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Taming Inflation: The Tradeoffs of Monetary Tightening

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In the summer of 2022, consumers experienced the highest inflation rates in decades. In June of 2022, the Consumer Price Index (CPI), rose 1.3% compared to May, which implied a 9.1% increase over the past 12 months. The CPI is a measure of the average change over time in the prices paid by consumers for a basket of goods, therefore, changes in the CPI pin down inflation faced by consumers. In more welcome news released on December 12th, 2022, the U.S. Bureau of Labor Statistics (BLS) reported that the CPI rose only by 0.1% in November compared to the previous month. This implies that over the last 12 months, inflation was 7.1%[1]. Nonetheless, this level of inflation is still higher that the 2% historically targeted by central banks. If fact, economists view such a high inflation rate as destabilizing. Panel (a) in Figure 1 depicts the fall and then sharp increase in the growth rate of the CPI (i.e., inflation) since the beginning of the pandemic until November of this year.

Another worrying sign is that inflation has exhibited a persistent upward trend over the past year. Initially, these inflationary pressures were thought to be transitory resulting from the imbalance between supply and demand created by the pandemic; elevated demand partially driven by extra funds households received from relief packages was met with shortages and supply chain interruptions. Furthermore, Russia's invasion of Ukraine raised food and energy prices, which raised costs and added to the price pressures. Yet looking at the core inflation rate, which excludes food and energy prices, high and persistent trends in inflation are still detected. Over the past year, core inflation grew about 6.5% in the U.S. pointing to causes other than the rise in energy prices. Panel (b) in Figure 1 shows the increase in core inflation. With the economy still recovering from the pandemic and in hopes that the rise in prices would resolve as supply chain disruptions and pandemic fueled demand for goods dissipated, the Federal Reserve (Fed) was slow to respond, further fueling inflation. What's causing this persistence in inflation? One explanation is the public's expectations. Inflation tends to have momentum and as people expect higher prices, higher prices materialize. However, another predictor of future inflation is the growth of money. Money supply rose dramatically over the past two years as the Fed cut interest rates to near zero to stabilize the economy during the pandemic. Panel (a) in Figure 2 shows the steep rise in money supply measured as M2. According to the St. Louis Fed, as of May 2020, M2 consists of M1 plus small-denomination time deposits and balances in retail MMFs and M1 consists of currency, demand deposits at commercial banks and other liquid deposits, consisting of OCDs and savings deposits (including money market deposit accounts).

This report discusses the role policy may have played in fueling inflation and the role it is playing in taming it. Despite the focus on policy in this report, it is worth noting that the extraordinary economic shock of the pandemic has also had an effect on aggregate price and this effect has yet to fully disappear and may be even more important than policy.

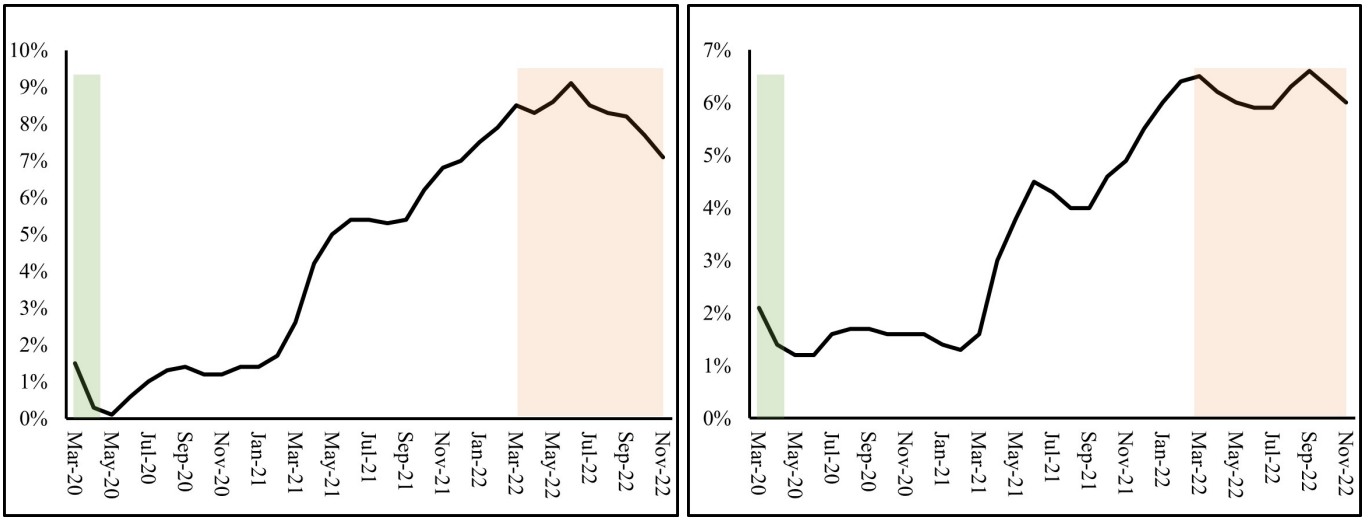
Fiscal and Monetary Response

During the pandemic, both fiscal and monetary policy were used extensively to keep the economy afloat during this extrordinary health crisis. Fiscal policy is defined as the use of government revenue and spending in order to influence the economy. During the pandemic, expansionary fiscal policy amounted to $5 Trillion in stimulus and relief packages. The Coronavirus Preparedness and Response Supplemental Appropriations Act which passed in March, 2020, allocated $8.3 billion to state and local governments to fight the spread of the virus, fund research for a vaccine, and support efforts to stop the spread of the virus overseas. Families First Coronavirus Response Act (FFCRA) was also passed. FFCRA allocated $192 billion to help families who rely on free school lunches, aid small firms finance

[1] If the basket of goods cost $100 a year ago, today it would cost $107.1 today.

Figure 1: The Consumer Price Index for All Urban Consumers, Annual Percent Change

Green area indicates the Covid recession, orange area indicates the period of monetary tightening.
Source: Bureau of Labor Statistics



(a) All Items *(b) All items less food and energy*

paid sick leave for those suffering from COVID-19, add $1 billion to unemployment insurance in states, and fund COVID-19 testing [1]. During the same period, the Coronavirus Aid, Relief, and Economic Security Act (CARES Act) allocated $2.2 trillion to help families and industries, established the Paycheck Protection Program (PPP) and the Economic Injury Disaster Loan (EIDL) and contained additional funding for hospitals and COVID-19 testing [3]. In 2021, the Consolidated Appropriations Act allocated $900 billion (some of which was distributed as direct payments to households) and the American Rescue Plan paid out $1.9 trillion in various relief for firms and households [5].

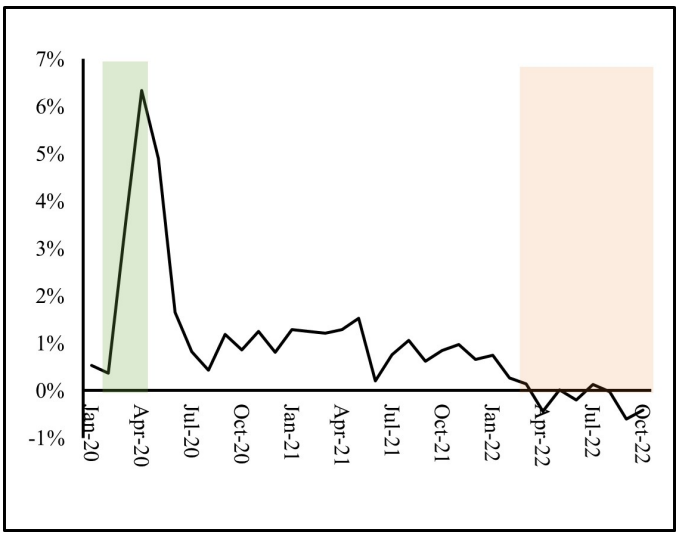
Monetary policy is undertaken by the Federal Reserve (the United States' central bank) which generally adjusts money supply and interest rates in order to achieve economic goals. During the pandemic, providing liquidity and ensuring the stability of the financial system and the economy were the focus of the Fed. Therefore, the Fed cut the Federal funds (FF) rate by 1.5 percentage points on March 3 and March 15, 2020. These cuts lowered the short-term FF rate to a range of 0% to 0.25% (see panel (b) of Figure 2). In doing so, the Fed reduced the costs of borrowing and freed up reserves for banks, ensuring ample liquidity when needed and encouraging banks to make loans. Cutting the interest rates is typically achieved by increasing money supply through bond purchases (see box below), therefore, money supply rose dramatically in 2020 and 2021.

Another policy tool that the Fed has been employing since the Great Recession of 2007-2009 is Quantitative Easing (QE). At the time, cutting the FF rates to almost zero was not sufficient to spur on economic recovery. As a result, the Fed employed QE which involves the purchases of Treasury securities and mortgage-backed securities (MBS)[2] using newly created electronic cash. Such purchases by the Fed boost banks' reserves and lowers long term interest rates. On March 15, 2020, the Fed resumed the purchasing of large amounts of Treasuries and residential and commercial MBS initially to stabilize markets and then continued on with QE to provide further liquidity to markets [6]. In December of 2020, the Fed indicated that it would slow these purchases tapering its purchases further in December 2021.

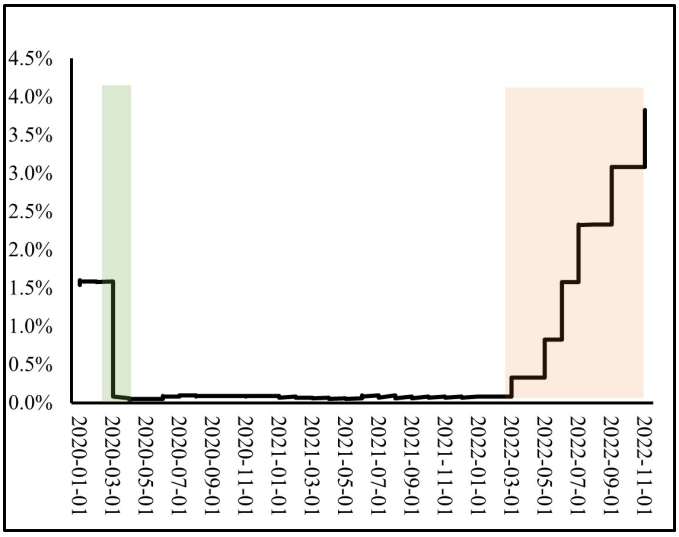
[2]issued by government-sponsored enterprises and federal agencies

Figure 2: Money Supply and Target Interest Rates

Green area indicates the Covid recession, orange area indicates the period of monetary tightening.
Source: St. Louis Fed



(a) Monthly M2, Monthly Percent Change



(b) Daily Effective FF Rate, Percent

FOMC and FF rate: The federal funds rate is a short-term interest rate at which banks trade the balances they have at Federal Reserve Banks with each other. Although the effective federal funds rate is determined in the market as banks with more liquidity negotiate lending rates with those seeking liquidity, this rate is also influenced by the Federal Reserve. If the Fed wishes to reduce the rate, the Fed instructs its traders to buy short term government bonds from banks, which in turn increases their liquidity as the bonds are exchanged for balances (these trades are termed open market operations). When banks have more liquid funds to loan out, this reduces the rate they charge each other for funds (in other words, the FF rate falls). Alternatively, if the Fed wishes to raise the FF rate, it will sell government bonds, reducing banks' liquidity as they trade the bonds for balances. Open market operations are decided by the Federal Open Market Committee (FOMC) which meets eight times a year to determine a target for the FF rate. Although the FF rate is an interbank rate, it has the potential to influence the interest rates faced by consumers such as the prime rate, mortgages, loans, and savings rate. Intuitively, a bank's lending rate will be related to the rate at which itself can borrow.
When should rates rise? When should they fall? Among other responsibilities, the Fed has a dual mandate set forth by Congress. The dual mandate is price stability and economic growth. If economic growth is in jeopardy, such as during a pandemic, the Fed will cut interest rate and provide necessary liquidity. If price stability is a concern, as is the case in 2022, the Fed will raise interest rates to reduce demand and tame inflation.

The Fight Against Inflation

For policymakers to fight inflation, some short-term economic pain and slowdown are inevitable in order to achieve long term economic stability. To minimize economic pain, the fiscal policy (set by Congress and the current Administration) must work in the same direction as monetary policy (set by the Fed). To that end, the Inflation Reduction Act was passed in 2022. The $437 billion spending package is expected to raise $737 billion in revenue and reduce net federal expenditures by $300 billion over the next decade, in hopes of reigning in the government budget deficit. Cutting the deficit can at times have the effect of dampening inflation if it reduces overall demand of goods and services and take pressure off the prices. Most of the additional revenue will be raised through a 15% corporate minimum tax rate and through prescription drug price reform allowing Medicare to negotiate the price of certain prescription drugs starting in 2026. Such a reform is welcome news given the high levels of the U.S. health care spending. However, the act packs the biggest punch in its environmental goals. $369 billion of subsidies and tax credits are to be allocated over the decade on electric vehicles (EV), renewable energy, carbon capture, and other climate change combating measures. For example, the IRA includes a subsidy of $7,500 for purchasing of EV for the

lower end models and a requirement that 40% of battery components for EV be sourced from factories in the U.S. or its free trade agreement partners and that batteries be U.S. made by 2029. This is primarily to phase out Chinese components and minerals.

The IRA should have a favorable effect on cutting the U.S. greenhouse-gas emissions, but its effect on inflation will not be immediate. The Fed has the primary responsibility to reduce inflation. The Fed raised benchmark federal-funds rate six times this year (to a range between 3% and 4% from near zero, as can be seen in panel (b) of Figure 2). By raising borrowing costs and making it more costly to finance homes, cars, and business investment with higher interest rates, the Fed can curb demand for goods and services and relieve pressure off prices to further increase. In fact, the higher mortgage rates have slowed down the housing market. Housing starts and residential permits both fell on a national level.

The Fed is also hoping that a cooling down in the labor market can remove pressure off prices. And although showing some signs of loosening, labor markets remain tighter than they have ever been, with record rates of quits and job openings. Labor market tightness is sometimes measured by the number of vacant jobs compared to the number of workers available. A tight labor market favors workers. One reason for this tightness is that during the pandemic, labor market participation decreased due to many reasons such as early retirement, lack of childcare options, health concerns, and change in preferences. Another reason could be the change in the nature of available jobs during the pandemic. Labor market participation has not rebounded; therefore, the supply side of the labor market remains low. The demand for labor (vacancies) may decline as the Fed hikes interest rates. Indeed, initial jobless claims showed a slight increase signaling perhaps an increase in layoffs (but are still low enough to signaling a still strong labor market). Vacancies and new jobs have slowed down in September.

"Inflation is always and everywhere a monetary phenomenon" -Milton Friedman

As the Fed raises interest rates, reducing aggregate demand for goods and services, we expect a slowdown in economic growth and an increase in the unemployment rate. This is the price of stability: reducing aggregate demand with higher borrowing costs slows down economic activity and reduces employment but takes pressure off prices to further rise. Nonetheless, some economists would argue that even if the Fed does not raise rates, a slowdown might ensue as the expansionary effects of monetary (and fiscal) policy undertaken in the previous two years dissipate.

Brief Regional Outlook

The changes taking place on a national level have had an effect on some sectors in Hidalgo County. Given its interest sensitive nature, the housing sector has experienced some shifts. Since the Federal reserve's interest rate hike in March 2022, months in inventory has steadily increased reaching 3.9 in October of 2022, as can be seen in the Table 1. This is above the level seen last October when months in inventory was 2.4. Median home prices were stable (or slightly up) and single-family housing construction permits has steadily decreased since August. Permits, which are obtained before construction, are an indicator of future housing market conditions. This is to be expected as mortgage rates climb with the Fed's raising of interest rates.

The labor market in the region remains fairly strong and stable with unemployment mirroring those before the pandemic levels (see Table 2). From June 2021 to June 2022, average weekly wages grew by 5.10% in Hidalgo County and by 7.80% in Cameron County. The wage growth has barely kept up with inflation over the past year in the region, although this is not evident on a national level where wages grew at a rate of slower than inflation implying a reduction in real wages, as reported in Table 3.

To forecast the region's economic outlook, economists typically look at leading economic indicators. These indicators are variables that tend to decrease before overall economic activity slows down and rebound before a recovery. For Texas, the Dallas Fed combines into a single index eight indicators including the Texas value of the dollar, U.S. leading index, real oil price, well permits, initial claims for unemployment insurance, Texas stock index, help-wanted index and average weekly hours worked in manufacturing. Despite the strong labor market, the Texas Leading Index shows some signs of a slowdown since the monetary tightening by the Fed as can be seen in Figure 3. It is worth noting that the leading indicators did not pick up earlier recessions with significant lead time as can be seen in Figure 3.

Table 1: Housing Market in Hidalgo County, Oct 21-22

Month/Year	Sales	Dollar Volume	Average Price	Median Price	Total Listings	Months In Inventory	Building Permit (Single Family)
21-Oct	325	74,992,709	230,747	200,000	861	2.4	512
21-Nov	303	69,480,703	229,309	205,000	917	2.6	350
21-Dec	362	84,411,566	233,181	218,750	828	2.4	375
22-Jan	358	80,040,787	223,578	200,500	780	2.2	388
22-Feb	350	77,934,240	222,669	205,000	731	2	290
Post Monetary Tightening							
22-Mar	409	100,166,775	244,907	215,000	716	1.9	385
22-Apr	378	95,406,508	252,398	220,750	782	2.1	397
22-May	408	102,359,297	250,881	228,150	845	2.3	402
22-Jun	395	101,115,003	255,987	231,250	974	2.6	355
22-Jul	338	84,694,764	250,576	230,000	1101	3	320
22-Aug	383	95,084,719	248,263	220,000	1212	3.3	336
22-Sep	324	79,412,623	245,101	228,500	1331	3.7	301
22-Oct	323	77,484,495	239,890	225,000	1416	3.9	279
Average	358	86,352,630	240,576	217,531	961	3	361

Source: Texas Real Estate Research Center, Texas A&M University

Table 2: Unemployment Rates For Select MSAs and Texas

	Brownsville–Harlingen	McAllen–Edinburg–Mission	Texas
Early 2020 levels			
2020-Feb	5.5	6.4	3.5
2020-Mar	8.2	9.6	5.1
Post Monetary Tightening			
2022-Mar	6.1	7.0	4.4
2022-Apr	5.9	6.8	4.3
2022-May	6.0	6.9	4.2
2022-Jun	6.9	8.1	4.1
2022-Jul	6.8	8.0	4.0
2022-Aug	6.4	7.6	4.1
2022-Sep	5.8	6.7	4.0

Source: Bureau of Labor Statistics

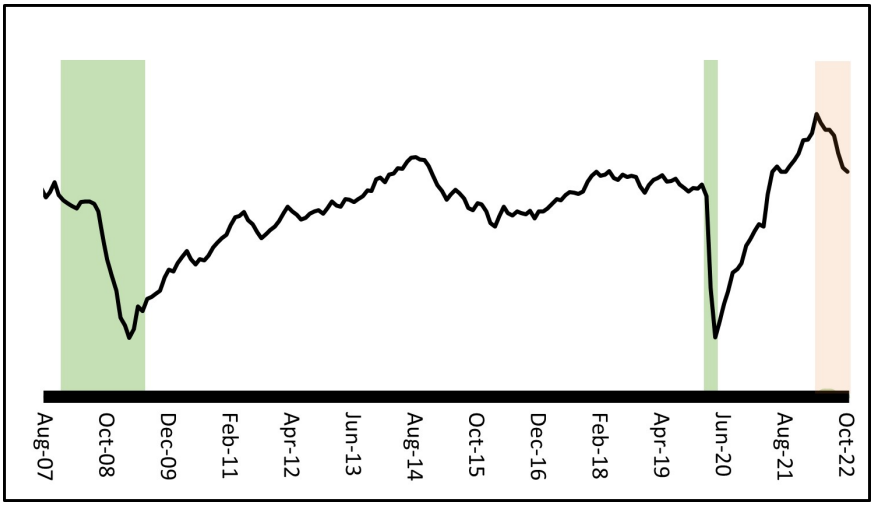
Table 3: Employment and Wages

County	12−month percent change in employment Total	12−month percent change in average weekly wage Total Covered
(Jun 2021-Jun 2022)		
Hidalgo	3.7%	5.1%
Cameron	3.9%	7.8%
Texas	5.2%	6.1%
U.S.	4.0%	4.3%

Source: Bureau of Labor Statistics

Figure 3: The Dallas Fed Texas Leading Economic Indicators

Green areas indicate previous recessions, orange area indicates the period of monetary tightening.
Source: The Dallas Fed



Summary

The Fed has shown a commitment to keeping rates high and prioritizing price stability. The effects of monetary tightening have been felt as the 12-month inflation rate was 7.1% in November, down from 9.1% in June. On December 14th, 2022, the Fed announced another interest rate hike of 0.50 percentage point for the FF rate to be between 4.25% to 4.50% (compared to 1.5% to 1.75% in June). This is lower than some hikes earlier this year of .75 percentage point each.

Economists generally agree that the Fed should hold the course until price stability is achieved. In fact, studies covering historical disinflation episodes in several countries show that the output loss from reducing inflation was smaller, the faster the disinflation took place [2, 4]. This is referred to as the 'cold turkey' approach to disinflation.

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Endnotes

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