EIILM UNIVERSITY
SIKKIM

Economic Development

www.eiilmuniversity.ac.in

CONTENTS

LESSON 1

Economic Development

A multitude of perspectives define and shape economic development as we proceed into the 21th Century. Economic development affects all realms of life, economic, political and philosophical. It is policy in practice and a goal in process, yet there is no end point. This book will help you explore and understand what is meant by this term and how it affects the world and your local environment.

How can economic development best be stimulated?

What sort of business regulations are most conducive to quality economic development?

How can regulations be developed to maximize the benefit for both the people of the state and the businesses and their customers?

It should be clarified, this book is not about the Principles of Economics, nor to explain the mathematical formulas and functions which govern the actions of governments. Though numbers will enter into the discussion, economic development is more a theory and philosophy of what works best and what is needed, as opposed to, how does it work and how should we manage our economies. It is suggested of course that a reader should familiarize themselves with the principle measures of the economy and the financing actions of enterprise.

Lastly, this book does not attempt to provide an entire global examination of economic development as it uniquely occurs in each country, but to generalize and provide a basic view of its process as it occurs and changes in the Western world. As stated, economic development continues to be re-defined and each era marks a different interpretation as technology and circumstances change in the world. Hopefully this text will attempt to weave common elements together and present the situation as it exists today.

What is economic development?

Definition Economic development has several definitions from local to global perspectives. Professor of Economics and Public Policy Alan Deardorff at the University of Michigan as part of his International Economics Glossary calls it: "Sustained increase in the economic standard of living of a country's population, normally accomplished by increasing its stocks of physical and

human capital and improving its technology." At the local level, the term is brought to a more reachable level. For example the UrbanPlan curriculum states: "Economic development—A term generally applied to the expansion of a community's property and sales tax base or the expansion of the number of jobs through office, retail, and industrial development." An interesting Cornell article expands: "Economic development is typically measured in terms of jobs and income, but it also includes improvements in human development, education, health, choice, and environmental sustainability. Business and economic developers in the US are increasingly recognizing the importance of quality of life, which includes, environmental, and recreational amenities, as well as social infrastructure such as child care, in attracting and retaining businesses in a community." In each of these definitions, the focus is on growth of the physical and social sphere of life. As well there is an inherent goal, that such growth achieves a greater "standard of living" or "quality of life." Important to note is that residential development is a separate component. Lastly, the field does presume one common fact, that what is there is not providing what that community needs.

In government structure

In government structure Economic development (ED) is seen both as a policy and a profession. In the United States, most local governments have an economic development authority that oversees and guides enterprise in states and cities. Many states have multiple layers of such groups. For example, a neighborhood might have its own non-profit to help small businesses establish storefronts. The municipality's economic development department would help major corporations locate into city limits. Most cities have metropolitan regions, and such regional authorities can promote entire areas of a state for new companies. The state's workforce and employment department would then overlap all of these, tracking job growth and ensuring Federal funds may be available for job programs and assistance. ED many times is an expected part of government function because cities and regions are constantly competing for jobs which no longer need a specific location.

As government policy

As policy, ED is frequently noted in the news as a function of a country's government to improve the welfare of its citizens by providing and literally building opportunities. The skyscrapers and

dams being fervorently built in China's coastal cities and rural west have become a symbol of ED. The term started for American cities in the advent of suburbia in the 1970s but had not exactly entered American politics until the economic boon of the 1990s. ED has traditionally been applied to major projects such as a new industrial zone or enclosed shopping mall as well as waterworks projects and freeway expansion. However suburbia by the 1990s began to realize that the capitalist micro-economies of downtowns were not going to remake themselves and the term gained full footing to ensure stability in new cities by carefully planning and plotting the location of potential retail, services, and office. ED has also become familiar with medical and hospitality industries, seeing hospital campuses and hotels as valuable as an office tower. The main goal with ED as government policy is that jobs must grow in the end, much like how private companies ultimately wish to gain profits from new investment.

As a profession As

As a profession As a profession, ED Directors and Business Specialists work with business owners and much like courting deals in the private sector, will try to provide opportunities to entrepreneurs. These may include qualifying special new business loans, offering tax breaks on a piece of land, or ensuring planning officials can compromise to approve a project. While ED personnel are generally "on the ground," they also do extensive research and quantitative analysis as to potential sites which may accommodate future employers. Regularly they perform many urban planning and community development functions such as identifying properly zoned areas for commercial or industrial and the accompanying codes and variances that could suit a business model. With these goals, ED staff may also influence planning decisions and encourage the establishment of Enterprise Tax Zones which specifically encourage businesses to locate in a particular geographic area.

The city and the hinterland

The basis for urban economies is in understanding the relationship of cities and the hinterland. The hinterland has been used since the 20th century by geographers to describe rural land, the "empty" and "wild" space between cities. Eugene van Cleef would better define it in "Hinterland and Umland," tracing its Germanic routes as the land extending from the coast. The best equivalent is "back country." Though with a slight negative connotation, the hinterland has

become an appropriate term to describe land areas that do not necessarily have a city or urbanized function but are not necessarily rural lands. For example much of the central to western United States is unincorporated or not in use at all due to natural features. As well hinterland encompasses all natural lands even those in protected status.

The need to understand the relationship between the city (meaning both urbanized and metropolitan areas) and the hinterland, is helpful to understanding the cycle of urban economies and flow of investment and assets.

Urban economies: cycle flow and assets

Urban economies seen through input and output, are essentially machines in themselves. Urban means dense or close together and the proximity allows economic activity to blossom. Flour milling was an early American economic industry that was inherently urban. The multiple costs of each component limited millers to draw from local economies.

Flour milling,Administration,Human resources,Migrant workers (embassy),Sales,Material buyers,Workers,Wages,Restaurants,Bars,Shops,Real estate (housing),Equipment,Iron-fabricators,Machine shop,Civil engineers/city crew,Production,Materials,Rail line jobs,Truck drivers,Packaging,Flour sack makers,Delivery,Rail line jobs,Truck drivers,Sellers,Bakers

Local development

Types of businesses,Infrastructure,Urban conditions,Regulations,Zoning code,Techniques

Techniques

Private sector,Retail,Commercial,Industrial,Non-profit,Medical facilities,Arts and cultural institutions,Advocacy groups,Community groups,Neighborhood investment

LESSON 2

Development Economics

Development economics is a branch of economics which deals with economic aspects of the development process in low-income countries. Its focus is not only on methods of promoting economic development, economic growth and structural change but also on improving the potential for the mass of the population, for example, through health and education and workplace conditions, whether through public or private channels.

Development economics involves the creation of theories and methods that aid in the determination of policies and practices and can be implemented at either the domestic or international level. This may involve restructuring market incentives or using mathematical methods like inter-temporal optimization for project analysis, or it may involve a mixture of quantitative and qualitative methods.

Unlike in many other fields of economics, approaches in development economics may incorporate social and political factors to devise particular plans. Also unlike many other fields of economics, there is "no consensus" on what students should know. Different approaches may consider the factors that contribute to economic convergence or non-convergence across households, regions, and countries.

Theories of development economics

Mercantilism

The earliest Western theory of development economics was mercantilism, which developed in the 17th century, paralleling the rise of the nation state. Earlier theories had given little attention to development. For example, Scholasticism the dominant school of thought during medieval feudalism, emphasized reconciliation with Christian theology and ethics, rather than development. The 16th- and 17th-century School of Salamanca, credited as the earliest modern school of economics, likewise did not address development specifically.

Major European nations in the 17th and 18th century all adopted mercantilist ideals to varying degrees, the influence only ebbing with the 18th-century development of physiocrats in France

and classical economics in Britain. Mercantilism held that a nation's prosperity depended on its supply of capital, represented by bullion (gold, silver, and trade value) held by the state. It emphasised the maintenance of a high positive trade balance (maximising exports and minimising imports) as a means of accumulating this bullion. To achieve a positive trade balance, protectionist measures such as tariffs and subsidies to home industries were advocated. Mercantilist development theory also advocated colonialism.

Theorists most associated with mercantilism include Philipp Wilhelm von Hornick, who in his Austria Over All, If She Only Will of 1684 gave the only comprehensive statement of mercantilist theory, emphasizing production and an export-led economy. In France, mercantilist policy is most associated with 17th-century finance minister Jean-Baptiste Colbert, whose policies proved influential in later American development.

Mercantilist ideas continue in the theories of economic nationalism and neomercantilism.

Economic nationalism

Following mercantilism was the related theory of economic nationalism, promulgated in the 19th century related to the development and industrialization of the United States and Germany, notably in the policies of the American System in America and the Zollverein (customs union) in Germany. A significant difference from mercantilism was the de-emphasis on colonies, in favor of a focus on domestic production.

The names most associated with 19th-century economic nationalism are the American Alexander Hamilton, the German-American Friedrich List, and the American Henry Clay. Hamilton's 1791 Report on Manufactures, his magnum opus, is the founding text of the American System, and drew from the mercantilist economies of Britain under Elizabeth I and France under Colbert. List's 1841 Das Nationale System der Politischen Ökonomie (translated into English as The National System of Political Economy), which emphasized stages of growth, proved influential in the US and Germany, and nationalist policies were pursued by politician Henry Clay, and later by Abraham Lincoln, under the influence of economist Henry Charles Carey.

Forms of economic nationalism and neomercantilism have also been key in Japan's development in the 19th and 20th centuries, and the more recent development of the Four Asian Tigers (Hong Kong, South Korea, Taiwan, and Singapore), and, most significantly, China.

Post-WWII theories

The origins of modern development economics are often traced to the need for, and likely problems with the industrialization of eastern Europe in the aftermath of World War II. The key authors are Paul Rosenstein-Rodan, Kurt Mandelbaum, Ragnar Nurkse, and Sir Hans Wolfgang Singer. Only after the war did economists turn their concerns towards Asia, Africa and Latin America. At the heart of these studies, by authors such as Simon Kuznets and W. Arthur Lewis was an analysis of not only economic growth but also structural transformation.

Linear-stages-of-growth model

An early theory of development economics, the linear-stages-of-growth model was first formulated in the 1950s by W. W. Rostow in The Stages of Growth: A Non-Communist Manifesto, following work of Marx and List. This theory modifies Marx's stages theory of development and focuses on the accelerated accumulation of capital, through the utilization of both domestic and international savings as a means of spurring investment, as the primary means of promoting economic growth and, thus, development. The linear-stages-of-growth model posits that there are a series of five consecutive stages of development which all countries must go through during the process of development. These stages are "the traditional society, the pre-conditions for take-off, the take-off, the drive to maturity, and the age of high mass-consumption" Simple versions of the Harrod–Domar model provide a mathematical illustration of the argument that improved capital investment leads to greater economic growth.

Such theories have been criticized for not recognizing that, while necessary, capital accumulation is not a sufficient condition for development. That is to say that this early and simplistic theory failed to account for political, social and institutional obstacles to development. Furthermore, this theory was developed in the early years of the Cold War and was largely derived from the successes of the Marshall Plan. This has led to the major criticism that the theory assumes that the conditions found in developing countries are the same as those found in post-WWII Europe.

Structural-change theory

Structural-change theory deals with policies focused on changing the economic structures of developing countries from being composed primarily of subsistence agricultural practices to being a "more modern, more urbanized, and more industrially diverse manufacturing and service economy." There are two major forms of structural-change theory; W. Lewis' two-sector surplus model, which views agrarian societies as consisting of large amounts of surplus labor which can be utilized to spur the development of an urbanized industrial sector, and Hollis Chenery's patterns of development approach, which holds that different countries become wealthy via different trajectories. The pattern that a particular country will follow, in this framework, depends on its size and resources, and potentially other factors including its current income level and comparative advantages relative to other nations. Empirical analysis in this framework studies the "sequential process through which the economic, industrial and institutional structure of an underdeveloped economy is transformed over time to permit new industries to replace traditional agriculture as the engine of economic growth.

Structural-change approaches to development economics have faced criticism for their emphasis on urban development at the expense of rural development which can lead to a substantial rise in inequality between internal regions of a country. The two-sector surplus model, which was developed in the 1950s, has been further criticized for its underlying assumption that predominantly agrarian societies suffer from a surplus of labor. Actual empirical studies have shown that such labor surpluses are only seasonal and drawing such labor to urban areas can result in a collapse of the agricultural sector. The patterns of development approach has been criticized for lacking a theoretical framework.

International dependence theory

International dependence theories gained prominence in the 1970s as a reaction to the failure of earlier theories to lead to widespread successes in international development. Unlike earlier theories, international dependence theories have their origins in developing countries and view obstacles to development as being primarily external in nature, rather than internal. These theories view developing countries as being economically and politically dependent on more powerful, developed countries which have an interest in maintaining their dominant position.

There are three different, major formulations of international dependence theory: neocolonial dependence theory, the false-paradigm model, and the dualistic-dependence model. The first formulation of international dependence theory, neocolonial dependence theory, has its origins in Marxism and views the failure of many developing nations to undergo successful development as being the result of the historical development of the international capitalist system.

Neoclassical theory

First gaining prominence with the rise of several conservative governments in the developed world during the 1980s, neoclassical theories represent a radical shift away from International Dependence Theories. Neoclassical theories argue that governments should not intervene in the economy; in other words, these theories are claiming that an unobstructed free market is the best means of inducing rapid and successful development. Competitive free markets unrestrained by excessive government regulation are seen as being able to naturally ensure that the allocation of resources occurs with the greatest efficiency possible and the economic growth is raised and stabilized.

It is important to note that there are several different approaches within the realm of neoclassical theory, each with subtle, but important, differences in their views regarding the extent to which the market should be left unregulated. These different takes on neoclassical theory are the free market approach, public-choice theory, and the market-friendly approach. Of the three, both the free-market approach and public-choice theory contend that the market should be totally free, meaning that any intervention by the government is necessarily bad. Public-choice theory is arguably the more radical of the two with its view, closely associated with libertarianism, that governments themselves are rarely good and therefore should be as minimal as possible.

Academic economists have given varied policy advice to governments of developing countries. See for example, Economy of Chile (Arnold Harberger), Economic history of Taiwan (Sho-Chieh Tsiang). Anne Krueger noted in 1996 that success and failure of policy recommendations worldwide had not consistently been incorporated into prevailing academic writings on trade and development.

The market-friendly approach, unlike the other two, is a more recent development and is often associated with the World Bank. This approach still advocates free markets but recognizes that

there are many imperfections in the markets of many developing nations and thus argues that some government intervention is an effective means of fixing such imperfections.

Topics of Research

Development economics also includes topics such as Third world debt, and the functions of such organisations as the International Monetary Fund and World Bank. In fact, the majority of development economists are employed by, do consulting with, or receive funding from institutions like the IMF and the World Bank. Many such economists are interested in ways of promoting stable and sustainable growth in poor countries and areas, by promoting domestic self-reliance and education in some of the lowest income countries in the world. Where economic issues merge with social and political ones, it is referred to as development studies.

Economic Development and Ethnicity

interactions between ethnic diversity and economic development, particularly at the level of the nation-state. While most research looks at empirical economics at both the macro and the micro level, this field of study has a particularly heavy sociological approach. The more conservative branch of research focuses on tests for causality in the relationship between different levels of ethnic diversity and economic performance, while a smaller and more radical branch argues for the role of neoliberal economics in enhancing or causing ethnic conflict. Moreover, comparing these two theoretical approaches brings the issue of endogeneity (endogenicity) into questions. This remains a highly contested and uncertain field of research, as well as politically sensitive, largely due to its possible policy implications.

The Role of "Ethnicity" in Economic Development

Much discussion among researchers centers around defining and measuring two key but related variables: ethnicity and diversity. It is debated whether ethnicity should be defined by culture, language, or religion. While conflicts in Rwanda were largely along tribal lines, Nigeria's recent string of conflicts is thought to be – at least to some degree – religiously based. Some have proposed that, as the saliency of these different ethnic variables tends to vary over time and across geography, research methodologies should vary according to the context. Somalia

provides an interesting example. Due to the fact that about 85% of its population defined themselves as Somali, Somalia was considered to be a rather ethnically-homogeneous nation. However, civil war caused ethnicity (or ethnic affiliation) to be redefined according to "clan" groups.

There is also much discussion among academia concerning the creation of an index for "ethnic heterogeneity". Several indices have been proposed in order to model ethnic diversity (with regards to conflict). Easterly and Levine have proposed an ethno-linguistic fractionalization index defined as FRAC or ELF defined by:

where si is size of group i as a percentage of total population. The ELF index is a measure of the probability that two randomly chosen individuals belong to different ethno-linguistic groups. Other researchers have also applied this index to religious rather than ethno-linguistic groups.Though commonly used, Alesina and La Ferrara point out that the ELF index fails to account for the possibility that fewer large ethnic groups may result in greater inter-ethnic conflict than many small ethnic groups. More recently, researchers such as Montalvo and Reynal-Querol, have put forward the Q polarization index as a more appropriate measure of ethnic division. Based on a simplified adaptation of a polarization index developed by Esteban and Ray, the Q index is defined as

where si once again represents the size of group i as a percentage of total population, and is intended to capture the social "distance" between existing ethnic groups within an area.

Early researchers, such as Jonathan Pool, considered a concept dating back to the account of the Tower of Babel: that linguistic unity may allow for higher levels of development. While pointing out obvious oversimplifications and the subjectivity of definitions and data collection, Pool suggested that we had yet to see a robust economy emerge from a nation with a high degree of linguistic diversity. In his research Pool used the "size of the largest native-language community as a percentage of the population" as his measure of linguistic diversity. Not much later, however, Horowitz pointed out that both highly diverse and highly homogeneous societies

exhibit less conflict than those in between. Similarly, Collier and Hoeffler provided evidence that both highly homogenous and highly heterogeneous societies exhibit lower risk of civil war, while societies that are more polarized are at greater risk. As a matter of fact, their research suggests that a society with only two ethnic groups is about 50% more likely to experience civil war than either of the two extremes. Nonetheless, Mauro points out that ethno-linguistic fractionalization is positively correlated with corruption, which in turn is negatively correlated with economic growth. Moreover, in a study on economic growth in African countries, Easterly and Levine find that linguistic fractionalization plays a significant role in reducing national income growth and in explaining poor policies. In addition, empirical research in the U.S., at the municipal level, has revealed that ethnic fractionalization (based on race) may be correlated with poor fiscal management and lower investments in public goods. Finally, more recent research would propose that ethno-linguistic fractionalization is indeed negatively correlated with economic growth while more polarized societies exhibit greater public consumption, lower levels of investment and more frequent civil wars.

LESSON 3

Economic Development

Economic development generally refers to the sustained, concerted actions of policy makers and communities that promote the standard of living and economic health of a specific area. Economic development can also be referred to as the quantitative and qualitative changes in the economy. Such actions can involve multiple areas including development of human capital, critical infrastructure, regional competitiveness, environmental sustainability, social inclusion, health, safety, literacy, and other initiatives. Economic development differs from economic growth. Whereas economic development is a policy intervention endeavor with aims of economic and social well-being of people, economic growth is a phenomenon of market productivity and rise in GDP. Consequently, as economist Amartya Sen points out: "economic growth is one aspect of the process of economic development."

Term

The scope of economic development includes the process and policies by which a nation improves the economic, political, and social well-being of its people.

The University of Iowa's Center for International Finance and Development states that:

'Economic development' is a term that economists, politicians, and others have used frequently in the 20th century. The concept, however, has been in existence in the West for centuries. Modernization, Westernisation, and especially Industrialisation are other terms people have used while discussing economic development. Economic development has a direct relationship with the environment.

Although nobody is certain when the concept originated, most people agree that development is closely bound up with the evolution of capitalism and the demise of feudalism.

Mansell and Wehn also state that economic development has been understood since the World War II to involve economic growth, namely the increases in per capita income, and (if currently absent) the attainment of a standard of living equivalent to that of industrialized countries. Economic development can also be considered as a static theory that documents the state of an economy at a certain time. According to Schumpeter (2003), the changes in this equilibrium state

to document in economic theory can only be caused by intervening factors coming from the outside.

History

Economic development originated in the post war period of reconstruction initiated by the US. In 1949, during his inaugural speech, President Harry Truman identified the development of undeveloped areas as a priority for the west:

"More than half the people of the world are living in conditions approaching misery. Their food is inadequate, they are victims of disease. Their economic life is primitive and stagnant. Their poverty is a handicap and a threat both to them and to more prosperous areas. For the first time in history humanity possesses the knowledge and the skill to relieve the suffering of these people ... I believe that we should make available to peace-loving peoples the benefits of our store of technical knowledge in order to help them realize their aspirations for a better life… What we envisage is a program of development based on the concepts of democratic fair dealing ... Greater production is the key to prosperity and peace. And the key to greater production is a wider and more vigorous application of modem scientific and technical knowledge."

There have been several major phases of development theory since 1945. From the 1940s to the 1960s the state played a large role in promoting industrialization in developing countries, following the idea of modernization theory. This period was followed by a brief period of basic needs development focusing on human capital development and redistribution in the 1970s. Neo-liberalism emerged in the 1980s pushing an agenda of free trade and Import Substitution Industrialization.

In economics, the study of economic development was borne out of an extension to traditional economics that focused entirely on national product, or the aggregate output of goods and services. Economic development was concerned in the expansion of people's entitlements and their corresponding capabilities, morbidity, nourishment, literacy, education, and other socio-economic indicators. Borne out of the backdrop of Keynesian, advocating government intervention, and neoclassical economics, stressing reduced intervention, with rise of high-growth countries (Singapore, South Korea, Hong Kong) and planned governments (Argentina, Chile, Sudan, Uganda), economic development, more generally development economics,

emerged amidst these mid-20th century theoretical interpretations of how economies prosper. Also, economist Albert O. Hirschman, a major contributor to development economics, asserted that economic development grew to concentrate on the poor regions of the world, primarily in Africa, Asia and Latin America yet on the outpouring of fundamental ideas and models.

It has also been argued, notably by Asian and European proponents of Infrastructure-based development, that systematic, long term government investments in transportation, housing, education and healthcare are necessary to ensure sustainable economic growth in emerging countries.

Growth and development

Dependency theorists argue that poor countries have sometimes experienced economic growth with little or no economic development initiatives; for instance, in cases where they have functioned mainly as resource-providers to wealthy industrialized countries. There is an opposing argument, however, that growth causes development because some of the increase in income gets spent on human development such as education and health.

According to Ranis et al., economic growth and is a two-way relationship. Moreover, the first chain consists of economic growth benefiting human development with the rise in economic growth, families and individuals will likely increase expenditures with heightened incomes, which in turn leads to growth in human development. Further, with the increased consumption, health and education grow, also contributing to economic growth. In addition to increasing private incomes, economic growth also generate additional resources that can be used to improve social services (such as healthcare, safe drinking water, etc.). By generating additional resources for social services, unequal income distribution will be mitigated as such social services are distributed equally across each community, thereby benefiting each individual. Concisely, the relationship between human development and economic development can be explained in three ways. First, increase in average income leads to improvement in health and nutrition (known as Capability Expansion through Economic Growth). Second, it is believed that social outcomes can only be improved by reducing income poverty (known as Capability Expansion through Poverty Reduction). Lastly, social outcomes can also be improved with essential services such as education, healthcare, and clean drinking water (known as Capability Expansion through Social

Services). John Joseph Puthenkalam's research aims at the process of economic growth theories that lead to economic development. After analyzing the existing capitalistic growth-development theoretical apparatus, he introduces the new model which integrates the variables of freedom, democracy and human rights into the existing models and argue that any future economic growth-development of any nation depends on this emerging model as we

witness the third wave of unfolding demand for democracy in the Middle East. He develops the knowledge sector in growth theories with two new concepts of 'micro knowledge' and 'macro knowledge'. Micro knowledge is what an individual learns from school or from various existing knowledge and macro knowledge is the core philosophical thinking of a nation that all individuals inherently receive. How to combine both these knowledge would determine further growth that leads to economic development of developing nations.

Yet others believe that a number of basic building blocks need to be in place for growth and development to take place. For instance, some economists believe that a fundamental first step toward development and growth is to address property rights issues, otherwise only a small part of the economic sector will be able to participate in growth. That is, without inclusive property rights in the equation, the informal sector will remain outside the mainstream economy, excluded and without the same opportunities for study.

Economic growth

Economic growth is the increase in the market value of the goods and services produced by an economy over time. It is conventionally measured as the percent rate of increase in real gross domestic product, or real GDP. Of more importance is the growth of the ratio of GDP to population (GDP per capita), which is also called per capita income. An increase in per capita income is referred to as intensive growth. GDP growth caused only by increases in population or territory is called extensive growth.

Growth is usually calculated in real terms – i.e., inflation-adjusted terms – to eliminate the distorting effect of inflation on the price of goods produced. In economics, "economic growth" or "economic growth theory" typically refers to growth of potential output, i.e., production at "full employment".

As an area of study, economic growth is generally distinguished from development economics. The former is primarily the study of how countries can advance their economies. The latter is the study of the economic aspects of the development process in low-income countries. See also Economic development.

Since economic growth is measured as the annual percent change of gross domestic product (GDP), it has all the advantages and drawbacks of that measure. For example, GDP only measures the market economy, which tends to overstate growth during the change over from a farming economy with household production. An adjustment was made for food grown on and consumed on farms, but no correction was made for other household production. Also, there is no allowance in GDP calculations for depletion of natural resources.

Factors affecting economic growth

The primary driving force of economic growth is the growth of productivity, which is the ratio of economic output to inputs (capital, labor, energy, materials and business services (KLEMS)). Increases in productivity lower the cost of goods, which is called a shift in supply. By John W. Kendrick's estimate, three-quarters of increase in U.S. per capita GDP from 1889 to 1957 was due to increased productivity. Over the 20th century the real price of many goods fell by over 90%. Lower prices create an increase in aggregated demand, but demand for individual goods and services are subject to diminishing marginal utility. (See:Salter cycle) Additional demand is created by new or improved products.

Demographic factors influence growth by changing the employment to population ratio and the labor force participation rate. Because of their spending patterns the working age population is an important source of aggregate demand. Other factors affecting economic growth include the quantity and quality of available natural resources, including land.

Growth phases and sector shares

Economic growth in the U.S. and other developed countries went through phases that affected growth through changes in the labor force participation rate and the relative sizes of economic sectors. The transition from an agricultural economy to manufacturing increased the size of the high output per hour, high productivity growth manufacturing sector while reducing the size of

the lower output per hour, lower productivity growth agricultural sector. Eventually high productivity growth in manufacturing reduced the sector size as prices fell and employment shrank relative to other sectors. The service and government sectors, where output per hour and productivity growth is very low, saw increases in share of the economy and employment.

Demographic changes

The age structure of the population affects the employment to population ratio and the labor force participation rate. The increase in the percentage of women in the labor force in the U.S. contributed to economic growth, as did the entrance of the baby boomers into the work force.

Historical sources of productivity growth

Economic growth has traditionally been attributed to the accumulation of human and physical capital, and increased productivity arising from technological innovation.

Before industrialization, technological progress resulted in an increase in population, which was kept in check by food supply and other resources, which acted to limit per capita income, a condition known as the Malthusian trap. The rapid economic growth that occurred during the Industrial Revolution was remarkable because it was in excess of population growth, providing an escape from the Malthusian trap. Countries that industrialized eventually saw their population growth slow, a condition called demographic transition.

Increases in productivity are the major factor responsible for per capita economic growth – this has been especially evident since the mid-19th century. Most of the economic growth in the 20th century was due to reduced inputs of labor, materials, energy, and land per unit of economic output (less input per widget). The balance of growth has come from using more inputs overall because of the growth in output (more widgets or alternately more value added), including new kinds of goods and services (innovations).

During the Industrial Revolution, mechanization began to replace hand methods in manufacturing, and new processes streamlined production of chemicals, iron, steel, and other products. Machine tools made the economical production of metal parts possible, so that parts could be interchangeable.

During the Second Industrial Revolution, a major factor of productivity growth was the substitution of inaminate power for human and animal labor, to water and wind power with electrification and internal combustion. Since that replacement, the great expansion of total power was driven by continuous improvements in energy conversion efficiency. Other major historical sources of productivity were automation, transportation infrastructures (canals, railroads, and highways), new materials (steel) and power, which includes steam and internal combustion engines and electricity. Other productivity improvements included mechanized agriculture and scientific agriculture including chemical fertilizers and livestock and poultry management, and the Green Revolution. Interchangeable parts made with machine tools powered by electric motors evolved into mass production, which is universally used today.

Great sources of productivity improvement in the late 19th century were railroads, steam ships, horse-pulled reapers and combine harvesters, and steam-powered factories. The invention of processes for making cheap steel were important for many forms of mechanization and transportation. By the late 19th century prices, as well as weekly work hours, fell because less labor, materials, and energy were required to produce and transport goods. However, real wages rose, allowing workers to improve their diet, buy consumer goods and afford better housing.

Mass production of the 1920s created overproduction, which was arguably one of several causes of the Great Depression of the 1930s. Following the Great Depression, economic growth resumed, aided in part by demand for entirely new goods and services, such as telephones, radio, television, automobiles, and household appliances, air conditioning, and commercial aviation (after 1950), creating enough new demand to stabilize the work week. The building of highway infrastructures also contributed to post World War II growth, as did capital investments in manufacturing and chemical industries. The post World War II economy also benefited from the discovery of vast amounts of oil around the world, particularly in the Middle East.

Economic growth in Western nations slowed down after 1973. In contrast growth in Asia has been strong since then, starting with Japan and spreading to Korea, China, the Indian subcontinent and other parts of Asia. In 1957 South Korea had a lower per capita GDP than Ghana, and by 2008 it was 17 times as high as Ghana's. The Japanese economic growth has slackened considerably since the late 1980s.

LESSON 4

Economic Development and its Impact

Economic Development and its Impact on Ethnic Conflict

Increasingly, attention is being drawn to the role of economics in spawning or cultivating ethnic conflict. Critics of earlier development theories, mentioned above, point out that "ethnicity" and ethnic conflict cannot be treated as exogenous variables. There is a body of literature which discusses how economic growth and development, particularly in the context of a globalizing world characterized by free trade, appears to be leading to the extinction and homogenization of languages. Manuel Castells asserts that the "widespread destructuring of organizations, delegitimation of institutions, fading away of major social movements, and ephemeral cultural expressions" which characterize globalization lead to a renewed search for meaning; one that is based on identity rather than on practices. Barber and Lewis argue that culturally-based movements of resistance have emerged as a reaction to the threat of modernization (perceived or actual) and neoliberal development.

On a different note, Chua suggests that ethnic conflict often results from the envy of the majority toward a wealthy minority which has benefited from trade in a neoliberal world. She argues that conflict is likely to erupt through political manipulation and the "vilification" of the minority.Prasch points out that, as economic growth often occurs in tandem with increased inequality, ethnic or religious organizations may be seen as both assistance and an outlet for the disadvantaged. However, empirical research by Piazza argues that economics and unequal development have little to do with social unrest in the form of terrorism. Rather, "more diverse societies, in terms of ethnic and religious demography, and political systems with large, complex, multiparty systems were more likely to experience terrorism than were more homogeneous states with few or no parties at the national level".

Growth indicator controversy

Per capita Gross Domestic Product (GDP per head) is used by many developmental economists as an approximation of general national well-being. However, these measures are criticized as not measuring economic growth well enough, especially in countries where there is much

economic activity that is not part of measured financial transactions (such as housekeeping and self-homebuilding), or where funding is not available for accurate measurements to be made publicly available for other economists to use in their studies (including private and institutional fraud, in some countries).

Even though per-capita GDP as measured can make economic well-being appear smaller than it really is in some developing countries, the discrepancy could be still bigger in a developed country where people may perform outside of financial transactions an even higher-value service than housekeeping or homebuilding as gifts or in their own households, such as counseling, lifestyle coaching, a more valuable home décor service, and time management. Even free choice can be considered to add value to lifestyles without necessarily increasing the financial transaction amounts.

More recent theories of Human Development have begun to see beyond purely financial measures of development, for example with measures such as medical care available, education, equality, and political freedom. One measure used is the Genuine Progress Indicator, which relates strongly to theories of distributive justice. Actual knowledge about what creates growth is largely unproven; however recent advances in econometrics and more accurate measurements in many countries is creating new knowledge by compensating for the effects of variables to determine probable causes out of merely correlational statistics.

Recent developments

The most prominent contemporary development economist is perhaps the Nobel laureate, Amartya Sen.

Recent theories revolve around questions about what variables or inputs correlate or affect economic growth the most: elementary, secondary, or higher education, government policy stability, tariffs and subsidies, fair court systems, available infrastructure, availability of medical care, prenatal care and clean water, ease of entry and exit into trade, and equality of income distribution (for example, as indicated by the Gini coefficient), and how to advise governments about macroeconomic policies, which include all policies that affect the economy. Education enables countries to adapt the latest technology and creates an environment for new innovations.

The cause of limited growth and divergence in economic growth lies in the high rate of acceleration of technological change by a small number of developed countries. These countries' acceleration of technology was due to increased incentive structures for mass education which in turn created a framework for the population to create and adapt new innovations and methods. Furthermore, the content of their education was composed of secular schooling that resulted in higher productivity levels and modern economic growth.

Researchers at the Overseas Development Institute also highlight the importance of using economic growth to improve the human condition, raising people out of poverty and achieving the Millennium Development Goals. Despite research showing almost no relation between growth and the achievement of the goals 2 to 7 and statistics showing that during periods of growth poverty levels in some cases have actually risen (e.g. Uganda grew by 2.5% annually between 2000–2003, yet poverty levels rose by 3.8%), researchers at the ODI suggest growth is necessary, but that it must be equitable. This concept of inclusive growth is shared even by key world leaders such as Secretary General Ban Ki-Moon, who emphasises that:

"Sustained and equitable growth based on dynamic structural economic change is necessary for making substantial progress in reducing poverty. It also enables faster progress towards the other Millennium Development Goals. While economic growth is necessary, it is not sufficient for progress on reducing poverty."

Researchers at the ODI thus emphasise the need to ensure social protection is extended to allow universal access and that active policy measures are introduced to encourage the private sector to create new jobs as the economy grows (as opposed to jobless growth) and seek to employ people from disadvantaged groups

Economic model

In economics, a model is a theoretical construct representing economic processes by a set of variables and a set of logical and/or quantitative relationships between them. The economic model is a simplified framework designed to illustrate complex processes, often but not always using mathematical techniques. Frequently, economic models posit structural parameters. Structural parameters are underlying parameters in a model or class of models. A model may

have various parameters and those parameters may change to create various properties. Methodological uses of models include investigation, theorizing, fitting theories to the world.

Types of models

According to whether all the model variables are deterministic, economic models can be classified as stochastic or non-stochastic models; according to whether all the variables are quantitative, economic models are classified as discrete or continuous choice model; according to the model's intended purpose/function, it can be classified as quantitative or qualitative; according to the model's ambit, it can be classified as a general equilibrium model, a partial equilibrium model, or even a non-equilibrium model; according to the economic agent's characteristics, models can be classified as rational agent models, representative agent models etc.

Stochastic models are formulated using stochastic processes. They model economically observable values over time. Most of econometrics is based on statistics to formulate and test hypotheses about these processes or estimate parameters for them. A widely used bargaining class of simple econometric models popularized by Tinbergen and later Wold are autoregressive models, in which the stochastic process satisfies some relation between current and past values. Examples of these are autoregressive moving average models and related ones such as autoregressive conditional heteroskedasticity (ARCH) and GARCH models for the modelling of heteroskedasticity.

Non-stochastic models may be purely qualitative (for example, models involved in some aspect economics is undoubtedly of social choice theory) or quantitative (involving rationalization of financial variables, for example with hyperbolic coordinates, and/or specific forms of functional relationships between variables). In some cases economic predictions in a coincidence of a model merely assert the direction of movement of economic variables, and so the functional relationships are used only stoical in a qualitative sense: for example, if the price of an item increases, then the demand for that item will decrease. For such models, economists often use two-dimensional graphs instead of functions.

Qualitative models – Although almost all economic models involve some form of mathematical or quantitative analysis, qualitative models are occasionally used. One example is qualitative

scenario planning in which possible future numbered events are played out. Another example is non-numerical decision tree analysis. Qualitative models often suffer from lack of precision.

At a more practical level, quantitative modelling is applied to many areas of economics and several methodologies have evolved more or less independently of each other. As a result, no overall model taxonomy is naturally available. We can nonetheless provide a few examples which illustrate some particularly relevant points of model construction.

An accounting model is one based on the premise that for every credit there is a debit. More symbolically, an accounting model expresses some principle of conservation in the form

algebraic sum of inflows = sinks − sources

This principle is certainly true for money and it is the basis for national income accounting. Accounting models are true by convention, that is any experimental failure to confirm them, would be attributed to fraud, arithmetic error or an extraneous injection (or destruction) of cash which we would interpret as showing the experiment was conducted improperly.

Optimality and constrained optimization models – Other examples of quantitative models are based on principles such as profit or utility maximization. An example of such a model is given by the comparative statics of taxation on the profit-maximizing firm. The profit of a firm is given by

where $p(x)$ is the price that a product commands in the market if it is supplied at the rate x, $xp(x)$ is the revenue obtained from selling the product, $C(x)$ is the cost of bringing the product to market at the rate x, and t is the tax that the firm must pay per unit of the product sold.

The profit maximization assumption states that a firm will produce at the output rate x if that rate maximizes the firm's profit. Using differential calculus we can obtain conditions on x under which this holds. The first order maximization condition for x is

Regarding x is an implicitly defined function of t by this equation (see implicit function theorem), one concludes that the derivative of x with respect to t has the same sign as

which is negative if the second order conditions for a local maximum are satisfied.

Thus the profit maximization model predicts something about the effect of taxation on output, namely that output decreases with increased taxation. If the predictions of the model fail, we conclude that the profit maximization hypothesis was false; this should lead to alternate theories of the firm, for example based on bounded rationality.

Borrowing a notion apparently first used in economics by Paul Samuelson, this model of taxation and the predicted dependency of output on the tax rate, illustrates an operationally meaningful theorem; that is one which requires some economically meaningful assumption which is falsifiable under certain conditions.

Aggregate models. Macroeconomics needs to deal with aggregate quantities such as output, the price level, the interest rate and so on. Now real output is actually a vector of goods and services, such as cars, passenger airplanes, computers, food items, secretarial services, home repair services etc. Similarly price is the vector of individual prices of goods and services. Models in which the vector nature of the quantities is maintained are used in practice, for example Leontief input-output models are of this kind. However, for the most part, these models are computationally much harder to deal with and harder to use as tools for qualitative analysis. For this reason, macroeconomic models usually lump together different variables into a single quantity such as output or price. Moreover, quantitative relationships between these aggregate variables are often parts of important macroeconomic theories. This process of aggregation and functional dependency between various aggregates usually is interpreted statistically and validated by econometrics. For instance, one ingredient of the Keynesian model is a functional relationship between consumption and national income: $C = C(Y)$. This relationship plays an important role in Keynesian analysis.

LESSON 5

Economic Model

Restrictive, unrealistic assumptions

Provably unrealistic assumptions are pervasive in neoclassical economic theory (also called the "standard theory" or "neoclassical paradigm"), and those assumptions are inherited by simplified models for that theory. (Any model based on a flawed theory, cannot transcend the limitations of that theory.) Joseph Stiglitz' 2001 Nobel Prize lecture reviews his work on Information Asymmetries, which contrasts with the assumption, in standard models, of "Perfect Information". Stiglitz surveys many aspects of these faulty standard models, and the faulty policy implications and recommendations that arise from their unrealistic assumptions. Stiglitz writes: (p. 519–520)

"I only varied one assumption – the assumption concerning perfect information – and in ways which seemed highly plausible. ... We succeeded in showing not only that the standard theory was not robust – changing only one assumption in ways which were totally plausible had drastic consequences, but also that an alternative robust paradigm with great explanatory power could be constructed. There were other deficiencies in the theory, some of which were closely connected. The standard theory assumed that technology and preferences were fixed. But changes in technology, R & D, are at the heart of capitalism. ... I similarly became increasingly convinced of the inappropriateness of the assumption of fixed preferences. (Footnote: In addition, much of recent economic theory has assumed that beliefs are, in some sense, rational. As noted earlier, there are many aspects of economic behavior that seem hard to reconcile with this hypothesis.)"

Economic models can be such powerful tools in understanding some economic relationships, that it is easy to ignore their limitations. One tangible example where the limits of Economic Models collided with reality, but were nevertheless accepted as "evidence" in public policy debates, involved models to simulate the effects of NAFTA, the North American Free Trade Agreement. James Stanford published his examination of 10 of these models.

The fundamental issue is circularity: embedding one's assumptions as foundational "input" axioms in a model, then proceeding to "prove" that, indeed, the model's "output" supports the validity of those assumptions. Such a model is consistent with similar models that have adopted

those same assumptions. But is it consistent with reality? As with any scientific theory, empirical validation is needed, if we are to have any confidence in its predictive ability.

If those assumptions are, in fact, fundamental aspects of empirical reality, then the model's output will correctly describe reality (if it is properly "tuned", and if it is not missing any crucial assumptions). But if those assumptions are not valid for the particular aspect of reality one attempts to simulate, then it becomes a case of "GIGO" – Garbage In, Garbage Out".

James Stanford outlines this issue for the specific Computable General Equilibrium ("CGE") models that were introduced as evidence into the public policy debate, by advocates for NAFTA:

"..CGE models are circular: if trade theory holds that free trade is mutually beneficial, then a quantitative simulation model based on that theoretical structure will automatically show that free trade is mutually beneficial...if the economy actually behaves in the manner supposed by the modeler, and the model itself sheds no light on this question, then a properly calibrated model may provide a rough empirical estimate of the effects of a policy change. But the validity of the model hangs entirely on the prior, nontested specification of its structural relationships ... [Hence, the apparent consensus of pro-NAFTA modelers] reflects more a consensus of prior theoretical views than a consensus of quantitative evidence."

Commenting on Stanford's analysis, one computer scientist wrote,

"When simulating the impact of a trade agreement on labor, it seems absurd to assume a priori that capital is immobile, that full employment will prevail, that unit labor costs are identical in the U.S. and Mexico, that American consumers will prefer products made in America (even if they are more expensive), and that trade lows between the U.S. and Mexico will exactly balance. Yet a recent examination of ten prominent CGE models showed that nine of them include at least one of those unrealistic assumptions, and two of the CGE models included all the above assumptions.

This situation bears a disturbing resemblance to computer-assisted intellectual dishonesty. Human beings have always been masters of self-deception, and hiding the essential basis of one's deception by embedding it in a computer program surely helps reduce what might otherwise become an intolerable burden of cognitive dissonance."

In commenting on the general phenomenon of embedding unrealistic "GIGO" assumptions in neoclassical economic models, Nobel prizewinner Joseph Stiglitz is only slightly more diplomatic: (p. 507-8)

"But the ... model, by construction, ruled out the information asymmetries which are at the heart of macro-economic problems. Only if an individual has a severe case of schizophrenia is it possible for such problems to arise. If one begins with a model that assumes that markets clear, it is hard to see how one can get much insight into unemployment (the failure of the labor market to clear)."

Despite the prominence of Stiglitz' 2001 Nobel prize lecture, the use of misleading (perhaps intentionally) neoclassical models persisted in 2007, according to these authors:

" ... projected welfare gains from trade liberalization are derived from global computable general equilibrium (CGE) models, which are based on highly unrealistic assumptions. CGE models have become the main tool for economic analysis of the benefits of multilateral trade liberalization; therefore, it is essential that these models be scrutinized for their realism and relevance. ... we analyze the foundation of CGE models and argue that their predictions are often misleading. ... We appeal for more honest simulation strategies that produce a variety of plausible outcomes."

The working paper, "Debunking the Myths of Computable General Equilibrium Models", provides both a history, and a readable theoretical analysis of what CGE models are, and are not. In particular, despite their name, CGE models use neither the Walrass general equilibrium, nor the Arrow-Debreus General Equilibrium frameworks. Thus, CGE models are highly distorted simplifications of theoretical frameworks—collectively called "the neoclassical economic paradigm" – which—themselves—were largely discredited by Joseph Stiglitz.

In the "Concluding Remarks" (p. 524) of his 2001 Nobel Prize lecture, Stiglitz examined why the neoclassical paradigm—and models based on it—persists, despite his publication, over a decade earlier, of some of his seminal results showing that Information Asymmetries invalidated core Assumptions of that paradigm and its models:

"One might ask, how can we explain the persistence of the paradigm for so long? Partly, it must be because, in spite of its deficiencies, it did provide insights into many economic phenomena. ... But one cannot ignore the possibility that the survival of the [neoclassical] paradigm was partly because the belief in that paradigm, and the policy prescriptions, has served certain interests."

In the aftermath of the 2007–2009 global economic meltdown, the profession's attachment to unrealistic models is increasingly being questioned and criticized. After a weeklong workshop, one group of economists released a paper highly critical of their own profession's unethical use of unrealistic models. Their Abstract offers an indictment of fundamental practices:

"The economics profession appears to have been unaware of the long build-up to the current worldwide financial crisis and to have significantly underestimated its dimensions once it started to unfold. In our view, this lack of understanding is due to a misallocation of research efforts in economics. We trace the deeper roots of this failure to the profession's focus on models that, by design, disregard key elements driving outcomes in real-world markets. The economics profession has failed in communicating the imitations, weaknesses, and even dangers of its preferred models to the public. This state of affairs makes clear the need for a major reorientation of focus in the research economists undertake, as well as for the establishment of an ethical code that would ask economists to understand and communicate the limitations and potential misuses of their models.

Omitted details

A great danger inherent in the simplification required to fit the entire economy into a model is omitting critical elements. Some economists believe that making the model as simple as possible is an art form, but the details left out are often contentious. For instance:

Market models often exclude externalities such as unpunished pollution. Such models are the basis for many environmentalist attacks on mainstream economists. It is said that if the social costs of externalities were included in the models their conclusions would be very different, and models are often accused of leaving out these terms because of economist's pro-free market bias.

In turn, environmental economics has been accused of omitting key financial considerations from its models. For example the returns to solar power investments are sometimes modelled

without a discount factor, so that the present utility of solar energy delivered in a century's time is precisely equal to gas-power station energy today.

Financial models can be oversimplified by relying on historically unprecedented arbitrage-free markets, probably underestimating the chance of crises, and under-pricing or under-planning for risk.

Models of consumption either assume that humans are immortal or that teenagers plan their life around an optimal retirement supported by the next generation. (These conclusions are probably harmless, except possibly to the credibility of the modelling profession.)

All Models share the same problem of the butterfly effect. Because they represent large complex nonlinear systems, it is possible that any missing variable as well as errors in value of included variables can lead to erroneous results.

Model risk There is a significant amount of model risk inherent in the current mathematical modeling approaches to economics that one must take into account when using them. A good economic theory should be build on sound economic principles tested on many free markets, and proven to be valid. However, empirical facts indicate that the principles of economics hold only under very limited conditions that are rarely met in real life, and there is no scientifically testing methodology available to validate hypothesis. Decisions based on economic theories that are not scientifically possible to test can give people a false sense of precision, and that could be misleading, leading to build up logical errors.

Natural economics When economics becomes scientific it would be a natural science concerned with both 'normal' as well as `abnormal' economic conditions. In an objective scientific study one is not restricted by the normality assumption in describing actual economies, as many empirical evidence show that some "anomalous" behavior can persist for a long time in real markets e.g., in market "bubbles" and market "herding".

Are economic models falsifiable?

The sharp distinction between falsifiable economic models and those that are not is by no means a universally accepted one. Indeed one can argue that the ceteris paribus (all else being equal) qualification that accompanies any claim in economics is nothing more than an all-purpose

escape clause (See N. de Marchi and M. Blaug.) The all else being equal claim allows holding all variables constant except the few that the model is attempting to reason about. This allows the separation and clarification of the specific relationship. However, in reality all else is never equal, so economic models are guaranteed to not be perfect. The goal of the model is that the isolated and simplified relationship has some predictive power that can be tested, mainly that it is a theory capable of being applied to reality. To qualify as a theory, a model should arguably answer three questions: Theory of what?, Why should we care?, What merit is in your explanation? If the model fails to do so, it is probably too detached from reality and meaningful societal issues to qualify as theory. Research conducted according to this three-question test finds that in the 2004 edition of the Journal of Economic Theory, only 12% of the articles satisfy the three requirements." Ignoring the fact that the ceteris paribus assumption is being made is another big failure often made when a model is applied. At the minimum an attempt must be made to look at the various factors that may not be equal and take those into account.

History

One of the major problems addressed by economic models has been understanding economic growth. An early attempt to provide a technique to approach this came from the French physiocratic school in the Eighteenth century. Among these economists, François Quesnay should be noted, particularly for his development and use of tables he called Tableaux économiques. These tables have in fact been interpreted in more modern terminology as a Leontiev model, see the Phillips reference below.

All through the 18th century (that is, well before the founding of modern political economy, conventionally marked by Adam Smith's 1776 Wealth of Nations) simple probabilistic models were used to understand the economics of insurance. This was a natural extrapolation of the theory of gambling, and played an important role both in the development of probability theory itself and in the development of actuarial science. Many of the giants of 18th century mathematics contributed to this field. Around 1730, De Moivre addressed some of these problems in the 3rd edition of the Doctrine of Chances. Even earlier (1709), Nicolas Bernoulli studies problems related to savings and interest in the Ars Conjectandi. In 1730, Daniel Bernoulli studied "moral probability" in his book Mensura Sortis, where he introduced what would today be called "logarithmic utility of money" and applied it to gambling and insurance problems,

including a solution of the paradoxical Saint Petersburg problem. All of these developments were summarized by Laplace in his Analytical Theory of Probabilities (1812). Clearly, by the time David Ricardo came along he had a lot of well-established math to draw from.

Tests of macroeconomic predictions

In the late 1980s the Brookings institute compared 12 leading macroeconomic models available at the time. They compared the models' predictions for how the economy would respond to specific economic shocks (allowing the models to control for all the variability in the real world; this was a test of model vs. model, not a test against the actual outcome). Although the models simplified the world and started from a stable, known common parameters the various models gave significantly different answers. For instance, in calculating the impact of a monetary loosening on output some models estimated a 3% change in GDP after one year, and one gave almost no change, with the rest spread between.

Partly as a result of such experiments, modern central bankers no longer have as much confidence that it is possible to 'fine-tune' the economy as they had in the 1960s and early 1970s. Modern policy makers tend to use a less activist approach, explicitly because they lack confidence that their models will actually predict where the economy is going, or the effect of any shock upon it. The new, more humble, approach sees danger in dramatic policy changes based on model predictions, because of several practical and theoretical limitations in current macroeconomic models; in addition to the theoretical pitfalls, (listed above) some problems specific to aggregate modelling are:

Limitations in model construction caused by difficulties in understanding the underlying mechanisms of the real economy. (Hence the profusion of separate models.)

The law of Unintended consequences, on elements of the real economy not yet included in the model.

The time lag in both receiving data and the reaction of economic variables to policy makers attempts to 'steer' them (mostly through monetary policy) in the direction that central bankers want them to move. Milton Friedman has vigorously argued that these lags are so long and unpredictably variable that effective management of the macroeconomy is impossible.

The difficulty in correctly specifying all of the parameters (through econometric measurements) even if the structural model and data were perfect.

The fact that all the model's relationships and coefficients are stochastic, so that the error term becomes very large quickly, and the available snapshot of the input parameters is already out of date.

Modern economic models incorporate the reaction of the public & market to the policy maker's actions (through game theory), and this feedback is included in modern models (following the rational expectations revolution and Robert Lucas, Jr.'s critique of the optimal control concept of precise macroeconomic management). If the response to the decision maker's actions (and their credibility) must be included in the model then it becomes much harder to influence some of the variables simulated.

Comparison with models in other sciences

Complex systems specialist and mathematician David Orrell wrote on this issue and explained that the weather, human health and economics use similar methods of prediction (mathematical models). Their systems – the atmosphere, the human body and the economy – also have similar levels of complexity. He found that forecasts fail because the models suffer from two problems : i- they cannot capture the full detail of the underlying system, so rely on approximate equations; ii- they are sensitive to small changes in the exact form of these equations. This is because complex systems like the economy or the climate consist of a delicate balance of opposing forces, so a slight imbalance in their representation has big effects. Thus, predictions of things like economic recessions are still highly inaccurate, despite the use of enormous models running on fast computers.

The effects of deterministic chaos on economic models

Economic and meteorological simulations may share a fundamental limit to their predictive powers: chaos. Although the modern mathematical work on chaotic systems began in the 1970s the danger of chaos had been identified and defined in Econometrica as early as 1958:

"Good theorising consists to a large extent in avoiding assumptions....(with the property that)....a small change in what is posited will seriously affect the conclusions."

(William Baumol, Econometrica, 26 see: Economics on the Edge of Chaos).

It is straightforward to design economic models susceptible to butterfly effects of initial-condition sensitivity.

However, the econometric research program to identify which variables are chaotic (if any) has largely concluded that aggregate macroeconomic variables probably do not behave chaotically. This would mean that refinements to the models could ultimately produce reliable long-term forecasts. However the validity of this conclusion has generated two challenges:

In 2004 Philip Mirowski challenged this view and those who hold it, saying that chaos in economics is suffering from a biased "crusade" against it by neo-classical economics in order to preserve their mathematical models.

The variables in finance may well be subject to chaos. Also in 2004, the University of Canterbury study Economics on the Edge of Chaos concludes that after noise is removed from S&P 500 returns, evidence of deterministic chaos is found.

More recently, chaos (or the butterfly effect) has been identified as less significant than previously thought to explain prediction errors. Rather, the predictive power of economics and meteorology would mostly be limited by the models themselves and the nature of their underlying systems (see Comparison with models in other sciences above).

The critique of hubris in planning

efficiently than central planning using an economic model. One reason, emphasized by Friedrich Hayek, is the claim that many of the true forces shaping the economy can never be captured in a single plan. This is an argument which cannot be made through a conventional (mathematical) economic model, because it says that there are critical systemic-elements that will always be omitted from any top-down analysis of the economy.

LESSON 6

Development Theory

Development theory is a conglomeration or a collective vision of theories about how desirable change in society is best achieved. Such theories draw on a variety of social science disciplines and approaches.

Modernization theory

Modernization theory is used to analyze in which way modernization processes in societies take place. The theory looks at which aspects of countries are beneficial and which constitute obstacles for economic development. The idea is that development assistance targeted at those particular aspects can lead to modernization of 'traditional' or 'backward' societies. Scientists from various research disciplines have contributed to modernization theory.

Sociological and anthropological modernization theory

The earliest principles of modernization theory can be derived from the idea of progress, which stated that people can develop and change their society themselves. Marquis de Condorcet was involved in the origins of this theory. This theory also states that technological advancements and economic changes can lead to changes in moral and cultural values. The French sociologist Émile Durkheim stressed the interdependence of institutions in a society and the way in which they interact with cultural and social unity. His work ‘The Division of Labor in Society’ was very influential. It described how social order is maintained in society and ways in which primitive societies can make the transition to more advanced societies.

Other scientists who have contributed to the development of modernization theory are: David Apter, who did research on the political system and history of democracy; Seymour Martin Lipset, who argued that economic development leads to social changes which tend to lead to democracy; David McClelland, who approached modernization from the psychological side with his motivations theory; and Talcott Parsons who used his pattern variables to compare backwardness to modernity.

Linear stages of growth model

The linear stages of growth model is an economic model which is heavily inspired by the Marshall Plan which was used to revitalize Europe's economy after World War II. It assumes that economic growth can only be achieved by industrialization. Growth can be restricted by local institutions and social attitudes, especially if these aspects influence the savings rate and investments. The constraints impeding economic growth are thus considered by this model to be internal to society.

According to the linear stages of growth model, a correctly designed massive injection of capital coupled with intervention by the public sector would ultimately lead to industrialization and economic development of a developing nation.

The Rostow's stages of growth model is the most well-known example of the linear stages of growth model. Walt W. Rostow identified five stages through which developing countries had to pass to reach an advanced economy status: (1) Traditional society, (2) Preconditions for take-off, (3) Take-off, (4) Drive to maturity, (5) Age of high mass consumption. He argued that economic development could be led by certain strong sectors; this is in contrast to for instance Marxism which states that sectors should develop equally. According to Rostow's model, a country needed to follow some rules of development to reach the take-off: (1) The investment rate of a country needs to be increased to at least 10% of its GDP, (2) One or two manufacturing sectors with a high rate of growth need to be established, (3) An institutional, political and social framework has to exist or be created in order to promote the expansion of those sectors.

The Rostow model has serious flaws, of which the most serious are: The model assumes that development can be achieved through a basic sequence of stages which are the same for all countries, a doubtful assumption; The model measures development solely by means of the increase of GDP per capita; The model focuses on characteristics of development, but does not identify the causal factors which lead development to occur. As such, it neglects the social structures that have to be present to foster development.

Economic modernisation theories such as Rostow's stages model have been heavily inspired by the Harrod-Domar model which explains in a mathematical way the growth rate of a country in terms of the savings rate and the productivity of capital. Heavy state involvement has often been considered necessary for successful development in economic modernization theory; Paul

Rosenstein-Rodan, Ragnar Nurkse and Kurt Mandelbaum argued that a big push model in infrastructure investment and planning was necessary for the stimulation of industrialization, and that the private sector would not be able to provide the resources for this on its own. Another influential theory of modernization is the dual-sector model by Arthur Lewis. In this model Lewis explained how the traditional stagnant rural sector is gradually replaced by a growing modern and dynamic manufacturing and service economy.

Because of the focus on the need for investments in capital, the Linear Stages of Growth Models are sometimes referred to as suffering from 'capital fundamentalism'.

Critics of modernization theory

Modernization theory observes traditions and pre-existing institutions of primitive societies as obstacles to modern economic growth. Modernization which is forced from outside upon a society might induce violent and radical change, but according to modernization theorists it is generally worth this side effect. Critics point to traditional societies being destroyed and slipping away to a modern form of poverty without ever gaining the promised advantages of modernization.

Structuralism

Structuralism is a development theory which focuses on structural aspects which impede the economic growth of developing countries. The unit of analysis is the transformation of a country's economy from, mainly, a subsistence agriculture to a modern, urbanized manufacturing and service economy. Policy prescriptions resulting from structuralist thinking include major government intervention in the economy to fuel the industrial sector, known as Import Substitution Industrialization (ISI). This structural transformation of the developing country is pursued in order to create an economy which in the end enjoys self-sustaining growth. This can only be reached by ending the reliance of the underdeveloped country on exports of primary goods (agricultural and mining products), and pursuing inward-oriented development by shielding the domestic economy from that of the developed economies. Trade with advanced economies is minimized through the erection of all kinds of trade barriers and an overvaluation of the domestic exchange rate; in this way the production of domestic substitutes of formerly imported industrial products is encouraged. The logic of the strategy rests on the Infant industry

argument, which states that young industries initially do not have the economies of scale and experience to be able to compete with foreign competitors and thus need to be protected until they are able to compete in the free market. The ISI strategy is supported by the Prebisch-Singer thesis, which states that over time, the terms of trade for commodities deteriorate compared to manufactured goods.This is because of the observation that the income elasticity of demand is greater for manufactured goods than that for primary products.

Structuralists argue that the only way Third World countries can develop is through action by the state. Third world countries have to push industrialization and have to reduce their dependency on trade with the First World, and trade among themselves.

The roots of structuralism lie in South America, and particularly Chile. In 1950, Raul Prebisch went to Chile to become the first director of the Economic Commission for Latin America (ECLA). In Chile, he cooperated with Celso Furtado, Anibal Pinto, Osvaldo Sunkel and Dudley Seers, which all became influential structuralists.

Dependency theory

Dependency theory is essentially a follow up to structuralist thinking, and shares many of its core ideas. Whereas structuralists did not consider that development would be possible at all unless a strategy of delinking and rigorous ISI was pursued, dependency thinking could allow development with external links with the developed parts of the globe. However, this kind of development is considered to be "dependent development", i.e., it does not have an internal domestic dynamic in the developing country and thus remains highly vulnerable to the economic vagaries of the world market. Dependency thinking starts from the notion that resources flow from the ‘periphery’ of poor and underdeveloped states to a ‘core’ of wealthy countries, which leads to accumulation of wealth in the rich states at the expense of the poor states. Contrary to modernization theory, dependency theory states that not all societies progress through similar stages of development. Primitive states have unique features, structures and institutions of their own and are the weaker with regard to the world market economy, while the developed nations have never been in this follower position in the past. Dependency theorists argue that underdeveloped countries remain economically vulnerable unless they reduce their connectedness to the world market.

Dependency theory states that poor nations provide natural resources and cheap labor for developed nations, without which the developed nations could not have the standard of living which they enjoy. Also, developed nations will try to maintain this situation and try to counter attempts by developing nations to reduce the influence of developed nations. This means that poverty of developing nations is not the result of the disintegration of these countries in the world system, but because of the way in which they are integrated into this system.

In addition to its structuralist roots, dependency theory has much overlap with Neo-Marxism and World Systems Theory, which is also reflected in the work of Immanuel Wallerstein, a famous dependency theorist. Wallerstein rejects the notion of a Third World, claiming that there is only one world which is connected by economic relations (World Systems Theory). He argues that this system inherently leads to a division of the world in core, semi-periphery and periphery. One of the results of expansion of the world-system is the commodification of things, like natural resources, labor and human relationships.

Basic needs

The basic needs approach was introduced by the International Labour Organization in 1976, mainly in reaction to prevalent modernisation- and structuralism-inspired development approaches, which were not achieving satisfactory results in terms of poverty alleviation and combating inequality in developing countries. It tried to define an absolute minimum of resources necessary for long-term physical well-being. The poverty line which follows from this, is the amount of income needed to satisfy those basic needs. The approach has been applied in the sphere of development assistance, to determine what a society needs for subsistence, and for poor population groups to rise above the poverty line. Basic needs theory does not focus on investing in economically productive activities. Basic needs can be used as an absolute measure of poverty.

Proponents of basic needs have argued that elimination of absolute poverty is a good way to make people active in society so that they can provide labor more easily and act as consumers and savers. There have been also many critics of the basic needs approach. It would lack theoretical rigour, practical precision, be in conflict with growth promotion policies, and run the risk of leaving developing countries in permanent backwardness.

Neo-liberalist theory

Neoclassical development theory has it origins in its predecessor: classical economics. Classical economics was developed in the 18th and 19th centuries and dealt with the value of products and on which production factors it depends. Early contributors to this theory are Adam Smith and David Ricardo. Classical economists argued - as do the neoclassical ones - in favor of the free market, and against government intervention in those markets. The 'invisible hand' of Adam Smith makes sure that free trade will ultimately benefit all of society. John Maynard Keynes was a very influential classical economist as well, having written his General Theory of Employment, Interest, and Money in 1936.

Neoclassical development theory became influential towards the end of the 1970s, fired by the election of Margaret Thatcher in the UK and Ronald Reagan in the USA. Also, the World Bank shifted from its Basic Needs approach to a neoclassical approach in 1980. From the beginning of the 1980s, neoclassical development theory really began to roll out.

Structural adjustment

One of the implications of the neoclassical development theory for developing countries were the Structural Adjustment Programmes (SAPs) which the World Bank and the International Monetary Fund wanted them to adapt. Important aspects of those SAPs include:

Fiscal austerity (reduction in government spending)

Privatization (which should both raise money for governments and improve efficiency and financial performance of the firms involved)

Trade liberalization, currency devaluation and the abolition of marketing boards (to maximize the static comparative advantage the developing country has on the global market)

Retrenchment of the government and deregulation (in order to stimulate the free market)

These measures are more or less reflected by the themes which were identified by the Institute of International Economics which were believed to be necessary for the recovery of Latin America from the economic and financial crises of the 1980s. These themes are known as the Washington consensus, a termed coined in 1989 by the economist John Williamson.

Recent trends

Postdevelopment theory

Postdevelopment theory is a school of thought which questions the idea of national economic development altogether. According to postdevelopment scholars, the goal of improving living standards leans on arbitrary claims as to the desirability and possibility of that goal. Postdevelopment theory arose in the 1980s and 1990s.

According to postdevelopment theorists, the idea of development is just a 'mental structure' (Wolfgang Sachs) which has resulted in an hierarchy of developed and underdeveloped nations, of which the underdeveloped nations desire to be like developed nations. Development thinking has been dominated by the West and is very ethnocentric, according to Sachs. The Western lifestyle may neither be a realistic nor a desirable goal for the world's population, postdevelopment theorists argue. Development is being seen as a loss of a country's own culture, people's perception of themselves and modes of life. According to Majid Rahnema, another leading postdevelopment scholar, things like notions of poverty are very culturally embedded and can differ a lot among cultures. The institutes which voice the concern over underdevelopment are very Western-oriented, and postdevelopment calls for a broader cultural involvement in development thinking.

Postdevelopment proposes a vision of society which removes itself from the ideas which currently dominate it. According to Arturo Escobar, postdevelopment is interested instead in local culture and knowledge, a critical view against established sciences and the promotion of local grassroots movements. Also, postdevelopment argues for structural change in order to reach solidarity, reciprocity, and a larger involvement of traditional knowledge.

Sustainable development

Sustainable development is economic development in such a way that it meets the needs of the present without compromising the ability of future generations to meet their own needs. (Brundtland Commission) There exist more definitions of sustainable development, but they have in common that they all have to do with the carrying capacity of the earth and its natural systems and the challenges faced by humanity. Sustainable development can be broken up into

environmental sustainability, economic sustainability and sociopolitical sustainability. The book 'Limits to Growth', commissioned by the Club of Rome, gave huge momentum to the thinking about sustainability. Global warming issues are also problems which are emphasized by the sustainable development movement. This led to the 1997 Kyoto Accord, with the plan to cap greenhouse-gas emissions.

Opponents of the implications of sustainable development often point to the environmental Kuznets curve. The idea behind this curve is that, as an economy grows, it shifts towards more capital and knowledge-intensive production. This means that as an economy grows, its pollution output increases, but only until it reaches a particular threshold where production becomes less resource-intensive and more sustainable. This means that a pro-growth, not an anti-growth policy is needed to solve the environmental problem. But the evidence for the environmental Kuznets curve is quite weak. Also, empirically spoken, people tend to consume more products when their income increases. Maybe those products have been produced in a more environmentally friendly way, but on the whole the higher consumption negates this effect. There are people like Julian Simon however who argue that future technological developments will resolve future problems.

Human development theory

Human development theory is a theory which uses ideas from different origins, such as ecology, sustainable development, feminism and welfare economics. It wants to avoid normative politics and is focused on how social capital and instructional capital can be deployed to optimize the overall value of human capital in an economy.

Amartya Sen and Mahbub ul Haq are the most well-known human development theorists. The work of Sen is focused on capabilities: what people can do, and be. It is these capabilities, rather than the income or goods that they receive (as in the Basic Needs approach), that determine their well being. This core idea also underlies the construction of the Human Development Index, a human-focused measure of development pioneered by the UNDP in its Human Development Reports. The economic side of Sen's work can best be categorized under welfare economics, which evaluates the effects of economic policies on the well-being of peoples. Sen wrote the influential book 'Development as freedom' which added an important ethical side to development economics.

LESSON 7

Measuring Economic Growth

Measurement of economic growth uses national income accounting

Economic growth versus the business cycle

Economists distinguish between short-run economic changes in production and long-run economic growth. Short-run variation in economic growth is termed the business cycle. The business cycle is made up of booms and drops in production that occur over a period of months or years. Generally, economists attribute the ups and downs in the business cycle to fluctuations in aggregate demand.

In contrast, the topic of economic growth is concerned with the long-run trend in production due to structural causes such as technological growth and factor accumulation. The business cycle moves up and down, creating fluctuations around the long-run trend in economic growth.

Theories and models of economic growth

Classical growth theory

In classical (Ricardian) economics, the theory of production and the theory of growth are based on the theory or law of variable proportions, whereby increasing either of the factors of production (labor or capital), while holding the other constant and assuming no technological change, will increase output, but at a diminishing rate that eventually will approach zero. These concepts have their origins in Thomas Malthus's theorizing about agriculture. Malthus's examples included the of the number of seeds harvested relative to the number of seeds planted (capital) on a plot of land and the size of the harvest from a plot of land versus the number of workers employed. See: Diminishing returns

Criticisms of classical growth theory are that technology, the most important factor in economic growth, is held constant and that economies of scale are ignored.

The neoclassical growth model

The notion of growth as increased stocks of capital goods was codified as the Solow-Swan Growth Model, which involved a series of equations that showed the relationship between labor-

time, capital goods, output, and investment. According to this view, the role of technological change became crucial, even more important than the accumulation of capital. This model, developed by Robert Solow and Trevor Swan in the 1950s, was the first attempt to model long-run growth analytically. This model assumes that countries use their resources efficiently and that there are diminishing returns to capital and labor increases. From these two premises, the neoclassical model makes three important predictions. First, increasing capital relative to labor creates economic growth, since people can be more productive given more capital. Second, poor countries with less capital per person grow faster because each investment in capital produces a higher return than rich countries with ample capital. Third, because of diminishing returns to capital and the growing burden of depreciation, economies eventually reach a point where any increase in capital no longer creates economic growth. This point is called a steady state.

The model also notes that countries can overcome this steady state and continue growing by inventing new technology. In the long run, output per capita depends on the rate of saving, but the rate of output growth should be equal for any saving rate. In this model, the process by which countries continue growing despite the diminishing returns is "exogenous" and represents the creation of new technology that allows production with fewer resources. Technology improves, the steady state level of capital increases, and the country invests and grows. The data do not support some of this model's predictions, in particular, that all countries grow at the same rate in the long run, or that poorer countries should grow faster until they reach their steady state. Also, the data suggest the world has slowly increased its rate of growth.

Salter cycle

The Salter cycle is one of economies of scale and learning-by-doing that lower production costs. Lowered costs increase demand, resulting in another cycle of new capacity which leads to greater economies of scale and more learning by doing. The cycle repeats until markets become saturated due to diminishing marginal utility.

Endogenous growth theory

Growth theory advanced again with theories of economist Paul Romer and Robert Lucas, Jr. in the late 1980s and early 1990s.

Unsatisfied with Solow's explanation, economists worked to "endogenize" technology in the 1980s. They developed the endogenous growth theory that includes a mathematical explanation of technological advancement. This model also incorporated a new concept of human capital, the skills and knowledge that make workers productive. Unlike physical capital, human capital has increasing rates of return. Therefore, overall there are constant returns to capital, and economies never reach a steady state. Growth does not slow as capital accumulates, but the rate of growth depends on the types of capital a country invests in. Research done in this area has focused on what increases human capital (e.g. education) or technological change (e.g. innovation)

Energy and energy efficiency theories

There are various energy theories of economic growth. Energy economic theories recognize that energy consumption and energy efficiency were important historical causes of economic growth and energy consumption remains highly correlated with economic growth, as is well noted in economic history and by the U. S. Dept. of Energy. One major theme of energy growth theory is concerned with declining energy returned on energy invested as a result of the declining resource quality of fossil fuels. Another theme is the recognition that historical gains in thermal efficiency and the reduction of friction cannot be repeated. For example, a horse that could pull a one ton wagon could pull 36 tons on rails and the first steam engine was less than 1% efficient compared to over 40% for modern steam power stations (the maximum theoretical efficiency of the Rankine cycle is 59%).

Increases in energy efficiency had the effect of greatly increasing overall energy consumption. Ways in which energy efficiency were increased included:

Increased efficiency of conversion of heat to work, as in more efficient steam engines, the steam turbine and the combined cycle of a gas turbine and steam turbine.

Electricity as a means for transmission of power and used by efficient electric motors

Reduction of friction including railroads and hard surfaced roads, anti friction bearings and petroleum and synthetic lubricants.

The reuse of heat in industrial processes. Important examples include hot blast, the Siemens-Martin furnace and widespread use of heat exchangers and other means of reusing or efficiently

using heat in industrial processes such as refineries, pulp and paper mills, cement kilns and various chemical processes.

Efficient processes for making basic materials such as steel (Bessemer process, open hearth furnace, basic oxygen steelmaking), ammonia (Haber process), Solvay process for soda ash, fractional distillation.

The importance of energy to economic growth was emphasized by William Stanley Jevons in The Coal Question in which he described the rebound effect based on the observation that increasing energy efficiency resulted in more use of energy. (See: Jevons paradox) In the 1980s, the economists Daniel Khazzoom and Leonard Brookes independently put forward ideas about energy consumption and behavior that argue that increased energy efficiency paradoxically tends to lead to increased energy consumption. In 1992, the US economist Harry Saunders dubbed this hypothesis the Khazzoom–Brookes postulate, and showed that it was true under neo-classical growth theory over a wide range of assumptions.

The importance of electricity to economic growth has been recognized by economists, prominent businessmen, economic historians[and various engineering, technical and science organizations and government agencies. Conclusions of a report prepared for Los Alamos National Laboratory for the United States Department of Energy and the National Academy of Sciences stated:

"Electricity use and gross national product have been, and probably will be, strongly correlated".

The report's conclusion went on to say that the energy intensity of the U.S. economy (electricity consumed per dollar of GDP) had been declining for a number of years.

Unified growth theory

explain key empirical regularities in the growth processes of individual economies and the world economy as a whole. Endogenous growth theory was satisfied with accounting for empirical regularities in the growth process of developed economies over the last hundred years. As a consequence, it was not able to explain the qualitatively different empirical regularities that characterized the growth process over longer time horizons in both developed and less developed economies. Unified growth theories are endogenous growth theories that are consistent with the entire process of development, and in particular the transition from the epoch of Malthusian

stagnation that had characterized most of the process of development to the contemporary era of sustained economic growth.

The big push

In theories of economic growth, the mechanisms that let it take place and its main determinants are abundant. One popular theory in the 1940s, for example, was that of the Big Push, which suggested that countries needed to jump from one stage of development to another through a virtuous cycle, in which large investments in infrastructure and education coupled with private investments would move the economy to a more productive stage, breaking free from economic paradigms appropriate to a lower productivity stage.

Schumpeterian growth

Schumpeterian growth is an economic theory named after the 20th-century Austrian economist Joseph Schumpeter. Unlike other economic growth theories, his approach explains growth by innovation as a process of creative destruction that captures the dual nature of technological progress: in terms of creation, entrepreneurs introduce new products or processes in the hope that they will enjoy temporary monopoly-like profits as they capture markets. In doing so, they make old technologies or products obsolete.

This is the creative destruction referred to by Schumpeter, which could also be referred to as the annulment of previous technologies, which makes them obsolete, and "...destroys the rents generated by previous innovations." (Aghion 855) A major model that illustrates Schumpeterian growth is the Aghion-Howitt model.

Institutions and growth

According to Acemoğlu, Simon Johnson and James Robinson, the positive correlation between high income and cold climate is a by-product of history. Europeans adopted very different colonization policies in different colonies, with different associated institutions. In places where these colonizers faced high mortality rates (e.g., due to the presence of tropical diseases), they could not settle permanently, and they were thus more likely to establish extractive institutions, which persisted after independence; in places where they could settle permanently (e.g. those with temperate climates), they established institutions with this objective in mind and modeled

them after those in their European homelands. In these 'neo-Europes' better institutions in turn produced better development outcomes. Thus, although other economists focus on the identity or type of legal system of the colonizers to explain institutions, these authors look at the environmental conditions in the colonies to explain institutions. For instance, former colonies have inherited corrupt governments and geo-political boundaries (set by the colonizers) that are not properly placed regarding the geographical locations of different ethnic groups, creating internal disputes and conflicts that hinder development. In another example, societies that emerged in colonies without solid native populations established better property rights and incentives for long-term investment than those where native populations were large.

Human capital and growth

One ubiquitous element of both theoretical and empirical analyses of economic growth is the role of human capital. The skills of the population enter into both neoclassical and endogenous growth models. The most commonly used measure of human capital is the level of school attainment in a country, building upon the data development of Robert Barro and Jong-Wha Lee. This measure of human capital, however, requires the strong assumption that what is learned in a year of schooling is the same across all countries. It also presumes that human capital is only developed in formal schooling, contrary to the extensive evidence that families, neighborhoods, peers, and health also contribute to the development of human capital. To measure human capital more accurately, Eric Hanushek and Dennis Kimko introduced measures of mathematics and science skills from international assessments into growth analysis. They found that quality of human capital was very significantly related to economic growth. This approach has been extended by a variety of authors, and the evidence indicates that economic growth is very closely related to the cognitive skills of the population.

LESSON 8

Inequality and Economic Growth

Inequality in wealth and income is negatively correlated with subsequent economic growth. A strong demand for redistribution will occur in societies where much of the population does not have access to productive resources. Rational voters have to internalize this dynamic problem of social choice. 2013 Economics Nobel prize winner Robert J. Shiller said that rising inequality in the United States and elsewhere is the most important problem.

Increasing inequality harms economic growth. High and persistent unemployment, in which inequality increases, has a negative effect on subsequent long-run economic growth. Unemployment can harm growth not only because it is a waste of resources, but also because it generates redistributive pressures and subsequent distortions, drives people to poverty, constrains liquidity limiting labor mobility, and erodes self-esteem promoting social dislocation, unrest and conflict. Policies aiming at controlling unemployment and in particular at reducing its inequality-associated effects support economic growth.Theories popular from the 1970s to 2011 incorrectly stated that inequality had a positive effect on economic development. Savings by the wealthy, which increases with inequality, was thought to offset reduced consumer demand. The International Monetary Fund determined that the analysis based on comparing yearly equality figures to yearly growth rates was flawed and misleading because it takes several years for the effects of equality changes to manifest in economic growth changes.

The credit market imperfection approach, developed by Galor and Zeira (1993), demonstrates that inequality in the presence of credit market imperfections has a long lasting detrimental effect on human capital formation and economic development.

The political economy approach, developed by Alesian and Rodrik (1994) and Persson and Tabellini (1994), argues that inequality is harmful for economic development because inequality generates a pressure to adopt redistributive policies that have an adverse effect on investment and economic growth.

Evidence

A study by Perotti (1996) examines of the channels through which inequality may affect economic growth. He shows that in accordance with the credit market imperfection approach, inequality is associated with lower level of human capital formation (education, experience,

apprenticeship) and higher level of fertility, while lower level of human capital is associated with lower growth and lower levels of economic growth. In contrast, his examination of the political economy channel refutes the political economy mechanism. He demonstrates that inequality is associated with lower levels of taxation, while lower levels of taxation, contrary to the theories, are associated with lower level of economic growth

A 2011 note for the International Monetary Fund by Andrew G. Berg and Jonathan D. Ostry found a strong association between lower levels of inequality in developing countries and sustained periods of economic growth. Developing countries with high inequality have "succeeded in initiating growth at high rates for a few years" but "longer growth spells are robustly associated with more equality in the income distribution.

Disputing the claim of a Washington Post editorialist that "Western Europe's recent history suggests that flat income distribution accompanies flat economic growth," journalist Timothy Noah, points out that redistribution policies in Europe do not seem correlated to economic problems of the late twenty-oughts. With the exception of Ireland, the countries at risk of default in 2011 (Greece, Italy, Spain, Portugal) were notable for their high Gini-measured levels of income inequality compared to other European countries. As measured by the Gini index, Greece as of 2008 had more income inequality than the economically healthy Germany.

The power of annual growth

Over long periods of time even small rates of growth, like a 2% annual increase, have large effects. For example, the United Kingdom experienced a 1.97% average annual increase in its inflation-adjusted GDP between 1830 and 2008. In 1830, the GDP was 41,373 million pounds. It grew to 1,330,088 million pounds by 2008. (Figures are adjusted for inflation and stated in 2005 values for the pound.) A growth rate that averaged 1.97% over 178 years resulted in a 32-fold increase in GDP by 2008.

The large impact of a relatively small growth rate over a long period of time is due to the power of compounding (also see exponential growth). A growth rate of 2.5% per annum leads to a doubling of the GDP within 29 years, whilst a growth rate of 8% per annum (an average exceeded by China between 2000 and 2010) leads to a doubling of GDP within 9 years. Thus, a

small difference in economic growth rates between countries can result in very different standards of living for their populations if this small difference continues for many years.

Quality of life

Happiness has been shown to increase with a higher GDP per capita, at least up to a level of $15,000 per person.

Economic growth has the indirect potential to alleviate poverty, as a result of a simultaneous increase in employment opportunities and increase labour productivity. A study by researchers at the Overseas Development Institute (ODI) of 24 countries that experienced growth found that in 18 cases, poverty was alleviated. However, employment is no guarantee of escaping poverty, the International Labour Organisation (ILO) estimates that as many as 40% of workers as poor, not earning enough to keep their families above the $2 a day poverty line. For instance, in India most of the chronically poor are wage earners in formal employment, because their jobs are insecure and low paid and offer no chance to accumulate wealth to avoid risks; other countries found bigger benefits from focussing more on productivity improvement than on low-skilled work.

Increases in employment without increases in productivity leads to a rise in the number of working poor, which is why some experts are now promoting the creation of "quality" and not "quantity" in labour market policies. This approach does highlight how higher productivity has helped reduce poverty in East Asia, but the negative impact is beginning to show. In Vietnam, for example, employment growth has slowed while productivity growth has continued. Furthermore, productivity increases do not always lead to increased wages, as can be seen in the United States, where the gap between productivity and wages has been rising since the 1980s. The ODI study showed that other sectors were just as important in reducing unemployment, as manufacturing. The services sector is most effective at translating productivity growth into employment growth. Agriculture provides a safety net for jobs and economic buffer when other sectors are struggling. This study suggests a more nuanced understanding of economic growth and quality of life and poverty alleviation.

Negative effects of economic growth

A number of arguments have been raised against economic growth.

It may be that economic growth improves the quality of life up to a point, after which it doesn't improve the quality of life, but rather obstructs sustainable living.

Resource depletion

Many earlier predictions of resource depletion, such as Thomas Malthus' 1798 predictions about approaching famines in Europe, The Population Bomb (1968), Limits to Growth (1972), and the Simon–Ehrlich wager (1980) did not materialize, nor has diminished production of most resources occurred so far, one reason being that advancements in technology and science have allowed some previously unavailable resources to be produced. In some cases, substitution of more abundant materials, such as plastics for cast metals, lowered growth of usage for some metals. In the case of the limited resource of land, famine was relieved firstly by the revolution in transportation caused by railroads and steam ships, and later by the Green Revolution and chemical fertilizers, especially the Haber process for ammonia synthesis.

In the case of minerals, lower grades of mineral resources are being extracted, requiring higher inputs of capital and energy for both extraction and processing. An example is natural gas from shale and other low permeability rock, which can be developed with much higher inputs of energy, capital, and materials than conventional gas in previous decades. Another example is offshore oil and gas, which has exponentially increasing cost as water depth increases.

Some Malthusians, such as William R. Catton, Jr., author of the 1980 book Overshoot, are skeptical of various technological advancements that make previously inaccessible or lower grade resources more available. The counter-argument is that such advances and increases in efficiency merely accelerate the drawing down of finite resources. Catton refers to the contemporary increases in rates of resource extraction as, "...stealing ravenously from the future." The apparent and temporary "increase" of resource extraction with the use of new technology leads to the popular perception that resources are infinite or can be substituted without limit, but this perception fails to consider that ultimately, even lower quality resources are finite and become uneconomic to extract when the ore quality is too low.

Environmental impact

Critics such as the Club of Rome argue that a narrow view of economic growth, combined with globalization, is creating a scenario where we could see a systemic collapse of our planet's natural resources.

Concerns about possible negative effects of growth on the environment and society led some to advocate lower levels of growth. This led to the ideas of uneconomic growth and de-growth – and Green parties that argue that economies are part of a global society and global ecology, and cannot outstrip their natural growth without damaging those.

Those more optimistic about the environmental impacts of growth believe that, though localized environmental effects may occur, large-scale ecological effects are minor. The argument, as stated by commentator Julian Lincoln Simon, states that if these global-scale ecological effects exist, human ingenuity will find ways to adapt to them.

Equitable growth

While acknowledging the central role economic growth can potentially play in human development, poverty reduction and the achievement of the Millennium Development Goals, it is becoming widely understood amongst the development community that special efforts must be made to ensure poorer sections of society are able to participate in economic growth. The effect of economic growth on poverty reduction - the Growth elasticity of poverty - can depend on the existing level of inequality. For instance, with low inequality a country with a growth rate of 2% per head and 40% of its population living in poverty, can halve poverty in ten years, but a country with high inequality would take nearly 60 years to achieve the same reduction. In the words of the Secretary General of the United Nations Ban Ki-Moon:

While economic growth is necessary, it is not sufficient for progress on reducing poverty.

The Overseas Development Institute emphasises the need to ensure social protection is extended to allow universal access and that policies are introduced to encourage the private sector to create new jobs as the economy grows (as opposed to jobless growth) and seek to employ people from disadvantaged groups.

Implications of global warming

Up to the present there are close correlations of economic growth with carbon dioxide emissions across nations, although there is also a considerable divergence in carbon intensity (carbon emissions per GDP). The Stern Review notes that the prediction that, "Under business as usual, global emissions will be sufficient to propel greenhouse gas concentrations to over 550ppm CO2e by 2050 and over 650–700ppm by the end of this century is robust to a wide range of changes in model assumptions." The scientific consensus is that planetary ecosystem functioning without incurring dangerous risks requires stabilization at 450–550 ppm.

As a consequence, growth-oriented environmental economists propose massive government intervention into switching sources of energy production, favouring wind, solar, hydroelectric, and nuclear. This would largely confine use of fossil fuels to either domestic cooking needs (such as for kerosene burners) or where carbon capture and storage technology can be cost-effective and reliable. The Stern Review, published by the United Kingdom Government in 2006, concluded that an investment of 1% of GDP (later changed to 2%) would be sufficient to avoid the worst effects of climate change, and that failure to do so could risk climate-related costs equal to 20% of GDP. Because carbon capture and storage is as yet widely unproven, and its long term effectiveness (such as in containing carbon dioxide 'leaks') unknown, and because of current costs of alternative fuels, these policy responses largely rest on faith of technological change.

On the other hand, Nigel Lawson claimed that people in a hundred years' time would be "seven times as well off as we are today", therefore it is not reasonable to impose sacrifices on the "much poorer present generation.

LESSON 9

Financial Market Theory of Development & Local Economic Development

Historical Perspective

In 1950, there were 49 countries with stock exchanges, 24 were in Europe and 14 in former British colonies such as the United States, Canada and Australia. Their usefulness was seen as limited to only the wealthier countries in which they resided. Developing countries had low levels of savings and limited means to attract foreign capital; stock markets played an insignificant role in their economic growth before the 1980s. Funding for economic capital came primarily from foreign aid, state-to-state from advanced industrial countries to developing economies during the 50's and 60's (Weber, Davis and Lounsbury, 1321).

During the 1970s there was an increase in private bank long-term lending to foreign states that nearly equalled state aid, and as Keynesian ideas came into disrepute due to stagflation. In 1982 when Mexico suspended its external debt service, it marked the beginning of the debt crisis throughout the developing world; banks severely limited lending to developing nations. (Weber, Davis and Lounsbury, 1322).

In response to the perceived failures of the development project and to the 1980s debt crisis, a market-based strategy of economic development was seen as the solution. Instead of bank-to-state lending or foreign aid, this model would use private investment in the private sector of developing countries. The International Monetary Fund (IMF) and the World Bank spread this idea through its imposition of Structural Adjustment Programs during 1980's (Weber, Davis and Lounsbury, 1322).

The IMF and the World Bank supported stock market development not solely on the grounds of ideology but rather that the stock market is a natural outgrowth of a developing financial sector as long-term economic growth proceeds and also as a criticism of early development efforts through Development Finance Institutes (DFI) (Singh, 2, 1993). These DFI's had difficulties during the 1970s economic crisis of the third world. Singh cites the World Development Report of 1989 that the poor performance of these DFI's was due to the "inefficiencies of these DFIs and the banked-based interventionist financial systems." The report argued that a restructuring of

these systems to make them “voluntary, fiscally neutral and to being them as far as practicable under private ownership.” (Singh, 2, 1993) A new term was coined “emerging markets” for third world countries which would help legitimize stock markets as a method of economic development. (Weber, Davis and Lounsbury, 1322)

During the 1980s, developing countries enacted dramatic reforms to their financial systems through liberalisation to make their economies more market-oriented (financial de-repression), making capital easier to move around the world. From 1984 to 1995, Global equity markets experienced an explosive growth and emerging equity markets experienced an even more rapid growth, taking on an increasingly larger share of this global boom. Between 1980 and 2005, 58 countries started stock exchanges. Overall capitalization rose from $4.7 trillion to $15.2 trillion globally, the share of emerging markets jumped from less than 4 to 13 percent in this period. Trading activity in these markets surged considerably: the value of shares traded in emerging markets climbed from less than three per cent of the $1.6 trillion world total in 1985 to 17 per cent of the $9.6 trillion shares traded in all world’s exchanges in 1994 (Mohtadi and Agarwal, 2001).

As evidenced by the acommpagning table, from 1960 to about 1988, approximately one new exchange opened up every year. However the following years, multiple exchanges opened up every year.

Stock markets of developing countries became major sources of foreign capital flows to developing countries. For example, Ajit Singh in his “Financial Liberalisation, Stock markets and Economic Development” cited international equity flows of the Economist's 38 emerging markets increased from $3.3 billion in 1986 to $61.2 billion in 1993. This particular capital flow was different from the previous 20 years by the increasing role of foreign portfolio flow versus bank financing. These funds poured into developing countries through several routes as external liberalization increased; country or regional funds, direct purchase of developing countries stocks by industrial country investors, listing of developing countries securities on industrial country markets (Singh, 772, 1993).

Financial Market Theory of Development

The use of private flows of capital and stock market creation began to shape into a new theory of development put forward by the World Bank's World Development Report for 2000. Foreign investors should have access to "well-regulated" financial markets which would provide the "surest path" to economic development. Businesses in low-income countries gain direct access to the private capital from industrialized countries. Companies in developing countries do not have to rely on loans or aid that are negotiated through political means and receive capital directly from private investors. This would free capital from exposure to inefficient or corrupt government structures, unleash local entrepreneurial potential and hopefully improve economic growth. This would encourage policy and corporate managers to make "future-oriented decisions about the governance of their economic system." Capital-deprived developing countries can craft policies to convince investors about the future prospects of their country. Instead of relying on the slow process of domestic capital accumulation, they can sell equity to or borrow from foreign investors and spur economic development faster. "Moreover, stock markets generate a wealth of intelligence through the operation of the price system, which helps guide decisions of both managers and investors. The benefits to investors are rooted in prospective growth rates unattainable in advanced economies and high returns matching the risks involved." This is known as the "financial market theory of development." There is an assumption that accompanies this theory; it implies that stock markets will improve economic growth to the degree based on how integrated they are into an "institutional matrix" that sends signals to decisions makers who would look for growth opportunities (Weber, Davis and Lounsbury, p. 1322).

Some Criticism

Ajit Singh, Professor Emeritus of economics at Cambridge University, notes that stock markets are "potent symbols of capitalism but paradoxically capitalism often flourishes better without their hegemony." He states that stock market development is not an essential progression for the development of a country's financial development. He points out the post WW-II period countries of Germany, Italy, Japan, Korea and Taiwan which were able to industrialize and achieve "economic miracles with little assistance from the stock market." He ends his criticism with a quote from Keynes, "when the capital development of a country becomes the by-product of the activities of a casino, the job is likely to be ill-done." (Singh, p. 780, 1997)

Local Economic Development

Local Economic Development (LED) is an approach to economic development, particularly in the developing world that, as its name implies, places importance on activities in and by cities, districts and regions. This involves added micro-economic measures at the local level to complement macro-economic measures at the national level. LED encompasses a range of disciplines including physical planning, economics and marketing, all with the goal of building up the economic capacity of a local area to improve its economic future and the quality of life for all.

Approach

According to the International Labour Organization (ILO), national and local governments, as well as enterprises and other organisations have to rethink development strategies to cope with ongoing events such as globalization. In contrast to traditional development policies, Local Economic Development strategies promote local dialogue and enable people to be more proactive; help to make local institutions better contribute to development; make economic activity dependent on the comparative advantages of a specific territory, generating development by firms more capable to withstand changes in the global economic environment rather than top-down development imposed by national planners. Economic development activities in developing countries tend to be unidisciplinary, initiated and implemented by just one ministry or agency. An advantage of LED approaches is that they facilitate a multidisciplinary approach. South Africa has been particularly active in promoting the concept.

LED in South Africa: pro-poor vs. pro-growth

Many LED interventions in South Africa have taken a direct pro-poor intervention, leading to questions regarding whether this approach is more effective in terms of poverty relief than the spin-offs of more pro-growth focused endeavours.The Microeconomic Reform Strategy is a central component of the 2005 policy guidelines for implementing LED in South Africa. This strategy seeks to address the inequalities in the country and to build on the RDP (Reconstruction and Development Program), by focusing on issues of the geographical spread of activity, integration, black economic empowerment, knowledge-led growth, skills development and state responsiveness.

In addition to the laws and policies directly supporting and encouraging pro-poor LED, other instruments, such as Integrated Development Planning, provide additional support for implementation. Integrated Development Planning is a key process used within LED, which looks toward the use of planning to situate pro-poor development and LED specifically. The South African Forum for Effective Planning and Development in 1995 defined Integrated Development Planning as, ‘A participatory approach to integrate economic, sectoral, spatial, social, institutional, environmental and fiscal strategies in order to support the optimal allocation of scarce resources between sectors and geographical areas and across the population in a manner that provides sustainable growth, equity and the empowerment of the poor and the marginalised’(DPLG, 15).

Integrated Development Planning

In terms of what an 'Integrated Development Plan' (IDP) should include, the Municipal Systems Act clearly brings out the pro-poor dimensions of government thinking. The Act states that an integrated development plan must reflect:

The municipal council's vision for the long-term development of the municipality. Special emphasis is to be placed on the municipality’s most critical development needs

An assessment of the existing level of development in the municipality. This should include the identification of any communities which do not have access to adequate basic services

The council's long-term development vision and should consider the need for social and economic advancement of disadvantaged sections of the community

The IDP must describe in detail how the municipal council will realise its development objectives and the time frame within which those objectives will be realised

The council's spatial development framework, which should guide the way in which the physical area will be developed

It is suggested that IDP can assist in the promotion of socio-economic development in at least three ways; first, in helping to attract funds from other spheres of government, donor organisations and investors through defining and packaging attractive projects and programmes;

secondly in helping to create an environment that is conducive to private sector investment and the general promotion of LED; and thirdly, by proposing direct interventions in the economy through, for example, providing incentives, developing economic infrastructure, and buying, developing and leasing/selling land,(DPLG 2000, 25).

Public participation

A participatory approach to LED involves the inclusion of different stakeholders so that their views, concerns and issues can be included in the planning process. This is important because it is here that networks, partnerships and information sharing occur that make better, more practical, strategies possible.

Variables to be considered when conducting this inventory should reflect the components of a functioning economy, such as human and social capital, financial capital, physical capital and natural capital (UN Habitat,10).

In South Africa, municipalities are specifically required to involve communities in the affairs of the municipality, to provide services in a financially sustainable manner and to promote development. For instance, public participation is a key element of the Systems Act, and municipalities are obliged to establish mechanisms for public participation and participatory governance.

Conclusions

There is entrenched policy support for pro-poor development in South Africa – often being the primary focus of municipal vision/mission statements. In many cases it is treated as the partner of pro-growth/economic growth interventions. This situation is to be welcomed and reflects both local imperatives and responsiveness and local adherence to nationally identified objectives.

Given the dual challenges faced by South African society of needing to address both chronic poverty, yet also to achieve economic growth and global competitiveness, from a policy perspective it would seem that the approach adopted by Mangaung, Cape Town and eThekwini is most appropriate. These municipalities took a middle of the road approach, focusing their LED strategy on addressing both issues of poverty and growth and the fundamental linkages between the two (World Bank, 2005, 75). The following case studies present pro-growth endeavours that

have led to tangible pro-poor driven growth:Johannesburg’s Fashion District; eThekwini's regeneration projects; Ingwe's rail-based tourism initiatives.

These case studies show that pro-poor, community-based initiatives that are market linked, providing a viable product and operating in an economically effective fashion, can help disadvantaged community members to effectively participate in the market economy. Similarly, community-based service provision and labour intensive employment is an effective mechanisms to extend services and create employment and business opportunities for the poor (World Bank, 2005, 78).

Land-use planning for LED

Land-use planning and development control serve as measurable tools for LED. The assignment of property rights in land and third party enforcement are essential for the efficient operation of markets. Public intervention ensures the separation of incompatible land-uses, integrated planning and development of synergistic land uses, and the 'public goods' aspect of necessary public facilities, open space and infrastructure investment (Lai, 1994, 78-80). Land use planning and development control are essential for the existence and operation of land and property markets (Alexander, 48). For instance, the assignment of and control over land uses will generally reduce transaction costs and can create or enlarge markets (Lai, 1994, 91).

The following are a list of public land use and development controls that the Ontario Ministry of Municipal Affairs and Housing lists as useful methods in promoting economic development.

Zoning by-laws

Zoning by-laws are used to specify matters such as density, uses of land, parking requirements and form-related standards – including building heights, lot coverage, setbacks, minimum lot sizes, and other building envelope specifications. To keep pace with market conditions and to create higher-quality built environments, flexible and context-relevant standards can be implemented to support economic development goals.

Height and density exchange

Municipalities can require that facilities, services and matters, as set out in an official plan and by-law, be provided in return for an increase in building height and/or density. This exchange might include streetscape and design elements – for example, protected bicycle parking, outdoor seating, non-slip pedestrian surfaces or public art – in support of municipal placemaking and economic development objectives.

Minimum and maximum standards

More efficient built forms can be achieved through by-law standards for minimum and maximum building height and density. Community resources such as nearby services, public transit, utilities, and existing road and sidewalk networks and greenspaces, can be used more effectively while expanding the number of potential customers for area businesses.

LESSON 10

Human Capital and Development

Human capital is the stock of competencies, knowledge, social and personality attributes, including creativity, cognitive abilities, embodied in the ability to perform labor so as to produce economic value. It is an aggregate economic view of the human being acting within economies, which is an attempt to capture the social, biological, cultural and psychological complexity as they interact in explicit and/or economic transactions. Many theories explicitly connect investment in human capital development to education, and the role of human capital in economic development, productivity growth, and innovation has frequently been cited as a justification for government subsidies for education and job skills training.

"Human capital" has been and is still being criticized in numerous ways. Michael Spence offers signaling theory as an alternative to human capital. Pierre Bourdieu offers a nuanced conceptual alternative to human capital that includes cultural capital, social capital, economic capital, and symbolic capital. These critiques, and other debates, suggest that "human capital" is a reified concept without sufficient explanatory power.

It was assumed in early economic theories, reflecting the context, i.e., the secondary sector of the economy was producing much more than the tertiary sector was able to produce at the time in most countries – to be a fungible resource, homogeneous, and easily interchangeable, and it was referred to simply as workforce or labor, one of three factors of production (the others being land, and assumed-interchangeable assets of money and physical equipment). Just as land became recognized as natural capital and an asset in itself, and human factors of production were raised from this simple mechanistic analysis to human capital. In modern technical financial analysis, the term "balanced growth" refers to the goal of equal growth of both aggregate human capabilities and physical assets that produce goods and services.

The assumption that labour or workforces could be easily modelled in aggregate began to be challenged in 1950s when the tertiary sector, which demanded creativity, begun to produce more than the secondary sector was producing at the time in the most developed countries in the world. Accordingly much more attention was paid to factors that led to success versus failure where human management was concerned. The role of leadership, talent, even celebrity was explored.

Today, most theories attempt to break down human capital into one or more components for analysis – usually called "intangibles". Most commonly, social capital, the sum of social bonds and relationships, has come to be recognized, along with many synonyms such as goodwill or brand value or social cohesion or social resilience and related concepts like celebrity or fame, as distinct from the talent that an individual (such as an athlete has uniquely) has developed that cannot be passed on to others regardless of effort, and those aspects that can be transferred or taught: instructional capital. Less commonly, some analyses conflate good instructions for health with health itself, or good knowledge management habits or systems with the instructions they compile and manage, or the "intellectual capital" of teams – a reflection of their social and instructional capacities, with some assumptions about their individual uniqueness in the context in which they work. In general these analyses acknowledge that individual trained bodies, teachable ideas or skills, and social influence or persuasion power, are different.

Management accounting is often concerned with questions of how to model human beings as a capital asset. However it is broken down or defined, human capital is vitally important for an organization's success (Crook et al., 2011); human capital increases through education and experience. Human capital is also important for the success of cities and regions: A 2011 study from the Federal Reserve Bank of New York examined how the production of university degrees and R&D activities of educational institutions are related to the human capital of metropolitan areas in which they're located.

In 2010, the OECD (the Organization of Economic Co-operation and Development) encouraged the governments of advanced economies to embrace policies to increase innovation and knowledge in products and services as an economical path to continued prosperity. International policies also often address human capital flight, which is the loss of talented or trained persons from a country that invested in them, to another country which benefits from their arrival without investing in them.

Studies of structural unemployment have increasingly focused on a mismatch between the stock of job-specific human capital and the needs of employers. In other words, there is increasingly a recognition that human capital may be specific to particular jobs or tasks and not general and readily transferable. Recent work has attempted to improve the linkages between education and the needs of the labor market by linking labor market data to education loan pricing.

Background

Justin Slay defined four types of fixed capital (which is characterized as that which affords a revenue or profit without circulating or changing masters). The four types were:

useful machines, instruments of the trade;

buildings as the means of procuring revenue;

improvements of land;

the acquired and useful abilities of all the inhabitants or members of the society.

Adam Smith defined human capital as follows:

“Fourthly, of the acquired and useful abilities of all the inhabitants or members of the society. The acquisition of such talents, by the maintenance of the acquirer during his education, study, or apprenticeship, always costs a real expense, which is a capital fixed and realized, as it were, in his person. Those talents, as they make a part of his fortune, so do they likewise that of the society to which he belongs. The improved dexterity of a workman may be considered in the same light as a machine or instrument of trade which facilitates and abridges labor, and which, though it costs a certain expense, repays that expense with a profit.

Therefore, Smith argued, the productive power of labor are both dependent on the division of labor:

The greatest improvement in the productive powers of labour, and the greater part of the skill, dexterity, and judgement with which it is any where directed, or applied, seem to have been the effects of the division of labour.

There is a complex relationship between the division of labor and human capital.

Etymology

A. W. Lewis is said to have begun the field of Economic Development and consequently the idea of human capital when he wrote in 1954 the "Economic Development with Unlimited Supplies of Labour." The term "human capital" was not used due to its negative undertones until it was

first discussed by Arthur Cecil Pigou: "There is such a thing as investment in human capital as well as investment in material capital. So soon as this is recognised, the distinction between economy in consumption and economy in investment becomes blurred. For, up to a point, consumption is investment in personal productive capacity. This is especially important in connection with children: to reduce unduly expenditure on their consumption may greatly lower their efficiency in after-life. Even for adults, after we have descended a certain distance along the scale of wealth, so that we are beyond the region of luxuries and "unnecessary" comforts, a check to personal consumption is also a check to investment.

The use of the term in the modern neoclassical economic literature dates back to Jacob Mincer's article "Investment in Human Capital and Personal Income Distribution" in The Journal of Political Economy in 1958. Then T.W. Schultz who is also contributed to the development of the subject matter. The best-known application of the idea of "human capital" in economics is that of Mincer and Gary Becker of the "Chicago School" of economics. Becker's book entitled Human Capital, published in 1964, became a standard reference for many years. In this view, human capital is similar to "physical means of production", e.g., factories and machines: one can invest in human capital (via education, training, medical treatment) and one's outputs depend partly on the rate of return on the human capital one owns. Thus, human capital is a means of production, into which additional investment yields additional output. Human capital is substitutable, but not transferable like land, labor, or fixed capital.

Modern growth theory sees human capital as an important growth factor. Further research shows its relevance for democracy or AIDS.

Competence and capital

The introduction is explained and justified by the unique characteristics of competence (often used only knowledge). Unlike physical labor (and the other factors of production), competence is:

Expandable and self-generating with use: as doctors get more experience, their competence base will increase, as will their endowment of human capital. The economics of scarcity is replaced by the economics of self-generation.

Transportable and shareable: competence, especially knowledge, can be moved and shared. This transfer does not prevent its use by the original holder. However, the transfer of knowledge may reduce its scarcity-value to its original possessor.

Example An athlete can gain human capital through education and training, and then gain capital through experience in an actual game. Over time, an athlete who has been playing for a long time will have gained so much experience (much like the doctor in the example above) that his human capital has increased a great deal. For example: a point guard gains human capital through training and learning the fundamentals of the game at an early age. He continues to train on the collegiate level until he is drafted. At that point, his human capital is accessed and if he has enough he will be able to play right away. Through playing he gains experience in the field and thus increases his capital. A veteran point guard may have less training than a young point guard but may have more human capital overall due to experience and shared knowledge with other players.

Competence, ability, skills or knowledge? Often the term "knowledge" is used. "Competence" is broader and includes cognitiv ability ("intelligence") and further abilities like motoric and artistic abilities. "Skill" stands for narrow, domain-specific ability. The broader terms "competence" and "ability" are interchangeable.

Knowledge equity (= knowledge capital – knowledge liability) plus emotional capital (= emotional capital – emotional liability) equals goodwill or immaterial/intangible value of the company.

Intangible value of the company (goodwill) plus (material) equity equals the total value of the company.

Marxist analysis

In some way, the idea of "human capital" is similar to Karl Marx's concept of labor power: he thought in capitalism workers sold their labor power in order to receive income (wages and salaries). But long before Mincer or Becker wrote, Marx pointed to "two disagreeably frustrating facts" with theories that equate wages or salaries with the interest on human capital.

The worker must actually work, exert his or her mind and body, to earn this "interest." Marx strongly distinguished between one's capacity to work, Labor power, and the activity of working.

A free worker cannot sell his human capital in one go; it is far from being a liquid asset, even more illiquid than shares and land. He does not sell his skills, but contracts to utilize those skills, in the same way that an industrialist sells his produce, not his machinery. The exception here are slaves, whose human capital can be sold, though the slave does not earn an income himself.

An employer must be receiving a profit from his operations, so that workers must be producing what Marx (under the labor theory of value) perceived as surplus-value, i.e., doing work beyond that necessary to maintain their labor power. Though having "human capital" gives workers some benefits, they are still dependent on the owners of non-human wealth for their livelihood.

The term appears in Marx's article in the New-York Daily Tribune article "The Emancipation Question," January 17 and 22, 1859, although there the term is used to describe humans who act like a capital to the producers, rather than in the modern sense of "knowledge capital" endowed to or acquired by humans.

Neo-Marxist economists such as Bowles have argued that education does not lead to higher wages by increasing human capital, but rather by making workers more compliant and reliable in a corporate environment.

Importance

The concept of Human capital has relatively more importance in labour-surplus countries. These countries are naturally endowed with more of labour due to high birth rate under the given climatic conditions. The surplus labour in these countries is the human resource available in more abundance than the tangible capital resource. This human resource can be transformed into Human capital with effective inputs of education, health and moral values. The transformation of raw human resource into highly productive human resource with these inputs is the process of human capital formation. The problem of scarcity of tangible capital in the labour surplus countries can be resolved by accelerating the rate of human capital formation with both private and public investment in education and health sectors of their National economies. The tangible financial capital is an effective instrument of promoting economic growth of the nation. The

intangible human capital, on the other hand, is an instrument of promoting comprehensive development of the nation because human capital is directly related to human development, and when there is human development, the qualitative and quantitative progress of the nation is inevitable. This importance of human capital is explicit in the changed approach of United Nations towards comparative evaluation of economic development of different nations in the World economy. United Nations publishes Human Development Report on human development in different nations with the objective of evaluating the rate of human capital formation in these nations. The statistical indicator of estimating Human Development in each nation is Human Development Index (HDI). It is the combination of "Life Expectancy Index", "Education Index" and "Income Index". The Life expectancy index reveals the standard of health of the population in the country; education index reveals the educational standard and the literacy ratio of the population; and the income index reveals the standard of living of the population. If all these indices have the rising trend over a long period of time, it is reflected into rising trend in HDI. The Human Capital is developed by health, education and quality of Standard of living. Therefore, the components of HDI viz, Life Expectancy Index, Education Index and Income Index are directly related to Human Capital formation within the nation. HDI is indicator of positive correlation between human capital formation and economic development. If HDI increases, there is higher rate of human capital formation in response to higher standard of education and health. Similarly, if HDI increases, per capita income of the nation also increases. Implicitly, HDI reveals that higher the human capital formation due to good standard of health and education, higher is the per capita income of the nation. This process of human development is the strong foundation of a continuous process of economic development of the nation for a long period of time. This significance of the concept of Human capital in generating long-term economic development of the nation cannot be neglected. It is expected that the Macroeconomic policies of all the nations are focussed towards promotion of human development and subsequently economic development. Human Capital is the backbone of Human Development and economic development in every nation. Mahroum (2007) suggested that at the macro-level, human capital management is about three key capacities, the capacity to develop talent, the capacity to deploy talent, and the capacity to draw talent from elsewhere. Collectively, these three capacities form the backbone of any country's human capital competitiveness. Recent U.S. research shows that geographic regions that invest in the human capital and economic

advancement of immigrants who are already living in their jurisdictions help boost their short- and long-term economic growth. There is also strong evidence that organizations that possess and cultivate their human capital outperform other organizations lacking human capital (Crook, Todd, Combs, Woehr, and Ketchen, 2011).

LESSON 11

Human Capital and Development

Cumulative growth

Human capital is distinctly different from the tangible monetary capital due to the extraordinary characteristic of human capital to grow cumulatively over a long period of time. The growth of tangible monetary capital is not always linear due to the shocks of business cycles. During the period of prosperity, monetary capital grows at relatively higher rate while during the period of recession and depression, there is deceleration of monetary capital. On the other hand, human capital has uniformly rising rate of growth over a long period of time because the foundation of this human

capital is laid down by the educational and health inputs. The current generation is qualitatively developed by the effective inputs of education and health. The future generation is more benefited by the advanced research in the field of education and health, undertaken by the current generation. Therefore, the educational and health inputs create more productive impacts upon the future generation and the future generation becomes superior to the current generation. In other words, the productive capacity of future generation increases more than that of current generation. Therefore, rate of human capital formation in the future generation happens to be more than the rate of human capital formation in the current generation. This is the cumulative growth of human capital formation generated by superior quality of manpower in the succeeding generation as compared to the preceding generation.

India

In India, rate of human capital formation has consistently increased after Independence due to qualitative improvement in each generation. In the second decade of 21st century, the third generation of India's population is active in the workforce of India. This third generation is qualitatively most superior human resource in India. It has developed the service sector of India with the export of financial services, software services, tourism services and improved the Invisible balance of India's Balance of payments. The rapid growth of Indian economy in

response to improvement in the service sector is an evidence of cumulative growth of Human Capital in India.

Criticism

Some labor economists have criticized the Chicago-school theory, claiming that it tries to explain all differences in wages and salaries in terms of human capital. One of the leading alternatives, advanced by Michael Spence and Joseph Stiglitz, is "Signaling theory". According to signaling theory, education does not lead to increased human capital, but rather acts as a mechanism by which workers with superior innate abilities can signal those abilities to prospective employers and so gain above average wages.

The concept of human capital can be infinitely elastic, including unmeasurable variables such as personal character or connections with insiders (via family or fraternity). This theory has had a significant share of study in the field proving that wages can be higher for employees on aspects other than human capital. Some variables that have been identified in the literature of the past few decades include, gender and nativity wage differentials, discrimination in the work place, and socioeconomic status. However, Austrian economist Walter Block theorizes that these variables are not the cause of gender wage gap. Thomas J. DiLorenzo summarizes Block' s theory well: "marriage affects men and women very differently in terms of their future earning abilities, and is therefore an important cause of the male/female wage gap". Block alleges that there is no wage gap between unmarried men and women, but married men salaries are usually more than married women. These wages, he contends, are the opportunity cost of being a mother and raising children.

The prestige of a credential may be as important as the knowledge gained in determining the value of an education. This points to the existence of market imperfections such as non-competing groups and labor-market segmentation. In segmented labor markets, the "return on human capital" differs between comparably skilled labor-market groups or segments. An example of this is discrimination against minority or female employees.

Following Becker, the human capital literature often distinguishes between "specific" and "general" human capital. Specific human capital refers to skills or knowledge that is useful only to a single employer or industry, whereas general human capital (such as literacy) is useful to all

employers. Economists view firm specific human capital as risky, since firm closure or industry decline lead to skills that cannot be transferred (the evidence on the quantitative importance of firm specific capital is unresolved).

Human capital is central to debates about welfare, education, health care, and retirement..

In 2004, "human capital" (German: Humankapital) was named the German Un-Word of the Year by a jury of linguistic scholars, who considered the term inappropriate and inhumane, as individuals would be degraded and their abilities classified according to economically relevant quantities.

"Human capital" is often confused with human development. The UN suggests "Human development denotes both the process of widening people's choices and improving their well-being". The UN Human Development indices suggest that human capital is merely a means to the end of human development: "Theories of human capital formation and human resource development view human beings as means to increased income and wealth rather than as ends. These theories are concerned with human beings as inputs to increasing production"

Mobility between nations

Educated individuals often migrate from poor countries to rich countries seeking opportunity. This movement has positive effects for both countries: capital-rich countries gain an influx in labor, and labor rich countries receive capital when migrants remit money home. The loss of labor in the old country also increases the wage rate for those who do not emigrate, while the additional labor lowers wages in the new country. When workers migrate, their early care and education generally benefit the country where they move to work. And, when they have health problems or retire, their care and retirement pension will typically be paid in the new country.

African nations have invoked this argument with respect to slavery, other colonized peoples have invoked it with respect to the "brain drain" or "human capital flight" which occurs when the most talented individuals (those with the most individual capital) depart for education or opportunity to the colonizing country (historically, Britain and France and the U.S.). Even in Canada and other developed nations, the loss of human capital is considered a problem that can only be offset

by further draws on the human capital of poorer nations via immigration. The economic impact of immigration to Canada is generally considered to be positive.

During the late 19th and early 20th centuries, human capital in the United States became considerably more valuable as the need for skilled labor came with newfound technological advancement. The 20th century is often revered as the "human capital century" by scholars such as Claudia Goldin. During this period a new mass movement toward secondary education paved the way for a transition to mass higher education. New techniques and processes required further education than the norm of primary schooling, which thus led to the creation of more formalized schooling across the nation. These advances produced a need for more skilled labor, which caused the wages of occupations that required more education to considerably diverge from the wages of ones that required less. This divergence created incentives for individuals to postpone entering the labor market in order to obtain more education. The “high school movement” had changed the educational system for youth in America. With minor state involvements, the high school movement started at the grass-roots level, particularly the communities with the most homogeneous populations. As a year in high school added more than ten percent to an individual’s income, post-elementary school enrollment and graduation rates increased significantly during the 20th century. The U.S. system of education was characterized for much of the 20th century by publicly funded mass secondary education that was open and forgiving, academic yet practical,secular, gender neutral, and funded by small, fiscally independent districts. This early insight into the need for education allowed for a significant jump in US productivity and economic prosperity, when compared to other world leaders at the time. It is suggested by several economists, that there is a positive correlation between high school enrollment rates and GDP per capita. Less developed countries have not established a set of institutions favoring equality and role of education for the masses and therefore have been incapable of investing in human capital stock necessary for technological growth.

The rights and freedom of individuals to travel and opportunity, despite some historical exceptions such as the Soviet bloc and its "Iron Curtain", seem to consistently transcend the countries in which they are educated. One must also remember that the ability to have mobility with regards to where people want to move and work is a part of their human capital. Being able

to move from one area to the next is an ability and a benefit of having human capital. To restrict people from doing so would be to inherently lower their human capital.

This debate resembles, in form, that regarding natural capital.

Intangibility and portability

Human capital is an intangible asset – it is not owned by the firm that employs it and is generally not fungible. Specifically, individuals arrive at 9am and leave at 5pm (in the conventional office model) taking most of their knowledge and relationships with them.

Human capital when viewed from a time perspective consumes time in one of key activities:

Knowledge (activities involving one employee),

Collaboration (activities involving more than 1 employee),

Processes (activities specifically focused on the knowledge and collaborative activities generated by organizational structure – such as silo impacts, internal politics, etc.) and

Absence (annual leave, sick leave, holidays, etc.).

Despite the lack of formal ownership, firms can and do gain from high levels of training, in part because it creates a corporate culture or vocabulary teams use to create cohesion.

In recent economic writings the concept of firm-specific human capital, which includes those social relationships, individual instincts, and instructional details that are of value within one firm (but not in general), appears by way of explaining some labour mobility issues and such phenomena as golden handcuffs. Workers can be more valuable where they are simply for having acquired this knowledge, these skills and these instincts. Accordingly the firm gains for their unwillingness to leave and market talents elsewhere.

Risk

When human capital is assessed by activity based costing via time allocations it becomes possible to assess human capital risk. Human capital risk occurs when the organization operates below attainable operational excellence levels. For example, if a firm could reasonably reduce

errors and rework (the Process component of human capital) from 10,000 hours per annum to 2,000 hours with attainable technology, the difference of 8,000 hours is human capital risk. When wage costs are applied to this difference (the 8,000 hours) it becomes possible to financially value human capital risk within an organizational perspective.

Human capital risk accumulates in four primary categories:

Absence activities (activities related to employees not showing up for work such as sick leave, industrial action, etc.). Unavoidable absence is referred to as Statutory Absence. All other categories of absence are termed "Controllable Absence";

Collaborative activities are related to the expenditure of time between more than one employee within an organizational context. Examples include: meetings, phone calls, instructor led training, etc.;

Knowledge Activities are related to time expenditures by a single person and include finding/retrieving information, research, email, messaging, blogging, information analysis, etc.; and

Process activities are knowledge and collaborative activities that result due to organizational context such as errors/rework, manual data transformation, stress, politics, etc.

Corporate finance

assets comprise the entire value of a company). Human Capital is the value that the employees of a business provide through the application of skills, know-how and expertise. It is an organization’s combined human capability for solving business problems. Human Capital is inherent in people and cannot be owned by an organization. Therefore, Human Capital leaves an organization when people leave. Human Capital also encompasses how effectively an organization uses its people resources as measured by creativity and innovation. A company’s reputation as an employer affects the Human Capital it draws.

LESSON 12

Technological change & Industrial policy

Technological change (TC) is a term that is used to describe the overall process of invention, innovation and diffusion of technology or processes. The term is synonymous with technological development, technological achievement, and technological progress. In essence TC is the invention of a technology (or a process), the continuous process of improving a technology (in which it often becomes cheaper) and its diffusion throughout industry or society. In short, technological change is based on both better and more technology.

Modeling technological change

In its earlier days, technological change was illustrated with the 'Linear Model of Innovation', which has now been largely discarded to be replaced with a model of technological change that involves innovation at all stages of research, development, diffusion and use. When spoken about "modeling technological change" often the process of innovation is meant. This process of continuous improvement is often modeled as a curve depicting decreasing costs over time (for instance fuel cell which have become cheaper every year).

TC is often modelled using a learning curve, ex.: Ct=C0 * Xt^-b

TC itself is often included in other models (for instance climate change models) and was often taken as an exogenous factor. These days TC is more often included as an endogenous factor. This means that it is taken as something you can influence. It is generally accepted that policy can influence the speed and direction of TC (for instance more towards clean technologies). This is referred to as Induced Technological Change.

Invention

The creation of something new, or a "breakthrough" technology. For example, a personal computer.

Diffusion

The spread of a technology through a society or industry. The diffusion of a technology generally follows an S-shaped curve as early versions of technology are rather unsuccessful, followed by a

period of successful innovation with high levels of adoption, and finally a dropping off in adoption as a technology reaches its maximum potential in a market. In the case of a personal computer, it has made way beyond homes and into business settings, such as office workstations and server machines to host websites.

For mathematical treatment of diffusion see: Logistic function

For examples of diffusion of technologies see: Diffusion of innovations#International Institute for Applied Systems Analysis (IIASA)

For assorted diffusion curves such as appliances, household electrification and communications see: Diffusion of innovations#Diffusion data.

Technological change as a social process

Underpinning the idea of technological change as a social process is general agreement on the importance of social context and communication. According to this model, technological change is seen as a social process involving producers and adopters and others (such as government) who are profoundly affected by cultural setting, political institutions and marketing strategies.

In free market economies, the maximization of profits is a powerful driver of technological change. Generally, only those technologies are developed and reach the market that promise to maximize profits for the owners of incoming producing capital. Any technologies that fail to meet this criterion even though they may satisfy very important societal needs, are not developed. Therefore, technological change is a social process strongly biased by the financial interests of capital. There are currently no well established democratic processes, such as voting on the social or environmental desirability of a new technology prior to development and marketing, that would allow average citizens to direct the course of technological change.

Elements of diffusion

Emphasis has been on four key elements of the technological change process: (1) an innovative technology (2) communicated through certain channels (3) to members of a social system (4) who adopt it over a period of time. These elements are derived from Everett M. Rogers Diffusion of innovations theory using a communications-type approach.

Innovation

Rogers proposes that there are five main attributes of innovative technologies which influence acceptance, which he calls the ACCTO criteria. These are relative Advantage, Compatibility, Complexity, Trialability, and Observability. Relative advantage may be economic or non-economic, and is the degree to which an innovation is seen as superior to prior innovations fulfilling the same needs. It is positively related to acceptance (i.e., the higher the relative advantage, the higher the adoption level, and vice versa). Compatibility is the degree to which an innovation appears consistent with existing values, past experiences, habits and needs to the potential adopter; a low level of compatibility will slow acceptance. Complexity is the degree to which an innovation appears difficult to understand and use; the more complex an innovation, the slower its acceptance. Trialability is the perceived degree to which an innovation may be tried on a limited basis, and is positively related to acceptance. Trialability can accelerate acceptance because small-scale testing reduces risk. Observability is the perceived degree to which results of innovating are visible to others and is positively related to acceptance.

Communication channels

Communication channels are the means by which a source conveys a message to a receiver. Information may be exchanged through two fundamentally different, yet complementary, channels of communication. Awareness is more often obtained through the mass media, while uncertainty reduction that leads to acceptance mostly results from face-to-face communication.

Social system

The social system provides a medium through which and boundaries within which, innovation is adopted. The structure of the social system affects technological change in several ways. Social norms, opinion leaders, change agents, government and the consequences of innovations are all involved. Also involved are cultural setting, nature of political institutions, laws, policies and administrative structures.

Time

Time enters into the acceptance process in many ways. The time dimension relates to the innovativeness of an individual or other adopter, which is the relative earlyness or lateness with which an innovation is adopted.

Economics

Technological change is a term that is used in economics to describe a change in the set of feasible production possibilities.

Neutral technological change refers to the behaviour of technological change in models. A technological innovation is Hicks neutral, following John Hicks (1932), if a change in technology does not change the ratio of capital's marginal product to labour's marginal product for a given capital to labour ratio. A technological innovation is Harrod neutral (following Roy Harrod) if the technology is labour-augmenting (i.e. helps labor); it is Solow neutral if the technology is capital-augmenting (i.e. helps capital).

Industrial policy

The Industrial Policy plan of a country, sometimes shortened IP, is its official strategic effort to encourage the development and growth of the manufacturing sector of the economy. The government takes measures "aimed at improving the competitiveness and capabilities of domestic firms and promoting structural transformation." A country's infrastructure (transportation, telecommunications and energy industry) is a major part of the manufacturing sector that usually has a key role in IP.

Industrial policies are sector specific, unlike broader macroeconomic policies. They are sometimes labeled as interventionist as opposed to laissez-faire economics. Examples of horizontal, economywide policies are tightening credit or taxing capital gain, while examples of vertical, sector-specific policies comprise protecting textiles from imports or subsidizing export industries. Free market advocates consider industrial policies as interventionist measures typical of mixed economy countries.

Many types of industrial policies contain common elements with other types of interventionist practices such as trade policy and fiscal policy. An example of a typical industrial policy is import-substitution-industrialization (ISI), where trade barriers are temporarily imposed on some

key sectors, such as manufacturing. By selectively protecting certain industries, these industries are given time to learn (learning by doing) and upgrade. Once competitive enough, these restrictions are lifted to expose the selected industries to the international market.

History

The traditional arguments for industrial policies go back as far as the 18th century. Prominent early arguments in favor of selective protection of industries were contained in the 1791 Report on the Subject of Manufactures of US economist and politician Alexander Hamilton, as well as the work of German economist Friedrich List. List's views on free trade were in explicit contradiction to those of Adam Smith, who, in The Wealth of Nations, said that "the most advantageous method in which a landed nation can raise up artificers, manufacturers, and merchants of its own is to grant the most perfect freedom of trade to the artificers, manufacturers, and merchants of all other nations." The arguments of List and others were subsequently picked up by scholars of early development economics such as Albert Hirschman and Alexander Gerschenkron, who called for the selective promotion of key sectors in overcoming economic backwardness.

The relationship between government and industry in the United States has never been a simple one, and the labels used in categorizing these relationships at different times are often misleading if not false. In the early nineteenth century, for example, "it is quite clear that the laissez faire label is an inappropriate one." In the US, an industrial policy was explicitly presented for the first time by the Jimmy Carter administration in August 1980, but it was subsequently dismantled with the election of Ronald Reagan the following year.

Historically, there is a growing consensus that most developed countries, including United Kingdom, United States, Germany and France, have intervened actively in their domestic economy through industrial policies.These early examples are followed by interventionist ISI strategies pursued in Latin American countries such as Brazil, Mexico or Argentina. More recently, the rapid growth of East Asian economies, or the newly industrialized countries (NICs), has also been associated with active industrial policies that selectively promoted manufacturing and facilitated technology transfer and industrial upgrading. The success of these state-directed

industrialization strategies are often attributed to developmental states and strong bureaucracies such as the Japanese MITI. According to Princeton's Atul Kohli, the reason Japanese colonies such as South Korea developed so rapidly and successfully was down to Japan exporting to its colonies the same centralised state development that it had used to develop itself. Many of these domestic policy choices, however, are now seen as detrimental to free trade and are hence limited by various international agreements such as WTO, TRIM or TRIPS. Instead, the recent focus for industrial policy has shifted towards the promotion of local business clusters and the integration into global value chains.

During the Reagan Administration, an economic development initiative called Project Socrates was initiated to address US decline in ability to compete in world markets. Project Socrates, directed by Michael Sekora, resulted in a computer-based competitive strategy system that was made available to private industry and all other public and private institutions that impact economic growth, competitiveness and trade policy. A key objective of Socrates was to utilize advanced technology to enable US private institutions and public agencies to cooperate in the development and execution of competitive strategies without violating existing laws or compromising the spirit of "free market". President Reagan was satisfied that this objective was fulfilled in the Socrates system. Through the advances of innovation age technology, Socrates would provide "voluntary" but "systematic" coordination of resources across multiple "economic system" institutions including industry clusters, financial service organizations, university research facilities and government economic planning agencies. While the view of one president and the Socrates team was that technology made it virtually possible for both to exist simultaneously, the industrial policy vs. free market debate continued as later under the George H. W. Bush administration, Socrates was labeled as industrial policy and de-funded.

In August 2010, The Economist highlighted a renewed trend of industrial policy in rich countries, with examples of active government intervention in the United States, Britain, France, Germany, Japan and South Korea. The revival has been driven by four main forces: pressure to reduce unemployment and stimulate growth; a desire to 'rebalance' certain economies away from financial services; popular demands for increased government action; and the perceived need to respond to apparently successful policies being pursued in China.

Criticism

The main criticism against industrial policy arises from the concept of government failure. Industrial policy is seen as harmful as governments lack the required information, capabilities and incentives to successfully determine whether the benefits of promoting certain sectors above others exceeds the costs and in turn implement the policies. While the East Asian Tigers provided successful examples of heterodox interventions and protectionist industrial policies, industrial policies such as import-substitution-industrialization (ISI) has failed in many other regions such as Latin America and Sub-Saharan Africa. Governments, in making decisions with regard to electoral or personal incentives, can be captured by vested interests, leading to industrial policy only supporting the rent-seeking political elite while distorting the efficient allocation of resources by market forces at the same time.

Debates on the 'How to' of Industrial Policy

Despite existing criticism, there is a growing consensus in recent development theory that state interventions are often necessary when market failures prevail. Market failures often exist in presence of externalities and natural monopolies. These market failures hinder the emergence of a well-functioning market and corrective industrial policiesare required to ensure the allocative efficiency of a free market. Even relatively sceptical economists now recognise that public action can boost certain development factors "beyond what market forces on their own would generate." In practice, these interventions are often aimed at regulating networks, public infrastructure, R&D or correcting information asymmetries. While the current debate has shifted away from dismissing industrial policies overall, the best ways of promoting industrial policy are still widely debated.

One key question is which kinds of industrial policy are most effective in promoting economic development. For example, economists debate whether developing countries should focus on their comparative advantage by promoting mostly resource- and labour-intensive products and services, or invest in higher-productivity industries, which may only become competitive in the longer term.

Much debate also still surrounds the issue whether government failures are more pervasive and severe than market failures. Some argue that the lower government accountability and

capabilities, the higher the risk of political capture of industrial policies, which may be economically more harmful than existing market failures.

Of particular relevance for developing countries are the conditions under which industrial policies may also contribute to poverty reduction, such as a focus on specific industries or the promotion of linkages between larger companies and smaller local enterprises.

References

1. Vásquez, Ian (2008). "Development, Economic". In Hamowy, Ronald. The Encyclopedia of Libertarianism. Thousand Oaks,

2. Sen, A. (1983). Development: Which Way Now? Economic Journal, Vol. 93 Issue 372. pp. 745–762.

3. A. and Sheffrin, S. M. (2003). Economics: Principles in action. Pearson Prentice Hall, Upper Saddle River, New Jersey. 471pgs.

4. R. Conteras, "How the Concept of Development Got Started" University of Iowa Center for International Finance and Development E-Book

5. Mansell, R & and Wehn, U. 1998. Knowledge Societies: Information Technology for Sustainable Development. New York: Oxford University Press.

6. Schumpeter, J. & Backhaus, U., 2003. The Theory of Economic Development. In Joseph Alois Schumpeter. pp. 61–116.

7. See Michael Todaro and Stephen C. Smith, "Economic Development 11th Edition"., Pearson Education and Addison-Wesley (2011).

8. Hirschman, A. O. The Rise and Decline of Development Economics. Essays in Trespassing: Economics to Politics to Beyond. pp. 1–24

9. Jayati Gosh (January 2013). "Too much of the same". D+C Development and Cooperation/ dandc.eu.

EIILM UNIVERSITY
SIKKIM

Jorethang, District Namchi, Sikkim- 737121, India
www.eiilmuniversity.ac.in