

Idaho Economic Forecast

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- Alternative forecasts

Idaho labor-force participation rate



Idaho Economic Forecast 2023–2028

State of Idaho BRAD LITTLE Governor

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Introduction

This document summarizes Idaho's economic forecast for 2023 through 2028. The primary national forecast in this report is the October baseline forecast for the US economy by Moody's Analytics. The Idaho economic model takes the national forecast as an input.

Alternative assumptions concerning future movements of key economic variables can lead to major variations in national and/or regional outlooks. Moody's examines the effects of different economic scenarios, including the potential impacts of global economic conditions, higher inflation, and future Federal Reserve Open Market Committee decisions. Alternative Idaho economic forecasts are developed under different policy and growth scenarios at the national level. Three of these forecasts are included in this report.

Idaho Department of Labor provides monthly historical employment data that are seasonally adjusted and converted to quarterly frequency by DFM. Data is complete through 2023Q2.

The Idaho economic forecast has historically included an article from one of the Federal Reserve Banks. In this edition we continue to suggest that as an educational resource to readers. The relevant link is https://www.frbsf.org/economic-research/publications/ for the Federal Reserve Bank of San Francisco. The Bank provided its outlook for the region recently (Oct. 19). Earlier it tackled the trends in labor force participation across the US (Aug. 14), and then returned to a subset of that trend again (Oct. 10) more recently.

Historical and forecast data for Idaho are available. These are now provided via this link.

Cover. Partly owing to the recent focus by the FRBSF on labor-force participation, and partly because this measure has great influence on the Idaho labor market, we have illustrated this measure on the cover of this report. This rate is computed by taking the total count of people who are employed in a state plus the total of all those who are unemployed (in the official sense in that they are actively seeking employment, hence are part of the headline U-3 unemployment rate). That sum is then the numerator. The denominator is the count of all non-institutionalized people 16+ years of age. The labor-force participation rate applies to a wide section of society, and hence seemingly small moves in its value quickly translate into large numeric differences of people participating in the labor market.

The recent downward trajectory seen in Idaho data mirrors the pattern for the US as a whole. Labor-force participation is age related, and as the US population becomes progressively more heavily weighted to older age cohorts, it is expected that labor-force participation will continue to diminish. This is among the most pervasive forces shaping the jobs outlook for the US by Moody's and other forecasters.

Readers with any questions should contact Greg Piepmeyer or Matthew Hurt at (208) 334-3900 or via email using greg.piepmeyer@dfm.idaho.gov or matthew.hurt@dfm.idaho.gov.

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Summary

These quarterly economic forecasts provide context for discussion of Idaho's economy. Lately, the United States and Idaho have routinely surprised to the upside on a number of economic measures. For the national view, it is beginning to appear that the Federal Reserve may achieve a soft landing. This would be good news, but it is important to retain some caution. Long term structural challenges that predated the pandemic have not disappeared.

The cover graph shows both the rise of the baby-boomers within the workforce as well as increasing women's participation in the labor market. That trend upwards turned near the beginning of the current millennium. The baby-boomers exiting the workforce are reflected in recent lower values of labor-force participation. Next year the youngest portion of that generation, those born in 1964, will be turning 60. The oldest baby-boomers will be well over 75. While full retirement age is 65–67, actual average retirement ages have been closer to 62 for the US. These demographic changes add to the challenges the US Federal Reserve faces as it sets US monetary policy with the aim of full-employment and stable long-term prices.

There is almost always tension between between unemployment and inflation. The nonaccelerating inflation rate of unemployment (NAIRU¹) is a theoretical concept which states that if an economy falls below that unemployment rate, it is likely to see steeper and steeper inflation as employers compete viciously for the scarce employees seeking jobs. Estimates of the NAIRU have recently been at 4–4.5 percent. Current unemployment is at 3.8 percent. Current, headline Consumer Price Index (CPI) inflation is at 3.7 percent while core CPI inflation is at 4.1 percent. Current Personal Consumption Expenditures (PCE) inflation is at 3.4 percent for the headline figure and 3.7 percent for the core figure which excludes food and energy.

The Fed is aiming for 2 percent core PCE inflation. Its primary tool is adjusting short-term interest rates to either stimulate the economy or to cool the economy. Recently it has been trying to cool the economy as inflation has been higher than desired and unemployment has been below the NAIRU.² It has made progress towards that goal from the higher inflation of 2022, but looking at the current figures, there is still some progress to be made. Unemployment remains below the NAIRU, inflation remains above the target, and as measured by recent real GDP growth, the US economy continues to run hotter than its expected long-run steady-state. The first reading of real GDP growth in the third quarter came in at 4.9 percent annualized. This is well beyond the expected full-employment real GDP growth potential of the US, which is often estimated to be near 2 percent annualized.

The state's unemployment rate is still below the nation's and labor markets remain tight in Idaho. Survey data from the Bureau of Labor Statistics and the Idaho Department of Labor shows³ substantial jobs gains across the past year. Idaho is seeing some of the cooling that the Federal Reserve is trying to achieve. Among the early transmittal avenues are home prices

 $[\]overline{1}$ Link for a discussion of the topic.

 $^{^{2}}$ Cooling the economy from the excessive inflation of 2022 without triggering a recession is typically thought of as a "soft landing" for an economy which was so-to-speak, flying too high.

 $^{^3}$ see the year over year discussion by the ID DoL

and transaction volumes in the real-estate sector. Some home prices have seen some corrections compared with 2021–2022, and volumes of home sold seem to be diminished. Idaho housing starts have seen a pull-back from the peak period in 2021, and the forecast for starts in the state is largely sideways. Some of this, particularly in the multi-family sector, is that there remain a lot of units to complete but which have already been started. It is a similar story nationwide.

| | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--------------------|------|-------|------|------|------|------|------|------|------|------|
| real GDP | 2.47 | -2.21 | 5.80 | 1.94 | 2.14 | 1.26 | 1.76 | 2.38 | 2.46 | 2.47 |
| CPI inflation | 1.81 | 1.25 | 4.68 | 7.99 | 4.11 | 2.74 | 2.18 | 2.06 | 2.01 | 2.07 |
| federal funds rate | 2.16 | 0.37 | 0.08 | 1.68 | 5.03 | 5.11 | 4.16 | 3.15 | 2.75 | 2.5 |
| mortgage rates | 3.93 | 3.11 | 2.96 | 5.33 | 6.73 | 6.55 | 6.12 | 6.02 | 5.96 | 5.91 |

Current economic conditions

Economic Watch. As measured by real GDP, the first three quarters of 2023 represent strong growth for the US economy. Typically the Bureau of Economic Analysis (BEA) releases three estimates of real GDP for the country, one estimate in each month of the subsequent quarter. The first estimate of growth in 2023Q3 is 4.9 percent on an annualized basis. This exceeds Moody's October estimate of 3.1 percent growth, but was in line with the mid-October estimate from the Atlanta Federal Reserve. Growth of 4.9 percent for the quarter represents the largest expansion since 2021Q4 and is well above the 2 percent threshold that is considered healthy growth for an advanced economy.

| Real US GDP | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---------------------|-------|------|------|------|------|------|------|------|------|
| Idaho ^a | 1.33 | 6.58 | 4.88 | 2.82 | 2.04 | 2.39 | 2.76 | 2.76 | 2.81 |
| October '23 Moody's | -2.21 | 5.80 | 1.94 | 2.14 | 1.26 | 1.76 | 2.38 | 2.46 | 2.47 |
| July '23 Moody's | -2.77 | 5.95 | 1.91 | 1.73 | 1.14 | 2.38 | 2.81 | 2.66 | 2.48 |
| May '23 Moody's | -2.77 | 5.95 | 1.91 | 1.60 | 1.68 | 2.42 | 2.67 | 2.51 | 2.38 |

 a These estimates for Idaho GDP come from the new Idaho Time Series (ITS) economic model by DFM. They are based upon national forecasts, but these figures for Idaho are not those produced by Moody's.

Moody's October forecast acknowledges that growth in 2023 is stronger than what they expected in July and earlier forecasts. The new forecast also expects growth in 2024 to be higher than what was predicted by the July forecast, but Moody's and many forecasters anticipate that growth will slow in the fourth quarter. Moody's expects annualized growth to slow to 0.4 percent for 2023Q4 while the Atlanta Federal Reserve Bank's initial estimate (GDPnow) is for growth of 2.3 percent. The New York Federal Reserve Bank has resumed producing its concurrent estimate as well; its estimate (Nowcast) for 2023Q4 is 2.8 percent. Unlike those other two sources, the New York Fed expects a similar rate of growth in the third and fourth quarters.

Moody's October forecast expects real GDP to grow less than 2 percent in 2024 and 2025 before the economy strengthens going forward. The downward revisions to future growth are driven by the expectation that interest rates will stay higher for a longer period of time. In the baseline October forecast, Moody's has interest rates as flat through 2024Q2 and expects rates to bottom out at 2.5 percent by 2028Q3. Moody's is not currently forecasting a contraction of growth in any quarter in their baseline model. Our model predicts that Idaho's economy will continue to grow faster than the nation overall. This is primarily because we expect Idaho to continue to experience higher than national rates of net migration and job growth.

Quarterly personal income data are now available for 2023Q2. At the end of September the Bureau of Economic Analysis (BEA) released a substantial revision to their historical series for state personal income, real GDP, and more.⁴ Idaho's personal income increased by 1.8 percent in 2023Q2, which was well below the national rate of 4.3 percent, and one of the slowest rates

⁴ Beyond the historical adjustments they have also re-indexed all real variables to 2017 instead of 2012. The BEA plans to make state real GDP data available this fall. As of October 30th, real GDP data for individual states

for any state. However, this growth should be interpreted in the context of a recent historical revision. The BEA now sees that Idaho's personal income has been around \$4 billion higher than previously estimated since the middle of 2021. Considering that Idaho's mid-2021 personal income was around \$97 billion this represents one of the largest percentage revisions upward by the BEA of any state. The revision was almost entirely attributed to dividends, interest, and rent.

International. The ongoing war in Ukraine, which has now lasted more than six hundred days, continues to contribute to worldwide inflation and a slowdown in growth. Recent changes on the battlefield and in the Russian economy indicate that the war may not be ending soon. The Wall Street Journal reported in October that Russian leaders are working to restructure its economy in a way that can support a protracted war in Ukraine.

At the same time, Ukraine has scored meaningful naval victories in the Black Sea which should make it safer to trade with other nations. Ukraine's war economy means that there are fewer farmers and less agricultural output, but at least now Ukraine can somewhat more safely trade what output it has with the rest of the world. This should remove one of the sources of volitility in agricultural, and particularly in fertilizer markets. In this regard, the war's impact on Idaho's economy may be less severe going forward.

Since our report in July, Russia's efforts to seize more Ukranian land have largely failed, often with significant losses of manpower and material. Ukraine's efforts to recover its territory have also faltered, and some early successes around Robotyne in the south have not translated into wider territorial recovery. Both sides have repeatedly demonstrated an ability to defend the territory they currently occupy, making swift changes in position unlikely. Since both sides continue to pursue mutally exclusive goals, a quick end to the war seems remote. Increasingly, it seems that Russia will continue its invasion at least until elections in Europe and the United States in 2024, with the hope that new political leadership in the West will be less willing to support Ukraine.

In October a new international risk emerged in response to Hamas' invasion of Israel and the Israeli response. Oil prices increased briefly in the wake of the invasion. For now the immediate impact on the global economy is unclear. The greatest economic risk is for spillover into neighboring countries, which, if it occurs, could threaten global oil markets. We will continue to monitor the situation and we should have a better understanding of the economic impacts and risks in our next report.

The International Monetary Fund (IMF) expects global growth to slow in 2023 and 2024 and remain below long run average growth of the 2010s. They cite "blows of the pandemic, Russia's invasion of Ukraine, and the cost-of-living crisis" as major drags on global growth. They expect real global growth to be 3 percent in 2023 and 2.9 percent in 2024. The 2024 number reflects a slight downgrade from their July forecast. They note that while the United States may hit its "soft landing" scenario after consistently surprising to the upside, the situation in Europe is

are not available on the BEA website. Using data available prior to the revision, Idaho's real GDP expanded 3.8 percent in 2023Q1, which exceeded the national rate of 2.2 percent.

less encouraging. They also note weaknesses in the Chinese economy and the instability of its construction and housing markets.

Monetary policy. On October 26 the European Central Bank decided to maintain its three key ECB interest rates.

The interest rate on the main refinancing operations and the interest rates on the marginal lending facility and the deposit facility will remain unchanged at 4.50 percent, 4.75 percent, and 4.00 percent respectively.

The central bank stressed that rates are likely to stay at or near these levels for quite some time, using the phrase "maintained for a sufficiently long duration" to describe the likely path forward for their current interest rates.

The Bank of Canada has a similar outlook, opening and closing their October 25 policy statement⁵ with:

The Bank of Canada today held its target for the overnight rate at 5 percent, with the Bank Rate at 5.25 percent and the deposit rate at 5 percent. The Bank is continuing its policy of quantitative tightening. ... With clearer signs that monetary policy is moderating spending and relieving price pressures, [the] Governing Council decided to hold the policy rate at 5 percent and to continue to normalize the Bank's balance sheet.

While monetary policy is not fully coordinated, central bankers do communicate about their situations, and they do work within the same global environment. The US Federal Reserve's Open Market Committee is meeting October 31–November 1. This meeting is widely expected to result in similar outcomes to the most recent Bank of Canada and European Central Bank monetary policy meetings. The Fed is expected to hold its short-term federal funds rate steady at 5.25–5.5 percent, and it is expected to continue its balance-sheet tightening as it unwinds its holdings of treasuries and mortgage-backed securities as they mature.⁶

National. With inflation still above the Federal Reserve's target of 2 percent, the principal recession risk for the United States remains the actions of the Federal Reserve to control inflation. To reduce inflation the Federal Reserve has raised its target for the federal funds rate, which now sits around 5.5 percent. That rate was effectively at 0 percent as late as March 2022. Its current value is the highest it has been in more than twenty years. Moody's October forecast predicts that the federal funds rate has peaked and that the Federal Reserve will not raise rates on November 1. A recent article from CNBC discussing the release of September PCE data notes that markets have priced in a rate pause during the Federal Reserve's November 1 meeting.

These higher rates are reflected in mortgage and other loan rates, which have slowed down certain parts of the economy. Freddie Mac⁷ lists a mid-October estimate for a 30-year fixed

 $[\]overline{}^{5}$ RBC

⁶ We return to this topic; see the footnotes on page ?? where a link gives a picture of this unwinding.

⁷ The Federal Home Loan Mortgage Corporation is a government-sponsored enterprise designed to stabilize the housing market by purchasing loans from smaller banks or credit unions.

mortgage rate in the United States at 7.63 percent, a twenty year high. Data from the National Association of Realtors show that sales of existing homes have been falling steadily since last year, and in particular since May 2023. The sale of existing homes by volume is down around 8 percent since then.

In our July report we noted that headline inflation, computed as the change in the consumer price index and measured by the BLS was falling rapidly. During 2023Q2, headline inflation fell from 4.9 percent year-over-year in April to 3.0 percent year over year in June. Core inflation fell from 5.5 percent to 4.8 percent over that



span. Headline inflation has reversed course in this most recent quarter, rising to 3.2 percent in July, rising again to 3.7 percent in August, and then stabilizing at 3.7 percent in September.

Core inflation is continuing to come down. Core inflation, which removes volatile items like food and energy from its calculation, fell to 4.7 percent in July, 4.3 percent in August, and 4.1 percent in September. The core Personal Consumption Expenditures price index (core PCE), is the preferred index of the Federal Reserve and mirrors these patterns. Year-over-year inflation computed using core PCE went from 4.3 percent in July to 3.9 percent in August and then 3.7 percent in September.

Strong real GDP growth and a resilient labor force with an unemployment rate still below 4 percent will encourage the Federal Reserve to consider additional rate hikes, but recent disinflation will encourage the Federal Reserve to pause rate hikes, and it is that view which Moody's suggests will hold dominant. We expect that is the right call.

Local. Inflation in Idaho mostly follows the national story. Using the CPI values provided by the BLS for the Mountain census division⁸ and Western census region,⁹ headline inflation is up. Headline inflation in the West was flat in July at 3.5 percent before increasing to 3.9 percent in August and holding flat in September. In July inflation in the Mountain division fell to 3.5 percent, inched up to 3.6 percent in August, and again to 3.8 percent in September. In August, inflation in the Mountain division was lower than the West or nation, the first time in more than two years.

The housing market in Idaho has defied predictions that a price or transaction collapse is imminent. According to Redfin.com the median sale price across all home types in Idaho has

⁸ AZ, CO, ID, MT, NM, NV, UT, WY

 $^{^{9}}$ Includes the Mountain census division and all Pacific US states

been flat around \$470 thousand since May 2023. The median home price peaked in May 2022 around \$510 thousand. Monthly home sales have been fairly steady since May and hover around 2,300 a month. Home sales were down more than 11 percent year over year in September.

To see why sales are down modestly even while prices have held steady, consider the impact of interest rates. A home bought in May 2022 with a conventional 30-year mortgage on a loan amount of \$408 thousand (with a conventional 20-percent downpayment, 80 percent of the median price of \$510 thousand is \$408 thousand, and that would be borrowed money in this situation) has a monthly mortgage payment of \$2,253; at that point, mortgage interest rates were 5.25 percent. A home bought today, again with a conventional 30-year mortgage, on a loan amount of \$376 thousand (again 80 percent of the median price, which is now \$470 thousand) has a monthly mortgage payment of \$2,655 at today's mortgage interest rate of 7.6 percent.¹⁰ Thus the median home would have additional \$400 per month on a mortgage payment under conventional terms. Note, however, that the down payment in May 2022 was \$102 thousand, whereas it is under \$95 thousand currently.

The Idaho Department of Labor reports that Idaho's labor market continues to grow. Idaho's seasonally adjusted September unemployment rate was 3.1 percent. Though the unemployment rate has been rising, it is still well below the national rate and is consistent with the labor market equalization the Federal Reserve seeks. Total nonfarm jobs in Idaho increased 3 percent year over year, which was the third fastest rate of job growth in the country.

Five measure summary. There are many measures that can be compared across political boundaries, each of them partly answering the perennial question: "How are we doing?" Answers, of course, vary. Here we give a composite answer drawn from five important measures. We consider Idaho's personal income per capita, real GDP per capita, adjusted gross income (AGI) per filer, median household income, and the statewide poverty rate. We chose these five measures because they represent a mix of per-capita and family income measures, and they come from three different, and high quality, sources. We also included price adjustments for the monetary measures to account for differences in price levels across states.¹¹

As mentioned in the July version of the Idaho Economic Forecast, while Idaho has recently had real GDP per capita and personal income per capita growth in the upper half of states it still ranks in the bottom quintile of states on these two measures. Even after we account for Idaho's lower cost of living by applying the 2021 BEA State and Regional Price Parity, it has a relatively low per-capita personal income and per-capita real GDP within the US. In contrast, its share of families in poverty is relatively low, placing it ahead of many states.

States like Idaho, which sits in the top ten for marriage rates according to the Center for Disease Control and Prevention (CDC), will tend to have higher AGI per filer and higher median household income and have lower shares of families below the poverty line. This is because those

¹⁰ Freddie Mac

¹¹ Data on personal income, real GDP, and state and regional price parity come from the BEA. Data on median household income and poverty come from the Census Bureau's American Community Survey (ACS). Data on adjusted gross income come from the IRS's Statistics of Income (SOI).



Composite economic well-being

measures will improve if there are multiple streams of income for the family. They will be even higher in situations where both (or more) adult members of the family work. Multiple members of a household may feel the need to work if local wages are low or if the local cost of living is high.

Each measure can be a useful way to gauge a state's economic performance. While we do not rule out that there are other useful economic metrics to be considered, one way to utilize all of the five measures we have is to combine them using z-scores and then rank the summed z-scores. This approach produces a composite measure that accounts for the different ways of understanding a state's economic performance.

To produce this composite measure we begin by computing z-scores¹² for each state across each of the five measures.¹³ Once we have our five sets of z-scores we add them for each state to get a combined z-score.

In 2022 Idaho's composite z-score placed it in position 24 out of 50.¹⁴ The map shows the geographic variance of the composite scores. The map reveals several interesting patterns including that four of the top ten states are in the Mountain West. Most of the rank improvements between 2012 and 2022 also happened in the Mountain West.

 $^{^{12}}$ This is computed by subtracting the relevant mean from each observation and then dividing that difference by the standard deviation of the measures under consideration.

¹³ For example, consider a smaller sample of Idaho, Utah, and Montana. Their 2021 ACS poverty rates were 10.8, 8.7, and 12 respectively. Since the average value is 10.5 and the standard deviation is 1.36, Idaho's z-score for this population would be 0.22, Utah's would be -1.32, and Montana's would be 1.1.

 $^{^{14}}$ The 2022 score uses per-capita data, median household income, and poverty share data from 2022 and 2020 data for AGI per filer and the price adjustments.

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Across time, Idaho's composite rank has increased significantly in recent years. Between 2012–2018 it ranked anywhere from 35–40. In 2019 its rank increased to 29, the first time on record it was better than 30. In the 2020s its rank has hovered around 24. This trend indicates that Idaho improved many of its statewide income (or economic well-being) measures substantially faster than other states did between 2018–2020 and is now keeping pace with other states.

Economic outlook

Moody's indicates that 2025 is likely to have some significant changes in US fiscal policy, with Congress expected to re-address several issues: the debt limit, some of the 2017 tax cuts from the Trump administration, and Obamacare health insurance subsidies from the Biden administration. Before then, the forecast from Moody's is



that the Federal Reserve is done tightening monetary policy, and that the Fed will begin easing it gradually in June 2024. The reduction in the Fed's balance sheet will continue as it has been for over a year.¹⁵

Labor market. Normal economic activity by the US population is aided by a stable job market. In its August release, the BLS indicated

Both the unemployment rate, at 3.5 percent, and the number of unemployed persons, at 5.8 million, changed little in July. The unemployment rate has ranged from 3.4 percent to 3.7 percent since March 2022.

Note that the narrow range in unemployment has held since March of 2022, that is, 18 months. By September, the situation had changed somewhat, but not enough for the BLS to view it as a major change. The agency's characterization now reads:

The unemployment rate rose by 0.3 percentage point to 3.8 percent in August, and the number of unemployed persons increased by 514,000 to 6.4 million. Both measures are little different from a year earlier, when the unemployment rate was 3.7 percent and the number of unemployed persons was 6.0 million.

Finally, in October the situation was much the same:

The major labor market indicators from the survey of households showed little or no change over the month. The unemployment rate held at 3.8 percent in September, and the number of unemployed persons was essentially unchanged at 6.4 million.

The fullest view of job creation available across those months are for: 236 thousand new jobs in July, 187 thousand new jobs in August, and 336 thousand new jobs in September. Generally,

¹⁵ See a St. Louis Federal Reserve blog on the topic, and note the green curve within the graph.

given the demographics in the US, to maintain an unemployment rate in the face of a constant labor force participation rate, a bit under 100 thousand new jobs per month are needed.

In terms of the US job market, this is the characterization of the current status by Moody's:

A full-employment economy is one with an unemployment rate around 3.5 percent, a 62.5 percent labor force participation rate, and a prime-age employmentto-population ratio in the range of 80 percent. The economy is at that level now.

A bit more precisely, the current (September 2023) US unemployment rate is 3.8 percent, the labor force participation rate is 62.8 percent, and the employment-to-population ratio is 80.3 percent.¹⁶ To characterize the developments within their forecast from recent months to the October baseline, Moody's said that "the labor market forecast changed little apart from the recent strength in job gains." That recent strength came through the September job gains report from the BLS: 336 thousand jobs were added in September, and an additional 119 thousand job gains were attributed to July and August, bringing the three month average to 266 thousand per month. Moody's still expects job growth to slow, towards 75 thousand per month across 2023Q4, and 50 thousand per month across 2024Q1–Q2.

Moody's short-term expectation for new-home sales reflects recent sales trends and rising mortgage rates, but the longer-run outlook is driven by demographics and a housing supply which is already 1.5 million units short of ideal. The outlook is more favorable to single-family housing as multi-family units are held back by commercial lending standards being more stringent as well as a "record number of projects currently under construction."

Locally, demographics is making the news. In conjunction with a story on the lack of enrollment increases in northern Idaho school districts, an observation by the regional labor economist from the Idaho Department of Labor surfaced: "...the health of our demographics and the size of the schoolage population is very strongly linked to people moving to Idaho, the health of the housing market and the job market, and being a destination state ...". These were remarks given by Sam Wolkenhauer this past winter for that region. They continue to apply, but they apply nearly statewide as well.

For an example of local growth, consider a new industrial operation in Rexburg. A processing facility for industrial hemp has opened and is expected to bring 25–50 jobs across the coming year. Industrial hemp is used in basic materials such as insulation and concrete mixtures. Rexburg is one of the cities in Idaho which routinely sees new arrivals from out-of-state. Madison County, where Rexburg is, oftentimes has the lowest unemployment rate in the state. Eastern Idaho also has other, newer processing facilities for local crops. Idaho Falls has a quinoa mill. A well-known food processor in Idaho is Amalgamated Sugar, which recently reached an agreement with the union representing its factories (Nampa, Paul, Twin-Falls), and which turns sugar-beets into refined sugar. Unlike elsewhere in the nation, there was no strike action in this case.

¹⁶ See these: U-3 unemployment, participation, e-pop shows the employment to population ratio Moody's focuses upon in the row labeled "25 to 54 years" under "Total".

Agricultural statistics for Idaho have been updated for this report; data becomes available each September for the prior year. The primary driver is the dairy industry, which pulls in products from alfalfa to potatoes. However, it is important to recognize that there is a diversity of crops grown and processed across the state. It is also

important to recognize that crops provide seasonal demand for workers. We took the opportunity to grab a snap-shot of the geographic diversity of these for Amalgamated Sugar; they cover much of the Snake-River plain.

We have just given a small set of examples on the health of the Idaho jobs market, addressing one of the issues raised in Wolkenhauer's remarks. Another aspect concerns the consequences of the demographic shifts he was also addressing. While one portion of the American public returns to paying student loans this October, it is worth noting that other cohorts are positioned differently in terms of disposable income.¹⁷ The youngest baby-boomers are currently 59, hence retirement is imminent for the youngest of them, and retirement is a fait accompli for a large portion of baby-boomers. Census estimates put the US population over 65 years of age at 17.7 percent of the total. The US Labor Department suggests that this sub-population is responsible for 22 percent of spending. Looking at the older baby-boomers, those 70+ have 26 percent of household wealth in the US, and boomers as a whole control over \$77 trillion in wealth. Recent spending trends for older Americans have been less suceptible to pull-back than younger generations. This may be partly due to the insulating effects of this wealth, but there are other insulating effects as well. Many are no longer tied to jobs (and the stress of losing them), some are mortgage free and many have few debts, and those with mortgages have likely refinanced during the low interest-rate period following Covid's arrival.

| US growth rates | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|---|----------------|----------------|----------------|----------------|----------------|---|----------------|---|---|--|
| US nonfarm jobs US population | $1.34 \\ 0.43$ | -5.79 0.28 | $2.9 \\ 0.19$ | $4.34 \\ 0.41$ | $2.3 \\ 0.54$ | $\begin{array}{c} 0.62 \\ 0.45 \end{array}$ | $0.37 \\ 0.39$ | $\begin{array}{c} 0.38\\ 0.36\end{array}$ | $\begin{array}{c} 0.37 \\ 0.35 \end{array}$ | $\begin{array}{c} 0.4 \\ 0.34 \end{array}$ |
| Total personal income inflation adjusted | 4.72 3.24 | $6.93 \\ 5.79$ | $9.06 \\ 4.69$ | 2.02 -4.17 | $5.39 \\ 1.47$ | 4.48 1.83 | $3.98 \\ 1.71$ | 4.33 2.28 | $4.4 \\ 2.38$ | 4.4 2.32 |
| Wage & salary payments average US wage | $4.78 \\ 3.39$ | $1.5 \\ 7.74$ | 8.96 5.88 | $7.79 \\ 3.31$ | $6.44 \\ 4.05$ | $5.3 \\ 4.66$ | $4.13 \\ 3.74$ | $3.84 \\ 3.45$ | $3.78 \\ 3.4$ | $3.82 \\ 3.4$ |

 $\overline{17}$ WSJ article Oct 8, 2023

| ID growth rates | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|--|----------------|----------------|-----------------|----------------|----------------|----------------|---|----------------|----------------|----------------|
| ID nonfarm jobs ID population | $2.95 \\ 2.11$ | -0.06 3.36 | $5.02 \\ 2.98$ | $3.71 \\ 1.82$ | $2.82 \\ 1.41$ | $3.26 \\ 1.54$ | $2.93 \\ 1.49$ | $2.91 \\ 1.26$ | $2.84 \\ 1.05$ | $2.83 \\ 0.97$ |
| ID personal income inflation adjusted | 8.48 6.94 | $10.68 \\ 9.5$ | $12.22 \\ 7.77$ | 6.46 -0.05 | $5.78 \\ 1.86$ | $6.3 \\ 3.61$ | $\begin{array}{c} 6.64 \\ 4.31 \end{array}$ | $7.11 \\ 5.01$ | $7.08 \\ 5.01$ | $7.28 \\ 5.15$ |
| Wage & salary payments average wage | $5.79 \\ 3.46$ | $7.51 \\ 7.09$ | $12.23 \\ 6.97$ | $9.98 \\ 6.65$ | 8.23 5.29 | $8.75 \\ 5.41$ | $8.16 \\ 5.2$ | 7.89 4.96 | 7.72 4.86 | 7.74 4.88 |

Housing starts and construction. Construction job growth has typically been 7.8–7.9 percent annualized across 2013–2019. Looking at a broader set of years, growth has typically been 5.7–7.3 percent annualized since 2010. Going forward, growth is expected to be 2.3–3.0 percent in the latest forecast. While that may seem like a substantial change, put it in this light: Moodys sees the national outlook slowing from 1.9–2.3 percent annualized growth across 2010–2023 to 0.0 percent annualized change (both mean and median) going forward.¹⁸

Projects in the vicinity of downtown Boise include a 334 housing unit and mixed-use building near 12th and Myrtle, a 26-story building also mixed-use and having 298 residences adjacent to the Idaho Power buildings, redevelopment of the Safari Inn at 11th and Grove, a new 8-story hotel across the street from it, road re-construction along Grove and 11th streets, and Boise State University began construction on a new dorm to open in fall 2025 which will house 450 students. Of course, three are projects outside of the capital city. Idaho Power began construction on its Pleasant Valley solar facility, a 200 MW installation which is expected to employ about 220 people during construction. Idaho Transportation Department has had projects thoughout the state as it works through backlogs using recently enhanced funding by the state and federal government. These include major reworkings of bottlenecks such as I-95 and SH-41.

Looking at the US housing market, construction costs have risen 1.5 percent since July according to the Producer Price Index from the BLS, but lumber prices are well off of their highs. Twice in the past two years lumber prices have reached above one thousand dollars per thousand board feet. Prior to the pandemic, \$400–600 for that volume was more typical. Looking regionally, housing starts in the Western region are down from 352 thousand units in August 2022 to 281 thousand units in August 2023.¹⁹

Local home prices have fallen some from autumn of 2022 to autumn of 2023 according to Boise Regional Relators. Looking at median prices, they are down 8 percent (August to August) in Ada County, over 10 percent in Gem County, and just a bit under 1 percent in Elmore County.

¹⁸ Much of the firm's view on construction is controlled by interest rates. Regressing the share of employment in construction on a time trend and the ratio of mortgage rates to short-term interest rates explains half of the variation in that employment ratio. Projecting forward under this relationship according to the expected path of interest rates within Moody's model, the growth rate in construction jobs is about 0.5 percent annualized across almost all of 2024–2028. That is not quite as slow as the 0.0 percent in Moody's official forecast, but it indicates how growth could be quite a bit slower than the history 2010–2023 would lead us to otherwise expect. ¹⁹ National Association of Home Builders

The recent growth in Idaho's construction employment has been aided by, and in turn allowed, total nonfarm job growth at rates much above the nation's. If we look at construction employment as a percentage of total nonfarm employment, nationally this has²⁰ typically been 4.8 percent, ranging



from 4.2 percent up to 5.7 percent. Locally, construction has been about 6.4 percent of Idaho's nonfarm jobs, ranging from 4.9 percent up to 8.3 percent. Going forward, Moody's has the national ratio near 5.1 percent, and the DFM forecast has the Idaho ratio near 8.1 percent; both are narrow forecasts in that the difference from min to max is 0.2–0.3 percent.

| | | 2019 | 2020 | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|----|---|--------------------------------|-------------------------------|---------------------------------|--------------------------------|--------------------------------|--------------------------------|---------------------------------|---------------------------------|-------------------------------|--|
| US | % growth single units multi units | $2.01 \\ 1,291,500 \\ 402,583$ | 12.84 1,396,917 393,833 | $12.83 \\ 1,605,750 \\ 474,000$ | -11.25 1,551,250 546,833 | -10.36 1,376,497 476,131 | $0.73 \\ 1,318,310 \\ 411,381$ | $17.68 \\ 1,479,380 \\ 412,148$ | $11.65 \\ 1,601,575 \\ 409,987$ | -0.04 1,597,455 406,365 | $\begin{array}{r} -2.97 \\ 1,541,028 \\ 385,256 \end{array}$ |
| ID | % growth single units multi units | 5.03 13,043 3,871 | 9.02 14,639 3,799 | $13.88 \\ 16,463 \\ 4,536$ | -2.66 13,848 6,593 | -16.32 11,678 5,427 | $16 \\ 12,893 \\ 6,949$ | -4.43 12,481 6,482 | -2.12 12,162 6,398 | -0.61 12,003 6,445 | -6.14 11,648 5,667 |
| | % growth stock | 2.07 754,600 | 2.14 770,700 | 2.28 788,300 | 2.19 805,500 | 1.33 816,200 | 1.39 827,600 | 1.31 838,400 | 1.21 848,600 | $1.15 \\ 858,300$ | $1.05 \\ 867,300$ |

Consumption and Retail trade. The latest Personal ^{Idaho} Consumptions Expenditure report from the BEA showed 100,000 that real disposable personal income has been steadily growing more quickly than real personal consumption expenditures. We ^{50,000} reproduces table 6 from that report; all figures are ^{25,000} "real", that is, adjusted ^{60,000} for inflation. This suggests



that at least nationally, Americans capacity to continue their regular economic activity has not

| | Feb. | Mar. | Apr. | May | Jun. | Jul. | Aug. | Sep. |
|-----------------------------------|------|------|------|-----|------|------|------|------|
| Disposable personal income | 3.5 | 4.4 | 4.5 | 5 | 5.4 | 4.2 | 3.7 | 3.5 |
| Personal consumption expenditures | 2.3 | 1.7 | 1.6 | 1.8 | 2.1 | 2.6 | 2.3 | 2.4 |

been uniformly hampered this year. However, data conveyed by Moody's from the Federal Reserve indicates that the capacity for extra savings (illustrated by the top line in the table being larger than the bottom line) is concentrated in the top two-fifths of households economically. The lower three-fifths of households have been slightly dipping into savings.

Should the proposed merger between Kroger's and Albertsons occur, 13 Idaho stores have been selected for sale. It is possible that additional stores or distribution facilities in the state would also be sold. No particular anouncement has been made other than the 13 stores (out of 400 nationwide to be sold). That merger was partly in response to competition from Amazon, Costco, and Walmart, all of which have substantial presence in Idaho. An Amazon spokesperson has said in the run-up to the holiday shopping season: "... at Amazon and we're excited to hire 250,000 additional people this year to help serve customers across the country." While that figure is for the US, about 1,500 are expected to be in Idaho. Not all of those jobs will be seasonal; some will be regular full-time or regular part-time positions.

Modeling by Moody's suggests that the Mountain region will have 2.2 percent job growth in 2023, followed by job growth of only 0.9 percent in 2024 and 0.8 percent in 2025. That would be a substantial slow-down in job growth going forward. The very local outlook for jobs (produced by DFM) is for 2.8 percent annualized job growth typically. Across the past dozen or so years, this has been 2.6–2.7 percent. That includes 2020. Looking only at 2013–2019, the values are 2.7–2.9 percent, and looking only at 2021–2023, the values are 3.9–4.0 percent.

Stepping down to just the retail sector, jobs growth is expected to typically be 2.6 percent annualized. This compares with typical growth of 1 percent across 2016–2019.

Hospitality and leisure. Three events in the Boise in the closing weeks of August brought an estimated 200+ thousand attendees: the Western Idaho Fair, the Gowen Field airshow, and the Boise Open golf tournament sponsored by Albertsons. These were quickly followed by the Spirit of Boise (hot air) balloon show.

The Eastern Idaho Fair, which has just passed 50 years, also saw strong attendance. Yellowstone attendance has also been robust this year.²¹ It appears to be up double-digits from last year. As remarked in news articles about the Boise events in August, the large volume of visits typically come with large economic impacts. Hundreds of thousands of visitors spend millions of dollars.

The Wood River Valley hosts many arts events per year. The Argyros in Ketchum has musical and dance performances, with bookings displayed through April. Ballet Sun Valley lists plans for an educational workshop next June. Of course, arts are spread across the state. Ballet Idaho has upcoming events, too. The symphony orchestra in Pocatello is busy through May

²¹ Compare the "Monthly Public Use" data to the "Annual Park Recreation Visits" data available from the National Park Service.

next year. The Coeur d'Alene symphony performs at the Northern Idaho College's Schuler Performing Arts Center, and has its 2023–2024 season set as well. These venues and performing arts organizations have staff and artists on payroll, but they also generate opportunities for local venues to drum up business. This includes accommodations—many performances bring in some guest artists—as well as restaurants where patrons go before or after performances.

Hospitality and leisure employment in the state has been one of the slowest to recover from the pandemic. However, it has done so, and our model predicts employment will typically grow 4–4.6 percent annualized across the forecast.



Healthcare. St. Luke's is expecting to begin construction on a nine-story tower in Boise in the spring of 2024. This is part of a multi-year plan for the campus. Ultimately the hospital is expecting to have 500 beds and 28 operating rooms.

St. Luke's is also finishing up its Center for Orthopedics and Sports

Medicine at the corner of Fairview Avenue and 27th Street, towards the western edge of downtown Boise. This project was initially expected in 2020. Portneuf Health opened a new urgent care clinic at the end of October in the Northgate development, the major interchange and housing development in Bannock County the past few years.

Median and mean growth rates in the Idaho forecast for healthcare are 2.8–2.9 percent annualized growth; across the past dozen or so years, these have been 3.8–4.2 percent.

Forecast analysis

Forecast comparison. The Hamas-Israel war is perhaps the major international development which was not visible in July when the previous Idaho Economic Forecast was published.²² Changing the US Speaker of the House was also not visible, though the battles over funding the US government within Congress were certainly envisioned.

US forecast comparison. Recent measures of real GDP in the US have outshone the forecasts. These quarterly measurements, if they persist, would indicate that the US forecast has been a bit too pessimistic. Forecast for CPI inflation retreating from its 2022 highs have been largely accurate. Forecasts for short-term interest rates have also been largely realized. Partly this is due to extensive communication by the US Federal Reserve.

Oil prices have fluctuated substantially, as they always do. Average prices across the quarter, though, have been reasonably meeting the expectation. Mortgage rates have been higher than expected recently. Commentary from Moody's would indicate that these are expected to fall from the near-8 percent range they



have been in the past couple of weeks.

Two US oil companies, Exxon-Mobil and Chevron-Texaco have each announced major acquisitions, of Pioneer Natural Resources and Hess, respectively. The latter two are mid-sized US oil companies, with each having shale-oil stakes attractive to the acquiring companies. Currently these are \$60 billion and \$53 billion acquisitions. Both changes were announced in October.

Moody's had a two-week federal government shutdown in its July forecast, predicated on the funding predicament that Speaker McCarthy avoided; that side-step cost that Speaker his role. Moody's has now moved its two-week shutdown to November, when again a funding deadline hits. The McCarthy deal only gave the federal government a 45-day extension on funding, so Speaker Johnson has substantial work ahead.

 $^{^{22}}$ There have been a string of coups in Africa, including in Gabon at the end of August. As intelligence professionals describe the situation, predicting which country may have such an event, or predicting the exact timing of one, is difficult. However, recognizing the potential of such events is, particularly in the Sahel region (stretching across the widest part of northern Africa; Gabon is not in the Sahel), not been difficult. Both peacekeeping and mercenary forces have been operating in the region, as have various insurgent groups in addition to local militaries and police forces.

Several high-profile strikes have been partly resolved. The Detroit 3 (automakers) have reached tentative deals with the United Auto Worker's union (UAW), mimicking a situation recently resolved in Canada. The actor's union SAG-AFTRA is still striking, but the Hollywood writer's strike has been resolved. Moody's has not commented much on the effects of these strikes on the US economy.

The Federal Reserve released its September edition of the Federal Open Market Committee's (FOMC) 'Summary of Economic Projections'. This publication contains the dot-plot which anonymously records each FOMC participant's projection for the path of short-term interest rates going forward. These dot-plots give a distributional view of the Federal Reserve's thinking on the economy.²³ The FOMC participants see the economy growing much more strongly in 2023 than they had envisioned in June (growing about 2 percent now rather than near 1 percent as seen earlier). Growth is also expected to be stronger in 2024, though in the low-1 percent rate, than had been thought in the summer. Partly this reflects the realization that unemployment in 2023 is likely to remain below 4.2 percent, and indeed it is now most often projected by the participants to remain below 4.2 percent through 2026.

The FOMC participants also see greater clarity on PCE inflation going forward. This year it is expected in the low-3 percent range, next year it is in the mid-2 percent range, and by 2025 it is expected to be near (or maybe just above the FOMC) target of 2 percent.

| July forecast | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|------------------|---------------------|-----------------|-----------------|-----------------|-----------------|-------------|-----------------|
| Personal income | m | 113,473 | $121,\!359$ | 128,803 | 137,850 | 146,715 | 156,302 |
| Wages | m | $51,\!497$ | $55,\!859$ | 60,054 | 64,300 | 68,706 | 73,375 |
| Population | ct | $1,\!976,\!327$ | 2,001,992 | $2,\!031,\!163$ | $2,\!056,\!520$ | 2,077,766 | $2,\!096,\!675$ |
| Nonfarm | jobs | 844,779 | 868,955 | 892,755 | $917,\!654$ | $940,\!495$ | $961,\!149$ |
| October forecast | | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
| Personal income | m | 116,117 | 123,436 | 131,626 | 140,982 | 150,957 | 161,954 |
| Wages | m | $51,\!377$ | $55,\!873$ | 60,432 | $65,\!199$ | 70,234 | 75,673 |
| Population | ct | 1,966,398 | $1,\!996,\!663$ | 2,026,390 | $2,\!051,\!878$ | 2,073,376 | 2,093,516 |
| Nonfarm | jobs | $851,\!065$ | 878,787 | $904,\!572$ | $930,\!874$ | $957,\!266$ | $984,\!377$ |

ID forecast comparison. The BEA revised personal income figures for Idaho, with substantial gains to the total (about \$4 billion annually) mostly coming through dividends, interest, and rent. The table just given reflects this in the personal income and the wages; note the differences in personal income estimates for 2023.

The Lucky Friday mine (which produces silver and is operated by Hecla) in northern Idaho has been closed due to a fire which occurred in August. No miners were underground at the time, so no injuries were associated with the incident. A secondary egress is being constructed

 $^{^{23}}$ A distributional view is a probability view; which events are likely, and how likely are they? The outlook is also a conditional view in that the projections are inter-related. The outlook for short-term interest rates presupposes how unemployment rates evolve — as remarked in this report by the BLS, unemployment rates have been remarkably steady for over 18 months.

as a result of the fire; normal mining operations are not expected to begin before the beginning of 2024.

In October the US government extended waivers to SK Hynix and Samsung for supplying their Chinese factories with certain US chip-making tools. Together with Micron, these are the largest producers of memory chips in the world. Micron began pouring cement for its new fabrication plant in Boise this October. It is scheduled to



begin construction of a fabrication plant in New York in 2024.

Idaho began its LAUNCH program,²⁴ which is aiming to provide 9-to-10 thousand graduating high-school seniors from Idaho with up to \$8 thousand towards eligible Idaho tuition for further training. Some of the in-demand careers to which this program will send students are available from the two-year schools in the state: College of Eastern Idaho CEI, College of Western Idaho CWI, College of Southern Idaho CSI, and North Idaho College NIC. Funds can be used at these schools as well as at the four-year institutions: LCSC, BSU, ISU, UofI, BYU-Idaho, NNU, and the CofI. The first recipients will be expected to start post-secondary classes in the fall of 2024.

 $^{^{24}}$ link to the FAQ for the program

Baseline is always the median forecast for Moody's. The firm also provides an upside 4 percentile and an upside 10 percentile, as well as a downside 75 percentile, downside 90 percentile, and downside 96 percentile.

Alternative forecasts. For Moody's upside 10-percent scenario,²⁵ the Federal Reserve maintains the same short-term monetary policy as in the baseline forecast. However, 10-year treasury rates, which are influenced by these short-term rates but not controlled by them, rise a bit more than in the baseline. Consequently, mortgage rates also rise more than in the baseline. These longer-term rates are attributed to stronger growth and higher realized inflation in Moody's view. The stock market moves upwards on the stronger economic growth despite the higher treasury yields.

The stronger economic near-term growth comes with an unemployment rate below that envisioned in the baseline. Both consumers and businesses act more confidently; spending accelerates to a greater degree than in the baseline. For consumers, some of this confidences is likely tied to home prices, which rise a bit (3 percent) compared with a slight decline (0.2 percent) in the baseline. For businesses, increased capital investment creates greater worker productivity. Real GDP is up 3.2 percent in 2024 and additional 2.4 percent in 2025. Those are both above the baseline values of 1.3 percent in 2024 and 1.8 percent in 2025.

For Moody's downside 75-percent scenario,²⁶ the US Federal Reserve begins easing monetary policy in the first quarter of 2024, sooner than in the baseline. This is due to a weakening economy as seen through GDP and jobs numbers. Indeed, there is a recession of three quarters duration beginning this quarter (2023Q4). The peak-to-trough decline in real GDP is just 1 percent, though the stock market falls by about one-fifth through the middle of 2024. Peak unemployment is 6.5 percent reached in mid-to-late 2024.

Consumer confidence falls with the stock market and with declining home prices. These fall 5.3 percent from mid-2023 to mid-2024. Consumers pull back on some spending, though oil prices, which also fall, offer some relief. Businesses are also less inclined to spend, and delayed capital investment lowers productivity. Consequently, GDP remains below the baseline throughout the forecast window.

The calendar year real GDP decline is 0.1 percent in 2024 followed by 2.2 percent growth in 2025. These compare with 1.3 percent and 1.8 percent growth rates in 2024 and 2025 in the baseline.

Summary statistics are presented in the table. Two years of history are given, along with the forecast years (2023–2028). All three alternatives agree across history, but they diverge beginning in 2023. While Idaho's economy was quite dynamic in 2020–2022, the change across

 $^{^{25}}$ meaning that there is a 1 in 10 chance the economy will perform better than this scenario suggests

 $^{^{26}}$ meaning that there is a 1 in 4 chance the economy will perform worse than this scenario suggests

| Idaho | | 2021 | 2022 | 2023 | 2024 | 2025 | 2026 | 2027 | 2028 |
|-------------------|-------------------|------------|------------|-------------|-------------|-------------|-------------|-------------|------------|
| Nonfarm jobs | baseline | 798,135 | 827,756 | $851,\!065$ | 878,787 | $904,\!572$ | 930,874 | $957,\!266$ | 984,377 |
| | optimistic (u10) | 798, 135 | 827,756 | 848,007 | $871,\!996$ | $898,\!460$ | $924,\!434$ | $949,\!019$ | 976,741 |
| pessimistic (d75) | | 798,135 | 827,756 | 847,105 | 857,240 | 878,492 | 908,238 | 936,387 | 965,016 |
| | baseline | $43,\!163$ | $47,\!470$ | $51,\!377$ | $55,\!873$ | $60,\!432$ | $65,\!199$ | 70,234 | $75,\!673$ |
| Wages, m \$ | optimistic (u10) | 43,163 | $47,\!470$ | 51,404 | 56,378 | $61,\!446$ | 66,447 | $71,\!615$ | 77,311 |
| | pessimistic (d75) | 43,163 | $47,\!470$ | $51,\!290$ | $54,\!628$ | 59,059 | $64,\!327$ | $69,\!657$ | 75,344 |
| | baseline | 20,998 | $20,\!441$ | $17,\!105$ | $19,\!842$ | $18,\!962$ | $18,\!560$ | $18,\!448$ | $17,\!316$ |
| Housing starts | optimistic (u10) | 20,998 | 20,441 | 16,703 | 18,999 | $17,\!937$ | $17,\!454$ | $17,\!234$ | $16,\!154$ |
| | pessimistic (d75) | 20,998 | $20,\!441$ | $16,\!695$ | $18,\!978$ | $18,\!390$ | 17,918 | $17,\!827$ | $16,\!686$ |

2021–2022 visible in this table does provide some context for the changes envisioned in these two Moody's scenarios.

Idaho trajectories. As the table summaries, Idaho would still produce new jobs each year under these three alternatives. Housing starts would be within about 500 from the baseline expectation in 2025. Wage gains would still be expected to be adding nearly 45–50 percent across the next five years, partly aided by inflation, but largely driven by job gains. Wages were up 34 percent across 2013–2018.

The accompanying graph shows the historical distribution of the quarterly measurements of annualized growth in nonfarm jobs in Idaho. That is the black curve in the graph, the one which appears most flat. It is, however, easily noticeably positive from roughly 1+ percent to 5+ percent, with a peak in the 2.5–3.5 percent vicinity. That peak represents the most common growth rate seen in 2010–2023Q2. This period includes some of the early, slow recovery from the housing bust which precipitated the Great Recession. Note, though, that the graph does not depict the dramatic changes for the shutdown in 2020Q2 and the subsequent quarter of re-opening, both due to the pandemic. These are part of history, but they were cut out of the picture to focus on the bulk of the distribution.

The baseline forecast is highly concentrated in the 3 percent growth vicinity. That is represented by the high likelihood of the pinkcolored line. The upside 10 percent scenario, depicted in the blue curve, has a shoulder which pushes further towards the 4 percent growth. This means that the upside scenario is likely to see more quarters grow-



ing at annualized rates close to 4 percent in Idaho. The fact that the peak on the blue curve

is lower than the peak on the pink curve is simply due to the shoulders of the blue curve being wider; the area under each curve is supposed to be the same (representing 100% of the outcomes).

The tan curve, representing the downside 75 scenario from Moody's in the Idaho economy, has a shoulder to the left, giving some heft to quarterly growth rates closer to 1.5–2 percent. Recall that the nation has a mild 3-quarter recession. Likely these quarters with lower growth rates for Idaho nonfarm jobs reflect those quarters of mild contraction at the national level under this Moody's scenario.

We have provided the same output for both the d75 scenario and the u10 scenario as we provide for the baseline scenario. These data are available in xlsx via the link provided in the introduction to this report. The names are similar, followed by a suffix u10 or d75.

Appendix

US Macroeconomic Model by Moody's Analytics

Moody's model is a structural model based upon the IS-LM demand model and the Phillips curve for supply. It has about 2,300 variables forecast in their macroeconomic model, with more than 9 in 10 determined within the model (i.e., endogenously, rather than exogenously, or external to the model.) The firm also characterizes the model as a Keynesian model, with short-term fluctuations largely driven by demand. The firm indicates that substantial shocks can take up to two years to unwind back to an equilibrium path.

There are some particular variables which are central in the model. Moody's says:

The federal funds rate's effect in the model is systemic. It affects the yield curve, which is critical to consumer spending and business investment. Therefore, it affects real GDP growth, the labor market, and inflation.

To illustrate why shocks may take time to dissipate in the model, Moody's also indicates:

Monetary policy operates with a lag in the model. Eventually the model's inflation and unemployment rate forecasts return to equilibrium, and the federal funds rate follows.

Monetary policy includes setting and adjusting the federal funds rate, but it also includes other tools that the Federal Reserve has. A recent example of this has been both Quantitative Easing (during the acute phase of the pandemic), and its opposite, Quantitative Tightening (during 2022–present).

Moody's organizes its model into blocks: These include

- (1) Consumption through consumer spending
- (2) Investment
- (3) International trade²⁷
- (4) Fiscal policy
- (5) Supply (labor force potential, for example)
- (6) Inflation
- (7) Monetary policy and its transmittal
- (8) Personal Income
- (9) Corporate income
- (10) Labor markets (actual employment by sector)
- (11) Housing

Moody's provides a detailed look at parts of each of these blocks in their model. Doing so takes the firm 25+ pages. To not extend the length of this publication, we will take only a couple of these for further discussion. The few we do are quite parallel to the Idaho economic model.

Moody's indicates that their model is anything but static, much as the US economy.

²⁷ Moody's emphasises trade in their model.

Rarely does a month go by when no changes are made to the model. Equations that are no longer performing well are re-specified, and variables are occasionally added to the model as more data become available or the dynamics of the economy change.

Their wording here also applies to the Idaho economic model.

5 Supply means the long-term economic potential of the US. It is governed by innate parts of the economy, including population forecasts. As we have learned, it is difficult to find labor without having a population of workers appropriate for the labor, in location, age, skill, and desire to work. Moody's says;

Labor force supply is a key determinant of potential GDP, which largely depends on demographics. Population is estimated based on Census Bureau birth and death rates and immigration rates that are determined by the economic performance of the U.S. relative to the rest of the world.

Here we see a couple of potential exogenous variables in the Moody's model, namely the data coming from Census Bureau estimates. We also see that each block can and does interact with other blocks in the Moody's model: here international trade interacts with the population portion of the supply block though the strength of the immigration draw that the US economy represent, or will represent in the future.

Another input in the potential labor force is an estimate of what is called the Non-Accelerating Inflation Rate of Unemployment (NAIRU). This concept is a Phillips curve one: if unemployment rates are too low, inflation is expected to not only be present, but to increase in rate. Such a situation is one that the Federal Reserve works to prevent. One of its two charges by Congress is stable prices; that is, the Fed must not allow accelerating inflation to persist. Thus the NAIRU is important for understanding potential labor force; it is not as simple as computing the 16–64 year-olds in the US. NAIRU is another example of an exogenous variable. In this case:

We use the [Congressional Budget Office] CBO's long-term NAIRU forecast and make that variable exogenous in our model. We then specify an error correction model to predict the value of short-term NAIRU.

This also indicates that parts of Moody's model may have equations of varying types. We have already seen that Moody's employs demographic models to estimate population. These are different from the Ordinary Least Squares (OLS) equations, which dominate the Labor block 10 of Moody's model.

8 The Personal Income block is illustrative of the pervasiveness of Bureau of Economic Analysis data organization across almost all economic forecasts. Principal parts are wage and salaries, supplements to wages and salaries (that is the BEA name; largely this is benefits such as health insurance), dividends, interest, and rent (modeled separately), and proprietors' income.

Individual wage and salary categories are modeled as functions of industry employment, industry average hourly earnings, and a broad measure of hours worked. The personal income block certainly interacts with the labor market block 10. Another interaction is present with the Inflation block 6. While industry average hourly earnings are used for each industry, behind the scenes is average hourly earnings in all private industries. Forecasting that broad measure is "the most important wage equation in the macroeconomic model," though Moody's makes this statement within their discussion of the Employment Cost Index, in order to understand CPI inflation.

Idaho Economic Model

The Idaho Economic Model (IEM) is an income and employment-based model of Idaho's economy. The Model consists of a simultaneous system of linear regression equations.

These have historically been estimated at the quarterly frequency as that is the frequency of data provided by IHS Markit (our prior provider of the US forecast) as well as Moody's (our current provider of the US forecast). Some of the source data is available at the monthly frequency. Examples of this include personal income for the US (source: BEA), inflation as measured by the Consumer Price Index (CPI inflation, source: BLS), and local employment (source: Idaho Department of Labor — available in quarterly batches of monthly measurement). We are now running parallel models at both the quarterly frequency level and at the monthly frequency level. Where source data is available at the monthly level, it is used; the quarterly values recorded by the US forecast provider have always been the average values for the corresponding months. Where source data is not available at the monthly level, a smooth interpolation of the quarterly data down to monthly values is used.

The primary exogenous variables are obtained from the national forecast provider (now Moody's). Endogenous variables are forecast at the state level.

The focal point of the IEM is Idaho personal income, which is given by the identity:

personal income = wage and salary payments + other labor income + farm proprietors' income + nonfarm proprietors' income + property income + transfer payments - contributions for social insurance + residence adjustment.

Except for farm proprietors' income and wage and salary payments, each of the components of personal income is estimated stochastically by a single equation. Farm proprietors' income and wage and salary payments each comprise sub-models containing a system of stochastic equations and identities.

The farm proprietor sector is estimated using a sub-model²⁸ consisting of equations for crop marketing receipts, livestock marketing receipts, production expenses, inventory changes, imputed rent income, corporate farm income, and government payments to farmers. Farm proprietors' income includes inventory changes and imputed rent, but this component is netted out of the tax base.

At the heart of the IEM is the wage and salary sector, which includes stochastic employment equations for North American Industry Classification System employment categories (NAICS). Conceptually, the employment equations are divided into basic and domestic activities. The basic employment equations are specified primarily as functions of national demand and supply variables. Domestic employment equations are specified primarily as functions of state-specific demand variables. Average annual wages are estimated for several broad employment categories and are combined with employment to arrive at aggregate wage and salary payments.

²⁸ As the exogenous variables for the farm model are only available at the annual frequency, the farm model is now computed at that frequency, and quarterly or monthly values are interpolated from these. The source for the exogenous regressors in the farm model is the FAPRI institute of the University of Missouri, Columbia.

The demographic component of the model is used to forecast components of population change and housing starts. Resident population, births, and deaths are modeled stochastically. Net migration is calculated residually from the estimates for those variables. Housing starts are divided into single and multiple units. Each equation is functionally related to economic and population variables.

The output of the IEM (i.e., the forecast values of the endogenous variables) is determined by the parameters of the equations and the values of exogenous variables over the forecast period. The values of equation parameters are determined by the historic values of both the exogenous and endogenous variables. IEM equation parameters are estimated using the technique of ordinary least squares. Model equations are occasionally re-specified in response to the dynamic nature of the Idaho and national economies. Parameter values for a particular equation (given the same specification) may change as a result of revisions in the historic data or a change in the time interval of the estimation. In general, parameter values should remain relatively constant over time, with changes reflecting changing structural relationships.

While the equation parameters are determined by structural relationships and remain relatively fixed, the forecast period exogenous variable values are more volatile determinants of the forecast values of endogenous variables. They are more often subject to change as expectations regarding future economic behavior change, and they are more likely to give rise to debate over appropriate values. As mentioned above, the forecast period values of exogenous variables are primarily obtained from the IHS (previously) or Moody's US macroeconomic models.

Since the output of the IEM depends in large part upon the output of the US model, an understanding of the US model, its input assumptions, and its output is useful in evaluating the results of the IEM's forecast. The assumptions and output of the US model are discussed in the National Forecast section, and a discussion of the details of the IEM build and of the Moody's/IHS transition follows.

b. Idaho Time Series Model

The Idaho Time Series Model (ITS) is a new numeric model of Idaho's economic activity. The model consists of sequential equations solved in modules with dependencies such that downstream modules can rely on data forecasted in earlier modules. The regression equations are estimated using time series forecasting techniques covered by the R 'seasonal' package. The package uses the X-13 ARIMA-SEATS method to understand the typical monthly or quarterly trend from data before creating a forecast. The method is a joint development by the US Census Bureau, Stats Canada, and the Bank of Spain. ARIMA models are time-series models, which means they look to prior measurements of a variable in order to understand subsequent measurements of that *same* variable.²⁹

The guiding principal of the time series model is to let the data speak for itself and involve exogenous regressors sparingly. Several equations in the model, such as the adult share of the population, are computed exclusively as ARIMAs with no exogenous regressors. Fewer than five equations in the model use more than two exogenous regressors. Time series models tend to produce accurate forecasts, but without the linkages of multiple regression models like the IEM. For time series forecasts it can be difficult to explain why a forecast is evolving in a particular way.

The first module estimates monthly values for Idaho births, deaths, and net migration and combines these to get a measure for monthly change in population. This contrasts with the IEM which treats migration as a residual. The only exogenous regressors used in this portion of the ITS model are mortgage rates, the US unemployment rate, a dummy for COVID-19, and Idaho housing completions, which are provided by Moody's.

The population estimate feeds into the second module, which then estimates values for the monthly adult population, labor force, and employed persons before estimating monthly levels of employment across the standard employment sectors into which the BEA divides the US economy. To do so, this second module begins by using the population number to create forecasts of the total number of adults, the size of the labor force, and then the number of employed persons.³⁰ These forecasts rely on Local Area Unemployment Statistics (LAUS, a BLS program) numbers.

Once the labor force is understood, the second module continues by using separate regressions for each major NAICS sector, this time using data from the quarterly Current Employment and Wages (QCEW, another BLS program). An "other" category trues these values up to the total

²⁹ An example may be illustrative: an ARIMA forecast of housing would look at prior housing permit activity to predict future housing permit activity; a general regression analysis might look towards population trends to predict future housing permit activity. Both can have merits, and a combination of the methods is often used, though one or the other may be the dominant driver in any particular equation analysis, say the equation analysis of housing permits. The population trends in the second approach are an example of an exogenous regressor for housing starts — they are variables which can be supplied externally from the internal computations of the housing permit equation.

³⁰ Once the employed number and the labor force number are known, the unemployment rate is easily found: the difference between these gives the unemployed count, and dividing by the labor force number gives the unemployment rate.

number of employed (since LAUS and QCEW use different definitions). This portion of the second module, focusing on employment categories, uses mortgage rates, the US unemployment rate, the US labor force participation rate, the federal funds rate, and CPI as exogenous regressors. However, each individual regression relies at most on two of these exogenous regressors.

The third model estimates wage rates and wagebills for each of the NAICS categories. The IEM and ITS dis-aggregate labor markets in a similar manner, although the ITS has a finer breakdown. One example is the commonly grouped categories such as 22, 48, and 49 (utilities, and transportation sectors), which the ITS keeps fully separate. The principal data for employment and wages come from the Quarterly Census of Employment and Wages (QCEW). The total QCEW wagebill is the ultimate target, as it is a vital exogenous regressor used in the subsequent personal income and GDP modules.

To get to that total QCEW wagebill, separate wagebills for each NAICS category are computed. These wagebills come about as the product of wage rates and employment numbers. Wage rates are estimated via time-series regression for each NAICS category using the unemployment rate in Idaho and the corresponding national wagerates for each NAICS sector.

The first modules all run on monthly data. If exogenous data come from Moody's on a quarterly basis, the ITS first smooths these data to monthly values and then performs the forecast. The personal income and GDP modules rely on quarterly data. When data is imported from earlier modules in the ITS, these data are monthly, so both the personal income and the GDP modules average the monthly data to obtain quarterly data, and these two modules are run. Currently the GDP module is only for state-level real GDP and only uses the total wagebill as an exogenous regressor. The personal income module forecasts many components of personal income and uses the total wagebill in addition to some of the previously described exogenous regressors.

Exogenous And Endogenous Variables

Exogenous variables:

| CPI | Consumer price index, all-urban, $1982 - 84 = 1.00$ |
|---------------------|---|
| CRCATCVS | Cash receipts, US cattle and calves |
| CRCROP | Cash receipts, US crops |
| CRDAIRY | Cash receipts, US dairy |
| CSVOR | Real Consumer Spending – Other services, billion 2017 dollars |
| CENSUS | Value 1 when Census operations are in place, 0 otherwise. |
| ECON | Employment in construction |
| EDRIPS | Economic depreciation rate software |
| EEA | National Nonfarm Payrolls |
| ELHS | Employment in leisure and hospitality |
| EMD321 | Employment in wood products |
| EMN311 | Employment in food manufacturing |
| EMN323 | Employment in printing and related support activities |
| ENRM21 | Employment in mining |
| EPBS56 | Employment–Administrative, Support, Waste Management, |
| | Remediation, millions |
| EXPUS\$ | Non-agricultural production expenses |
| GDPR | Real gross domestic product, billions of chained 2017 dollars, |
| | annual rate |
| GF | Federal purchases of goods and services |
| GFGIIPRDR | Real federal investment in research and development, |
| | billions of chained 2017 dollars, annual rate |
| GFML | Federal defense purchases of goods and services |
| GFMLCWSS | Federal government defense personnel outlays |
| GFOCWSS | Federal government nondefense personnel outlays |
| HHAF | Household financial assets |
| HHAO | Household holdings of real estate and other nonfinancial assets |
| ID0IP2122_2123 | Industrial production index, metal& nonmetal ore mining, |
| | 2017 = 100 |
| IPSG311 | Industrial production index, food, $2017 = 100$ |
| IPSG321 | Industrial production index, wood products, $2017 = 100$ |
| IPSG322 | Industrial production index, paper, $2017 = 100$ |
| IPSG323 | Industrial production index, printing, $2017 = 100$ |
| IPSG3253 | Industrial production index, agricultural chemicals, $2017 = 100$ |
| IPSG332 | Industrial production index, fabricated metal products, |
| | 2017=100 |

| IPSG3332 | Industrial production index, industrial machinery, $2017 = 100$ |
|---------------|---|
| IPSG334 | Industrial production index, computer & electronic products, $2017 = 100$ |
| IPSG3342 | Industrial production communications equipment, $2017 = 100$ |
| IPSG335 | Industrial production index, electrical equipment, appliances, and components, $2017 = 100$ |
| IPSG339 | Industrial production index, miscellaneous manufacturers, $2017 = 100$ |
| IPSG51111 | Industrial production index, newspaper publishing, $2017 = 100$ |
| IPSN32732T9 | Industrial production index, concrete and cement products, $2017 = 100$ |
| JECIWSP | Employment cost index—private sector wages and salaries, December $2017 = 100$ |
| JEXCHBROAD | Broad U.S. trade-wtd. value of the dollar, index, $2017 = 100$ |
| JEXCHMTPREAL | Real US trade-weighted exchange rate with major currency |
| | trading partners, $2017 = 100$ |
| JEXCHOITPREAL | Real US trade-weighted exchange rate with other important |
| | trading partners, $2012 = 100$ |
| JPC | Implicit price deflator, personal consumption, |
| | 2017 = 100, chain weighted |
| Ν | Population, US |
| N16A | Population, US, aged 16 and older |
| RMFF | Effective rate on federal funds |
| RMMTG30CON | Commitment rate on conventional 30-year mortgage |
| RUC | Civilian unemployment rate, percent |
| TRF\$US | Government payments to US farms |
| TXSIDOM | Domestic social security tax receipts |
| WPI01 | Producer price index, farm products, $1982 = 1.0$ |
| WPI02 | Producer price index, processed foods and feeds, $1982 = 1.0$ |
| WPI08 | Producer price index, lumber and wood products, $1982 = 1.0$ |
| WPI10 | Producer price index, metals and metal products, $1982 = 1.0$ |
| YP | Personal income |
| YPAINT | Personal interest income |
| YPCOMPSUPPAI | Other labor income, US |
| YPCOMPWSD | Wage and salary disbursements |

| YPPROPADJF | Farm proprietors' income (with inventory valuation and |
|---|--|
| | capital consumption adjustments) |
| YPPROPADJNF | Nonfarm proprietors' income (with inventory valuation |
| | and capital consumption adjustments) |
| YPRENTADJ | Rental income of persons with capital consumption adjustment |
| YPTRFGF | Federal transfer payments to individuals |
| YPTRFGSL | State and local transfer payments to individuals |
| ZADIV | Dividend payments, billons of dollars, annual rate |
| YPRENTADJ YPTRFGF YPTRFGSL ZADIV | Rental income of persons with capital consumption adjustment Federal transfer payments to individuals State and local transfer payments to individuals Dividend payments, billons of dollars, annual rate |

Endogenous Variables:

| EEA_ID | Employment on nonagricultural payrolls, total |
|-----------------|---|
| EEA_ID_2100 | Employment in mining |
| EEA_ID_2300 | Employment in construction |
| EEA_ID_3110 | Employment in food processing |
| EEA_ID_3230 | Employment in printing |
| EEA_ID_3250 | Employment in chemicals |
| EEA_ID_3320 | Employment in fabricated metal products |
| EEA_ID_3330 | Employment in machinery |
| EEA_ID_3340 | Employment in computers and electronic products |
| EEA_ID_4200 | Employment in wholesale trade |
| EEA_ID 44_45 | Employment in retail trade |
| EEA_ID_48_49_22 | Employment transportation, warehousing, and utilities |
| EEA_ID_5100 | Employment in information |
| EEA_ID_52 | Employment in finance and insurance |
| EEA_ID_53 | Employment in real estate and leasing |
| $EEA_ID_54_55$ | Employment in professional, scientific, technical, and management |
| EEA_ID_56 | Employment in Administrative and Suppor and Waste Management |
| EEA_ID_61_81 | Employment in private education and other services |
| EEA_ID_62 | Employment in health care and social assistance |
| EEA_ID_71_72 | Employment in leisure and hospitality |
| EEA_ID_DMANU | Employment in durable goods manufacturing |
| EEA_ID_GOODS | Employment in goods producing |
| EEA_ID_GV | Employment in government |
| EEA_ID_GVF | Employment in federal government |
| EEA_ID_GVSL | Employment in state and local government |
| EEA_ID_GVSLAD | Employment in state and local government, administration |
| EEA_ID_GVSLED | Employment in state and local government, education |
| EEA_ID_MANU | Employment in manufacturing |
| EEA_ID_MFDNEC | Employment in other durable manufacturing |
| EEA_ID_MFNNEC | Employment in other nondurable manufacturing |
| EEA_ID_NMANU | Employment in nondurable manufacturing |
| EEA_ID_NONGOODS | Employment in nongoods producing |
| EEA_ID_SV | Employment in services |
| EEA_ID_WOOD | Employment in wood products and logging |
| ID0CRCROP | Cash receipts, crops |
| ID0CRLVSTK | Cash receipts, livestock |
| ID0EXFP | Farm production expenses |

| ID0HSPR | Housing starts, total |
|--------------|--|
| ID0HSPRS1_A | Housing starts, single units |
| ID0HSPRS2A_A | Housing starts, multiple units |
| ID_HOUSE_SF | Idaho housing stock |
| ID0NB | Number of births |
| ID0ND | Number of deaths |
| ID0NMG | Net in-migration of persons |
| ID0NPT | Resident population |
| ID0WBB\$ | Wage and salary disbursements |
| ID0WBBCC\$ | Wage and salary disbursements, construction |
| ID0WBBF\$ | Wage and salary disbursements, farm |
| ID0WBBMF\$ | Wage and salary disbursements, manufacturing |
| ID0WBBMIL\$ | Wage and salary disbursements, military |
| ID0WBBOTH\$ | Wage and salary disbursements, except farm, manufacturing, |
| | military, and construction |
| ID0WRWCC\$ | Average annual wage, construction |
| ID0WRWMF\$ | Average annual wage, manufacturing |
| ID0WRWOTH\$ | Average annual wage, except farm, manufacturing, military, and |
| | construction |
| ID0YDIR\$ | Dividend, interest, and rent income |
| ID0YFC\$ | Corporate farm income |
| ID0YINV_R\$ | Farm inventory value changes, imputed rent, and income |
| ID0YP | Total real personal income, 2017 dollars |
| ID0YP\$ | Total personal income |
| ID0YP\$PC | Per capita personal income |
| ID0YPNF | Nonfarm personal income, 2017 dollars |
| ID0YPNF\$ | Nonfarm personal income |
| ID0YPNFPC | Per capita nonfarm income, 2017 dollars |
| ID0YPPC | Real per capita personal income, 2017 dollars |
| ID0YPRF\$ | Net farm proprietors' income |
| ID0YPRNF\$ | Nonfarm proprietors' income |
| ID0YRA\$ | Residence adjustment, personal income |
| ID0YSI\$ | Contributions for social insurance |
| ID0YSUP\$ | Other labor income |
| ID0YTR\$ | Transfer payments to individuals |
| ID0YTRF\$ | Government payments to Idaho farmers |
| IDWAGE | Idaho average annual wage |
| YPADJ_ID | Adjusted total personal income |
| | |