**Economic growth**

**Economic growth** is the increase in the [market value](http://en.wikipedia.org/wiki/Market_value) of the goods and services produced by an [economy](http://en.wikipedia.org/wiki/Economics) over time. It is conventionally measured as the percent rate of increase in *real* [*gross domestic product*](http://en.wikipedia.org/wiki/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](http://en.wikipedia.org/wiki/Real_vs._nominal_in_economics) terms – to eliminate the distorting effect of [inflation](http://en.wikipedia.org/wiki/Inflation) on the price of goods produced. In [economics](http://en.wikipedia.org/wiki/Economics), "economic growth" or "economic growth theory" typically refers to growth of [potential output](http://en.wikipedia.org/wiki/Potential_output), i.e., production at "[full employment](http://en.wikipedia.org/wiki/Full_employment)".

As an area of study, *economic growth* is generally distinguished from [*development economics*](http://en.wikipedia.org/wiki/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](http://en.wikipedia.org/wiki/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)](http://en.wikipedia.org/wiki/Productivity_model#Models_of_national_economy)). Increases in productivity lower the cost of goods, which is called a [shift in supply](http://en.wikipedia.org/wiki/Supply_and_demand#supply_curve_shifts). By [John W. Kendrick’s](http://en.wikipedia.org/wiki/John_Whitefield_Kendrick) 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](http://en.wikipedia.org/wiki/Marginal_utility). (See:[Salter cycle](http://en.wikipedia.org/wiki/Economic_growth%22%20%5Cl%20%22Salter_cycle%22%20%5Co%20%22Economic%20growth)) 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.

## Sources of Economic Growth

1. **Natural Factors.**
More land and raw materials should lead to an outward shift of PPF and thus an increase in potential growth. Jeffrey Sachs in The End of Poverty calls this factor "Resource Boom" and gives an example on how government ability to control the breeding of black flies that spread African River Blindness can open up new farmland thus increasing the quantity of arable land in a country. However, quantity of natural factors such as land and raw materials like metals and oil could be small and even absent in some countries and the quantity cannot be easily increased. Fortunately, a country can still enjoy economic growth with modest natural resources provided it could obtain them efficiently from abroad; i.e. through trade. Singapore, Hong Kong and Japan have relatively little natural resources yet they have grown into developed economies. Land for example can be increased at a modest quantity by reclaiming it from the sea as in Singapore and Hong Kong. Oil reserves can be increased by active exploration and novel method of extraction. Instead of concentrating on the quantity, increase quality of the natural factors also help to shift the PPF outwards. A piece of land, for instance, can be rendered more productive (increased quality) by irrigation, improved farming technology and better planning of land usage.

Moreover, neoclassical and endogenous growth models suggest that human capitals and technology are probably more important as engines that propel growth.
2. **Human Factor.**
The quantity of labour is a factor that contribute to growth. Bigger the population, larger is the labour force and further out is the PPF. Larger population can also means more entrepreneurs and a larger market that can sustain more industries. A country can increase in labour force by increasing its population but in reality all except Singapore is interested in this approach. Labour force can also be increased through a immigration policy that attracts skilled workers. This policy is pursued in Australia and Canada. Singapore and Malaysia also host a large population of migrant workers from neighbouring countries using a foreign worker scheme. However, the quantity of labour alone is not enough to guarantee economic growth. Pakistan, Bangladesh and Nigeria have very big population but this "labour resource" alone does not necessary confer growth. What is more important is that quality of the labour force, the human capital. **Human capital** is the attributes of an individual that contribute productively to economic activities. Human capital could refer to educational attainments, training and skills, entrepreneurship, and creativity. Human capital can be improved through formal education for children, vocational training, retraining, life-long adult education programme, better nutrition that improve mental concentration, better sanitation that reduces illness and thus absenteeism from school and improved basic healthcare that reduces preventable diseases.
	1. **Social and cultural.**
		1. We may want to link this back to the[Kuznet's historical growth experience](http://kokminglee.125mb.com/economics/charofgrowth.html#kuznet) and [Myrdal's modernization ideals](http://kokminglee.125mb.com/economics/charofgrowth.html#myrdal). Society that emphasize the importance of education and allows equal gender participation in economic activities could build more human capital and benefits its economy. Excluding women from education and economic activities effectively reduce the human capital by half. Protestantism (industrious work ethics) and Confucianism (respect for authority, industry, and emphasize the importance of education) have been attributed to the early phase of economic development in America, and the success stories in East Asia respectively.
	2. **Entrepreneurship.**
		1. As frogs seeks wells,
		as birds a brimming lake,
		so too wealth and allies
		resort to a man with **enterprise**.
		*Pancatantra (400 CE);Book2,111; highlight is mine.*The quote clearly illustrates the importance of entrepreneurship.
		2. We want to think of this as the human resource which combines all the other resources [labor (L), capital (K), and technology (A)] to produce a product, makes non-routine decisions, innovates, and bears risks.
	3. **Education and training.**
		1. We should think of education as an investment in Human capital that enables the development of skills, enlarges the capacity to gather knowledge and information, and improves the utilization of knowledge and/or information to increase productivity.
		2. College Diploma then can be regarded as having the capacity to learn new tasks and gather knowledge. An individual who has a good track record in learning can be seen as a resourceful and potentially productive worker with good ability to learn new skills.
		3. We should recognize that tertiary education (colleges and universities) confers the highest expected private returns (the returns could be increasing exponentially) with respect to private costs. However, primary education (which includes attainment of literacy, arithmetic skills, and elementary vocational skills) yields the highest social returns with respect to social costs.
		4. Education provides the economy with potentially resourceful and productive workers.
		5. Education also provides an opportunity to an individual to expand his/her range of economic and social choices, thus better human development.
		6. Moreover, studies have shown that educating women could improve child health, increase children performance in formal education, expand the range of economic and social choices, generate higher income, and lower fertility.
		7. Also see notes on [Education and development below.](http://kokminglee.125mb.com/economics/sourcesdev.html#edudevelopment)
3. **Physical Capital.**
Physical capitals include factories, machineries, shops, malls, offices and motor vehicles. Cetera Paribus, higher savings rate can help to finance more physical capital investment. As the [Harrod-Domar Growth Model](http://kokminglee.125mb.com/economics/theoriesdevelopment.html%22%20%5Cl%20%22Harrod%22%20%5Ct%20%22_blank) suggests a higher savings rate means higher economic growth rate. This productive investment would help move the PPF outward, thus economic growth. Higher savings rate can also be used to finance education and training. This helps to form human capital and to improve technical skills that contributes to more productive labour force. However, the rate of investment may be so fast that a gap is developed between savings rate and investment rate. This gap can be bridged by borrowing from foreign commercial banks, World Bank, foreign countries, or by Foreign Direct Investment (FDI). The biggest FDI recipient in the world is China. Many east and south east asian economies who used to enjoy healthy FDI inflows in the 1980s are now competing with China as FDI destination to maintain economic growth. Of course, in an economy with very low savings rate there may not be enough savings to finance investment. In this case, NGOs like Oxfam and multilateral institutions like the World Bank could come in to "jumpstart" the economy. "In 2002 the World Bank provided $19.5 billion to developing countries and worked in more than 100 developing economies, bringing finance and/or technical expertise toward helping them reduce poverty." However, this jump starting may not always provide sustainable results or even effective. Besides private savings, FDI and borrowing from abroad, the quantity of physical capital can be increased by government investment policy and private domestic investment. Equally important is the quality of physical capital which can be improved by Research and Development, access to foreign technology and know-how, and improved vocational training.

In the [Structural Change Model](http://kokminglee.125mb.com/economics/theoriesdevelopment.html#Structural), the capital-labour ratio is fixed. When capital-labour ratio is fixed, an increased in physical capital is required to support an increase in labour. For instance, in an agrarian economy, each farmer works with a spade. When the number of farmers increase from 10 to 15 then there will be five more new spades (physical capital) being employed in the economy. Such an increase in capital is called Capital Widening and contributes to larger output but not necessary improved productivity. Capital Deepening occurs when there is an increase in physical capital to each worker in the economy. Returning to our previous example of farmers with spades. Capital Deepening occurs when our initial 10 farmers get to use spade, fertilizers, hoe, tractors and gloves or 15 farmers with spade, fertilizers and tractors. Capital deepening is likely to improve labour productivity and total output in an economy.

**Technological Factor**

**(a) Appropriate technology**. One organization that aims to promote appropriate technology to improve rural welfare is[Practical Action](http://practicalaction.org/home) previously known as The Intermediate Technology Development Group (ITDG)

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| BOx 1. What is "appropriate technology"?According to Practical Action, an appropriate technology can be that of a simple tool or one that is sophisticated. An appropriate technology is one that provides long-term, appropriate and practical answers to local problems, and it must be firmly in the hands of local people. An appropriate technology is shaped and controlled by local people. In many cases, the technology is manufactured using local materials by local craft people.Practical Action aims to help* + - * 1. reduce the vulnerability of poor people affected by natural disasters, conflict and environmental degradation – events which, sadly, are increasing.
				2. poor people to make a better living – by enabling producers to improve their production, processing and marketing.
				3. help poor communities gain access to basic services – like safe, clean water, food, housing and electricity.
				4. poor communities respond to the challenges of new technologies, helping them to access simple effective technologies that can change lives forever.

Source: [http://practicalaction.org/home.](http://practicalaction.org/home) |

**(b) New production methods.**
New production methods could improve the quality of goods and/or reduce the cost of production. For instance, a new production technology can produce stronger concrete at a faster rate and at lower cost of production. Thanks to this technology, better buildings can be constructed with lower costs. Technology also allows the country to combine resources to produce new goods or more value-added products. Thus, an improvement in production technology allows the country to expand its PPF (experiences economic growth) with existing supply of resources. In the Harrod-Domar Growth Model, this translates into a reduction in the capital-output ratio and thus leads to more economic growth.
**(c) Informational Technology.**
A cell phone, access to internet, and fax can improve the ability to gather live information that can improve productivity. Ability to access accurate weather forecasts can help farmers to make important decisions about sowing seeds, transplanting, harvesting, and storage of harvest. Thus, informational technology can be used to increase agricultural produce. Internet access, a reliable and cheap transportation system, and a reliable and cheap method of collection of payment over the internet allows enterprising businesses to expand their markets abroad and effectively increase output. Access to satellite communication is partly responsible for the success of Bangalore, India being transformed into the back office of large companies based in developed nations.

1. **Institutional Factor.**

**According to the Economist Survey of 20th century:**the recipe to growth is the rule of law (especially property), capitalism (facilitate resource allocation), and a fairly open economy with low tariffs. (Sept 11, 2000)

* 1. Financial sector & efficiency.
	A developed and efficienct financial system instills confidence in consumers to save with this financial institutions. In this case, savings can be fed back into the economy through the financial system as borrowing to firms. Table 1 below shows that more developed nations which usually have more efficient financial systems are also able to provide more domestic credits through their respective banking sectors. According to the WDR 2008, the domestic credit provided by banking sector as percentage of GDP in 2006 were 55% in Low Income Countries, 77% in Middle Income Countries and 195% in High Income Countries. A bank that only offers saving in the form of checking account and 1 year long deposit is not as developed as one that offers checking account, various length deposit account, deposit in different currencies and in different forms of gold, mutual funds that cater to different risks tolerance, and muslim banking. A developed system is also one that has good and efficient communication within banks, among banks, among businesses, domestically and internationally. An efficient system is one that meets the various needs of customers with as little transaction costs as possible. When citizens do not trust the financial system as in Argentina, then banks do not have enough loanable funds to support private investments and can drive up the costs of borrowing to invest. In the end, profitable investment that could have expanded PPF was not carried out due to the high costs of borrowing.

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| Table 1. Financial Markets. | Domestic credit provided by banking sector, % GDP | Liquid liabilities (broad money or M3), %GDP | Quasi-liquid liabilities (M3-M1), % GDP |
| **Year** | **1990** | **1996** | **1990** | **1996** | **1990** | **1996** |
| **WORLD** | **126.0** | **139.1** | **71.1** | **72.4** | **64.6** | **66.9** |
| Low Income | 64.6 | 73.6 | 54.4 | 80.8 | 30.0 | 48.6 |
| Excl China & India | 37.9 | 32.6 | 28.3 | 30.0 | 12.6 | 16.3 |
| Middle Income | 60.6 | 46.0 | 36.6 | 35.4 | 24.0 | 26.3 |
| Lower middle income | 52.0 | 45.3 | 44.4 | 38.9 | 30.1 | 30.0 |
| Upper middle income | 65.8 | 46.7 | 30.6 | 32.0 | 19.6 | 22.8 |
| Low & middle Income | 61.7 | 53.9 | 41.7 | 48.4 | 25.7 | 32.7 |
| East Asia & Pacific | 76.5 | 88.2 | 66.7 | 92.9 | 41.6 | 61.6 |
| Europe & Central Asia | .. | 31.9 | .. | 28.9 | .. | 18.0 |
| Latin America & Caribbean. | 59.7 | 35.7 | 23.5 | 26.9 | 17.6 | 21.7 |
| Middle East & N. Africa | 69.4 | 70.0 | 58.6 | 60.5 | 30.4 | 44.0 |
| South Asia | 52.4 | 18.3 | 43.4 | 47.3 | 27.0 | 30.3 |
| Sub-Saharan Africa | 59.6 | 84.5 | 37.0 | 38.5 | 18.5 | 15.8 |
| High Income | 138.9 | 157.9 | 77.5 | 78.1 | 73.2 | 74.9 |

* 1. Source: World Development Indicators 1998.
	2. The financial system's role is to intermediate between savings and investments and cycle funds. "The ratio of domestic credit provided by the banking sector to GDP is used to measure the growth of the banking system because it reflects the extent to which savings are financial. Liquid liabilities include bank deposits of generally less than one year plus currency. Their ratio to GDP indicates the ease with which their owners can use them to buy goods and services without incurring any cost. Quasi-liquid liabilities are long-term deposits and assets -such as certificates of deposits, commercial paper, and bonds- that can be converted into currency or demand deposits, but at a cost." (1998 World Development Indicators, pg. 269)
	3. Education System.[See note 2 above.](http://kokminglee.125mb.com/economics/sourcesdev.html#education)
	4. "Health Care.
	Here, I like to include clean running water and hygienic waste disposal. If potential workers are not healthy then they cannot contribute as much to economic development as they could. Moreover, in many poor community, a day without work usually means a day without pay and thus no or less food on the table for that day. Moreover, illness takes up resources from the community. Researchers have estimated that AIDS could reduced the real GDP growth of badly affected economies by 0.3% to 1.5% annually.

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| Box 2. According to the World Bank, water lies in the center of all development. Here are some facts.* + 1. More than 1 billion people still lack access to safe water, nearly 2 billion lack safe sanitation.
		2. Six children still die each minute from waterborne diseases.
		3. Sickness and malnutrition keep children out of school.

This makes it more difficult to bring up a new generation that is healthy, strong and with sufficient human capital. The potential for further growth in this sort of economy will be greatly hampered. [Click here to learn more about health, nutrition and population (including gender issue) from the World Bank.](http://www.worldbank.org/wbi/healthandpopulation/index.html) |

* 1. Infrastructure includes all essential facilities and services such as transportation network, communication network, power (electricity, gas, etc.) network, running water network, irrigation, and waste disposal network that are necessary for economic activities. Cheap, fast and easy communication, for example, reduces the cost of doing business. A good transportation network allows resources and goods to be transported quickly and cheaply. Thus, a good network of road, railways and access to seaports can facilitate trade that allows an economy to exploit economies of scales by producing for a larger market. This shifts the PPF outward. Jeffrey Sachs in The End of Poverty identifies a landlocked geography, the absent of seaports, to be a barrier to economic growth. There are many historical evidences around the world on how good irrigation not only led to growth and development. In some cases, a whole more vibrant civilization (eg. The Aztec) is founded on good infrastructure. This reduces the cost of production. Good infrastructure thus allows capital to be accumulated more efficiently. Consequently, the PPF is shifted out.
	2. Political Stability.
	Basically, growth is usually possible in a stable political environment. Liberia, Burundi, and Nigeria are some examples where instable political environments had prevented these economies from achieving desirable economic growth. Entrepreneurs in instable political environments will have less incentives to invests as they incur higher risk of losing their investments and properties through appropriation by government, of not being able to keep their profits, and having higher costs of transactions due to uncertainty. There are also a lot of studies that indicate corruption and ineffective government could slow down (and in the worst case hinder) economic growth.

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| Box 3. Daniel Kaufmann and Aart Kraay of the World Bank consider **governance\*** as an increasingly critical key factor in determining whether or not the country has the capacity to combine resources effectively to reduce poverty. These researchers look at governance from six dimensions:* + - 1. Voice and Accountability
			2. Political Stability and Absence of Violence
			3. Government Effectiveness
			4. Regulatory Quality
			5. Rule of Law
			6. Control of Corruption

\*Note: "Governance can be broadly defined as the set of traditions and institutions by which authority in a country is exercised. This includes (1) the process by which governments are selected, monitored and replaced, (2) the capacity of the government to effectively formulate and implement sound policies, and (3) the respect of citizens and the state for the institutions that govern economic and social interactions among them. " (World Bank) [Click here for more information on governance indicators.](http://www.worldbank.org/wbi/governance/govdata2002/) |

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