

GDP AND ECONOMIC GROWTH

I. GROSS DOMESTIC PRODUCT

- a. The Bureau of Economic Analysis (BEA), an agency of the Commerce Department, compiles the National Income and Products Account (NIPA) for the U.S. economy.
- b. The primary measurement of the economy's performance is its annual total output of goods and services called **GROSS DOMESTIC PRODUCT: THE TOTAL MARKET VALUE OF ALL FINAL GOODS AND SERVICES PRODUCED WITHIN A COUNTRY'S BORDER WITHIN A GIVEN AMOUNT OF TIME, USUALLY A YEAR.**
 - i. IF a final good or service is produced in the U.S., it is part of U.S. GDP
- c. A MONETARY MEASURE- GDP is a MONETARY MEASURE
- d. AVOIDING MULTIPLE COUNTING
 - i. To measure aggregate output accurately, all goods and services produced can only be counted once.
 - ii. GDP only counts FINAL GOODS, not INTERMEDIATE GOODS.
 1. FINAL GOODS are goods, both consumption and capital that are purchased by their final user.
 2. INTERMEDIATE GOODS are goods used for processing or manufacturing final goods (wood or nails for housing) or purchases for resale (used cars or resale houses). They are NOT included in GDP.

3. If Intermediate goods are counted, MULTIPLE COUNTING would occur and distort actual GDP.
 - e. EXCLUDING SECONDHAND SALES
 - i. Do not contribute to current production and therefore are excluded from GDP; resale of used car.
- II. MEASURING GDP
- a. Simplest way to measure GDP is to add up all that was spent to buy total output in a certain year (EXPENDITURE APPROACH).
 - b. PERSONAL CONSUMPTION EXPENDITURES (C)
 - i. The symbol “C” designates the PERSONAL CONSUMPTION EXPENDITURES component of GDP. It represents all expenditures by households on DURABLE CONSUMER GOODS (automobiles, refrigerators) that have more than 3 years’ life, NONDURABLE CONSUMER GOODS (bread, milk, toothpaste) and CONSUMER EXPENDITURES FOR SERVICES (lawyer fees, real estate fees, medical fees).
 - c. GROSS PRIVATE DOMESTIC INVESTMENT (Ig)
 - i. GROSS PRIVATE INVESTMENT includes:
 1. All final purchases of machinery, equipment, and tools by business enterprises.
 2. All construction
 3. Changes in inventories.

- ii. Why is residential construction investment rather than consumption?
Earn income when rented or leased.
- iii. Increase in inventory (unsold goods) is investment because it is “unconsumed output.”
- iv. Inventories can either increase or decrease over the time period. Increase adds to GDP; decrease reduces GDP.
- v. NONINVESTMENT TRANSACTIONS- has to do with creation of NEW capital:
Does not include:
 - 1. Transfer of paper assets: stocks, bonds.
 - 2. Resale of tangible assets: houses, factories
- vi. GROSS INVESTMENT: “gross private domestic investment” means private investment, not government agencies; and domestic means within the U.S.
 - 1. Includes investment in replacement capital and in added capital.
- d. GOVERNMENT PURCHASES (G)
 - i. GOVERNMENT PURCHASES have two components:
 - 1. Expenditures for goods and services that government consumes in providing public services
 - 2. Expenditures for PUBLICLY OWNED CAPITAL such as schools and highways, which have long lifetimes.
 - ii. It does NOT include government transfer payments such as Social Security

payments, unemployment benefits and veteran's benefits.

e. NET EXPORTS (X_n)

i. Remember the definition of "within the country's borders."

ii. The total of exports less the total of imports; can be a negative number if imports exceed exports

iii. $GDP = C + I_g + G + X_n$

f. ADDING IT UP

i. Review the addition on page 287

ii. Review the Comparative national GDPs on the 12.1 Global Snapshot.

III. NOMINAL GDP VERSUS REAL GDP

a. Important distinction comparing GDP over time.

i. Economists look at the QUANTITY of goods that get produced and distributed to individuals and households, not the PRICE of the goods (Total Revenue) to determine standard of living (GDP).

ii. Economists DEFLATE GDP when prices rise and INFLATE GDP when prices drop.

iii. GDP based on prevailing prices when the output is produced is unadjusted and thus NOMINAL GDP.

iv. GDP that is adjusted for inflation (deflation) to reflect changes in price levels based on a constant historical time (chained to a given year) is REAL GDP.

v. Review table 12.2 on page 288; review language on page 289.

b. THE UNDERGROUND ECONOMY

- i. Some business is outside GDP, such as drug dealings, prostitution, etc.
- ii. Most is actually legal such as grass cutting, babysitting, additional tips beyond what is reported.
- iii. Total value of underground is estimated at 8% of recorded GDP

IV. ECONOMIC GROWTH

- a. Definition – an increase in REAL GDP occurring over time or an increase in REAL GDP PER CAPITA occurring over time.
 - i. $\text{REAL GDP PER CAPITA} = \text{REAL GDP} / \text{size of population}$
 - ii. For expansion of military potential or political strength, Real GDP is more useful.
 - iii. To determine standard of living, Real GDP per capita is better.
- b. GROWTH AS A GOAL
 - i. Economic growth is widely held as an economic goal.
 - ii. An economy that is experiencing economic growth can better handle people's wants and resolve socioeconomic issues.
 - iii. GROWTH LESSENS THE BURDEN OF SCARCITY.
 - iv. Allows nations to attain economic goals and undertake new endeavors.
- c. ARITHMETIC OF GROWTH (RULE OF 70)
 - i. Approx # of years for real GDP to double = $70 / \text{annual \% rate of growth}$
 - 1. 3% growth is $70/3 = 23$ years.
 - 2. For the U.S. with a current real GDP of about \$12TT, the difference

between 3% and 4% growth is
about \$120BB in output/year

d. GROWTH IN THE U.S.

- i. Review table 12.3 on page 292
- ii. Viewed from the perspective of past ½ century, the U.S. lagged behind Japan, Germany, Italy, Canada, and France

V. INGREDIENTS OF GROWTH

a. SIX MAIN INGREDIENTS

b. SUPPLY FACTORS

- i. Increases in the quantity and quality of natural resources.
- ii. Increase in the quantity and quality of human resources.
- iii. Increases in the supply (or stock) of capital goods.
- iv. Improvements in technology.

c. DEMAND FACTORS

- i. To achieve the higher production created by the supply factors, households, businesses and government must PURCHASE the economy's expanding output of goods and services. When this happens there will be no unplanned increases in inventories and resources will remain fully employed.

d. EFFICIENCY FACTOR

- i. To reach its full production potential, an economy must achieve economic efficiency as well as full employment.
 1. Must use its resources in least costly way (productive efficiency) and have the specific mix of goods and services that maximizes people's well-being (allocative efficiency)

VI. PRODUCTION POSSIBILITIES ANALYSIS

a. GROWTH AND PRODUCTION POSSIBILITIES

- i. Review figure 12.1 on page 295
- ii. Maximum combinations; economic growth moves the curve from AB to CD
 1. Optimum combination of capital and consumer goods at point b
 2. Point c is where the economy has not realized its potential for economic growth.

b. INPUTS AND PRODUCTIVITY

- i. Society can increase its output and income in two fundamental ways:
 1. Increasing its inputs of resources.
 2. Raising the productivity of those inputs.
- ii. A nation's real GDP in any year depends on the input of labor (measured in hours of work) multiplied by LABOR PRODUCTIVITY (measured in real output per hour of work)
- iii. HOURS OF WORK – depends on the size of the employed labor force and the length of the average work week.
 1. LABOR-FORCE PARTICIPATION RATE - % of working-age population actually in the labor force.
- iv. LABOR PRODUCTIVITY – determined by technological progress, quantity of capital goods available to workers, quality of labor itself, and efficiency with which inputs are allocated, combined and managed.

VII. ACCOUNTING FOR GROWTH

a. The Council of Economic Advisors uses a system called GROWTH ACCOUNTING to assess the relative importance of the supply-side elements that contribute to real changes in GDP. Two main categories:

- i. Increases in house of work
- ii. Increases in labor productivity

b. LABOR INPUTS VERSUS LABOR PRODUCTIVITY

i. Review table 12.4 on page 297

1. Both quantity of labor and labor productivity are important sources of economic growth.
2. Labor productivity historically has been the more important source of economic growth
3. 5 factors that, together, appear to explain changes in productivity growth: technological advance, amount of capital each worker has to work with, education and training, economies of scale, and resource allocation.

c. TECHNOLOGICAL ADVANCE – largest contributor to productivity

- i. Accounts for about 40%
- ii. Includes not only innovative production techniques but also new managerial methods and new forms of business organization that improve the process of production.
- iii. Technological advance and capital formation (investment) are closely related.

- iv. Technological advance has been both rapid and profound.
- d. QUANTITY OF CAPITAL
 - i. Explains about 30% of productivity growth.
 - ii. More and better equipment and plant
 - iii. Key is amount of capital goods PER WORKER
 - iv. Public investment in the U.S. INFRASTRUCTURE has grown over the years. Complements private capital.
- e. EDUCATION AND TRAINING
 - i. Account for about 15% of productivity growth
 - ii. HUMAN CAPITAL – knowledge and skills that make a worker productive.
 - 1. Includes formal education and on the job training.
 - iii. Education attainment: review figure 12.3 on page 300
 - iv. Many observers think the quality of education in U.S. has declined.
- f. ECONOMIES OF SCALE AND RESOURCE ALLOCATION
 - i. Together account for about 15% of productivity growth.
 - ii. ECONOMIES OF SCALE – reductions in per-unit production costs that result from increased levels of output.
 - 1. Achieve greater production advantages with greater size.
 - 2. Example: computerized production lines in modern auto production.
 - iii. IMPROVED RESOURCE ALLOCATION – workers over time have

moved from low-productivity employment to high-productivity employment

1. Agriculture to manufacturing.
2. Long-run movement toward liberalized international trade through international agreements increases productivity.

g. INSTITUTIONAL STRUCTURES THAT PROMOTE GROWTH

- i. STRONG PROPERTY RIGHTS – necessary for rapid and sustained economic growth
- ii. PATENTS AND COPYRIGHTS – constant flow of innovative new technologies and sophisticated new ideas.
- iii. EFFICIENT FINANCIAL INSTITUTIONS – needed to channel savings generated by households towards the businesses, entrepreneurs and inventors.
- iv. FREE TRADE- allows countries to specialize so different types of output can be produced most efficiently.
- v. A COMPETITIVE MARKET SYSTEM – prices serve as the signals that indicate optimum output and production.

h. OTHER FACTORS

- i. Overall social-cultural-political environment of the U.S.
- ii. Economic and political freedom has promoted economic growth.
- iii. Nation's social philosophy of promoting wealth creation.

1. High degree of respect for business people.

VIII. THE RECENT PRODUCTIVITY ACCELERATION

- a. Review figure 12.4 on page 302
 - i. Many economists believe that the increase in productivity was due to significant new wave of technological advance, along with global competition.
 - ii. Productivity important because real output, real income and real wages are linked to labor productivity.
 - iii. Over long periods, the economy's labor productivity determines its average real hourly wage.
- b. REASONS FOR THE PRODUCTIVITY ACCELERATION
 - i. Core element is the MICROCHIP
 - ii. Personal computer and laptop computers; rapid development of the internet
 - iii. INFORMATION TECHNOLOGY has connected all parts of the world.
- c. NEW FIRMS AND INCREASING RETURNS
 - i. START-UP FIRMS have advanced various aspects of the new information technology.
 1. Examples: Intel, Microsoft, Cisco, Google, Amazon.com
 - ii. These new firms experience INCREASING RETURNS – increase in inputs yields a larger increase in outputs
 1. Example: double the workforce triples the number of units produced. Due to economies of scale.

- iii. Sources of increasing returns and economies of scale
 - 1. MORE SPECIALIZED INPUTS – more productive capital and expand operations.
 - 2. SPREADING DEVELOPMENT COSTS – economies of scale allow lower per-unit cost of development costs.
 - 3. SIMULTANEOUS CONSUMPTION – software on a disk can be used simultaneously by millions of users.
 - 4. NETWORK EFFECTS – beneficial to greater number of users; sending e-mail messages to end users.
 - 5. LEARNING BY DOING – what might have previously taken hours now takes minutes
- iv. GLOBAL COMPETITION
 - 1. New technologies have “shrunk the globe.”
 - 2. NAFTA, EU AND WTO
- d. IMPLICATION: MORE RAPID ECONOMIC GROWTH
 - i. Ceteris parabis; stronger productivity and global competition will allow the economy to experience a higher rate of economic growth.
 - ii. Economists believe that the business cycle is not dead, but the trend lines of productivity growth and economic growth have become steeper.
- e. SKEPTICISM ABOUT PERMANENCE

- i. Some economists believe there should be a “wait and see” approach to economic growth due to the recent rapid advance.
 - f. WHAT CAN WE CONCLUDE?
 - i. Prospects for lasting increase in productivity growth are good
 - ii. Time will tell.
- IX. IS GROWTH DESIRABLE AND SUSTAINABLE?
 - a. THE ANTI-GROWTH VIEW
 - i. Industrialization leads to pollution, global warming, ozone depletion and other negative externalities
 - ii. Growth has done little to improve sociological problems such as poverty, homelessness and discrimination.
 - iii. Doesn’t give us the “good life.”
 - iv. Growth is not sustainable over the long run.
 - b. IN DEFENSE OF ECONOMIC GROWTH
 - i. Primary defense is path to greater material abundance, higher living standards desired by most people.
 - ii. Allows nation to improve infrastructure, care for lesser fortunate and more protection.
 - iii. No-growth policy severely limits poorer nations.
 - iv. Connection between growth and environment is tenuous
 - v. Growth IS sustainable.