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UNIVERSITY OF NORTH ALABAMA REGIONAL ECONOMIC UPDATE

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INSTITUTE *for* INNOVATION *and* ECONOMIC DEVELOPMENT

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Introduction

Since December 2022, the FED has increased interest rates on three separate occasions, pushing the Federal Funds target rate range to 5.00% - 5.25%. Overall, inflation continues to respond to tighter FED policy, at least to a certain degree, as the Bureau of Labor Statistics (BLS) estimates that the U.S. City Average (USC) inflation decreased from 6.5% in December 2022 to 3.0% in June 2023. However, inflation did remain relatively high during the first half of 2023 as first-half inflation is estimated to be 4.9%. When considering the East South Central (ESC) statistical region, we have experienced a trend reversal since the last edition of the economic update in January 2023. During 2022 ESC inflation was lower than USC inflation, but that trend has now reversed, and ESC inflation is higher from January through June 2023. Inflation in the ESC region increased from 6.5% in December to 6.6% in January. Since January, ESC inflation estimates have been declining steadily and measured 3.3% in June 2023. This pattern yields an ESC inflation estimate of 5.2% for the first half of the year. Exactly how much prices have changed since January 2020 is an important question. Total inflation as measured by the USC equals 18.27% while total ESC inflation equals 19.76% between January 2020 and June 2023.

Problems inherent in these 12-month style inflation calculations have been discussed in previous editions. To more closely examine month-to-month inflation we again discuss BLS 1-month percent change inflation rates for each major BLS category. Findings suggest that inflation thus far for 2023 remains above the stated FED target of 2% in five major categories – Housing, Apparel, Recreation, Motor Fuel, and Transportation. Inflation in the subcategory of Food Away from Home is also currently running above the 2% target, even though the Food and Beverage category is below 2%. Other categories currently below 2% estimated inflation are Education and Communication, Household Furnishings and Operations, Fuels and Utilities, and Medical Care. Medical Care prices are actually declining during the first half of 2023 with deflation in this sector measured at -0.7%. Finally, this edition introduces a data set that has not been included in any previous edition, the Employment Compensation Index.

Due to the persistence of inflation over the last twelve to eighteen months, this edition of the economic update begins with a short discussion concerning the past 20 years of FED policy decisions. Dr. Jason Imbrogno has been investigating these issues since January 2023 and has previously presented some of his findings to some local private and civic organizations. Please contact Dr. Imbrogno (jimbrogno@una.edu) for additional information or if you would like to discuss the possibility of scheduling a presentation for your group or organization. Finally, for those interested in taking a deeper dive into monetary policy and recent FED activity on an individual basis, I recommend reading *Money and the Rule of Law: Generality and Predictability in Monetary Institutions*.[1]

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[1] Boettke, P., Salter, A., & Smith, D. (2021). *Money and the Rule of Law: Generality and Predictability in Monetary Institutions*. Cambridge: Cambridge University Press. Doi: 10.1017/9781108806787.009.

The Disastrous Past 20 Years of Federal Reserve Policy

The dot-com bubble burst in 2000. Al-Qaeda terrorists flew planes into buildings in 2001. The housing market crashed in 2008. Each of those events gave the Federal Reserve the excuse to keep interest rates unnecessarily low, for unnecessarily long, and finally, we have begun to pay the price with a huge inflation spike.

What is the Federal Reserve and what is its purpose?

The Federal Reserve, often referred to as the Fed, is the central banking system of the United States. Its primary objectives are the following: promote stable prices, maximize employment, and moderate long-term interest rates. The Fed sets the *federal funds rate* (FFR), which is the rate at which banks can borrow money from other banks when they need it. Commercial interest rates (both those paid to savers such as savings accounts and CD rates and those paid by borrowers such as mortgages and business loans) are then set by the individual banks in the banking system to be somewhere above the federal funds rate. Therefore, the federal funds rate becomes the benchmark of all consumer and business interest rates in the US economy.

Why did the Fed keep interest rates too low for too long?

Lower interest rates can help stimulate the economy by lowering the cost of borrowing money. This can incentivize business creation and consumer spending. The so-called zirp ("zero interest rate policy") of the past 20 years was meant to induce a *wealth effect* for Americans, whereby the ever-escalating values of their assets is further pumped back into the economy through increased business profits and consumer spending.[2] The problem is that endless stimulation, *including of businesses that would fail in any normal economic environment*, must go somewhere. Instead of our economy experiencing the rise and fall associated with normal business cycles, the Fed decided that free money should be available to every business, all the time, for the past 20 years. This constant propping up of the economy inevitably led to our recent bout of inflation.

How else are interest rates and inflation related?

There is a difference between *nominal interest rates* and *real interest rates*. An interest rate determines the extra amount of money a saver will get for his savings in the future (or, conversely, the extra amount of money a borrower will have to pay back for his borrowing). But, due to inflation, a dollar next year will not be able to buy as much stuff as a dollar today. *Nominal interest rates* tell you how many extra dollars a saver will have in the future (or how many a borrower owes) but *real interest rates* tell you how much more spending power a saver will have in the future (or less spending power for a borrower). In equation form, the *real interest rate* (r) is the *nominal interest rate* (i) minus inflation (π): $r = i - \pi$. Therefore, if the inflation rate exceeds the nominal interest rate a saver earns, they actually have less spending power than they previously had. The FFR that the Fed sets is a nominal interest rate. When

[2] See the op-ed column by former Fed Chairman Ben Bernanke available at: https://www.federalreserve.gov/newsevents/other/o_bernanke20101105a.htm. He actually had the gall to call his long-term ruinous policies virtuous.

inflation exceeds it, real interest rates are negative, eliminating a key incentive to saving money. From October 2002 to April 2023, 189 of the 247 months (77%) had a negative real interest rate. The average real interest rate over that time frame was -1.17%.[3]

How wrong has the Fed been more recently?

From November 2019 to April 2023, Americans faced negative real interest rates *every single month*, with an average rate of -3.49%. Another way to evaluate the recent error-prone Fed is by consulting the so-called "Taylor rule," a monetary policy framework developed by Stanford economist John Taylor in 1992. The idea of the rule is that the Fed should not have the discretion to make interest rates whatever they please, but rather they should follow a specified equation so that everyone in the economy knows the transparent, stable pathway of interest rate changes. Taylor's original rule is represented by the following equation: $i = 2 + \pi + \frac{1}{2}(\pi - 2) + \frac{1}{2}(q - q^{*})$, where i and π are defined as above and $(q - q^{*})$ is the "output gap," or the difference between (the log of) GDP and (the log of) potential GDP. The leading 2 on the right-hand side is the target real interest rate (as specified by Taylor) and the 2 inside the first set of parentheses is, by the Fed's own definition, the target inflation rate. A simplified reformulation of the Taylor rule for illustrative purposes (what I call the modified Taylor rule) can be expressed simply as $i = \pi + 2 + 2$; in other words, the FFR set by the Fed should be the inflation rate plus the target inflation rate plus the target real interest rate. As shown in table below, the Fed has not pushed the FFR nearly high enough to satisfy the modified Taylor rule over the past 24 months. The MTR column in the table below provides estimates of where interest rate levels would be if the Fed followed this modified Taylor rule, which is simply based on the prevailing inflation rate (CPI) that month. The column named Difference simply subtracts the MTR from FFR for that month. Basis Points shows the same information as Difference, just expressed in a different form (take the Difference and multiply by 100) preferred by financial experts. While the three stooges were expressing doubts about inflation's persistence[4] and encouraging the continuation of the ruinous zirp in mid-2021, the Fed fell far behind in raising the FFR to levels necessary to tame the inflation beast it had unleashed over the previous decades. As of April 2023, the FFR remains 400 basis points (or 4%) *below* where the modified Taylor rule suggests it should be.

[3] Data available from the St. Louis Fed at: https://fred.stlouisfed.org/graph/?g=6TK.

[4] Fed Chairman Jerome Powell, March 2021: "These one-time increases in prices are likely to have only transient effects on inflation." Secretary of the Treasury (and former Fed Chairman) Janet Yellen, March 2021: "Is there a risk of inflation? I think there's a small risk and I think it's manageable. I don't anticipate that inflation will be a problem." President Joe Biden, July 2021: "There's nobody suggesting there's unchecked inflation on the way – no serious economist."

Recent FED Activity vs. Modified Taylor Rule
April 2021 - April 2023

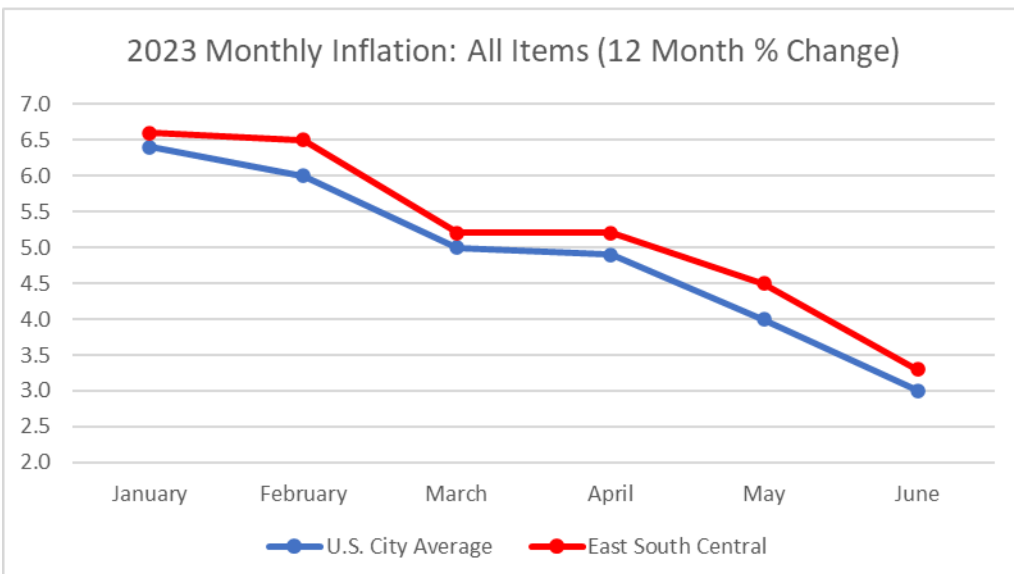
Month	FFR	CPI	MTR	Difference	Basis Points
Apr - 21	0.07	4.20	8.20	-8.13	-813
May - 21	0.06	5.00	9.00	-8.94	-894
June - 21	0.08	5.40	9.40	-9.32	-932
July - 21	0.10	5.40	9.40	-9.30	-930
Aug - 21	0.09	5.30	9.30	-9.21	-921
Sept - 21	0.08	5.40	9.40	-9.32	-932
Oct - 21	0.08	6.20	10.20	-10.12	-1012
Nov - 21	0.08	6.70	10.80	-10.72	-1072
Dec - 21	0.08	7.00	11.00	-10.92	-1092
Jan - 22	0.08	7.50	11.50	-11.42	-1142
Feb - 22	0.08	7.90	11.90	-11.82	-1182
Mar - 22	0.20	8.50	12.50	-12.30	-1230
Apr - 22	0.33	8.30	12.30	-11.97	-1197
May - 22	0.77	8.60	12.60	-11.83	-1183
June - 22	1.21	9.10	13.10	-11.89	-1189
July - 22	1.68	8.50	12.50	-10.82	-1082
Aug - 22	2.33	8.30	12.30	-9.97	-997
Sept - 22	2.56	8.20	12.20	-9.64	-964
Oct - 22	3.08	7.70	11.70	-8.62	-862
Nov - 22	3.78	7.10	11.10	-7.32	-732
Dec - 22	4.10	6.50	10.50	-6.40	-640
Jan - 23	4.33	6.40	10.40	-6.07	-607
Feb - 23	4.57	6.00	10.00	-5.43	-543
Mar - 23	4.65	5.00	9.00	-4.35	-435
Apr - 23	4.83	4.90	8.90	-4.07	-407

2023 Monthly Inflation Estimates: January through June

Since December 2022, overall inflation has continued to slow as the Fed increased rates three additional times over the last six months. The U.S. City Average: All Items (USC) inflation, decreased an additional six straight months with inflation during June 2023 measured at 3.0%. Recall that this is down from the peak of 9.1% which occurred during June 2022. With only a small (0.1%) inflation reduction during January 2023 and April 2023, USC inflation has declined by more than 50% since December 2022. As shown in the chart below, inflation declined by one percent during March and June 2023 and just under one percent (0.9%) during May 2023. While these trends are certainly promising, and hopefully indicative of a return to a more "normal" inflation pattern, the table below shows that inflation for the first half of 2023 is measured at 4.9%. For further comparison and planning purposes, the table also provides total

USC inflation since the pandemic began in January 2020. Specifically, the BLS estimates a total of 18.27% inflation since January 2020.

Inflation in our East South Central (ESC) region, as defined by the BLS, follows a similar pattern to the USC region with a few exceptions. The first item to note is that during the first half of 2023, inflation in the ESC region is higher than inflation estimates for the USC region during all six months covered by this update. This is a deviation from the previous update where ESC inflation was lower than USC inflation during the second half of 2022. Average inflation in the ESC region is estimated to be 5.2% during the first half of 2022, compared with the USC average of 4.9% - discussed above. Since January 2020, total ESC inflation equals 19.76%, indicating that prices in the ESC region have grown just under 1.5% more than prices on average in the U.S. ESC region data from the January through June 2023 time period still shows promising results with a significant decline from 6.6% in January 2023 to 3.3% in June. Overall, ESC inflation increased slightly for a second straight month during January 2023 before declining back to the December 2022 level of 6.5% during February 2023. ESC Inflation declined from 6.5% during February to 5.2% during March, representing the largest reduction in inflation in over a year. Other than remaining steady at 5.2% from March to April, ESC inflation continued to decline during May and June 2023.



2023 Monthly Inflation: All Items (%)

	U.S. City Average	East South Central
January	6.4	6.6
February	6.0	6.5
March	5.0	5.2
April	4.9	5.2
May	4.0	4.5
June	3.0	3.3
1st Half 2023	4.9	5.2
Inflation since 01/01/2020	**18.27**	**19.76**

Source: BLS

Inflation by Major Category: January through June 2023

Investigation of inflation by major BLS category within the ESC region continues to reveal interesting insights into the overall average inflation measures discussed above. Inflation continues to vary wildly both on a month-to-month basis and by category. All inflation rates discussed in this section are 12-month average inflation rates. During the first half of 2023, inflation in four major categories – Food and Beverage, Housing, Household Furnishings and Operations, and Fuels and Utilities - was greater than 5.2% ESC average inflation for the first half of 2023. Inflation in the Fuels and Utilities sector, estimated to be 9.7% during the first half of 2023, leads all major sectors. Inflation in the Housing sector is a close second, estimated to be 9.3% during the first half of the year. Food and Beverage inflation remains persistently high, measured at 8.8% for the period covered by this update. Food at Home continues to drive inflation in this major category, measured at 9.2% for the first half of the year. However, in a change from previous editions, Food Away from Home inflation is now exerting a larger impact on this sector than at any time in the last twelve months and is estimated to be 8.3% during the first half of the year. While this certainly follows the inflation trend for Food Away from Home experienced during the second half of 2022, annual inflation for this category during 2022 was only 6.7%, approximately 55% lower than the 2022 annual inflation rate of 12.1% for Food at Home. Concerning the categories with higher-than-average inflation, the Household Furnishings and Operations sector displays the lowest amount of inflation during the first half of the year at 6.2%.

Examination of the table below reveals that erratic inflation persists on a month-to-month basis for the sectors experiencing above-average inflation, as discussed above, as well as those sectors with inflation below the ESC average for the first half of the year. Inflation estimates for June 2023 represent the lowest inflation estimates for each category during the first half of 2023. As predicted in the previous edition of this economic update, after a slight decline during December, Motor Fuel inflation was estimated to be 3.3% during January. However, Motor Fuel prices were significantly lower between February and June, with June 2023 prices estimated to be 28.6% below prices from June 2022. This brings Motor Fuel inflation for the first half of 2023 to -15.1%. The Transportation sector is the only other major BLS sector with a negative 12-month average inflation estimate for the first half of 2023. Inflation in this sector was 2.3%

in January and 0% during February, followed by four months of negative inflation rates from March through June. This brought the first-half average inflation rate for Transportation to -3.1% in 2023. The Medical Care sector displays the lowest first-half average inflation with a rate of 0.1%. See the table below for complete 12-month average inflation rates by month for each major category and two sub-categories.

2023 Monthly CPI by Category All Urban Consumers: East South Central (%)

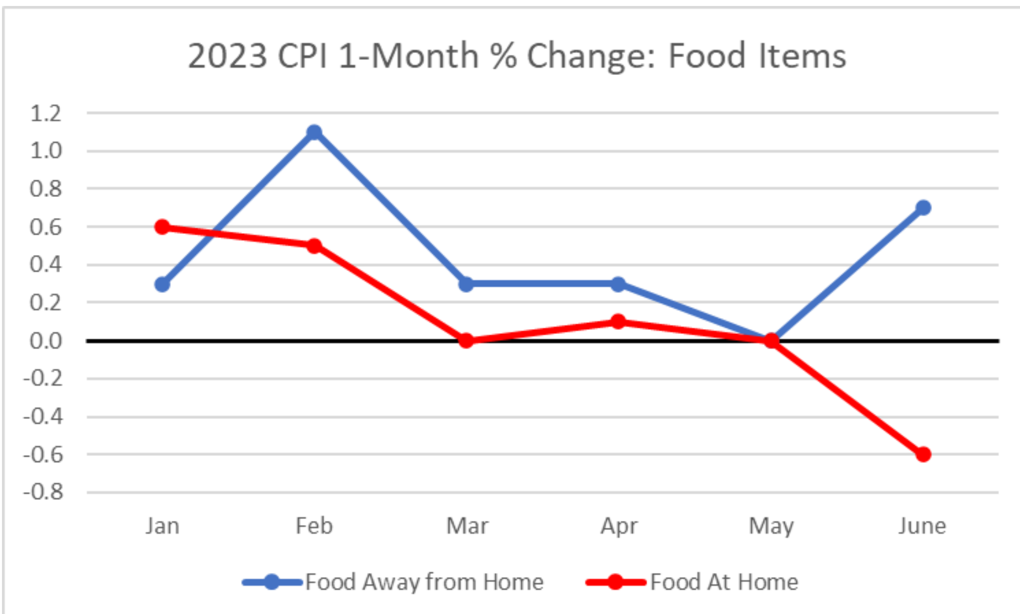
Major Category	January	February	March	April	May	June	1st Half 2023
All Items	6.6	6.5	5.2	5.2	4.5	3.3	**5.2**
Apparel	2.0	9.0	7.2	4.1	2.4	1.9	**4.4**
Education and Communication	4.3	5.4	4.8	5.2	5.0	2.5	**4.5**
Food and Beverage	11.1	10.4	9.6	8.3	7.4	5.9	**8.8**
Housing	9.0	9.6	9.6	9.5	9.5	8.9	**9.3**
Household Furnishings and Ops	6.2	5.9	8.6	7.3	5.2	4.0	**6.2**
Fuels and Utilities	12.4	12.4	11.3	8.1	7.9	6.4	**9.7**
Medical Care	1.4	0.9	0.2	-0.5	-0.6	-0.8	**0.1**
Recreation	5.7	6.4	5.9	3.9	3.7	2.5	**4.7**
Transportation	2.3	0.0	-4.7	-2.8	-5.0	-7.4	**-3.1**
Food Away from Home	8.1	9.3	9.0	8.7	7.9	7.1	**8.3**
Food At Home	13.3	11.5	10.2	8.2	7.2	5.4	**9.2**
Motor Fuel	3.3	-3.4	-21.7	-14.1	-21.5	-28.6	**-15.9**

Source: BLS

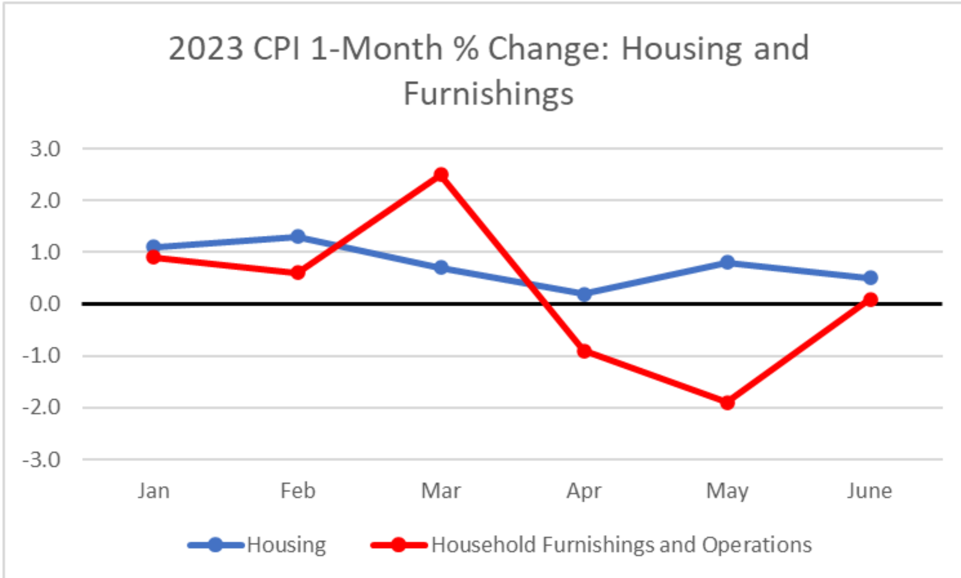
2023 Monthly 1-Month % Change Inflation Rates by Category

While the 12-month average inflation rates continue to be one of the most popular methods for discussing inflation trends, such 12-month averages provide little detail regarding how inflation is changing within the ESC region on a month-to-month basis. As examined in the previous edition of the update, the charts and table below examine the current inflationary environment on the basis of a 1-month % change to provide further details on exactly how inflation is impacting the ESC region during the first half of 2023. Motor fuel provides an excellent example of how the 12-month percent change does not tell the entire story concerning current inflation. The previous section discussed how motor fuel prices experienced the largest decrease of any major category. While this is true on a 12-month average basis, the table below indicates that consumers have a much different experience when paying for motor fuel on a month-to-month basis. While motor fuel prices did decrease by 0.3% during March and 1.8% during May, prices also increased by 3.7% during January and 6.9% during April. Thus, while Motor Fuel prices are lower than in June 2022, this major category has experienced 10.1% inflation since December 2022.

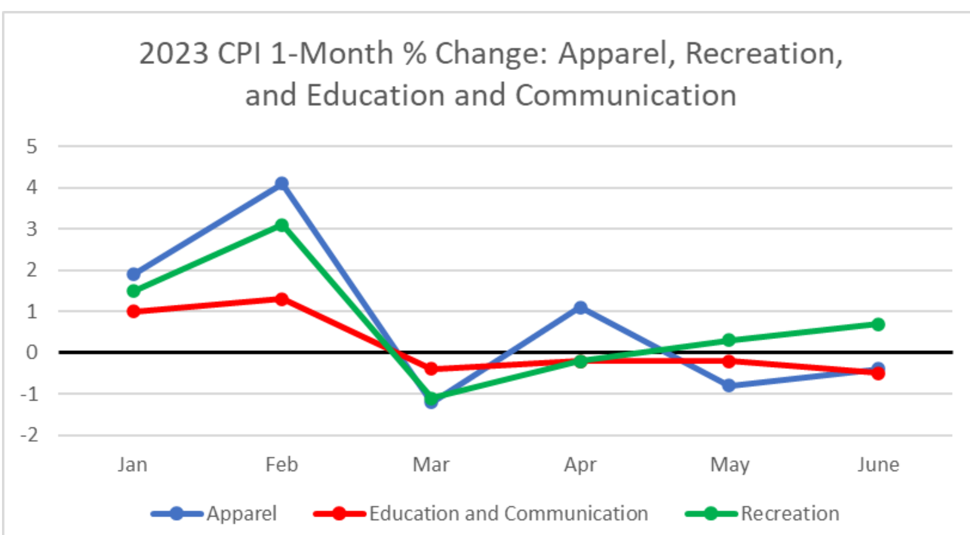
We begin by examining the 1-month percent change inflation rates for food items in the ESC. During 2022, prices for food at home grew much faster than food away from home. Thus far, for 2023, this trend has reversed with inflation for Food at Home dropping below inflation for Food Away from Home during February when trends for these major categories diverged. Specifically, inflation estimates for Food at Home decreased slightly (0.1%) from January to February, and prices for Food Away from Home increased by 0.8%. Since February, the inflation rate for both subcategories of the Food and Beverage sector declined and both experienced 0% inflation during May. Trends in each category diverged significantly during June with Food at Home prices declining by 0.6% and prices for Food Away from Home increased by 0.7%. It will be interesting to see if these "new" trends persist into the second half of 2023. However, inflation during the first half of the year, for Food at Home, is currently less than 1% and is below the FED target, while Food Away from Home during 2023 is above the FED target at 2.7%.



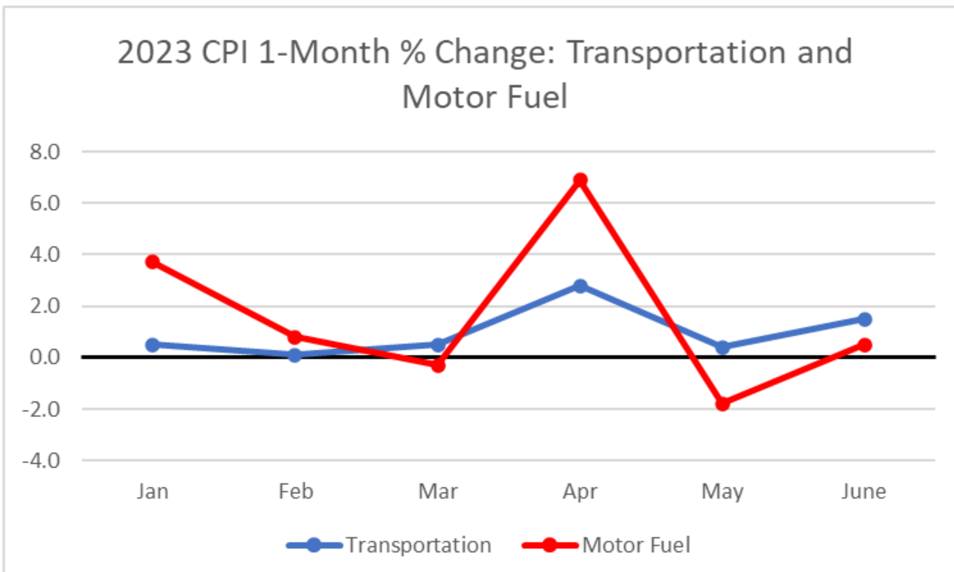
Month-to-month inflation estimates for Housing and Household Furnishing major categories are displayed in the figure below. Similar to the second half of 2022, housing inflation continued to be steady on a month-to-month basis during the first half of 2023. Housing inflation on a 1-month percent change basis was slightly lower during January and February, as compared with December 2022; however, monthly inflation remained over 1% during both months. Inflation in this sector was less than 1% each month from March through June with prices changing the least during April 2023 at 0.2%. Similar to 2022, month-to-month inflation rates for Household Furnishings and Operations were below Housing inflation rates for five of six months during the first half of 2023. Only during March 2023 does the inflation rate for Furnishings and Operations (2.5%) exceed all month-to-month inflation rates for Housing. Following the spike in March, prices in the Furnishing and Operations sector experienced deflation for two consecutive months. During June, this sector experienced minimal inflation of 0.1%. Overall, housing inflation during 2023 is still above the official FED target, at approximately 3.5% while the large decrease in prices during April and May places Household Furnishings and Operations inflation currently below 1%, and thus under the FED target.



With very similar patterns, the figure below provides 1-month percent change inflation estimates for Apparel, Recreation, and Education and Communication major categories. Similar to Food at Home and Housing, prices increased slightly in each of these categories during February 2023. Education and Communication had only a slight increase of only 1.3% during February while inflation for Apparel and Recreation increased by 4.1% and 3.1%, respectively. Then, during March, prices declined in all three categories. Prices continue to decline in the Education and Communication sector during April, May, and June. This sector experiences the most consistent deflation of any other major BLS sector. The Recreation sector displays a second consecutive month of deflation during April before returning to a mild, but increasing, inflation pattern during May and June. On the other hand, the Apparel sector records 1.1% inflation during April and then experiences two consecutive months of deflation during May and June. Education and Communication inflation during 2023 is currently under 1% and thus below the FED target. The Apparel and Recreation sectors are not doing quite as well with 2023 total inflation above 3% in both categories.



The final figure examines inflation for the Transportation and Motor Fuel categories. Month-to-month inflation for Motor Fuel was discussed above; however, it is important to note that motor fuel prices are typically volatile, and 2022 and the first half of 2023 are no exception. With numerous up-and-down movements in motor fuel prices, it is common to see either inflation or deflation on a month-to-month basis. As shown in the chart below, 2023 is no exception with slight deflation occurring during March and May and an inflation of 6.9% between March and April. At this point, total motor fuel inflation during 2023 is in excess of 6% - well above the FED target of 2.0%. Oppositely, inflation in the Transportation sector remained mostly steady during the first half of 2023, with a slight positive trend. While inflation in the Transportation sector is certainly lower than it was one year ago, as shown by the 12-month average inflation estimates in the previous section, it is easy to see that this sector is experiencing inflation during 2023. In fact, total inflation for Transportation for 2023 is currently in excess of 5%, more than double the FED target rate.



The table below also contains month-to-month inflation estimates for All Items, Food and Beverages major category, Fuel and Utilities, and Medical Care. Examining all categories for the first half of 2023, we find that inflation for "All Items" is currently in excess of 3%. Furthermore, five of the ten major categories currently exhibit inflation estimates under the 2% FED target. The five categories are Food and Beverage (including both Food at Home and Food Away from Home), Education and Communication, Household Furnishing and Operations, Fuels and Utilities, and Medical Care. Also, the Medical Care sector is the only sector to experience deflation during the first half of 2023 (-0.7%). Finally, given that the estimate for the "All Items" category is currently above the FED target, we can conclude that inflation in the five currently "higher" inflation categories is dominating the current "lower" inflation categories.

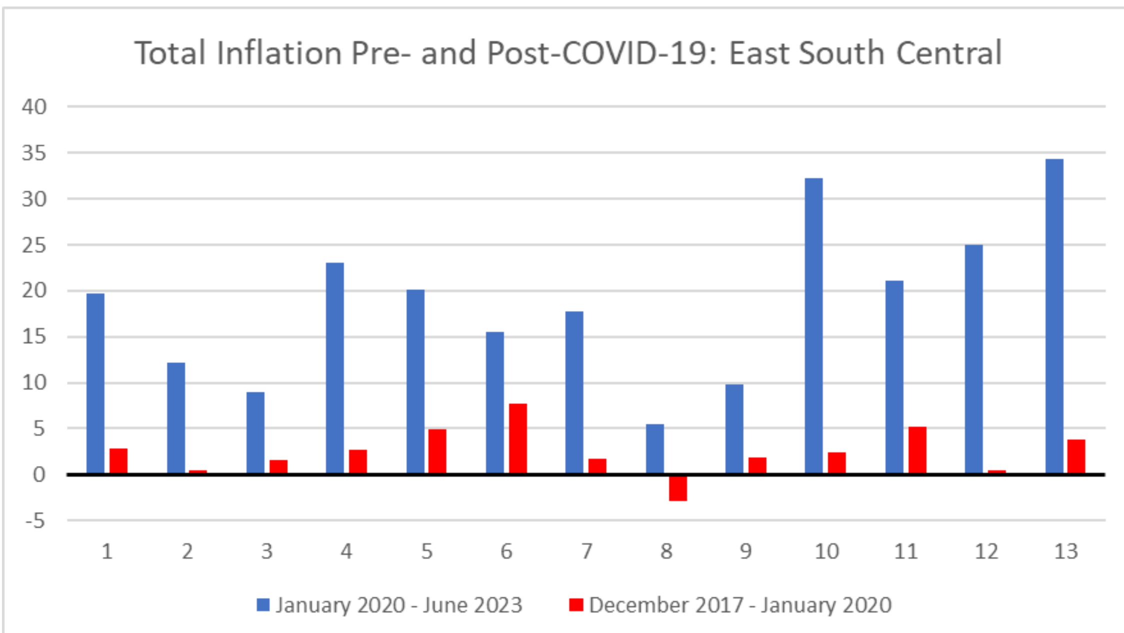
2023 1-Month Percent Change CPI by Category All Urban Consumers: East South Central (%)						
Major Category	**Jan**	**Feb**	**Mar**	**Apr**	**May**	**June**
All Items	0.8	1.0	0.3	0.6	0.4	0.4
Apparel	1.9	4.1	-1.2	1.1	-0.8	-0.4
Education and Communication	1.0	1.3	-0.4	-0.2	-0.2	-0.5
Food and Beverage	0.5	0.7	0.1	0.1	0.0	-0.1
Housing	1.1	1.3	0.7	0.2	0.8	0.5
Household Furnishings and Operations	0.9	0.6	2.5	-0.9	-1.9	0.1
Fuels and Utilities	1.5	0.2	-1.3	-2.0	0.9	1.7
Medical Care	0.2	-0.2	-0.4	-0.4	0.1	-0.1
Recreation	1.5	3.1	-1.1	-0.2	0.3	0.7
Transportation	0.5	0.1	0.5	2.8	0.4	1.5
Food Away from Home	0.3	1.1	0.3	0.3	0.0	0.7
Food At Home	0.6	0.5	0.0	0.1	0.0	-0.6
Motor Fuel	3.7	0.8	-0.3	6.9	-1.8	0.5

Source: BLS

Cumulative Inflation Pre- and Post-COVID-19

As noted in the first section, a significant amount of inflation has occurred since January 2020, totaling 18.27% for the USC and 19.76% for the ESC region. As discussed in previous editions of this update, average inflation estimates often provide little detail regarding inflation experienced by various sectors within the economy. The purpose of this section is to compare inflation by major category pre- and post-pandemic within the ESC region. Specifically, we will compare total inflation during the period of December 2017 through January 2020 with the period from January 2020 through June 2023. The reader will notice that the time frames compared here are not equal with 24 months included in the pre-pandemic period and 42 months included in the post-pandemic period. While comparing unequal time periods is not ideal, unfortunately, the BLS only has data for the ESC region dating back to December 2017, making comparison of equal time periods impossible in this case. Inflation estimates for each time period are in the bar chart and table below. Please note that due to space constraints within the chart and to improve legibility, numbers are utilized to identify major BLS categories. See the table below the chart to identify which number belongs to which BLS category.

It is easy to see from the chart that inflation over the last three and a half years has been far greater in each major category than in the two years prior to the pandemic. This is true even with the inclusion of mild deflation which occurred in various categories during the early stages of the pandemic. Examination of the table reveals that inflation, since the beginning of 2020, in two sectors – Transportation and Motor Fuels – totals more than 30%. This analysis indicates that inflation in the Transportation sector is more than 13 times larger during the post-pandemic time frame compared to the pre-pandemic period, while inflation in the Motor Fuel sector is more than 8 times larger. Furthermore, post-pandemic inflation is greater than 20 percent in both the Housing and Food and Beverage Sectors (including, Food at Home and Food Away from Home). The Food at Home sector has experienced the largest change between pre- and post-pandemic time periods. Inflation, totaling 25.05% in this sector since January 2020, indicates that inflation in this sector is more than 50 times larger than the inflation experienced in the pre-pandemic period. While Food Away from Home is also significantly more expensive today than in January 2020 (25.05%), post-pandemic inflation is only 4 times larger than pre-pandemic inflation. The Apparel sector is another interesting point for discussion as post-pandemic total inflation of 12.15% is more than 24 times higher than the pre-pandemic inflation. Finally, Medical Care costs had decreased by just under 3% between December 2017 and January 2020 and have since increased by a total of 5.49% since January 2020. Thus, the Medical Care sector has experienced the lowest inflation rate since the beginning of the pandemic. See the table below for total inflation estimates by major category in the pre- and post-pandemic time periods.



Inflation Before and After COVID-19 - All Urban Consumers: East South Central December 2017 - June 2023 (%)

Major Category	January 2020 - June 2023	December 2017 - January 2020
All Items (1)	19.76	2.78
Apparel (2)	12.15	0.49
Education and Communication (3)	8.9	1.61
Food and Beverage (4)	22.98	2.69
Housing (5)	20.06	4.96
Household Furnishings and Operations (6)	15.45	7.72
Fuels and Utilities (7)	17.77	1.7
Medical Care (8)	5.49	-2.91
Recreation (9)	9.86	1.79
Transportation (10)	32.24	2.37
Food Away from Home (11)	21.04	5.22
Food At Home (12)	25.05	0.49
Motor Fuel (13)	34.36	3.85

Source: BLS

Quarterly Employment Compensation Index Data

Considering the amount of total inflation since January 2020, this section of the update introduces a compensation index that has not appeared in any previous editions. Here we will discuss the Employment Compensation Index (ECI) which is published by the BLS on a quarterly basis. For anyone unfamiliar with this index, the ECI is defined by the BLS as "a Principal Federal Economic Indicator (PFEI) that measures the change in the hourly labor cost to employers, independent of the influence of employment shifts among occupations and industry categories. Costs represent the pay period that includes the 12th of March, June, September, and December."[5] In other words, the ECI tracks the cost of employees to employers and can be used by employers to assist in making pay adjustments as they strive to stay competitive with what is paid by other employers. The ECI measures both the change in wages and salaries and employer costs for employee benefits for both the private and public sectors of the economy. Similar to inflation data, ECI data is available in various subseries by industry, occupation, and region. For the purposes of this update, we examine changes in the private industry ECI since January 2020 for the East South Central (ESC) subregion that is typically used in this update.

Examination of the table reveals that total private employee compensation has changed considerably since January 2020. First, we note that compensation changed very little during the initial stages of the pandemic, as employee compensation increased slightly from quarter to quarter during 2020. Over the year, total employee compensation increased by only 1.4%. Beginning in the first quarter of 2021, we see compensation begin to rise much faster as the change during 2021 Q1 is 1.46%, which is greater than the total increase in employee compensation during 2020. Such an increase early during 2021 is not unexpected as the

[5] ECI Questions and Answers, definition available at: https://www.bls.gov/eci/questions-and-answers.htm.

inflationary period began in March 2021. Although some supposed experts claimed the inflation to be transitory, inflation persisted during 2021 and employee compensation grew at an average rate of 1.46% per quarter during 2021. Thus, total employee compensation costs increased by just under 6% in 2021. Inflationary pressure continued during 2022 and employee compensation costs increased by an additional 4.6% during the year. However, we do see the quarter-to-quarter changes get smaller during the second half of 2022 as inflationary pressure began to soften. This trend seemingly reversed as compensation costs increased by 1.64% during Q1 2023. Q2 data for the ESC region has not been released as of the writing of this update; however, the BLS has released ECI data for the U.S. City average indicating that total employee compensation costs have increased a total of 4.6% between June 2022 and June 2023.

Overall, since January 2020, the BLS estimates that total employee compensation in the ESC region has increased by 13.65%. Comparing the total change in ECI with total inflation allows a simple method for evaluating how the standard of living has changed since the beginning of the pandemic. Economists utilize a simple method of comparing how fast wages are growing compared with inflation to ascertain if standards of living are increasing or decreasing during a given time period. If wages are growing faster than inflation standards of living are increasing and the opposite is true if inflation is growing faster than wages. Recall from earlier in this update that the total inflation for "All Items" in the ESC region between January 2020 and June 2023 is estimated to be 19.76%. This combined with the 13.65% increase in employee compensation indicates that the standard of living in the ESC region has decreased since January 2020. Comparatively, the standard of living was increasing between December 2017 and January 2020 when "All Item" inflation was measured at 2.78% and compensation, as measured by the ECI, grew at 5.75%.

Employment Compensation Index: East South Central 2020Q1 - 2023Q1 (Percent Change)

Time Period		Total Compensation
2020	Q1	0.52
	Q2	0.51
	Q3	0.15
	Q4	0.22
	Annual	**1.40**
2021	Q1	1.46
	Q2	1.00
	Q3	1.92
	Q4	1.46
	Annual	**5.97**
2022	Q1	1.79
	Q2	1.08
	Q3	0.80
	Q4	0.86
	Annual	**4.60**
2023	Q1	1.64

Source: BLS

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