**An Analysis of the Effects of Covid-19 on the Economy of the Greater Tri Cities & a Near-term Outlook**

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**For:**
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**INSTITUTE FOR PUBLIC POLICY AND ECONOMIC ANALYSIS**

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**Table of Contents**

**List of Tables**

**List of Figures**

**List of Figures**

# Executive Summary

The purpose of this study was to analyze the effects of Covid-19 on the economy of the greater Tri Cities and to provide a near-term outlook for the region. Our findings, summarized briefly below, attempt to answer the following questions:

*What does the structure of the local economy look like and how did it weather the pandemic?*
- Not surprisingly, the use of location quotients reveals that three industries are much more important to the Tri Cities economy than to the US economy as a whole: waste management, crop production and agricultural support activities. Additionally, beverage manufacturing, animal production and building construction had strong LQ values, in large part related to the top 3 industries.
- From the perspective of economic activity that is subject to retail sales taxes, very little slowdown in the Tri Cities, Benton County and the city of Kennewick has occurred during the pandemic. When it did happen, it was concentrated in only one quarter. Undoubtedly, the quick federal stimulus payments contributed greatly in preventing the drop of one quarter extending into subsequent ones. **This result, combined with the other three of measures of aggregate quarterly economic activity, all point to the greater Tri Cities absorbing the pandemic downturn relatively better than the state.**
- The worst hit sectors by the pandemic were (1) Hospitality, (2) Entertainment & Recreation, (3) Retail, (4) Agriculture and (5) Construction.
- The sectors of the local economy that fared best through the pandemic, as measured by employment change, were (1) Finance & Insurance, (2) Transportation & Warehousing, (3) Information, (4) Wholesale Trade and (5) Real Estate, Rental & Leasing.
- In sum, it certainly appears that Latino workers bore a greater burden of the pandemic than the workforce overall, as their claims were proportionally higher than average and their average wage increases were not large enough to offset the likely greater rate of unemployment.
- Bankruptcies during the pandemic actually declined, in part due to federal assistance. In March 2020, the CARES Act pumped money into the businesses around the U.S., relief checks sent directly to residents of the country, and extended unemployment benefits were handed out to many. All these factors shored up household finances, and as a result, economic stability.
- It is clear that the most vulnerable jobs over the near-term will be those in customer-facing roles, or more generally service jobs.
- Growth, at least highest percentage growth, will take place in mid-sized sectors such as Transportation & Warehousing, Manufacturing, and Healthcare.

*What are strategies to promote continued growth in the Tri Cities?*
- A short-term solution, beyond raising wages, lies in facilitating training for certain occupations. This holds for truck drivers, nursing assistants and sales representatives.
- A longer-term strategy is to promote the expansion of training of those high-demand occupations that require at least an associate's degree. Nursing and computer science fields are at the top of this list. Of course, this list is not unique to the greater Tri Cities; the entire state is

facing a demand-supply imbalance for these professions. The expansion of educational pathways is not a typical economic development activity but increasingly it should be.

- A final area strategy area that the greater Tri Cities community must consider is housing, especially lower- to middle income market housing. If the area is to be successful in attracting and retaining a top-notch workforce, an arrest of the decreasing affordability of housing must occur. As Benton Franklin Trends affordability [indicator](#) shows, housing in the two counties has, on average, been more affordable than throughout the state. That advantage, however, is eroding. The most recent index reading, for Q3 of 2021, was 121. Four years prior, it was 141.

- The affordability decline of housing is captured on another Trends indicator:  median resale price for existing homes. As of the third quarter of last year, it was nearly $400,000 ($393,000). Four years prior, it was about $245,000. That is a percentage rise of 60%. Household incomes have hardly risen at a comparable rate.

*How were local government revenues affected by the pandemic?*

- Revenues increased for both Benton and Franklin Counties, proving that the Tri-Cities community as a whole continued spending money even through the pandemic. All local government revenue budgets, apart from Kennewick, planned increases for the upcoming years, and Kennewick's finance director stated that his city's budget decrease was much less drastic than they had earlier anticipated. The pandemic affected many different aspects of life, but in terms of local government revenues, it is clear that revenues continued to grow and did not affect as severely as expected.

*Looking forward, what does demand for housing look like in the Tri-Cities?*

- Using econometric modelling and data from the US Census Bureau and the Washington State Office of Financial Management (OFM), it was determined that population is the principal determinant of growth in housing over time in the Tri Cities, outweighing other demand factors such as price, affordability, incomes, and interest rates.

- Official forecasts of population for Benton County predict a growth of more than 20,000 people at an average annual rate of growth tapering off from approximately 1.3 to 1.1% by 2030. Franklin County is predicted to grow at a slightly faster clip from 2.7% in 2022 to 2.3% by 2030.

- Our econometric model predicts that there will be an increase in the quantity demanded of single-family homes of around 5,469 between 2022 and 2030 and a corresponding increase in multi-family units of around 1,670 for a combined increase in total housing of approximately 7,139.

1.    **The structure of the economy of Benton & Franklin Counties**


To understand how the covid-19 pandemic has impacted the local economy, a good place to start is to review the structure of the economy. What sectors (groups of industries) predominate which ones seem small, and which ones are entirely absent. These are statements are relative, made in a comparison to other, usually larger, economies.

Methodologically, these questions are often handled via a concept of concept of cluster analysis. This approach usually rests on comparing employment concentration of a given sector or industry to the concentration of the same sector or industry nationally. The tool used is a *location quotient (LQ),* or a ratio of the local concentration to the national concentration.

As an example, consider a local economy of 100 workers and a national economy of 1,000 workers. If 10 of the local workers are employed in industry A, the local concentration ratio is 0.1. Assume that the national economy's concentration ratio for industry A is 50 out of 1,000, or 0.05. The ratio of the two ratios (local economy is in the numerator) is 2.0. This is the location quotient for industry A.
The interpretation of the result is that industry A in the local economy is twice as large as in the national economy. Usually, a location quotient value > 1.0 leads to the characterization of a cluster in the local economy. Clusters typically are interpreted to imply a certain competitive advantage that the local economy may possess over other local or regional economies.

In a look at the structure of the economy of the greater Tri Cities, the economies of both the U.S. and the state of Washington are considered. The data stem from 2020 employment levels in firms that pay into the state unemployment insurance fund; in other words, sole proprietors are not included. The level of detail is somewhat aggregated. Specifically, the location quotients reflect a level of aggregation known as 3-digit in the ordering scheme of the North American Industrial Classification Scheme, or NAICS. (6-digit entries are the most detailed, and therefore numerous.  Figure 1 displays those local industries with LQ values > 1.0
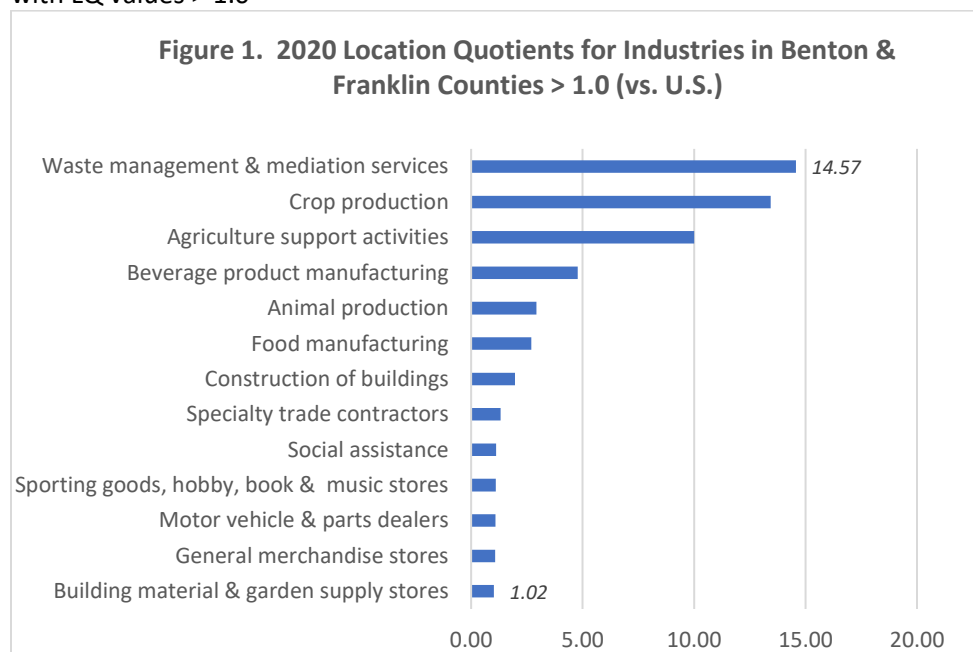


Figure 1.  2020 Location Quotients for Industries in Benton & Franklin Counties > 1.0 (vs. U.S.)

*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

As Figure 1 displays, 13 industries yielded LQ values > 1.0 in 2020. Several, however, are characterized by values barely larger than one, and with these values, one shouldn't conclude that they reflect strong specialization. On the other hand, three industries display very large location quotients: waste management, crop production and agricultural support activities, with values of 14.57, 13.44 and 10.01, respectively. The presence of these three will not likely surprise too many followers of the local economy; their size might, however. The implication of the LQ values is that the three industries are nearly 15, 13 and 10 times more important here than in the U.S.

Several more industries singled out by this analysis with quite strong LQ values, in large part related to the top 3 industries: These are beverage manufacturing, animal production and building construction.

Location quotients can change over time, especially in dynamic local economics. In 2010, the number of industries that yielded LQ values > 1.0 was about the same, but the composition a bit different. Animal production and construction were absent.

The same analysis can be undertaken with the Washington State economy in the denominator. Figure 2 displays the results.



Figure 2. 2020 Location Quotients for Industries in Benton & Franklin Counties with LQs > 1.0 (vs. WA)
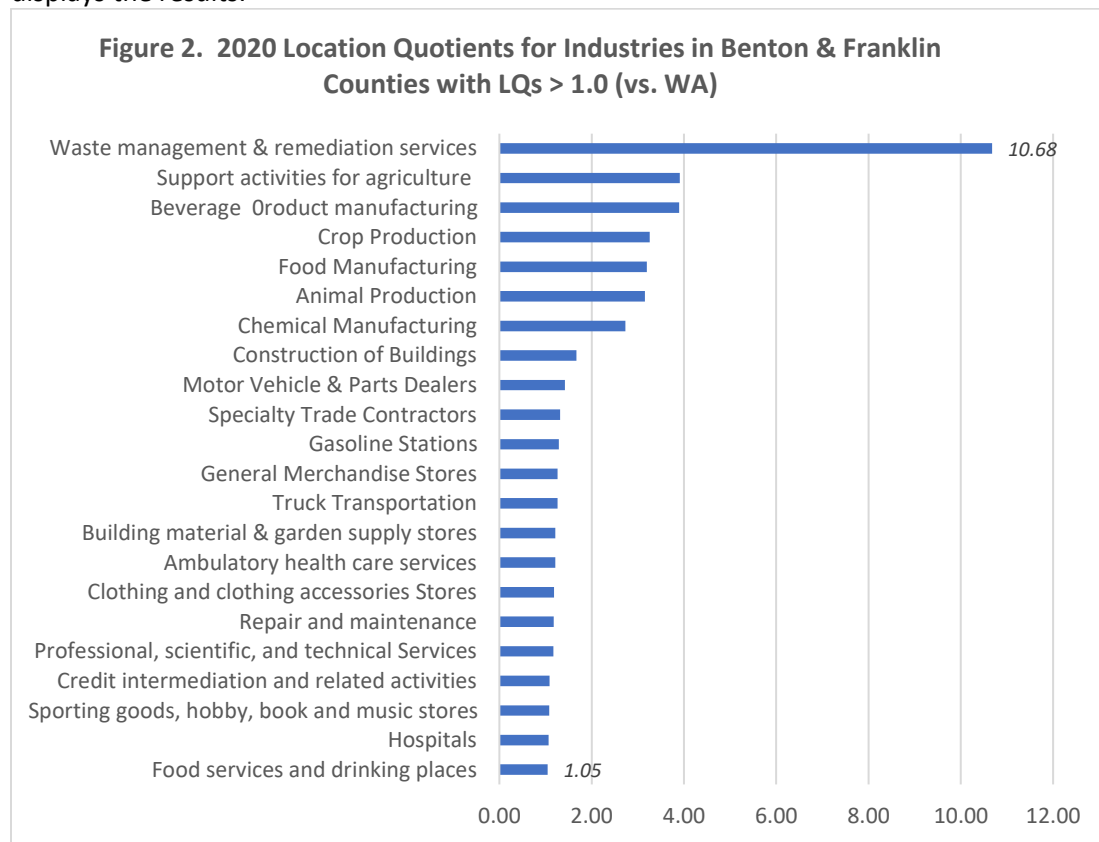
*Sources: Washington State Employment Security Department, "Quarterly Census of Employment & Wages" & U.S. Bureau of Labor Statistics, "Quarterly Census of Employment & Wages."*

A similar pattern holds in the comparison between the economies of the greater Tri Cities and the state of Washington. The LQ values in Figure 2 for agricultural activities are not quite as high, indicating

the overall strength of agriculture in the Washington economy vis-à-vis the U.S. In this comparison, the Tri Cities economy yields more clusters, but for the most part the LQ values are just a bit over 1.0, indicating strengths not too different than overall in the state. The one exception is chemical manufacturing, with an LQ of 2.73 in 2020. In summary, neither this cluster definition nor the one based on national concentration ratios leads to any other conclusion than the local economy is highly concentrated in two areas:  waste management and agriculture (including food processing).

2.      **The immediate effects of the pandemic on the Greater Tri Cities economy, by aggregate measures**

This section portrays how the local economy reacted, in aggregate, to the pandemic-induced business closures and wave of infections that swept over the community starting in spring of 2020. The headline metric is the **unemployment rate.** This is calculated from a relatively small survey of households (Current Population Survey) taken monthly in the U.S., states, metro areas and major cities. The survey tracks the share of the people who are not working compared to the total labor force (people working plus those not but wanting to). For this analysis, the monthly values have been averaged into quarterly data.

Figure 3 displays the survey estimates over the past three years for Washington State and Benton and Franklin Counties. While unemployment was a bit more elevated in the two counties before the



Figure 3. Unemployment Rate:  Both Counties & WA
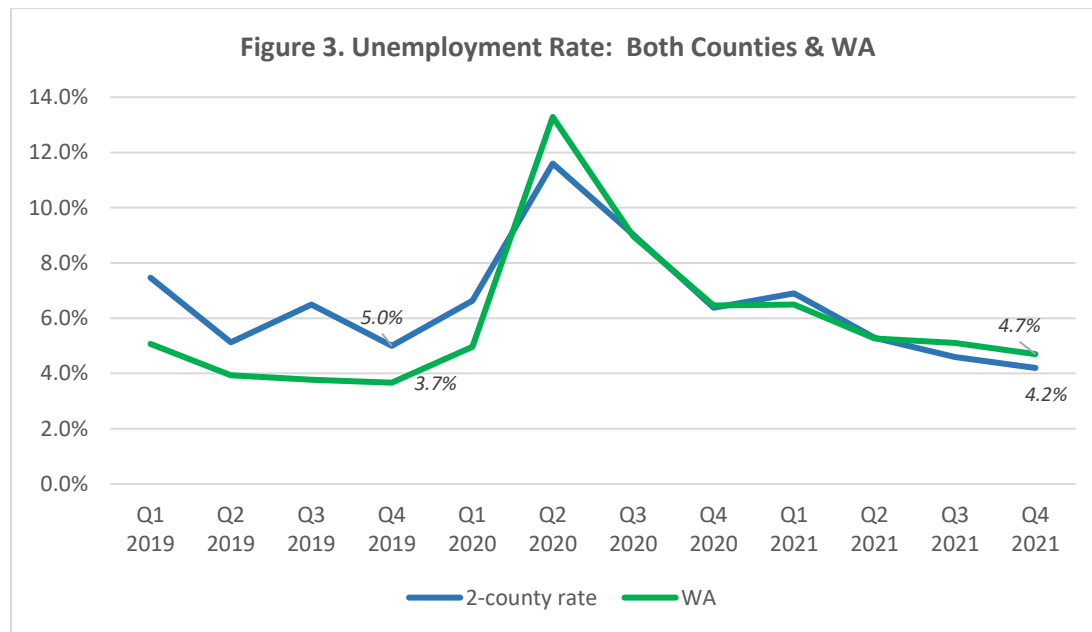
*Source:  U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics"*

pandemic, the local economy clearly performed better than the state in the in the hardest-hit quarter, the second of 2020. Since then, the recovery, by this measure, has been equal to or slightly better than the state has experienced.

Figure 4 displays the path of the unemployment rate in the two counties and in Benton County alone. As is easily observed, there has been little difference between the overall experience of the two counties versus that of Benton County. The rate peaked in the second quarter of 2020 at 11.6%.

**Figure 4. Unemployment rate:  Benton County vs. both counties**
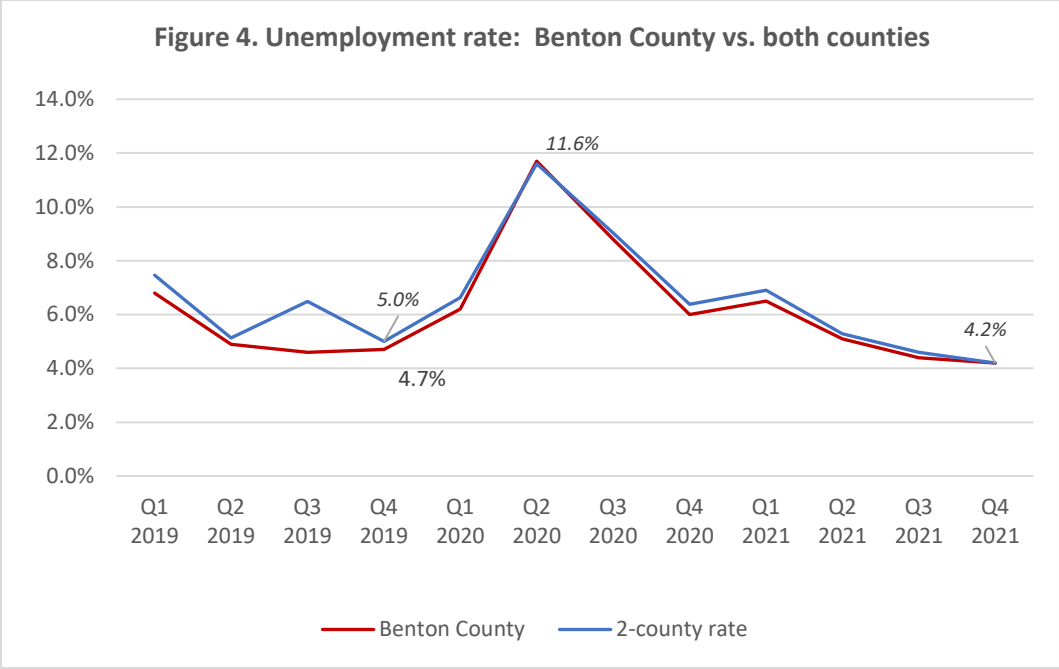


*Source:  U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics"*

As of the final quarter of last year, the implied quarterly rate of 4.2% in both counties and in Benton County was lower than the rate registered in the same quarter in pre-pandemic year 2019. The recovery, by this measure has been complete.

Not surprisingly, a "tight fit" applies to a comparison between Benton County and the city of Kennewick. Figure 5 displays the path of the unemployment rate estimate over the last three years.

**Figure 5. Unemployment rate:  Kennewick vs. Benton County**
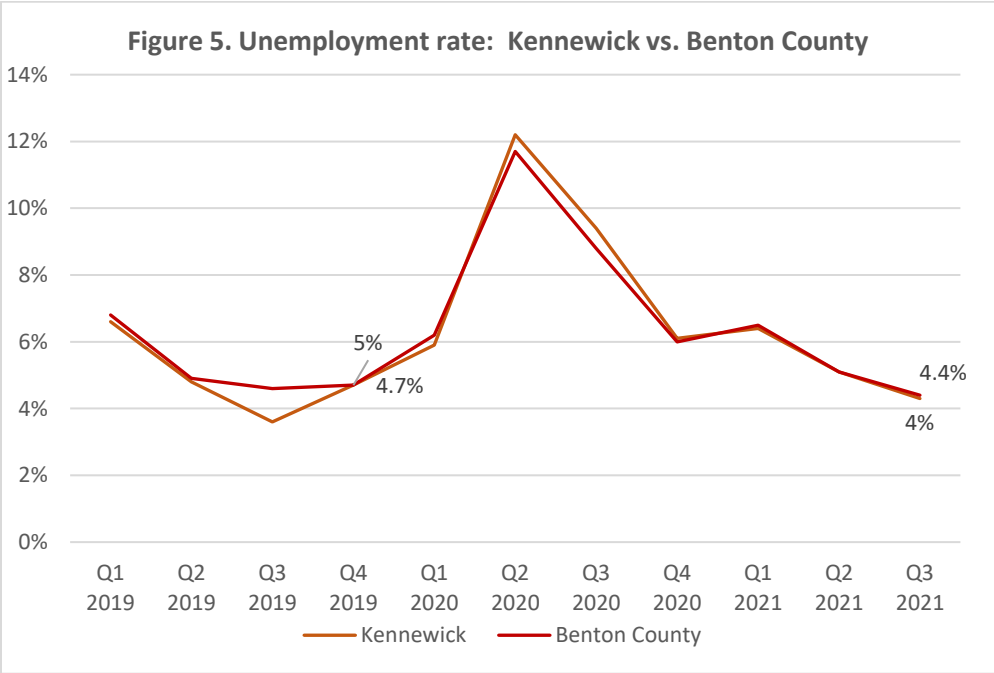


*Source:  U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics"*

The unemployment rate in Kennewick since the start of the pandemic has been slightly above that of Benton County until recently. In those quarters where it was elevated, the magnitude was small enough to be likely statistically insignificant. In other words, Kennewick's experience during the pandemic has been little different from that of the rest of the local economy, as measured by the unemployment rate.

A similar conclusion holds when the metric is the **number of people employed** in the two counties. Figure 6 shows the quarterly path of employment growth, decline and recovery over the past



Figure 6. Number employed in both counties, with year-over-year growth rates of both counties & WA
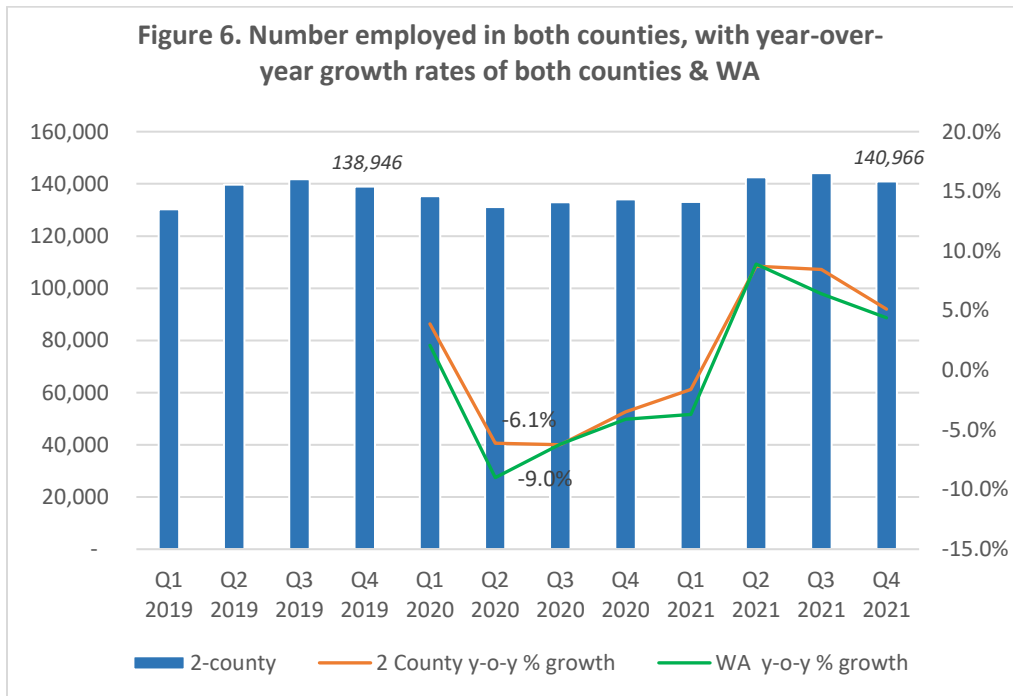
*Source: U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics"*

three years. For the majority of the quarters considered, the year-over-year growth rate of the number employed in the two counties has exceeded the rate in the entire state. And as noted above, the drop in the number employed here was about two thirds are severe as the drop statewide. As of the last quarter of 2021, the estimated number of people employed in the two counties was about 2,000 *greater* than two years prior. For that matter, employment growth rate for all of 2021 was higher than that of Washington State.

Not surprisingly, the look at Benton County and Kennewick reveal similar patterns, as shown in

**Figure 7. Employment Levels: Benton County vs. both counties**
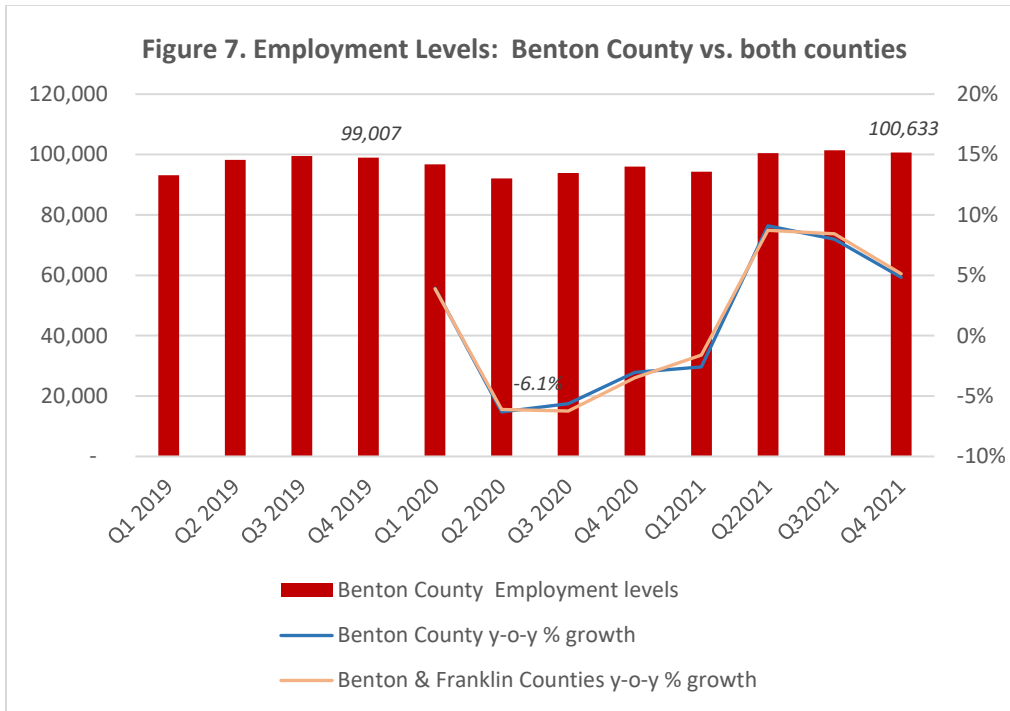
*Source: U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics"*

Figure 7. Benton County employment levels in every quarter of 2021 were also higher than those of 2019, with the fourth quarter finishing with over 1,600 more employed. Data for the city of Kennewick mirror



**Figure 8. Employment Levels: Kennewick vs. Benton County**
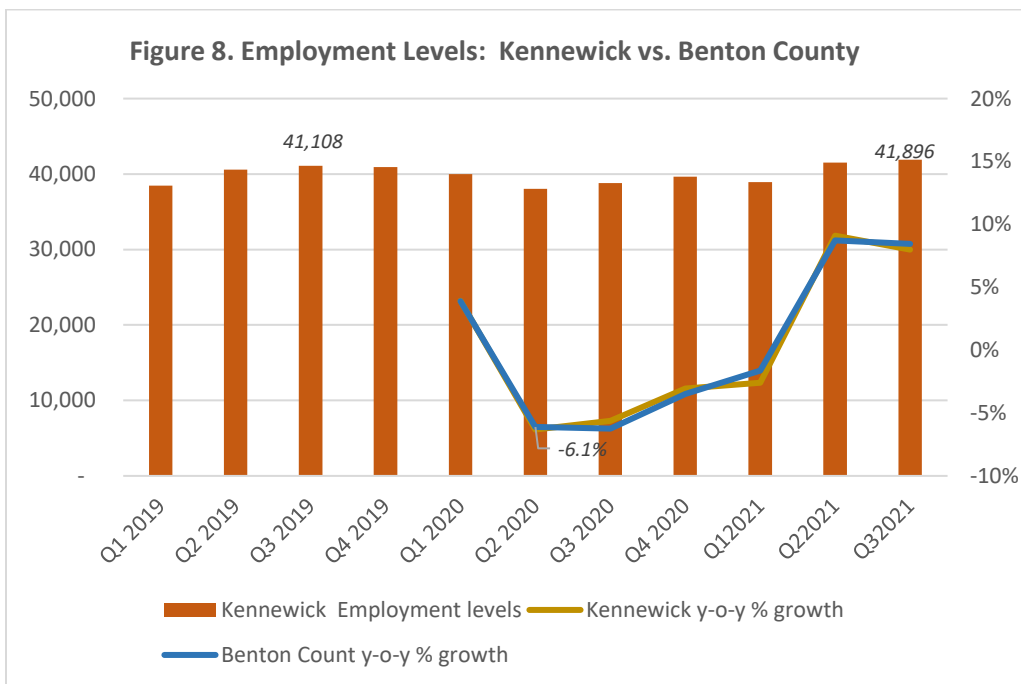
*Source: U.S. Bureau of Labor Statistics, "Local Area Unemployment Statistics"*

the pattern of Benton County, although data limitations stop the comparison at the third quarter of 2021. In sum, the labor market recovery, as measured by total employment was complete in 2021 at the metro, county and city (of Kennewick) level.

A third aggregate measure of a regional economy is income. Data on income, however, are released only annually, whether at the household or individual level. But higher frequency data on **wage**s allow us to develop a good sense of changes in income, since wages typically constitute the largest portion of personal income. (The other two components are investment income and federal transfer payments.) Figure 9 depicts the path of quarterly total wages the past three years at the metro
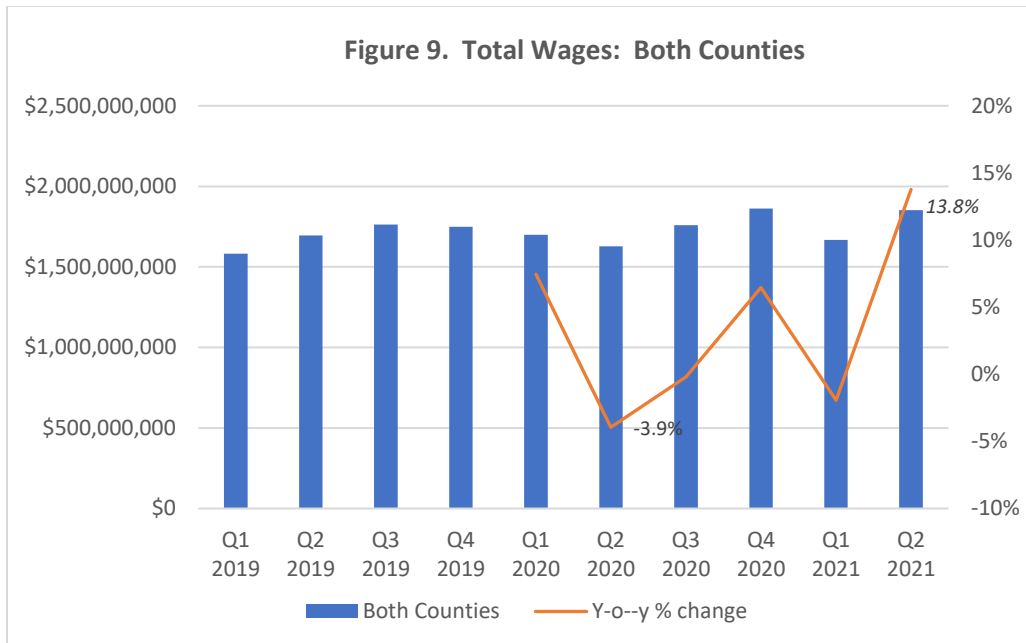
*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

level. The most recent from this source are from the second quarter of 2021.

Total wages in the second quarter of 2020 were slightly below those of Q2 of 2019 - about $67 million or -4%. But by 4th quarter of 2020 total wages were higher than their counterpart quarter in 2019. The gains continued into 2021. Not surprisingly, the results for Benton County paralleled those of the two counties, as seen in Figure 10.
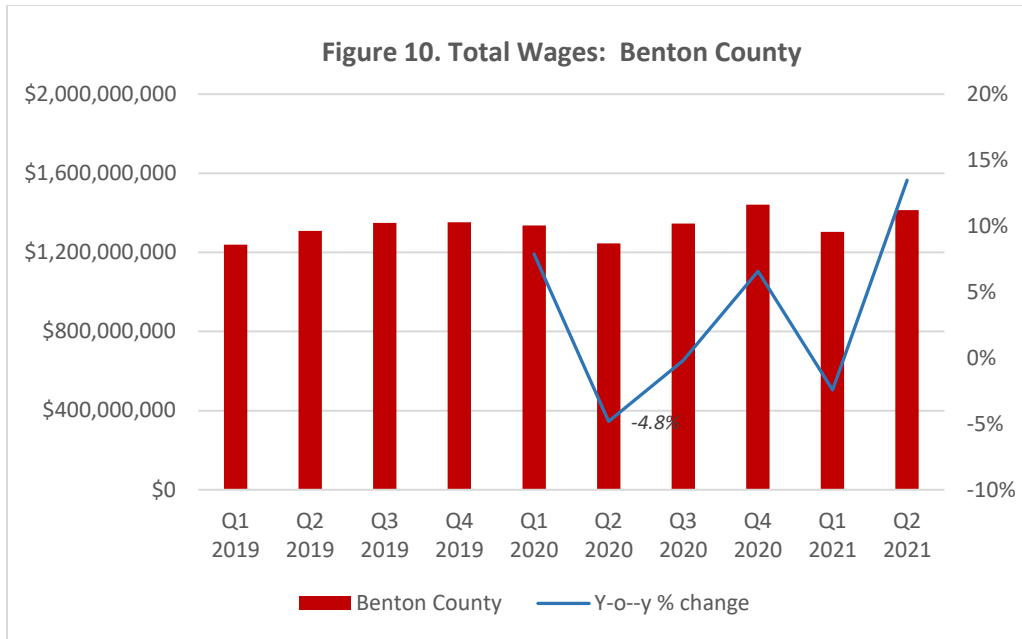
**Figure 10. Total Wages: Benton County**



*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

In Benton County total wages also exceeded pre-pandemic year 2019 by the final quarter of 2020. In summary, the evidence on the local economy by this aggregate metric points to recovery by at least the second quarter of 2021.

A final means of assessing the impact of the pandemic on the local economy is available through a measure of what consumers purchased. At least, those purchases that were taxed. Figure 11 lays out the recent record of **taxable retail sales** in Benton and Franklin Counties. Here, too, the most recent

**Figure 11. Quarterly Taxable Retail Sales in Both Counties**
*$ (1,000)*
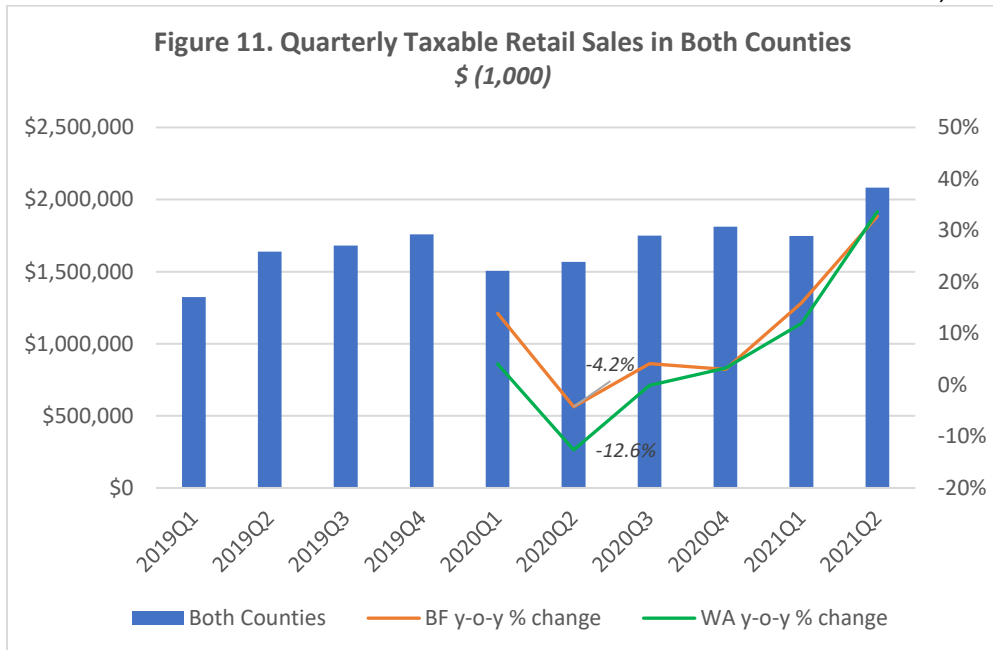


*Source: Washington State Department of Revenue, "Quarterly Business Reviews"*

quarter for which data are available ended in June, 2021. It easy to observe that the local decline in spending in the trough quarter of the pandemic was, at -4.2%, mild compared to that of the state overall, -12.6%. It was the only quarter that yielded negative year-over-year comparisons for the greater Tri Cities economy. A year later, at $2.1 billion, taxable spending same 2nd quarter was far above the levels of the most recent pre-pandemic year, at $1.64 billion.

Benton County's experience was similar, although it endured a larger decline than the local economy as Figure 12 displays. In the most recently available two quarters, however, Benton County's



**Figure 12. Quarterly Taxable Retail Sales in Benton County**
*$ (1,000)*
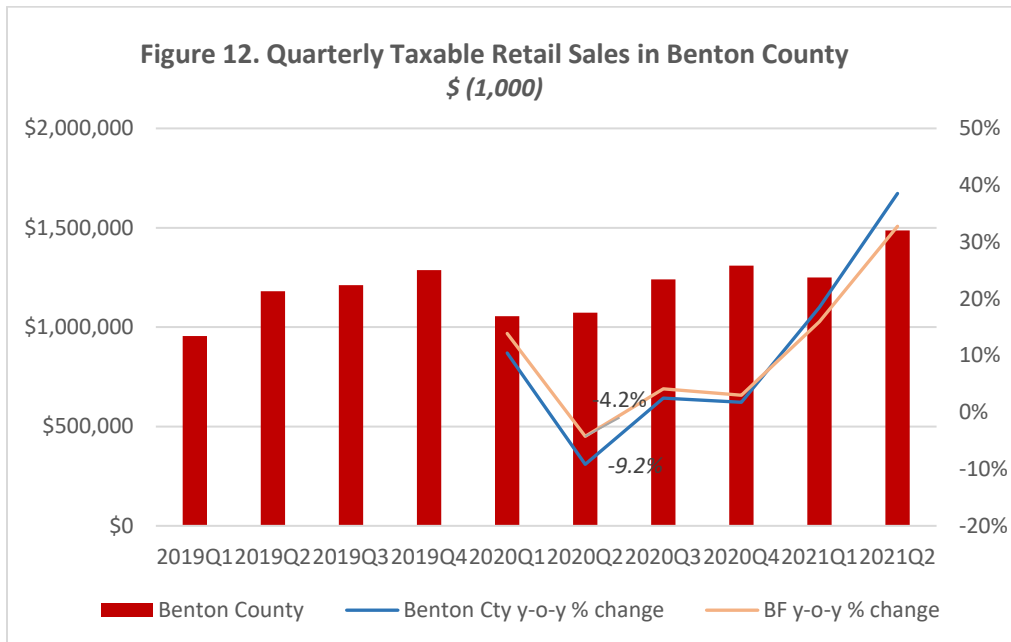
*Source: Washington State Department of Revenue, "Quarterly Business Reviews"*

year-over-year growth outpaced that of the greater Tri Cities. Its 2nd quarter results last year of $1.49 billion were much larger than the $1.18 billion in 2019.

Finally, the path of taxable sales in the city of Kennewick can be considered. As Figure 13 displays, the drop in the city was more pronounced than in Benton County but the recovery

**Figure 13. Quarterly Taxable Retail Sales In Kennewick**
*$(1,000)*
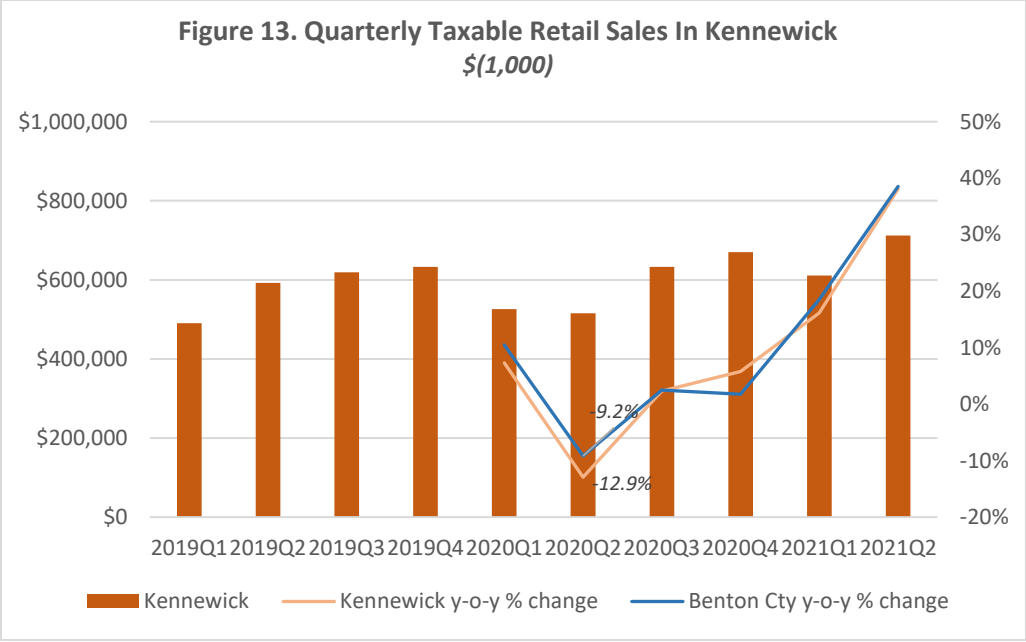


*Source: Washington State Department of Revenue, "Quarterly Business Reviews"*

has been just as swift. Total retail sales in Q2 of last year, at $710 million, were substantially higher than its counterpart two year's prior, at $592 million.

From the perspective of economic activity that is subject to retail sales taxes, very little slowdown in the Tri Cities, Benton County and the city of Kennewick has occurred during the pandemic. When it did happen, it was concentrated in only one quarter. Undoubtedly, the quick federal stimulus payments contributed greatly in preventing the drop of one quarter extending into subsequent ones. This result, combined with the other three of measures of aggregate quarterly economic activity, all point to the greater Tri Cities absorbing the pandemic downturn relatively better than the state.

Yet, the downturn did impact certain sectors more severely than others. How a worker fared in the pandemic economy has depended to large degree on where they are employed. The next section explores the differential effects by business sector.

3.        **The differential paths of sectors in the "pandemic economy"**

   **3.a.  Worst-hit sectors**

   This section examines the differential impact of the pandemic-induced economic changes by sector by quarter. It first considers those sectors most adversely impacted in the second quarter of 2020, as measured by total, not percentage, effect. We utilize three the four measures considered in the review of aggregate economic results – employment, total wages paid, and taxable retail sales. For each measure, the five most negatively impacted sectors are taken up. And for each sector, values for both the metro area (two counties) and Benton County are considered. Data are available through the second quarter of last year.

   To streamline the report, the narrative will consider only the differential impacts on jobs. Impacts on sectors via total wages and retail sales are presented in the appendix in the form of graphs. In many cases, the same sector was among the five worst impacted, whether measured by job, total wages, or retail sales. In some cases, however, the impact varied by the measure chosen. We present a summary table to display this variation. The same approach is then taken with those sectors that weathered the pandemic-induced turndown in the second quarter of 2020 the best.

   The **worst-hit** sector at the start of the pandemic in the two counties was **Hospitality**. This consists of establishments offering lodging, eating, drinking and catering services. It is one the largest sectors in the metro economy. Here the drop, seen in Figure 14, was nearly 3,000 workers, or 29% from
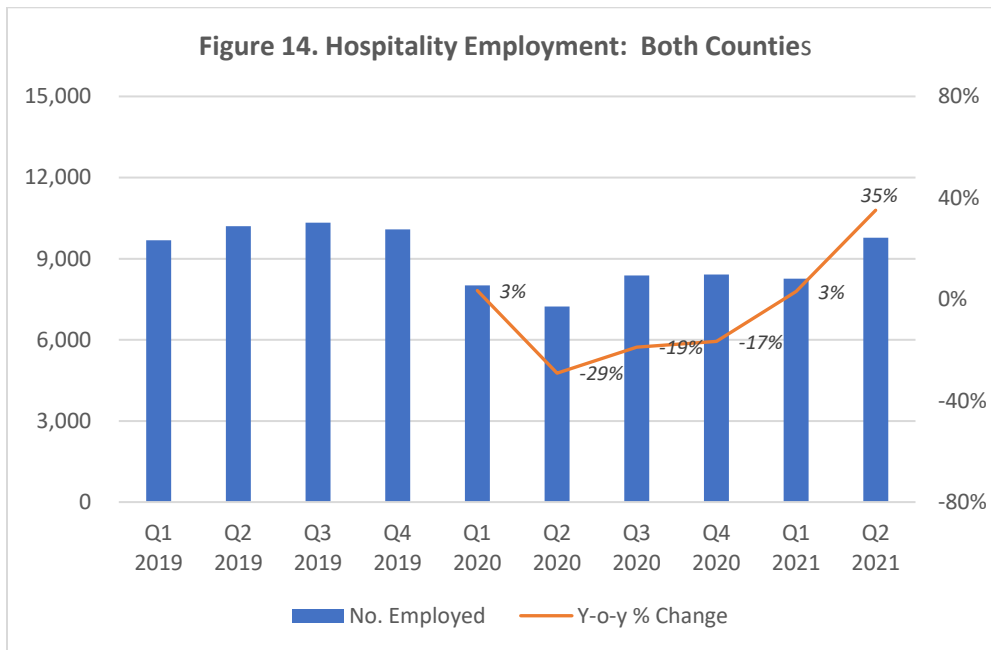


**Figure 14. Hospitality Employment:  Both Counties**

*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

the second quarter in 2019. Negative year-over-year comparisons continued the rest of 2020, although 2021 started to show modest improvement. Year-over-year percentage comparisons became positive. The number of workers in the sector in the second quarter, however, was still about 500 below the

number reported in 2019. Similar results follow for drop in the city was more pronounced than in
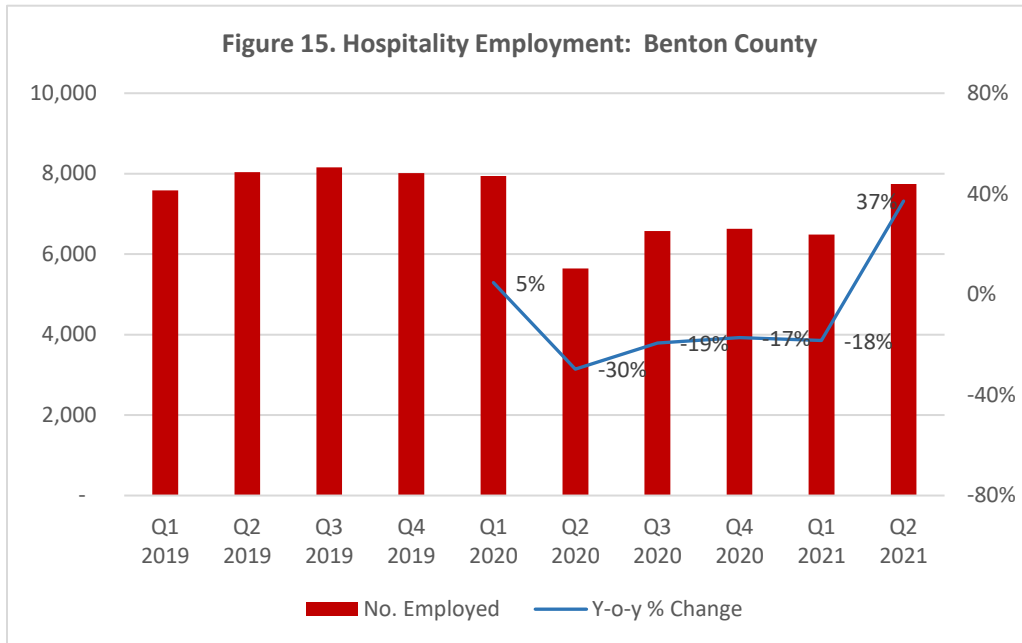
**Figure 15. Hospitality Employment: Benton County**



*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

Benton County, as seen in Figure 15. Note, however, that the year-over-year declines continued through the first quarter of 2021.

The second worst-hit sector by the pandemic was the relatively small sector of **Arts, Entertainment & Recreation**. Figure 16 tracks the dramatic decline in Q2 of 2020 for the two counties combined. While the drop was "only"1,200 approximately, it represented 70% of the
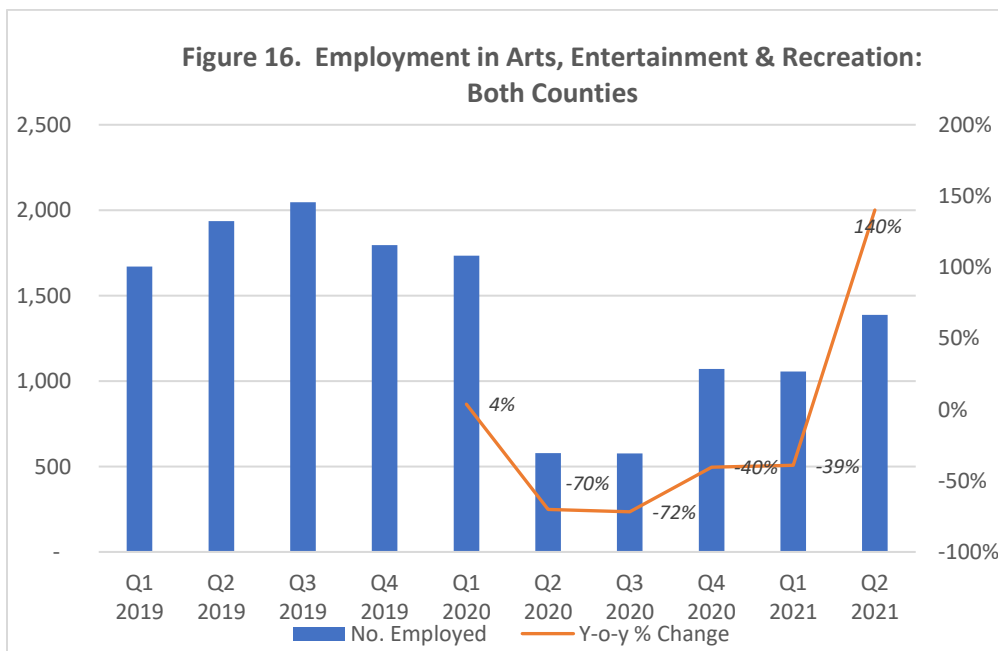
**Figure 16. Employment in Arts, Entertainment & Recreation: Both Counties**



*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

jobs in that sector in the two counties from the same quarter the prior year! No other sector experienced this outcome. Until the second quarter of last year, substantial year-over-over declines continued. While Q2 of last year witnessed a triple-digit percentage increase over the "pandemic quarter," the total number employed in this sector was still more than 500 less than in the same quarter of 2019.

To no surprise, since most of the sector's jobs in the two counties lie in Benton County, the
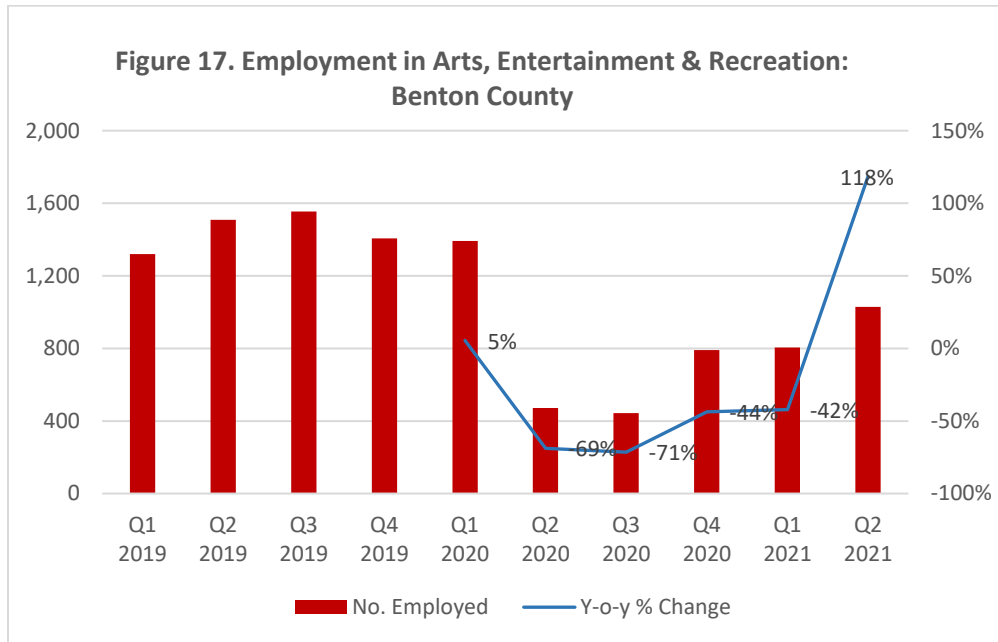


Figure 17. Employment in Arts, Entertainment & Recreation: Benton County

*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

result for that county is very similar, as Figure 17 reveals.

The sector in the greater Tri Cities impacted third hardest has been **Retail**. This too, is a large sector in the regional economy. As seen in Figure 18, the drop in the second quarter of 2020 was over
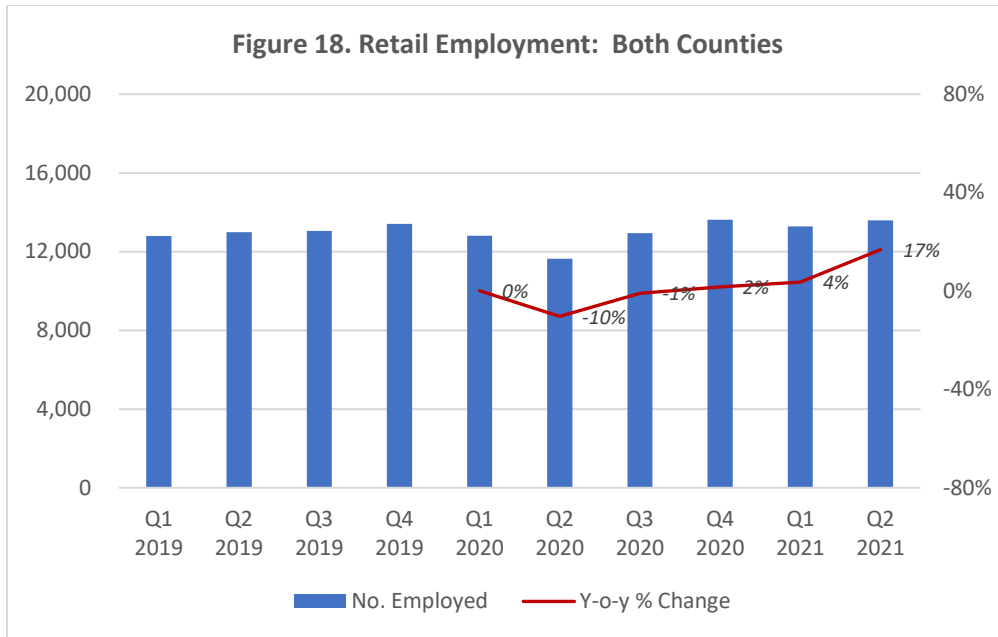
**Figure 18. Retail Employment:  Both Counties**



*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

1,300 workers, or 10% of its workforce of the same quarter the prior year. Notably, however, this sector was marked by a swift recovery. By the subsequent quarter, employment levels were greater than in the third quarter of 2019. These gains over the prior year continued into 2021.

Since most of retail employment in the metro area falls into Benton County, it follows that the pattern of employment has been similar, as Figure 19 lays out. The recovery to-date in this sector, has been just a bit stronger here than overall in the two counties, and by extension, than in Franklin County.
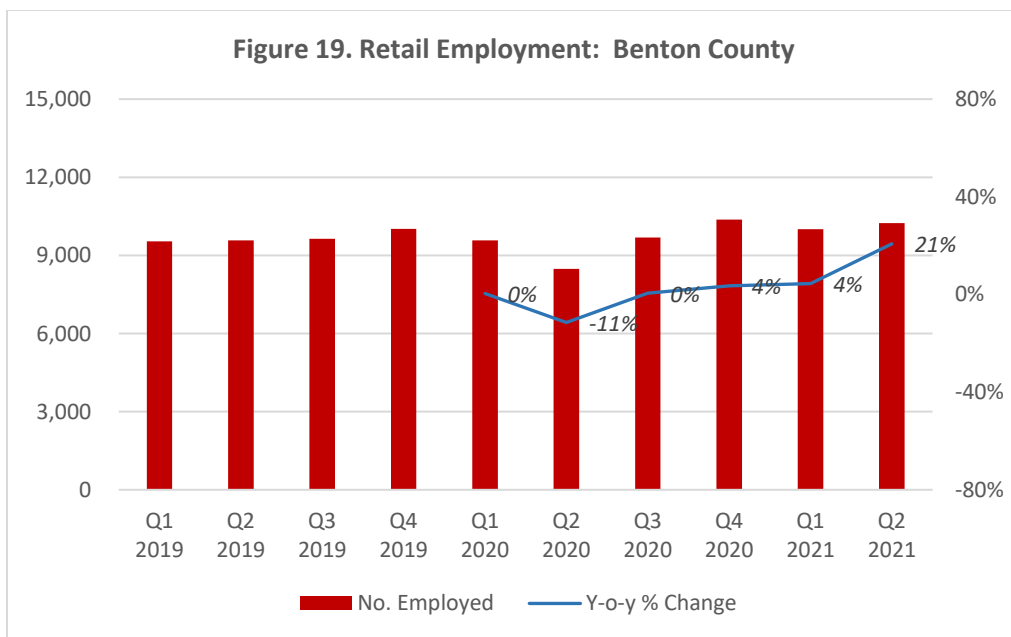
**Figure 19. Retail Employment:  Benton County**



*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

The fourth most-impacted sector by job loss in the greater Tri Cities has been **Agriculture,**
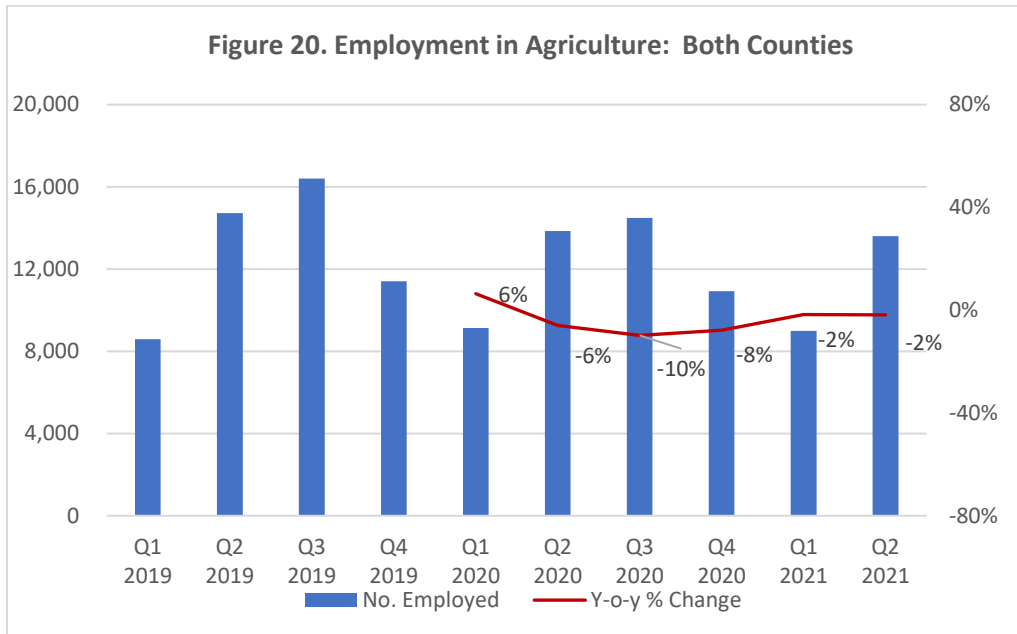
**Figure 20. Employment in Agriculture:  Both Counties**



*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"'*

among the top five sectors by headcount in the two counties**.** Figure 20 shows a decline in Q2 of 2020 of about 870 jobs, or 6%, from the same quarter the prior year. Importantly, and likely a surprise for many in the two counties, has been the sector/s slow recovery in employment. Unlike any of the sectors featured in this section, employment in Agriculture has not recovered to pre-pandemic levels in the two counties. The results for Benton County are little different, as seen in Figure 21.
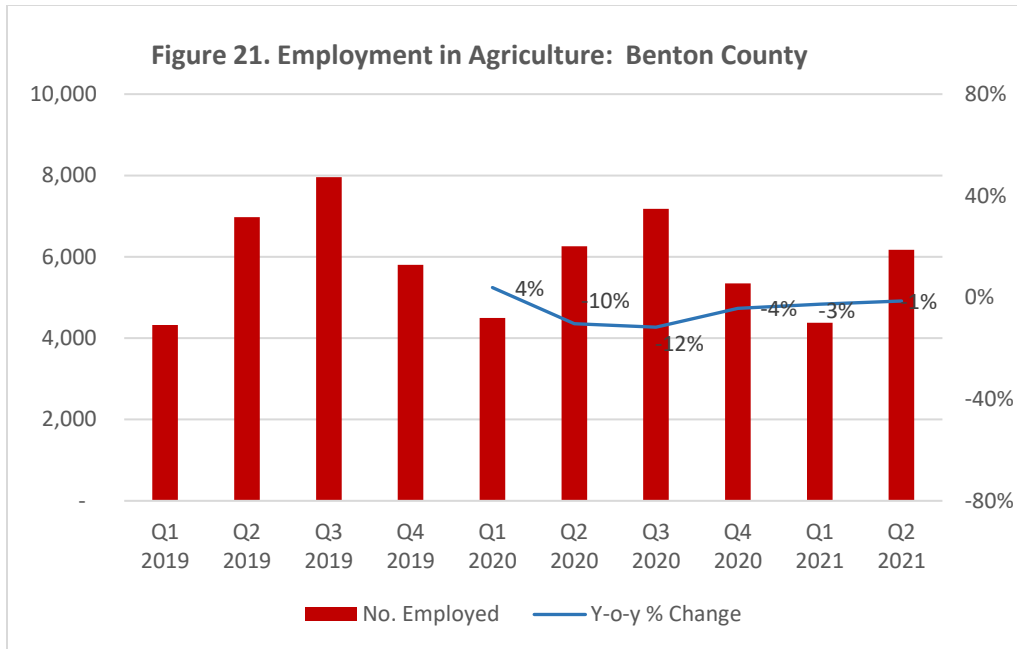
**Figure 21. Employment in Agriculture:  Benton County**

| | Q1 2019 | Q2 2019 | Q3 2019 | Q4 2019 | Q1 2020 | Q2 2020 | Q3 2020 | Q4 2020 | Q1 2021 | Q2 2021 |
|---|---|---|---|---|---|---|---|---|---|---|

Y-o-y % Change labels: 4%, 10%, -12%, -4%, -3%, 1%

Legend: No. Employed — Y-o-y % Change

*Source:  Washington State Employment Security Department,* *"Quarterly Census of Employment & Wages"'*

Rounding out the group of five sectors which fared worst by head count is **Construction.** It is currently the sixth-largest by headcount in the regional economy and encompasses of firms specializing heavy construction, building construction, as well as those in the sub-contracting trades. As Figure 22 depicts,

**Figure 22. Construction Employment:  Both Counties**

Y-o-y % Change labels: 11%, -8%, -2%, 0%, -2%, 12%

Legend: No. Employed — Y-o-y % Change

*Source:  Washington State Employment Security Department,* *"Quarterly Census of Employment & Wages"*

the drop in employment in the second quarter of 2020 was about 830 and amounted to 8% from its base in the same quarter the prior year. Further, unlike Retail, the sector has not enjoyed a quick

recovery. It was not until the second quarter of last year that the year-over-year comparison turned positive. Both quarters, however, shown for 2021 demonstrate levels above 2019.

The experience for Construction in Benton County was similar, as shown in Figure 23. Generally,
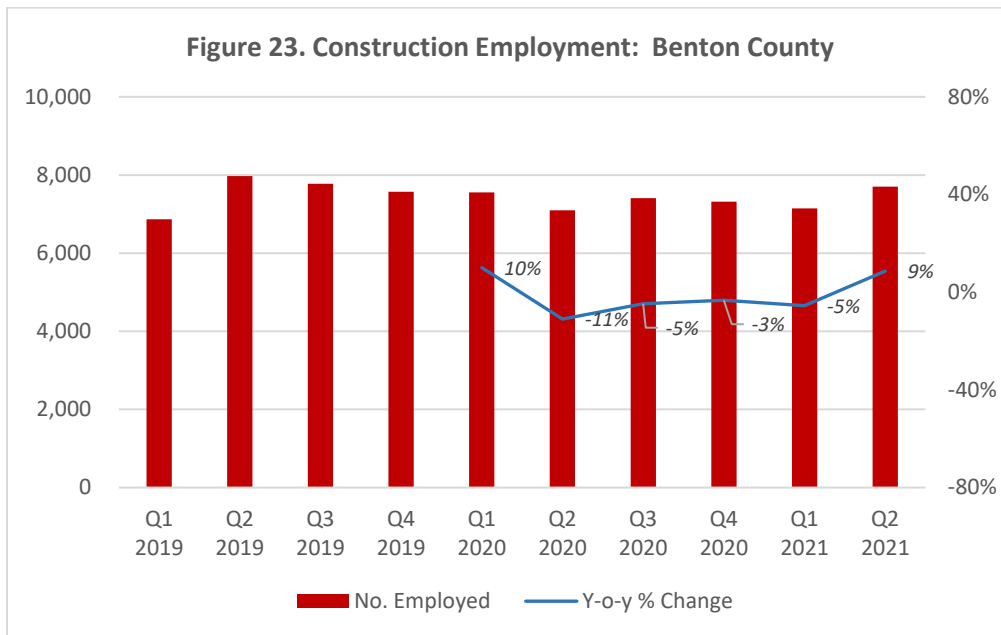
**Figure 23. Construction Employment:  Benton County**



*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

the sector hasn't fared as well as it has in the metro area, suggesting slightly better performance in Franklin County.

3.b.      **Sectors least affected by the pandemic**

The following section takes up those five sectors that **fared best** by the metric of employment change during the second quarter of 2020. Unlike those that fared worst, these are relatively small sectors. Many experienced negative, sometimes strongly negative, outcomes in percentage terms, in the first quarter of the pandemic-induced shutdown. But because their employment levels were low to start with, the loss in headcount was small relative to the sectors considered above.

The sector that experienced the fifth best employment outcome in the Q2 of 2020 **was Real Estate, Rental & Leasing.** It actually lost jobs, about 275, or 18% of the sector's workforce, from a year
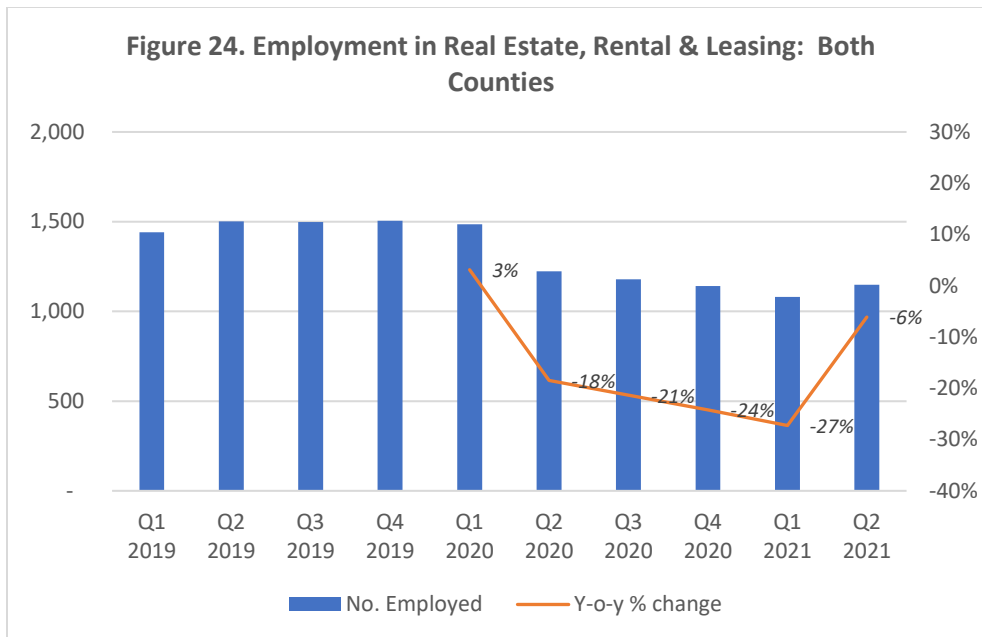
**Figure 24. Employment in Real Estate, Rental & Leasing: Both Counties**



*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

prior. As Figure 24 lays out, that decline was followed by several quarters of further losses, each one a bit steeper than the prior one, until the second quarter of 2021 when the year-over-year loss was -6%. While the job losses were small in an economy of over 122,000 employed in the first quarter of 2020, they likely represent devastating conditions for many local real estate and property management firms.

Figure 25 offers the path of employment in the sector for Benton County. As the majority of the
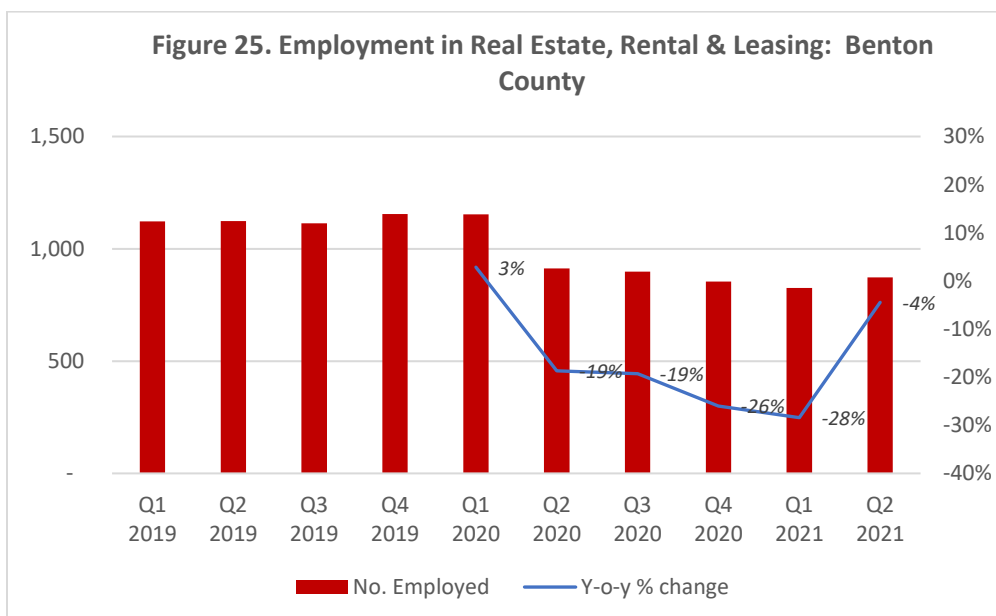
**Figure 25. Employment in Real Estate, Rental & Leasing: Benton County**



*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

metro area jobs in the sector are in Benton County, the results differ little, in percentage terms, from those of the counties combined.

In fourth best place was **Wholesale Trade**, a mid-sized sector with a few more than 3,000 workers at the start of the pandemic. It, too, shed jobs in Q2 2020:  224. But the percentage loss that quarter was small, at about -6%. Figure 26 lays out the course of employment in the
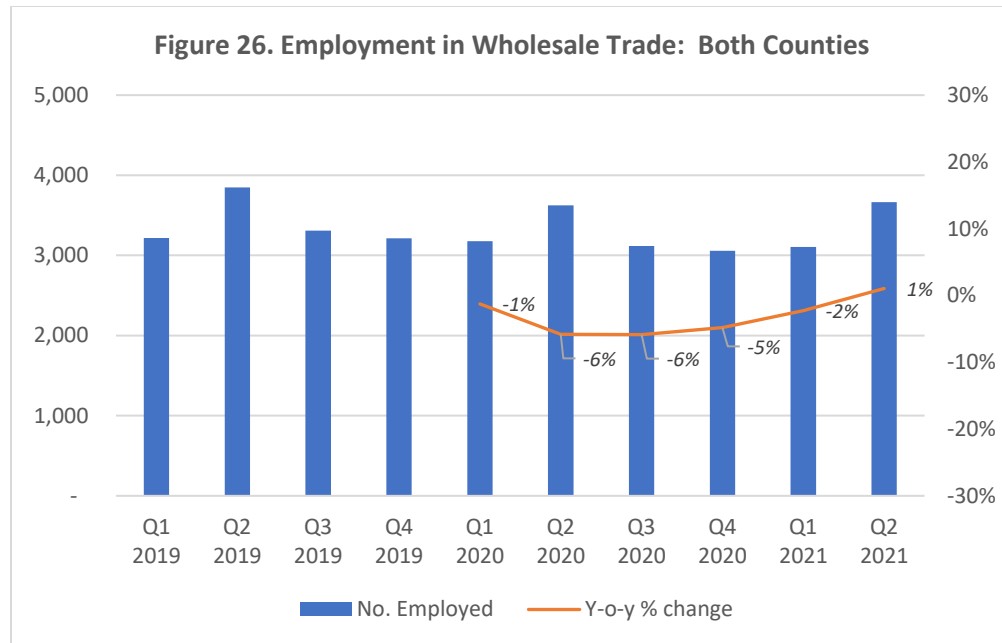
**Figure 26. Employment in Wholesale Trade:  Both Counties**



*Source:  Washington State Employment Security Department,* *"Quarterly Census of Employment & Wages"*

metro area over the past 10 quarters. As one can observe, while the year-over-year percentage losses are small, they turned positive only by the second quarter of 2021.

The experience in Benton County mirrored that of the combined counties, as depicted on the next page in Figure 27.
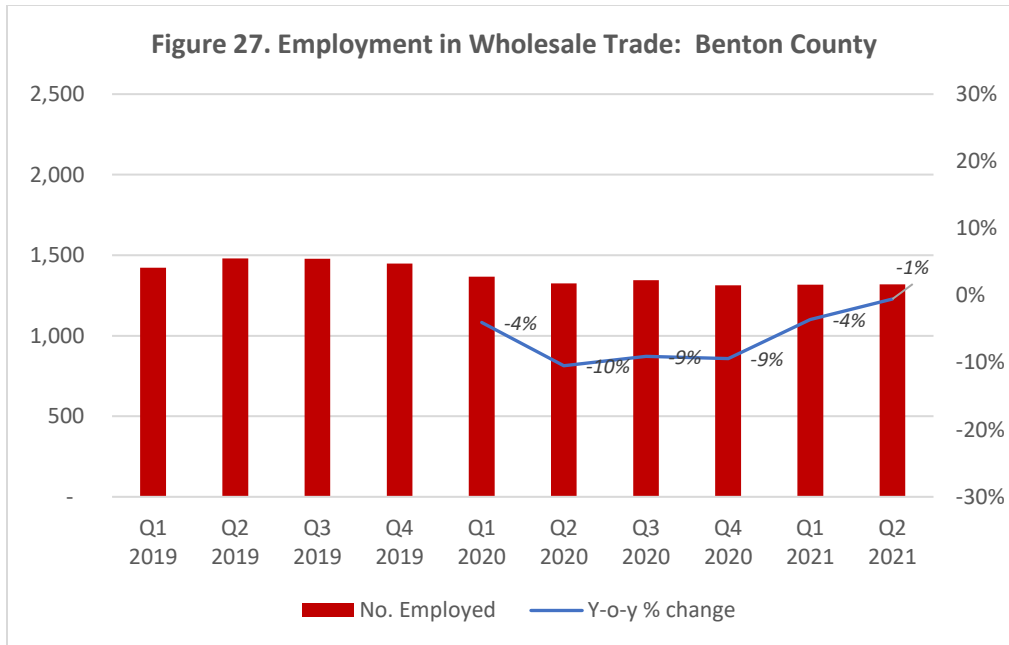
**Figure 27. Employment in Wholesale Trade:  Benton County**



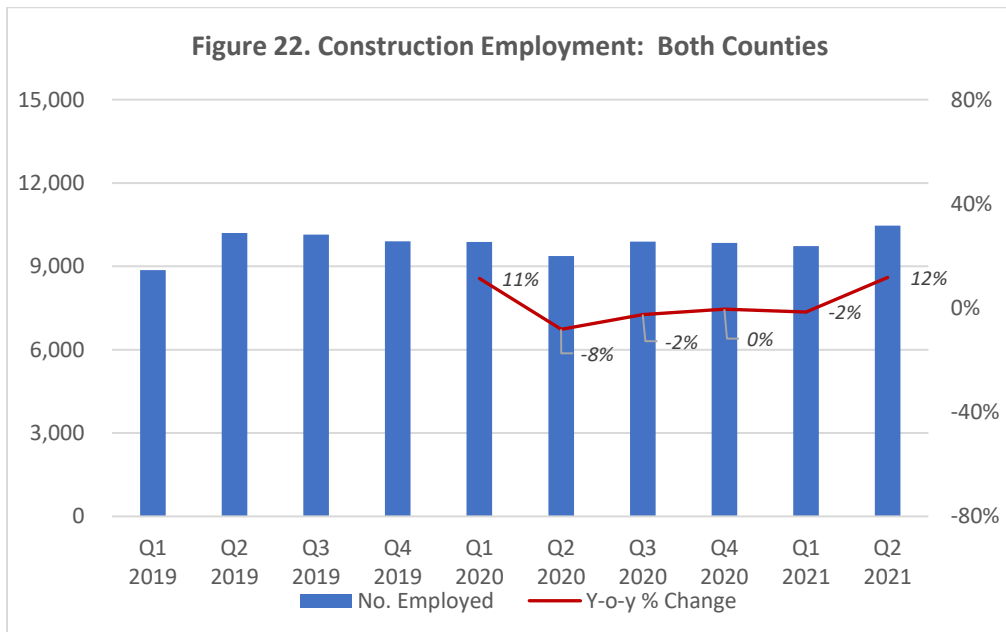*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

In this county, the year-over-year losses have been a bit steeper and consistently negative.

Ranked third best by the employment metric is the **Information** sector. A diverse group of industries are captured by this heading:  telecommunications, print and electronic press, ISP providers and notably in the state but not in the greater Tri Cities, software publishing firms. As Figure 28 portrays, it is one of the smallest sectors with an annual average number employed in 2019
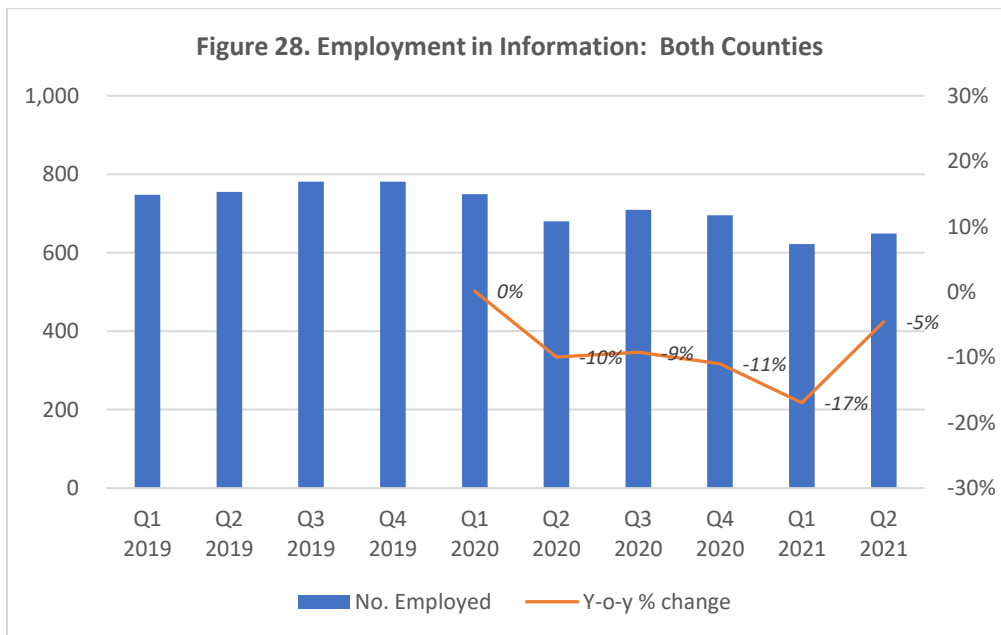
**Figure 28. Employment in Information:  Both Counties**



*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

of less than 800. Consequently, although the percentage loss in Q2 of 2020 was 10%, the number of jobs lost in the two counties was small, at 75. Much like the Wholesale Trade sector, however, year-over-year losses continued in subsequent quarters. Figure 29 displays a parallel path for Benton County. This is not surprising, since most of the greater Tri Cities jobs in this sector reside in this county.
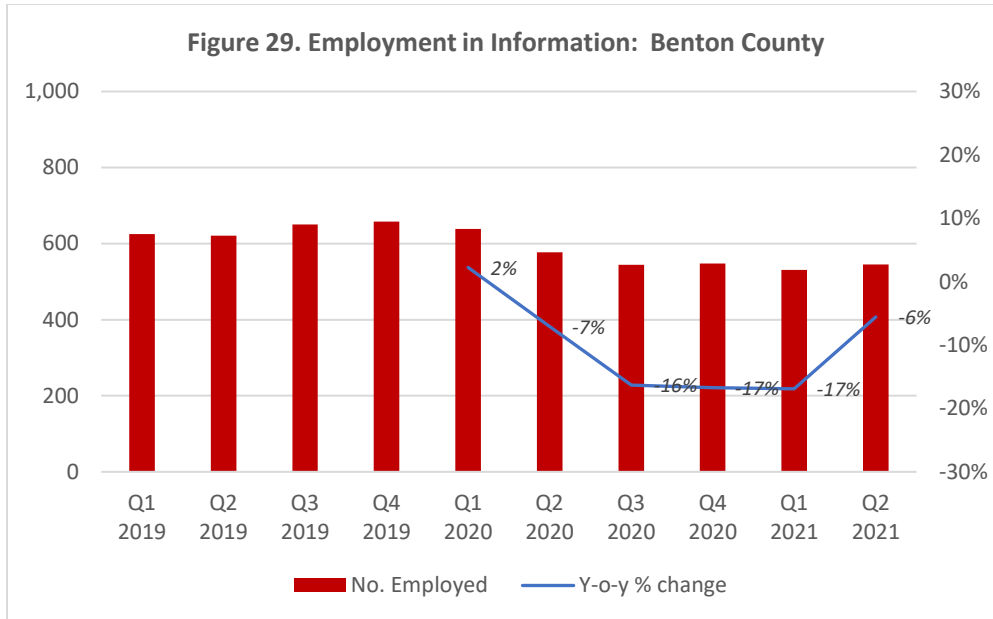
**Figure 29. Employment in Information: Benton County**

*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

The second-best performing sector in the first pandemic quarter was **Transportation & Warehousing**, another mid-sized sector. The industries that dominate the local sector are firms
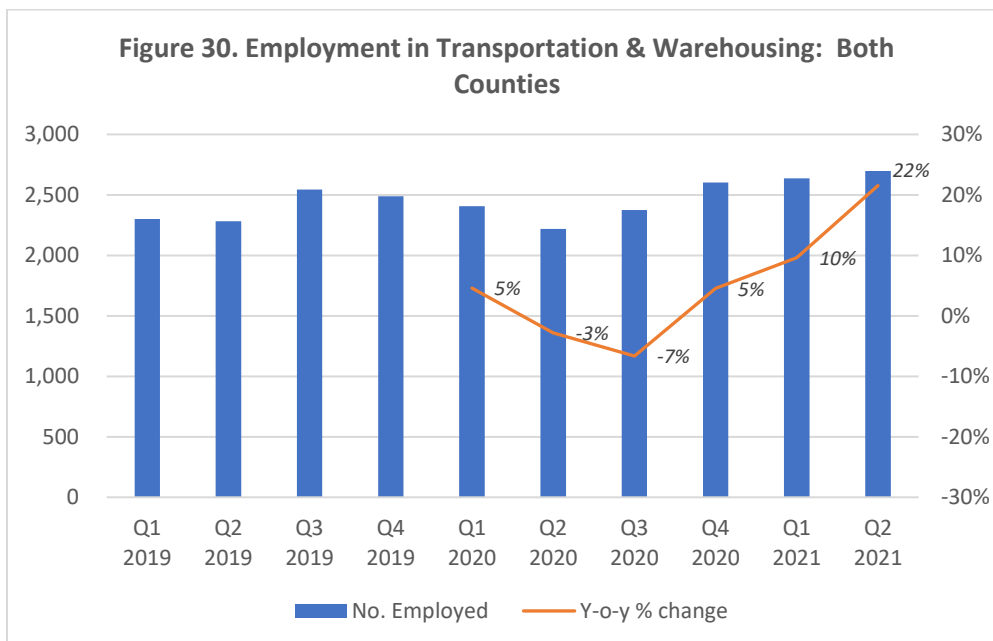
**Figure 30. Employment in Transportation & Warehousing: Both Counties**

*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

providing warehousing and trucking services. Agricultural products are likely the products stored and moved by most of the firms in the sector. Figure 31 shows a loss of 64 jobs in Q2 of 2020, or a drop of 3% from the same quarter of 2019. Note that while the decline deepened in the subsequent quarter by 7% year-over-year, since that time the quarterly comparisons reveal a strong bounce back. These latter quarters all show employment levels greater than 2019. Figure 32 charts a roughly similar path for Benton County, although the recovery has not been as strong. By the fourth quarter of 2020, quarterly
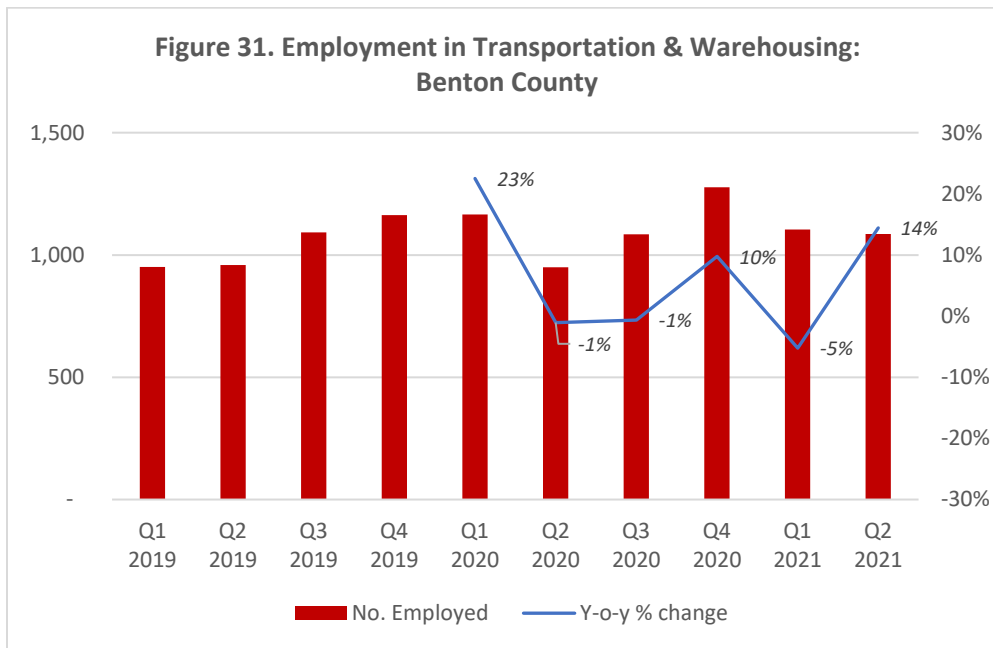
**Figure 31. Employment in Transportation & Warehousing: Benton County**



*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

employment levels in the county were greater than those of 2019.

The sector that performed best by the employment measure in Q2 2020 was **Finance & Insurance.** Its job change was a positive 4%, as Figure 32 depicts. While employment growth in subsequent quarters was slightly weaker, the sector still marked, with one exception, year-over-year
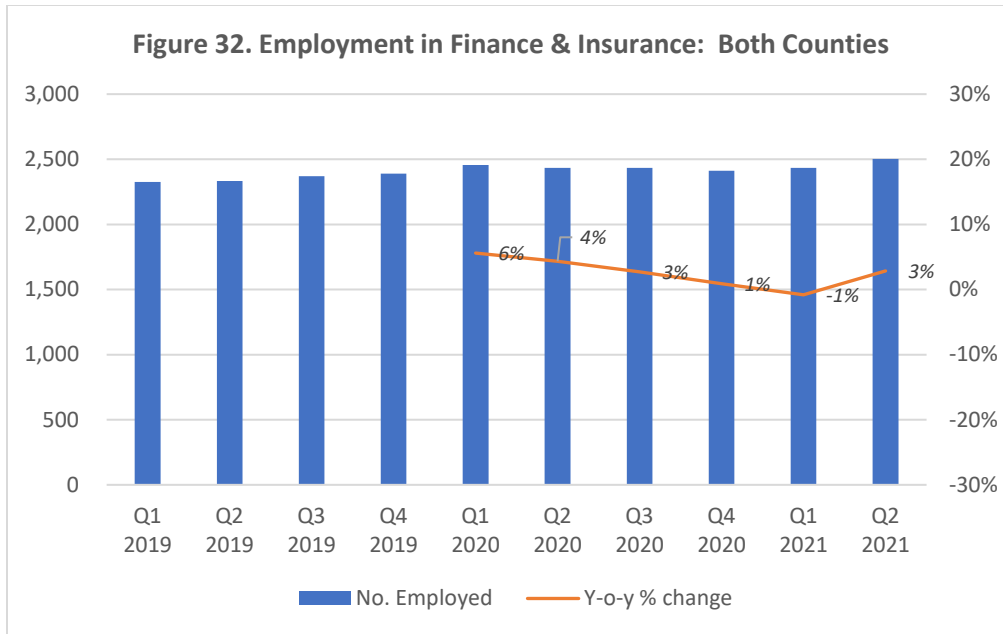
**Figure 32. Employment in Finance & Insurance: Both Counties**

*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

growth in all of the quarters. The sector's pandemic experience with employment was very similar in Benton County, as Figure 33 lays out. This is not surprising, since the bulk of the jobs in
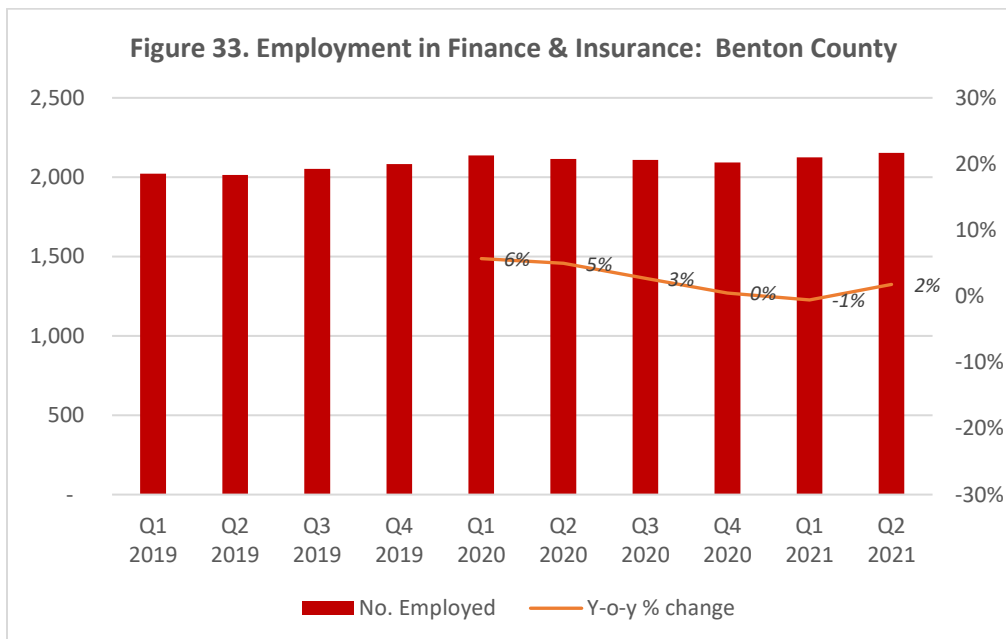


**Figure 33. Employment in Finance & Insurance: Benton County**

*Source: Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

this mid-sized sector is located in Benton County.

Table 1 below summarizes the experience of the five highest and five lowest performing sectors by their experience in Q2 2020 by percentage change. Graphs for the two measures not displayed in the

| Table 1. Tabulation of Recovery by Sector or Industry from 2020 Q2 for Benton & Franklin Counties Combined | Employment Impact of Q2 2020 & whether recovered by 2021 Q2 to 2019 Q2 levels | | | Total wages impact of Q2 2020 & whether recovered by 2021 Q2 to 2019 Q2 levels | | | Retail sales impact of Q2 2020 & whether recovered by 2021 Q2 to 2019 Q2 levels | |
|---|---|---|---|---|---|---|---|---|
| Sector | Impact | Y/N | | Impact | Y/N | | Impact | Y/N |
| Agriculture | -5.9% | Y | | 1% | Y | | * | * |
| Construction | -8.2% | Y | | -17% | Y | | * | * |
| Wholesale trade | -5.8% | N | | * | * | | -10.4% | Y |
| Retail trade | -10.3% | Y | | 0% | Y | | See below | * |
| Transportation & warehousing | -2.8% | Y | | 2% | Y | | * | * |
| Information | -9.9% | N | | -1% | Y | | * | * |
| Finance & insurance | 4.3% | Y | | 20% | Y | | * | * |
| Real estate, rental & leasing | -18.5% | N | | * | * | | * | * |
| Professional & technical services | * | * | | -3% | Y | | * | * |
| Healthcare & social assistance | * | * | | -2% | Y | | See below | * |
| Arts, entertainment & recreation | -70.1% | N | | -68% | Y | | -76.7% | N |
| Accommodations & food services | -29.1% | N | | -29% | Y | | -38.6% | Y |
| Electronics & appliance stores | n/a | n/a | | n/a | n/a | | 16.9% | Y |
| Building materials & garden supplies stores | n/a | n/a | | n/a | n/a | | 21.6% | Y |
| Food & beverage stores | n/a | n/a | | n/a | n/a | | 7.8% | Y |
| Apparel & accessory stores | n/a | n/a | | n/a | n/a | | -63.4% | Y |
| General merchandise stores | n/a | n/a | | n/a | n/a | | 2.3% | Y |
| Management, education & health services | n/a | n/a | | n/a | n/a | | 12.8% | Y |
| Other services | n/a | n/a | | n/a | n/a | | -24.9% | Y |

*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*
*Source:  Washington State Department of Revenue, "Quarterly Business Reviews"*

narrative– total wages paid and retail sales – can be found in Appendix A. As in the narrative, the top five and bottom five performing sectors, or in the case of taxable retail sales, industries, are listed. The entry "n/a" means that no data exist for this level of detail.

An examination of the pattern of sectoral outcomes when **total wages** is added as a criterion typically shows that if a sector regained 2019 Q2 employment levels by Q2 of 2021, total wages did as well. Further, some of the hardest hit sectors by percentage drops in employment in Q2 2020 registered total wages paid a year later that were above 2019 Q2 levels. This holds for the hard-hit sectors of Information, Hospitality and Arts, Entertainment and Recreation.

In other words, individual wages strongly increased to compensate for employment levels that still haven't matched pre-pandemic levels. Note that one of the regional economy's most important sectors, Professional & Technical Services, registered an immediate decline in total wages paid in the first pandemic quarter, but showed growth over the same quarter in 2019 by 2021.

The addition of the third criterion **– taxable retail sales** – to the sectoral comparisons presents a mixed picture. Consider Wholesale Trade. Although employment was not back to pre-pandemic levels by Q2 of 2021, taxable sales were. The same applies to Hospitality. However, revenues from activities in Arts, Entertainment & Recreation still hadn't re-attained 2019 levels, even if total wages had.

It is also clear that with one exception, retail firms performed well in the first stage of the pandemic and continued to do so, with taxable retail sales above pre-pandemic levels in mid-year 2021. The one exception consisted of apparel, accessories and jewelry retailers who suffered steep sales declines in the second quarter of 2020. Note, however, that a year later, these retailers reported sales high than in the same quarter of 2019.

All in all, this sectoral look at the economy leads to the conclusion that by mid-year of 2021 nearly all sectors had recovered when the criterion is monetary, either total wages paid or taxable sales. Employment, however, was still below the appropriate quarterly levels of 2019 for several sectors.

4.    **Differential Impacts of the pandemic-induced downturn on racial & ethnic groups**

All U.S. communities reveal a differential pattern of key socio-economic measures among racial and ethnic groups. Whether educational attainment, poverty or income, the measures display results that vary widely within a state, region or city. The greater Tri Cities is no exception.

Unfortunately, most of these measures are not available at a sub-annual level. As a consequence, they prevent an examination of the differential impacts of the pandemic on racial and ethnic groups, with two exceptions. One is a key measure of economic health, median household income, Median household income embraces first households not individuals. Households may have more than one wage earner, or more generally income recipient, in the family, allowing for some insights into the finances of the typical "unit of life". Median is typically preferred over the mean, or average, in income measurement because the distribution of income does not resemble a bell curve, and in those circumstances, a median provides a better sense of the middle value.

The data below in Figure 34 come from the estimates of the American Community Survey from the U.S. Census. For a metro area of the size of the greater Tri Cities, five years are required to provide estimates where the margins of error are not impossibly large, since the population of some racial groups is quite small. As a consequence, these data reflect five years' worth of surveying. As can readily

**Figure 34. Median Household Income in Benton & Franklin Counties, 2015-2019**

| Group | Median Household Income |
|---|---|
| Asian alone | $88,792 |
| Non-Hispanic White | $81,842 |
| 2 + races | $71,547 |
| Hispanic/Latino | $48,110 |
| Some other race | $46,446 |
| AIAN | $24,534 |
| Black | $23,815 |
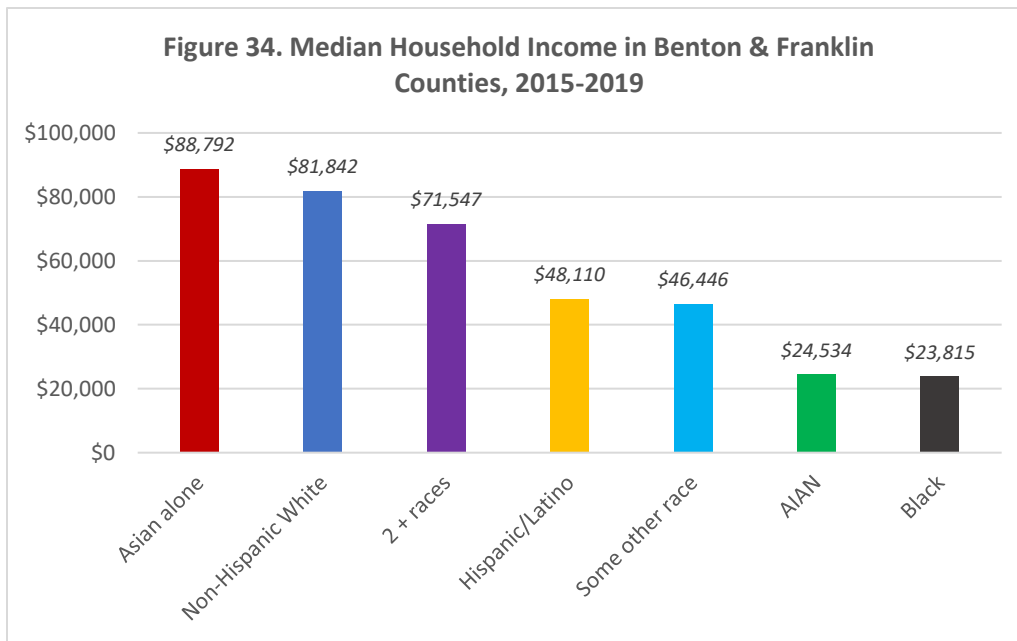
*Source:* *American Community Survey Table B19013a-i*

AIAN is American Indian, Alaska Native. Hawaii & Pacific Islanders were too few to allow an estimates

be seen, the spread of results is breathtakingly large. The difference in estimated annual income, for instance between Asian American and Black households is $55,000! The overall median for 2015-2019 was $67,310. Four of the racial or ethnic groups fall well below the median.  In 2020, these groups made up 43% of the entire population, as seen in Benton Franklin Trends. Even with the wide margins of error that might bring up the true median household income of the AIAN and Black populations, the upper bound of these estimates still remain far below the overall median.

The majority of household income comes from wages and salaries. These in turn, depend on the average wage as well as the number of people employed. Thanks to a U.S. Census product, the Quarterly Workforce Indicators (QWI), based on a novel data compilation project, the Longitudinal Employer-Household Dynamics, we know these. Figure 35 depicts QWI-reported monthly earnings by race and ethnicity in the two counties, with the results indexed to Q1 2019.



Figure 35. Cumulative Change in Average Monthly Earnings in Benton & Franklin Counties, *2019 Q1=100%*
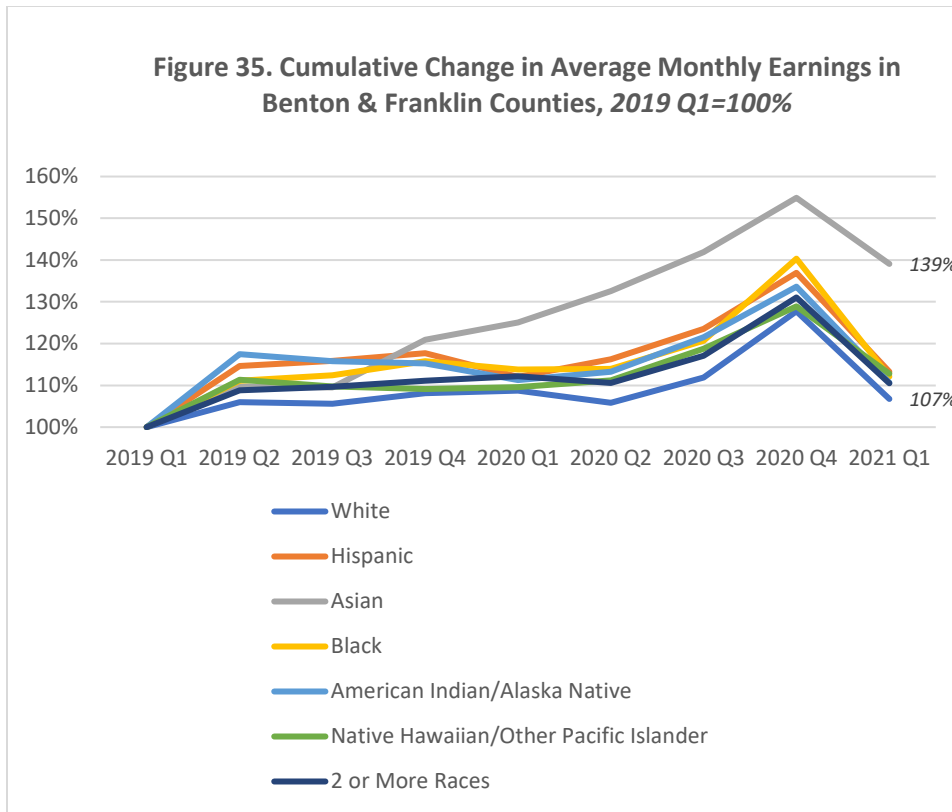
*Source: U.S. Census Bureau, 2022. Quarterly Workforce Indicators QWI.*

As is quickly apparent, one group experienced substantial earnings increases over the 11 quarters:  Asian Americans, at 39%. The dominant group in the work, non-Hispanic whites, actually registered the lowest earnings cumulative growth, at 7%. The remaining racial and ethnic groups showed cumulative earnings increasing in a narrow range of 11-13% over the period. By this measure, then, we can observe some differential response to the pandemic, largely by a small racial group, Asian-Americans

Another measure of the labor market is unemployment. Statistics by race and ethnicity at the metro level aren't available for unemployment. If, however, the national experience holds for the greater Tri Cities, then higher unemployment rates were likely experienced by Blacks and Latinos than for other groups. We have already seen in Section 3 that Agriculture, a sector employing large numbers of Latinos, still had not recovered its headcount by Q2 of 2021.

An approach to understand unemployment by race and ethnicity is to consider the *initial filings* for unemployment insurance. Since the start of the stay-at-home policies in March, 2020, Washington State Department of Employment Security has kept track of filings by race and ethnicity by county. A look at cumulative filings from that date through the end of 2021 shows, to no surprise, that the

majority of the filings, 55%, in the two counties came from non-Hispanic Whites. In second place were Hispanics/Latinos, at 32%. The rest of the racial and ethnic groups claimed only very small shares of the cumulative total of initial claims.

When however, the shares of claims are matched to workforce shares by racial & ethnic groups, we can draw some conclusion. They are displayed in Figure 36. It is immediately clear the relationship of initial claims to workforce shares is reversed between Latinos and non-Latino Whites. Latinos accounted for nearly a third (32%) of all initial claims over this period, yet their average share of the workforce was about 26%. Non-Latino Whites, on the other hand, accounted for slightly more than half (55%) of initial claims, yet had slightly over 60% of the greater Tri Cities workforce, on average. Asian Americans showed another mismatch, but it was much smaller. This group accounted for 5% of the local workforce but only 2.3% of initial claims. The matches of between claims and workforce shares for the three other groups were quite close.

In sum, it certainly appears that Latino workers bore a greater burden of the pandemic than the workforce overall, as their claims were proportionally higher than average and their average wage increases were not large enough to offset the likely greater rate of unemployment.



Figure 36. Shares of Workforce vs. Initial Unemployment Claims by Race & Ethnicity:  Both Counties
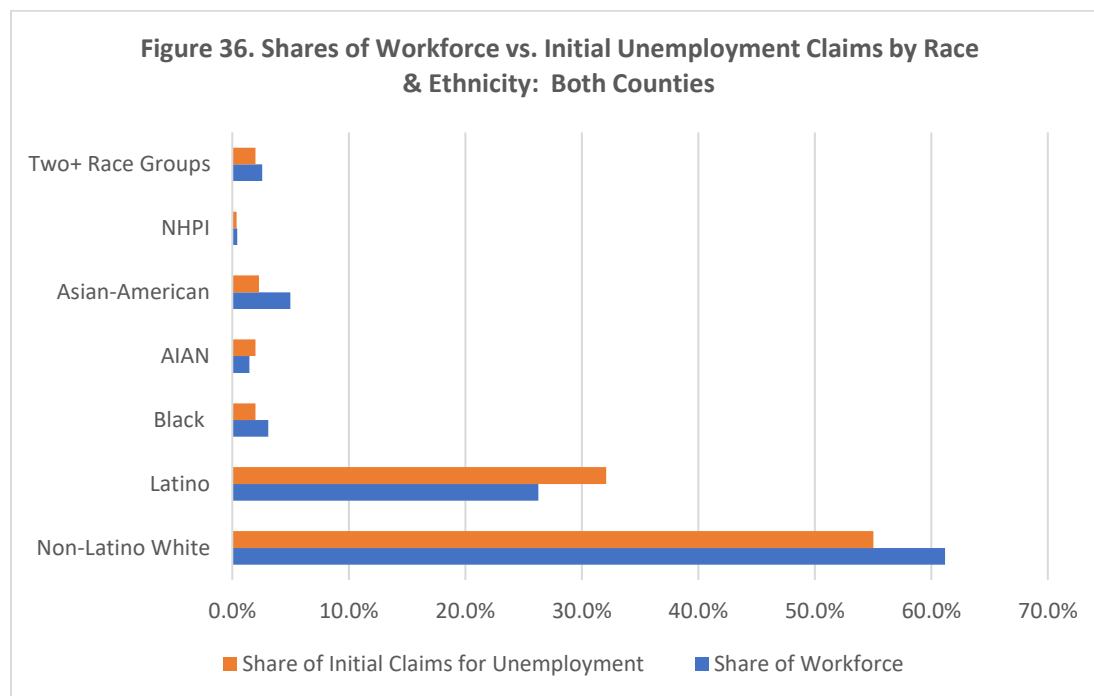
*Sources:  Initial Claims for Unemployment:  WA ESD, Unemployment insurance claims & benefits data, March 10, 2020 -December 31, 2021*
*Share of the workforce by race & ethnicity:  an average of the shares 2020Q1-2021Q2, U.S. Census Bureau, 2022. Quarterly Workforce Indicators QWI.*

5. **Bankruptcies in Eastern Washington before and during the Pandemic**



**Figure 37. Reported Bankruptcies By Month**
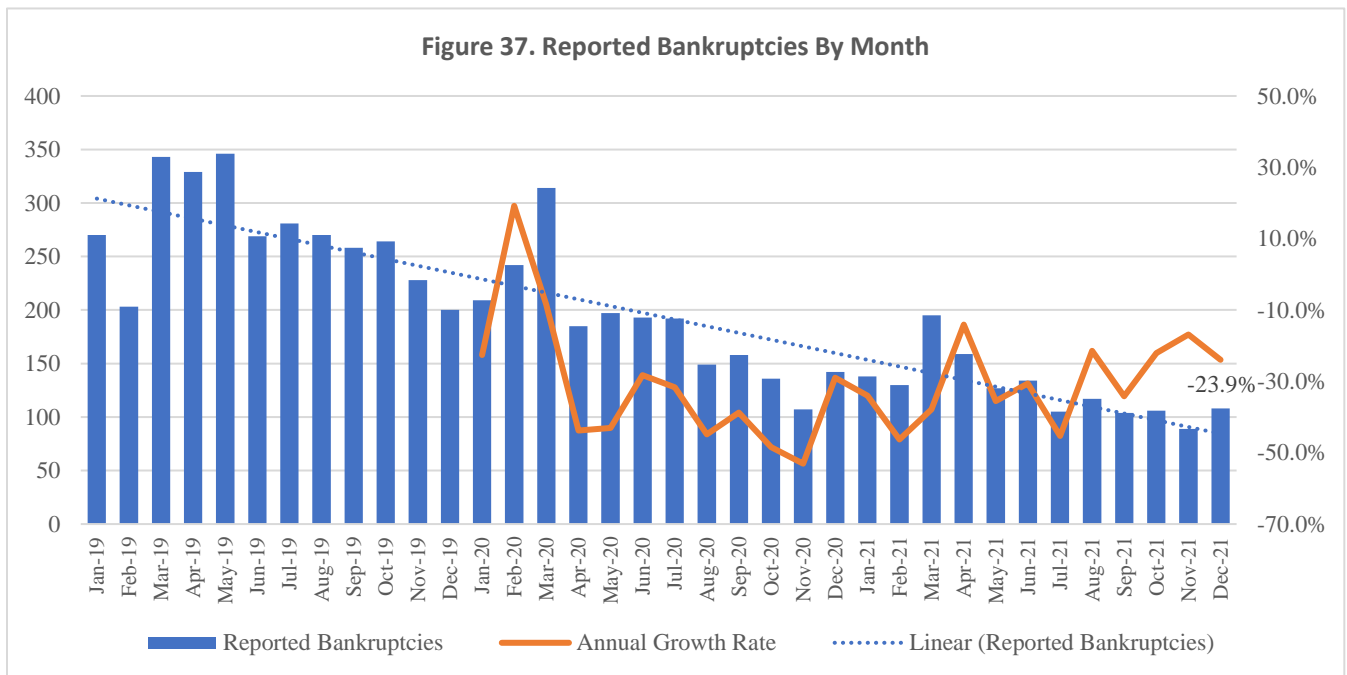
*Source: American Bankruptcy Institute*

      Bankruptcy is a legal process through which people or other entities who cannot repay debts to creditors may seek relief from some or all of their debts. For this analysis, the number of reported bankruptcies in the Eastern District of Washington state every month for the years 2019, 2020 and 2021. Data on just Benton and Franklin Counties are not available. We have no reason to think that bankruptcy rates in the greater Tri Cities will be much different than those through eastern Washington. Do, then, bankruptcy data reflect an increase in reported bankruptcies?

      According to the source, the American Bankruptcy Institute, no. The trend since the start of the pandemic is actually a falling one. Reported bankruptcies in January 2019 were 270 versus 108 in December 2021. The overall negative linear trend over time is represented by the dashed linear line on the graph. There was a spike in reported bankruptcies when COVID-19 hit the country in March 2020 (314 reports). But since then, a substantial decrease.

      Why might have bankruptcies subsided? Federal assistance certainly helped incomes. In March 2020, the CARES Act pumped money into the businesses around the U.S., relief checks sent directly to residents of the country, and extended unemployment benefits were handed out to many. All these factors shored up household finances, and as a result, economic stability.

6. **What sectors hold the most vulnerable jobs in the immediate future?**

It is clear that the most vulnerable jobs over the near-term will be those in customer-facing roles, or more generally service jobs. While the reach of the omicron variant is rapidly retrenching and masks are coming off, those that involve close physical presence with clients will likely not be as attractive as those with less exposure. It will take time for people to regain trust with one other, and we suspect that the time will be highly correlated with age. Visits to health care professionals for non-covid-19 matters will likely resume pre-covid-19 levels. More discretionary visits may not.

The examination of sectors in section 3 gives likely answers to the question of sectoral winners and losers. The trends observed through midyear 2021 are likely to continue. Perhaps the most vulnerable industry will be those firms offering **eating and drinking services**. Purchases of these goods and services is usually viewed as discretionary. Indeed, a recently issued study by the National Restaurant Association points to continuing challenges in the industry; according to the study, a full return to pre-covid-19 environment may not happen. While the report forecasts annual sales higher than 2019, staffing levels will remain below pre-pandemic levels, as the industry continues to face a diminished flow of workers into the field.

The other, and smaller, part of the Hospitality sector, **accommodations**, will also face continuing challenges in 2022. Assuming no further covid-19 escalations, leisure travel will likely return to 2019 levels. Nearly all analyses point to business travel continuing to be weak. Businesses have learned that virtual meetings work and certainly cost-effective. But pent-up demand for vacations may compensate for the downturn in business travel. As a consequence, revenue from rooms may be return to pre-pandemic levels but revenue from meetings, hotel food and beverage service and other services will not. The recent outlook report from the American Hotel and Lodging Association, "The Year of the 'New' Traveler," states that full recovery by this industry might not occur before 2025.

As section 3 demonstrates, the hardest hit sector in the local economy by percentage terms was **Arts, Entertainment & Recreation**. As in leisure travel, this sector is likely to experience a strong bounce from pent-up demand, once case rates drop dramatically. But it is still likely that older patrons, often strong supporters of arts & culture, will not return in the same numbers, as they – for good reason – are fearful of the consequences of contracting covid-19. Recent experience in cinemas provides a good insight into the consequences of hesitancy by this age group.

The final sector in the two counties that will likely be susceptible to a slow comeback is **Agriculture**, at least agricultural employment. As section 3 showed, the employment recovery hadn't occurred by mid-year 2021. This is likely a consequence of high infection rates among the sector's workforce. But as is well-known, the agricultural workforce is rapidly aging (see a recent USDA report), due to a dramatic decrease in immigration and a hesitancy for the immigrants' 2nd generation to follow their parents into the fields, orchards and vineyards. Technology can provide some labor-saving solutions, but it is likely that the lower numbers of employed will also reflect continuing labor supply constraints.

### 7. What will the recovery in the economy of the greater Tri Cities look like?

As noted in section 2, by the end of 2021 the recovery *in the aggregate* was already present in the labor market. Unemployment rates were lower than before the pandemic while employment levels were higher. With the exception of the second quarter of 2020, year-over-year quarterly taxable retail sales for the area economy hasn't skipped a beat.

The *sectoral* story is, of course, different and richer. Since section 9 focuses on vulnerable or lagging sectors and essentially argues that they will continue to lag. Developing a parallel argument for those sectors that have led and might continue to lead is a bit more challenging. It seems to us that growth, at least highest percentage growth, will take place in mid-sized sectors.

The obvious one, in light of recent announcements, is **Transportation & Warehousing**. Up until the present, this sector has been dominated by agriculture. The USDA's Economic Research Services is forecasting a modest increase for net farm income nationally in 2022. Gains are projected for wheat production, corn production and horticulture. Longer-term, agriculture in the greater Tri Cities economy is likely to remain strong. So should the ancillary activities of holding and moving product.

A game-changer for the Transportation and Warehousing sector is the development of two Amazon fulfillment centers in Pasco. As covered in the Tri Cities Business Journal, the company plans on hiring about 1,500 workers. This should expand the sector head count to over 4,200, or by 55%. The openings should bump Transportation & Warehousing into the top 10 sectors by employee count.

A second sector that stands to gain is **Manufacturing**. In the greater Tri Cities, this sector is dominated by food processing. Recent announcements point to this dominance increasing further. As the Tri Cities Business Journal noted, Darigold has plans to build a milk drying plant in Pasco that will employ 200 workers. Further, Resers is planning a second processing plant in Pasco that will likely employ dozens. Beyond these new projects, growth of the sector in the near-term will depend on the ability of Lamb Weston and Tyson Foods, the two companies that dominate local manufacturing employment, to expand markets. The past year was trying for agribusiness due to supply chain challenges. As those are solved, the two companies may acquire a few dozen more jobs over the coming year or two. Currently, they employ over 4,300 combined.

Currently, manufacturing is the 8th largest sector in the local economy, largely supported by food processing. While the announced additions will not likely bump up the sector on the list, its growth is notable for a sector that, nationally, is not adding many jobs.

A third sector that will undoubtedly continue to grow is **Healthcare**. Among the metro area's five largest sectors by headcount, it has grown the fastest, by total numbers, over the past 15 years. This largely reflects a rapidly growing population. But it also likely owes some of its expansion to an aging population in the greater Tri Cities. As Benton Franklin Trends indicator "Population by Age Groups" demonstrates, the share of the population taken by the 65 and over age group is now 14.5%. A decade ago, it was 10.5%. Health care utilization is highly correlated with age.

Absent from this quick survey of sectors that are likely to expand are Waste Management as well as Professional & Technical Services. The former, one of the five largest by headcount, will depend entirely on federal funding. The second, dominated by Pacific Northwest National Laboratory (PNNL), also depends on federal funds. The study team is not in a position to know what additional contracts may be available to the firms active in the Hanford remediation nor PNNL.

The most recent (2017) forecast from the Washington Office of Financial Management estimated the population increase between 2021 and 2030 at about 48,000. This increase represents, in percentage terms, the fastest-growing metro area in the state. It is our strong sense that rate of population increase will bring some expansion to all sectors

Another way to view the recovery is by *occupation*. Washington State Employment Security Department (ESD) regularly issues compilations of open jobs by various criteria – by the top 25 employers, skills demanded, certificates required and occupations. The summaries are taken from dozens of job posting websites by the researchers at the Conference Board. The summaries offer a window in the local labor market and, by extension, into the Benton Franklin economy. Within the span of a year or two, these lists do not change much. As a consequence, we can apply their current insights into those of the immediate future.

| Table 2. Job Openings by Occupation in Benton & Franklin Counties, August, 2021 | | | |
|---|---|---|---|
| **Occupation** | **No.** | **Degree Requirements** | **Average Annual Salary** |
| Registered nurses | 162 | Bachelors | $76,616 |
| Heavy & Tractor-trailer truck drivers | 123 | Certified DL | $46,284 |
| Retail salespersons | 110 | None | $32,167 |
| Laborers & freight, stock & material movers - hand | 90 | None | $30,836 |
| Maintenance & repair workers, general | 89 | None | $43,463 |
| First-line supervisors of retail sales workers | 81 | None | $49,606 |
| Customer service representatives | 79 | None | $36,055 |
| Managers, all other | 78 | Various | $144,240 |
| Sales reps, wholesale & manufacturing, except technical & scientific | 71 | None | $65,420 |
| Combined food preparation & serving workers, including fast food | 49 | None | $24,627 |
| Janitors & cleaners, except maids & housekeeping cleaners | 48 | None | $34,198 |
| Medical & health service managers | 48 | BS/MS | $106,248 |
| Nursing assistants | 47 | Certificate | $28,935 |
| Stock clerks & order filers | 46 | None | $32,092 |
| Secretaries & administrative assistants, except legal, medical & executive | 42 | None | $42,341 |
| First-line supervisors of food preparation & serving workers | 39 | None | $33,976 |
| Computer occupations, all other | 39 | Bachelors | $91,327 |
| Merchandise displayers & window trimmers | 36 | None | $32,069 |
| Licensed practical & licensed vocation nurses | 34 | Community C | $52,244 |
| Software developers, applications | 33 | Bachelors | $96,821 |
| Cooks, restaurants | 31 | None | $28,143 |
| Medical & clinical laboratory technicians | 30 | Community C | n/a |
| Food service managers | 39 | None | n/a |
| Cashiers | 27 | None | $25,724 |
| Nurse practitioners | 27 | Masters | $111,293 |

*Source:  Washington State Employment Security Department, Employer Demand*

Table 2 summarizes the openings by specific occupation as of August, 2021. Besides the number of open positions, degree requirements and the average annual salary are provided. A scan of the table quickly reveals the majority of the openings do not require any post-secondary training. For this snapshot, the percentage is 59%. Degree or training requirements for the remainder ranged from the need for a certified drivers licenses (truck drivers) to some community college to a Master's degree (nurse practitioner).  Furthermore, about 30% of the open positions were for occupations where the average annual salary was over the 2020 average in the two counties, about $58,000. Once Amazon and the food processing companies come start production, this top 25 list will likely include logistics, warehouse and manufacturing occupations.

ESD also issues [projections](#) annually, both short term and longer term. Figure 38 on the following page depicts the projections as of July, 2021 for occupations, using the more conservative of the two approaches. (These do not account for "churn" within an occupation; rather, they count only those anticipated openings due to industry growth, retirements or exits from one occupation to another.) We have used the longer-term projection, 2024-2029. Another is available, 2019-2024, but a good part of this interval has not passed.

This projection corroborates to a large degree the openings listed in Table 2. It does tilt, however, away from occupations that require some post-secondary certificates or degrees. In fact, only about 6% of the projected top 25 occupations demand a Bachelor's degree. And unlike the "Jobs in Demand" listing, it covers agricultural jobs. It is clear that the most important occupation to fill in the over the rest of the decade will be in agriculture. The next five are in customer-facing activities

**Figure 38. Average annual projected openings, 2024-2029 in Benton & Franklin Counties**

| Occupation | Projected openings |
|---|---|
| Farmworkers and Laborers | 1,534 |
| Fast Food and Counter Workers | 913 |
| Home Health and Personal Care Aides | 646 |
| Retail Salespersons | |
| Office Clerks, General | |
| Cashiers | |
| Laborers and Freight, Stock, and Material Movers, Hand | |
| Waiters and Waitresses | |
| Construction Laborers | |
| Teaching Assistants, All Other | |
| Customer Service Representatives | |
| Secretaries and Administrative Assistants, Except Legal,... | |
| Janitors and Cleaners, Except Maids and Housekeeping... | |
| Landscaping and Groundskeeping Workers | |
| Carpenters | |
| Heavy and Tractor-Trailer Truck Drivers | |
| Elementary School Teachers, Except Special Education | |
| Electricians | |
| Registered Nurses | |
| Nursing Assistants | |
| Stockers and Order Fillers | |
| Receptionists and Information Clerks | |
| Business Operations Specialists, All Other | 147 |
| General and Operations Managers | 146 |
| Maintenance and Repair Workers, General | 142 |

*Source:  Washington State Employment Security Department, Projections*

It remains, of course, to be seen how accurate these projections will be. Labor economists and think tanks are wrestling with the future look of work. (See this recent  report from the Brookings Institute, or this international analysis by McKinsey.) It is beyond the scope our report to attempt to evaluate projections of future work in the Tri Cities. Changes wrought by the pandemic to the labor force, both here and nationally, are still very much in flux. In the end, it is important to recognize that in the near future, at least, the make-up of the workforce will not change dramatically, if only because economies change slowly.

## 8.  What strategies will help the local economy recovery most quickly?

By most measures, the local economy has recovered, as has been noted. The most obvious solution to a fuller economic recovery is to restore the ability of Tri Citians to engage with one other. At a fundamental level, economic activities are based on trust among the various parties. Achieving a high level of trust depends on the assumption that one will not catch covid-19 by interacting in person with others. As the case rate goes, so goes the economy, obviously in opposite ways. Consequently, it is the study team's opinion that lower case rates and lower death rates will encourage pro-social, economic behavior.

Compared to the state and to most metro areas in Eastern Washington, the Tri Cities have not been leaders in these metrics. Figure 39, which summarizes the data from the outset of the pandemic to mid-February, shows the number of cases at 271 per 1,000 residents; in other words, about 27% of

**Figure 39. Diagnosed Cases of Covid-19/1,000 Residents**
*March, 2020 - February 12, 2021*
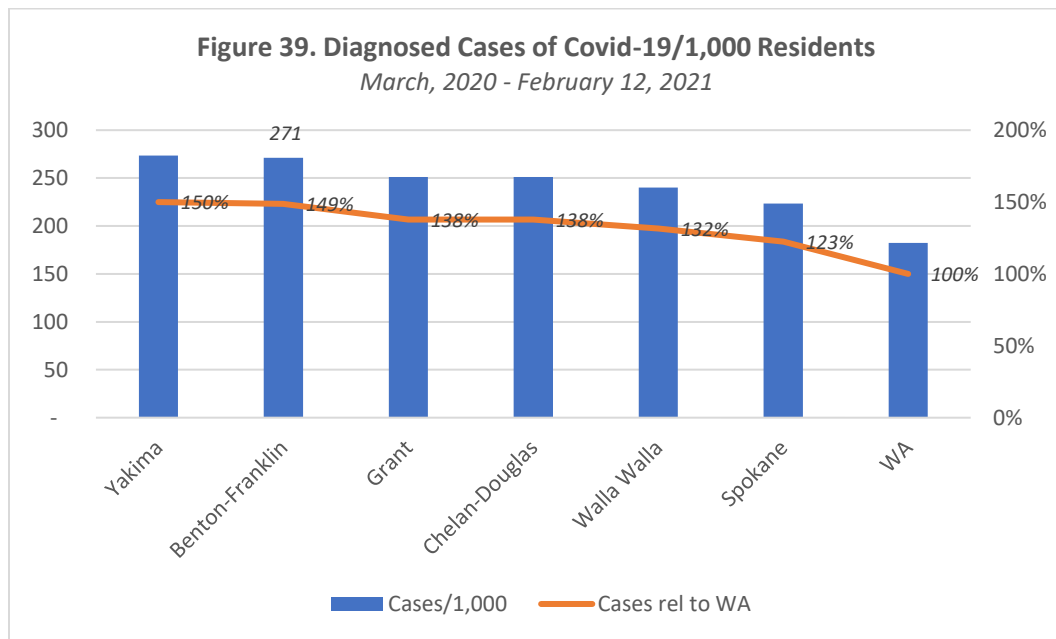


*Source:  Washington State Department of Health, Covid-19 Data Dashboard*

local residents have contracted covid-19. (The total is nearly 83,000 by mid-February.) This rate places the two counties, along with Yakima, as the most affected metro area in Eastern Washington. In addition, the rate is about 50% higher than the state average. This is seen from the line in Figure 39 which lists the percentage by which the various counties stand relative to the state (= 100%).

Contracting covid is an event from which most recover, even if the "long covid" cases are becoming more prominent. To die from covid is a different matter. The greater Tri Cities has not fared well by this metric either. Figure 40 tracks the death rate from covid-19 over the same time period. In this case, the two counties place 3rd highest among eastern Washington metro areas, behind Yakima and Spokane, with a rate of 2.3 per 1,000 residents. (Total deaths have been nearly 640.) This experience

**Figure 40. Reported Deaths due to Covid-19/1,000 Residents**
*March, 2020 - February 12, 2021*
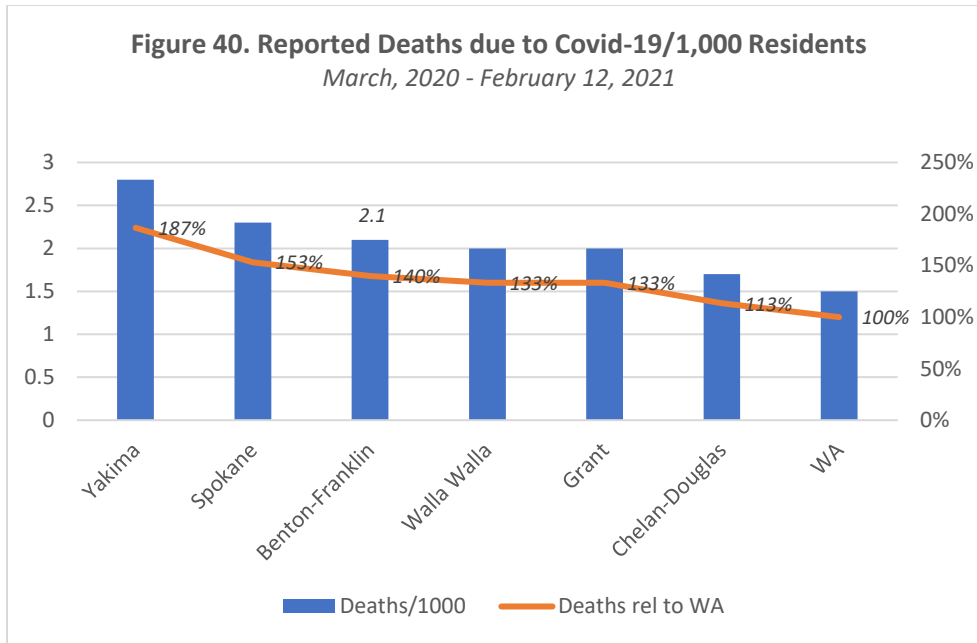


*Source:  Washington State Department of Health, [Covid-19 Data Dashboard](#)*

places the greater Tri Cities 40% higher than the overall death rate in the state. As in Figure 39, the line portrays the percentage difference to the state (WA = 100%)

The obvious way to avoid cases and deaths is to receive a vaccination. It should not be surprising then, that the rate of residents who are fully vaccinated in Benton and Franklin Counties is relatively low. As of mid-February, it was 55% in Benton County and 50% in Franklin County. When combined, this yields a fully vaccinated rate that is the *lowest* of all metro areas in eastern Washington, along with Grant County. No metro area in eastern Washington approaches the state fully vaccinated rate of 66%. Higher vaccination rates and lower death rates will lead to greater trust to engage with each, which leads to more economic transactions.

In general, the specter of serious illness has weighed on both the availability of workers and the demand for certain services. Nowhere is this more apparent in those customer-facing industries that have suffered the greatest losses, in Hospitality, Arts, Entertainment and Recreation.

Beyond public health initiatives, there are three further suggestions for more robust economic recovery. These address impediment to the expansion of labor supply. Two are directly workforce related; the third touches on housing. Of the two workforce challenges, one is short-term, the other longer-term.

As a nation, we face the curious dilemma of simultaneously experiencing millions of jobs openings with millions of people not working. Some are in the workforce and unemployed; others have left the workforce. How does this look for the greater Tri Cities?  Section 7 and Table 2 summarized those occupations with the greatest current unfilled demand. Undoubtedly, some of the numbers reflect "friction" in the labor market, that is, openings that take place as jobs are posted and people find them. Yet, consistent with the longer-term outlook expressed in Figure 38, many of these occupations show consistently high demand.

Will the U.S., and by extension the local economy, enjoy an adequate number of job seekers? For some occupations, the answer is at best, a maybe. Economists point to, in particular, the hospitality

industry. Another one specific to the mid-Columbia region is agriculture. Yet another area lies in low-paid personal services.

Over time, automation may help alleviate anticipated lower levels of workers willing to go into these industries. In the short run, however, a market-driven response is to raise wages. In fact, that appears to be happening. For example, in Q2 of 2021 the average weekly wage in Benton County's Hospitality sector was $477; in pre-pandemic 2019, the average was $402. That's a 19% increase over an approximate two-year period, more than double that 8% increase for all of Benton County's workers over the same period. The weekly wage increase in "Other Services" between mid-2019 and mid-2021 was even more pronounced, at 26%.

Whether these wages increases are adequate to draw out, or bring back, a desired number of workers remains an open question. Those on the sidelines are usually seen as older workers whose response to the pandemic was to retire, or parents, usually women, of young children. Certainly, the greater Tri Cities has experienced a sharp fall in the labor force participation rate. Benton Franklin Trends indicator shows the rate falling to nearly 61% in 2020 from 66% in 2019. The study team will not be able to calculate the 2021 rate for a few months.

The monthly survey data, however, cited in section 2 reveal a large rebound in the workforce (employed or looking for work) in the greater Tri Cities. But since the two counties continue to gain population at rates among the highest in the state, it is unclear whether this rise in the local labor force will be adequate.

Even if the aggregate numbers were adequate, a nagging question remains of matching skills with openings. There might not be much of a learning curve for many of those job postings listed in Table 2. For others, however, some certification is required. Consequently, a short-term solution, beyond raising wages, lies in facilitating training for certain occupations. This holds for truck drivers, nursing assistants and sales representatives. The Workforce Development Council of Benton and Franklin Counties is likely aware of these needs and working toward some solutions with Columbia Basin College likely involved as well.

A longer-term strategy is to promote the expansion of training of those high-demand occupations that require at least an associate's degree. Nursing and computer science fields are at the top of this list. Of course, this list is not unique to the greater Tri Cities; the entire state is facing a demand-supply imbalance for these professions. The expansion of educational pathways is not a typical economic development activity but increasingly it should be.

A final area strategy area that the greater Tri Cities community must consider is housing, especially lower- to middle income market housing. If the area is to be successful in attracting and retaining a top-notch workforce, an arrest of the decreasing affordability of housing must occur. As Benton Franklin Trends affordability indicator shows, housing in the two counties has, on average, been more affordable than throughout the state. That advantage, however, is eroding. The most recent index reading, for Q3 of 2021, was 121. Four years prior, it was 141.

The affordability decline of housing is captured on another Trends indicator: median resale price for existing homes. As of the third quarter of last year, it was nearly $400,000 ($393,000). Four years prior, it was about $245,000. That is a percentage rise of 60%. Household incomes have hardly risen at a comparable rate.

Providing a less inflationary housing market lies largely on the supply side. Influencing some inputs to supply, such as raw materials, are clearly beyond scope of local intervention. Others, however, may not be. That includes zoning changes that permit greater density of housing units, including multi-family.

## 9. How significant is the "work from home" trend and how will it affect the local economy?
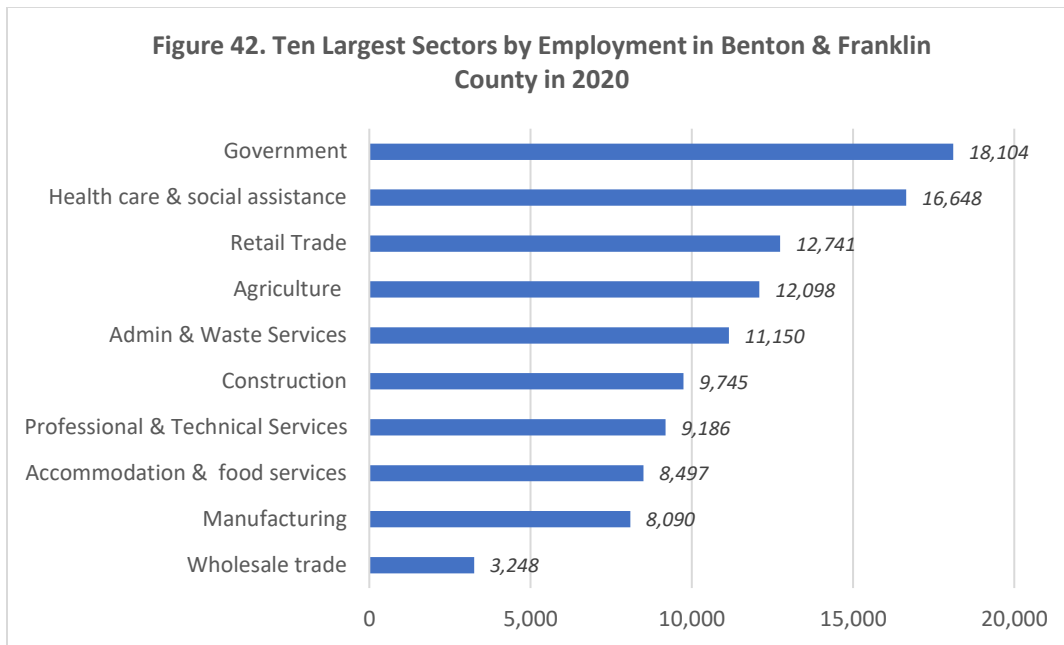
Unlike larger urban areas, Benton and Franklin Counties have not embraced, perhaps until now, working from home. The American Community Survey (ACS) tracks various types of alternative means of "getting to work,"; working from home is one. Others are public transit, carpooling, biking or walking. In the greater Tri Cities, the most popular alternative commute mode has still been car-driven:  carpooling. The second largest has been working from home. As a Benton Franklins Trend indicator lays out, this has been true of both Washington state overall and the U.S.

A version of the Trends indicator is reproduced below, showing only the working from home share of "commuters." The most recent data are from 2019, as the ACS did not publish 2020 results due to a much lower response rate than normal. As is easily seen, the share of commuters in the greater Tri Cities working from home has been less than the shares for Washington and U.S. commuters.



**Figure 41. Share of Benton & Franklin Commuters Working from Home, 2005-2019**
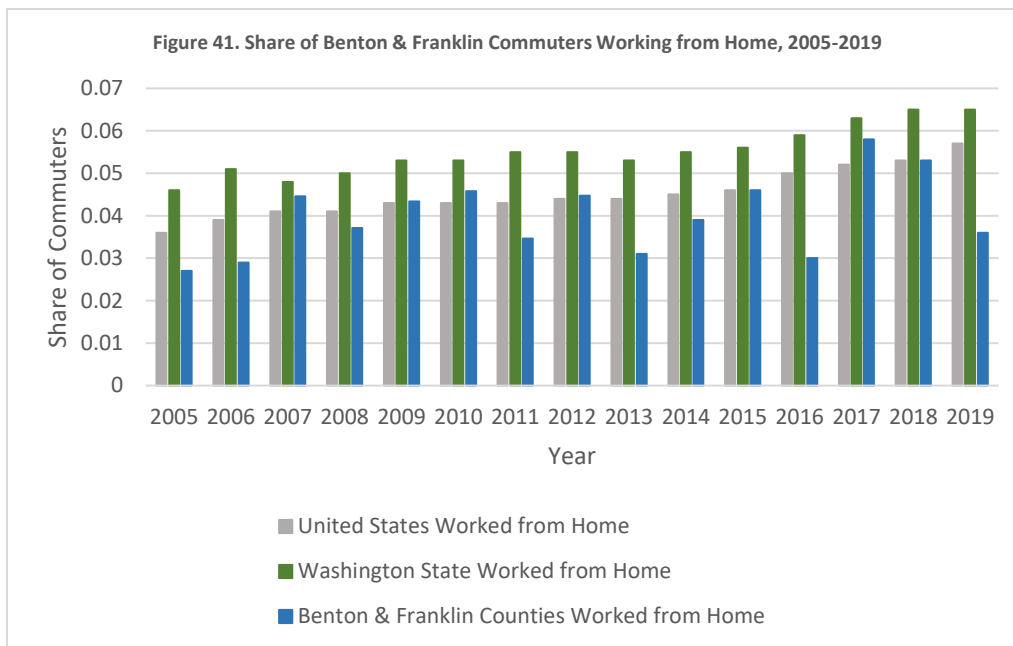
*Source:  Benton Franklin Trends*

This result undoubtedly follows from the nature of the economy in the greater Tri Cities. With the exception of the sector Professional & Technical Services, the top 10 sectors are composed of firms where a physical presence is usually necessary to conduct one's work. A depiction of these sectors in 2020 by headcount is given below, based on data presented in a Benton Franklin Trends indicator. The sectors made up 90% of the workforce in the two counties in 2020. Of the ten, in Figure 42, several

**Figure 42. Ten Largest Sectors by Employment in Benton & Franklin County in 2020**

| Sector | Employment |
|---|---|
| Government | 18,104 |
| Health care & social assistance | 16,648 |
| Retail Trade | 12,741 |
| Agriculture | 12,098 |
| Admin & Waste Services | 11,150 |
| Construction | 9,745 |
| Professional & Technical Services | 9,186 |
| Accommodation & food services | 8,497 |
| Manufacturing | 8,090 |
| Wholesale trade | 3,248 |

*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

are composed of jobs that unambiguously require a physical presence. These are Healthcare & Social Assistance, Retail Trade, Agriculture, Administrative & Waste services, Construction, Accommodations & Food services, Manufacturing and Wholesale Trade. In total, these sectors constituted about two thirds of the workforce in 2020.

Of the remaining two, perhaps Professional & Technical Services exhibits the highest potential from working from home. Broadly speaking, these are jobs that have traditionally been conducted in an office setting, such as accounting, architectural, engineering, consulting and law firms. One of the early takeaways from the pandemic is that the tasks in this sector are often mobile enough to permit work-from-home arrangements. The greater Tri Cities, however, holds one organization that makes up the bulk of this sector, Pacific Northwest National Laboratory (PNNL). Consequently, the degree to which Professional & Technical Services contributes to a new work-from-home paradigm will largely depend on PNNL's policies.

The other large sector where work-from-home might take hold is Government. As the largest employing sector in the regional economy, Government encompasses federal, state, and local agencies. Local government makes up the lion's share, at 78% in pre-pandemic Q1 of 2020. Yet, school districts constitute the largest component of local government, and while instruction has gone online involuntarily, it is doubtful that distance K-12 education will continue in force that once the pandemic restrictions have been fully lifted. Perhaps municipal, state and federal government policies will allow work-from-home arrangements, at least in a hybrid form. Yet, it is difficult to imagine that the majority of state and local governmental staff are in positions that allow them to discharge their duties remotely.

Consequently, it is our view that when the ACS estimates are next reported (September, 2022), work-for-home as a share of "commuters" will certainly surge from the 3.6% estimated in 2019. But we do not expect to see the portion in the greater Tri Cities much beyond 10%.

**10. What has been the impact of COVID-19 on local government revenues?**

The impact of COVID-19 on local government revenues can be measured using a few different means. Firstly, we can compare the 2019 actual revenues to the 2020 actual revenues, analyzing if there was a consistent revenue decrease across the local governments in response to the pandemic. A few of the local governments we tracked did not have actual revenues reported for 2020 from a published annual financial report, therefore we decided to consistently track the actual revenues from the Financial Intelligence Tool from the Office of the Washington State Auditor.

General revenue is the best way to measure a local government's fiscal health, since it is the general revenue that is the funding that is available for the government's expenditures. With this said, we accessed the FIT website to compile the 2019 and 2020 actual revenues for Benton and Franklin Counties, and the cities of Kennewick, Pasco and Richland. Our general finding was an increase in revenues from 2019 to 2020 for Benton County, Franklin County, and the city of Kennewick. The cities of Richland and Pasco, however, registered a decrease in actual revenues.

Local government revenues are made up from two *primary* sources: property tax and sales tax. There are other taxes involved in local government revenues, but since property and sales taxes are the main sources of the revenues, we want to analyze the tax trends in each county and city to understand the reason why there was either an increase or decrease in revenues.

| Table 3. 2019-2020 Actual Revenues | | |
|:---:|:---:|:---:|
| **Financial Intelligence Tool** | | |
| **Benton County** | | |
| Year | **Revenues** | AGR |
| 2019 | 117,320,039 | |
| 2020 | 136,376,530 | 16.24% |
| **Financial Intelligence Tool** | | |
| **Franklin County** | | |
| Year | **Revenues** | AGR |
| 2019 | 47,861,511 | |
| 2020 | 53,804,572 | 12.42% |
| **Financial Intelligence Tool** | | |
| **City of Kennewick** | | |
| Year | **Revenues** | AGR |
| 2019 | 76,642,491 | |
| 2020 | 80,411,506 | 4.92% |
| **Financial Intelligence Tool** | | |
| **City of Richland** | | |
| Year | **Revenues** | AGR |
| 2019 | 104,435,849 | |
| 2020 | 91,833,153 | -12.07% |
| **Financial Intelligence Tool** | | |

| City of Pasco | | |
|------|------|------|
| Year | **Revenues** | AGR |
| 2019 | 87,210,477 | |
| 2020 | 86,966,015 | -0.28% |

*Sources: Financial Intelligence Tool*

As far as property tax goes, our Benton Franklin Trends reveals that both Benton County and Franklin County had property tax rolls that increased in 2020, both from one-year previous in 2019 and two-years previous in 2018. The Trends site also tracks taxable retail sales for both counties and the three cities of Kennewick, Pasco, and Richland. Again, our annual taxable retail sales data shows that there was also an increase in taxable retail sales for both counties and every city, except for Richland, which had an annual growth rate of -2.8% from 2019 (We also track quarterly taxable retail sales, which breaks down the data even more thoroughly). This provides reconciliation for the increase in revenues in Benton County, Franklin County, and Kennewick, because both property and sales taxes increased during the pandemic.

This still leaves us with the question of why two cities experienced a decrease in revenues in 2020. The City Manager from Richland explained that the revenue decrease between 2019 and 2020 was not solely pandemic related, but to a major transaction that took place in 2019. This would explain why Richland had such a greater decrease in revenues than other local governments (along with the negative sales taxes for Richland). Pasco also reported a revenue decrease, but its decrease was less severe (-0.28% annual growth rate). We can also try and line up the FIT website's data to the City of Pasco's 2020 Annual Financial Report (page 31), which shows that there actually *was* an increase in general government revenues from 2019 to 2020 (It is normal to have different numbers reported, because there are differences in how the FIT website and CAFR's report their revenues). Therefore, considering that the decrease on the FIT website was so minor, and the 2020 Pasco CAFR actually showed an increase in revenues, we can assume that the pandemic affected Pasco's revenues very little, if at all.

The second way we can analyze how COVID-19 has impacted local government revenues is by comparing the 2019-2020 budgeted revenues with the 2021-2022 budgeted revenues. This comparison allows us to see, in response to the pandemic, if there were consistent budget cuts across the local governments. If there are similar decreases in budgeted revenue, we know that most local governments suffered a decrease in actual revenues during the pandemic; thus, they needed to decrease the budgeted revenues moving forward.

The data, however, shows differently than many would expect. We can see that, with exception to the city of Kennewick, all the 2021 and 2022 budgeted revenues increased from their previous 2019 and 2020 budgets. Not only did the budgets increase, but they increased by a fairly large amount. Apparently, even with the pandemic, these local governments (collectively) continued to increase in revenues, so their budgets reflected this continued growth.

| Table 4. 2019-2020 Budgeted Revenues | |
| --- | --- |
| **Annual Financial Report** | |
| **Benton County (Biennial)** | |
| **Year** | **Revenues** |
| 2019 | 64,813,838 |
| 2020 | 64,813,838 |
| **Annual Financial Report** | |
| **Franklin County** | |
| **Year** | **Revenues** |
| 2019 | 31,063,000 |
| 2020 | 33,130,000 |
| **Annual Financial Report** | |
| **City of Kennewick (Biennial)** | |
| **Year** | **Revenues** |
| 2019 | 57,302,500 |
| 2020 | 57,302,500 |
| **Annual Financial Report** | |
| **City of Richland** | |
| **Year** | **Revenues** |
| 2019 | 56,247,605 |
| 2020 | 57,048,746 |
| **Annual Financial Report** | |
| **City of Pasco (Biennial)** | |
| **Year** | **Revenues** |
| 2019 | 51,017,368 |
| 2020 | 51,017,368 |

| Table 5. 2021-2022 Budgeted Revenues | | |
| --- | --- | --- |
| **Annual Financial Report** | | |
| **Benton County (Biennial)** | | |
| **Year** | **Planned Revenue** | **Change (from 2020)** |
| 2021 | 71,143,966 | |
| 2022 | 71,143,966 | 9.77% |
| **Annual Financial Report** | | |
| **Franklin County** | | |
| **Year** | **Planned Revenue** | **Change (from 2020)** |
| 2021 | 40,830,000 | 23.24% |
| 2022 | 40,355,320 | 21.81% |
| **Annual Financial Report** | | |
| **City of Kennewick (Biennial)** | | |
| **Year** | **Planned Revenue** | **Change (from 2020)** |
| 2021 | 56,352,500 | |
| 2022 | 56,352,500 | -1.66% |
| **Annual Financial Report** | | |
| **City of Richland** | | |
| **Year** | **Planned Revenue** | **Change (from 2020)** |
| 2021 | 58,416,093 | 2.40% |
| 2022 | 66,976,518 | 17.40% |
| **Annual Financial Report** | | |
| **City of Pasco (Biennial)** | | |
| **Year** | **Planned Revenue** | **Change (from 2020)** |
| 2021 | 55,694,013 | |
| 2022 | 55,694,013 | 9.17% |

The majority of the actual revenues tracked had an increase from 2019 to 2020, with the exception of Richland and Pasco. Richland was the city with the hardest hit particularly because they were the only city with a decrease in sales taxes, and they had a major transaction in 2019 which gave them extra revenues. Pasco's property taxes and sales taxes increased during the pandemic, so their revenues decreased very little, if they decreased at all.

Revenues increased for both Benton and Franklin Counties, proving that the Tri-Cities community as a whole continued spending money even through the pandemic. All local government revenue budgets, apart from Kennewick, planned increases for the upcoming years, and Kennewick's finance director stated that his city's budget decrease was much less drastic than they had earlier anticipated. The pandemic affected many different aspects of life, but in terms of local government revenues, it is clear that revenues continued to grow and did not affect as severely as expected.

## 11. Estimating housing demand in the greater Tri Cities

An adequate supply of housing is essential to fostering economic development in a community. Households across all income levels want to utilize housing in close proximity to their jobs, schools, shopping and other economic and social activities. Therefore, it is important for policy makers to regularly assess whether the community is meeting the housing needs of its residents in the present as well as being prepared for future growth.  In this portion of the study, we will use existing data to provide forecasts for housing demand for both single family and multi-family units.

When economists estimate demand functions, they typically the quantity demanded of a certain good or service, in this case housing, is a function of price, income, number of consumers, and prices of related goods (substitutes or complements). Initially, in this study, housing demand was estimated using the following variables:  price, affordability (as measured by the Housing Affordability Index – HHI), household size, population, housing costs, rent, interest rates and taxes.  Using annual data from the US Census Bureau's American Community Survey (ACS) over a ten-year period from 2010 to 2019, regression analysis is conducted to use the variation in the independent variables to explain the variation in the dependent variables. After model specification, predicted values of the dependent value (housing units) were forecasted for the next ten years from 2020 through 2030 under alternate specifications of the independent variables. This is a time series study using the median values of some variables. Separate regressions will be conducted for houses with a mortgage and rental units.

*Population is a driving factor in housing demand.*

Ultimately, after many reiterations and specifications of the econometric model, it was not surprisingly determined that population is the major factor influencing changes in demand for housing. This is wholly consistent with other previous econometric findings around the US as well as internationally.

The relationship between population and housing is two-sided. On the one hand, population change leads to a changing demand for housing. Population growth, and particularly the growth in the number of households, leads to a growth in housing demand. Population decline might, in the long run, lead to a decrease in housing demand. But at the same time, the supply of housing influences the opportunities for population increase through immigration and the opportunities for people to form new households. Adequate housing supply might attract immigrants or influence their choice of residential location. Housing supply may also play a decisive part in leaving the parental home and the formation of married and unmarried unions. It is even possible that the supply of housing plays a part in the timing of fertility or the number of children people have. The link from population to housing seems obvious. People live in households and households need housing. In the long run, the supply of housing will follow the demand and the number of dwellings in an area will approximately reflect the number of households, at least if a population is not too poor to afford the cheapest housing. But the market for housing differs from the market for other commodities (Bourne 1981). The production of housing is slow and subject to many laws and regulations. Once built, housing has a life of several decades. And housing is so expensive that hardly any household can just draw out the cheque book and buy a home immediately. So, there are not just producers and consumers on the market for housing; there is also a prominent role for landlords, developers, and financial institutions.

## 12. Population Trends in the Tri-Cities

### 12.a What has been happening with population growth recently?

Because population is the driving factor, it is important to understand recent trends in population in the region. The data presented in Benton Franklin Trends (BFT), using data from US Census American Community Survey (ACS) provides a rich set of over three decades of population estimates. In Figure 43, historically, the annual growth rate for the combined counties was more volatile than the state and national averages but appears to have stabilized over the past ten years.

In 2021, the annual growth rate for the combined counties was 1.4%, exceeding both the state (0.78%) and national (0.72%) averages. Some of the drop off in population from 2020 to 2021 could be attributed to the pandemic.

**Figure 43. Total Population & Annual Growth Rate, Tri-Cities**
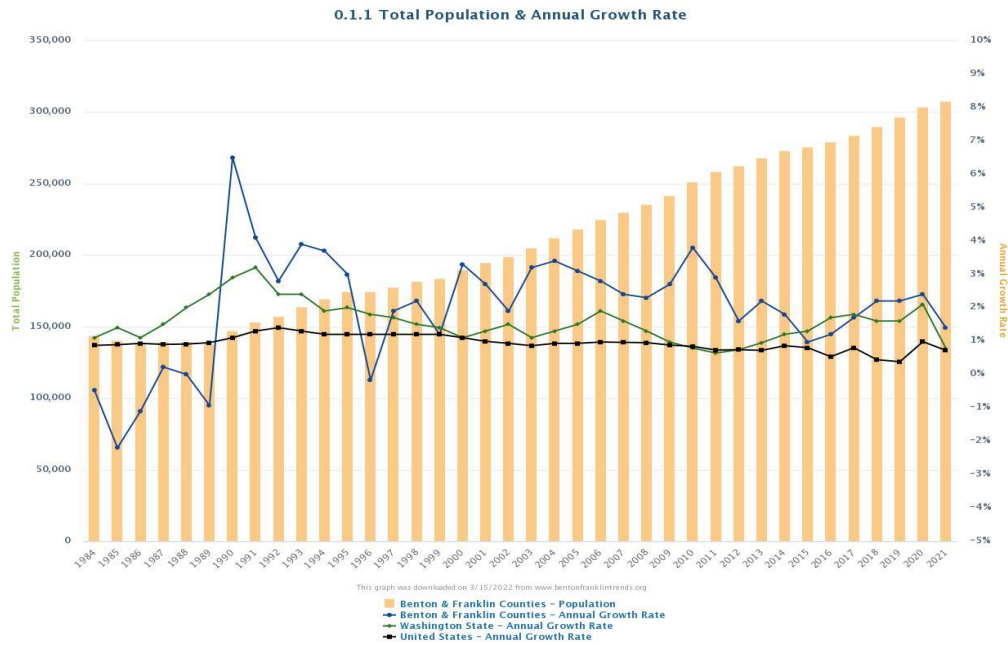


*Source:* *Benton Franklin Trends*

Looking at the population and annual growth for just the City of Kennewick using our Benton Franklin Trends indicator 0.1.1, in 2021, the City of Kennewick had a population growth rate of 0.83% -- on par with the state and national average but below that of the larger area covered by the combined counties.

**Figure 44. Total Population & Annual Growth Rate, Kennewick, WA**
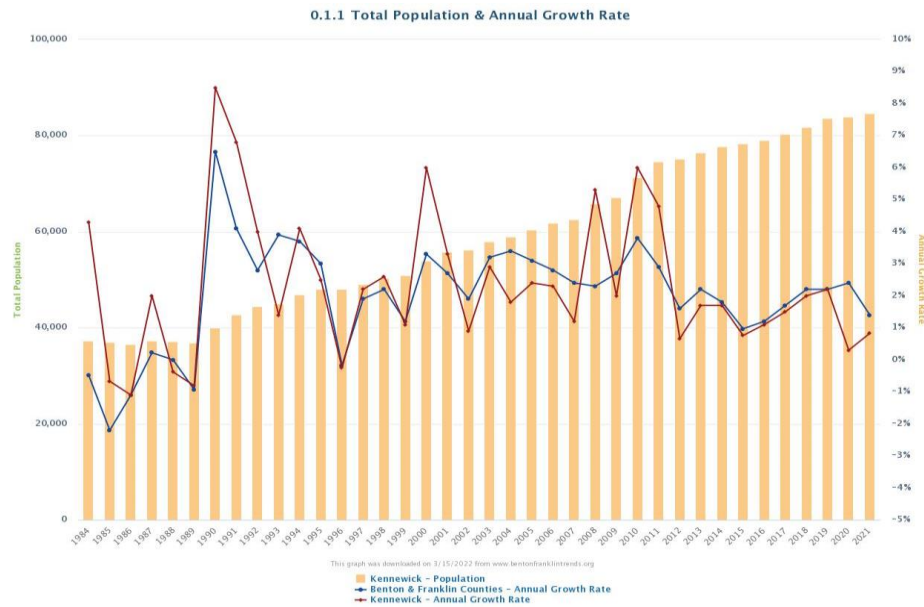


*Source:* *Benton Franklin Trends*

### 12.b What kind of population should be expected in the near future?

Forecasts of population provided are provided by the Washington State Office of Financial Management (OFM). From 2022 to 2030, it is predicted that *Benton County* will grow by 20,467 more people. The rate of expected population growth is relatively flat, showing only a slight tapering off from 1.3% to 1.1% over the time period. This matches the state average.  In contrast, *Franklin County* is predicted to grow at a faster clip initially but slows down also from 2.7% in 2022 to 2.3% in 2030.
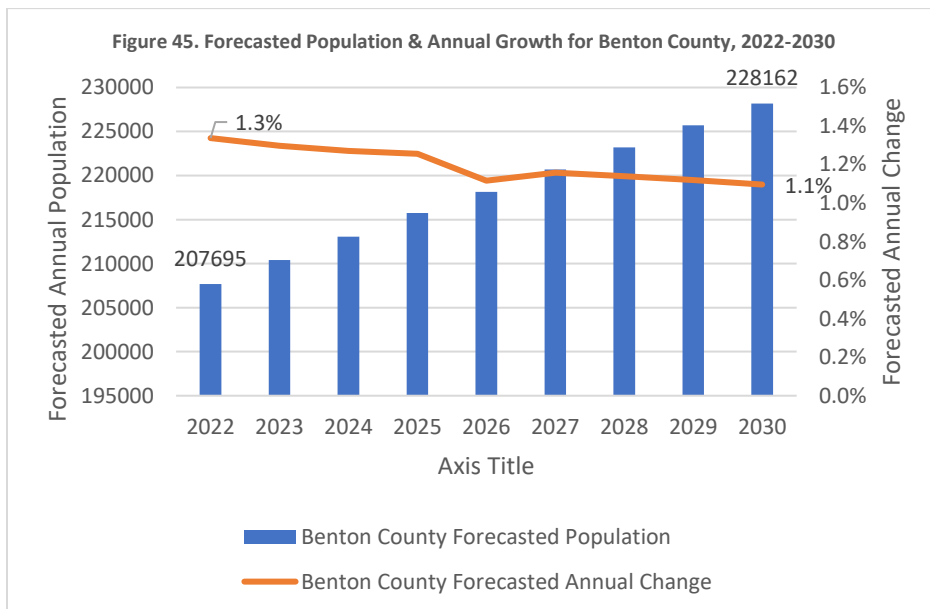


*Source: Washington State Office of Financial Management (OFM)*

### 13. What does existing housing stock look like in the Tri-Cities?

Using data from the American Community Survey (ACS), existing single-family homes in the Kennewick metropolitan area were estimated to have grown from 27,839 to 32,849 (18%) over the nine-year period from 2010 to 2019. This represents an average of 2% per year. Using an exponential triple smoothing (ETS) algorithm with an additive error, additive trend and additive seasonality (AAA version) to smooth minor deviations in past data trends by detecting seasonality patterns and confidence intervals, predicted future values of single-family housing can be presented as a continuation of the timeline. Using historical estimates, a singular baseline forecast that does not consider any other determinants, suggests that the stock of detached single-family homes in the Kennewick metropolitan area should grow from 32,849 to 36,815 – an increase close to 4,000 units -- from 2020 to 2030, on average. Over the decade, this would be approximately 1.2% increase per year. Using a 90% confidence interval, this estimate could be as high as 38,744 (+1.6% annually) or as low as 34,885 (+0.56% annually).

This data visualization is presented to provide some context to the historical growth in single-family housing and what it might look like if it were simply to continue along the same trend, independent of all other factors. Because housing markets are complicated and the determinants of demand are important to consider, further statistical analysis will be completed.



Figure 46. Baseline Forecast of Total Housing Units, Kennewick, 2020 - 2030
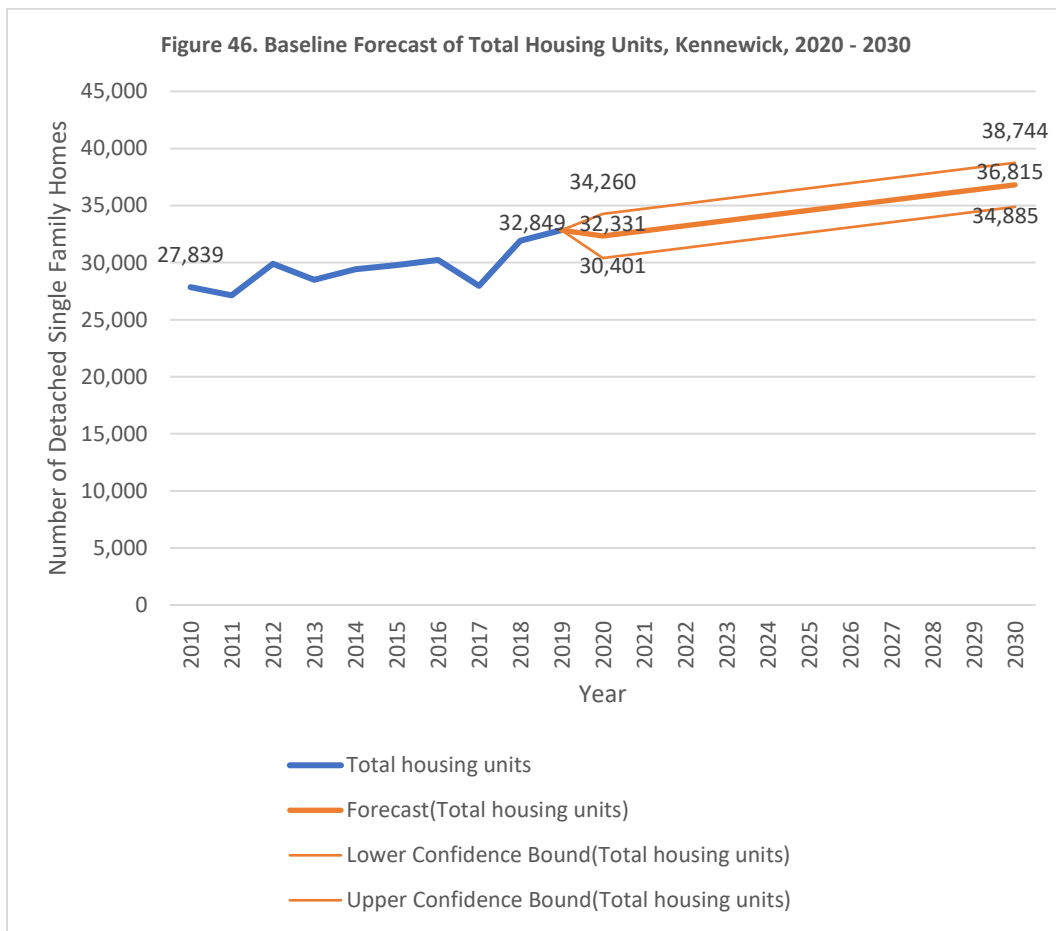
*Source: US Census Bureau, ACS*

Using the same type of AAA version of ETS, a baseline forecast of single-family housing units for Benton County was also completed and is shown in Figure 47. According to a baseline trend forecast for single family detached units, the county should see an increase of 6,082 units (approximately +1% annually) between 2020 and 2030. Using a 90% confidence interval, this increase could be as low as 3,700 or as high as 8,500. Detached single family houses in the county should be between 54,000 & 59,000 by 2030.



Figure 47. Forecasted Single Family Detached Units, Benton County, 2020-2030
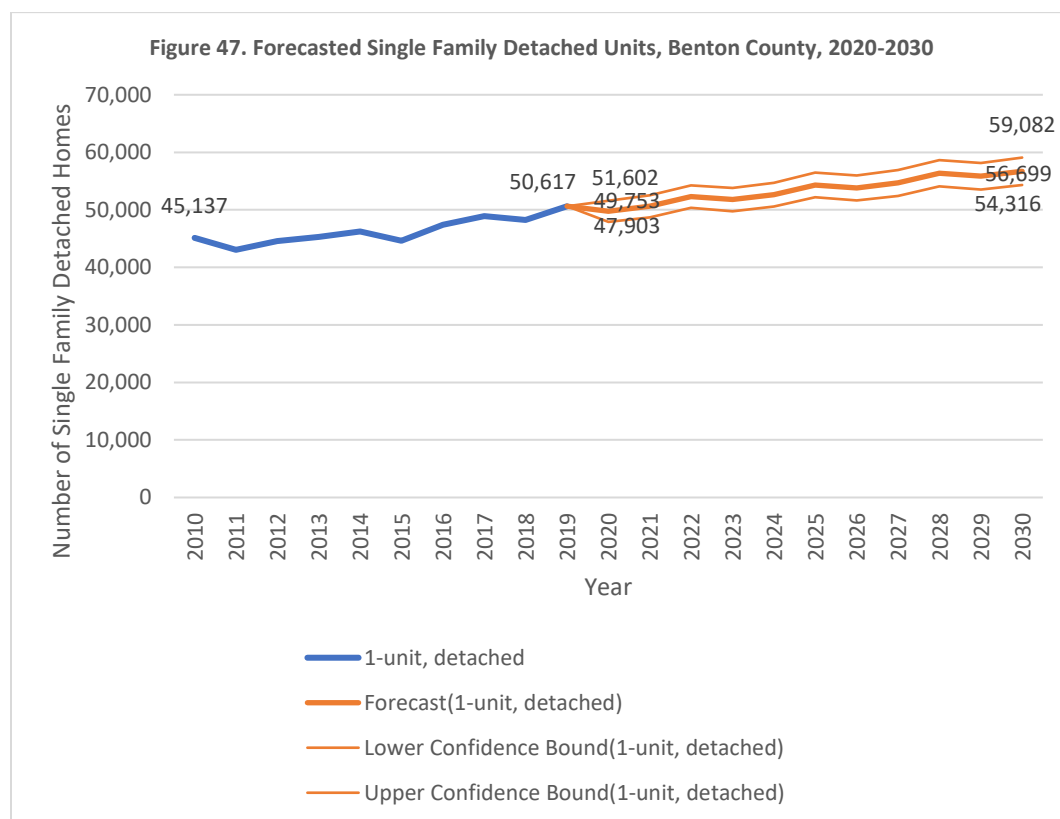
*Source:  US Census Bureau, ACS*

In addition to just the amount of single-family homes in the region, it is helpful to consider the supply of units across various price levels. Benton Franklin Trends provides the data for the monthly supply of homes listed by price level and is shown for the combined counties from 2016 to 2021 with Washington state provided as a benchmark in Figure 48 below. Compared to the state average supply of housing, Benton & Franklin counties have a relatively larger supply of houses listed in a month, especially at the lower price levels. This speaks to good available of housing stock for the market to reach equilibrium.

**Figure 48. Monthly Supply of Homes Listed by Price Level, Combined Counties, 2016-2021**



7.3.4 Monthly Supply of Homes Listed by Price Level
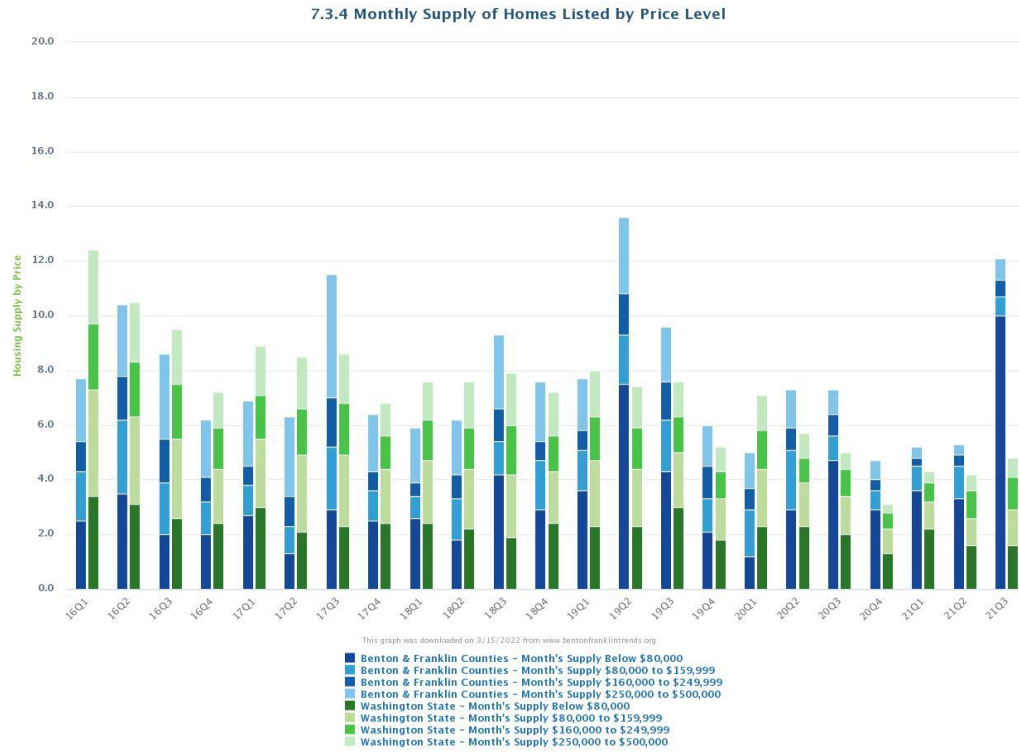
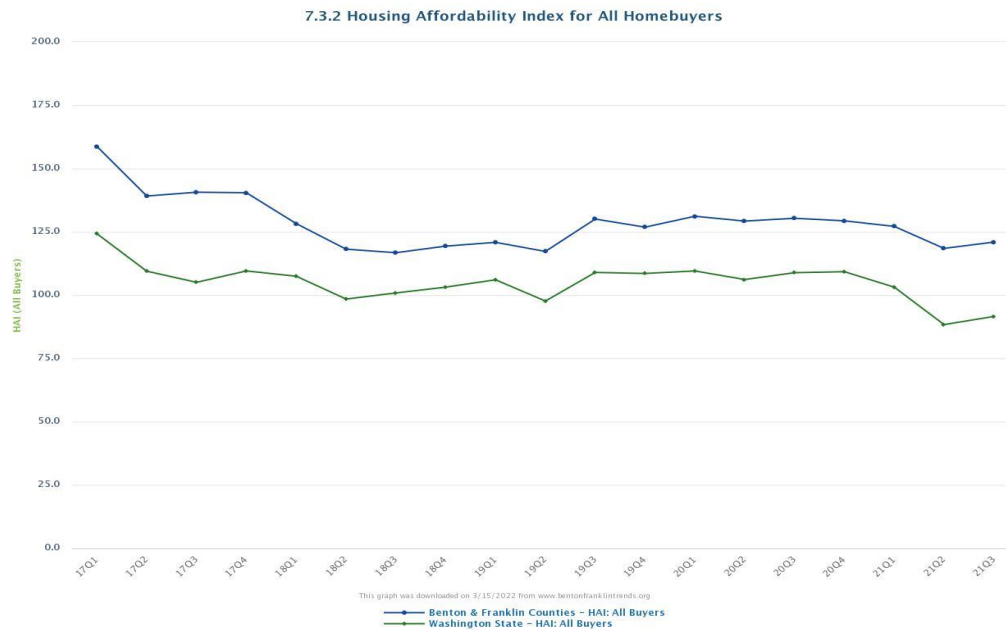*Source:  Benton Franklin Trends*

**14. How does the affordability of houses affect housing demand?**

As mentioned previously, housing plays an important part in attracting and keeping workers in a community. It is important to have an adequate supply of affordable housing to facilitate economic growth. Unfortunately, with rising housing prices and construction either slowed during the pandemic or simply unable to keep pace with demand in some areas, housing affordability is becoming a major concern for many households. In fact, about half of Americans (49%) say the availability of affordable housing in their local community is a major problem, up 10 percentage points from early 2018, according to a [Pew Research Center survey](#) conducted in October 2021.

The Housing Affordability Index (HAI) for all homebuyers and separately for first-time homebuyers is calculated and maintained by Washington Center for Real Estate Research (WCRER). The HAI for all homebuyers is a ratio of median income to the payment required for a mortgage (principal + interest) on a median-priced home in the area. The HAI is indexed at 100 implying that a household spends 25% of their income on mortgage at this level. When the HAI rises to values above 100, a household is deemed to have more than enough income to satisfy their mortgage responsibilities and their mortgage payment makes up less than 25% of their income. When the HAI falls below 100, housing is less affordable because the median household income is not sufficient to cover the mortgage payments on a median-priced home in the area and the household would have to direct more than 25% of their income towards the direct housing expense.

The Housing Affordability Index (HAI) is provided at Benton Franklin Trends (BFT) both for all homebuyers and first-time homebuyers in particular.  Not surprisingly, the combined counties of Benton & Franklin have been consistently more affordable than the state average. Figure 49 below shows the quarterly HAI for the combined counties as well as the state of Washington. Particularly, from late 2019 to late 2020, the HAI for the Tri-Cities was around 130, implying that median household income was more than sufficient to purchase a median-priced single-family home. Recently, however, the combined counties saw the HAI fall (housing become more expensive). As of third quarter 2021, the HAI for the combined counties (all buyers) was 121 – still more affordable than average. This decrease in affordability was also seen across the state and in fact the state saw a larger drop in its HAI index for all homebuyers.

**Figure 49. Housing Affordability Index (HAI) for ALL Homebuyers, Tri Cities, 2017-2021**



7.3.2 Housing Affordability Index for All Homebuyers

This graph was downloaded on 3/15/2022 from www.bentonfranklintrends.org

— Benton & Franklin Counties – HAI: All Buyers
— Washington State – HAI: All Buyers

*Source:* *Benton Franklin Trends*

Recognizing that buying a home for the first time can be particularly challenging for some households, the Washington Center for Real Estate Research also tracks the Housing Affordability Index for First-time buyers using a slightly different set of criteria. For example, first time buyers tend to be younger with lower incomes and less extensive credit history. The HAI for First-time buyers assumes a less-expensive house (85% of the median) and a lower income (70% of the median). Because of these additional challenges, housing often seems less affordable to first-time buyers and the HAI index for first-time buyers is often lower than for all homebuyers.

As shown on the next page in Figure 50, for the combined counties, in mid 2020, first time homebuyers had 98% of the income necessary to meet mortgage obligations on a starter home. This is very close to the indexed value of 100 implying that first time homebuyers in the combined counties would be spending approximately 25% of their income on their mortgage obligations. However, by third quarter of 2021, the affordability index had fallen to 88.6 meaning starter homes were becoming more expensive in the area. It is important to note that the combined counties are still more affordable than the state average (HAI index of 67 in Q3 of 2021).

**Figure 50. Housing Affordability Index for First-Time Homebuyers, Combined Counties, 2017-2021**



*Source:* *Benton Franklin Trends*

### 15. What role does income play in housing demand?

#### 15.a. The relationship between income & housing demand

Along with population and affordability, income is often considered to be an important factor that can affect the demand for any good or service, especially a durable good that makes up a large part of the typical household budget. The HAI implicitly considers median household income as a part of the ratio of income to price. But it is often insightful to look at a time series trend for median household income by itself as well as a baseline forecast.

Figure 51 below is presented from the Benton Franklin Trends site and compares median household income for the combined counties with the state and national averages. Since the Great Recession (2008-09), a healthy economy has contributed to sustained growth in median household income. In 2019, median household income for the combined counties ($68,283) has trended slightly above the national average ($65,712) but below the state average of $78,687. Fiscal stimulus likely helped buoy household incomes during the pandemic so we do not expect a decline. In fact, per capita personal incomes increased in 2020.

**Figure 51. Median Household Income, 2005-2019**
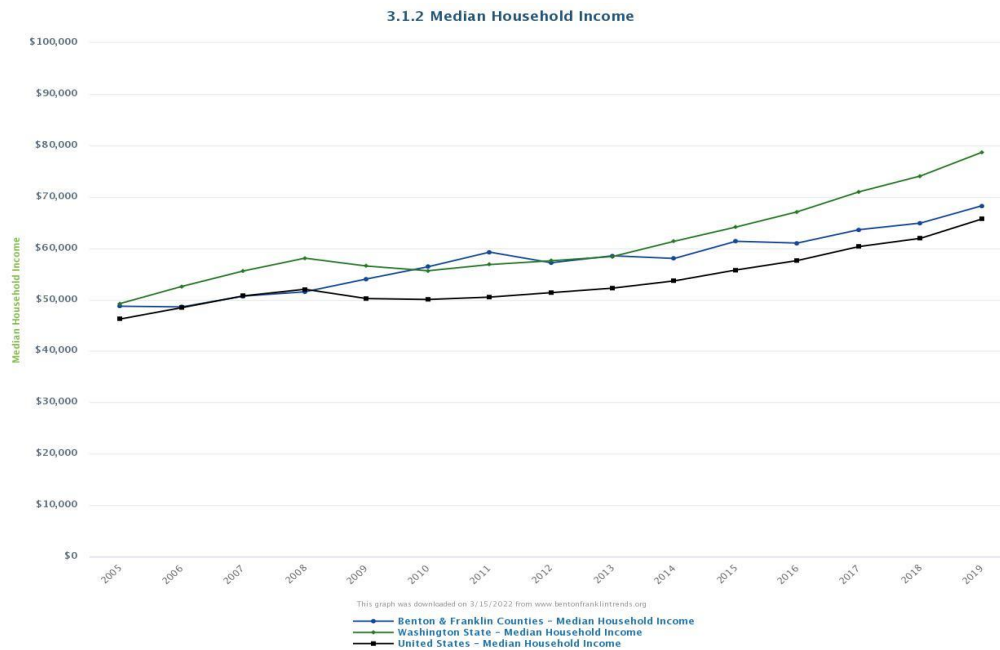


*Source:* *Benton Franklin Trends*

**15.b  A baseline forecast of median household income is presented for 2020-2030**

*Benton & Franklin Counties*

Using the exponential triple smoothing (ETS) algorithm with an additive error, additive trend and additive seasonality (AAA version) to smooth minor deviations in past data trends by detecting seasonality patterns and confidence intervals, predicted future values of median household income can be presented as a continuation of the timeline. Figure 52 below shows this forecast. Based on historical estimates, a singular baseline forecast that does not take into account any other determinants shows that median household income for the combined counties is forecasted to increase from $68,283 to $80,946 (by $12,663) from 2020 to 2030. This is an 18.5% increase over 11 years for an average annual increase of 1.7%. Using a 90% confidence interval, the increase in HH income could be as much as $14,807, 21.6% growth overall or annual average of 2%. Conversely, the increase in median HHI could be as small as $10,518, 15.4% over the forecasted period for an annual average growth of 1.4%



Figure 52. Forecasted Median HH Income, Combined Counties, 2020 - 2030
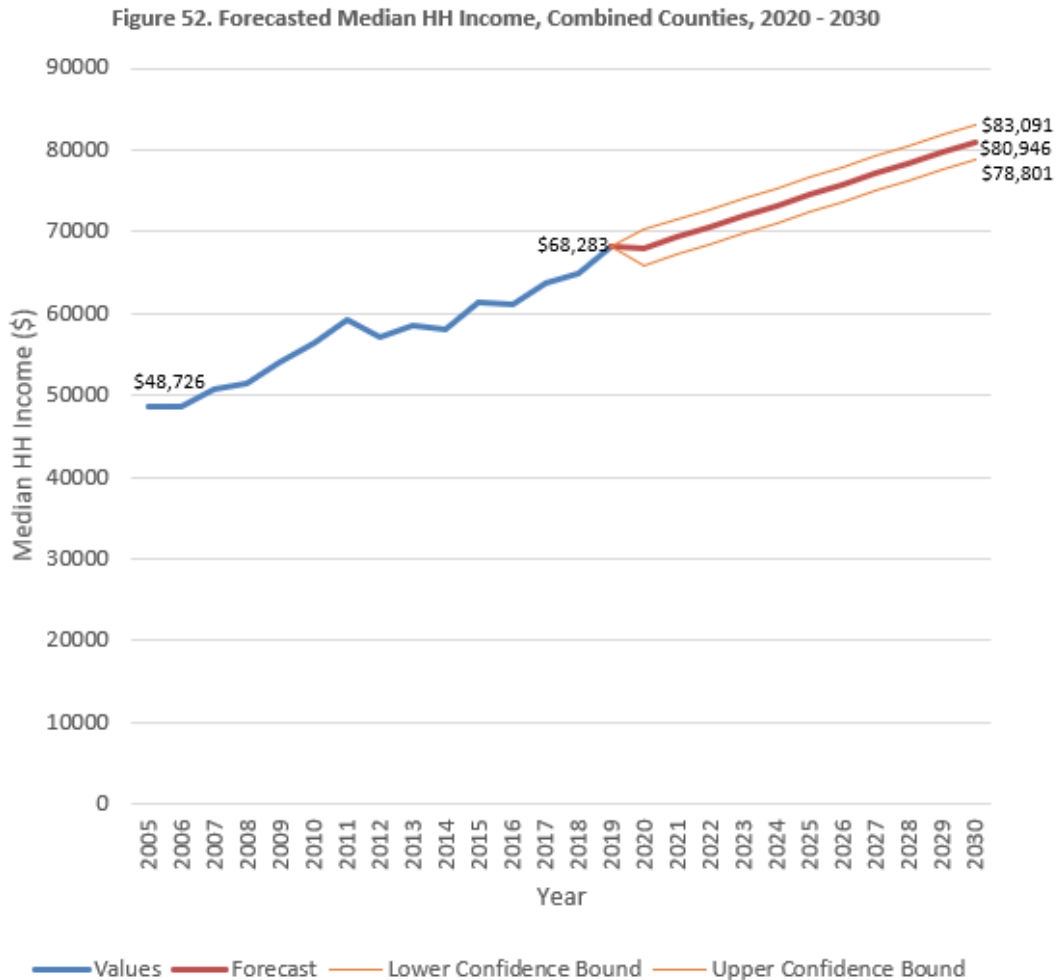
*Source:  US Census Bureau, ACS*

*City of Kennewick*

For comparison, a baseline forecast using the same ETS algorithm was generated for the City of Kennewick independently and is presented in Figure 53 below. The median household income for the City of Kennewick is forecasted to increase from $61,983 to $66,225 from 2020 to 2030 – an increase of 6.8% total or an annual average growth of about 0.6%. Using a 90% confidence interval, this increase could be as high as $71,327 – 15% over the entire forecasted period or 1.4% annual growth. The lower bound shows essentially no change from the 2019 level. Notice there is a little more volatility for the city estimates than the estimates for the larger combined counties.



Figure 53. Forecasted Median HHI, Kennewick, 2020-2030
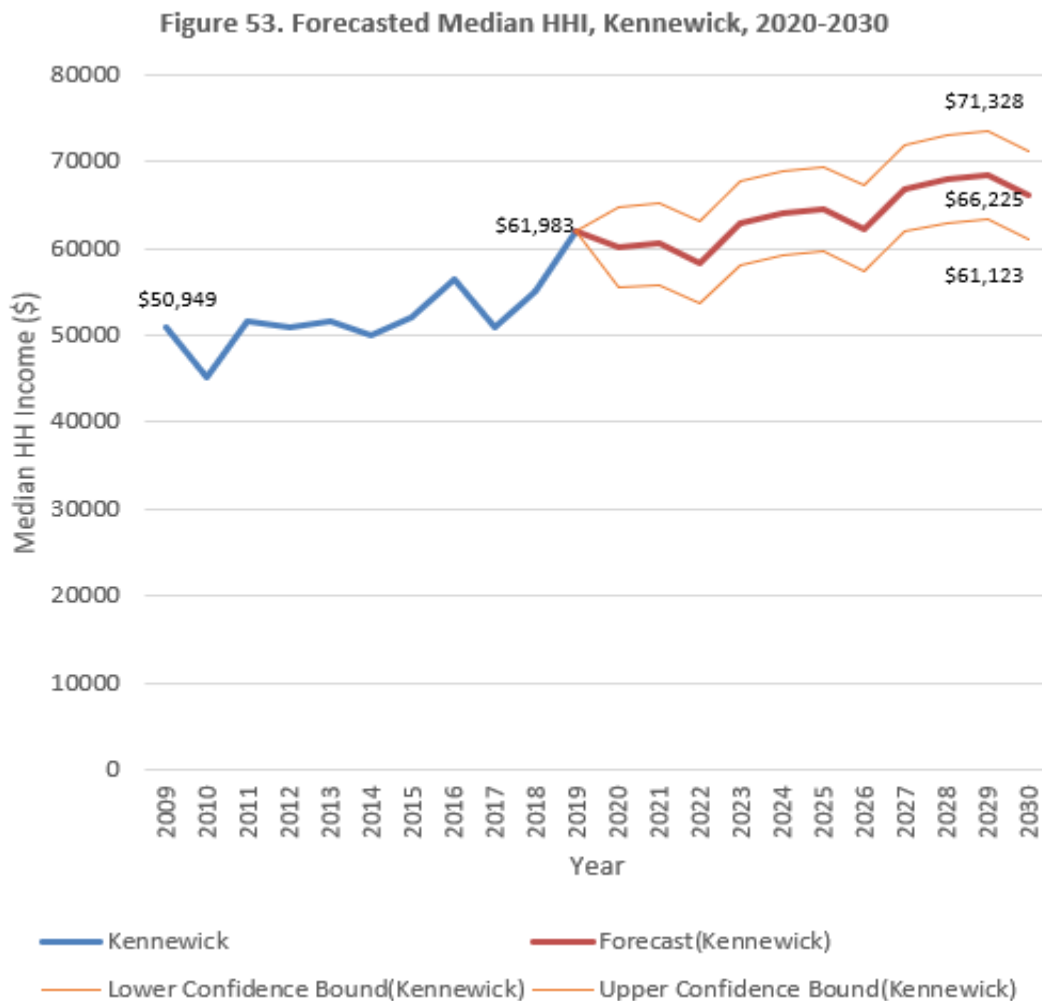
*Source:  US Census Bureau, ACS*

**16. What has been happening to the prices of houses?**

### 16.a. Historical trend for median home resale value

Much like with median household income, median housing prices are implicitly shown in the HAI. However, it is often insightful to look at the median home resale value on its own. The Benton Franklin Trends site provides the data for Figure 54 below showing the quarterly median home resale value from 2010 to third quarter of 2021. As of third quarter of 2021 the median home resale value in the combined counties was $393,000 below the state average of $578,500 and rising at a slightly slower rate than the state. This contributes to the higher affordability index of the combined counties.

**Figure 54. Median Home Resale Value, Combined Counties, 2010-2021**
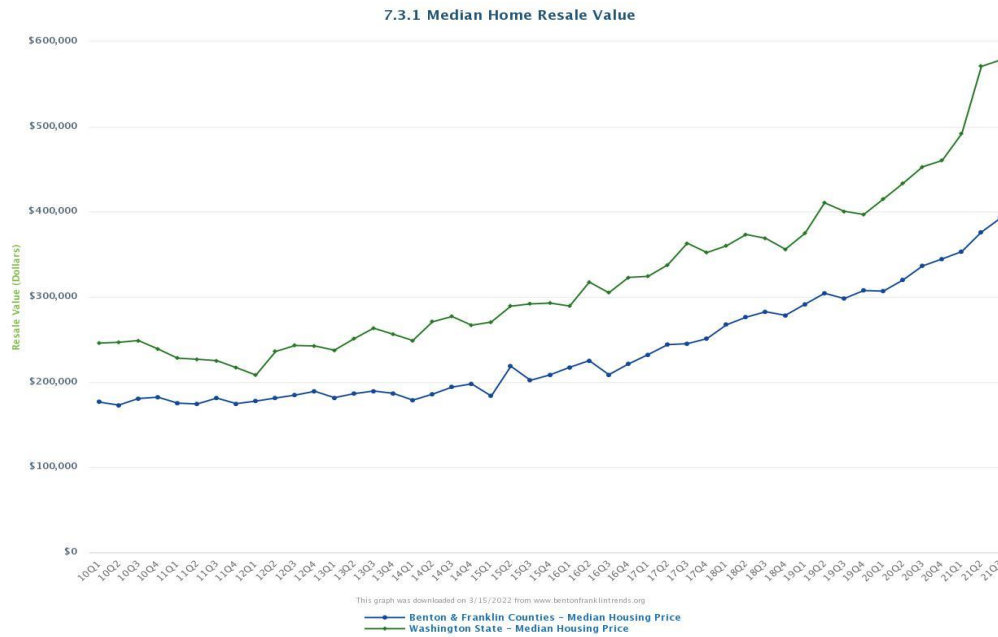


*Source:* <u>Benton Franklin Trends</u>

### 16.b  A baseline forecast of median home resale price is presented for 2020-2030

*Benton & Franklin Counties*

Using the exponential triple smoothing (ETS) algorithm with an additive error, additive trend and additive seasonality (AAA version) to smooth minor deviations in past data trends by detecting seasonality patterns and confidence intervals, predicted future values of median home resale value can be presented as a continuation of the timeline. Figure 55 on the following page shows the data visualization of this trend forecast. Based on historical estimates, a singular baseline forecast that does not take into account any other determinants shows that median home resale price for the combined counties is forecasted to increase from $374,200 to $484,178 over the decade 2020-2030, for an average annual growth in prices of 2.67%. Using a 90% confidence interval, the upper bound is $547,500 (average annual growth of 4.2%). The lower bound is $420,858 or 1.1% average annual growth in median home resale price.

Figure 55. Forecasted Median Home Resale Price, Benton & Franklin Counties 2020-2030
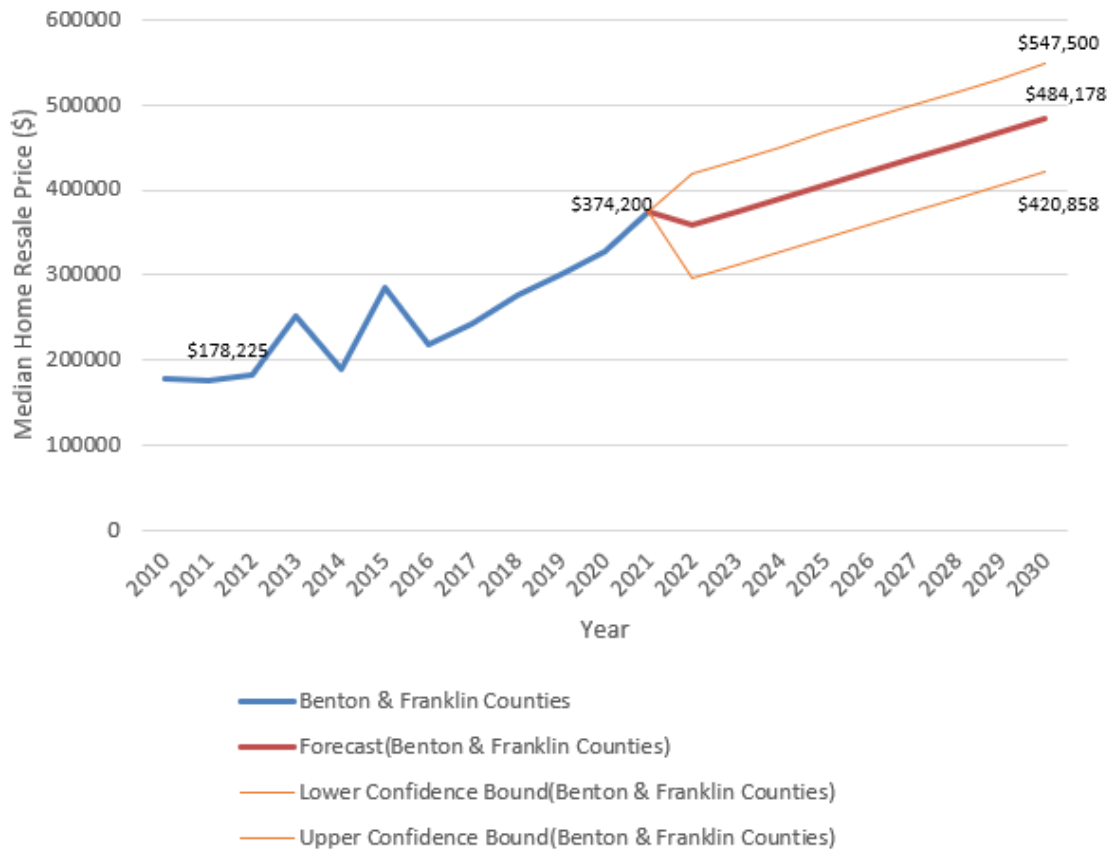
*Source:  US Census Bureau, ACS*

## 17. An empirical econometric estimation for housing demand in the combined counties

Although these baseline forecasts are provided, they should be considered independently of each other. A more complete econometric model of housing demand was conducted using a reduced form structural equation that considers the simultaneous determination of supply and demand. Because price jointly affects both the demand and supply of housing in the market, this type of regression analysis is typical. A system of reduced form equations for (1) demand, (2) supply and (3) equilibrium was estimated linearly with the following results.

Not surprisingly, population is the dominant determinant of single-family housing demand in the combined counties. When estimated as a system of reduced form equations, population was the only jointly significant variable and dominated the influence of the other independent variables in the model. Figure 56 is presented below showing the goodness of fit when regressing population against the inventory of single-family homes. Notice how the predicted values from the model match up nearly exactly with the actual values from the data. The estimated coefficient on population variable for single family homes was +0.2915 implying that for every 1,000 increase in population, we should see 291 more single family homes.

**Figure 56. Population Line Fit Plot, Regression Analysis, Single Family Units**
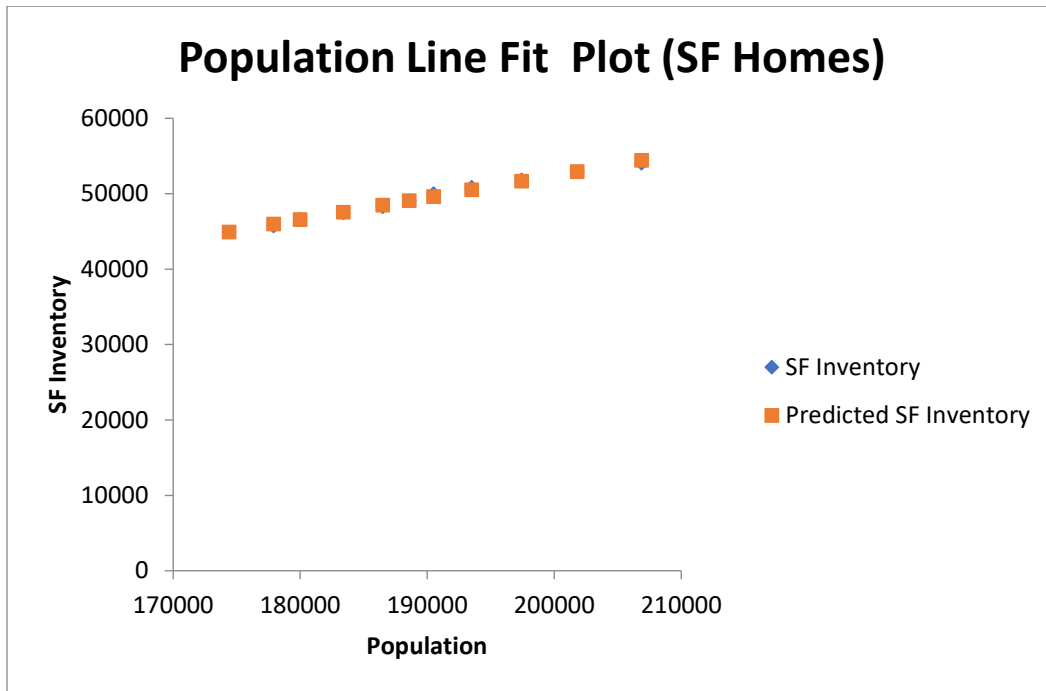
**Figure 57. Population Line Fit Plot, Regression Analysis, Multi-Family Units**
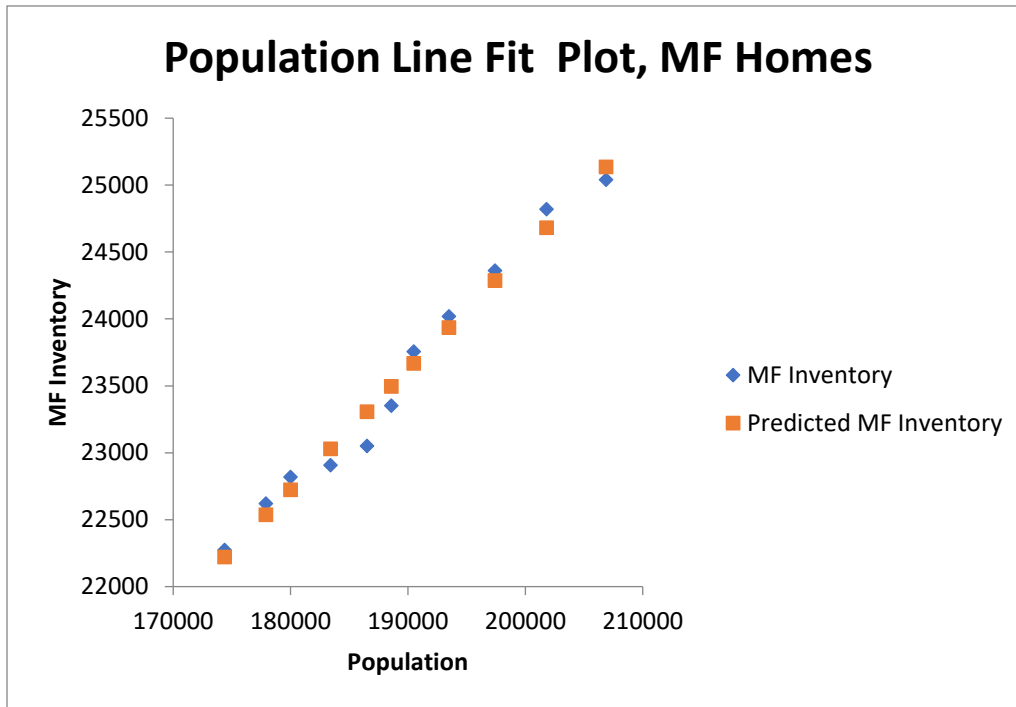


The same type econometric model was estimated for multi-family homes with the similar finding that population also dominates the demand for multi-family homes. Although the model does not fit as perfectly as for single family homes (see Figure 56 on the previous page), changes in population dominate all other independent variables in a system of equations model. The coefficient on the population variable for multi-family homes is +0.089, implying that for every 1,000 increase in population, we should see 89 new multi-family homes.

Since population was the only statistically significant variable in the full model, it made sense to use the forecasted values of population provided by the Washington State OFM to forecast housing demand using the estimated coefficients from the econometric model. Table 6 below summarizes both the population forecasts that were put into the model as well as the predicted number of new single-family units and multi-family units that would be expected to occur over the time period 2022 to 2030.

**Table 6. Forecasted Single Family & Multi-Family Units, 2022-2030**

| Year | Population Forecast | Change | New SF Homes | New MF Homes | Combined Homes |
|------|--------------------|--------|--------------|--------------|----------------|
| 2021 | 209400 | -- | | | |
| 2022 | 207695 | -1705 | -497 | -152 | -649 |
| 2023 | 210391 | 2696 | 786 | 240 | 1026 |
| 2024 | 213065 | 2674 | 779 | 238 | 1017 |
| 2025 | 215740 | 2675 | 780 | 238 | 1018 |
| 2026 | 218148 | 2408 | 702 | 214 | 916 |
| 2027 | 220674 | 2526 | 736 | 225 | 961 |
| 2028 | 223190 | 2516 | 733 | 224 | 957 |
| 2029 | 225688 | 2498 | 728 | 222 | 950 |
| 2030 | 228162 | 2474 | 721 | 220 | 941 |
| | | **TOTAL** | **5469** | **1670** | **7139** |

*Source: Washington State Office of Financial Management (OFM)*

Using the Washington State OFM official population forecast for Benton County, our model makes the following predictions for growth in housing stock. Between 2022 and 2030, demand will be for an additional 5,469 single family homes. Between 2022 and 2030, housing demand will be for and additional 1,670 multi-family homes. Over the forecasted time period, combined single and multi-family homes should increase 7,139.

Because the other independent variables of median household income and median resale price were not statistically significant when estimated jointly with population in the model, single factor analysis was conducted to predict how the quantity of single-family units might respond to an autonomous change in either median household income or median resale price holding all other variables constant.

Using the single factor analysis to predict the impact of changes in just median household income holds constant the impact of other demand determinants such as population, price, and interest rates, considering only the direct relationship between income & quantity demanded. In this case, the estimated coefficient on income is +0.6356, meaning that for every $1,000 increase in median household income, an increase in single family homes of 636 should occur, ceteris paribus.

Using single factor analysis to predict the impact of changes in median home resale price on demand for single family units considers only the isolated effect of changes in median home resale price on changes in quantity of single-family homes over time. The estimated coefficient on median home resale price is statistically significant at +0.05 meaning that a $10,000 increase in median home price is correlated with an increase of 500 more units, ceteris paribus. This could be due to price rising as a result of increased demand.

**Conclusions**

Obviously, there were bound to be regional differences to how local economies would weather the impacts of the pandemic. A quantitative investigation of the most recent economic data for the counties of Benton & Franklin suggests that the greater Tri Cities absorbed the pandemic downturn relatively better than the state.

Although certain sectors of the local economy were largely impacted by the pandemic, there were other sectors that proved to be less susceptible to the disruptions of the pandemic. Looking at economic activity that is subject to retail sales tax, contraction was limited to one quarter, in part due to the quick distribution of fiscal stimulus payments. The worst hit sectors by the pandemic were (1) Hospitality, (2) Entertainment & Recreation, (3) Retail, (4) Agriculture and (5) Construction. The sectors of the local economy that fared best through the pandemic, as measured by employment change, were (1) Finance & Insurance, (2) Transportation & Warehousing, (3) Information, (4) Wholesale Trade and (5) Real Estate, Rental & Leasing.

Looking for evidence of any racial or ethnic disparities in impacts on employment and wages due to the pandemic, it certainly appears that Latino workers bore a greater burden of the pandemic than the workforce overall, as their claims were proportionally higher than average and their average wage increases were not large enough to offset the likely greater rate of unemployment.

Although economists might have expected firms, especially small businesses, to be more vulnerable to the economic downturn during the pandemic, surprisingly, bankruptcies during the pandemic actually declined, in part due to federal assistance. In March 2020, the CARES Act pumped money into the businesses around the U.S., relief checks sent directly to residents of the country, and extended unemployment benefits were handed out to many. All these factors shored up household finances, and as a result, economic stability.

As many jobs moved to work-from-home during the pandemic, there will likely be changes in how work gets done in certain industries. We believe that the most vulnerable jobs over the near-term will be those in customer-facing roles, or more generally service jobs. Job growth, at least highest percentage growth, will take place in mid-sized sectors such as Transportation & Warehousing, Manufacturing, and Healthcare.

As the local economy continues to heat up, we have provided some specific recommendations to help promote continued growth in the greater Tri Cities area. In particular, we encourage facilitating training for certain occupations such as truck drivers, nursing assistants and sales representatives and even expanding training opportunities for high-demand occupations that require at least an associate's degree such as in nursing and computer science fields.

An area of concern in the near future is an adequate supply of affordable housing to attract and retain a top-notch workforce. Although the Tri Cities has enjoyed much more affordable housing than the state average, the affordability indexes for both first-time homebuyers and all homebuyers have been falling meaning that housing has become less affordable, especially in the last several years. In

part, this is due to rising median resale home prices. Over the last four years, the median home resale value has risen 60%, outpacing the increase in household incomes.

Although there was a sharp decline in economic activity due to shutdowns associated with the pandemic, government revenues were not significantly impacted. Local consumers continued to spend and in fact local government revenues increased over the pandemic.

Looking forward, we considered what housing demand might look like in the greater Tri Cities area. Using econometric modelling and data from the US Census Bureau and the Washington State Office of Financial Management (OFM), it was determined that population is the principal determinant of growth in housing over time in the Tri Cities, outweighing other demand factors such as price, affordability, incomes, and interest rates.

Official forecasts of population for Benton County predict a growth of more than 20,000 people at an average annual rate of growth tapering off from approximately 1.3 to 1.1% by 2030. Franklin County is predicted to grow at a slightly faster clip from 2.7% in 2022 to 2.3% by 2030.  Our econometric model predicts that there will be an increase in the quantity demanded of single-family homes of around 5,469 between 2022 and 2030 and a corresponding increase in multi-family units of around 1,670 for a combined increase in total housing of approximately 7,139.

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**Appendix A:  Presentation of the Recovery Path of Sectors or Industries in the Greater Tri Cities Most Impacted by the Pandemic by Two Criteria – Total Wages Paid & Retail Sales**
*Source:  Washington State Employment Security Department, "Quarterly Census of Employment & Wages"*

**A.1.  Quarterly Path by Total Wages Paid in Most Affected Sectors (Q22020 vs. Q22019)**



Figure A.1.1. Total Wages in Construction:  Both Counties
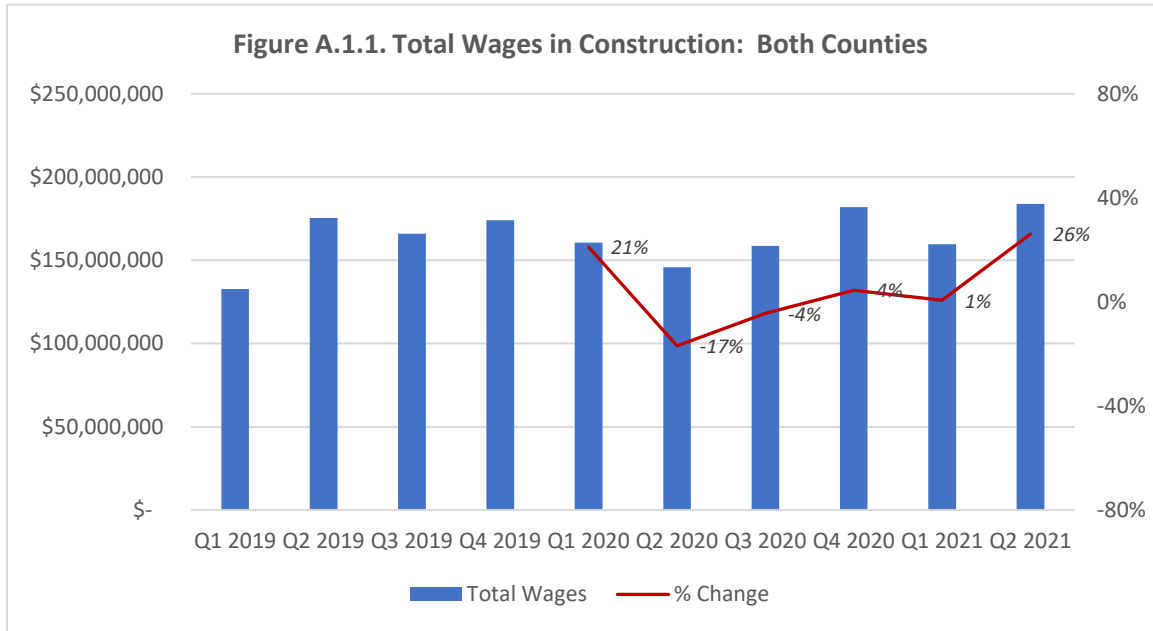
**Comment:**  A drop of $29.6 million in Q2 2020 from Q2 2019. Recovery (vs. 2019) in place by Q1 2021



Figure A.1.2 Total Wages in Construction:  Benton County
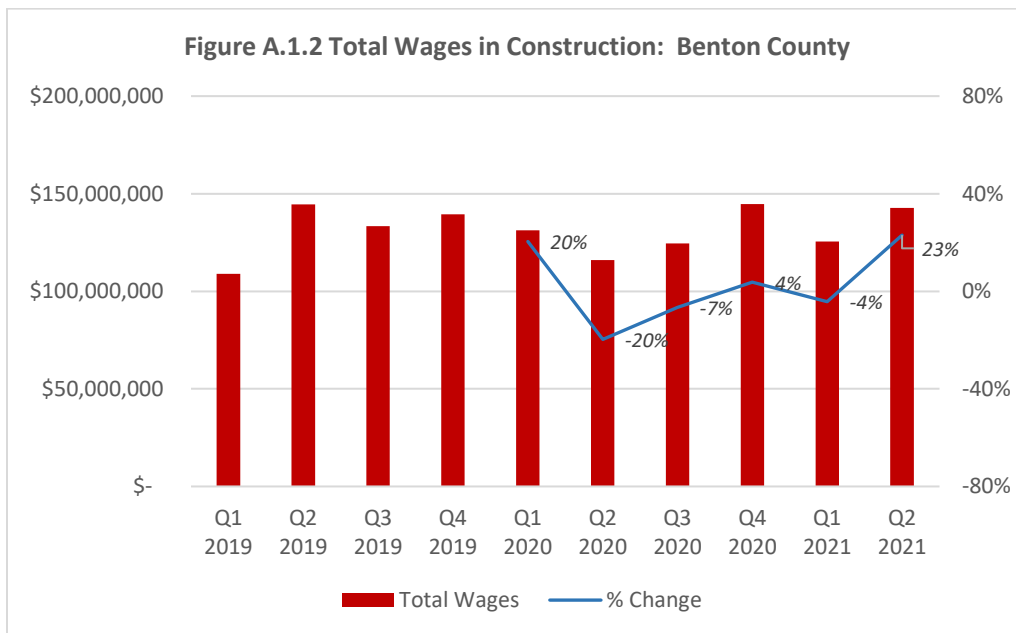
Comment:  A drop of $28.5 million from Q2 2020 to Q2 2019. Recovery still pending at Q2 2021.

**Figure A.1.3. Total Wages in Hospitality:  Both Counties**
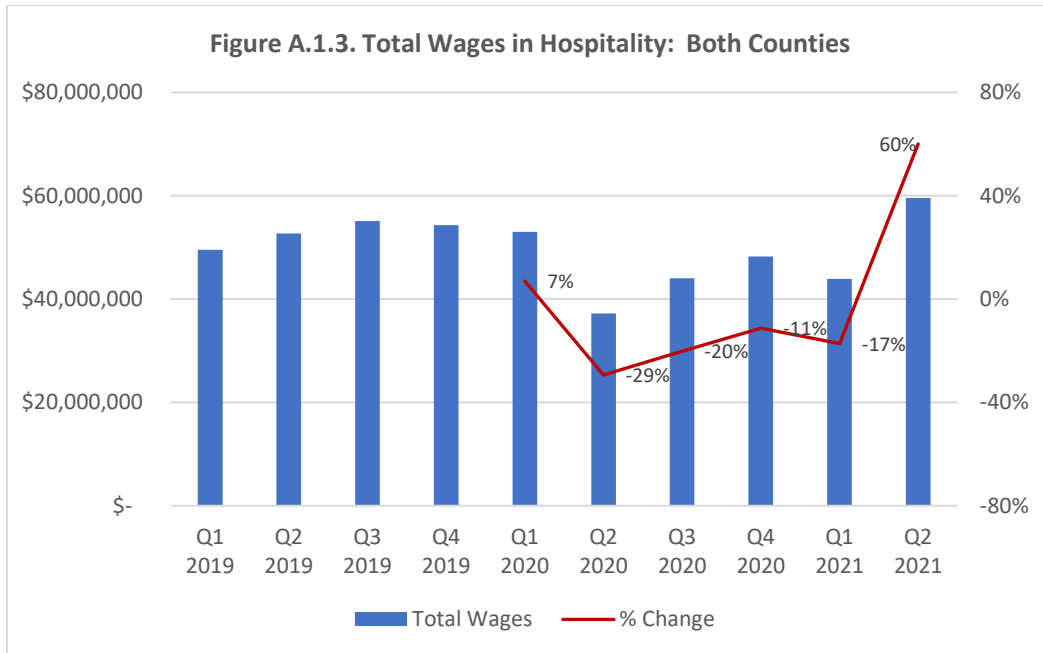


Comment:  A drop of $15.5 million from Q2 2020 to Q2 2019. Recovery by Q2 2021.

**Figure A.1.4. Total Wages in Hospitality:  Benton County**
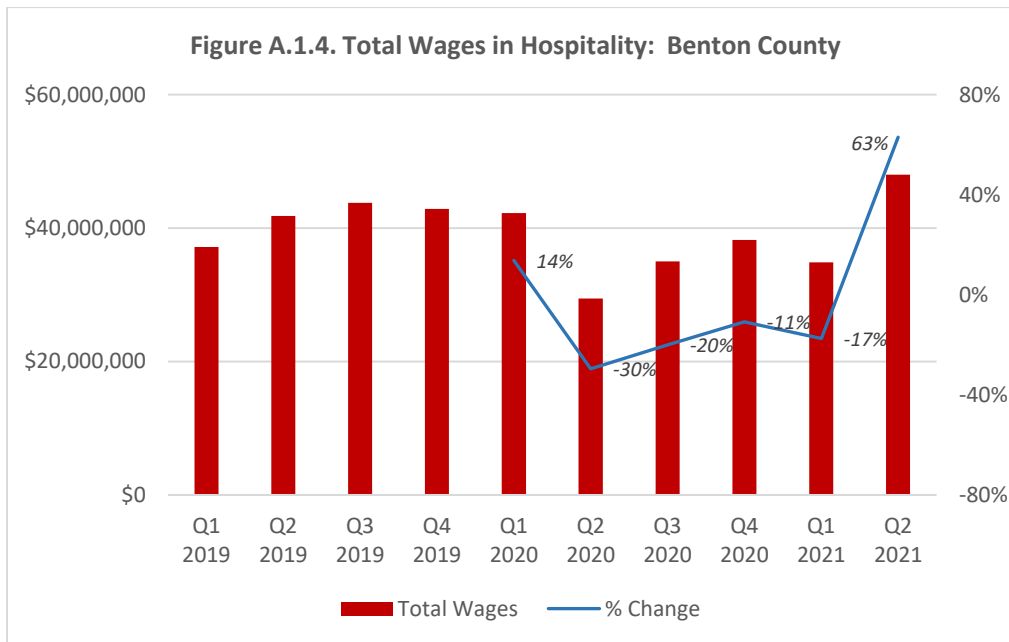


Comment:  A drop of $12.4 million in Q2 2020 from Q2 2019. Recovery by Q2 2021.

**Figure A.1.5. Total Wages in Professional & Technical Services: Both Counties**
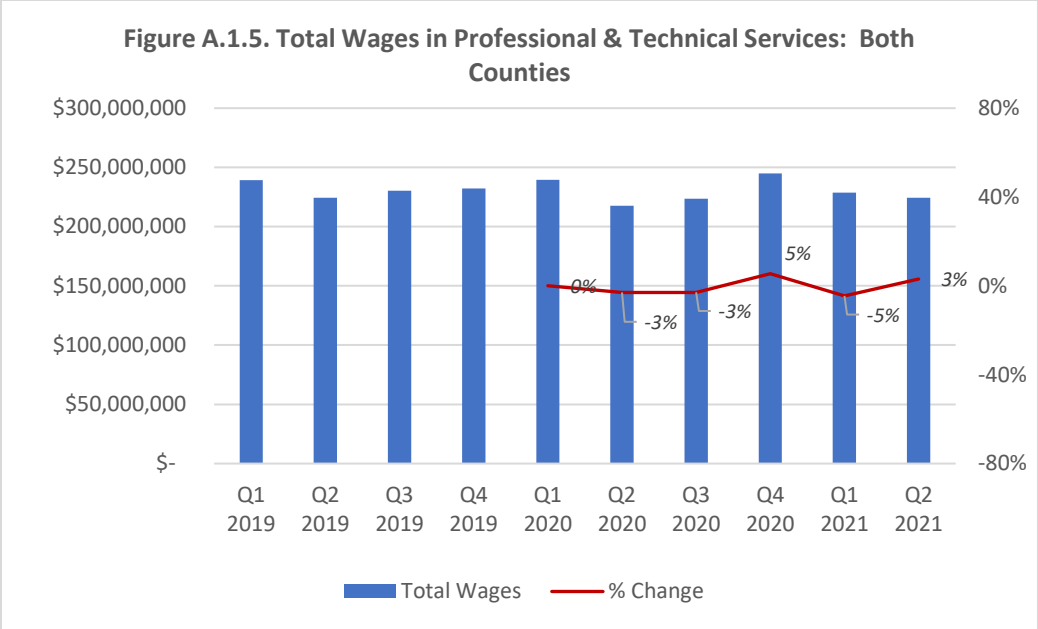


Comment:  A drop of $6.7 million in Q2 2020 from Q2 2019. Recovery by Q2 2021.

**Figure A.1.6. Total Wages in Professional & Technical Servivces: Benton County**
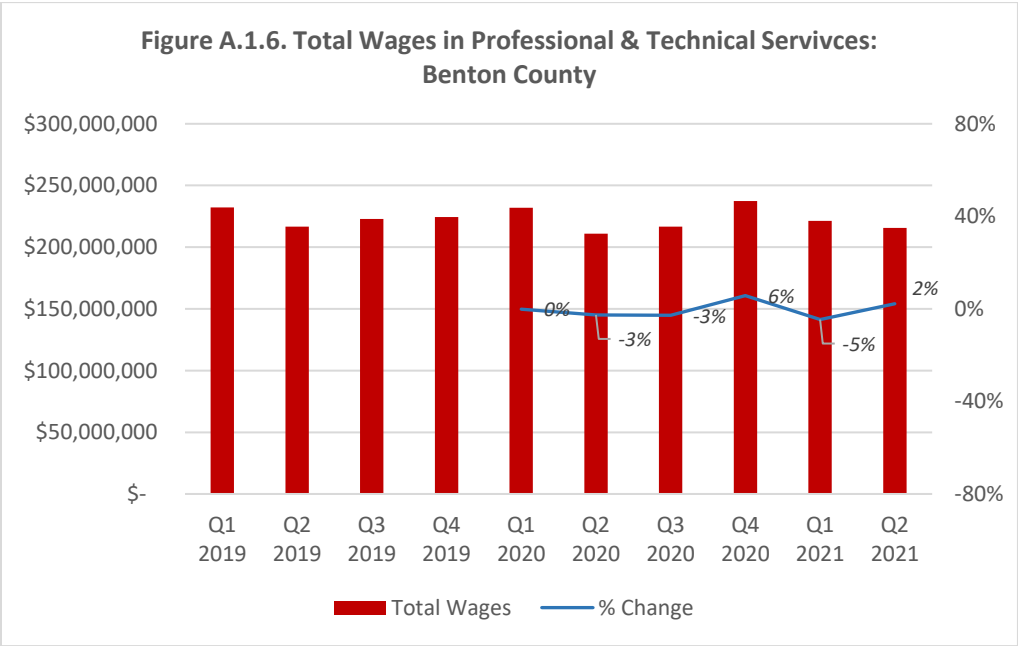


Comment:  A drop of $5.6 million in Q2 2020 from Q2 2019. Recovery still pending.

**Figure A.1.7. Total Wages in Arts, Entertainment & Recreation: Both Counties**
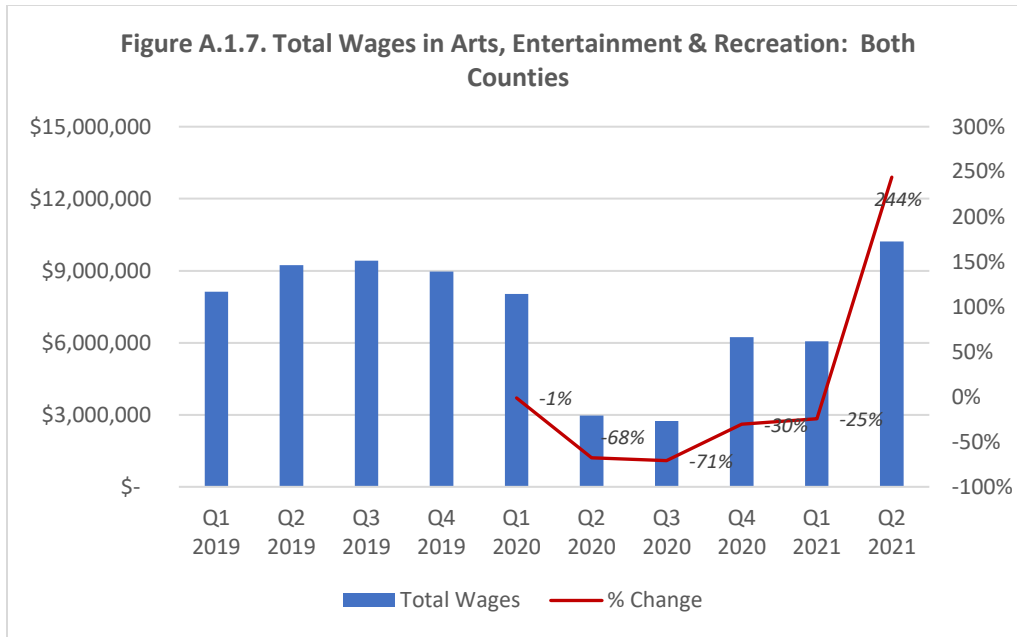


Comment: A drop of $6.3 million in Q2 2020 from Q2 2019. Recovery by Q2 2021.

**Figure A.1.8. Total Wages in Arts, Entertainment & Recreation: Benton County**
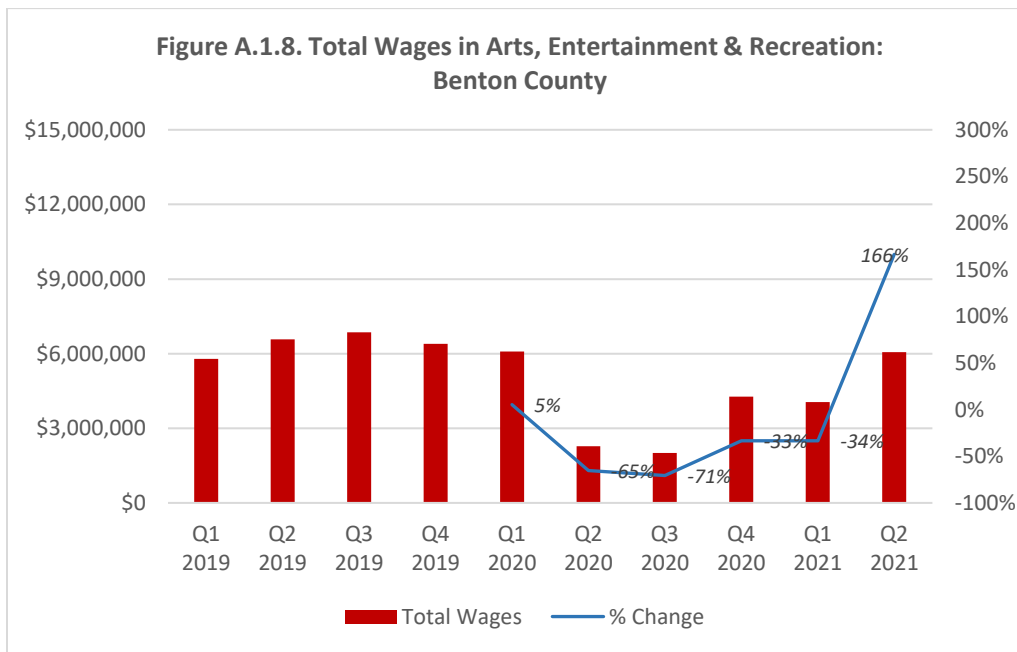


Comment: A drop of $4.3 million in Q2 2020 from Q2 2019. No recovery yet.

**Figure A.1.9. Total Wages in Healthcare & Social Assistance: Both Counties**
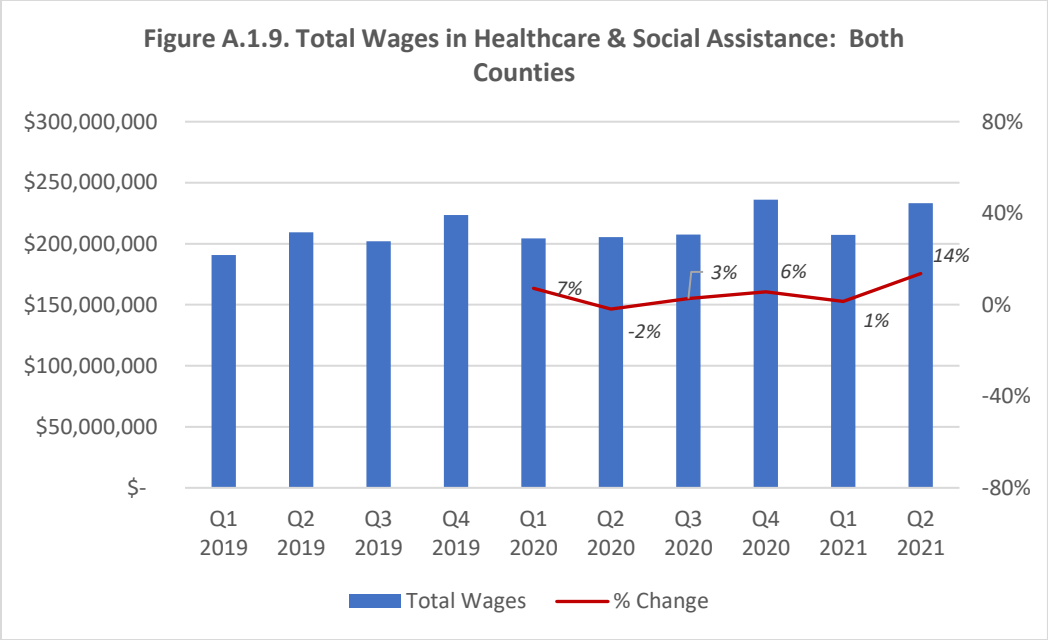


Comment: A drop of $3.9 million in Q2 2020 from Q2 2019. Recovery in place by Q3 2020.

**Figure A.1.10. Total Wages in Healthcare & Social Assistance: Benton County**
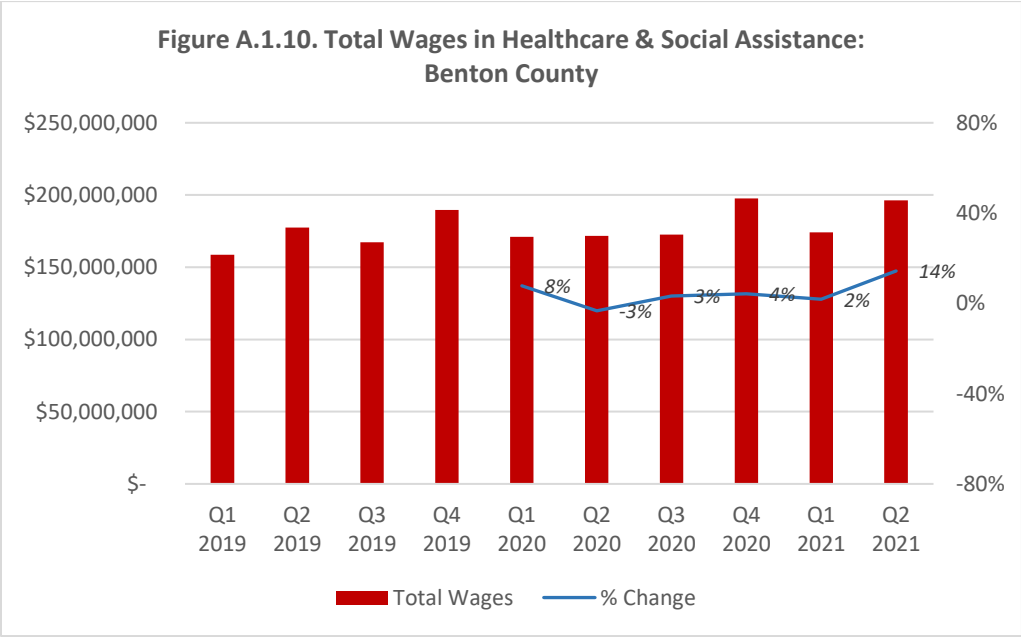


Comment: A drop of $5.9 million in Q2 2020 from Q2 2019. Recovery in place by Q3 2020.

**A.2. Quarterly Path by Total Wages Paid: 5 Least Affected Sectors (Q22020 vs. Q22019)**

**Figure A.2.1. Total Wages in Information: Both Counties**
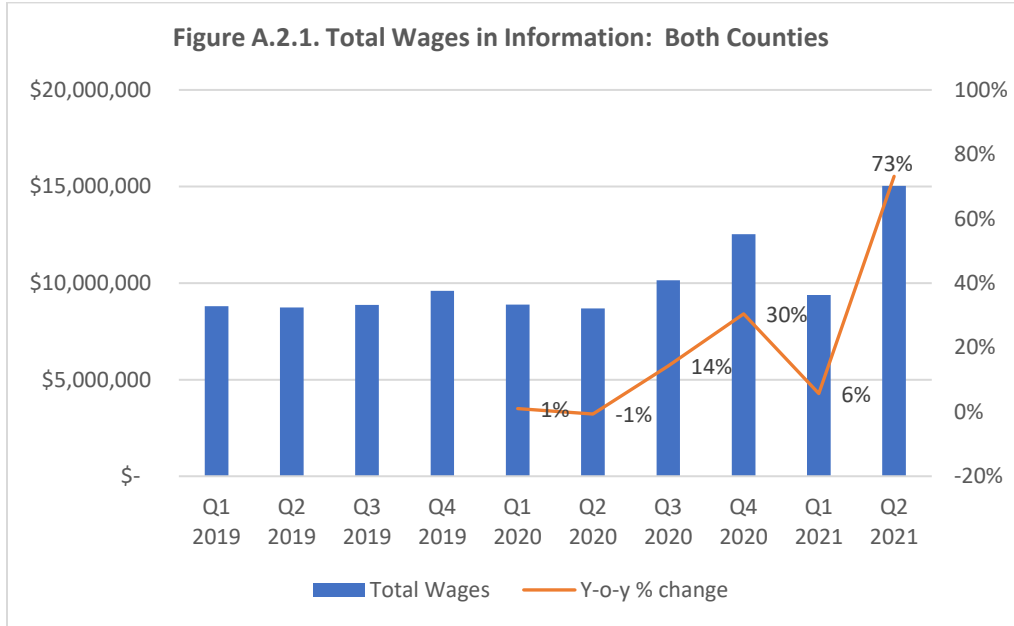


Comment: A drop of $0.06 million in Q2 2020 from Q2 2019. Recovery in place in Q3 2020.

**Figure A.2.2. Total Wages in Information: Benton County**
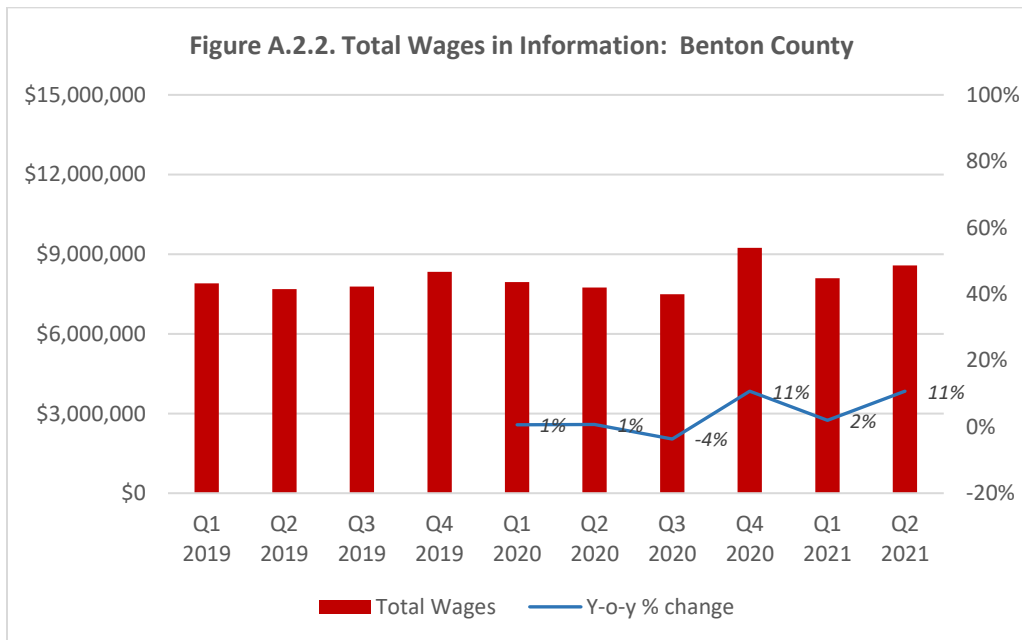


Comment: A gain of $0.05 million in Q2 2020 from Q2 2019. Recovery in place in Q4 2020.

**Figure A.2.3. Total Wages in Retail:  Both Counties**
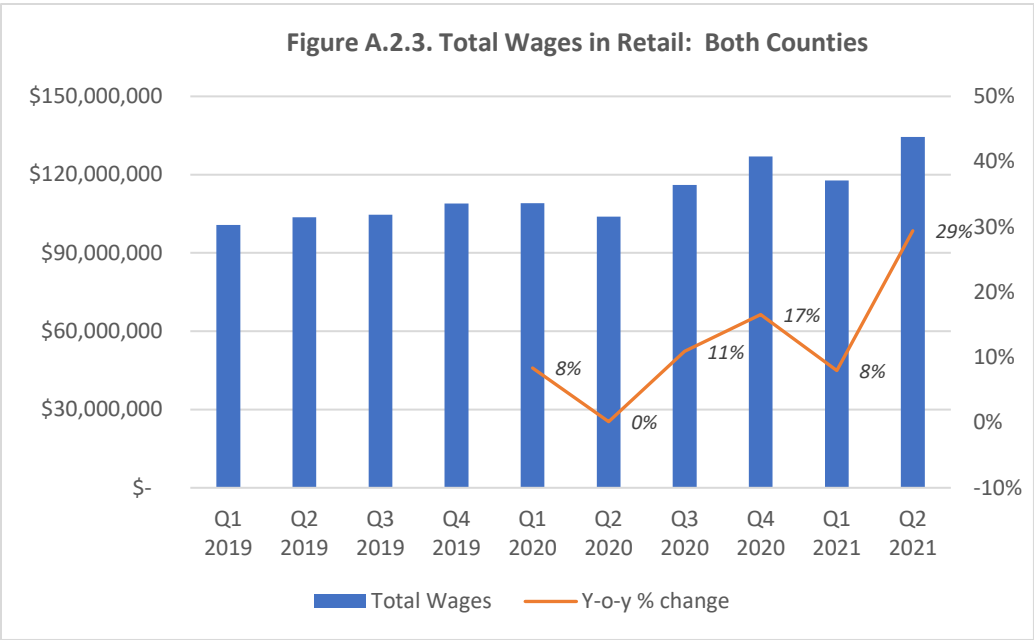


Comment:  A gain of $0.14 million in Q2 2020 from Q2 2019. Recovery in place that quarter.

**Figure A.2.4. Total  Wages in Retail:  Benton County**
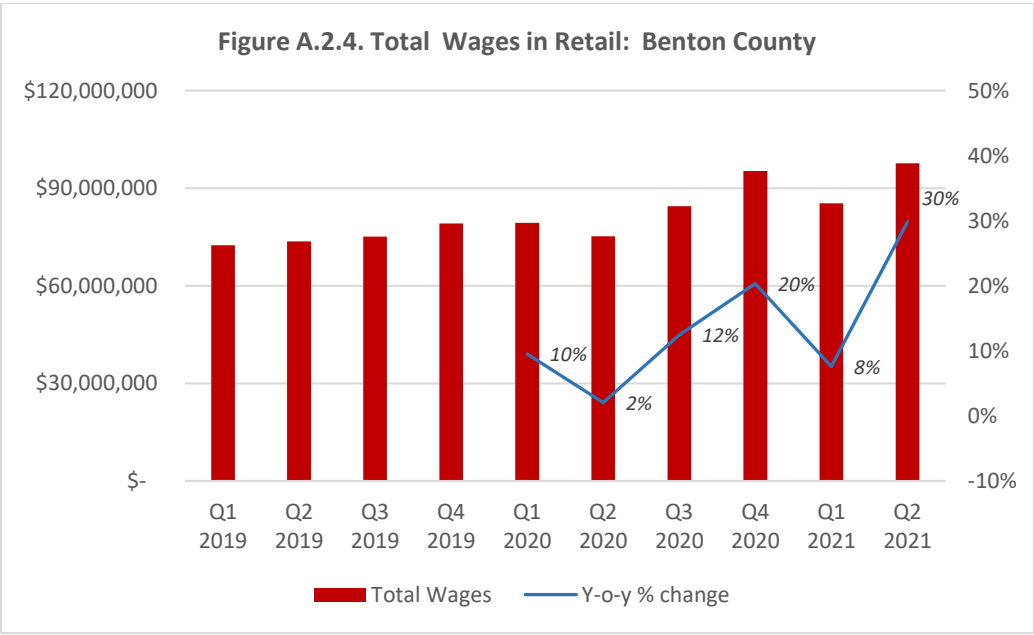


Comment:  A gain of $1.50 million in Q2 2020 from Q2 2019. Recovery in place that quarter.

**Figure A.2.5. Total Wages in Transportation & Warehousing: Both Counties**
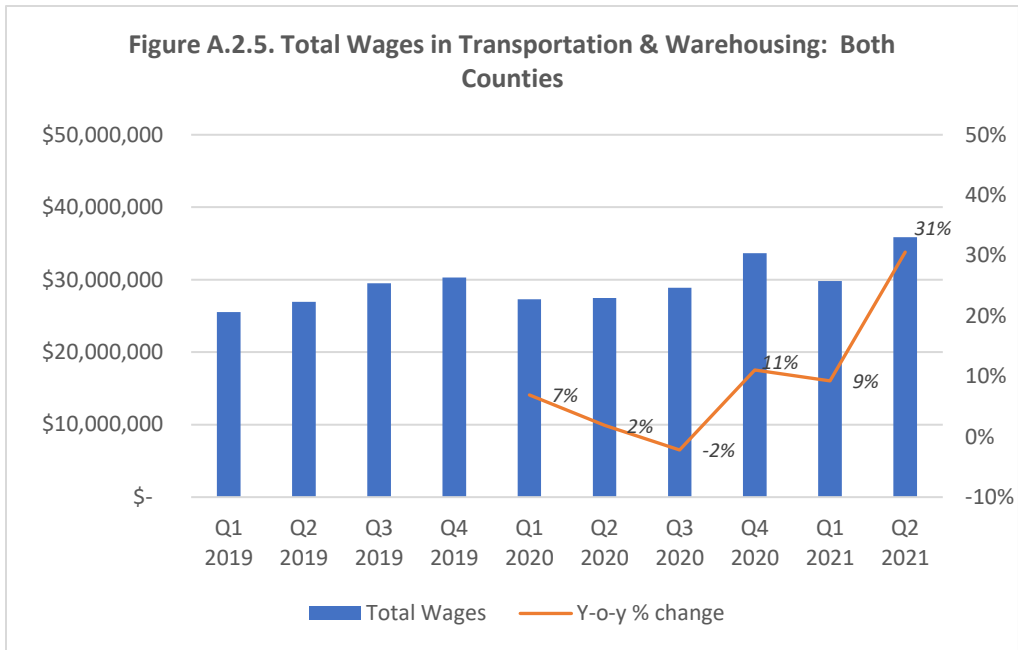


Comment: A gain of $0.51 million in Q2 2020 from Q2 2019. Recovery in place in Q4 2020.

**Figure A.2.6. Total Wages in Transportation & Warehousing: Benton County**
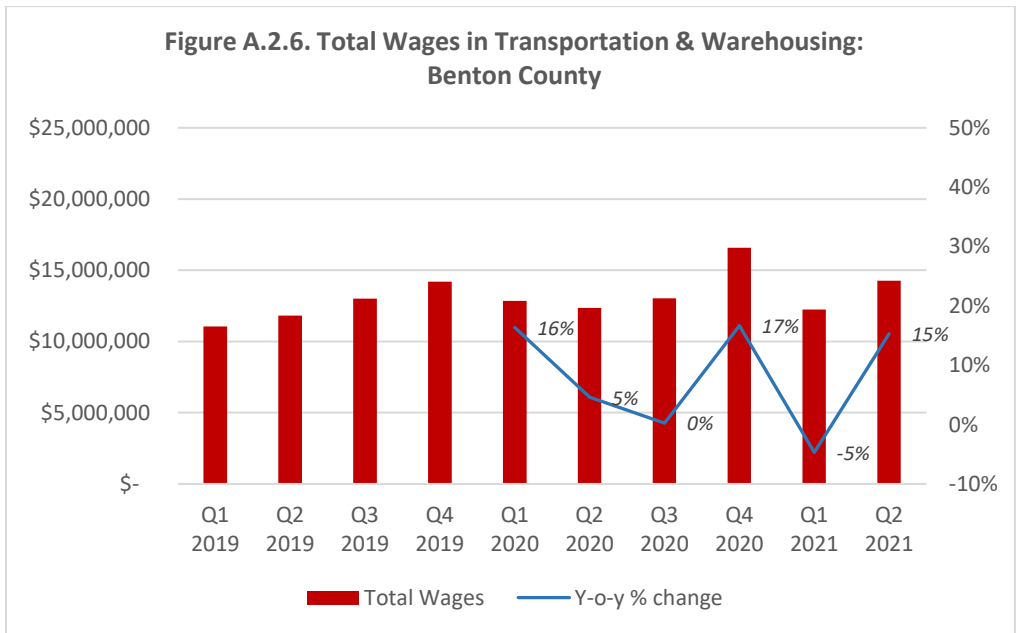


Comment: A gain of $0.54 million in Q2 2020 from Q2 2019. Recovery in place that quarter.

**Figure A.2.7. Total Wages in Agriculture: Both Counties**
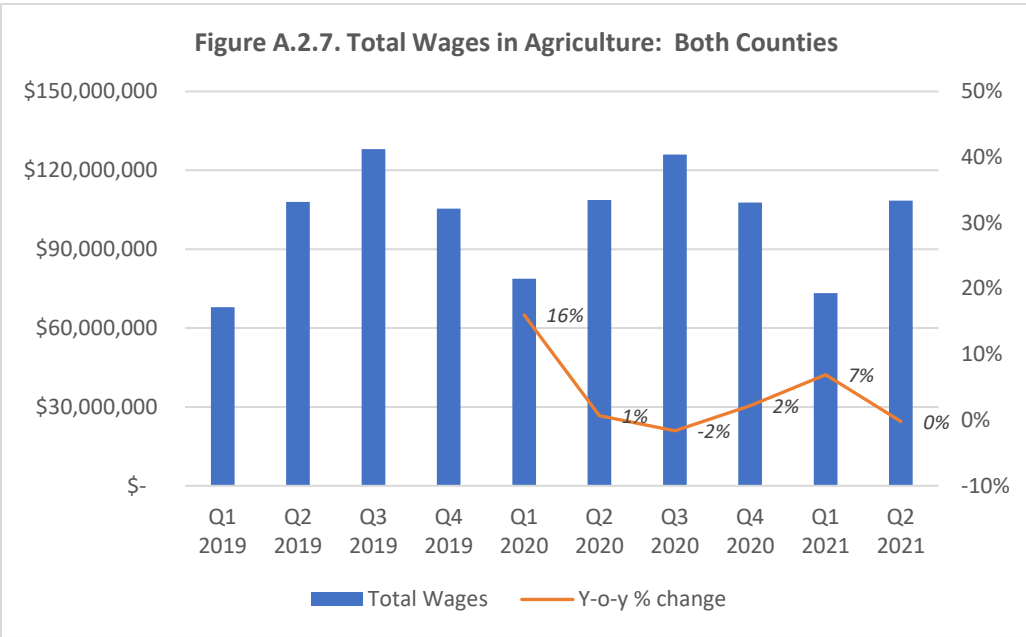
Comment: A gain of $0.74 million in Q2 2020 from Q2 2019. Recovery in place in Q4 2020.



**Figure A.2.8. Total Wages in Agriculture: Benton County**
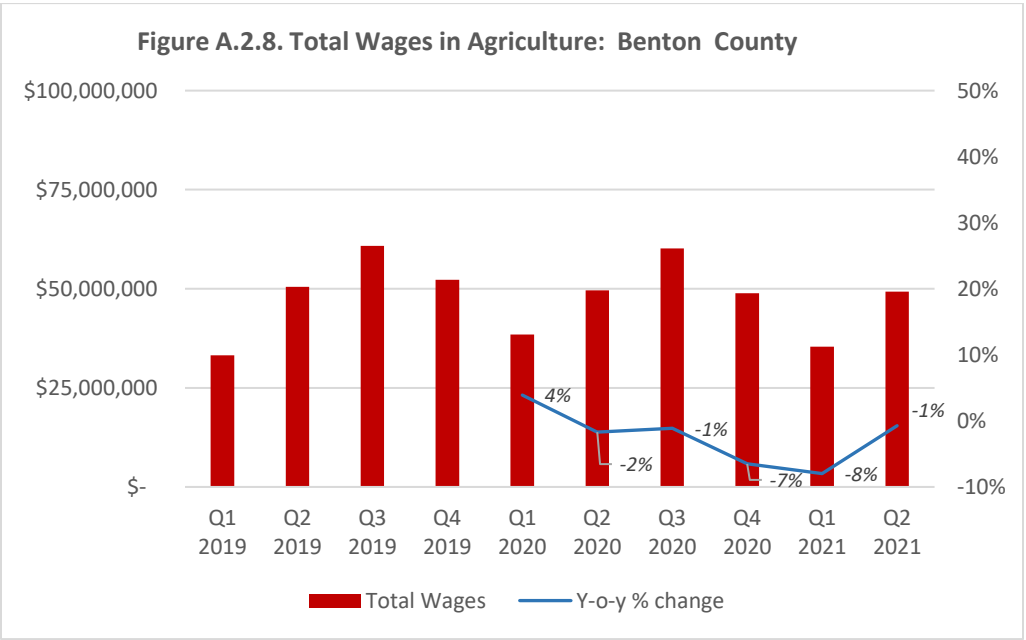
Comment: A loss of -$0.86 million in Q2 2020 from Q2 2019. No recovery yet.

**Figure A.2.9. Total Wages in Finance & Insurance:  Both Counties**
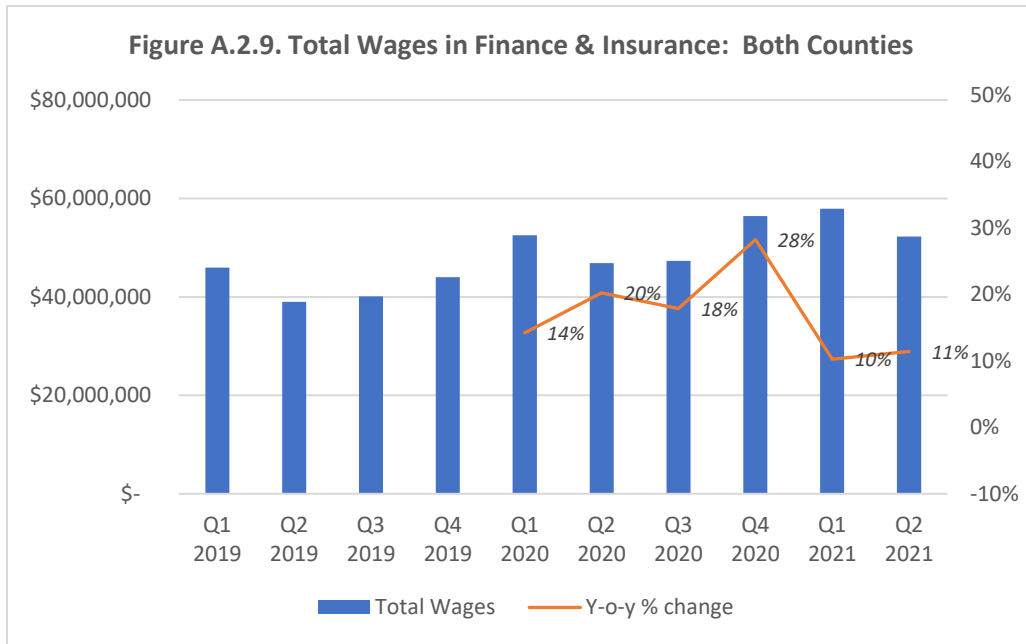


Comment:  A gain of $7.90 million in Q2 2020 from Q2 2019. Recovery started then.

**Figure A.2.10. Total Wages in Finance & Insurance:  Benton County**
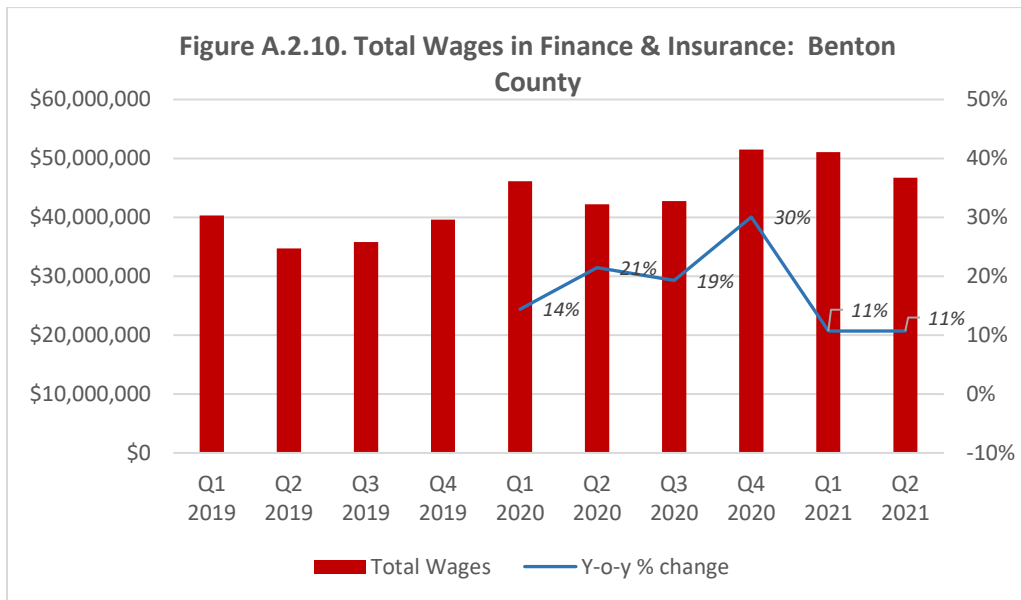


Comment:  A gain of $7.46 million in Q2 2020 from Q2 2019. Recovery started then.

**A.3. Quarterly Path by Taxable Retail Sales:  Most Affected Sectors/Industries (Q22020 vs. Q22019)**



Figure A.3.1. Taxable Retail Sales in Accommodations & Food Services:  Both Counties
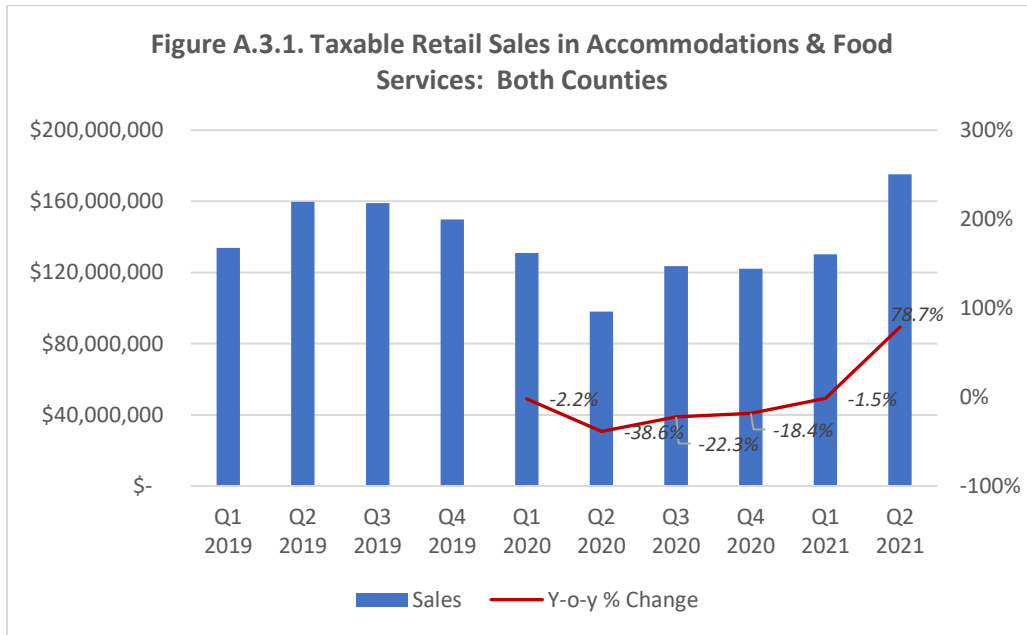
Comment:  A drop of $61.71 million in Q2 2020 from Q2 2019. Recovery as of Q2 2021.



Figure A.3.2. Taxable Retail Sales in Accommodations & Food Services:  Benton County
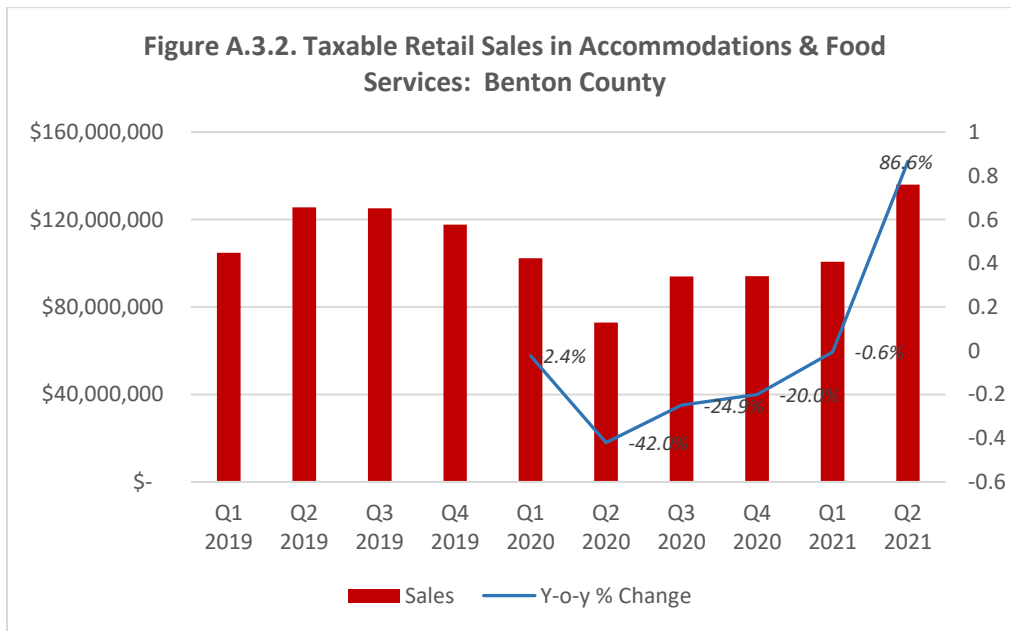
Comment:  A drop of $52.79 million in Q2 2020 from Q2 2019. Recovery in Q2 2021.

**Figure A.3.3. Taxable Retail Sales in Apparel & Accessories: Both Counties**
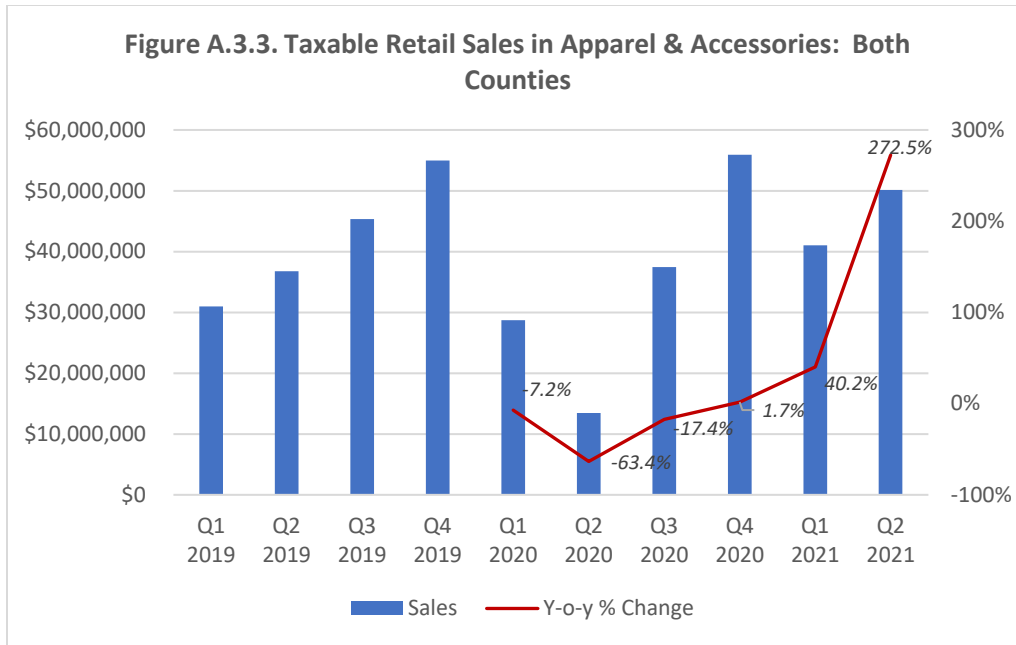


Comment: A drop of $23.31 million in Q2 2020 from Q2 2019. Recovery in Q4 2020.

**Figure A.3.4. Taxable Retail Sales at Apparel & Accessory Stores: Benton County**
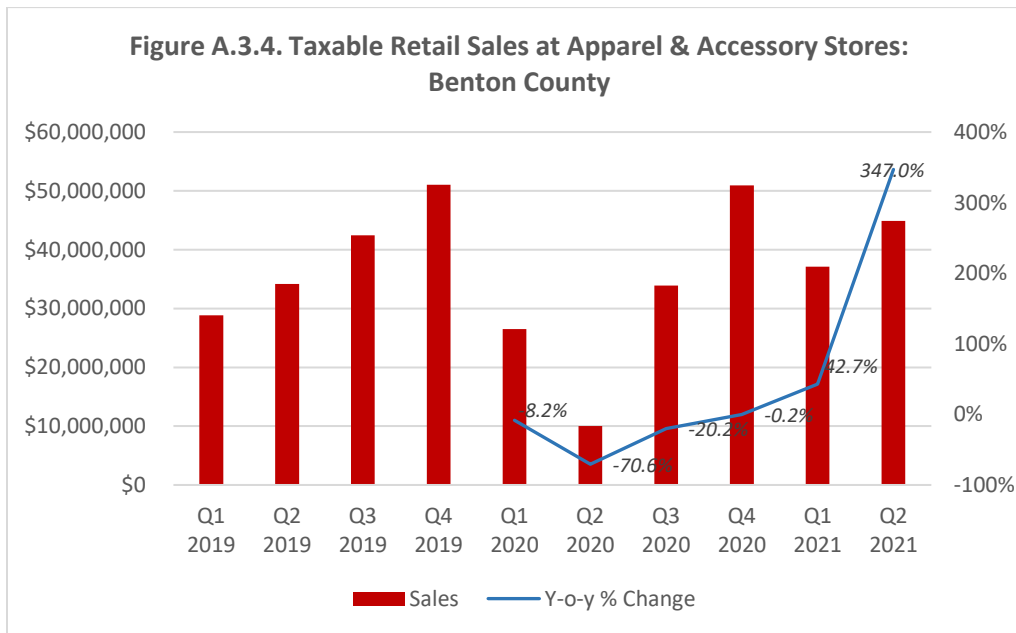


Comment: A drop of $24.12 million in Q2 2020 from Q2 2019. Recovery in Q1 2021.

**Figure A.3.5. Taxable Retail Sales of Wholesale Trade:  Both Counties**

Comment:  A drop of $13.4 million in Q2 2020 from Q2 2019. Recovery in Q3 2020.



**Figure A.3.6. Taxable Retail Sales in Wholesale Trade:  Benton County**

Comment:  A drop of $14.66 million in Q2 2020 from Q2 2019. Recovery in Q4 2020.

**Figure A.3.7. Taxable Retail Sales for Other Services: Both Counties**
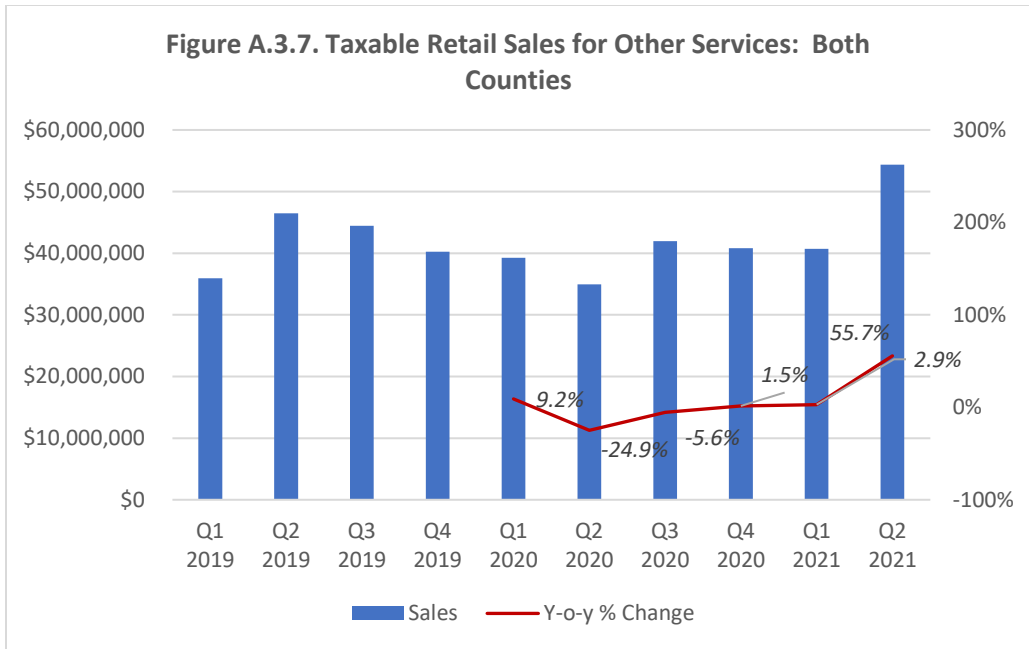
Comment: A drop of $11.57 million in Q2 2020 from Q2 2019. Recovery in Q4 2020.



**Figure A.3.8. Taxable Sales in Other Services: Benton County**
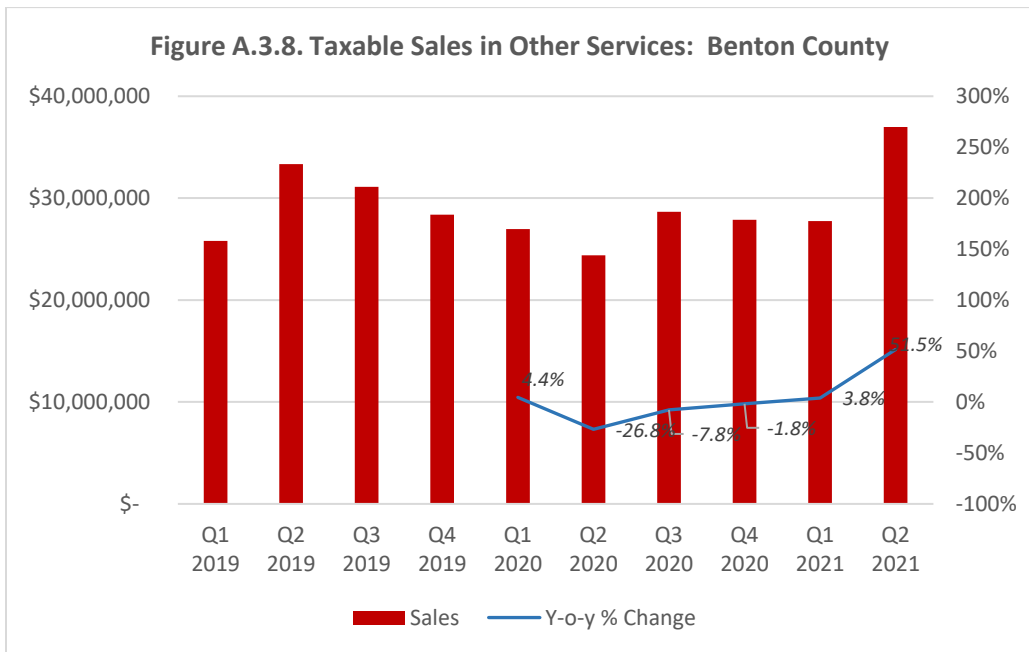
Comment: A drop of $8.95 million in Q2 2020 from Q2 2019. Recovery in Q1 2021.

**Figure A.3. 9. Taxable Retail Sales in Arts, Entertainment & Recreation: Both Counties**
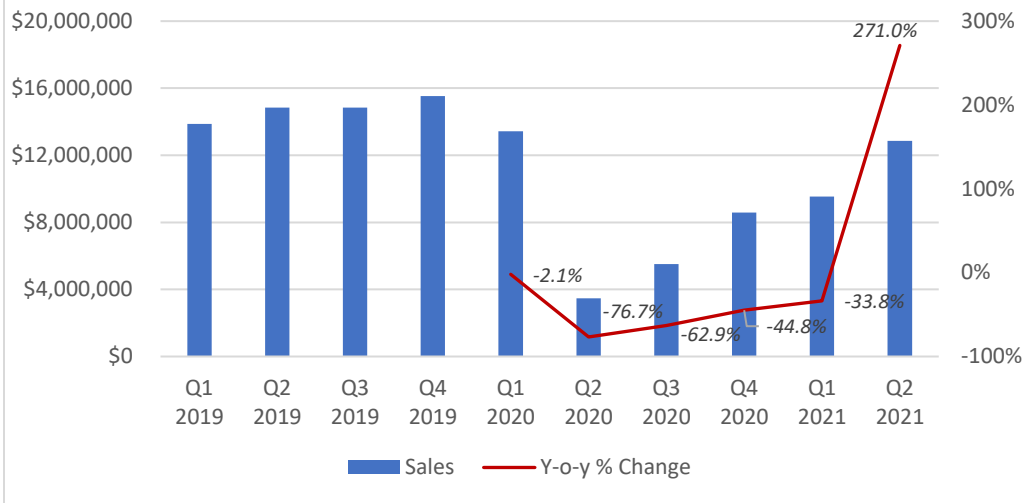


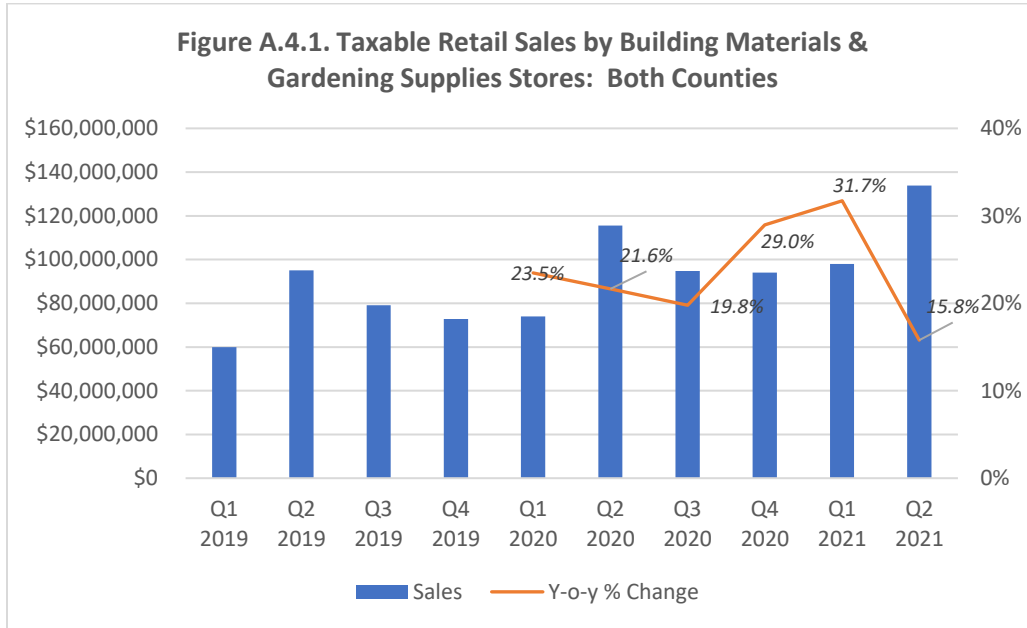Comment: A drop of $11.39 million in Q2 2020 from Q2 2019. No recovery yet.

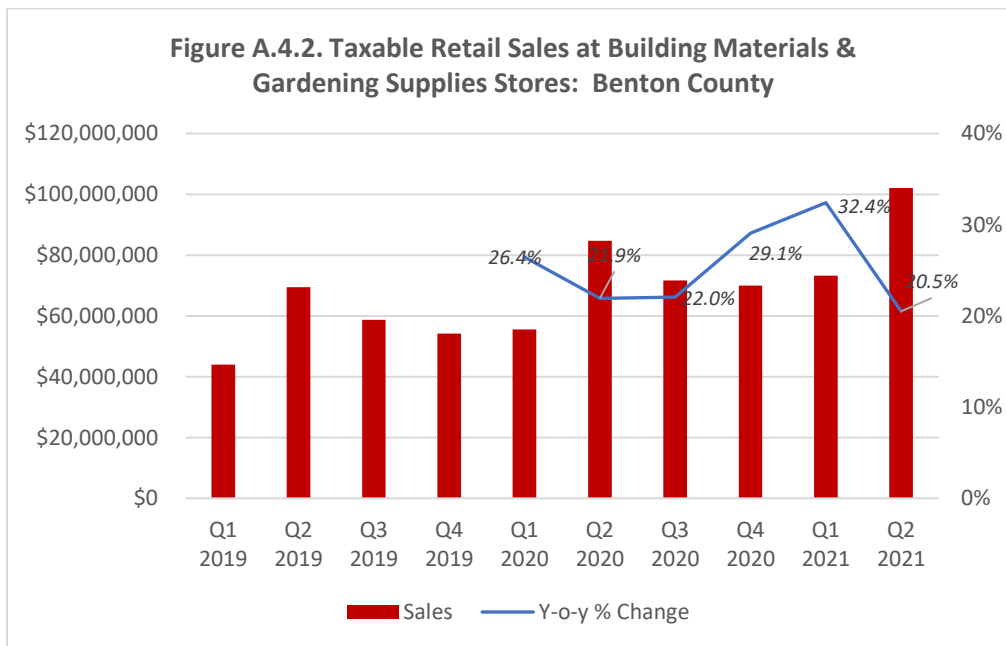**Figure A.3.10. Sales in Arts, Entertainment & Recreation: Benton County**
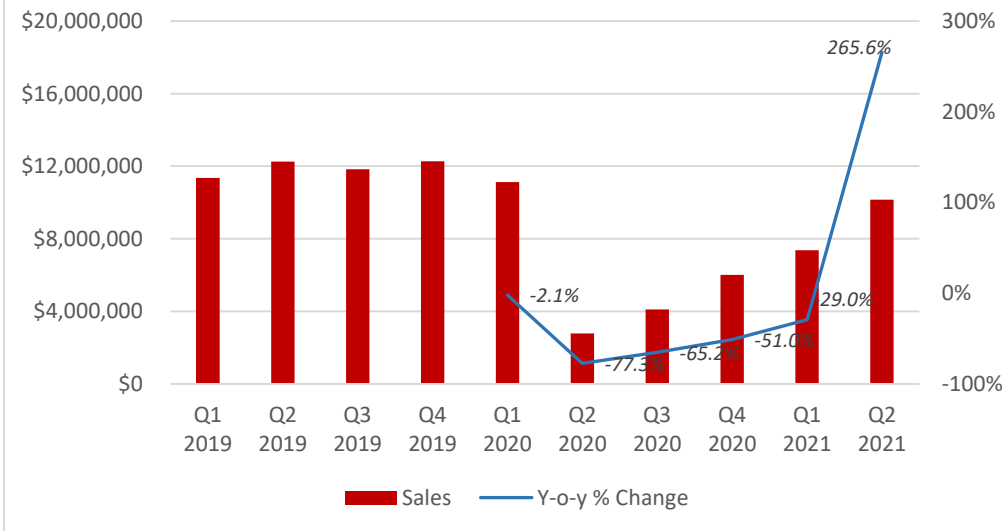


Comment: A drop of $9.48 million in Q2 2020 from Q2 2019. No recovery yet.

**A.4. Quarterly Path by Taxable Retail Sales:  Least Affected Sectors/Industries (Q22020 vs. Q22019)**
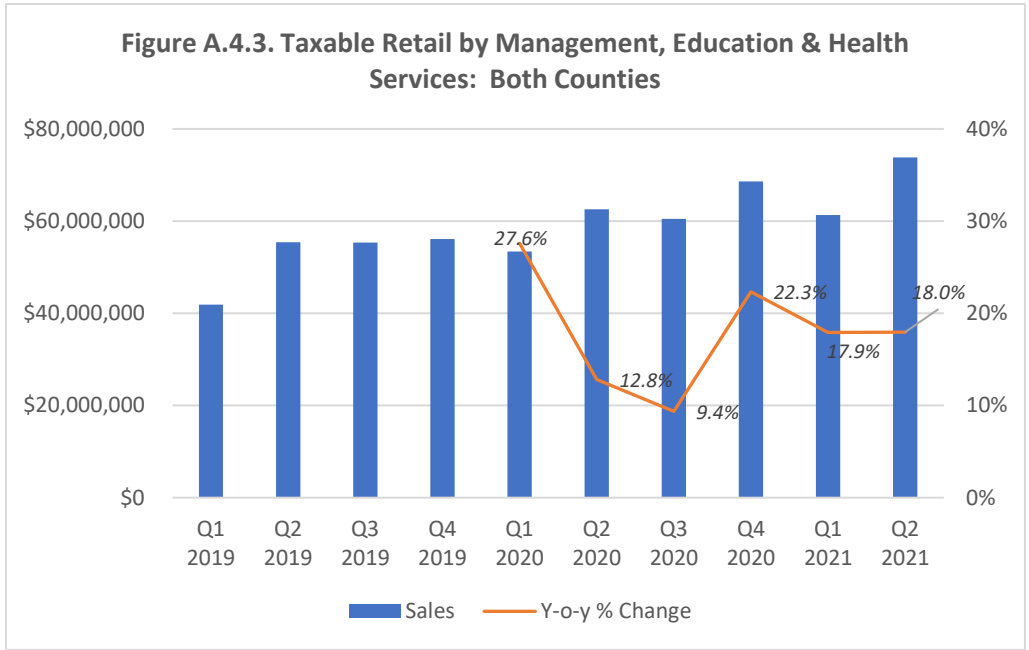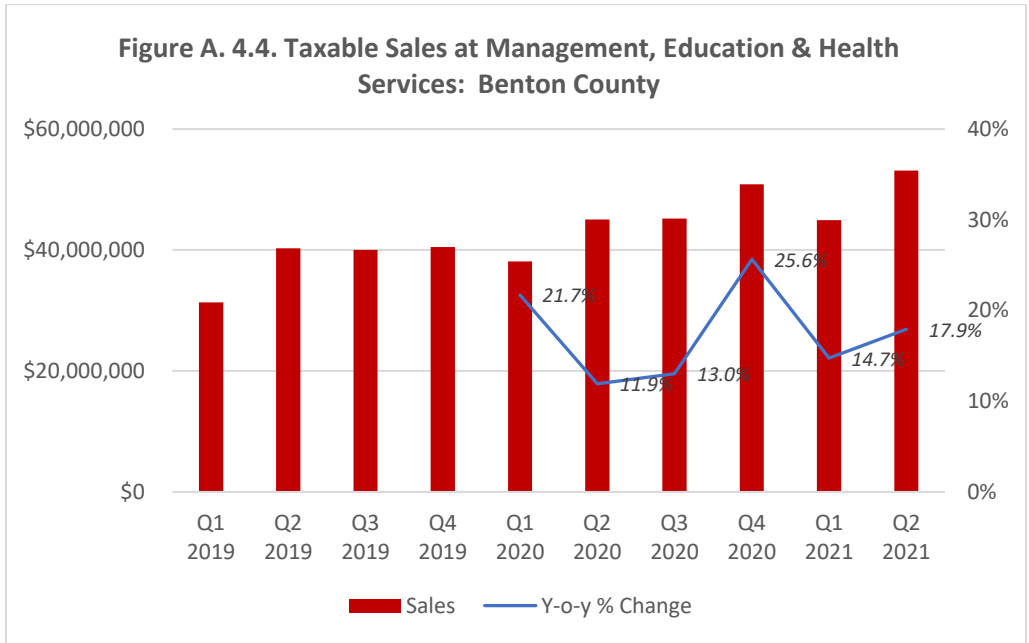*Source:  Washington State Department of Revenue, "Quarterly Business Reviews"*



Figure A.4.1. Taxable Retail Sales by Building Materials & Gardening Supplies Stores:  Both Counties

Comment:  A gain of $20.57 million in Q2 2020 from Q2 2019.



Figure A.4.2. Taxable Retail Sales at Building Materials & Gardening Supplies Stores:  Benton County

Comment:  A gain of $15.22 million in Q2 2020 form Q2 2019.

**Figure A.4.3. Taxable Retail by Management, Education & Health Services:  Both Counties**

Comment:  A gain of $7.11 million in Q2 2020 from Q2 2019.



**Figure A. 4.4. Taxable Sales at Management, Education & Health Services:  Benton County**

Comment:  A gain of $4.8 million in Q2 2020 from Q2 2019.

**Figure A.4.5. Taxable Retail Sales by Electronics & Appliance Stores: Both Counties**
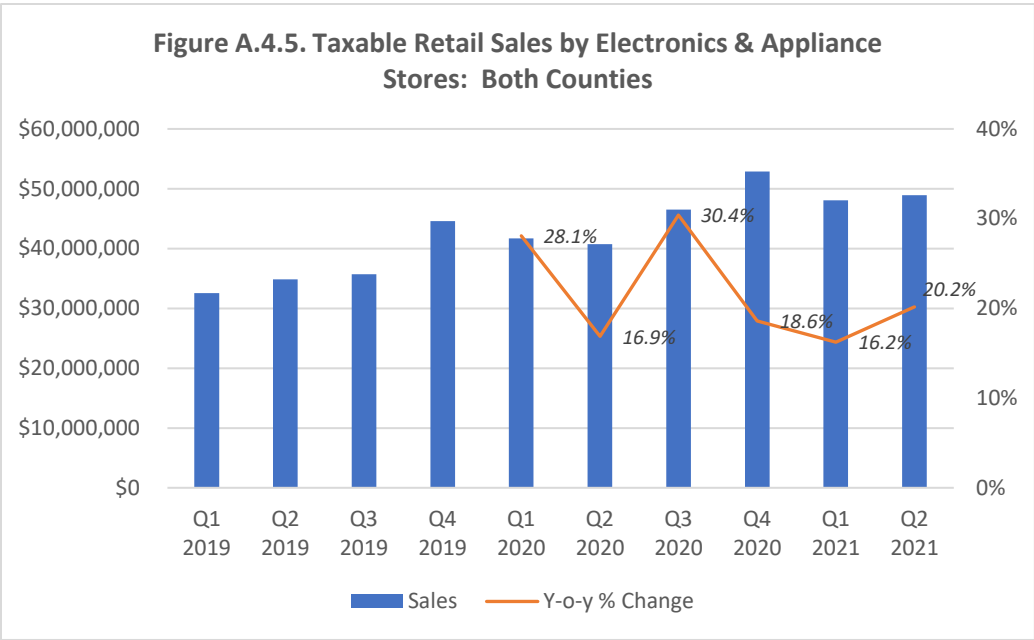
Comment: A gain of $5.88 million in Q2 2020 from Q2 2019.



**Figure A.4.6. Taxable Retail Sales at Electronics & Appliance Stores: Benton County**
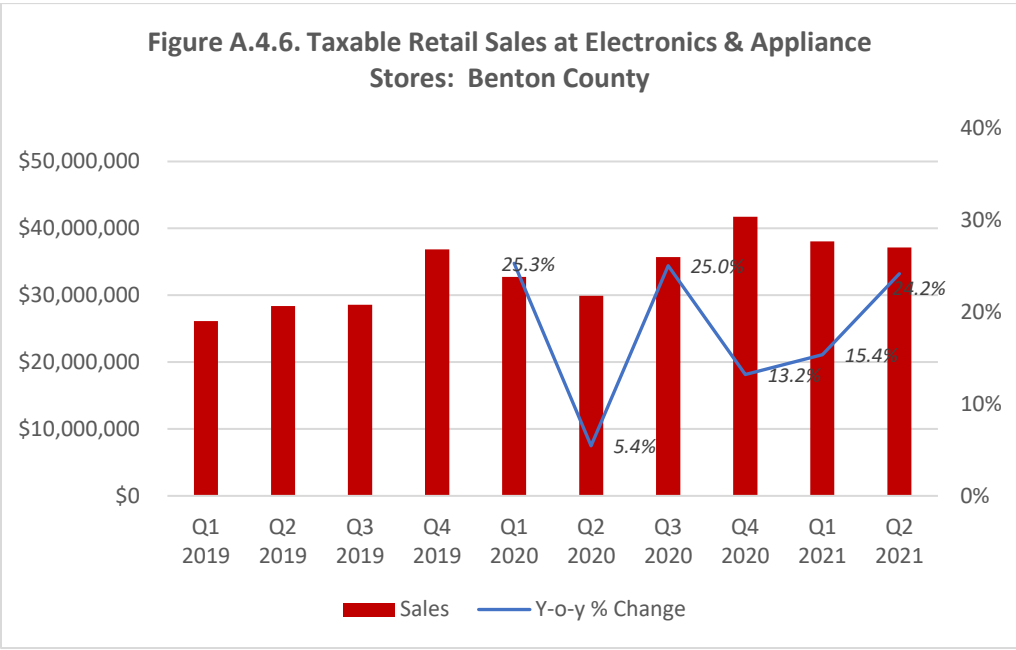
Comment: A gain of $1.54 million in Q2 2020 from Q2 2019.

**A.4.7. Taxable Retail Sales by General Merchandise Stores: Both Counties**
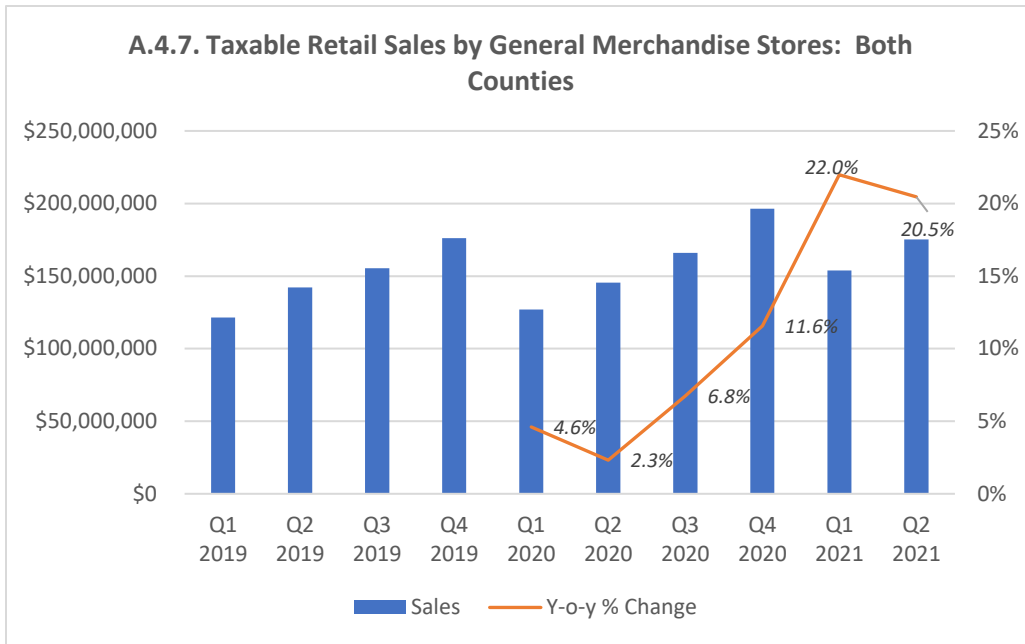


Comment:  A gain of $3.3 million in Q2 2020 from Q2 2019.

**A.4.8. Taxable Retail Sales at General Merchandise Stores: Benton County**
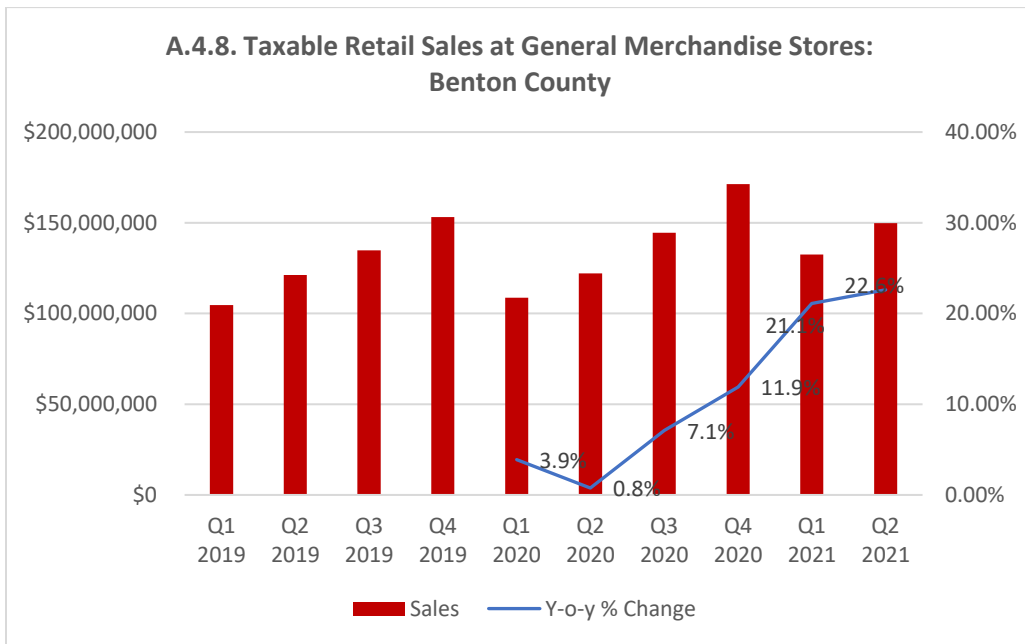


Comment:  A gain of $0.92 million in Q2 2020 from Q2 2019.

**Table A.4.9. Taxable Retail Sales by Food & Beverage Stores: Both Counties**
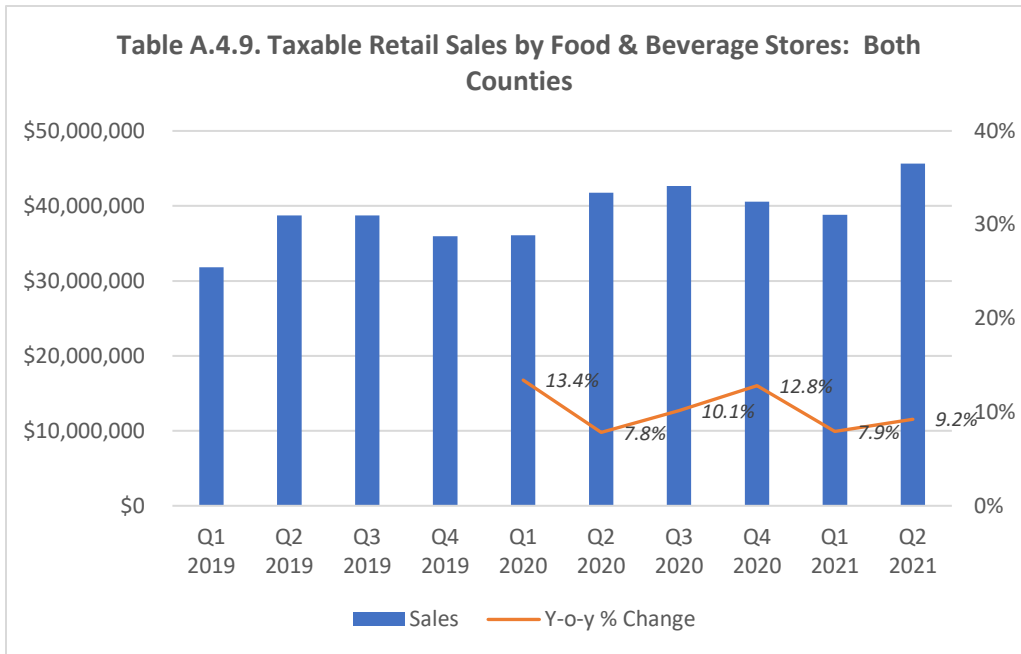


Comment: A gain of $3.0 million in Q2 2020 from Q2 2019.

**Table A.4.10. Taxable Retail Sales at Food & Beverage Stores: Benton County**
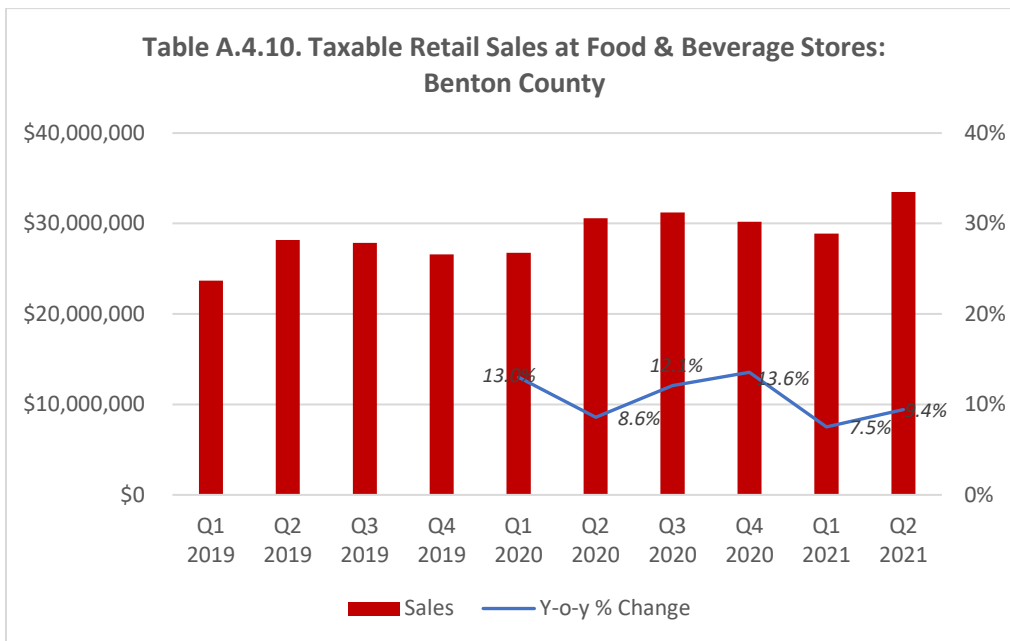


Comment: A gain of $2.42 million in Q2 2020 from Q2 2019.