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September ■ 2013

What Are the "Ingredients" for Economic Growth?

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"Institutions are the rules of the game in a society or, more formally, are the humanly devised constraints that shape human interaction."—Douglass North[1]

The 2007-09 recession was painful on many levels, and the economy's recovery has been slow and uneven. This period of slower-than-expected growth has contributed to a longer-running conversation among economists and policymakers about economic growth. More specifically: What causes economic growth? And how can countries encourage faster growth?

First, we need to know why growth is important. **Economic growth** is an increase in the amount of goods and services that an economy produces. Economic growth results in rising wages and higher standards of living for citizens (measured as increases in real gross domestic product [GDP] per capita); it allows a society to increase its consumption of goods and services. We can think of the economy as a pie. One way to get more of some good or service, say health care, is to allocate resources differently. If we slice the pie into different-sized pieces, a bigger health care slice (more spending on health care) means a smaller education slice (less spending on education) because the pie is only so big.

Economic growth can also be discussed as an increase in the **productive capacity**, or **potential output,** of an economy. Using this thinking, rather than resizing the individual slices, economic growth leads to growing the size of the entire pie, so that over time each person receives a bigger slice without redistributing resources. In short, economic growth reduces the sting of **scarcity**—the condition that exists because there are not enough resources to produce everyone's wants. Scarcity forces individuals and society to make choices about how to best allocate resources. Of course, every choice involves an **opportunity cost**, the next-best alternative given up as the result of a decision. So, while scarcity requires trade-offs between health care and education, economic growth allows for more of both.

Economic Expansion or Economic Growth?

When economists think about the causes of economic growth and strategies for promoting growth, they think beyond the fiscal and monetary policies that are designed to buoy the economy temporarily during an economic downturn to consider the conditions that help promote long-term growth. During an economic recession, an economy might be operating with a larger-than-average amount of unemployed resources. That is, the economy is operating below its productive capacity. Policies designed to push the economy back toward its productive capacity—thereby increasing the pace of economic activity—might be used during an economic recession to move the economy back toward its potential. The movement back toward potential is often referred to as economic expansion. Alternately, long-run economic growth is an increase in an economy's productive capacity.

Where Does Growth Come From?

Three factors can create economic growth: more capital, more labor, and better use of existing capital or labor. The growth that results from increases in capital and labor represents growth due to increases in *inputs*. There are limits to how much accumulating capital helps, and increasing labor also often means more mouths to feed and so (by itself) may not increase the standard of living (real GDP per capita). Sustainable long-run growth is the result of better use of existing resources, increasing economic *output per input* and thereby increasing productivity.

For example, think of the productivity gains that resulted from the use of personal computers and the Internet to complete tax forms. Rather than using pen, paper, and a calculator to complete the forms, tax filers can use sophisticated software programs to retrieve financial data from personal accounts using the Internet, insert the information correctly on complicated tax forms, and complete the complex calculations. The forms can then be filed electronically to expedite the process.

This is just one example of recent gains in productivity resulting from increases in physical capital. Now multiply those relatively small gains by the millions of workers who use increasingly powerful computers and better software. Increasing investment in physical capital allows for continued increases in productivity and economic growth. This is an example of changes in productivity resulting from changes in inputs; in this case, the input is **physical capital**. Similarly, **human capital**—the knowledge and skills that people obtain through education, experience, and training—is important, and strong educational institutions are vital. A well-educated workforce is generally more productive, providing higher output per worker. Well-educated workers can make the most efficient use of existing technologies. They are also more likely to develop new technologies. Further, a persistent growth in the level of educational attainment will likely lead to growing productive capacity, the key to future economic growth.

While both physical and human capital are important to economic growth, both have their limits and their benefits tend to diminish over time. Knowledge and ideas that lead to better use of existing resources (increasing output per input) are driving forces behind continuing (long-run) economic growth. The innovation resulting from new ideas is key to continued technological progress. Consider the computerized tax-filing example. When a new computer is produced, the inputs required to build it are not much different from a computer built 10 years ago, but today's computer has much larger implications for labor productivity than earlier versions. The computer has improved over time as the result of new knowledge, ideas, and innovations incorporated into the design of its hardware and software. Of course, all of this happens within the institutional structures of an economy, our next topic.

Institutional Structures that Promote Growth

In addition to productivity-boosting factors such as physical and human capital, economies with high rates of economic growth often share characteristics related to economic institutions that support or reward productive activity. (Notice that "institutions" is used differently in this context than you may have seen before.) When discussing economic growth, we can think of **institutions** as the foundational *rules of the game* noted by Douglass North in the opening quote; they include not only laws and regulations, but also customs and practices. Institutions work through the **incentive** structure in an economy and are important in explaining why some countries experience faster growth than others. Both institutions and the incentives they offer affect improvements in long-term growth.

Some of these institutions might not seem directly related to economics, but institutions clearly have an impact on the potential output of the economy. For example, **patent** protections are examples of laws that ensure that firms developing new technologies are able to profit from them. The firm's profit motive provides the incentive to produce new goods and services, as well as the technologies that benefit society and result in economic growth. Traditionally, people have reasoned that patent protection enables firms to profit from their costly research and development efforts; as a result, they are willing to invest in the first place.[2] In a sense, they incentivize technological progress.

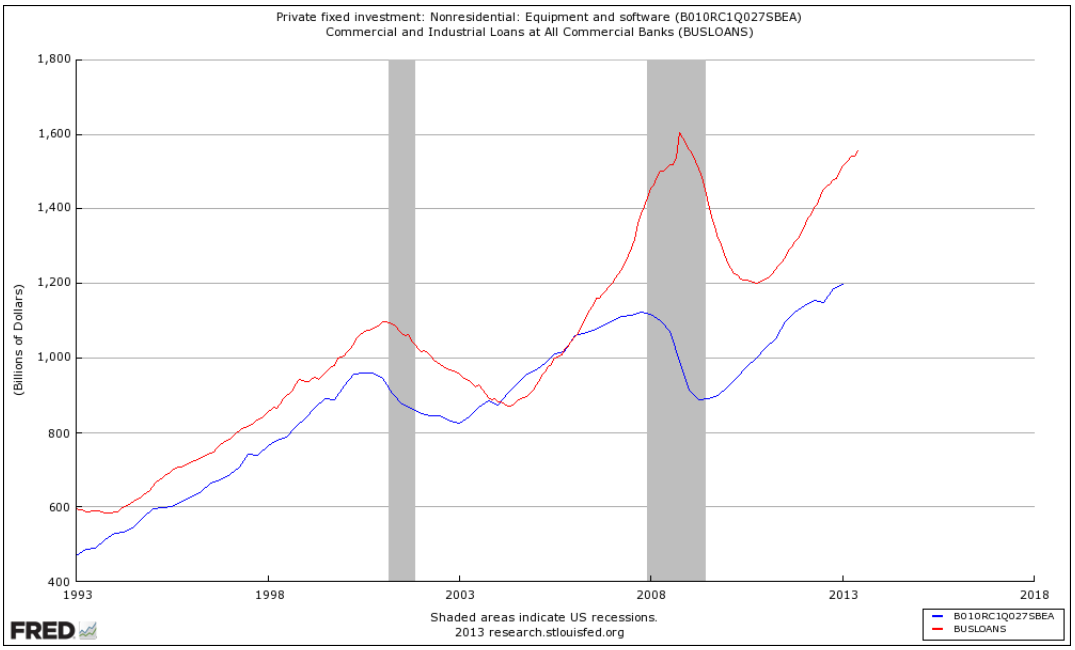
We can also consider the custom of honesty, which enhances the confidence of those conducting economic transactions. If honesty cannot be assumed, economic transactions may be more "costly" to complete. In his lecture accepting the 1993 Nobel Prize, North said that institutions "form the incentive structure of a society and the political and economic institutions, in consequence, are the underlying determinant of economic performance."[3] So, which institutions foster growth?

First, strong property rights are important. Citizens who feel confident that their private property is secure are more likely to invest in the future. A strong legal infrastructure, supported by the **rule of law**, must exist to create such confidence. The rule of law, as opposed to the rule of man, ensures that legal decisions remain consistent and predictable over time and are not at the mercy of individual political leaders or administrations. In short, strong property rights ensure that private investment and innovation are properly rewarded, which provides the incentive for future productive economic activity.

Second, competitive markets foster efficiency, which promotes growth. Prices signal when goods and services are becoming more or less scarce. Producers and consumers respond. For example, when markets are competitive and flexible, a shortage of bicycles results in higher bicycle prices. The higher price signals producers to supply a greater quantity of the good (more bicycles), and the higher price signals consumers to reduce the quantity of bicycle purchases. Over time, the bicycle shortage is resolved.

Our bicycle example applies to the overall economy: If prices are allowed to change quickly to reflect underlying conditions, markets can adjust. When inflation is high and volatile, price signals become less effective and can result in inefficient production and distribution of goods and services. The Federal Reserve's role in price stability—maintaining a low and stable inflation rate over time—minimizes the distortionary effects of inflation in this process. Free trade extends the benefits of free markets beyond national borders and allows for more competition within industries, which provides additional productivity gains. For example, American carmakers increased their level of efficiency as a result of rising competition from foreign carmakers in the 1970s and 1980s.

Finally, efficient financial institutions facilitate intermediation between savers and borrowers. This means that financial institutions (such as banks, credit unions, stock markets, and bond markets) transform the deposits of savers into loans for borrowers who wish to invest in (among other things) new **capital**, technology, and **infrastructure**—all key ingredients for growth. For example, a bank might bundle the deposits of many savers to lend to a small business that wants to invest in new technology. Shin finds that countries with well-developed financial markets allocate resources more effectively than countries with less-well-developed financial markets. As such, well-developed financial markets are an essential ingredient for long-run economic growth.[4] These interactions among firms comprise what Federal Reserve Chairman Ben Bernanke has called "the financial infrastructure or the financial plumbing."[5]



NOTE: The graph shows the relationship between private fixed investment in equipment and software (blue line), important to productivity and economic growth, and commercial and industrial loans at all commercial banks (red line). Both were affected by the 2007-09 financial crisis and the related recession (indicated by the gray bar).

SOURCE: Federal Reserve Bank of St. Louis FRED; http://research.stlouisfed.org/fred2/graph/?g=kVb).

The importance of these institutions became apparent during the 2007-09 financial crisis, when credit markets nearly froze and the economy slid into a deep recession. Bank lending peaked at $1.6 trillion in October 2008 but dropped to $1.2 trillion by October 2010. By June 2013, bank lending reached $1.56 trillion, nearly back to the peak level reached before the financial crisis (see the chart). When credit markets stop functioning, modern economies do not usually grow. As such, the role of central banks as lenders of last resort is key to maintaining confidence in an economy's financial infrastructure.

Conclusion

In the end, to paraphrase Nobel Laureate Robert Lucas Jr., it is difficult to minimize the importance of economic growth. The role of incentives is vital in this regard. Incentives matter—a lot. The decisions to save, invest, attend college, start a business, hire an additional worker, buy a piece of equipment, or develop a new idea depend on a multitude of factors. Among the most important factors is the role of well-designed institutions. How a nation designs and operates its economic and political infrastructure is crucial because such infrastructure provides the proper incentives for individuals, firms, and policymakers to undertake activities that generate rising standards of living over time. ■

NOTES

[1] North, Douglass C. *Institutions, Institutional Change, and Economic Performance*. New York: Cambridge University Press, 1990, p. 3. Douglass North is an economist and the co-recipient of the 1993 Nobel Prize in Economic Sciences.

[2] Emerging research calls the conventional wisdom on patents into question. For example, Boldrin and Levine find "no empirical evidence that [patents] serve to increase innovation and productivity" (p. 1). See Boldrin, Michele and Levine, David. "The Case Against Patents." Working Paper No. 2012-035A, Federal Reserve Bank of St. Louis, 2012; http://research.stlouisfed.org/wp/2012/2012-035.pdf.

[3] North, Douglass C. "Economic Performance through Time." Nobel Prize Lecture, December 9, 1993; http://www.nobelprize.org/nobel_prizes/economic-sciences/laureates/1993/north-lecture.html.

[4] Shin, Yongseok. "Financial Markets: An Engine for Economic Growth." Federal Reserve Bank of St. Louis *Regional Economist*, July 2013, *21*(3), pp. 4-9; http://www.stlouisfed.org/publications/pub_assets/pdf/re/2013/c/financial_markets.pdf.

[5] Bernanke, Ben S. "Financial Reform to Address Systemic Risk." Speech to the Council on Foreign Relations, Washington, DC, March 10, 2009; http://www.federalreserve.gov/newsevents/speech/bernanke20090310a.htm.

GLOSSARY

Capital: Resources and goods made and used to produce other goods and services. Examples include buildings, machinery, tools, and equipment.

Economic growth: An increase in the amount of goods and services an economy produces.

Human capital: The knowledge and skills that people obtain through education, experience, and training.

Incentives: Perceived benefits that encourage certain behaviors.

Infrastructure: The capital goods usually provided by the public sector for use by citizens and firms. Examples include highways, bridges, municipal water systems, and airports.

Institutions: The "rules of the game" that structure economic incentives.

Opportunity cost: The value of the next-best alternative when a decision is made; it's what is given up.

Patent: A license that gives the inventor of a new product the exclusive right to sell it for a specific period of time.

Physical capital: Goods that have been produced and are used to produce other goods and services. They are used over and over again in the production process.

Potential output: What an economy can produce if it is operating at maximum sustainable employment, where unemployment is at its natural rate.

Productive capacity: The maximum output an economy can produce with the current level of available resources.

Rule of law: Concept that holds that government and its officers must exercise their power according to established regulations and legal principles.

Scarcity: The condition that exists because there are not enough resources to produce everyone's wants.

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