

A Growth-Accounting Perspective on the Post-Pandemic Economy

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Much of our economic future depends on the growth rate of the nation’s real (inflation-adjusted) gross domestic product (GDP). For example, the profitability of firms and, therefore, trends in stock prices will depend in good part on this growth rate, as will the average tax rate we pay. Lower tax rates also tend to create more incentives for work and investment, both of which promote higher economic growth.

The long-run growth rate of real GDP itself depends importantly on the growth rate of labor productivity, or output per hours worked. Labor productivity growth over time depends on several factors, such as technological improvements and additions to the capital stock. The Bureau of Labor Statistics reports nonfarm labor productivity, a commonly used measure of output per hours worked.

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Some economists use a growth-accounting framework to analyze the contributions to real GDP growth from productivity and labor inputs. Implicit in this accounting are factors such as new ideas, the level of technology, and enhancements to worker skill levels that are important to economic growth. The importance of labor input follows a

standard economic formulation of the production process that transforms inputs (including technology) into outputs. Declining labor input can easily cancel out improvements in productivity growth, leaving real GDP growth unchanged or even lower than before.

A common growth-accounting framework is presented in the table.¹ The framework links the growth of employment (line 3) and the growth of labor productivity (line 4) with the growth of real GDP. At a more granular level, labor input is determined primarily by the growth of the total population (line 1) and the percentage of the population that is employed (line 2). The latter is determined importantly by the labor force participation rate (not shown in the table). The framework is a useful metric for assessing the economy’s potential long-run economic performance because it decomposes the growth of real GDP (line 5) into its two primary contributions: labor inputs (lines 1-3) and labor productivity (line 4). Because population growth tends to change slowly (absent major wars or pandemics), productivity growth is thus the key source of increases in real GDP growth over time. (As noted in the table, I am using the growth rate of the average of real gross domestic product and gross domestic income to be “real GDP.”)

Table columns 1 to 4 detail the contributions to real GDP growth during periods of economic expansion from late 1982 to late 2019: The time period is from the trough quarter to the peak quarter as defined by the National Bureau of Economic Research Business Cycle Dating

Accounting for Growth of Real GDP During Business Expansions

	1982.4 to 1990.2	1991.1 to 2001.1	2001.4 to 2007.4	2009.2 to 2020.4	2021.2 to 2022.2
[1] Civilian population	1.18	1.19	1.26	0.90	0.95
[2] + Employment/population	1.29	0.39	-0.06	-0.33	3.50
[3] = Civilian employment	2.47	1.58	1.19	0.57	4.45
[4] + Labor productivity	1.86	2.19	1.59	1.47	-1.63
[5] = Real GDP	4.33	3.77	2.79	2.04	2.82

NOTE: In line 5, real GDP is the average of gross domestic product and gross domestic income.

SOURCE: Author’s calculations using data from the Bureau of Economic Analysis and the Bureau of Labor Statistics.

Committee. Arguably, most recessions are caused by disturbances (shocks) that have temporary effects. Thus, the analysis excludes recessionary episodes.

There are several important points to take away from the table. First, population growth was fairly steady from 1982 to 2020, averaging 1.1% per year. Second, real GDP growth has steadily slowed since the 1982-90 business expansion, when growth averaged 4.3% per year. Real GDP growth during the 2009-20 expansion was the weakest in the post-WWII period, at 2% per year. Third, the deceleration in real GDP growth from 1982 to 2020 reflects declining growth of labor input (employment-to-population) and slowing labor productivity growth—a bad combination. The former reflects a falling labor force participation rate, from its peak of 67.3% in early 2000 to its rate of 62.1% in August 2020.

Table column 5 shows GDP growth decomposition since the first quarter of 2022. Real GDP has increased at a 2.8% annual rate over the past four quarters, much faster than the 2009-20 expansionary period. From a growth-accounting perspective, the acceleration in GDP growth over the past year is a labor input story: Faster growth of labor inputs has more than offset a decline in aggregate labor productivity (line 4). A larger contribution from labor input over the past year has occurred because a modest rebound in the labor force participation rate has more than offset slower population growth. As a result, civilian employment (labor input) has increased at an extraordinarily fast rate (4.5%).

Going forward, the growth of labor input is likely to slow appreciably given the aging population, lower fertility rates, and less immigration. Labor productivity is expected to rebound—the question is by how much. The consensus of professional forecasters surveyed by the Federal Reserve Bank of Philadelphia projects that productivity growth over the next decade will average about 1.5%.² Thus, a reasonable conjecture is that GDP growth and its composition during the current expansion—assuming the current slow patch does not persist—will ultimately look much like it did during the 2009-20 expansion. ■

Notes

¹ Similar to John Fernald (https://www.kansascityfed.org/Jackson%20Hole/documents/9032/JH_Paper_Fernald.pdf), this essay uses the average of real GDP (sum of final expenditures) and real gross domestic income, or GDI, which is the sum of income from current production. For simplicity, the average of the two measures will be referred to as real GDP. A more detailed version of this table appears annually in the *Economic Report of the President* (<https://www.govinfo.gov/app/collection/erp>).

² From the February 2022 survey by the Philadelphia Fed: Labor productivity growth is expected to average 1.6% over the next 10 years, which is close to the average estimate seen over the previous five surveys (1.5%).