ECONOMIC OUTLOOK

The crosscurrents in the economic data today make assessing the outlook more challenging than usual. Economists are on recession watch given the combination of slower economic growth, high inflation, and rising interest rates. According to public surveys, the majority of Americans think the economy is already in a recession, even if the underlying data do not support it. Such sentiment could matter given that recessions are in part psychological events. If consumers pull back on their spending out of fear of potentially losing their job, and businesses delay investments and expansions out of fear of potentially lower sales, that could create a recession even if the fundamentals are still sound.

Importantly, right now the fundamentals still look to be sound. Employment and industrial production are growing. Personal income and consumer spending are rising quickly, but struggling to outpace the fastest inflation the U.S. has experienced since the early 1980s. These indicators – employment, production, income, and sales – are the main data points that the National Bureau of Economic Research (NBER) uses to identify when recessions begin and end. Despite the crosscurrents so far in 2022, the data overall do not support the U.S. economy currently being in recession.

While it may feel reassuring that knowing “this too shall pass” in terms of the immediate state of the economy, the risks are still clearly to the downside. The possibility that the current bout of inflation is more persistent than expected increases the probability that the Federal Reserve will ultimately have to raise interest rates even higher, and hold them there for a longer period of time. This combination increases the likelihood of tipping the economy back into recession in the future.

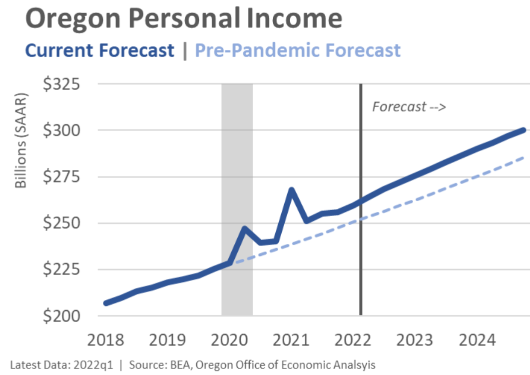
In our office’s recent forecast advisory meetings the consensus was clear that the risk of recession was very high. Many advisors believed that putting a recession in the baseline, or most probable outlook was the right thing to do. However the consensus was also that the potential recession would begin at the end of 2023 or beginning of 2024. IHS Markit, a major macroeconomic forecasting firm and our office’s primary macroeconomic vendor, likewise believes the probability of recession is high. IHS assigns a 50% probability to their baseline outlook of a continued economic expansion, a 45% probability of their pessimistic, or recession scenario, and just a 5% probability to their optimistic scenario.

The risks are real. The outlook is essentially a coin flip between the soft landing and a recession. However, given the uncertainty and the expected timing of a potential recession being a year out, we know a lot can happen between now and then. The key issue to watch is inflation. No other macroeconomic data is more important as it will dictate Federal Reserve policy in the quarters ahead. Ultimately our office is keeping the baseline outlook as the economic soft landing and continued expansion, at least for this quarter. In the soft landing, employment and income are still growing, but at a downwardly revised pace as slower economic growth is needed to bring inflation all the way back down to the Federal Reserve’s target.

Given the stakes, our office has gone ahead and developed an alternative scenario of a recession beginning in 2023q4 that we have also run through our revenue models. For now that alternative scenario has the Federal Reserve raising interest rates even higher than anticipated which eventually results in a mild recession. Household incomes are strong which supports spending, and firms are more likely to try and hold onto workers even during a period of weak economic growth due to the trouble they have had finding and keeping workers in recent years. The risks are that the recession could ultimately start a bit earlier, and/or need to be more severe to truly bring inflation back down. The alternative scenario is discussed in more detail on page 10, following the baseline outlook summary.

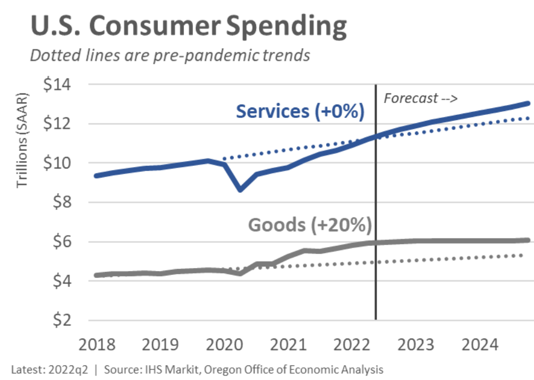
Baseline Economic Outlook: The Soft Landing

Macroeconomic Backdrop



With everything that has happened in the past two and a half years, it's easy to lose sight of the fact that incomes are higher today than they were expected to be based on pre-pandemic forecasts. Cumulatively since the start of 2022, Oregon personal income is nearly $27 billion higher than anticipated, or about 4.4 percent. For a recession, such income gains are unheard of. This cycle truly is different.

Much of the initial increases are directly the result of federal fiscal policy and pandemic aid. The enhanced unemployment insurance benefits, recovery rebates, and paycheck protection program all boosted incomes and more than offset the initial lost wages and drop in investment and nonwage forms of income. This federal aid also set the stage for the fast economic recovery as it allowed households and firms to stay afloat, resulting in very few bankruptcies and closures. Economically, there has been very minimal scarring, or permanent damage this cycle. Unfortunately, the same cannot be said from a public health perspective during a global pandemic.



Importantly, the strong income gains also allowed households to continue to spend. The nature of consumer spending shifted. Households spent less on services like going out to eat or on vacations, and spent more on physical goods like exercise equipment, outdoor gear, and e-commerce more broadly. This change in consumer behavior also resulted in overloaded supply chains that also contribute to the current high rates of inflation. The primary driver ultimately is the income and demand, which did result in supply chain issues along the way, some of which that are just now easing.

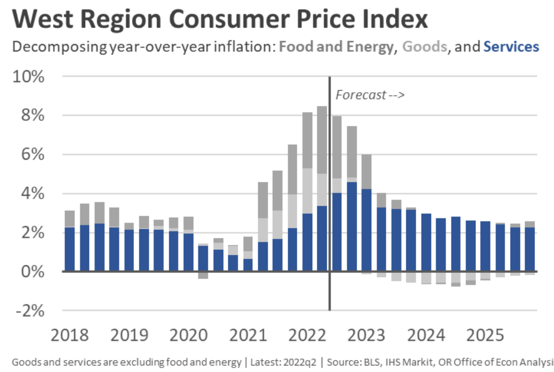
All told, incomes continue to grow and consumer spending is increasing. It is hard for the economy to fall into recession when both of these are occurring. That does not mean the outlook is rosy, but rather than the recent rough patch of economic data has not proven fatal. Given inflation, however, the real macroeconomic challenges still lie ahead. That said, the baseline outlook is still for an economic soft landing. Consumers will continue to spend, and their purchases will shift back into services to a greater degree and goods spending will slow, and potentially decline. This overall rotation in spending back into services and out of goods will help slow headline inflation as well.

Inflation is the Key Macroeconomic Issue

Ultimately what happens with inflation in the quarters ahead will determine Federal Reserve policy and therefore the business cycle. There is no bigger issue today facing the economic outlook. The reason is that the Fed has met one half of its dual mandate of maximum employment and price stability but is significantly far away from the other half. Inflation over the past year is running at an 8.5 percent pace nationally and 8.3 percent pace across western states as measured by the Consumer Price Index in July. While a slight improvement from the June pace, this marks the fastest inflation since the early 1980s.

What may have started due to the reopening of the economy following the pandemic shutdowns, legitimate supply constraints, and strong consumer demand for goods has now broadened out. Faster inflation is more widespread across different segments of the economy, making it more persistent and possibly more entrenched than previously expected.

Near-term headline inflation is likely to improve noticeably due to the decline in gas prices in July and August, and supply chains normalizing as retailers slow orders due to high inventories earlier this year. These items will likely take headline inflation from 8 or 9 percent and lower it to something more like 4 percent or so.



However, inflation has accelerated in the rest of the economy, as seen by the blue bars for service inflation in the nearby chart. Service inflation tends to be more "sticky" or more persistent as it shows less volatility on a monthly or yearly basis than do commodities and goods more broadly. As such, inflation is expected to remain above the Fed's target the rest of this year and next. Only in 2024 does inflation return to target in the soft landing scenario. At best this will be multiyear process. The most challenging part for the Federal Reserve will be returning inflation from the 3 or 4 percent underlying trend today all the way back down to their 2 percent target.

We know that inflation is not costless. The most apparent impact in on households' standard of living. Even with strong wage gains in the economy, paychecks today do not stretch as far as they did a year ago due to inflation outpacing income growth. Specifically here in Oregon, the average wage statewide has increased 19 percent since the start of the pandemic. However on an inflation-adjusted basis, average wages are up just 5.5 percent overall, and have declined by nearly 1.5 percent in the past year. The 7 percent average wage gain from the second quarter 2021 to the second quarter of 2022, while considerably faster than pre-pandemic wage gains, is outstripped by the 8.5 percent increase in inflation.

How have households responded to the high inflation environment? Quite honestly, households have held up surprisingly well so far in 2022. Consumer spending overall is still strong and remains well above pre-pandemic expectations. The challenge is the quantities of goods and services purchased is about what is expected, whereas the higher level of spending is really just going into paying higher prices for the same things.

Households have been able to spend more due to their strong finances. It's not just the faster income growth, but also accumulated household savings from earlier in the pandemic, increase in overall wealth – particularly from the housing market – and debt levels that remain below trend. Consumers really have no shortage of firepower if they do want to spend and are not worried about potential job losses in the future.

Between the initial declines in spending during the shutdowns and strong income growth, U.S. households overall were able to increase their savings by about $2.5 trillion during the pandemic. In the face of the fastest inflation in 40 years, this excess savings is beginning to be tapped. This measure of excess savings has declined 7 percent since the start of the year, and now stands at $2.4 trillion. Keep in mind that excess savings is savings that is above trend. In totality, household savings continues to increase each month, but the increases this year are a bit slower, resulting in the "excess" portion starting to erode, likely due to higher prices.

While timely Oregon data is lacking, our office's contacts among local financial institutions confirm similar patterns are seen locally as well. Deposits at local banks and credit unions surged earlier in the pandemic, however deposit growth has slowed noticeably so far in 2022. Oregonians have money, and higher bank account balances today, but those balances are not growing quite as quickly as we are paying higher prices for the same goods and services.

Besides drawing on savings, households are also taking on more debt in recent months. So-called revolving debt – credit cards and other consumer loans – declined considerably during the pandemic as balances were paid down and new loans slowed. This has reversed in 2022 and debt is nearly back to trend. In real time it can be hard to know what is driving these changes. Is it households are stretched financially and unable to pay their credit card bills every month? Is it increased demand for loans, as our local contacts note, which point toward households' belief in their ability to pay the debt moving forward? Or is it simply the fact that incomes are higher, and households are returning to their previous debt levels as part of the return to normal aspect of the recovery? So far, delinquency rates remain very low, but could be an issue to monitor moving forward.

Now, all of the above economic data is aggregates, or totals across the entire population. Given income and wealth inequality in the U.S. and Oregon, it is quite possible that these topline measures overstate the financial situation of the typical household. To date that does not appear to be the case, thankfully. Low- and moderate-income households appear to be doing okay as well. Wage growth among lower paying industries and occupations continues to be the strongest, and outpace inflation. Recent comments by corporate executives for Visa and Walmart noted that spending remained strong among lower-income customers, although MasterCard noted some slowing among "non-affluent" cardholders. More detailed data from JPMorgan Chase and the Federal Reserve are only available through March as of publication. As of early this year, household finances remained strong across the distribution. The question is how did the highest rates of inflation seen in the spring and early summer impact different types of households? Our office will provide a summary of the updates in next quarter's document. But to date the cornucopia of data point toward households of all income levels holding up well in the face of fast inflation so far.

Oregon Public Policies Tied to Inflation

At the local level, the recent rise in inflation will impact quite a few Oregon public policies. There are a number of license fees, limits on legal damages, amounts distributed to programs and the like that are indexed annually for inflation. All of these will increase faster than usual next year, and likely the year after. Besides these general items, three public policies stand out.

First is public sector pay. While many labor contracts are not explicitly tied to a specific CPI number, some are, and the rest are broadly negotiated in light of inflation and the cost of living. Higher inflation in the past year may lead to larger wage increases for public workers moving forward. As always, policymakers will work to balance the impact of higher wages on budgets and the level of public services provided and the ability to attract and retain a workforce to provide those services.

Second is Oregon's minimum wage. For the past handful of years, Oregon's minimum wage has been increasing on a predetermined schedule following the passage of SB 1532 back in 2016. However, those set increases are now finished and starting in 2023 Oregon's minimum wage will once again be tied to the U.S. CPI. Specifically the calculation is the percent change from one March to the next March. We are still a handful of months away from that information when Oregon's labor commissioner will publicly announce the increase in April. But based on the latest forecast it looks like Oregon's minimum wage will increase by 5 percent next year (effective July 1, 2023). Now, in a very tight labor market the minimum wage is not truly binding. Firms are typically unable to hire someone at the minimum wage today given workers can find higher pay at a competing firm. But, should higher inflation persist in the years ahead, Oregon's minimum wage would rise faster as well. And conversely, in a recession or in a low-inflation economy, Oregon's minimum wage would increase at a slower pace.

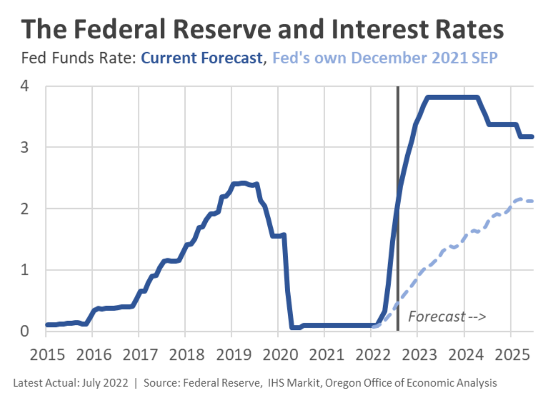
Third is Oregon's rent stabilization law. Our office will release the official figure in September, which will be available on our website[1]. However, given the data to date, it does appear that Oregon's maximum allowable rent increase in 2023 will likely be in the mid 14 percent range. The exact number will be finalized once the August CPI report is released by BLS next month. While overall market rents rarely move at the maximum allowable amount, a larger increase likely strains more household budgets. In reality, renters face the options of paying the higher prices, trying to find a more affordable unit in a really tight housing market where vacancy rates are low, or taking on more roommates to spread the higher housing costs across more people.

Federal Reserve: Higher for Longer

At this point the Federal Reserve has effectively taken its foot off the gas but not yet applied the brakes to the economy. As of publication the federal funds rate stands at 2.25-2.50% which is consistent with what researchers estimate is the so-called neutral rate of interest. The neutral rate is when monetary policy is neither actively stimulating the economy, nor restricting it. In the months ahead, the Federal Reserve will begin actively restricting the economy to cool inflation by raising rates and slowing demand to bring it back into better balance with existing supply.

The key questions are as follows. How much higher will interest rates go? How quickly will rates be increased? How long are the policy lags in terms of when the increases will be felt in the real economy? All are important, and still to be determined, which is one reason why the uncertainty and timing of a potential recession in the future is so large.

Based on the latest projections from the Federal Reserve, they expect to raise interest rates into the high 3 percent range by either the end of this year, or early next year. After holding interest rates in the restrictive range long enough to know that inflation is returning to target, then interest rates can begin to be cut back down toward the neutral rate again in the years ahead.



The Fed will release their next Summary of Economic Projections (SEP) later in September. Given the strength in the economy, and the continued high rate of inflation, the risks point toward interest rates needing to be even higher, and/or for a longer period of time to truly cool the economy. The Fed says they will not hesitate to raise rates and bring inflation back to target even if it induces a recession to do so. Ultimately this interaction between actual inflation in the economy, and the Federal Reserve's policy response will determine the rest of this business cycle.

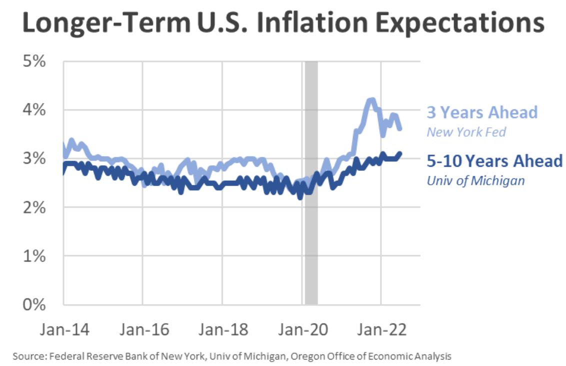
On one hand, the bad news for the Fed is that inflation has been higher, more persistent, and broadened out more than previously expected. With good income growth and overall strong household finances, consumers

[1] https://www.oregon.gov/das/OEA/Pages/Rent-stabilization.aspx

have the ability and are so far showing the willingness to pay higher prices. Fine tuning short-term interest rates to engineer a soft landing is challenging. The path to do so is narrow, as Fed Chair Powell acknowledges.

On the other hand, the good news for the Fed is recent economic data shows that the path does exist. Headline inflation is slowing. Getting inflation from 8 or 9 percent down to something more like 4 percent should be relatively painless from an economic perspective. Getting inflation all the way back down to 2 percent will be more difficult and require those higher, more restrictive interest rates to truly cool demand in the years ahead. But in the meantime, slower inflation due to lower energy prices is helpful.

Another item working in the Fed's favor is that longer-term inflation expectations have not risen as much as one would have thought given the current high levels of actual inflation. Yes, inflation expectations are higher than before the pandemic began, but given the magnitude of actual inflation, these longer-term expectations can be considered well anchored.



If businesses and consumers expect inflation to slow in the years ahead, that means something like a wage-price spiral is much more unlikely. Inflation may continue to be more persistent, or at least above target, but so far there are no signs that inflation is spiraling further away from target.

Looking forward the Federal Reserve and monetary policy is entering into a new phase. Realized inflation is showing signs of slowing. Interest rates will soon be in the restrictive range. Monetary policy impacts the economy with long and variable lags as Milton Friedman said. Rate hikes today cool the economy in 2023 and 2024. The challenge for the Fed is that even as all of pieces are possibly beginning to fall into place, getting everything just right is hard when the actual impacts of policy changes are not known for quite some time.

Soft Landing and the Labor Market

The good news is the economy can withstand higher interest rates. Slower growth and a cooling in the labor market is needed to bring inflation back down to target. But what does the soft landing look like?

First, Oregon appears to be at full employment. The unemployment rate stands at 3.5 percent this summer, one tenth of a percent above its historic low. The labor force participation rate is higher today than before the pandemic began. The recovery has been broad-based and inclusive. And yet, a labor shortage remains. As discussed in more detail last quarter[2], there are structural factors impacting the labor market. None bigger than demographics where the aging Baby Boomers are continuing to increase retirements while slower population growth means the inflows of new workers is increasing, but at a more measured pace than previous decades.

Even so, the most pressing issue facing the economy today is more cyclical. Fed Chair Powell says the labor market is unsustainably hot. Demand for workers far outstrips the number of available to work. 40 percent of workers laid off one month are reemployed the following month, the fastest such rate since 1999. There can be a difference between a strong, healthy labor market, and an overly tight labor market. And if productivity does not increase to match the higher wage gains, it can lead to higher inflation, everything else being equal.

[2] See PDF pg 10 https://digital.osl.state.or.us/islandora/object/osl%3A991607/datastream/OBJ/view

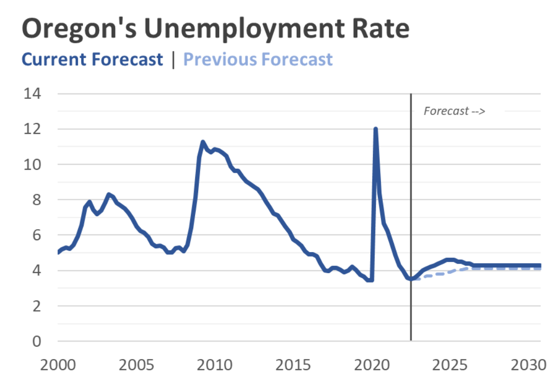
As a result, the Federal Reserve is closely watching, and effectively targeting the number of job openings in the economy. Earlier this year there were 1.9 job openings in Oregon for every unemployed Oregonian. Given the economy is at full employment and every Oregonian who wants a job either has a job or can quickly find one, we know that this labor demand outstripping labor supply is not truly a supply problem. Demand for workers is simply very strong due to the increases in consumer spending as firms try to staff up, increase production, and chase those sales and profits. Such demand for labor is above the existing supply of labor.

There are two ways to bring better balance to the labor market. One would be a big increase in the number of unemployed Oregonians to better match the number of job openings. Given employment and labor force participation are high, an increase in unemployment would have to be the result of layoffs. That is the opposite of the soft landing scenario. So far in 2022 layoffs – measured by initial claims for unemployment insurance – in Oregon are closely tracking 2018, the lowest year on record for layoffs. There have been no increases so far.

The other option would be for the number of job openings to decline. If consumer spending and business investment slows along with the economy, in part due to higher interest rates, then firms will look to hire a bit less. Employment overall will continue to increase, but at a slower pace. And with fewer job openings, the imbalance between supply and demand would begin to improve.

So far this second option appears to be playing out, at least in the past couple of months. The number of job openings has fallen, and there are now 1.6 job openings per unemployed Oregonian. This is still a very tight labor market. It's not yet known if this is truly a trend, or just a few months of data. Further progress is clearly needed to bring better balance and slower inflation. However, an initial move in the right direction is still a move in the right direction. This balance between job openings and available workers will be key to watch in the months and quarters ahead.

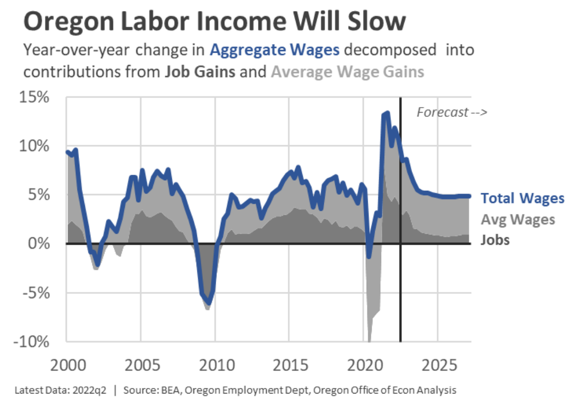
In our office's current forecast this process continues, which releases a bit of the pressure off the labor market. Oregon employment growth is slowed starting next quarter. This downward revision ultimately amounts to about 0.5 percent over the entire forecast horizon. Job growth remains positive, but this revision translates into about 8,000 fewer jobs than previously forecasted in 2023, and 10,000 fewer jobs in 2024.



Slower job gains combined with slightly lower probabilities of finding a job due to somewhat fewer job openings results in an increase in the unemployment rate to 4.6 percent by late 2024. This is what the soft landing would look like, a meaningful but not fatal increase in the unemployment rate. Ultimately this will slow wage growth, and overall inflation in the economy which is needed to ensure a long economic expansion.

Total labor income is the combination of job gains and wage growth per worker. Right now, labor income is growing at a very fast, double-digit pace. These increases, in a sense, represent nominal spending power for workers. For inflation to return to target, such income gains do need to slow.

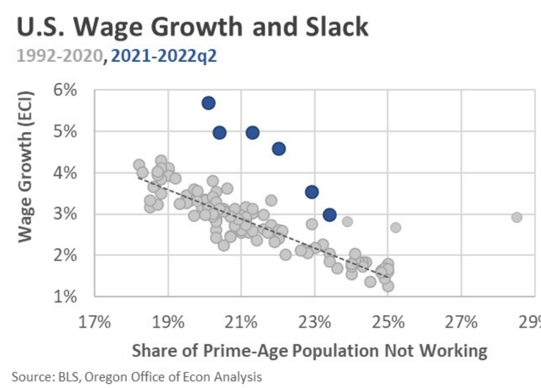
At a minimum, total wage growth will slow for a simple mechanical reason. Job growth, which is still running at a more than 4 percent pace, will have to slow down to something closer to underlying gains in the population, which is about 0.7 percent per year over the entire forecast period. The soft landing scenario has this transition happening next year. But even if it does take longer than that, it will have to eventually happen as there will just not enough available workers to keep job growth at that rate. Importantly, this transition, going from 4 percent or higher job growth down to 1 percent or less will subtract 3 percentage points of growth off total labor income, even if per worker wages do not slow.



The harder component to slow may be wage gains per worker. Typically wage growth starts slow in an expansion as there is relatively low levels of demand and a lot of unemployed workers looking for a job. Firms do not need to raise wages quickly to attract workers when unemployment is high. But over the course of the cycle, wage growth picks up as the labor market tightens.

The pandemic recovery is different. Firms have tried to staff up as quickly as possible given the strong level of consumer spending, and initially labor supply was low due to public health concerns, lack of in-person schooling, and strong household finances which included the enhanced unemployment insurance benefits. As a result, wage growth accelerated early in the recovery, and even as labor supply has now returned, wage gains remain much faster than in past recoveries.

Over the past year, wage growth has averaged 2.1 percent faster than in previous expansions for the same types of employment rates, or as shown in the nearby chart, wage growth is higher when there are fewer people not working. Without a corresponding increase in productivity, or decrease in other business costs or profits, 2 percent faster wage growth can translate into 2 percent faster price increases. Ultimately this dynamic is a key part of getting inflation down from the 4 percent underlying trend to the Fed's 2 percent target. If wage growth, and total labor income continue to outpace pre-pandemic trends, inflation likely is as well without the productivity or reduce profits adjustments needed.

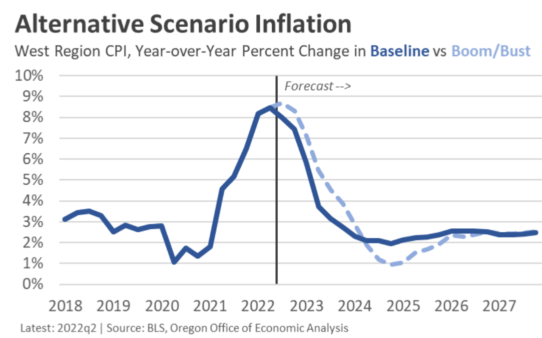


Looking forward the baseline outlook does call for wage growth to slow down from 7.1 percent in 2021, to 6.0 percent in 2022, and slow further to 4.1 percent in 2023 and 2024. To date the data are mixed. Traditional economic data published by BLS have yet to show any slowing in wage growth at all. In that sense, our office's forecast is truly a forecast and relies upon the combination of higher interest rates, fewer job openings, and slower employment growth to ultimately result in slower wage gains in the future. However, there is one piece of economic data that do show total labor income slowing and that is withholding, which will be discussed a bit further in the revenue section of the forecast. But the slowdown in withholding growth does point toward slowing in overall labor-related income. Of course withholding is a noisy data series, and therefore the recent slowing could reverse in the months ahead. Or it could be giving a clear signal today, and the slowing will start to show up in the employment survey data in the months ahead.

Keep in mind that this process is a multiyear event, and that under the soft landing, the economy and labor market will still be strong. However, the sooner it occurs, and the sooner inflation slows meaningfully, the higher the probability of the soft landing. That said, should this process not occur, and the labor market remains unsustainably hot, it does increase the likelihood that the Federal Reserve will need to raise rates even higher than anticipated, which raises the probability of tipping the economy back into recession

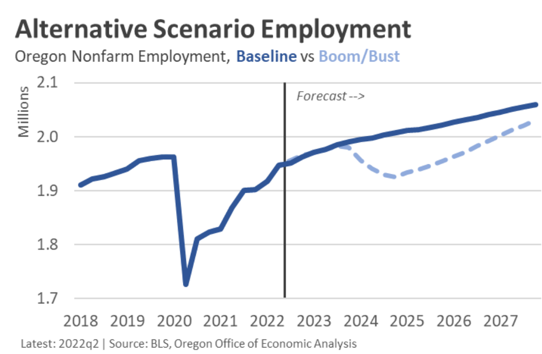
Alternative Scenario: Boom/Bust

While the Federal Reserve does make progress toward meeting their dual mandate, ultimately the task proves too challenging. Fine tuning the economy with the blunt instrument that is monetary policy is difficult, especially when those policy changes truly impact the economy a year or two in the future. Getting policy just right under normal economic conditions is hard. Getting policy just right to engineer a soft landing from above, and cool inflation all the way back down to target without a recession has simply never been done. Typically when the unemployment rate begins to increase, it increases a lot and not just a little bit as the baseline outlook assumes. Given that the Fed has said it will not hesitate to induce a recession to achieve price stability, that ultimately is what ends the current economic expansion.



In this Boom/Bust alternative scenario, inflation remains more persistent than anticipated. While it may not look like much, the higher inflation does result in the Federal Reserve raising interest rates even higher. With policy lags, and the current strong household finances, the economy continues to grow in the year ahead. However, by late 2023 the tighter policy takes its toll. The economy slides back into recession. Job losses ensue, incomes stagnate, consumer spending and corporate profits are all below the baseline. One result of the recession is that inflation does subside in 2024 and returns to target in the years after.

Overall, the recession is relatively mild in severity, and short in duration. Oregon loses 57,000 jobs, for a decline of 2.9 percent. Such losses are a bit more than the 1990 recession but noticeably less than the dotcom or housing busts. Given the difficulty in hiring in recent years, firms do not want to let go of too many workers even if demand softens. Economists have a term for this, it is called labor hoarding, and something U.S. firms have not done in recent decades. Given the tight labor market today, there is a high probability labor hoarding will return. Given that inflation expectations remain well anchored, it does not take a more severe recession to bring inflation back down to target.



Additionally, it is expected that Oregon's economy will once again be more volatile than the nation as a whole. The two primary reasons for that volatility are migration and the state's industrial structure. Households move less frequently in bad economic times and move more frequently in good economic times. As such, population growth slows below baseline, resulting in less overall demand for Oregon firms, and a smaller labor force in the years ahead even after population growth rebounds in 2026 and beyond.

Oregon's industrial structure impacts volatility given Oregon has a larger concentration in goods-producing industries like natural resources (agriculture, fishing, logging, etc), construction, and manufacturing. Historically these industries are more boom/bust as they tend to be more interest rate sensitive. With consumers already slowing their spending on durable goods, higher rates and a recession will lead to further pullback on spending, which leads to larger job losses. In this alternative scenario these goods-producing industries experience the largest job losses at around 4.5 percent. And given these industries are a larger share of Oregon's economy, Oregon's overall employment losses in the recession will be a bit more severe than the national losses. One silver lining is the timing of the federal infrastructure package, along with additional projects from the Inflation Reduction Act are likely to be getting underway mid-decade, boosting public construction demand even as private demand is weaker.

Given the relatively mild nature of the recession and overall strong household finances – boosted in part by a large kicker to be paid out in early 2024 – consumers will continue to spend. Private sector services will experience job losses of around 2.8 percent, which is less severe than the goods-producing industries. These losses will be concentrated in professional and business services with some additional losses in heath care and leisure and hospitality. Finally, the public sector, which tends to be more stable historically, will see job losses of around 1.5 percent, and then grow more slowly in the years ahead as the population will be smaller than in the baseline.

These job losses impact household finances, and Oregon wages during the upcoming 2023-2025 biennium will be below the baseline outlook. As business sales and profits decline, along with asset markets, non-wage income will likewise be below baseline. Lower incomes and consumer spending impact public sector tax collections, as discussed in more details in the Revenue section of the document.

Beyond the heightened risk of a recession and the alternative scenario laid out above, there are myriad risks and different paths the economy could take. In particular, a recession could start earlier in 2023, and the recession may need to be more severe if inflation proves more persistent and entrenched in the overall economy than expected. Unfortunately, the latter risk may not be known until the economy is in the midst of the recession. Should inflation not subside as expected, then a deeper and longer-lasting recession is more likely than the mild recession discussed here.

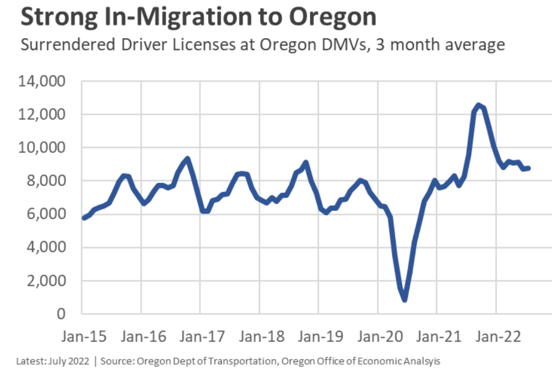
Note on Population Growth Expectations

If inflation is the key macroeconomic issue to watch, population growth is the key Oregon issue. The state's ability to attract and retain working-age households is the primary reason why Oregon's economy grows faster than the nation over the entire business cycle. The inflows of young, skilled migrant allows local businesses to hire and expand at a faster face given the growth in the local labor force.

Migration is pro-cyclical. People more move in good economic times, and move less in bad economic times. As such, Oregon's population growth slowed in 2020 and slowed further in 2021. As discussed in greater detail in the population forecast section of this document, expectations are for the upcoming 2022 population estimates to show a rebound.

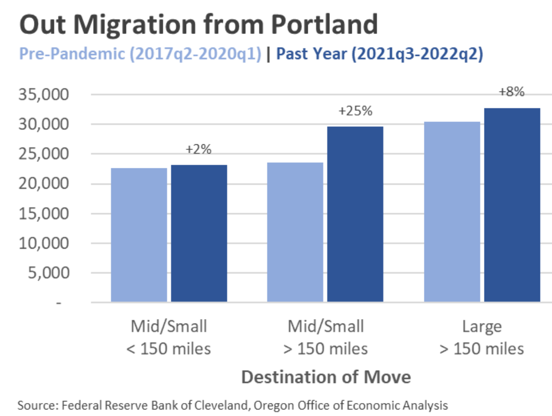
Portland State's Population Research Center is set to release their 2022 population estimates in November, while the Census Bureau's estimates will be released in December.

Besides the general pattern of migration trends over the cycle, the number of surrendered driver licenses at Oregon DMVs remains strong. Surrendered licenses have historically been the best leading indicator for migration as when one moves to a new state, she has to turn in, or surrender her license from her previous state in order to get a license from her new state. As such, surrendered licenses are a good measure for in-migration into the state. The data point toward the expected rebound in migration to Oregon. This data was disrupted by the pandemic due to shutdowns and a period of appointment-only time at the DMVs, but encouragingly the underlying trend in the past 6-9 months is still higher than the pre-pandemic trend. One qualifier is that Oregon DMVs did get new software during the pandemic, which presents the possibility that the recent data is not perfectly compatible with the old data. Time will tell.



While surrendered licenses are a good measure of in-migration, they do not tell us anything about out-migration. At a basic level what matters most is net migration, or the difference between the inflows and outflows. Net migration to Oregon could remain lower than anticipated if out-migration has picked up to offset the increased in-migration. Not all states regularly publish their surrendered license data, however Washington does. Both Washington's overall level of surrendered licenses, and those specifically from former Oregonians have returned to pre-pandemic patterns, giving at least some indication that outflows from Oregon are not necessarily higher, and also that the general rebound in migration is across the Pacific Northwest.

That said, research from the Federal Reserve Bank of Cleveland that analyzes credit reports continues to show above-average out-migration from high-cost, large metro areas across the country. This is particularly relevant our office's long-standing concern that housing affordability is risk to the outlook if fewer households can afford to live here, and in a world with increased working from home opportunities, the U.S. may continue to see faster growth in lower-cost metros and slower growth in high-cost metros. Included in the Cleveland Fed research is both Portland Seattle, but not other areas in the Northwest are.



The data show that there are larger increases in outflows from the Portland region to destinations more than 150 miles away. The increases are compared to pre-pandemic patterns are largest form small and medium sized metros (less than 2 million) and rural areas, although outflows to other large metros is up as well.

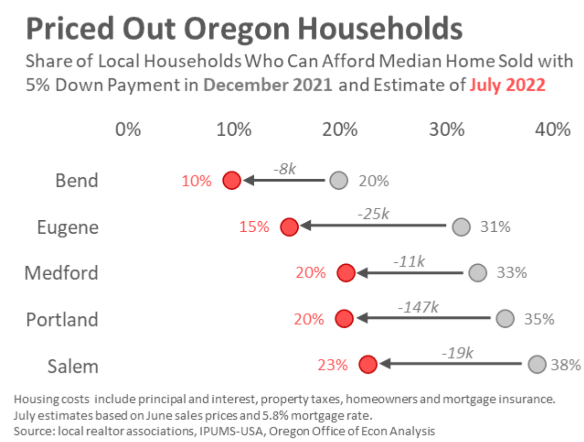
Bottom Line: So far we only have one real year of population data during the pandemic. We will get the 2022 estimates in the months ahead. It will be important to see if the 2021 patterns of growth, like the out-migration from large urban cores nationwide, and faster population growth in the intermountain West, etc, continue or start to even out. One year of data is not the be-all and end-all, but 2022 should provide some indications of where population growth is returning to normal, and where it is not.

Finally, note that Census is set to release the 2021 American Community Survey on September 14th, 2022, or at least the standard published tables. This will be our first look at items like median household income, poverty, household formation, socio-economic characteristics of employment and migration and the like for 2021. The full set of data will be released in December. Our office will analyze the data as it is released, post a summary on our website, and report it here in the forecast document in the quarters ahead.

Housing Outlook: The Impact of Higher Mortgage Rates

Overall, housing, and homeownership in particular is credit-sensitive and tends to lead the cycle. The record low mortgage rates earlier in the pandemic, combined with strong household finances meant the housing market took off. This was especially the case once those factors were combined with strong demographics as Millennials continue to age into their 30s and 40s, or prime homebuying years, and increased demand for more physical space during the pandemic. Sales and prices picked up considerably following a brief shelter in place period.

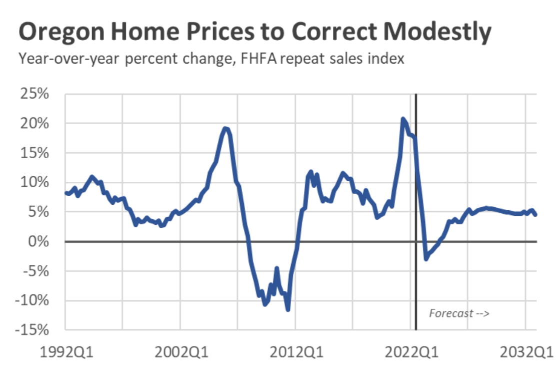
However, with the recent increase in mortgage rates, housing is returning to earth, with risks weighted toward a sharper decline than anticipated in the near-term. This is true even if medium- and long-term expectations are for housing to remain strong. There can be short-term cyclical trends around the strong, structural, demographic trend.



The primary reason for the sharp slowdown in the housing market is the large increase in mortgage rates. At the end of 2021, the typical 30 year mortgage rate was about 3 percent. Fast forward to this summer and mortgage rates are in the high 5 percent range. Higher interest rates combined with continued price appreciation, results in a big increase in the monthly mortgage payment needed to buy a home today. By a lot of estimates, the increased payment is about 30-40 percent depending on the market. This drop in homeownership affordability effectively cut the potential buyer pool in half here in Oregon. Significantly fewer households today can afford the median priced home compared to just a handful of months ago. The big decline in demand and sales is due to more households being priced out at current rates.

This affordability crunch has a few big implications including a large decline in home sales as buyers retrench, which will likely be followed by modest declines in home prices and new housing starts as the market adjusts. All the while, these changes will increase pressure and competition for lower-priced units, and in the rental market.

Looking forward our office has made two noteworthy changes to the housing forecast.



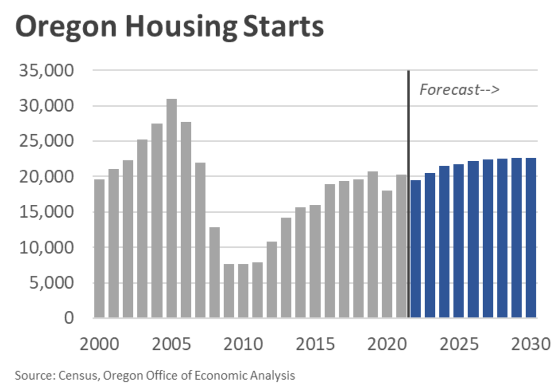
First, our office now forecasts Oregon home prices to decline by 4 percent. Higher interest rates are here to stay, meaning the larger monthly mortgage payments are too. A modest price correction, combined with continued income growth brings affordability back to the historical range by early 2024.

The risks here are that the price correction could be larger and happen faster than anticipated. The challenge is that larger price declines likely require a glut of inventory and distressed sales. Today neither is occurring. Inventory has risen from its record lows but remains at or below pre-pandemic levels in most markets. Even as inventory rises further, as it is expected to do, it is unlikely it will suddenly return to the levels seen 10-15 years ago for a couple of reasons. One is that fewer homeowners will list their homes in a soft market, especially if it means they will have to buy a home at these higher interest rates once they sell their current one. Two is the lack of distressed sales, discussed further below. But overall, higher inventory, and weaker demand will soften prices at a minimum as the market shifts way from the extreme seller's market of earlier in the pandemic.

Regarding distressed sales, they are expected to be minimal in the years ahead. Credit standards are higher today and the market lacks the exotic loans of the bubble era. Absent significant job losses, households have the ability to pay their debt. And given home equity is at record levels, households who do need to sell will not take a loss, just a smaller gain. These key factors frankly point toward ongoing home price appreciation. However, given how out of line affordability is today, a modest price correction seems likely.

Second, our office now forecasts Oregon housing starts to also decline by 4 percent in 2023, which is a bit larger than the 2.5 percent decline built into the previous forecast. Given the 30 percent decline in overall home sales in recent months, builders are likely to slow their pace of new construction until the market fully adjusts. New housing units will continue to be built, it's just that slightly fewer will be until demand picks back up.

Factors preventing an even larger decline in new construction activity include the fact Oregon has a large, historical underproduction of housing relative to demand, an increase in rental demand will keep multifamily construction strong even if ownership product declines, and ongoing population and income growth. The risks to the outlook are balanced. On one hand, the declines in new ownership product could be even larger. On the other hand, multifamily permits across the state remain quite strong and so far have more than offset any single family weakness. As a result, Oregon housing starts overall have yet to drop to date. And as the single family ownership market begins to stabilize, there may not be an outright decline in new construction activity in Oregon moving forward.



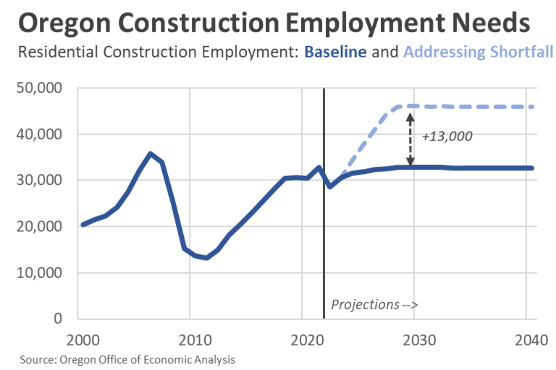
The increased demand in the rental market is a key issue to watch. Vacancy rates are already low, and if more households find themselves renting due to being priced out of the ownership market, competition for rentals will intensify. This is likely to keep rent increase high, contributing to overall inflation, and impacting household budgets. It is even possible that household formation could decline, with fewer new households being formed, and an increase in living at home, or with more roommates.

Addressing Oregon's Housing Shortage

Research shows that Oregon has underbuilt housing by 111,000 units in recent decades. Addressing homelessness would require nearly an additional 30,000 units. Our office's forecast does not make up for the existing shortfall of housing. Our forecast is more of a population, demand-driven outlook. To fully address Oregon's housing shortage there will need to be significant changes made to the supply side of the housing industry. This includes addressing the availability of land to build on, turning the available land into buildable lots, allowing more development types and units on the buildable lots, the timeliness of permitting new construction projects, and a bigger workforce to actually build more units.

Following the passage of HB 2001 (duplex legalization) and HB 2003 (regional housing needs analysis) in the 2019 session, state policies are now working to boost housing supply in Oregon. Workgroups and efforts on these issues are continuing, particularly around zoning. This process will take time, both administratively and for the market to respond in a meaningful way to the extent that it does. Over the longer-run our office expects such policies to provide a moderate boost to new supply.

Our office has recently looked into the workforce needs to build more units. The upshot is after a multiyear ramp-up period, Oregon will need approximately 13,000 additional residential construction workers in the years ahead to address the shortfall. Workforce recruitment and training is challenging in a tight labor market, but to build more units, the industry will need more workers. One challenge here is that residential construction tends to pay wages that are 15 below the average of all industries, whereas the higher construction wages are paid for nonresidential work, which is 30-40 percent above average.

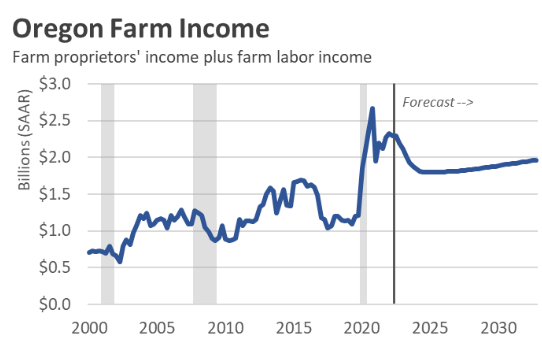


Importantly, increasing the number of local government workers in planning and building departments across the state is needed in order approve plans, issue permits, and inspect more projects. The timeliness of these processes is one of the supply constraints on new housing production. In order to make up for the existing housing shortfall, local governments in Oregon likely need to hire 400 to 500 additional such workers in order to handle the increased workload associated with more new construction. Those estimates are based on existing staffing ratios of 0.04-0.05 FTE per residential permit in major Oregon cities. In order to both increase timeliness of the permitting process and handle a larger workload, the increases likely need to be larger. One challenge here is the decentralized nature of this work. These additional workers are needed at the local level, so essentially every city and county in the state will need to hire a couple to a couple dozen such workers.

Oregon's Agricultural Economy

This year, the Oregon Legislature passed HB 4002 (2022) which establishes maximum hour and overtime compensation requirements for agricultural workers. The law goes into effect starting in 2023. Moving forward, our office will analyze and monitor the economic and labor market data to assess any impacts from the law. Our office will work to incorporate these changes, if any, in the broader context of the state's agricultural economy. Last quarter[3] we dug into farm employment and then income and sales are the county level. This quarter we will discuss the overall farm income outlook, along with recent developments in Oregon's export markets.

So far during the pandemic, farm income has been at record highs. This goes for both major components of farm income: farm proprietors' net income, and farm labor income. The primary reason for the big increases has been high commodity prices. As the price of agricultural products increase, so too does sales or revenue for farmers. Importantly, the increase in sales prices have outpaced the increase in production costs, thus driving net incomes higher in recent years. These higher

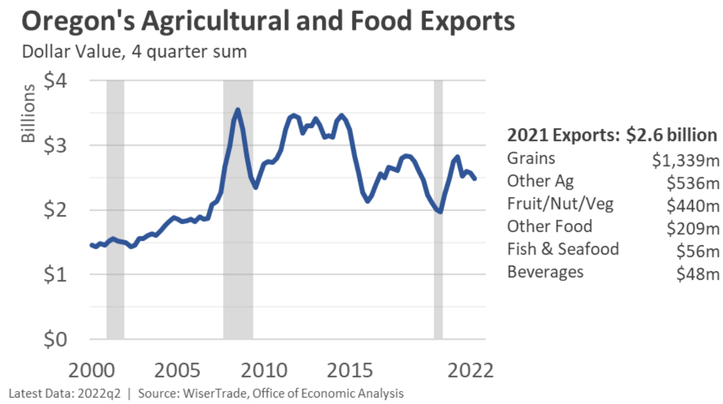


[3] See PDF page 17 https://digital.osl.state.or.us/islandora/object/osl%3A991607/datastream/OBJ/view

net incomes also better allow farm operations to pay higher wages to their workforce, especially in a tight labor market.

Looking forward, the impact of commodity prices will work in reserve as they have fallen this year. Overall farm income is forecasted to drop 23 percent, however this is a combination of steady farm labor income (wages to ag workers) and a larger decline in proprietors' net income. Some cost relief is expected as well as input costs will fall as well. Looking over the forecast horizon, farm income is expected to be relatively steady, with modest increases. Commodity price volatility is the biggest risk, both up and down, an any given year.

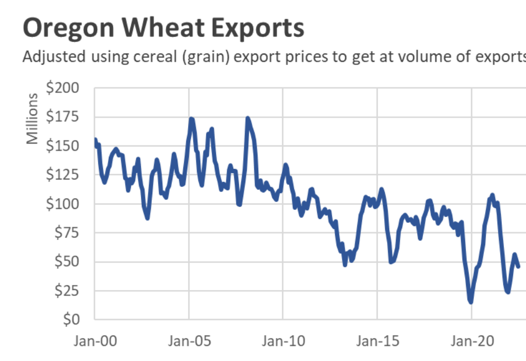
Like Oregon-made goods and services more broadly, the state's agricultural products are predominantly consumed or sold domestically. However, international exports represent an important source of demand for the state's ag industry. Over the past decade, Oregon's agricultural and food exports have averaged about $2.5 billion annually.



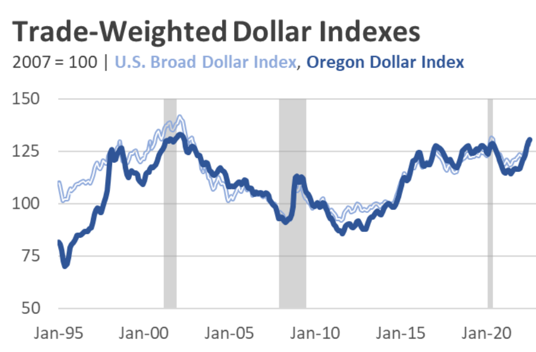
The largest component of Oregon ag exports is wheat, much of which is sold to buyers in Asia. However the state also exports hazelnuts and frozen fish in sizable quantities, along with other fruit, nuts, and beverages like wine and beer.

One important note on exports is they are typically measured in nominal dollar terms in the data. They are not usually reported based on weight or volume in the export data, meaning just like Oregon's farm income, the state's ag exports fluctuate based upon global commodity prices. One way to get at the underlying volume of exports is to adjust the standard export data based on export prices for different types of product.

The nearby chart looks at Oregon wheat exports and adjusts for the fluctuation in grain prices for U.S. exports, as reported by BLS. Here one can see that the underlying volume of wheat exports from Oregon is relatively steady, albeit at a lower level following the Great Recession than before it. There has been some speculation that U.S. wheat exports could increase due to global demand, as the Russian invasion of Ukraine disrupts the usual global supply chain for wheat. To date there does not appear to be a noticeably increase in Oregon wheat exports, although the state grows and sells a different type of wheat than Ukraine did. As such, any boost in U.S. wheat exports is more likely to come from midwestern states than the Pacific Northwest.



One other important factor when it comes to exports are foreign exchange rates. Today the U.S. dollar is stronger than it has been since the early 2000s. The Oregon dollar – a weighted average of exchange rates our office produces based on Oregon's major trading partners – is likewise very strong.



A strong dollar makes Oregon-made products more expensive in foreign markets, which may cause these customers to try and source their goods from other suppliers and locations, which would be at a more affordable price. As such, U.S. and Oregon exports in the near future may slow as a result of the strong dollar.

As the agricultural worker overtime law come into effect, our office will work with other state agencies to gather and analyze the available data. Future quarterly forecasts will include updates to the underlying ag economy, when available, and any such analysis of the impacts of the new law that goes into effect next year.

Longer-Term Forecast Risks

The economic and revenue forecast is never certain. Our office will continue to monitor and recognize the potential impacts of risk factors on the Oregon economy. Although far from comprehensive, we have identified several major risks now facing the Oregon economy in the list below:

- U.S. Economy. While Oregon is more volatile than the nation overall, the state has never missed a U.S. recession or a U.S. expansion. In fact, Oregon's business cycle is perfectly aligned with the nation's when measuring peak and trough dates for total nonfarm employment.
- Housing Affordability. New housing supply has not kept pace with demand in either the ownership or rental markets. Oregon has underbuilt housing by 111,000 units in recent decades[4]. To the extent home prices and rents rise significantly faster than incomes, it is a clear risk to the outlook. Worse housing affordability hurts Oregonians as they need to devote a larger share of their household budget to the basic necessities. Furthermore, while not the baseline outlook, worse affordability may dampen future growth as fewer people can afford to live here, lowering net in-migration, and the size of the labor force in the years ahead.
- Global Spillovers. The international list of risks seems to change by the day. Right now there is an ongoing war in Europe, and the risk of war Southeast Asia has been uncomfortably high in recent years. Longer-term concerns regarding commodity price spikes in Emerging Markets, or the strength of the Chinese economy – the top destination for Oregon exports – are top of mind.
- Federal Fiscal Policy. Changes in national spending impact regional economies. In terms of federal revenues, spending, and employment Oregon is generally in the middle of the pack across states. Oregon does see larger impacts related to forest policies, including direct federal employment. Oregon ranks below average in terms of military-dependent industries and lacks a substantial military presence within the state.
- Climate and Natural Disasters. While the severity, duration, and timing of catastrophic events like earthquakes, wildfires, and droughts are difficult to predict, we know they impact regional economies. Fires damage forests with long-term impacts, and short-term disrupt tourism. Droughts impact our agricultural sector and rural economies to a greater degree. Whenever Cascadia, the big earthquake, hits, we know our economy and infrastructure will be crippled. Some economic modeling suggests that Cascadia's impact on Oregon will be similar to Hurricane Katrina's on New Orleans. Longer-term issues like the potential impact of climate change on migration patterns are hard to predict and generally thought to be outside our office's forecast horizon. Even so, it is a reasonable expectation that migration flows remain strong as the rest of the country becomes less habitable over time.
- Initiatives, Referendums, and Referrals. Generally, the ballot box and legislative changes bring a number of unknowns that could have sweeping impacts on the Oregon economic and revenue picture.

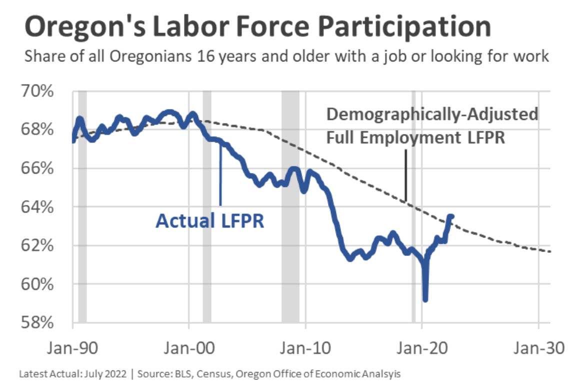
[4] https://www.oregon.gov/ohcs/about-us/Documents/RHNA/RHNA-Technical-Report.pdf

Extended Outlook

Oregon typically outperforms most states over the entire economic cycle. This time is no different, however the expectations are that the relative growth advantage may be a bit smaller than it has been historically. The primary reason being slower population, and labor force growth than in decades past. Our office is a bit more bullish on Oregon's economic and population growth than IHS Markit is, but our office overall agrees with the relative patterns nationwide. From 2022 to 2027, IHS expects Oregon's real GDP growth to rank 23rd fastest among all states, while employment growth ranks 19th fastest, and population gains are the 16th fastest.

Over the extended forecast horizon our office has identified four main avenues of growth that are important to continue to monitor: the state's dynamic labor supply, the state's industrial structure, productivity, and the current number of start-ups, or new businesses formed.

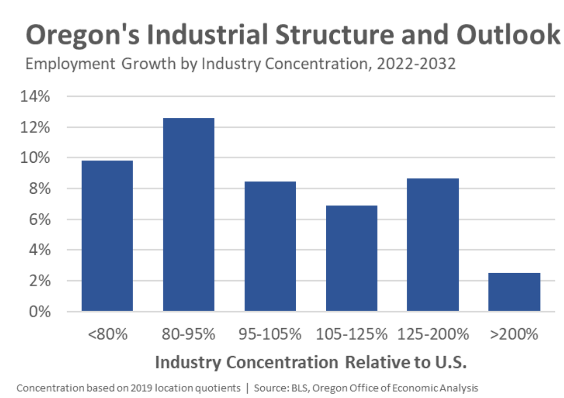
Labor Supply. Oregon has typically benefited from an influx of households from other states, including an ample supply of skilled workers. Households continue to move to Oregon even when local jobs are scarce, as long as the economy is equally bad elsewhere, particularly in California. Relative housing prices also contribute to migration flows in and out of the state. For Oregon's recent history – data available from 1976 – the labor force in the state has both grown faster than the nation overall and the labor force participation rate has typically been higher.



The good news today is that Oregon's labor force has never been larger, and the labor force participation rate is now higher than it was before the pandemic began. Even in this sometimes noisy, and unrevised data, the strength of Oregon's labor market is clear.

Moving forward, overall labor force participation rates will decline, simply due to the aging of the population. As more Baby Boomers enter into their retirement years, the share of all adults working or looking for work will fall as a result. As such, comparing Oregon's participation rates against a demographically-adjusted measure is important. Here, too, the current strength of the Oregon's labor market is evident, and encouraging.

The challenge moving forward is twofold. First, is overall population growth and whether that rebounds as expected in the years ahead. Second, whenever the next recession (or two) does come, maintaining a high participation rate and not seeing larger numbers of discouraged workers drop out of the labor force like they did following both the dotcom and housing busts. It was only once the economy became strong again in the late 2010s and early 2020s have some of those losses begun to be regained.



Industrial Structure. Oregon's industrial structure is very similar to the U.S. overall. However, Oregon's manufacturing industry is relatively larger, and weighted more toward semiconductors and wood products, compared to the nation which is more concentrated in transportation equipment (aerospace, and automobiles).

However, industries like timber and high-tech, which have been Oregon's strength in both the recent past and historically, are now expected to grow the slowest moving forward. Productivity and output from the state's technology producers is expected to continue growing quickly, however employment is not likely to follow suit. Similarly, the timber industry remains under pressure from both market based conditions and federal regulations. Barring major changes to either, the slow growth to downward trajectory of the industry in Oregon is likely to continue.

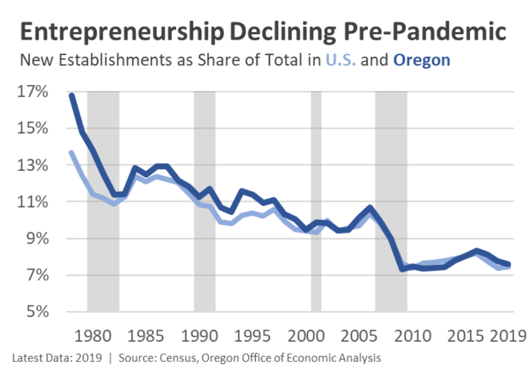
With that being said, certainly not all hope is lost. Those top industries in which Oregon has a local concentration at least twice the national average comprise approximately 4 percent of all statewide employment. Slower growth moving forward is not a weight, but rather more of lack of a boost.

Many industries in which Oregon has a larger concentration that then typical state are expected to perform quite well over the coming decade. These industries include management of companies, food and beverage manufacturing, published software along with some health care related firms.

The state's real challenges and opportunities will come in industries in which Oregon does not have a relatively large concentration. These industries, like consulting, computer system design, financial investment, and scientific R&D, are expected to grow quickly in the decade ahead. To the extent that Oregon is behind the curve, then the state may not fully realize these gains if they rely more on clusters and concentrations of similar firms that may already exist elsewhere around the country.

Capital and Productivity. Ultimately, the economy's industrial structure combined with capital will result in increasing producitivty. Higher productivity allows firms to produce and sell more products, and pay higher wages to its workers. Capital can come in many different forms including financial, natural, phsyical, human, and social. All can help raise firm productivity, benefiting the economy more broadly.

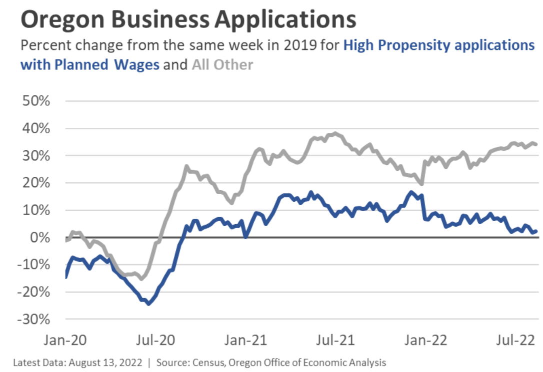
Today, the economy desparately needs better productivity, which has been sluggish this century. Early in the pandemic, productivity perked up as firms had to make due with reduced workforces at the same time consumer demand remained strong. However, as employment has rebounded, these productivity increases not only have not held, but have eroded. The current outlook for producivity is more or less back to the pre-pandemic trend, if not slightly below it. Increasing the stock and use of Oregon's capital would boost the economy overall.



New Business Formation. New businesses are generally considered the primary source of innovation. New ideas, products, and services help propel future economic growth. Unfortunately in the decades leading up to the pandemic, start-up activity was declining. New businesses as a share of all businesses were at or near record lows in 2019. Employment at start-ups follow a similar pattern.

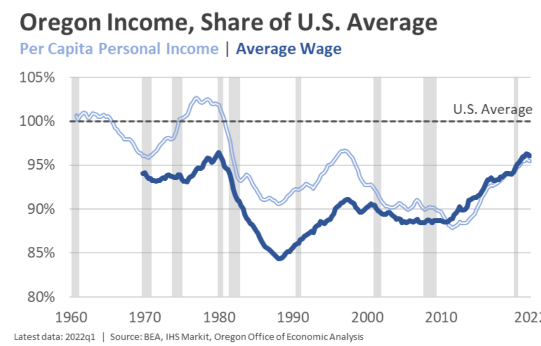
To the extent the low levels of entrepreneurship continue, and R&D more broadly is not being undertaken, slower productivity gains and overall economic growth is to be expected. However, to the extent that larger firms that have won out in today's marketplace are investing in R&D and making those investments themselves, then the worries about the number of start-ups today is overstated. It can be hard to say which is the correct view. That said, actual, realized productivity in the economy has been sluggish in recent decades.

Encouragingly, new business applications during the pandemic actually accelerated, stopping the long-run decline. Applications from what Census calls high-propensity business with planned wages, which are the most likely to eventually turn into real firms that employ workers, have been higher in 2021 and so far in 2022 than back in 2019. New business applications of all other types, including self-employment, are up even further.



These gains provide some hope for future economic growth should some of these new firms bring new ideas, products, and efficiencies to market. Even if the per firm probability of success remains the same, having more ping pong balls in the lottery increases the overall probability that a few will survive and succeed tremendously.

<u>Oregon Income Relative to U.S</u>. One long-standing concern for some policymakers and analysts had been Oregon's relatively low income and wage compared to the rest of the nation. Encouragingly, the strong economic growth last decade did translate into meaningful increases in Oregon's per capita income and average wage. Today Oregon's per capita income relative to the U.S. is at its highest point since the dotcom bust two decades ago, and the state's average wage is at its highest relative point since the timber industry restructured and the mills started closing in the early 1980s.



Oregon's median household income in recent years has reach historic highs, even after adjusting for inflation. More importantly, it now stands 1 percent higher than the U.S. overall as of 2020. In recent years, this marks the first time in more than 50 years that Oregonian incomes for the typical household or family are higher than the nation. The fact that the strong regional growth translated into more money in the pockets of Oregonians, and regained the ground lost decades ago is one of the most important economic trends in recent generations. The 2021 American Community Survey data will be released in mid-September. Out office will provide updates on our website at the time of release, and in next quarter's forecast document.