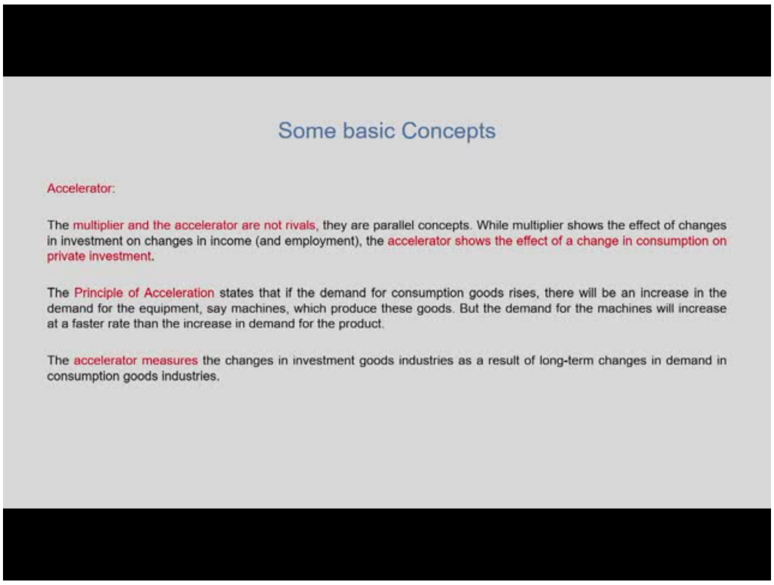

The accelerator basically measures the changes in investment goods industry as a result of long term changes in demand in consumption goods industries. So, the principle of acceleration states that if the demand for consumption goods rises, there will be an increase in the demand for equipment machines which produce these goods.

But the demand for machines will increase at a faster rate, then the increase in demand for the product. The principle of acceleration enables us to understand the process of income generation more clearly. A certain level of income could be attained by multiplayer action alone. But along with accelerator the process of income propagation is speeded up. So, for example, in the last class, when I was referring to Hirschman's thesis of creating excess capacity within the economy by investing in social overhead capital and the equal external economies arising out of the social overhead capital being appropriated by the private entities to be able to enter into directly productive activities we are referring to the accelerator principle here. Where the principle of acceleration creates a a situation in the economy where the private entities can take advantage of the external economies created out of the creation of social overhead capital.

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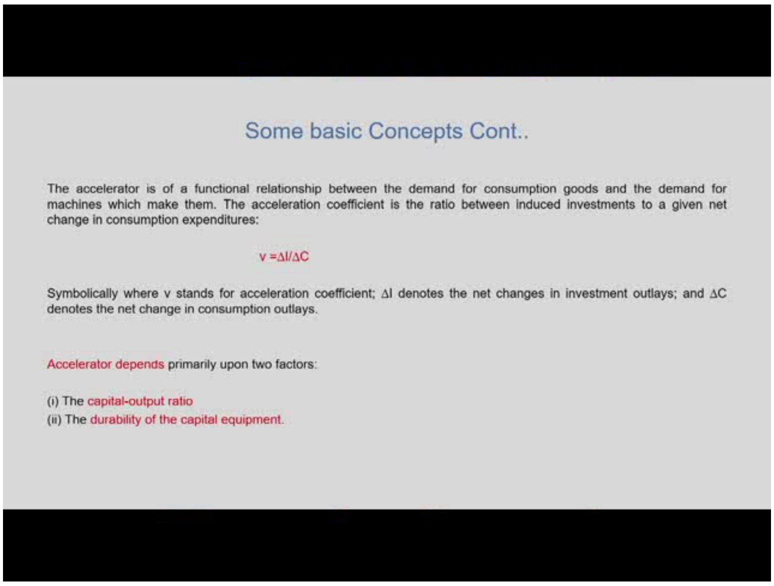

You can also look at accelerator as a functional relationship between the demand for consumption goods and demand for machines which make them. And usually the capital the acceleration coefficient nu is equal to the change in investment to the change in consumption expenditure. And it primarily depends upon 2 factors the capital output ratio and the durability of the capital equipment.

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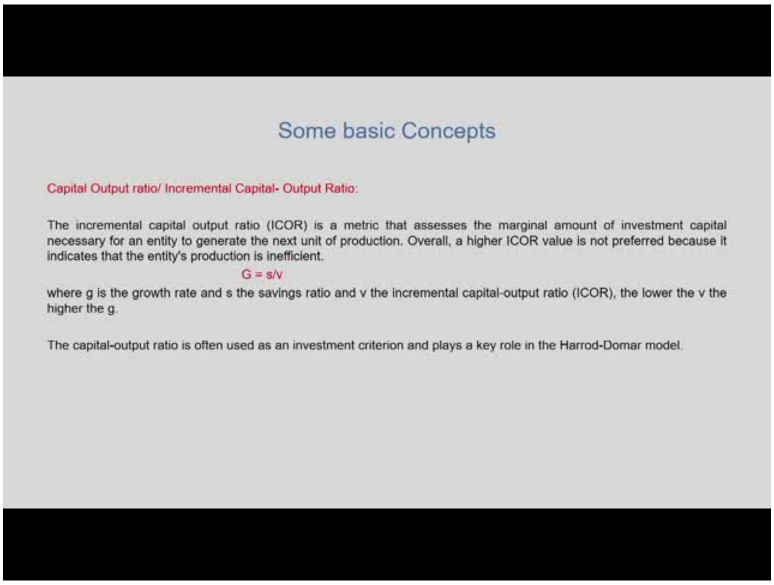

Let us also very briefly looked look at what is capital output ratio and incremental capital output ratio. For example, if I put you a question that rate of economic growth falling in India. And one of explanations you would give is that the savings rate in the country is falling, and lower the savings and investment rate it will lead to overgrowth.

Now so, economic growth in any country among other things is the function of the level of savings and the rate of investment. And any additional investment required to increase output is termed as the incremental capital output ratio. So, it is basically a metric that assesses marginal amount of investment capital necessary for an entity to generate the next unit of production. So, for example, if a 10 percent additional capital is required to push the overall output by 1 percent, the I c r will the ICOR or the incremental capital output ratio will be 10. Lower the ICOR the better it is, ICOR reflects how efficiently capital is being used to generate additional output. So, a country with ICOR of 3 is better than a country with ICOR of 5.

So, you can look at it so, the growth rate and the savings ratio and the incremental capital output ratio; if G is equal to S by V is the mathematical relationship between growth, rate, savings rate and the incremental capital output ratio. This concept of capital output ratio, I will enter into I will discuss again when we are discussing the Harrod Domar model in the next classes. The capital output ratio is often used as an investment criterion and it plays a very key role in the Harrod Domar model of growth. Let us also briefly look at the savings and investment relationship that I have also spoken about in the last class.

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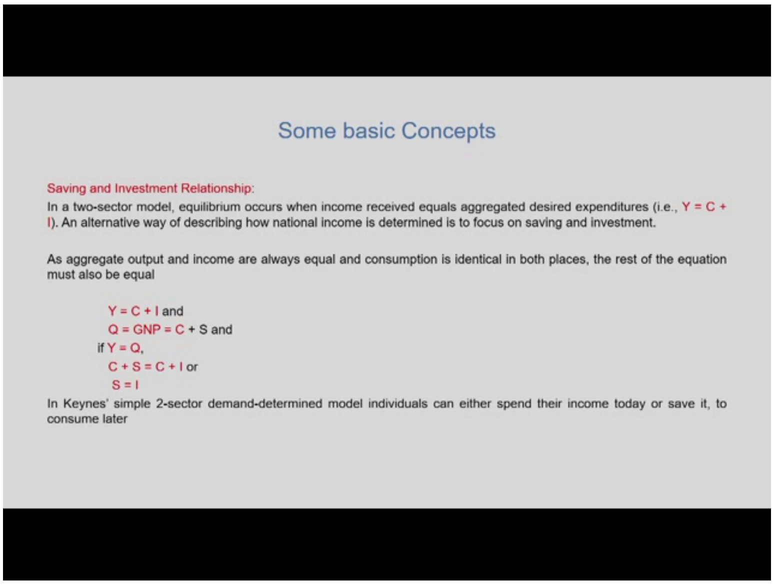

For the benefit of most of you, let us first begin with a 2 sector model. We are assuming here that equilibrium occurs when income received equals aggregate desired expenditures.

So, one of the first identities that we have working out is income is nothing but a summation of consumption expenditures, plus investment expenditures. So, Y is equal to C plus I. Now if you recall the national income identities that we had briefly looked in the first lecture of this course, I had said that you know GNP or GDP can be calculated by the income method and the product method. So, when we looking at GNP it could mean income or it could mean product. So, in the as aggregate output and income are always equal and consumption is identical in both places, the rest of the equation must also be equal.

So, if Y is equal to C plus I which is income is equal to consumption plus investment. And Q are output which is the gross national product is nothing but the summation of consumption and savings. And if Y is equal to Q then C plus S is equal to C plus I. So, in the ultimate identity in a 2 sector model without international trade we consider savings to be equal to investment. So, whatever is getting leaked out of the system is getting injected back into the system in the form of investments.

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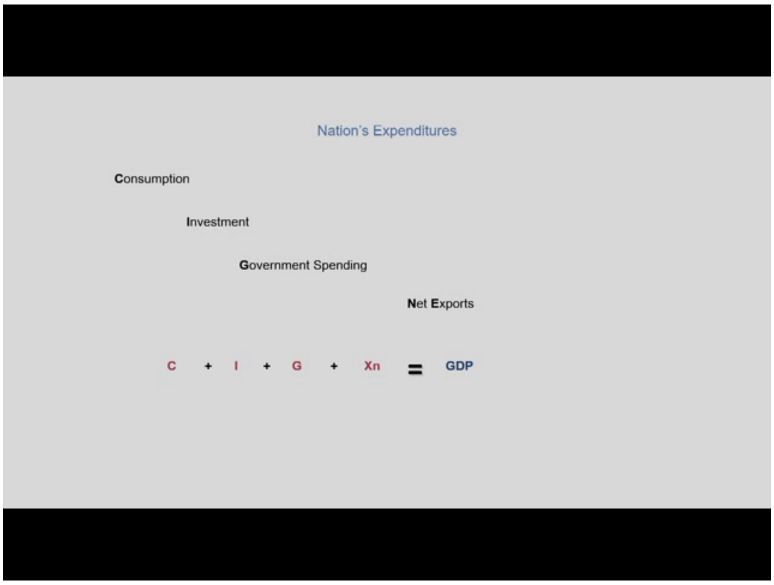

So, basically GDP comprises of consumption investment government spending and net exports. C plus I plus G plus X n or X minus m you may consider both which is basically exports minus imports the net of exports; that is a total GDP that gives out the total output or total income within the economy.

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And C is the largest sector of GDP. So, consumption is mostly the largest sector of a country. And consumption function states that as income rises, consumption usually we can also referred to when we say consumption function we are basically seeing that consumption as a function of income. So, if income rises by how much consumption rises. And although it there is a linear relationship between consumption and income as income rises consumption rises, but not as quickly

So, similarly consumption also varies with disposable income which is basically income total income minus the taxes. I will end this lecture with 2 more basic concepts that we use which is, one is, the concept of average propensity to consume and the concept of average propensity to save.

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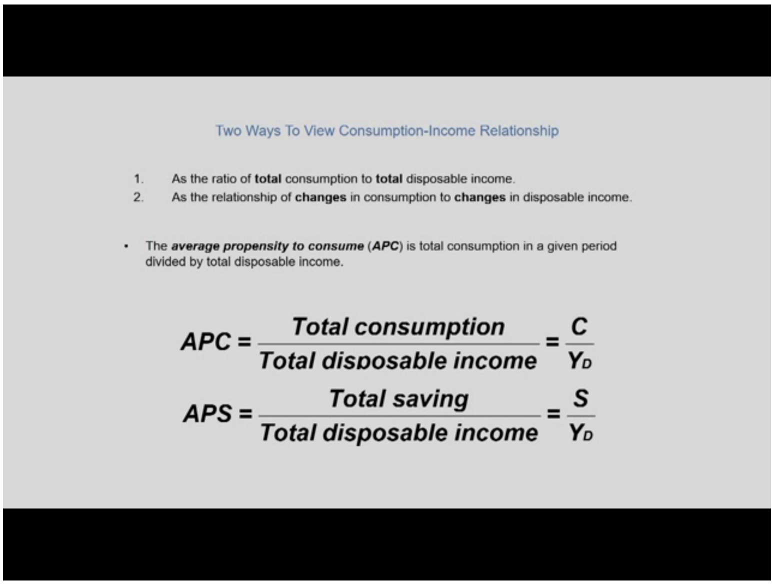

So, there are 2 ways to view the consumption income relationship. One is as the ratio of total consumption to total disposable income. And the second is as a relationship of changes in consumption to changes in disposable income. Average propensity to consume is basically the total consumption divided by the total disposable income. And average propensity to save is total savings divided by the total disposable income.

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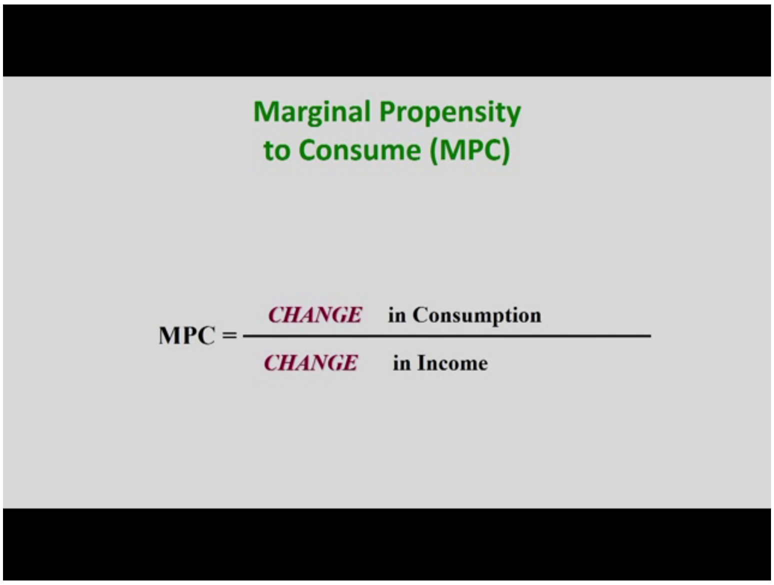

Similarly, the concept of marginal propensity to consume which is looking at a ratio of change in consumption to change in income. With regard to investment there are 2 important concepts which needs to be kept in mind.

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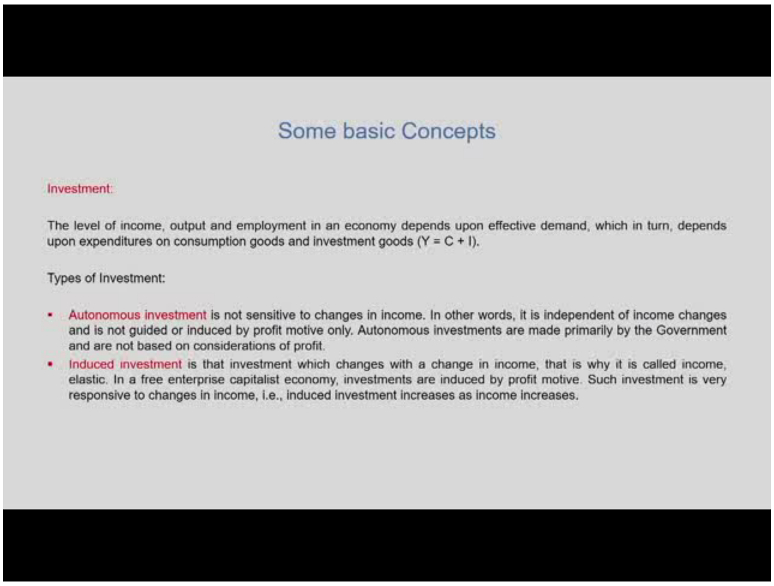

One is autonomous investment and the second is induced investment. Autonomous investment is not sensitive to changes in income. In other words, it is independent of income changes and is not guided or induced by profit motive only. And autonomous investments are primarily made by the government and are not based on considerations of profit. And induced investment is that investment which changes with the change in income and that is why it is called income elastic. In a free enterprise capitalist economy investments are induced by profit motive. And such investment is very responsive to changes in income that is induced investment increases as income increases.

So, to end today’s lecture; in today’s lecture, we looked at 2 important strategies of economic development one proposed by professor Joseph Schumpeter and the other by W W Rostow. Schumpeter’s strategy of development can be categorized under the development thoughts are characterized as universal history, where economic history is considered to be is taken as one of the pillars in which the economic development strategies can be analyzed. Schumpeter provided a big role to innovation and entrepreneurship in creating discontinuity within the circular flow of static equilibrium system, such that economic development can take place. Rostow was focusing on a 5 stages of economic growth. Again based upon Rostow was considered to be a structuralist he was proposing a structural model, where based upon the example of the highly industrialized nations of the world. His proposition was that all countries necessarily need to pass these 5 stages of economic growth.

However, these; however, Rostows proposition has also faced various criticisms particularly in the 90's and in the year 1980's and the 90 and the 2000’s. Because the experience of the developing countries have told us that have shown us that the traditional sector and the modern sector coexist, and the take off stage has never really been reached by the developing countries of the world.

In the next class, we will look at taking off from the balanced and unbalanced growth model. And Rostow’s and Schumpeter’s ideas on economic development, we will look at the big push theory what were the basic what were the major concerns of the big push theory at, what were what were the major proposed proposals made by the big push theory. And we will also look at the critical minimum efforts thesis as proposed by professor Leibenstein.

Thank you.