

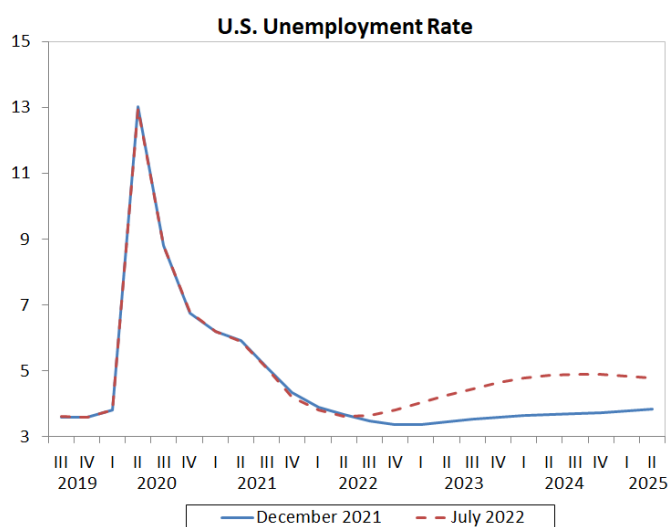
## National Economic Estimating Conference July 15, 2022

The National Economic Estimating Conference met on July 15, 2022, and adopted the control forecast. Relative to the December 2021 forecast, the key metrics in the new forecast are notably lower, largely because of the war in Ukraine's effects on the global economy and a significant upward shift in the level of near-term inflation. Neither of these events were expected at the time of the prior forecast.

The risk associated with the national economic forecast skews to the downside, with almost equal probabilities that the new forecast will unfold as predicted or fall short of expectations. While somewhat elevated inflation was anticipated in December 2021, the new forecast includes even stronger, broader, and more persistent inflation that spurs aggressive Fed action to bring inflation under control—even at the risk of causing high unemployment and a recession. Inflation is anticipated to remain unacceptably high for a year longer than expected in December with rapidly rising labor costs reinforcing upward price pressures from rising energy and materials costs. Yet inflation will moderate over time, underpinned by expectations that the Federal Reserve winds down its bond-buying program, supply-chain issues are resolved, labor market shortages ease, and energy prices partially reverse despite the ongoing war in Ukraine.

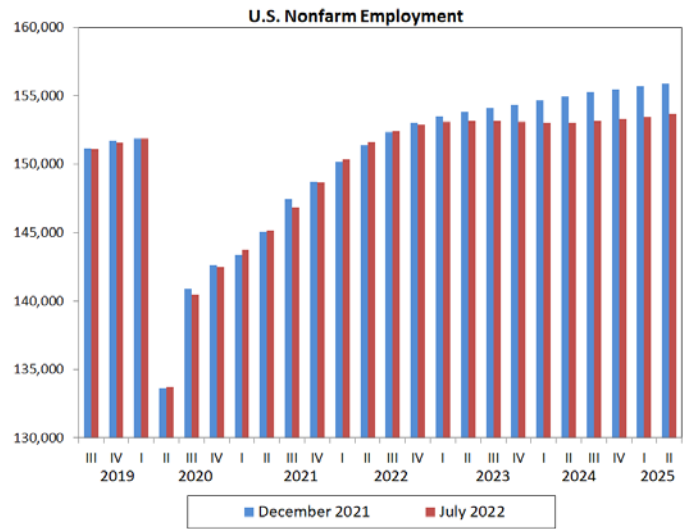
Relative to the prior forecast, the July forecast has lower growth rates in the 2022-23 fiscal year for real GDP, real disposable income, real consumer spending, nonfarm employment, consumer sentiment and business investment. Matching the reasoning but not the direction, a higher Fed funds rate, a higher unemployment rate, and higher mortgage rates are also expected. Few variables were upgraded and most of those come with an inflationary caveat. These include wages which are rising, but more slowly than inflation, and the concomitant effect on nominal personal income. Housing starts also show improvement, but in the sense that they are now expected to have less of a decline than previously anticipated. Corporate profits is one of the few key metrics to unambiguously improve since December.

Real GDP grew 3.8% for the full 2021-22 fiscal year, improving less rapidly than IHS anticipated in the winter. After a strong fourth quarter of 2021, real GDP declined for two consecutive quarters in the first half of 2022 meeting a technical definition of a recession; however, measures of employment, hours, industrial production, and wages all grew firmly. While the Business Cycle Dating Committee of the National Bureau of Economic Research has not yet declared a formal recession (and may not at all), IHS Markit is using the term “growth recession” to describe the weak

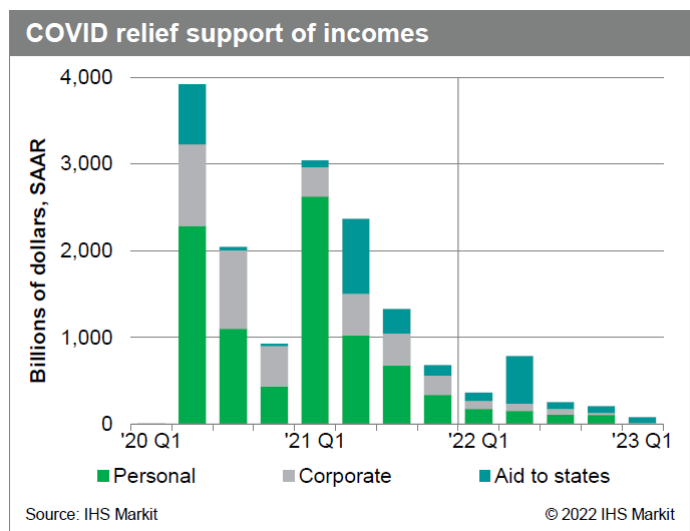


economic climate in both of these quarters and their expectations going forward. In this regard, growth likely resumed in the first quarter of FY 2022-23, but will grow at rates below optimal for the first two years of the forecast. After that, GDP grows at only 1.9% annually through the remainder of the forecast horizon. This is lower than the winter forecast and below the long-term growth rate of 2.2% expected pre-pandemic.

The unemployment rate improved faster than expected to 4.2% in Fiscal Year 2021-22 and to 3.5% in July 2022, a sign of a unsustainably tight labor market. In response to higher interest rates and slowing economic activity, the rate gradually increases to 3.9% for all of FY 2022-23 and then edges up to levels just under 5% before retreating to 4.3% in the long-run forecast, close to the full-employment unemployment rate. In the face of cautious consumers, uncertain economic conditions, labor shortages, and rising labor costs in the near term, businesses will remain reluctant to hire and invest. While some jobs were destroyed quickly and permanently during the early days of the pandemic, the creation of alternative opportunities in an economy still adjusting to new risks will take time. The rate of job loss reached 40% in the second quarter of 2020 from the first quarter of 2020 on an annualized basis. By the summer of 2022, job counts finally exceeded pre-pandemic levels, leading to expected employment growth of 2.4% in FY 2022-23. Employment growth then settles back to growth rates of 0.5% and just under, similar to pre-pandemic rates, in the latter half of the forecast horizon. The US economy has fewer jobs than expected pre-pandemic for each year in the forecast as some jobs never return to the pre-pandemic expected levels, partly due to automation.



According to an analysis by IHS Markit, the income support provided by federal pandemic relief measures averaged \$2.7 trillion at an annual rate over the first half of 2021, dropped to \$0.7 trillion in the fourth quarter, and shrinks to near zero in 2023. As a result, personal income stayed strongly positive in FY 2019-20 and grew by 7.3% over the prior year in FY 2020-21. In tandem with the loss of these relief programs, personal income only notched 3.4% growth in FY 2021-22, but is expected to resume normal growth throughout the remainder of the forecast.



Nonetheless, this is only part of the income story. Pounded by persistently high inflation fueled by near-record fuel and energy prices, real disposable income swung from 5.2% growth in FY 2020-21 to -4.5% growth in FY 2021-22. It is expected to edge down another 0.1% in FY 2022-23 before resuming positive growth. Even so, real disposable

income levels remain below the pre-pandemic levels from FY 2022-23 onward. The single largest driver of personal income—wages—are expected to see moderating growth in the future, and with wages growing slower than inflation, real wages continue to drop. Households have reduced their saving rate below pre-pandemic levels, and they will continue saving at lower levels for the first two years of the forecast horizon as they face inflation in all facets of their lives. Some households have returned to the use of credit as additional income support; nonmortgage consumer credit rose by \$22.3 billion in May, following gains of \$47.5 billion and \$36.8 billion in March and April, and up 7.4% from a year earlier.

Real consumer spending grew by 2.9% in FY 2020-21 and surged by 5.0% in FY 2021-22. In FY 2022-23 and FY 2023-24, spending is expected to step back to a subdued pace of 1.7% and 1.9%, respectively, prior to growing at rates comparable to the pre-pandemic rates for the remainder of the forecast period. Even so, the annual levels never exceed the pre-pandemic forecasted levels. Note also that this headline number does not speak to composition. According to IHS Markit data, in FY 2022-23, PCE on durable goods is forecast to decline 0.2%, while PCE on services is expected to increase 3.3%.

Spurred by record low interest rates, the national housing market showed remarkable resiliency in the face of the pandemic, as people less affected by the job market travails demonstrated a willingness to undertake major financial investments. A 71.4% contraction on an annualized basis to just over one million housing starts occurred in the second quarter of 2020, but then starts shot past the levels seen immediately prior to the pandemic by the fourth quarter of 2020 and increased to an annualized 1.7 million starts by the first quarter of 2022. As rising interest rates continue to undermine housing activity, starts are expected to trend down to around 1.4 million annually, facing headwinds from doubled mortgage rates and surging construction costs. Existing home sales have also receded, facing record home price increases, higher mortgage rates, and still tight inventory.

The outlook for corporate profits has improved markedly since the December conference. Book profits grew by 18.0% in FY 2021-22, and economic profits grew by 12.6%—both measures much stronger than expected. Profit growth stalls in FY 2022-23, but gradually picks up through FY 2025-26.

Finally, the price of Brent crude oil plunged to \$29.4/barrel in the second quarter of 2020 as the global COVID recession and price war between Saudi Arabia and Russia combined to create an unprecedented surplus of oil. As global growth rebounded, the price more than doubled to \$79.7/barrel in the fourth quarter of 2021. The start of the war in Ukraine in the first quarter of 2022, along with other oil supply constraints, caused prices to soar to \$113/ barrel at the end of FY 2021-22. Prices are expected to remain above \$100/barrel for the entire 2022-23 fiscal year. Without an obvious resolution to the above constraints, oil is then expected to average \$95/barrel level during the remainder of the ten-year forecast horizon.