FY 2022
Economic and Revenue Outlook

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Introduction

Introduction

The Economic and Revenue Outlook is a volume designed to enhance the presentation and transparency of the FY 2022 Executive Budget. The volume provides detailed information on the economic and receipt projections underlying the Executive Budget. The economic analysis and forecasts presented in this volume are also used in the development of the expenditure projections where spending trends are impacted by economic conditions.

Executive Budget Financial Plan receipts include a variety of taxes, fees and assessments, charges for State-provided services, Federal grants, and other miscellaneous receipts. The Economic and Revenue Outlook includes receipts information required by Article VII of the State Constitution and Section 22 of the State Finance Law and provides information to supplement extensive reporting enhancements undertaken in recent years. The Division of the Budget (DOB or The Division) believes the information will aid the Legislature and the public in fully understanding and evaluating the economic assumptions and receipts estimates underlying the FY 2022 Executive Budget. The receipts estimates are prepared by DOB with the assistance of the Department of Taxation and Finance (DTF) and other agencies which collect State receipts and are predicated on economic analysis and forecasts. To the extent they are material, sources of receipts not referenced in this volume are discussed in the presentations of the agencies primarily responsible for executing the programs financed by such receipts.

The Economic and Revenue Outlook is presented in two parts:

- **Economic Backdrop:** Provides a detailed description of DOB's forecast of key economic indicators for the national and New York State (NYS) economies.
- **Receipts Explanation:** Provides a detailed summary for each tax source describing historical receipts and projections for the current and upcoming budget years, the administration, liability and history of the tax, including significant law changes in the past decade.

Economic Backdrop

Executive Summary

- The shutdowns necessitated across the U.S. to contain the pandemic led to a sharp decline in economic activity during the second quarter of 2020 with a real Gross Domestic Product (GDP) decline of 31.4 percent. However, economic activity rebounded in the third quarter with growth of 33.4 percent. Real GDP is projected to fall a record 3.4 percent in 2020, with very sharp declines in consumption, nonresidential investment, and exports. Real GDP growth of 4.4 percent is projected for 2021, followed by 3.0 percent growth for 2022.

- The COVID-19 pandemic's damaging effects on labor markets are still mounting and will be a major obstacle to a balanced economic recovery. The employment recovery is continuing to lose momentum, with the level of employment still well below the February 2020 peak.

- Total nonfarm employment growth of 2.7 percent is projected for 2021, followed by 3.0 percent growth for 2022. Employment declined 5.7 percent in 2020. The unemployment rate stood at 6.8 percent in the fourth quarter of 2020, compared to 3.6 percent for the fourth quarter of 2019. The unemployment rate is likely to edge lower to an estimated 5.5 percent in the fourth quarter of 2021 and 4.9 percent in the fourth quarter of 2022.

- Real GDP is likely to return to its previous peak reached in the fourth quarter of 2019 by the second half of 2021, but employment is not expected to reach a full recovery until the first quarter of 2023.

- The Consumer Price Index (CPI) is estimated to rise 1.2 percent in 2020 and projected to rise 2.1 percent in 2021 and 2.2 percent in each of the following three years. The effective federal funds rate is anticipated to be 0.1 percent on an annual average basis (effectively zero) from calendar year 2021 through 2022.

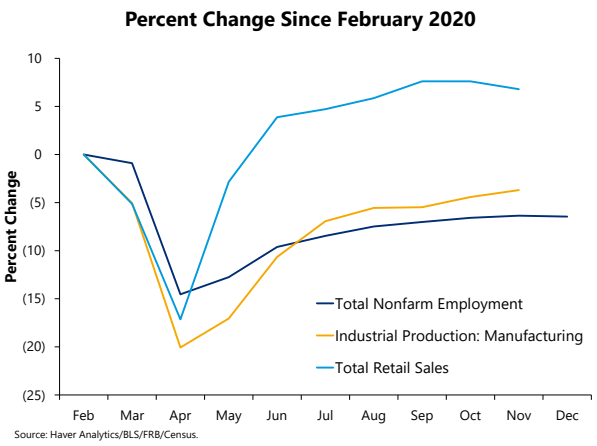
- Prior to the COVID-19 pandemic, New York State enjoyed its longest economic expansion on record. However, with the onset of the pandemic, the State lost 1.9 million private sector jobs in March and April 2020.

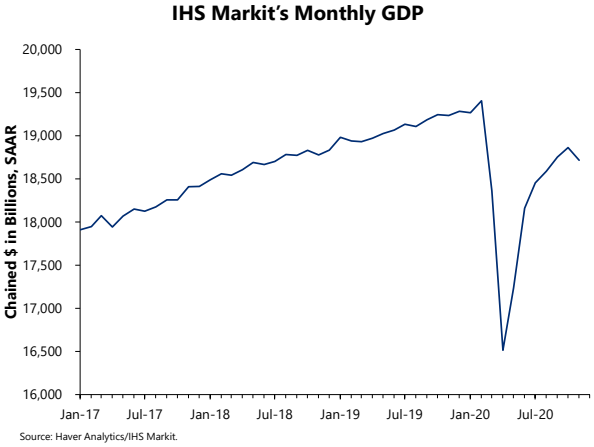
- Approximately half of those jobs lost in March and April were recovered by November 2020. A total nonfarm employment decline of 9.9 percent is estimated for 2020, followed by an increase of 5.4 percent in 2021. New York State employment is expected to reach its pre-COVID level in 2025.

- New York State's wage growth is estimated to decline 3.4 percent in FY 2021, followed by an increase of 6.1 percent in FY 2022. Buoyed by the Coronavirus Aid, Relief, and Economic Security (CARES) Act, State personal income growth for FY 2021 is estimated to be 5.5 percent, followed by a projected decline of 0.7 percent for FY 2022 as the fiscal stimulus abates.

The U.S. Economy

The U.S. economy is likely to be affected by the COVID-19 pandemic for years to come. Amid social distancing mandates, March and April of 2020 brought business closures to an unprecedented scale along with skyrocketing employee furloughs and layoffs. The National Bureau of Economic Research (NBER) Business Cycle Dating Committee designated February 2020 as a business cycle peak, officially ending the longest U.S. economic expansion on record (128 months in duration starting in June 2009). U.S. real GDP plunged at an annualized rate of 31.4 percent during the second quarter of 2020 after slipping at a 5.0 percent rate in the first quarter. The second-quarter decline marked the largest quarterly contraction in the 74 years that the government has been reporting quarterly GDP data. The peak-to-trough decline in real GDP from the fourth quarter of 2019 to the second quarter of 2020 was an unprecedented 10.1 percent (not annualized). U.S. real GDP then rebounded a record-breaking 33.4 percent in the third quarter of 2020.





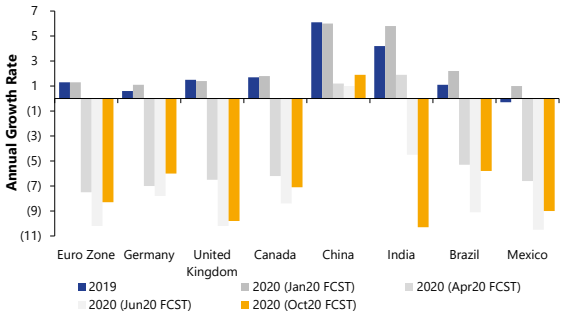
Monthly data show that the economy began to recover in May. The unemployment rate reached a post-Great Depression peak of 14.8 percent in April 2020, then fell each month thereafter through November. Nonfarm payrolls shed 22.2 million jobs in March and April, then added jobs each month from May through November. Several economic indicators such as industrial production and retail trade started to recover in May. IHS Markit's estimated monthly real GDP index indicates that the recovery began in May as well. Real GDP is likely to recover to its previous peak by the second half of 2021, but employment is not expected to reach a full recovery until the first quarter of 2023.

The economic contraction initiated by the COVID-19 pandemic differed considerably from prior U.S. recessions. In previous recessions, the services and trade sectors tended to decline less than manufacturing industries. However, the public policy response implemented during the initial months of the COVID-19 pandemic to slow the transmission of the virus led to sectors more reliant on face-to-face interactions such as retail trade, travel, restaurants, hospitality, arts, and entertainment to witness a stronger contraction than most manufacturing sectors. Since the initial decline, however, retail trade sales have recovered and surpassed pre-pandemic peaks, while manufacturing production is still significantly below February 2020 levels.

The Global Economy

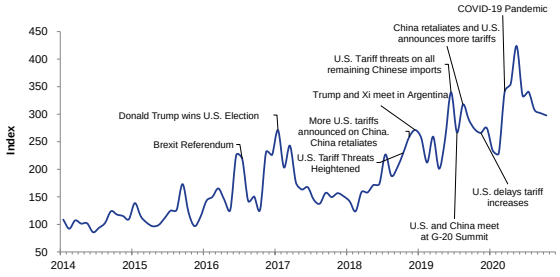
The International Monetary Fund (IMF) revised its forecast up for 2020 global economic growth and growth in several key economies in its October 2020 outlook, compared to the June 2020 outlook.[1] In the last two months of 2019 and the first few months of 2020, trade tensions eased with the implementation of the United States-Mexico-Canada (USMCA) trade agreement, and the announcement of a "phase-one" trade deal between the U.S. and China. However, the onset of the COVID-19 pandemic sent global economic policy uncertainty (EPU) to new highs. Recent readings of the IHS Markit Manufacturing PMIs (Purchasing Managers' Index) for major economies suggest that global manufacturing is well within recovery mode after reaching recent lows in the second and third quarters of 2020. IHS Markit estimates real global – excluding the U.S. – growth to fall 4.2 percent in 2020, after a 2.7 percent reading for 2019. As a point of reference, real global – excluding the U.S. – growth fell only 1.5 percent in 2009. Growth in the global economy – excluding the U.S. – is expected to stay above 4.0 percent for 2021 and 2022 as most major economies recover. However, as COVID-19 fluctuation continues to persist in various nations across the globe, bringing about new waves of preventative lockdown measures, the global economy's return to pre-pandemic normalcy remains vulnerable to complications.

IMF Estimated 2020 World GDP Growth to be Negative



Note: Grey bars show IMF's forecasts for 2020 world GDP growth, projected in January, April, June of 2020 respectively, and the yellow bar shows IMF's latest (October 2020) forecasts for 2020 world GDP growth.
Source: IMF World Economic Outlook.

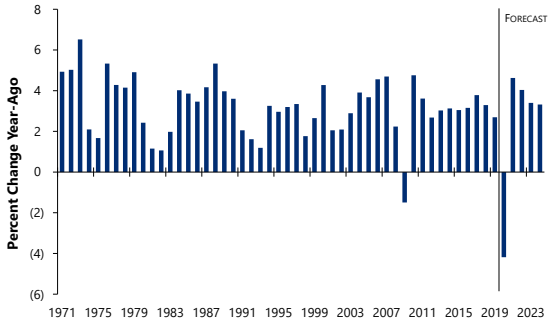
Global Economic Policy Uncertainty Spiked after the COVID-19 Outbreak



Note: Global Economic Policy Uncertainty (EPU) Index is calculated as the GDP-weighted average of monthly EPU index values for US, Canada, Brazil, Chile, UK, Germany, Italy, Spain, France, Netherlands, Russia, India, China, South Korea, Japan, Ireland, Sweden, and Australia, using GDP data from the IMF's World Economic Outlook Database. Each national EPU Index is renormalized to a mean of 100 from 1997 to 2015 before calculating the Global EPU Index.

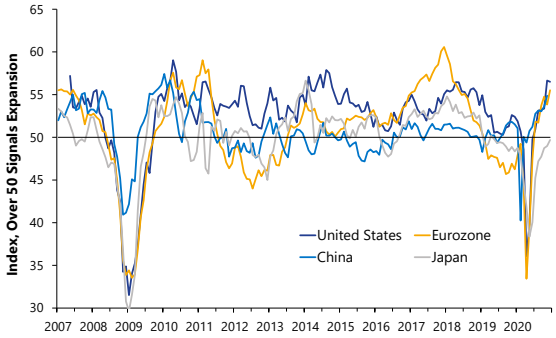
Source: http://www.policyuncertainty.com

Global GDP Growth Excluding U.S.



Source: IHS Markit.

IHS Markit Manufacturing PMIs



Source: IHS Markit.

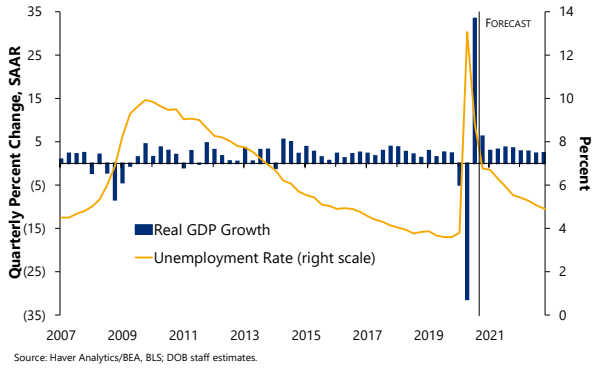
[1] International Monetary Fund: https://www.imf.org/en/publications/weo.

U.S. Macro Forecast

Real GDP increased at an annual rate of 33.4 percent in the third quarter of 2020, according to the third estimate by the Bureau of Economic Analysis (BEA). This growth, the strongest on record, is premised on positive contributions from consumption, residential investment, exports, and government spending. The third estimate was 0.3 percentage point higher than the second estimate, reported in November, and included upward revisions to consumption, both nonresidential and residential investment, government expenditures, and inventory accumulation, offset by downward revisions to net exports. Real GDP fell a record-breaking 31.4 percent in the second quarter of 2020, as economic activity most likely reached a trough in April and then began to recover in May and June. Despite the record-breaking increase that followed, real GDP in the third quarter of 2020 was 3.4 percent below the peak level reached in the fourth quarter of 2019.

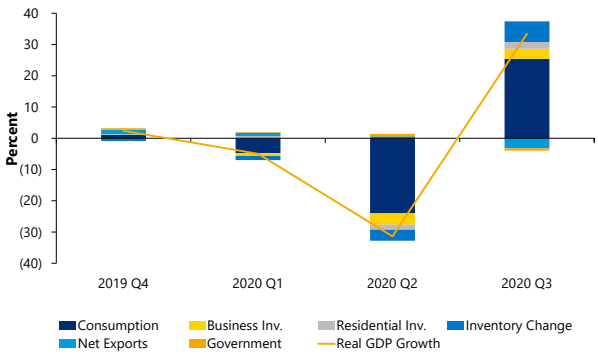
DOB's U.S. economic forecast incorporates the second estimate of 2020 third-quarter GDP, the October personal income and outlays estimates, the initial estimate of November 2020 employment, and the November 2020 CPI report. Real GDP is projected to decline 3.4 percent in 2020, with sharp declines in consumption, nonresidential investment, and exports. Real GDP growth of 4.4 percent is projected for 2021, followed by 3.0 percent growth for 2022.

GDP Growth and Unemployment Rate



Source: Haver Analytics/BEA, BLS; DOB staff estimates.

Contributions to Real GDP Growth



Source: Haver Analytics/BEA.

The COVID-19 pandemic's damaging effects on labor markets are still mounting and will be a major obstacle to a balanced economic recovery. Real GDP is likely to recover to its previous peak (reached in the fourth quarter of 2019) by the second half of 2021, but employment is not expected to reach a full recovery until the first quarter of 2023.

As the number of COVID-19 cases has increased, and as state and local governments have strengthened containment efforts, services employment is likely to struggle in the first few months of 2021. Employment growth registered a 5.7 percent decline in 2020, with monthly employment declines occurring in March, April, and December. Total nonfarm employment growth of 2.7 percent is projected for 2021, followed by 3.0 percent growth for 2022. The unemployment rate stood at 6.8 percent in the fourth quarter of 2020, compared to 3.6 percent in the fourth quarter

of 2019. The unemployment rate is likely to edge lower in 2021, reaching an estimated 5.5 percent in the fourth quarter of 2021 and 4.9 percent in the fourth quarter of 2022.

The main transmission channel for the unprecedented swings in real GDP that occurred in 2020 was consumer spending. Fluctuations were driven by the COVID-19 pandemic as business restrictions and pandemic fears caused consumers to pull back on spending. As a consequence, consumer spending is expected to dictate the path of the recovery, and in turn will be primarily influenced by the timing and severity of the pandemic. Since transmission of the virus remains high, the deceleration in consumption growth observed in the fourth quarter of 2020 is anticipated to continue through the first quarter of 2021. Additional income support due to a second round of Federal fiscal stimulus is likely to keep consumption growth from entering negative territory in the first quarter of 2021. A surge in consumer demand for services is expected in the middle quarters of 2021, supported by elevated saving rates and strong gains in household net worth. After an expected 3.7 percent decline in 2020, real consumption is forecast to grow 5.1 percent in 2021, surpassing its previous peak in the third quarter, and to grow 3.6 percent in 2022.

The outlook for monetary policy stems from the Federal Reserve's responses to the COVID-19 pandemic, and the Federal Open Market Committee's (FOMC) formal adoption of a revised framework for monetary policy at the end of August 2020. The FOMC is expected to remain on hold with respect to monetary policy for the foreseeable future.

The stock market's stunning rebound since March 2020 was fueled by monetary and fiscal stimulus in the second quarter of 2020, cheered by the re-opening of the economy in the third quarter, and further boosted by progress on vaccine development and new stimulus in the fourth quarter. However, the strong resurgence in COVID-19 infections across the country has prompted renewed restrictions in many areas since November. Even with a new round of fiscal stimulus in place after the earlier stimulus expired at the end of 2020, households and businesses are still expected to struggle in the near term. Stock market growth is expected to be moderate in 2021. The S&P 500 stock price index is projected to increase 4.8 percent in 2021 on a fourth quarter-over-fourth quarter basis, following year-ago growth of 15.2 percent in the fourth quarter of 2020.

Consumer price inflation fell sharply in the early stages of the COVID-19 pandemic, especially in categories affected by energy prices and travel services. Price declines largely ended over the summer and inflation rebounded in the third quarter, though it remains muted overall. As the economy continues to recover, prices temporarily depressed by the pandemic are expected to continue rising. The CPI is estimated to have increased 1.2 percent in 2020 and is projected to rise 2.1 percent in 2021 and 2.2 percent in each of the next three years.

The residential housing market evolved into an economic bright spot as the COVID-19 pandemic appears to have increased demand for spacious houses in suburban areas. New and existing home sales have recovered rapidly. Residential building activities were among the first that resumed in the summer of 2020 after the pandemic lockdowns since social distancing is relatively easy to implement among construction workers. Meanwhile, the pandemic has only exacerbated the ongoing shortage in the supply of existing homes, further accelerating the rise in home prices. Historically low mortgage rates have assisted home buyers in an otherwise challenging time and

are expected to remain near historical lows through 2021. Strength in housing permits and starts are expected to help support residential fixed investment throughout 2021, with strong gains in the first half of the new year. Real residential investment is forecast to surge from a decline of 1.7 percent in 2019 to increases of 5.3 percent in 2020 and 6.6 percent in 2021.

Total nonresidential construction outlays, which hit a recent peak in January 2020, fell 2.7 percent by April and generally have continued declining through November 2020, despite a small increase in May and October, implying continuing weakness in real investment in structures. Real business investment is expected to have fallen 4.6 percent in 2020 on an annual average basis, due to the shock of the COVID-19 pandemic, after having grown 2.9 percent in 2019. The projected decline for 2020 would be the first since a plunge of 14.9 percent in 2009, during the Great Recession. Growth in real business fixed investment is expected to resume in 2021, with an increase of 3.7 percent. As the pandemic recedes further into history in 2022, growth in nonresidential fixed investment is expected to hold at 3.7 percent.

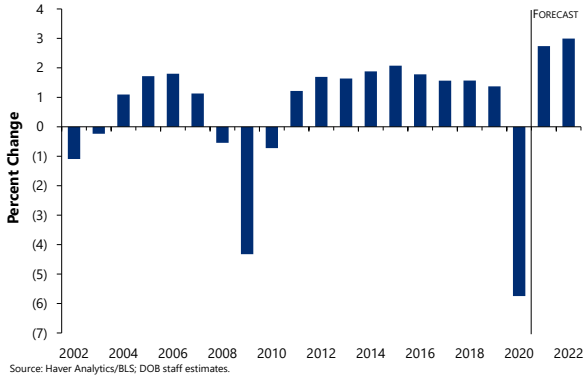
The COVID-19 pandemic remains a key factor affecting the global economic outlook, as well as the shape and pace of the recovery in international trade. Based on the recent evidence of a continued recovery in global economic activity and a weakening dollar, real U.S. exports are projected to rebound 7.4 percent on an annual basis in 2021, following an estimated decline of 13.3 percent in 2020. As domestic demand continues to strengthen, real U.S. imports are expected to rise 10.0 percent in 2021, after an estimated 10.1 percent decline in 2020. On balance, real net exports are anticipated to remain elevated in 2021. Exports are expected to return to their pre-COVID level by early 2023, while imports are expected to return to the pre-COVID level as soon as late 2021.

Labor Markets

Key Points

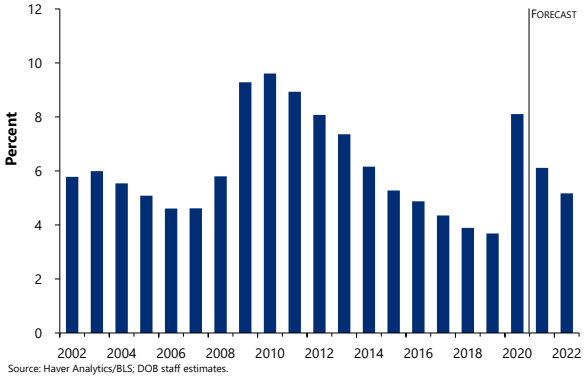
- The employment recovery is continuing to lose momentum, with the level of employment still well below the February 2020 peak. The payroll count in December was approximately 9.8 million below February's level.
- Total nonfarm employment growth of 2.7 percent is projected for 2021, followed by 3.0 percent growth for 2022. Employment growth registered a 5.7 percent decline in 2020, with monthly employment declines occurring in March, April, and December when payrolls fell by 1.4 million, 20.8 million, and 140,000 respectively.
- The unemployment rate remained unchanged in December, after declining 0.2 percentage point to 6.7 percent in November. The unemployment rate reached a post-Great Depression peak of 14.8 percent in April 2020, and then fell each month thereafter till November.
- DOB estimates an unemployment rate of 8.1 percent on an annual average basis for 2020, compared to a 3.7 percent reading for 2019. The unemployment rate is expected to edge lower to 6.1 percent on average in 2021 and 5.2 percent in 2022.

U.S. Employment Annual Growth



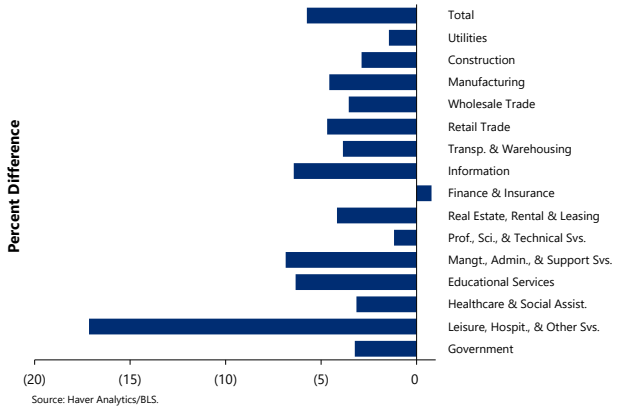
Source: Haver Analytics/BLS; DOB staff estimates.

U.S. Annual Average Unemployment Rate



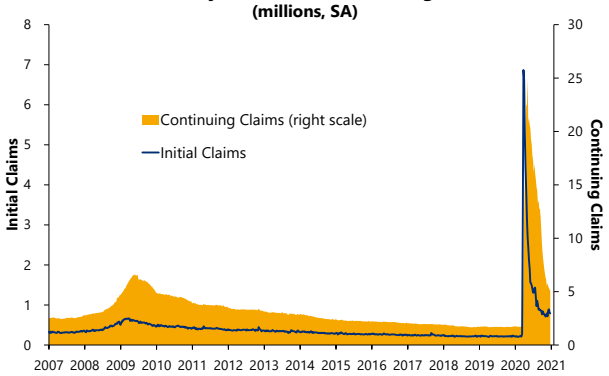
Source: Haver Analytics/BLS; DOB staff estimates.

U.S. Employment: 2020 Relative to 2019



Source: Haver Analytics/BLS.

U.S. Weekly Initial and Continuing Claims
(millions, SA)



Source: Moody's Analytics/U.S. Employment & Training Administration (ETA).

Recent Developments

The COVID-19 pandemic's damaging effects on labor markets are still mounting and will be a major obstacle to a balanced economic recovery. Real GDP is likely to recover to its previous peak (as of the fourth quarter of 2019) by the second half of 2021, but employment is not expected to reach a full recovery until the first quarter of 2023. In addition, the sectoral structure of employment and the nature of some occupations are changing. For example, the shift to online retail sales has been accelerated by the pandemic, while industries and occupations where face-to-face commercial interactions can be limited have been relatively less affected.

Nonfarm payroll employment fell 140,000 in December 2020, and the headline unemployment rate (also known as the "U-3") remained unchanged at 6.7 percent. The decline in payroll employment between February and December 2020 was mostly in the private services sector (which saw 7.6 million job losses), although government payrolls (down 1.3 million) and private goods sector payrolls (down 853,000) have also suffered. In December, the number of workers defined as long-term unemployed (unemployed for 27 weeks or more in duration) rose by 27,000 to reach 4.0 million, the highest reading since late 2013. Currently, 37.1 percent of all unemployed workers are counted as long-term unemployed. The underemployment rate (also known as the "U-6"), declined 0.3 percentage point to 11.7 percent in December, while the number of employees considered "under-utilized" (working part-time but willing to work more hours) decreased by 471,000 to reach 6.2 million.

The number of workers on temporary layoff remained elevated at 3.0 million in December but was down substantially from the peak of 18 million in April 2020. The December total represented an increase of 277,000 from the month before, the first increase after seven consecutive monthly declines. The number of unemployed persons classified as "permanent" job losers decreased by 348,000 in December to reach 3.4 million. This was 49.4 percent of the peak during the Great Recession and up from 1.3 million in February 2020. Thus far, the employment recovery has relied on a substantial number of laid-off employees being recalled by their employers. However, as the number of workers on temporary layoff approaches the February 2020 level of 750,000, workers who have been permanently laid off will have to instead fill new positions, which will be slower to appear.

Unemployment Insurance Claims

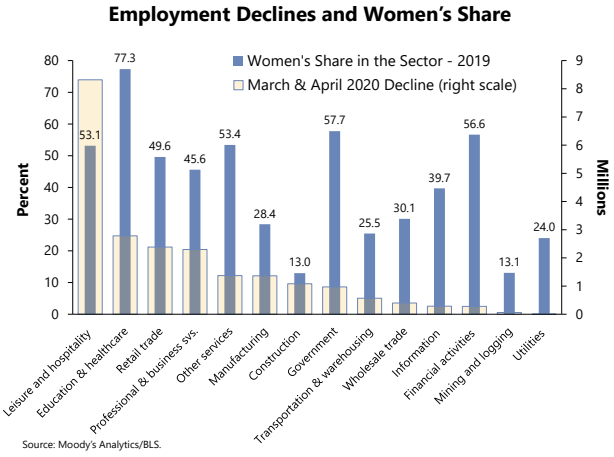
The Consolidated Appropriations Act was signed into law on December 27, 2020, providing enhanced unemployment insurance benefits of up to $300 per week for eleven weeks through the middle of March 2021, half the amount provided under the CARES Act. Funding for the Pandemic Unemployment Assistance (PUA) and the Pandemic Emergency Unemployment Compensation (PEUC) programs was also extended by eleven weeks. Independent contractors, self-employed individuals, and other individuals who otherwise would not qualify for unemployment insurance benefits in so-called regular state programs can apply for claims under PUA. Individuals who have exhausted regular benefits are eligible for up to 24 weeks of extended benefits under PEUC. In general, with the latest extension to 24 weeks for PEUC, eligible recipients

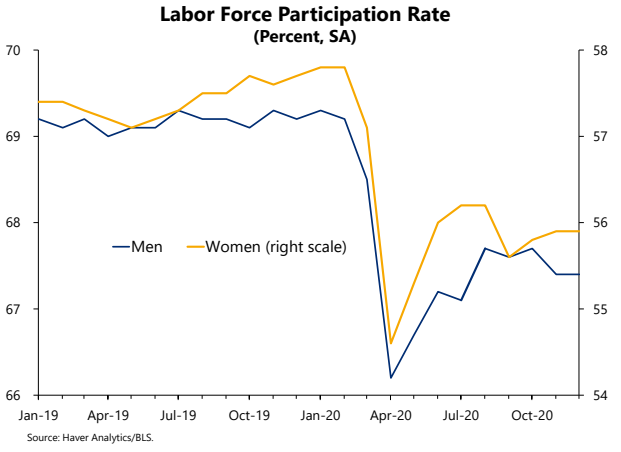
can receive up to 50 weeks of unemployment benefits between the regular state programs and PEUC.

Initial unemployment insurance claims (seasonally adjusted) fell by 3,000 to reach 787,000 in the week ended January 2, 2021. Continuing claims in regular state program fell by 126,000 to reach approximately 5.1 million in the week ended December 26, 2020, while the insured unemployment rate remained at 3.5 percent. There were 161,460 initial claims for PUA in the week ended January 2, 2021. Continuing claims for PUA fell by 70,553 to reach approximately 8.4 million in the week ended December 19, 2020, while continuing claims for PEUC fell by 293,434 to reach approximately 4.5 million.

Women in the Labor Force

The COVID-19 pandemic has taken its toll on the U.S. labor market; however, it had a particularly devastating impact on working women. Two of the most impacted sectors measured by declines in March and April 2020, were the leisure and hospitality and education and healthcare sectors, where 53.1 and 77.3 percent of the workforce were female employees. The third hardest hit sector was retail trade, where women represented about half of the workforce, but 60.0 percent of the jobs lost during March and April. With the closure of schools and daycare facilities, many women have left the workforce to care for their children. Although participation rates for men and women combined were just over three percentage points lower between January and April of 2020, the decline was 4.5 percent for men and 5.5 percent for women. The unemployment rate for women peaked at 16.1 percent in April, while the unemployment rate among men peaked at 13.6 percent during the same month. As COVID-19 related restrictions lifted, labor participation rates went up and some women returned to work, closing the unemployment rate gap between men and women in December 2020.





Outlook

The continued weakness in private services employment is widespread, with leisure and hospitality payrolls in December still down 3.9 million from February. As the rate of COVID-19 cases has risen,

and as sub-national governments have strengthened containment efforts, services employment is likely to struggle in the first few months of 2021. Total nonfarm employment growth of 2.7 percent is projected for 2021, followed by 3.0 percent growth for 2022. Employment growth for 2020 stood at 5.7 percent. The unemployment rate stood at 6.8 percent in the fourth quarter of 2020, compared to a 3.6 percent reading for the fourth quarter of 2019. The unemployment rate is likely to edge lower in 2021, reaching an estimated 5.5 percent in the fourth quarter of 2021 and 4.9 percent in the fourth quarter of 2022.

Risks

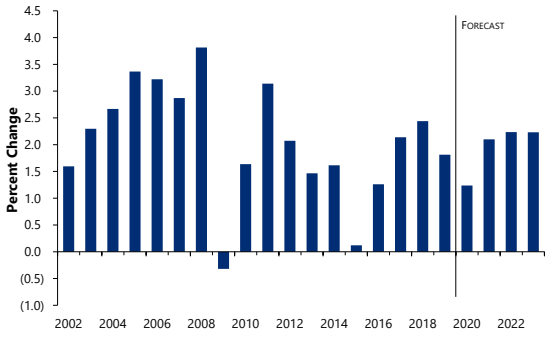
A speedy rollout of the various COVID-19 vaccines presents an upside risk, while surging infections and mounting business restrictions are major headwinds to employment growth.

Inflation

Key Points

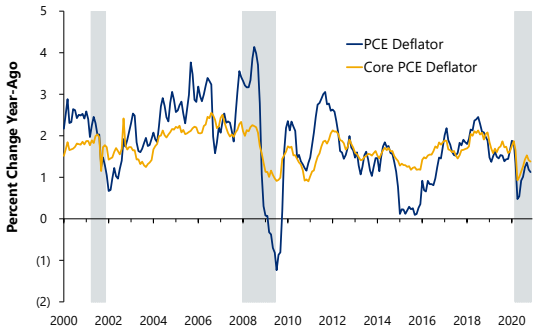
- Consumer price inflation fell sharply in the early stages of the COVID-19 pandemic, especially in categories affected by energy prices and travel. Price declines largely halted over the summer and inflation rebounded in the third quarter, though it remains muted overall.
- The core personal consumption expenditures (PCE) price index, which excludes food and energy PCE prices, has not systematically exceeded the Federal Reserve's target of 2.0 percent on a year-over-year basis since the Great Recession. Energy prices plunged in the wake of the pandemic, with the Brent crude oil price dropping to $18/barrel in April 2020. Oil prices have firmed during the recovery, as the price of Brent reached the $50/barrel mark in early December. The 2021 outlook calls for further firming of oil prices.
- Inflation expectations had been trending generally down prior to the pandemic. Since then, they have diverged, with the University of Michigan's survey showing a jump in May (that has partially reversed through December), while measures based on financial markets have drifted higher in recent months. The CPI is estimated to increase 1.2 percent in 2020 and projected to rise 2.1 percent in 2021 and 2.2 percent in each of the following three years.

Consumer Price Index (CPI)



Source: Haver Analytics/BLS; DOB staff estimates.

Personal Consumption Expenditure (PCE) Deflator

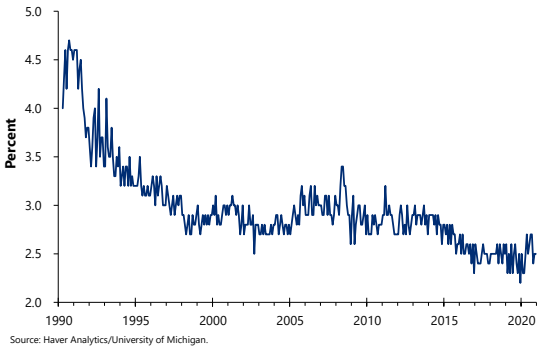


Note: Shaded areas represent U.S. recessions.
Source: Haver Analytics/BEA.

Europe Brent Spot Price

Source: Haver Analytics/EIA/WSJ.

University of Michigan: Expected Inflation Rate (Next Five Years)



Source: Haver Analytics/University of Michigan.

Recent Developments

The core CPI has partially recovered to its rising pre-pandemic trend following declines last spring when some components plummeted as demand contracted due to COVID-19. The core CPI fell 0.5 percent (not annualized) from March to May, then rose 1.7 percent from May to November. The 12-month change in the core CPI has recovered only a few tenths of a percent since the sharp decline it experienced last spring, when it fell from 2.4 percent in February to 1.2 percent in May and June. As of November, the 12-month core CPI inflation rate was 1.6 percent. The CPI rose 0.2 percent in November. The CPI for energy increased 0.4 percent, while the food index declined 0.1 percent. The core CPI, which excludes food and energy prices, also rose 0.2 percent.

One source of downward pressure on the CPI has been rent inflation. The 12-month change in the CPI for rent of primary residence and owners' equivalent rent have slowed substantially from 3.8 percent and 3.3 percent in February to 2.4 percent and 2.3 percent as of November, respectively. Rent inflation represents 41.7 percent of the core CPI. Conversely, the CPI for used cars and trucks was 12.2 percent higher in November than in February 2020. The 12-month CPI inflation rate for food was 3.7 percent in November, while that of energy remained in negative territory, down 9.4 percent.

Outlook

Although it has rebounded since the spring, inflation remains muted. As the economy recovers, DOB expects prices temporarily depressed by the pandemic to continue rising. Near-term inflation will also be supported by two other factors. First, the dollar is likely to weaken for the next couple of years, putting upward pressure on the cost of imports and indirectly on prices of domestic goods. Second, energy prices are forecast to continue increasing gradually. However, the weaker labor market resulting from the pandemic has resulted in higher unemployment and additional labor market "slack", producing some downward pressure on wages and thus services prices. In addition, as supply-chain disruptions subside next year, certain consumer prices may ease up. The CPI is estimated to rise 1.2 percent in 2020 and projected to rise 2.1 percent in 2021 and 2.2 percent in each of the following three years. In response to recent failures to raise inflation toward its desired target, the Federal Reserve has changed its guidance to indicate that it will encourage sustained inflation modestly above the 2.0 percent objective. This tends to tilt longer-term inflation prospects higher.

Risks

The outlook for inflation could be influenced in either direction by the degree of success of the expanded Organization of the Petroleum Exporting Countries (OPEC+) in maintaining production limits to prop up oil prices. In addition, the timeline for resolution of the global COVID-19 pandemic relative to current expectations will influence commodity prices.[2]

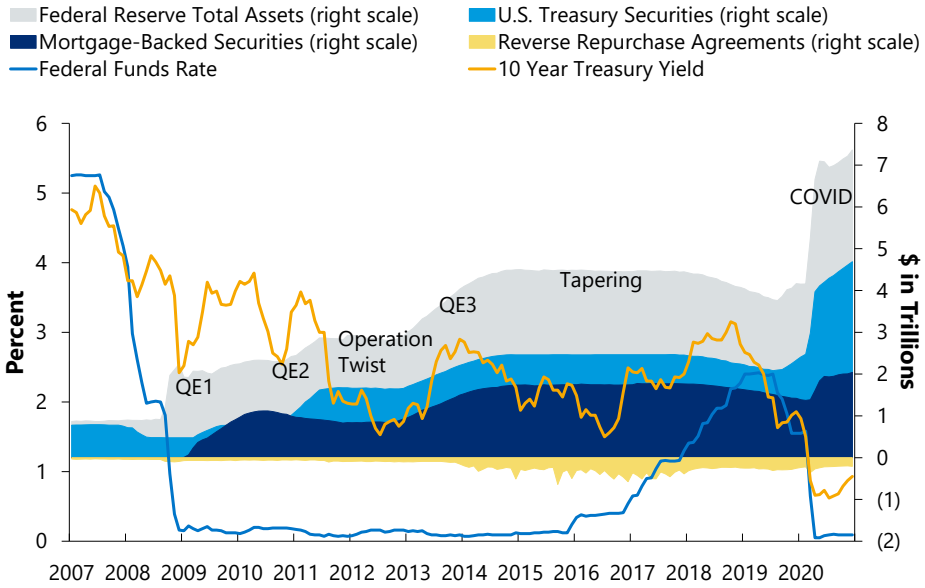
[2] OPEC+ countries include the thirteen member OPEC countries (Algeria, Angola, Equatorial Guinea, Gabon, Iran, Iraq, Kuwait, Libya, Nigeria, Republic of the Congo, Saudi Arabia, United Arab Emirates, Venezuela) plus another 10 oil producing countries (Azerbaijan, Bahrain, Brunei, Kazakhstan, Malaysia, Mexico, Oman, Russia, South Sudan, Sudan).

Federal Reserve

Key Points

- DOB expects that the Federal Reserve will not change the near-zero target range for the federal funds rate in 2021 and will remain on hold through at least 2022.
- The adoption of a revised monetary policy framework by the FOMC in August 2020, under which the FOMC plans to achieve its 2.0 percent long-run inflation target by having inflation average 2.0 percent over time, plus the FOMC's policy statement that appropriate policy likely will allow inflation to be moderately above 2.0 percent for some time, further strengthens the case for a very slow return to federal funds rate tightening.
- The Federal Reserve's balance sheet, which had topped out at $4.5 trillion in early 2015, grew to an unprecedented $7.4 trillion by late 2020 and is likely headed higher still.

Monetary Policy, Federal Reserve Balance and Interest Rates



Source: Haver Analytics/Federal Reserve Board/U.S. Treasury.

Recent Developments

The FOMC began 2020 with its target federal funds rate in the range of 1.5 percent to 1.75 percent (where it had been since the end of October 2019). It was also continuing gradually to shrink its balance sheet, which had grown enormously due to the Great Recession. The FOMC was still concerned with its inability to achieve its "symmetric 2.0 percent" inflation objective.

By early March, when it became clear that COVID-19 was spreading in the U.S., the FOMC did not wait until its scheduled mid-March meeting to act. In two unscheduled meetings the FOMC cut its federal funds target to the current zero to 0.25 percent range and took additional actions, including

ramping up purchases of Treasury securities and agency mortgage-backed securities (MBS), initially by $500 billion in Treasury securities and $200 billion in agency MBS; by year-end, the Federal Reserve was purchasing $80 billion in Treasury securities each month, and agency MBS were being bought at a rate of $40 billion per month with no termination date specified. In addition, buttressed by a $455 billion appropriation of U.S. Treasury funds by Congress, the Federal Reserve resurrected some programs first created during the Great Recession (such as the Term Asset-Backed Securities Loan Facility, or TALF) and rolled out a series of new programs to lend to municipalities, corporations, and small and medium-sized businesses (like the Main Street Lending Program, or MSLP).[3] These programs were announced from the middle of March until early April 2020.

The programs appear to have been more important as a signal of central bank action during a crisis, as there was relatively little demand for the funding that was made available. Five of the programs that received CARES Act funding were shut down at the end of 2020 and the unused funds returned to the Treasury; these programs are the PMCCF, SMCCF, MLF, MSLP and TALF (see footnote 3 for abbreviations). The remaining four programs (the CPFF, PDCF, MMMFLF and PPPLF) have been extended through March 31, 2021.[4]

Outlook

DOB expects that the FOMC will remain on hold with respect to monetary policy for the foreseeable future. Consistent with this, DOB anticipates that the effective federal funds rate will be 0.1 percent on an annual average basis (effectively zero) from calendar 2021 through 2022, after averaging 0.4 percent in 2020. The effective federal funds rate was 2.2 percent in 2019. Meanwhile, the yield on 10-year Treasuries is expected to average 0.9 percent in 2020, rising to 1.1 percent in 2021 but climbing to 1.4 percent for 2022. It averaged 2.1 percent in 2019.

The outlook for monetary policy stems from the Federal Reserve's responses to the COVID-19 pandemic, and the FOMC's formal adoption of a revised framework for monetary policy at the end of August 2020. The FOMC's policy review had been underway for a few years, long before this crisis. The FOMC is now willing to allow inflation to run "moderately" over its long-term 2.0 percent objective "for some time,"[5] and with inflation very tame, it appears unlikely that the FOMC will seek to increase the current zero-to-0.25 percent target range for the federal funds rate anytime soon.

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[3] Jacob Haas, Christopher J. Neely, and William R. Emmons, "Responses of International Central Banks to the COVID-19 Crisis," Federal Reserve Bank of St. Louis *Review*, Fourth Quarter 2020, pp. 339-84. Available at https://files.stlouisfed.org/files/htdocs/publications/review/2020/10/22/responses-of-international-central-banks-to-the-covid-19-crisis.pdf. Other programs include: Primary Dealer Credit Facility (PDCF); Paycheck Protection Program Liquidity Facility (PPPLF/); Money Market Mutual Fund Liquidity Facility (MMMFLF); Primary/Secondary Market Corporate Credit facilities (PMCCF/SMCCF); Municipal Liquidity Facility (MLF); Commercial Paper Funding Facility (CPFF); Central Bank U.S. Dollar Liquidity Swap Lines; Foreign and International Monetary Authorities Repo Facilities. See p. 347 of the article cited for a table and brief descriptions of these programs.

[4] "Letter from Secretary Steven T. Mnuchin on the Status of Facilities Authorized Under Section 13(3) of the Federal Reserve Act," November 19, 2020, at https://home.treasury.gov/news/press-releases/sm1190. The five programs funded under the CARES Act were the PMCCF, SMCCF, MLF, MSLP and TALF.

[5] Federal Open Market Committee, *Statement on Longer-Run Goals and Monetary Policy Strategy,* as amended effective August 27, 2020, available at https://www.federalreserve.gov/monetarypolicy/files/FOMC_LongerRunGoals.pdf.

Meanwhile, as the economy continues to recover from the shock of the shutdowns in spring 2020, increased economic activity should create pressure that forces the 10-year rate to rise.

Risks

The main risks to the "Fed Call" forecast are the short- to medium-term effects the COVID-19 pandemic will have going forward. As the FOMC has said in its most recent policy statement, "The path of the economy will depend significantly on the course of the virus." If vaccination against the virus is carried out quickly, then the resumption of normal economic activity will be on a sounder footing. If this leads to increased inflation, the FOMC might begin to increase its federal funds target range rather than maintain the current near-zero range as the "Fed Call" expects. The FOMC would also likely resume the gradual shrinking of its balance sheet, which the COVID-19 crisis caused to be put into reverse.

Financial Markets

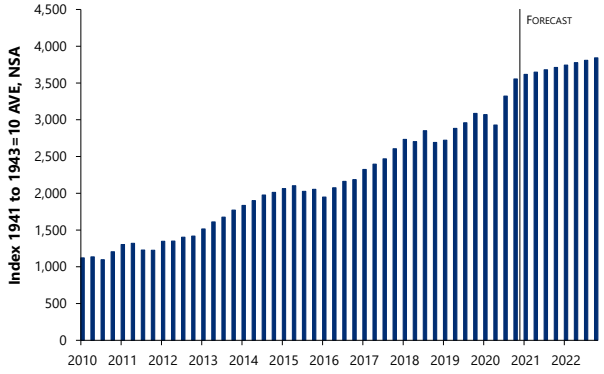
Key Points

- The spread between the 10-year and 3-month Treasury yields turned negative briefly in February 2020, right before the COVID-19 pandemic dragged the U.S. economy into a recession. While such an inversion of the yield curve occurred in the middle of 2019, causing fears of a recession that did not occur, in 2020, these fears materialized.
- After the Federal Reserve responded to the pandemic in March 2020 by cutting the target Federal funds rate to zero and committing to use its full range of tools to support the U.S. economy, longer-term Treasury yields quickly fell to historic lows. The 10-year Treasury note yield plunged 140 basis points from 1.9 percent at the start of 2020 to 0.5 percent by April 2020.
- Longer-term Treasury yields have drifted up since August 2020 and climbed higher after the U.S. elections in November on encouraging news regarding the effectiveness of various companies' COVID-19 vaccines.
- The risk spread between yields on Baa corporate bonds and 20-year Treasury notes has narrowed following its March spike. As the U.S. economy continues to recover and COVID-19 becomes contained, risk spreads are expected to narrow further in the near term.
- Equity markets recovered faster than expected from the pandemic's damage. After an initial drop of over 30.0 percent in March 2020, the S&P 500 stock price index headed up despite the U.S. economy being deep in recession with elevated unemployment rates. While the index had a record close by August, stock prices then became volatile due to uncertainties over the Federal stimulus, presidential election, and a COVID-19 resurgence with new records set late in the year; but in the end, the S&P 500 stock price index closed 2020 at 3,756, an increase of 16.2 percent compared with the close of 2019 at 3,231.
- Growth in stock prices are expected to be moderate in 2021, while long-term bond yields gradually firm, but remain low in historical perspective.

Treasury Yield Spreads

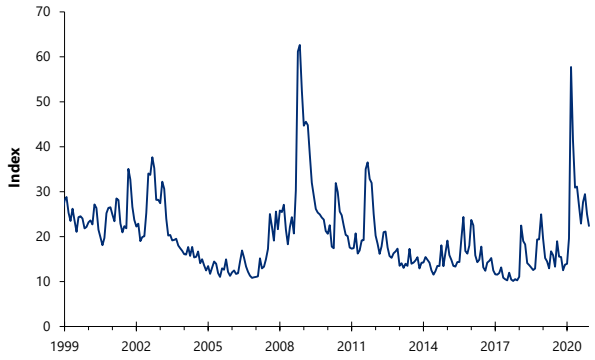
Source: Haver Analytics/FRB.

S&P 500 Stock Price Index



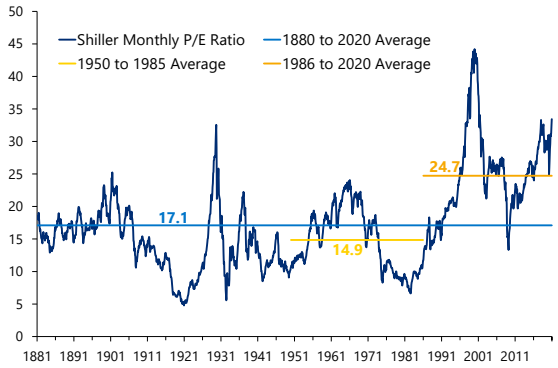
Source: Haver Analytics/S&P; DOB staff estimates.

CBOE Market Volatility Index (VIX)



Source: Haver Analytics/WSJ.

Shiller Cyclically Adjusted Price-to-Earnings (P/E) Ratio



Source: Robert Shiller; DOB staff estimates.

Outlook

The 10-year Treasury yield is forecast to rise gradually from an average of 0.9 percent in the fourth quarter of 2020 to 1.1 percent in the fourth quarter of 2021. With expectations that the Federal funds rate target will remain near zero for years and inflation pressures will remain low, DOB projects the 10-year Treasury yield to creep up to 2.0 percent by 2023.

The stock market's stunning rebound since March 2020 was fueled by monetary and fiscal stimulus in the second quarter of 2020, aided by the re-opening of the economy in the third quarter, and further boosted by progress on vaccine development and new stimulus in the fourth quarter. However, the strong resurgence in COVID-19 infections across the country has prompted renewed restrictions in many areas since November. Even with a new round of fiscal stimulus put in place after the early round expired at the end of 2020, households and businesses are still expected to struggle in the near term. Therefore, stock market growth is expected to be moderate in 2021. The S&P 500 stock price index is projected to increase 4.8 percent in 2021 on a fourth quarter-over-fourth quarter basis, following year-ago growth of 15.2 percent in the fourth quarter of 2020.

Risks

The increasing likelihood of widespread distribution of effective COVID-19 vaccines in early 2021 has started to benefit stocks exposed to air travel, cruises, lodging, and dining. If realized, physical distancing restrictions could become a thing of the past, allowing the worst-affected service sectors like travel and food services to fully recover, which will be a game changer for the U.S. economy and financial markets alike.

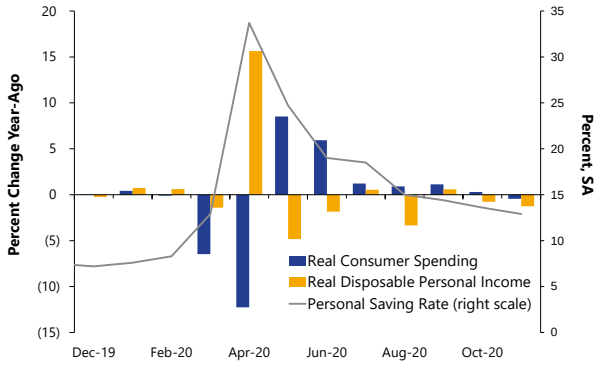
The real challenge for financial markets is whether fundamentals can catch up with the historically high P/E ratios, as shown above. Long-term stock price growth is anticipated to mirror expected growth in corporate earnings, discounted by the change in interest rates. Therefore, either an acceleration of earnings growth or a correction in stock prices is expected going forward.

Personal Income and Household Wealth

Key Points

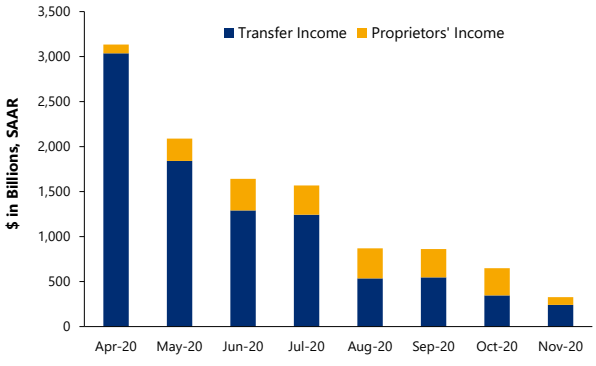
- According to the BEA's personal income and outlays report released on December 23, 2020, real disposable personal income declined 16.3 percent at an annual rate in the third quarter of 2020, following an unprecedented 48.6 percent surge in the second quarter that was fueled by federal stimulus and transfer payments which offset a plunge in compensation. As real disposable income growth remained weak in October and November, the personal savings rate dropped to 12.9 percent by November from an historically unprecedented peak of 33.7 percent in April 2020.
- The CARES Act provided more than $2 trillion in economic relief, offsetting declines in wage and some non-wage incomes. BEA estimates that federal pandemic response programs boosted personal income by $928.3 billion (not annualized) from April to November 2020, around 81.5 percent of which took the form of personal current transfer receipts while the rest supported proprietors' income.
- Household balance sheets are healthy overall. Household debt and financial obligations ratios remain low when viewed in historical context. The two largest components of household wealth - real estate and equity holdings - have seen robust growth; by December, the S&P 500 stock price index had fully recovered and was registering record highs. As a result, 2020 is expected to end up being a solid year for growth in household net worth. These factors will support a strong recovery in consumption when pandemic concerns recede.
- Real disposable income is estimated to have increased 6.2 percent in 2020, boosted by the first round of federal stimulus, then is anticipated to grow 0.2 percent in 2021 fueled by the passage of another federal stimulus package including about $900 billion in spending during 2021. Real disposable income is likely to be flat as stimulus funding dissipates.

Disposable Personal Income and Saving Rate



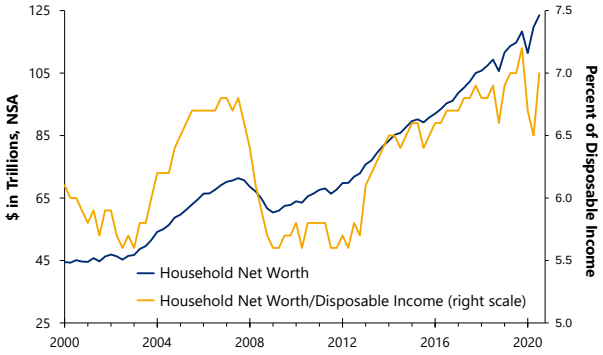
Source: Haver Analytics/BEA.

Income Support from Pandemic Relief Programs



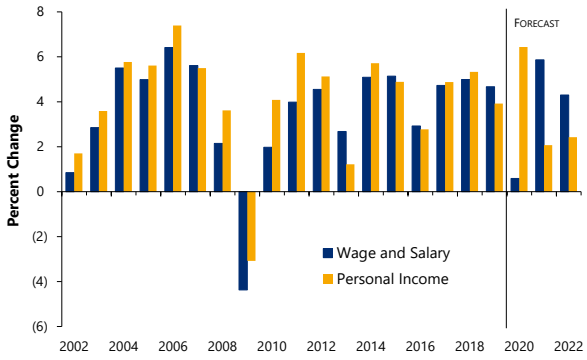
Source: Haver Analytics/BEA.

Household Net Worth



Source: Haver Analytics/BEA.

U.S. Wage and Personal Income Growth



Source: Haver Analytics/BEA; DOB staff estimates.

Recent Developments

Real wage and salaries continue to recover since May 2020, after plunging a cumulative 9.6 percent (not annualized) from February through April. Real wage and salaries rose 0.9 percent in November on a year-over-year basis. Rental income rose above its pre-COVID level as of November despite many renters being allowed to delay or skip rent payments due to the pandemic. However, the recovery in personal income receipts on assets has been lagging. As of November 2020, personal dividend income was 2.7 percent lower than the year before and personal interest income was 4.3 percent below its November 2019 level.

Meanwhile, federal pandemic relief programs, which boosted transfer income and proprietors' income in the middle two quarters of 2020, became a drag in the fourth quarter. BEA reported that Economic Impact Payments to American households of up to $1,200 per adult and $500 per child provided the largest boost to personal income in April. As these payments slowed, Pandemic Unemployment Compensation payments (PUC), which provided an additional $600 per week to individuals who were collecting regular unemployment compensation, kicked in and became the main stimulus to personal income between May and July. In August, while Paycheck Protection Program loans to businesses continued to support farm and nonfarm proprietors' income, a large portion of the expanded unemployment benefits expired, resulting in a sharp decrease in personal income that month. President Trump signed an executive order on August 8 diverting $43 billion from the Federal Emergency Management Agency's (FEMA) Disaster Relief Fund to supplement wages lost as a result of the COVID-19 pandemic. These payments also diminished over October and November 2020 according to BEA.

At the end of 2020, Congress finally approved a $900 billion COVID-19 relief package, extending unemployment benefits for another eleven weeks, sending $600 direct payments to individuals and families, and continuing to aid small business through Paycheck Protection Programs and more direct payments to farmers and ranchers. These provisions have been incorporated into the baseline forecast and are expected to boost transfer income and proprietors' income in the first half of 2021.

Outlook

DOB estimates U.S. wage income to have increased a mere 0.6 percent in 2020. Wage growth is expected to strengthen in 2021 to 5.9 percent as payroll employment recovers to an estimated 98.0 percent of its pre-COVID level by the end of 2021. The outlook for non-wage income is highly dependent on the second-round of federal fiscal stimulus that is scheduled to take effect in early 2021. On balance, real disposable income is estimated to increase 6.2 percent in 2020, significantly stronger than the 2.2 percent growth in 2019; it is then anticipated to increase 0.2 percent in 2021. As stimulus funding dissipates, real disposable income growth in 2022 is forecast to be flat. However, household net worth growth is expected to remain strong in the next few years under the outlook of continued growth in equity and housing markets, thus supporting a full recovery in consumer spending when pandemic concerns recede.

Risks

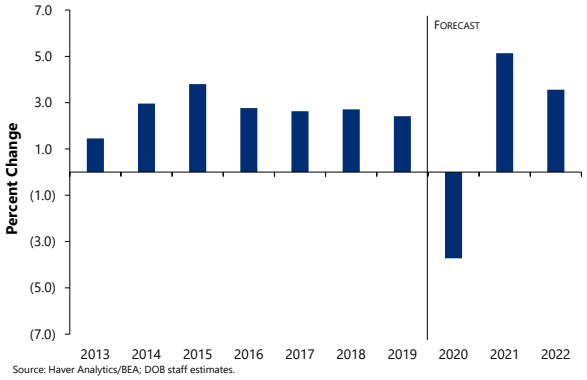
Prolonged labor market disruptions due to new strains of COVID-19 and potential corrections in equity prices represent major downside risks to the personal income and household wealth outlook. Alternatively, if labor markets recover faster than expected or additional fiscal support were to be provided, personal income and household wealth would grow faster than forecast.

Consumer Markets

Key Points

- Real consumption plunged at a 33.2 percent rate in the second quarter, then rebounded at a 41.0 percent rate in the third quarter, according to the BEA's third estimate. This left the level of real consumption 3.2 percent below its peak level in the fourth quarter of 2019.
- In December, the Conference Board Consumer Confidence Index fell for the second consecutive month in a row to reach the lowest level since August. Currently, consumer confidence is 33.2 percent lower than its February level and declined almost 31.0 percent on a year-over-year basis.
- Real consumption growth is likely to have slowed sharply in the fourth quarter of 2020 and is anticipated to decelerate further in the first quarter of 2021 despite federal fiscal stimulus support.
- Real consumption is estimated to decline 3.7 percent in 2020, then increase 5.1 percent in 2021 and 3.6 percent in 2022. Real consumption is anticipated to surpass its previous peak in the third quarter of 2021.

Real Consumer Spending

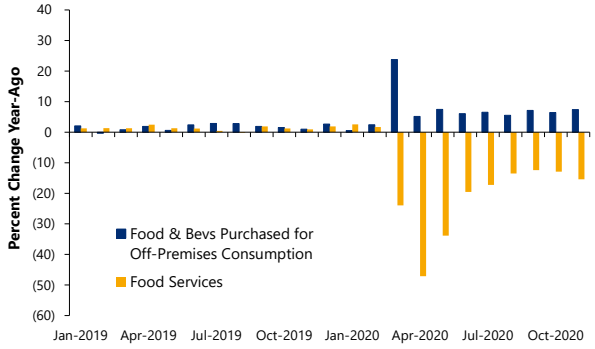


Source: Haver Analytics/BEA; DOB staff estimates.

Consumer Confidence Index

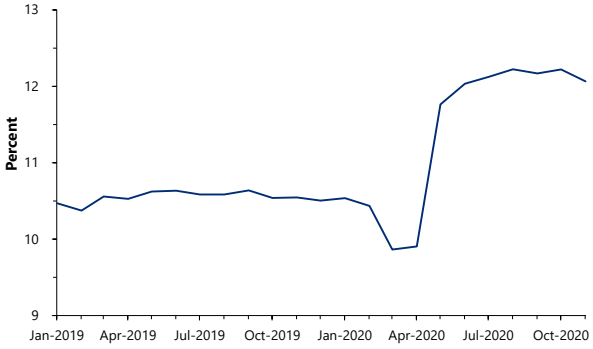
Note: Shaded areas represent U.S. recessions.
Source: Haver Analytics/The Conference Board.

Consumption Quantity Indexes (SA, 2012=100)



Source: Haver Analytics/BEA.

Nominal Durable Goods Consumption as a Share of Total Nominal Consumption



Source: Haver Analytics/BEA.

Recent Developments

In response to restrictions on business and social activities during the early phase of the COVID-19 pandemic, real consumption fell at an annual rate of 6.9 percent in the first quarter of 2020 and 33.2 percent in the second quarter, the fastest drop on record. Real consumption rebounded at a 41.0 percent rate in the third quarter, also a record.

The pandemic has produced significant shifts in the components of consumer spending. Despite adequate incomes, restrictions on consumers' ability to participate in activities, including travel and dining out, have diverted spending from services to goods. As of November 2020, real consumption of food at home was 7.4 percent higher than in the same month the prior year, while spending on food services was down 15.4 percent. This shift has been even more pronounced for durable goods, purchased in many cases to replace recreational activities. Real consumption of durable goods surpassed its pre-pandemic (January) peak in June, and as of November, it exceeded its year-ago level by 12.1 percent. Real spending on new motor vehicles was up 6.2 percent relative to the prior year, while real spending on recreational goods and vehicles was up 24.8 percent. As a share of total nominal consumption, spending on durable goods rose from 10.4 percent in February to 12.1 percent as of November.

Monthly data indicate a deceleration in total consumption growth in the fourth quarter of 2020. Real consumption grew 0.3 percent (not annualized) in October, the least since May, followed by a decline of 0.5 percent in November. This deceleration is due to several factors. Most importantly, the rate of new COVID-19 cases escalated sharply between October and the holiday season, prompting some state and local governments to reimpose lockdowns and business restrictions. The persistence of the pandemic implies continued restraint by consumers and capacity limitations on the types of activities most susceptible to social distancing, including dining out and live entertainment. At the same time, demand for durable goods has been largely satisfied, and the overshoot in durable goods spending relative to its long-term trend is expected to reverse somewhat in the coming months.

Outlook

Consumer spending has been the main transmission channel for the unprecedented swings in real GDP that occurred in 2020 as a result of the COVID-19 pandemic. Consumers pulled back on spending mainly due to business restrictions and pandemic fears. In consequence, consumer spending is expected to dictate the path of the recovery, and in turn will be primarily influenced by the timing and severity of the pandemic. As the transmission of the disease remains high, the deceleration in consumption growth observed in the fourth quarter is anticipated to continue through the first quarter of 2021. Additional income support through a second-round of federal fiscal stimulus is likely to keep consumption in the first quarter of 2021 from declining. Real consumption is forecast to grow 5.6 percent in the fourth quarter of 2020 and 2.8 percent in the first quarter of 2021.

DOB expects a surge in consumer demand for services in the middle quarters of 2021, supported by elevated saving rates and strong gains in household net worth. Real consumption is forecast to

grow at a 4.6 and 4.5 percent rate in the second and third quarters of 2021, respectively, followed by 4.0 percent growth in the fourth quarter. After an expected 3.7 percent decline in 2020, real consumption is forecast to grow 5.1 percent in 2021, surpassing its previous peak in the third quarter, and growing 3.6 percent in 2022.

Risks

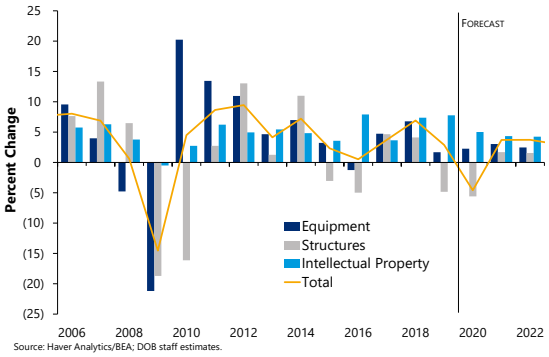
Downside risks to the consumption forecast include a worsening of the COVID-19 pandemic and delays in the production or distribution of the COVID-19 vaccines. Upside risks include additional fiscal stimulus and faster than anticipated distribution and implementation of the vaccinations.

Business Fixed Investment

Key Points

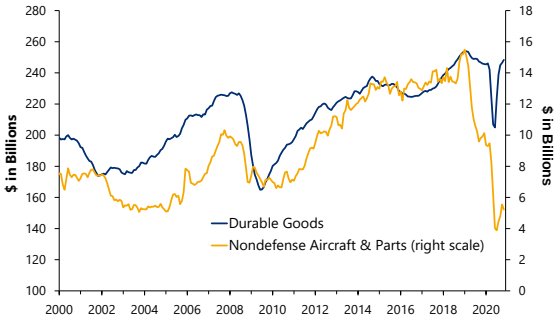
- Real nonresidential fixed investment is forecast to have fallen 4.6 percent in 2020, the first outright decline since 2009, after rising 2.9 percent in 2019. Business fixed investment is expected to grow 3.7 percent in both 2021 and 2022.
- Real investment in structures, which has been a major driver of weakness in total business fixed investment, plunged 33.6 percent in the second quarter of 2020 (a record decline based on data that extends back to 1947) and 17.4 percent annualized in the third quarter. These declines were in part due to falling oil prices, which led to declines in real investment in mining exploration and thus a reduction in oil rigs. COVID-19 restrictions on activity also played a role.
- Boeing's troubled 737 MAX jetliner remained grounded for most of 2020, and nondefense aircraft shipments took yet another hit due to COVID-19 related supply-chain disruptions and travel restrictions; shipments began to turn up late in the year, though from May's 24-year low.
- Even real investment in intellectual property products (IPP) was affected by the pandemic, as this form of investment fell 11.4 percent in the second quarter of 2020 but grew 8.4 percent in the third quarter. Growth of just 1.1 percent is projected for all of 2020 after 6.4 percent growth in 2019.

Real Nonresidential Fixed Investment



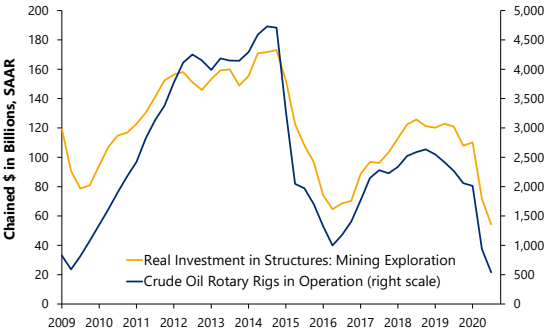
Source: Haver Analytics/BEA; DOB staff estimates.

Manufacturers' Shipments (Three Month Moving Average)



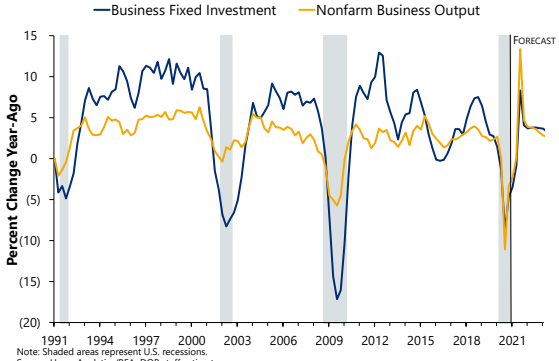
Source: Haver Analytics/Census Bureau.

Oil Rigs and Real Investment in Structures



Source: Haver Analytics/BEA/EIA.

Real Business Fixed Investment vs. Nonfarm Business Output



Note: Shaded areas represent U.S. recessions.
Source: Haver Analytics/BEA; DOB staff estimates.

Recent Developments

Total nonresidential construction outlays, which hit a recent peak in January 2020, fell 2.7 percent by April and generally have continued declining through November 2020, despite a small increase in May and October, implying continuing weakness in real investment in structures.

Regarding equipment, shipments of nondefense capital goods excluding aircraft dropped 8.2 percent from January to April 2020 but rebounded 14.4 percent from April to November, exceeding January's level. Meanwhile, manufacturers' new orders for nondefense capital goods excluding aircraft, a leading indicator for equipment investment, fell by nearly the same percentage as shipments in the January-April period but rose 15.7 percent from April to November and also exceeded its January level. It remains uncertain, however, when Boeing will resume production and deliveries of its 737 MAX jetliners; however, in late November 2020 the Federal Aviation Authority (FAA) lifted the order that suspended use of the plane by airlines under its jurisdiction. In early December, Irish airline Ryanair placed an order for 75 of the 737 MAX aircraft, after a Polish airline ordered two planes in August.[6] Despite the 737 MAX problems, shipments of nondefense aircraft and parts, in a general decline since peaking in November 2018, jumped 32.0 percent from January to March 2020 before falling 67.2 percent by May. Shipments rose 49.6 percent by August, not quite recovering half of their March level. After a decline of 3.1 percent in September and a strong rebound of 23.6 percent in October, shipments dropped to 18.9 percent below its August level in November.

Total industry capacity utilization was at a relatively low level of 73.3 percent in November 2020, well below its long-run average of 79.8 percent. The utilization index hit a record low of 64.2 percent in April 2020 as business lockdowns became widespread. Since reaching a recent peak of 79.6 percent in November 2018, capacity utilization had been trending down even before the disruption brought about by the pandemic, contributing to weak business investment even in a low-interest environment. Capacity utilization was consistently above 80.0 percent during 2005-2007, continuing into the first four months of 2008 even as the Great Recession was underway.

The Conference Board's CEO confidence index rose to 64 in the final month of 2020's third quarter, up from 45 a month earlier. As a reading of less than 50 reflects more negative than positive responses, the most recent reading indicates that CEOs had turned much more positive regarding business conditions, at least before the COVID-19 surge in the middle of the fourth quarter. The Conference Board indicated that 25.0 percent of CEOs expected to increase capital spending over the next 12 months while 38.0 percent expected to make no change in capital spending. But 37.0 percent expected to reduce their capital outlays. However, 36.0 percent thought capital spending would be increased beyond the next 12 months.

[6] Avie Schneider, "Boeing Lands 1st 737 Max Order Since Troubled Plane Was Cleared to Fly Again," December 3, 2020, report by National Public Radio. Available at https://www.npr.org/2020/12/03/942133229/boeing-lands-1st-737-max-order-since-troubled-plane-was-cleared-to-fly.

Outlook

Real business investment is expected to have fallen 4.6 percent in 2020 on an annual average basis, due to the shock of the COVID-19 pandemic, after having grown 2.9 percent in 2019. The projected decline for 2020 would be the first since a plunge of 14.9 percent in 2009, during the Great Recession. Growth in real business fixed investment is expected to resume in 2021, with an increase of 3.7 percent. As the pandemic recedes further into history in 2022, growth in nonresidential fixed investment is expected to hold at 3.7 percent.

Real investment in equipment, which fell an estimated 5.7 percent in 2020 after rising 2.1 percent in 2019, is expected to pick up in 2021 with growth of 8.5 percent at an annual rate, before tapering to 3.0 percent growth in 2022. Real investment in structures, which dipped 0.6 percent in 2019, is estimated to have plunged 11.0 percent in 2020 and is forecast to fall another 4.3 percent in 2021 before growing 5.7 percent in 2022. Growth in real IPP, which fell to an estimated 1.1 percent in 2020 from a 6.4 percent increase in 2019, is forecast to slowly accelerate to 2.8 percent in 2021 and 3.6 percent in 2022.

Risks

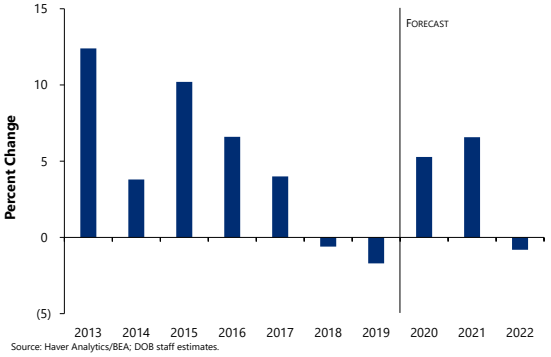
Risks to the forecast for nonresidential fixed investment lie in the ongoing uncertain economic and political environment. If the resurgence of the virus continues, and leads to a more restricted business environment, business fixed investment could be weaker than forecast. Likewise, if the incoming administration is perceived as less business friendly, perhaps because of changes in tax policy, investment would likely be weaker than envisioned. Alternatively, if the spread of COVID-19 can be contained as vaccinations proceed, or if political gridlock restrains any major fiscal policy shifts, business fixed investment could be more robust than projected in this forecast. Adoption of less restrictive trade policies by the incoming administration could also stimulate investment beyond what is forecast here.

Housing Market

Key Points

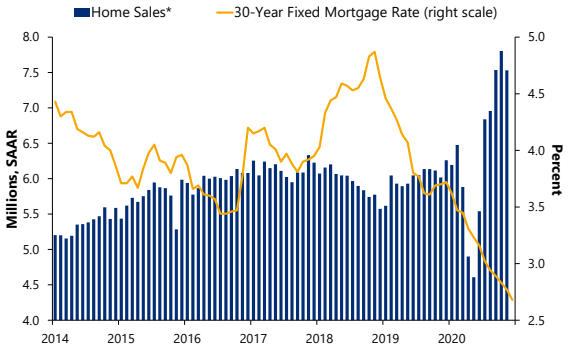
- Real residential fixed investment rebounded 63.0 percent at an annual rate in the third quarter of 2020 after dropping 35.6 percent in the second quarter, thus surpassing its recent pre-pandemic peak level, set in the first quarter of 2020.
- Residential building activities were among the first that resumed in the summer of 2020 after pandemic lockdowns since social distancing is relatively easy to implement among construction workers. Meanwhile, the pandemic has only exacerbated the ongoing shortage in the supply of existing homes, further accelerating the rise in home prices. The work-from-home policy adopted by many companies during the pandemic induced a wave of migration from urban to suburban areas in a search for more space, leading to a surge in single-family home sales as well as a rise in single-family housing starts.
- Historically low mortgage rates have assisted home buyers in an otherwise challenging time, and mortgage rates are expected to remain near historical lows through 2021.

Real Residential Investment



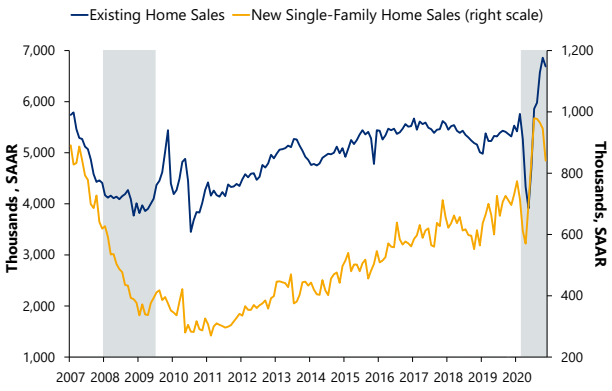
Source: Haver Analytics/BEA; DOB staff estimates.

Low Mortgage Rates Help Home Sales



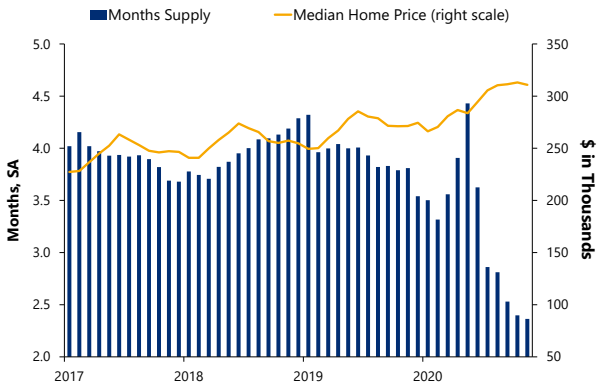
Note: *Home sales include both new and existing home sales.
Source: Moody's Analytics/Census Bureau/NAR/Freddie Mac.

New and Existing Home Sales



Note: Shaded areas represent U.S. recessions.
Source: Haver Analytics/Census Bureau/NAR.

Existing Home Market Supply Remains Tight



Source: Haver Analytics/Moody's Analytics/NAR.

Recent Developments

The residential housing market evolved into an economic bright spot as the COVID-19 pandemic brought up demand for spacious houses in suburban areas. Both new and existing home sales have recovered rapidly since June 2020. As of November 2020, new and existing home sales reached 7.5 million units (annualized), a level that is 16.3 percent above the pre-recession peak of 6.5 million units reached in February 2020. Home sales have not been this high since 2006. In addition, home buyers seem to be taking advantage of record-low mortgage rates; the 30-year fixed mortgage rate dropped 200 basis points in two years and averaged 2.7 percent in December 2020.

The surge in home sales boosted real estate agent fees, an important factor in the BEA's real residential fixed investment calculation. It also buttressed homebuilder confidence, helping new home construction to remain resilient during the pandemic. As of November 2020, total housing starts rebounded 65.6 percent from their recent trough in April 2020, when shutdowns were in full effect, recovering to only 1.3 percent below the pre-pandemic level. However, this recovery is mainly due to single-family starts, which rose 14.7 percent above the pre-recession level by November 2020, reaching the highest level since April 2007. Conversely, multi-family starts remained 32.3 percent below their level prior to shutdowns. Building permits show a similar pattern; single-family home authorizations were 22.3 percent higher than a year ago, while multi-family home permits were 13.7 percent lower than in November 2019.

On the other hand, remarkable supply constraints in the existing home market boosted prices and reduced affordability for potential buyers. By November 2020, the months' supply measure for existing homes on the market plunged 38.0 percent from a year ago to only 2.4 percent, well below the six-month threshold generally associated with moderate price appreciation. With months' supply reaching its lowest level in 20 years, the median sales price for existing homes climbed to $310,800 by November 2020, 14.6 percent above its year-ago level.

Outlook

Strength in housing permits and starts are expected to help support residential fixed investment throughout 2021, with strong gains in the first half of the new year. Mortgage rates are expected to increase slowly over the course of 2021 and remain well below 4.0 percent. Real residential investment is forecast to surge from a decline of 1.7 percent in 2019 to increases of 5.3 percent in 2020 and 6.6 percent in 2021.

Risks

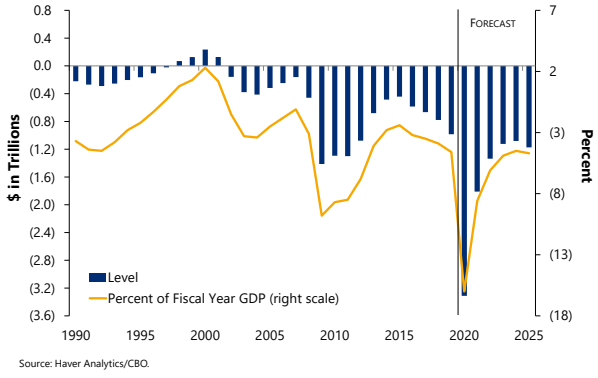
The potential for remote-work policies to become permanent represents an upside risk to the housing market. However, with continued uncertainty regarding the trajectory of the pandemic, and with moratoriums on mortgage payments lapsing without any further protections drafted in the most recent federal stimulus bill, the downside risk is that potential buyers will not be able to overcome financial hardships and so maintain the current surge in housing demand.

Fiscal Policy

Key Points

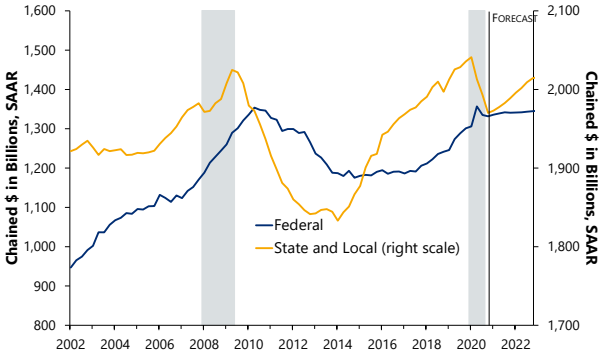
- Federal government enacted five COVID-19 relief bills since March 2020 to limit the economic and financial damage of COVID-19 to the U.S. economy. [7] Among them, the CARES Act marked the largest economic relief bill in American history, providing over $2 trillion in fiscal stimulus for 2020. The second largest was signed into law at the end of 2020 and is expected to provide another $900 billion in much-needed assistance to Americans in 2021.
- Federal policy responses to the pandemic drove up the Federal budget deficit, which is estimated to have surged 236.5 percent in the Federal Fiscal Year (FFY) 2020 to $3.3 trillion, reaching its highest level in history. According to the CBO (Congressional Budget Office), Federal debt held by the public exceeded $20 trillion in FFY 2020. It is projected to exceed 100 percent of GDP in FFY 2021 and stay above 100 percent of GDP over the next decade.
- Real Federal government spending declined 6.2 percent at an annual rate in the third quarter of 2020, offsetting a very strong annualized growth rate of 16.4 percent in the second quarter, according to the BEA's third estimate for Q3 2020. Real state and local government spending continued its decline by another 3.9 percent at an annual rate in the third quarter of 2020, following an initial annualized decline of 5.4 percent in the second quarter. Real government spending growth is expected to turn positive in the first half of 2021 due to additional Federal stimulus for 2021.
- The CARES Act provided some payments to State and local governments to cover COVID-related expenses. However, since this Federal assistance consists of one-time payments, it is unlikely to support State and local government shortfalls in coming years. Without new Federal aid for State and local governments in the latest legislation, they may have to restrain spending growth sufficiently to prevent a deterioration of their deficits.

Federal Budget Balance



Source: Haver Analytics/CBO.

Real Government Spending



Note: Shaded areas represent U.S. recessions.
Source: Haver Analytics/BEA; DOB staff estimates.

[7] Federal pandemic relief programs include the Coronavirus Preparedness and Response Supplemental Appropriations Act, the Families First Coronavirus Response Act, the Coronavirus Aid, Relief, and Economic Security (CARES) Act, the Paycheck Protection and Health Care Enhancement Act, and the Consolidated Appropriations Act of 2021.

SUMMARY OF FISCAL STIMULUS IN RESPONSE TO THE COVID-19 PANDEMIC		
Legislation:		**Amount (bil. $)**
Coronavirus Preparedness and Response Supplemental Appropriations Act	**Enacted (March)**	**8.3**
Families First Coronavirus Response Act	**Enacted (March)**	**192**
Coronavirus Aid, Relief, and Economic Security (CARES) Act	**Enacted (March)**	**2,200**
- Expand and Extend Unemployment Benefits (+$600 per week)		268
- Stimulus Checks of $1,200/Adult & $500/Child		293
- Aid to Small Businesses		377
- Education		40
- Health Care		153
- Transportation		71
- Support for Large Business		510
- Support for State and Local Governments		150
Paycheck Protection and Health Care Enhancement Act	**Enacted (April)**	**484**
Consolidated Appropriations Act, 2021	**Enacted (December)**	**935**
- Expand and Extend Unemployment Benefits (+$300/week) for 11 Weeks		120
- Stimulus Checks of $600/Person		166
- Aid to Small Businesses		325
- Education		82
- Health Care		69
- Transportation		45
Presidential Executive Orders:		
Emergency Unemployment Benefits	**Executed (August 8)**	**44**
Student Loan Forbearance Extended through December 2020	**Executed (August 8)**	**12**

Source: Congressional Budget Office, JCT, bill text, CRFB calculations.

Recent Developments

On December 27, 2020, President Trump signed a $1.4 trillion spending bill and accompanying $900 billion economic stimulus package into law, thus averting a government shutdown and clearing the way for $600 stimulus checks and $300 weekly enhanced unemployment benefits through the middle of March 2021. The new stimulus bill renews a number of key benefits from the CARES Act, including the Paycheck Protection Program of forgivable loans for small businesses and emergency unemployment benefits for self-employed individuals and gig workers. It also extends a Federal eviction moratorium through the end of January 2021 and provides funding for healthcare and vaccine distribution, but it does not include any new Federal aid for State and local governments or liability protections for businesses.

Outlook

The impact of the pandemic stimulus is evident in the pace of real Federal government spending growth, which ramped up to 16.4 percent at an annualized rate in the second quarter of 2020. Real federal government spending grew an estimated 4.3 percent for all of 2020, following 4.0 percent growth for 2019. Assuming the $900 billion stimulus package takes effect in early 2021, real Federal government spending is expected to grow 0.5 percent in 2021 and 0.3 percent in 2022. Real State and local government spending is expected to decline 1.1 percent in 2020, followed by a similar decline of 1.2 percent in 2021, but it will start to grow in 2022, by 1.2 percent.

Risks

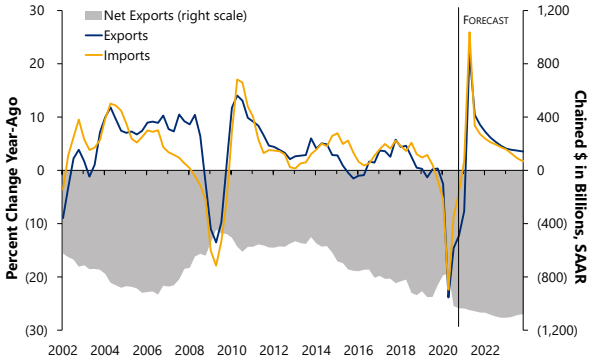
From a longer-term perspective, the elevated Federal budget deficit and mounting debt burden shown in the figures above ultimately will depress U.S. economic growth at some point in the coming years, though it is not an immediate threat, especially given the current environment of low interest rates.

Trade

Key Points

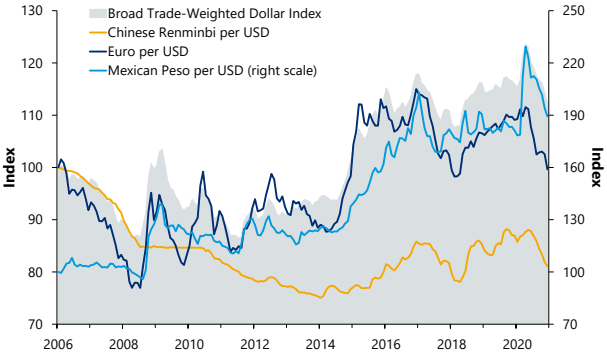
- International trade was disrupted extensively by the global spread of COVID-19. As countries started to restrict international travel and implement stay-at-home orders, both U.S. exports and imports posted the largest declines on record in the second quarter of 2020. In particular, exports and imports of autos from March through May shrank by two-thirds because lockdowns cut driving demand. Similarly, exports and imports of transport and travel services dropped more than 50 percent in March and April because global air travel essentially ground to a halt.
- In the third quarter of 2020, recoveries in exports and imports were both significant, but imports outpaced exports, reflecting robust growth in domestic demand while foreign demand lagged. October and November data indicate that both imports and exports are slowing after entering the fourth quarter.
- The recovery in international trade of services has been much slower than the trade in goods because service sectors (especially transport and travel services) remain hampered by travel restrictions and social distancing measures. As of the third quarter of 2020, real goods imports were only 1.6 percent below the fourth-quarter 2019 level, while real imports of services were still 28.0 percent short. Similarly, real exports of goods were 9.9 percent below their fourth-quarter 2019 level, while real exports of services were 24.9 percent lower. The global trade in services is unlikely to return to its pre-COVID path unless there are vaccines available for worldwide distribution and effective treatments to combat the virus.
- The U.S. dollar appreciated sharply at the beginning of 2020 as COVID-19 spread in China and Europe. But the dollar then depreciated rapidly as COVID-19 infections surged in the U.S. beginning in March. The dollar is expected to remain weak in 2021, serving as a tailwind for U.S. exports, thus helping the U.S. current account snap back.

U.S. Exports, Imports, and Net Exports

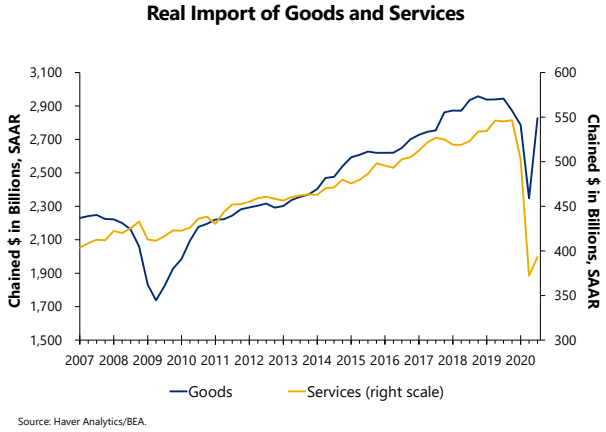


Source: Haver Analytics/BEA; DOB staff estimates.

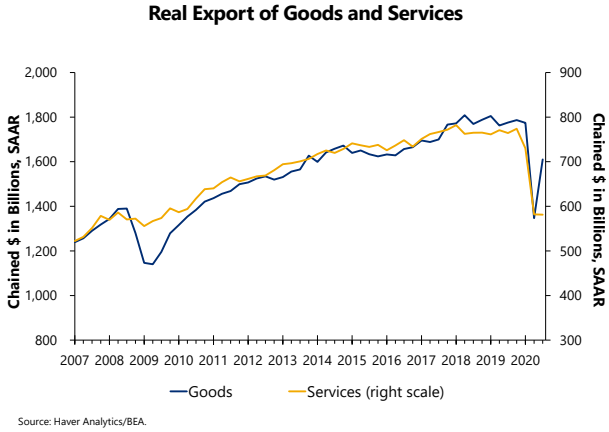
U.S. Dollar Movements



Note: Index January 2006=100.
Source: Haver Analytics/FRB.



Source: Haver Analytics/BEA.



Source: Haver Analytics/BEA.

Recent Developments

Real exports rebounded 59.6 percent at an annual rate in the third quarter of 2020 after plummeting 64.4 percent in the second quarter. Real imports surged even more at an unprecedented annual rate of 93.1 percent in the third quarter of 2020 after a drop of 54.1 percent in the second quarter, according to the BEA's third estimate. On balance, real net exports of goods and services fell to their lowest level on record, subtracting 3.2 percentage points from real GDP growth in the quarter.

The solid rebound in trade has been supported by global supply chains quickly adapting to challenges (closed borders and factory lockdowns) earlier in the pandemic. Moreover, an early and strong recovery in China's economy helped lift trade between the U.S. and China. After the third quarter rally, real U.S. exports of goods and services were still down 15.3 percent relative to the fourth quarter of 2019 and real imports were down 6.8 percent. Coming into the fourth quarter of 2020, trade data became softer, reflecting the impact of a second wave infection surge and fading support to trade from China's economic recovery. As a result, the U.S. trade deficit remained elevated towards the end of 2020, despite President Trump's approach to trade with China and a renegotiation of the North American Free Trade Agreement (NAFTA) with Canada and Mexico (now called the U.S.-Mexico-Canada Agreement or USMCA).

As countries around the world battled the COVID-19 outbreak, trade negotiations between the U.S. and China were paused. Early progress achieved from the "phase-one" trade agreement no longer seems to be on track to meet its target of boosting U.S. exports of goods and services to China (supposedly by $200 billion above the 2017 level during 2020 and 2021). However, according to a report by the Peterson Institute for International Economics, China bought only 53.0 percent of the expected purchase target through September 2020.[8] Indeed, China's imports from the U.S. by September 2020 were still below the 2017 level, while China's imports from the rest of the world were above the 2017 level.

[8] https://www.piie.com/blogs/trade-and-investment-policy-watch/trumps-phase-one-trade-deal-china-and-us-election.

Meanwhile, the USMCA took effect on July 1, 2020, but all three member countries were mired in deep recessions due to the pandemic. While the USMCA brought much-needed certainty for the millions of U.S. workers who depend on trade with Canada and Mexico for their jobs, the COVID-19 pandemic makes implementation of the trade agreement more challenging.

Late in the year, positive news for U.S. exports came from Boeing whose 737 Max planes received clearance to fly again after being grounded since March 2019. The recertification will enable Boeing to deliver planes to customers, though usage will depend on how soon airlines can recover from the pandemic.

Outlook

The COVID-19 pandemic remains a key factor affecting the global economic outlook, as well as the shape and pace of the recovery in trade. Based on the recent evidence of a continued recovery in global economic activity and a weakening dollar, real U.S. exports are projected to rebound 7.4 percent on an annual basis in 2021, following an estimated decline of 13.3 percent in 2020. As domestic demand continues to strengthen, real U.S. imports are expected to rise 10.0 percent in 2021, following an estimated 10.1 percent decline in 2020. On balance, real net exports are expected to remain elevated in 2021. Exports are expected to return to the pre-COVID level by early 2023, while imports are expected to return to the pre-COVID level as soon as late 2021.

The value of the U.S. dollar has depreciated below its pre-COVID level after a sharp appreciation at the onset of the global pandemic. In the figure above, the nominal broad trade-weighted dollar index decreased 3.2 percent on a 12-month basis by December 2020. The dollar is expected to remain weak in 2021 as the U.S. economy is projected to underperform the rest of the world and as the spread between U.S. interest rates and interest rates in other countries narrows. A weak dollar will help U.S. exports rebound, but it will also drive up the prices of imported goods, fueling domestic price inflation through both the price of finished goods and the international supply channels through which many inputs to U.S. production flow.

Risks

The COVID-19 pandemic intensified the pushback against globalization that had been building before the outbreak began, although how much it will hinder global trade remains uncertain. With Joe Biden winning the presidency, it is less likely that the trade tensions between the U.S. and China and other key trading partners will intensify.

The renewed surge in COVID-19 infections in many countries remains the biggest downside risk to the global economy and international trade. If global economic growth fails to recover in the coming years, the demand for U.S. exports may continue to fall. On the upside, the prospect of effective COVID-19 vaccines being produced, distributed, and administered globally as soon as early 2021 could give a boost to the global economy and become a gamechanger for international trade, especially trade in services.

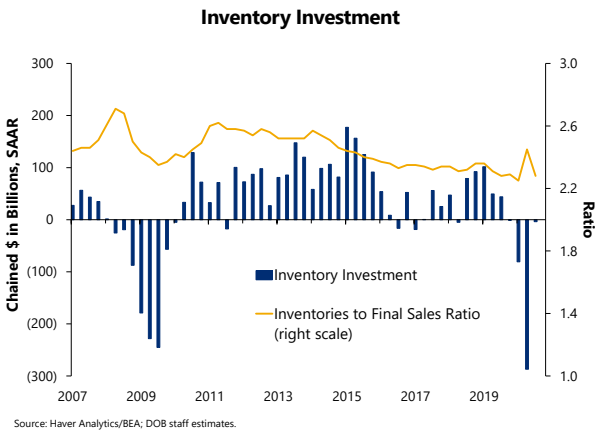
Inventory Investment

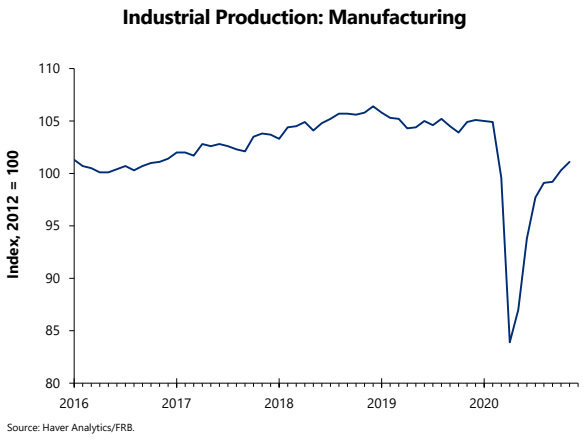
Key Points

- Real inventory investment plunged a record $287.0 billion (annualized) in the second quarter of 2020 as a result of temporary shutdowns in production combined with surging consumer demand for goods as spending was diverted from services. Real change in private inventories was negative in each of the first three quarters of 2020 and the last quarter of 2019.
- Manufacturing production declined more sharply in the second quarter of 2020 than real GDP but rebounded quicker in the third quarter. Private inventory investment deducted 3.5 percentage points from real GDP growth in the second quarter, the most since 1988, and contributed 6.6 percentage points in the third quarter, the highest since 1950.
- The dynamics of the pandemic and the differential business restrictions by industry have resulted in diverging inventory patterns by sector.
- Inventory investment is estimated to decline $83.1 billion in 2020. Inventory investment is expected to rebound in the fourth quarter of 2020 and average $52.7 billion in 2021.

Recent Developments

The stock of inventories fell sharply during the first phase of the COVID-19 pandemic. During the second quarter of 2020, real inventory investment plunged while consumer demand for goods surged. The drop was almost completely concentrated in nonfarm inventories, as farm inventories were essentially unchanged with a $2.2 billion decline. In percentage terms, the contraction in private inventories in the second quarter of 2020 was the second largest on record. The sharp decline in inventory investment subtracted 3.5 percentage points from real GDP growth, the most since the first quarter of 1988.

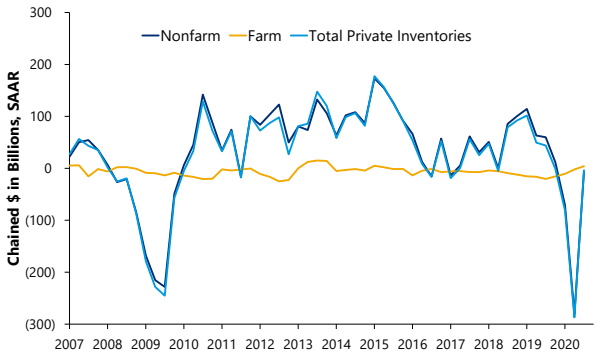




According to BEA's third estimate, both final sales and real GDP rebounded sharply in the third quarter. The brisk recovery in final sales, however, led real inventory investment to stabilize just below zero at a $3.7 billion decline. Despite the lack of a full rebound in inventory investment, the

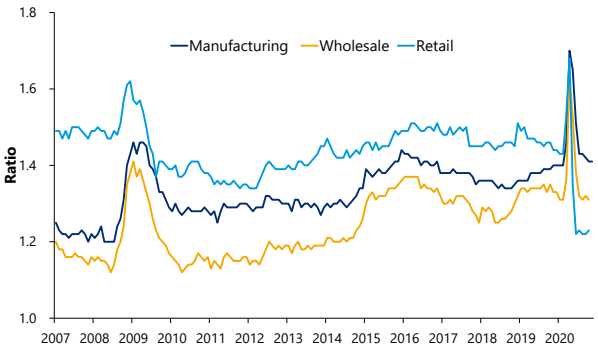
resulting contribution of inventory investment to third-quarter real GDP growth was 6.6 percentage points, the strongest showing since the fourth quarter of 1950. Given the pace of final sales, inventories remain low.[9]

Change in Private Inventories



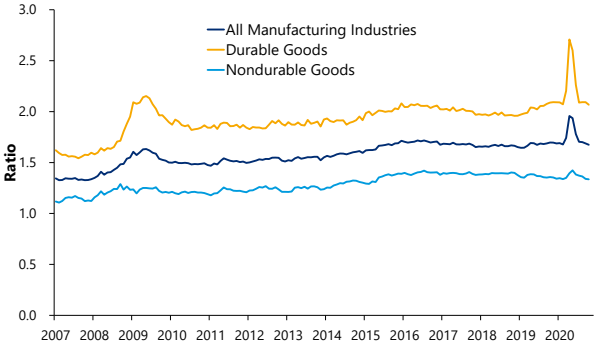
Source: Haver Analytics/BEA.

Inventory-to-sales Ratios
(Seasonally Adjusted)



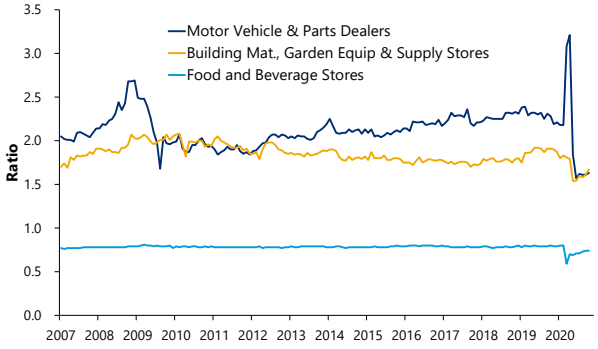
Source: Haver Analytics/Census.

Inventory-to-sales Ratios: Manufacturing
(Seasonally Adjusted)



Source: Haver Analytics/BEA.

Inventory-to-sales Ratios: Retail
(Seasonally Adjusted)



Source: Haver Analytics/Census.

The differential business restrictions by industry and the changing supply chain dynamics due to the COVID-19 pandemic resulted in diverging paths for inventories by sector. Nationwide lockdowns on nonessential business activities in April resulted in sharp increases in inventory-to-sales ratios across the manufacturing, wholesale, and retail sectors. When business restrictions lifted, manufacturing and wholesale inventories nearly returned to their prior levels, but retail inventories have not recovered yet. The shift in consumer purchasing patterns caused by social distancing has played out differently between retail segments. When auto dealer lots were initially closed, the inventory-to-sales ratio for motor vehicles and parts dealers surged to a record 3.21, but once dealerships were able to reopen, sustained demand on the part of consumers seeking to avoid public transportation led to a rush of auto sales. By June, this ratio was halved. Accelerated demand for both durable goods and food and beverages have also depleted retail inventories for these types of products.

[9] Final sales of domestic product are GDP less change in private inventories.

Outlook

Inventory investment is expected to rise again in the fourth quarter of 2020 at a $40 billion rate, resulting in an estimated $83.1 billion decline in 2020. An improving outlook for demand in the second half of 2021 is anticipated to give rise to an increase in inventory investment that averages $52.7 billion for the whole year.

Risks

Unplanned inventory accumulation due to a slowdown in the consumer economy in the first half of 2021 would be a substantial risk.

Corporate Profits

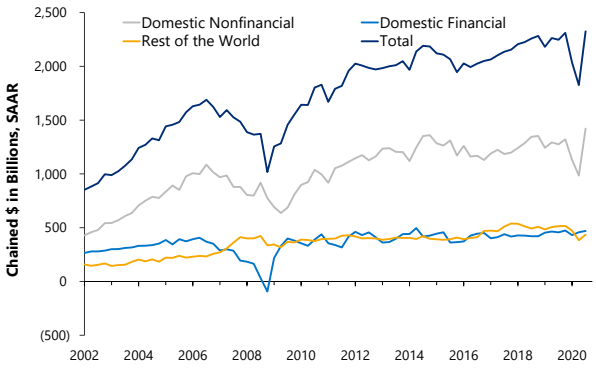
Key Points

- U.S. corporate profits from current production rebounded $499.6 billion in the third quarter of 2020 after two consecutive quarters of significant contraction. The peak-to-trough decline in corporate profits from the fourth quarter of 2019 to the second quarter of 2020 was $485.2 billion (21.0 percent). After the third quarter rebound, U.S. corporate profits were 3.5 percent higher than the year-ago level.
- Both domestic nonfinancial industries and international corporations were hit hard by the global spread of COVID-19. Fiscal stimulus through the CARES Act and lending programs through the Federal Reserve bolstered consumer spending and helped keep domestic businesses afloat through lockdowns. By the third quarter of 2020, before-tax profits from domestic nonfinancial industries had recovered fully, growing 11.4 percent from a year ago. Meanwhile, profits from the "rest-of-the-world" saw meager gains in the third quarter of 2020, marking a decline of 15.5 percent compared to the third quarter of 2019.
- Financial firms endured smaller profit slumps in the first quarter of 2020 before recovering. Corporate profit growth in the financial sector turned positive in the second quarter of 2020 and continued increasing in the third quarter with growth of 2.8 percent from the year before. A strong rebound in stock prices since March contributed to the fast recovery in domestic financial firms' earnings and profits. Financial firms also benefited from the ease with which they could adopt remote operations in response to the pandemic.

Outlook

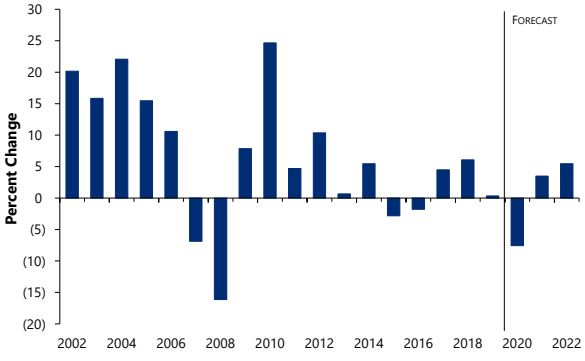
With nearly a decade of gains in U.S. corporate profits erased by the pandemic-induced recession and a new round of lockdowns in response to a resurgence in COVID-19 towards the end of 2020, Growth in U.S. corporate profits from current production – including inventory valuation and capital consumption adjustments – is estimated to have declined 7.6 percent in 2020. Profits are expected to regain their footing later in 2021 and return to pre-pandemic levels by early 2023 as global and domestic economies fully recover and a low interest rate environment holds.

U.S. Corporate Profits



Source: Haver Analytics/BEA.

U.S. Corporate Profits Growth



Source: Haver Analytics/BEA; DOB staff estimates.

Comparison with Other Forecasters

DOB's U.S. Macro forecast for the FY 2022 Executive Budget incorporates the second estimate of 2020 third quarter real GDP, October personal income and outlays, the first estimate of December 2020 employment, and the November 2020 CPI report.[10]

The following table compares DOB's forecast for a selection of U.S. indicators with those of other forecasters released at a similar time. The 2021 forecasts for real U.S. GDP growth fall into a range from 4.0 percent to 5.0 percent, with DOB's projection near the middle of the range at 4.4 percent. DOB's unemployment rate forecast for 2021 is 6.1 percent, and the forecast for CPI inflation is 2.1 percent for 2021, close to Blue Chip Consensus forecasts. The 2022 outlook shows divergent views amongst the forecasters with respect to real U.S. GDP and the unemployment rate as uncertainty surrounding the rate of recovery from the pandemic continues. DOB's forecast for 2022 U.S. GDP is 3.0 percent and CPI inflation is 2.2 percent, both lower than the forecasts from IHS Markit and Moody's Analytics. DOB expects the unemployment rate to decline to 5.2 percent in 2022, close to Blue Chip Consensus and Moody's Analytics forecasts.

U.S. ECONOMIC FORECAST COMPARISON

	2020	2021	2022
(GDP)			
(chained percent change)			
DOB	(3.4)	4.4	3.0
Blue Chip Consensus	NA	4.2	3.4
IHS Markit	(3.6)	4.0	3.9
Moody's Analytics	(3.5)	5.0	5.0
Consumer Price Index (CPI)			
(percent change)			
DOB	1.2	2.1	2.2
Blue Chip Consensus	NA	2.0	2.1
IHS Markit	1.3	2.1	2.5
Moody's Analytics	1.2	2.0	2.5
Unemployment Rate			
(percent of the labor force)			
DOB	8.1	6.1	5.2
Blue Chip Consensus	NA	6.0	5.0
IHS Markit	8.1	5.2	3.9
Moody's Analytics	8.1	6.2	5.0

Source: NYS DOB, December 2020; Blue Chip Economic Indicators, January 2021; IHS Markit, January 2021; and Moody's Analytics, January 2021.

[10] For a detailed description of the DOB/US model methodology, see New York State Economic, Revenue, and Spending Methodologies (https://www.budget.ny.gov/pubs/archive/fy21/methodology-report-fy22.pdf).

Risks to the U.S. Macro Forecast

Downside risks to the forecast herein include a worsening of the COVID-19 pandemic, prolonged business and labor market disruptions and anemic global economic growth, commodity and oil price instability, a stock market correction, and the elevated Federal budget deficit and mounting debt burden.

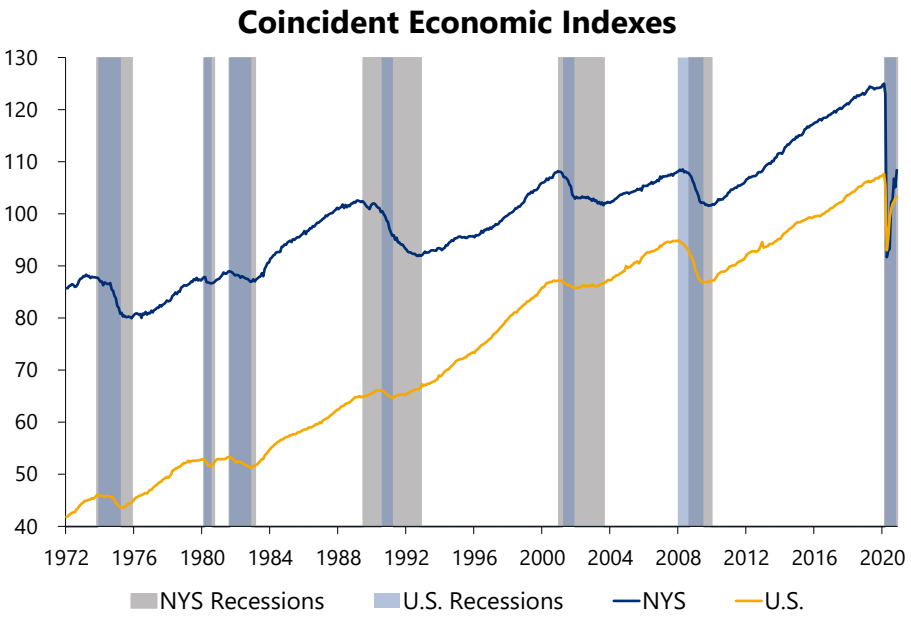
Upside risks include an effective containment of COVID-19 through wide distribution and implementation of vaccinations, fast recovery of the worst-affected service sectors, a housing market boom due to remote-work policies, additional fiscal stimulus, better global economic conditions, and less restrictive trade policies by the incoming administration.

The New York State Economy

Prior to March 2020 and the onset of the COVID-19 pandemic, New York State enjoyed its longest economic expansion on record, albeit a decelerating one. Consistent with national labor market trends, State private sector employment growth had decelerated from its 2014 peak of 2.3 percent to 1.3 percent in 2019. National private sector growth had similarly slowed from its peak of 2.3 percent in 2015 to 1.5 percent in 2019. The State's unemployment rate had fallen to 3.9 percent on an annual average basis for 2019, the lowest in the history of the current series (which dates back to 1976) and reached a historic monthly low of 3.7 percent in February 2020.

New York lost 1.9 million private sector jobs over the two-month March to April period. The State's losses represent 8.9 percent of the total number of private jobs lost nationwide over the period, though the State accounted for only 6.4 percent of national private sector employment for the month of February. The U.S. unemployment rate peaked at 14.7 percent in April and has fallen precipitously since then, to 6.7 percent in December, the most recent month available as of this publication. New York State unemployment rate did not peak until July at 15.9 percent and has since fallen to 8.4 percent for November.

With the official designation of February 2020 as a national business cycle peak, the longest economic expansion since 1850 came to an end. There is no such single arbiter of state-specific business cycles, and much of the data used by the NBER Business Cycle Dating Committee to assess cyclical turning points does not exist at the state level. DOB uses the New York State Index of Coincident Economic Indicators to determine the State's business cycle turning points. Due to the limited availability of state-level data, DOB cannot document the State's business cycle history prior to the 1970s. Below, the State Coincident Index is plotted against a similar index for the U.S. The shaded areas are circumscribed by the business cycle turning points for both the NYS and U.S. and indicate that recessions for the two areas tend to coincide, but not align perfectly.



Note: NYS recession dates are DOB staff estimates.
Source: Moody's Analytics/Conference Board; National Bureau of Economic Research (NBER); DOB staff estimates.

The most recent vintage of the Coincident Index shows only two consecutive declines but of a combined depth of 26.6 percent, unseen in recent history. Even the long recession of the early 1990s only saw a decline of 10.2 percent. Thus, the State's deepest recession since the 1930s may also be the shortest. Since April, the Index has displayed five consecutive increases, followed by a decline in October, and an increase in November, the most recent month for which data are available.

NEW YORK STATE INDICES OF COINCIDENT AND LEADING ECONOMIC INDICATORS

In the absence of an official mechanism for dating business cycles at the sub-national level, DOB has constructed a New York State Index of Coincident Economic Indicators measuring overall economic conditions for New York State[11]. Four State data series – private sector employment, hours worked in the manufacturing sector, the unemployment rate, and sales tax receipts adjusted for prices, law changes, and seasonality (as a proxy for retail sales) – are combined into a single index using the Kalman filter, a common approach to the estimation of unobserved variables. Based on the DOB Coincident Index, seven business cycles have been identified for New York State since the early 1970s, as reported in the table below. Typically, a recession is judged to have begun if the DOB Coincident Index sustains at least three consecutive declines of significant depth. A similar approach is used to date business cycle troughs. However, the unprecedented depth of the two declines in the Index for March and April 2020 points toward the designation of February 2020 as the State's most recent business cycle peak, consistent with the turning point call made by the NBER Business Cycle Dating Committee for the national business cycle.

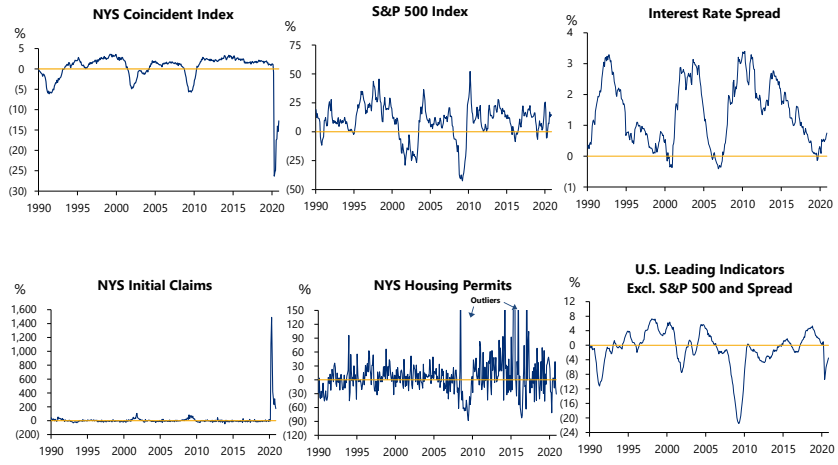
NEW YORK STATE BUSINESS CYCLES

Peak Date	Trough Date	Recession Length in Months	Private Sector Job Losses
October 1973	November 1975	25	384,800
February 1980	September 1980	7	54,800
August 1981	February 1983	18	76,600
June 1989	November 1992	41	551,700
December 2000	August 2003	32	322,600
August 2008	December 2009	16	310,300
Februrary 2020	April 2020	2	1,883,900

Source: DOB staff estimates.

To gauge the future direction of the State economy, DOB produces the New York State Index of Leading Economic Indicators, which yields a forecast for the Coincident Index up to 12 months ahead. The forecasting model includes the following five leading economic variables in a vector autoregressive framework: the U.S. Index of Leading Economic Indicators (excluding stock prices and the interest rate spread), New York State housing permits, New York State initial unemployment insurance claims, stock prices, and the spread between the 10-year and 1-year U.S. Treasury yields.

Variables Used in New York Index of Leading Indicators

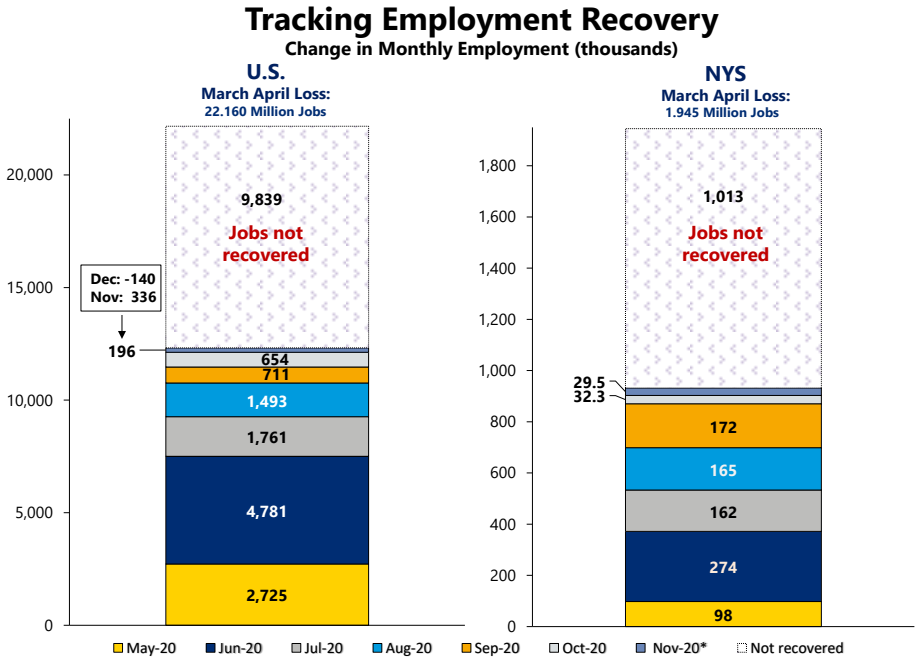


Note: All percent changes are from prior year; the outliers in housing permits chart are removed.
Source: Moody's Analytics; DOB staff estimates.

[11] R. Megna and Q. Xu (2003). "Forecasting the New York State Economy: The Coincident and Leading Indicators Approach," International Journal of Forecasting, Vol 19, pages 701-713.

Employment Outlook

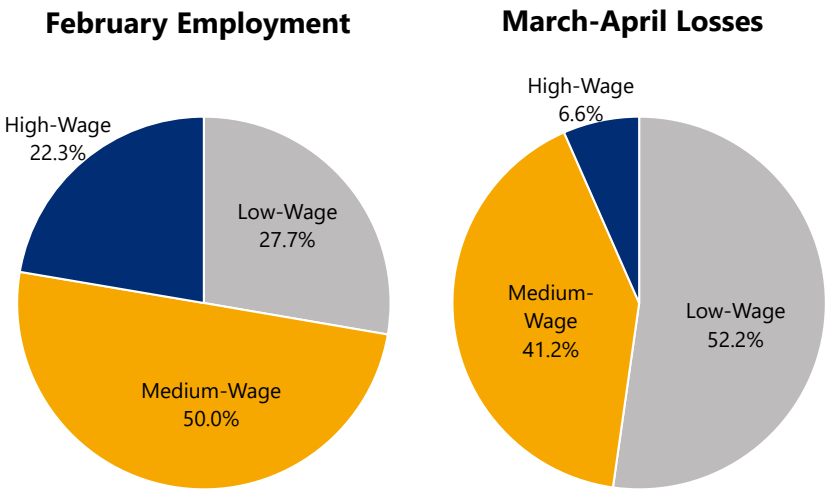
The measures taken to slow the spread of COVID-19 brought the State economy to a virtual standstill in March and April of 2020. More than 1.9 million jobs were lost in these two months alone. Based on the most recent Current Employment Statistics (CES) seasonally adjusted data, almost half of those jobs have been recovered as of this publication. However, the November level of employment remains 10.3 percent below its February (pre-pandemic) level. As illustrated in the figure below, the pace of the national labor market recovery initially outperformed that of the State. With the easing of the most stringent phase of the New York lockdown on pause in May, the State initiated a staged reopening in accordance with Centers for Disease Control (CDC)-issued guidelines. The national labor market made a strong and immediate comeback, adding 9.3 million jobs in the three months through July, or 41.8 percent of jobs lost. That compares to the 533,000 jobs New York recovered over the same period, or 27.4 percent of jobs lost.



*Value shown for U.S. includes net gains for November and December.
Source: Moody's Analytics/BLS.

With the onset of colder autumn weather, and virus-safe practices such as outdoor dining no longer feasible in many areas of the State, the labor market recovery has since slowed to a trickle, as the State added only 29,500 total jobs and 36,300 private sector jobs in November. With COVID-19 transmission intensifying across both the State and the nation, job growth is expected to slow even further over the winter months until vaccines become widely available. Job growth of 5.4 percent is now projected for 2021, following a decline of 9.9 percent for 2020. Private sector job growth of 6.2 percent is projected for 2021, following an estimated decline of 11.1 percent for 2020. These projections compare to national declines of 5.7 percent for total employment and 6.2 percent for private employment for 2020, followed by growth of 2.7 percent for total employment and 3.4 percent for private employment for 2021. New York State employment is not expected to reach its pre-pandemic peak until 2025.

Low-Wage Earners Bear the Brunt of Private Sector Job Losses

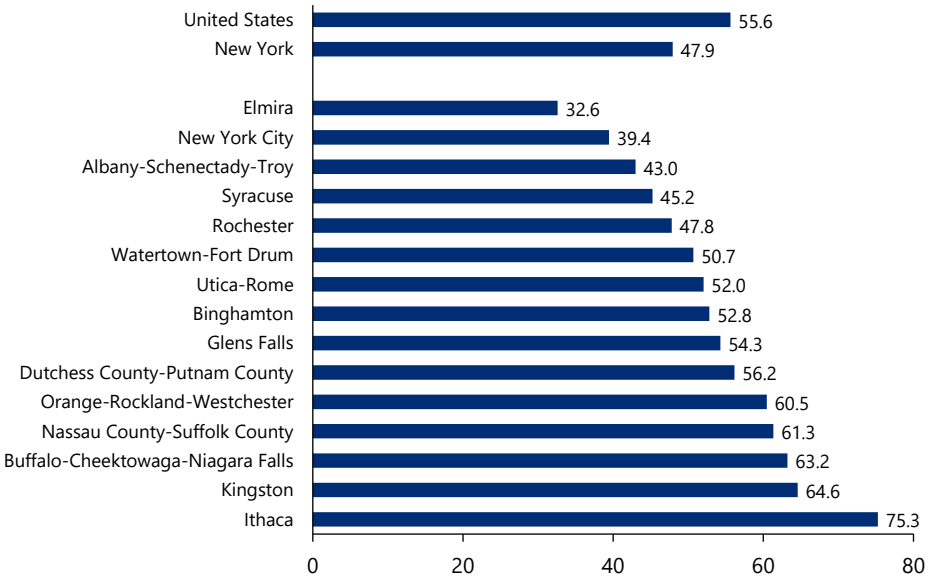


Note: A low-wage classification is defined as having a 2019 average wage below $40,000; high-wage above $80,000. Low-wage industries include retail trade, leisure and hospitality, and other services; high-wage industries include wholesale trade, information, financial services, and professional and technical services; middle-wage industries include the remainder.
Source: NYS Department of Labor; Moody's Analytics.

There were losses across all industries in the initial phase of the shutdown, but as illustrated in the figure above, the State's low-wage sectors – comprising retail trade, leisure and hospitality, and other services – with average wages below $40,000, were hit disproportionately hard. During February, the labor market's pre-pandemic peak, low-wage employment made up 27.5 percent of private sector jobs but represented 52.2 percent of the 1.9 million private jobs lost during March and April. While the gains since then have occurred in all industries, low-wage sectors remain disproportionately affected, representing 49.4 percent of the outstanding losses, especially as eating and drinking establishments remain the riskiest venues with respect to virus transmission.

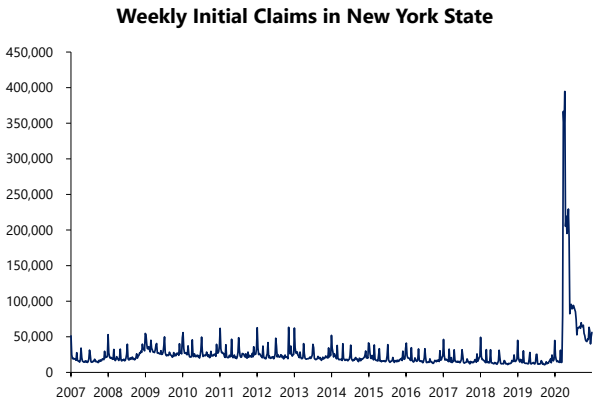
Is Remote Work Affecting the Employment Recovery of Cities?

Percent of March – April 2020 Job Losses Recovered as of November 2020

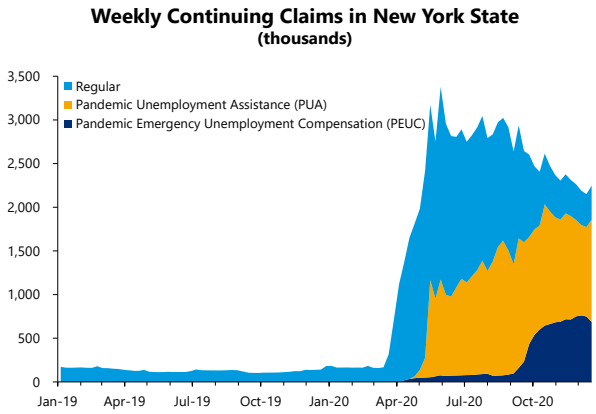


Source: NYS Department of Labor, Current Employment Statistics (CES).

The disproportionate impact of job losses on low-wage workers is just one distinctive feature of the COVID-19 downturn and recovery. The relatively small number of job losses within the high-wage industries – which include wholesale trade, information, financial services, and professional and technical services – is likely indicative of the capacity for employees in those industries to work from home. This shift in work location appears to be having an impact on the regional pattern of the recovery. The above figure presents the percentage of jobs lost in March and April that have been regained as of November 2020 by major metropolitan statistical area (MSA). With the exception of Buffalo, the areas that recovered the smallest percentage of their losses are among the State's larger metro areas. Indeed, New York City lands near the top of that list, while its closest suburbs – Long Island and the Orange-Rockland-Westchester area – have fared much better. This phenomenon is likely in part due to the redistribution of a portion of the suburban workforce from their New York City offices to their counties of residence and the associated transfer of business and consumer demand to those residential areas.



Source: Moody's Analytics/U.S. Employment & Training Administration (ETA).



Source: Moody's Analytics/U.S. Employment & Training Administration (ETA).

The cataclysmic impact of COVID-19 on the labor market is easily visible in the left-hand panel of the above figure which depicts the meteoric rise in initial claims for unemployment insurance (UI) benefits to an average of 260,000 per week from the week ending March 28 through the week ending May 23. Although initial claims filings gradually fell below 50,000 per week by November – more in line with a typical recession – claims went up in December and many of those claiming UI benefits remain unemployed. The longer-term impact of COVID-19 on the State labor market may be better reflected in the right-hand panel of the figure, which in addition to regular UI beneficiaries includes the long-term unemployed covered under Pandemic Emergency Unemployment Compensation (PEUC) and Extended Benefits (EB), as well as those small business owners, gig workers, and others not eligible for regular benefits covered under Pandemic Unemployment Assistance (PUA). The number of continuing claims remained near 3 million over the summer, slowly declining to 2.2 million by December, half of which were covered under PUA.

The PUA program data provide a unique window into the impact the COVID-19 downturn has had not only on millions of wage and salaried workers, but also on large numbers of gig workers and small businesses. Small businesses have been at a particular disadvantage relative to large national corporations that have been able to survive, and in some cases, thrive if even a minor portion of their business is defined as an essential service. The precariousness of the current situation for many of the State's small businesses presents the risk that a wave of consolidations could ensue should enough of them not be able to survive. Though new businesses will likely be created to replace at least a portion of those that dissolve, it is possible that an unwelcome legacy of COVID-19 will be an acceleration in the loss of labor market dynamism that has been taking place over the past three decades; as business activity has become further concentrated among a shrinking number of large corporations, many of which are not based in New York State.

The table below presents a current profile of the job market by comparing year-ago growth rates for the first half of 2020, the most recent period for which detailed Quarterly Census of Employment and Wages (QCEW) data are available, with those of the U.S. for the same period. Due in large part to the faster reopening in much of the country relative to New York State, the State's year-over-year job declines are significantly steeper than for the nation in virtually every industry. Indeed, only information and government employment saw greater declines nationally than did New York State. The differences are greatest in those industries either most at risk for spreading the virus,

such as mass transportation, or that provide "nonessential" services that cannot be produced remotely, such as construction and segments of retail trade; of course leisure, hospitality, and other services straddle both categories. There is anecdotal evidence that while Upstate tourism may have benefitted from the pandemic, the decline in travel to New York City likely dwarfs the gains made Upstate.

EMPLOYMENT GROWTH - FIRST HALF OF 2020
(percent change year-ago)

	NYS	US
Total Private	**(10.1)**	**(5.6)**
Utilities	(1.8)	(1.2)
Construction	(13.8)	(2.7)
Manufacturing and Mining	(8.8)	(4.2)
Wholesale Trade	(8.4)	(2.4)
Retail Trade	(13.6)	(5.8)
Transportation and Warehousing	(10.4)	(3.6)
Information	(0.4)	(3.9)
Finance and Insurance	(0.4)	1.0
Real Estate and Rental and Leasing	(5.0)	(2.6)
Professional, Scientific, and Technical Services	(1.6)	(0.2)
Management, Administrative, and Support Services	(13.2)	(6.0)
Educational Services	(5.6)	(3.8)
Healthcare and Social Assistance	(4.0)	(2.4)
Leisure, Hospitality, and Other Services	(26.3)	(16.2)
Government	**(1.8)**	**(2.0)**
Total	**(8.8)**	**(5.0)**

Note: Management, administrative, and support services includes NAICS sectors 55 and 56; sum of sectors may vary from the total due to the exclusion of unclassified.

Source: NYS DOL; Moody's Analytics; DOB staff estimates.

The table below with projected changes in employment for 2020 and 2021 by sector shows the dramatic turnaround expected for this year. The industries likely to see the greatest swings in 2021 are the ones that suffered the most losses in 2020: leisure, hospitality, and other services; transportation and warehousing; management, administrative and support services; construction, and retail trade. The finance and insurance and utilities sectors are projected to grow less than one percent in 2021, following relatively small declines in 2020. The government sector is projected to grow 1.4 percent in 2021 after a decline of 3.2 percent in 2020. If not for temporary hiring for the 2020 Decennial Census, the decline in 2020 would have been larger and the increase in 2021 would have been greater.

CHANGE IN NEW YORK STATE EMPLOYMENT

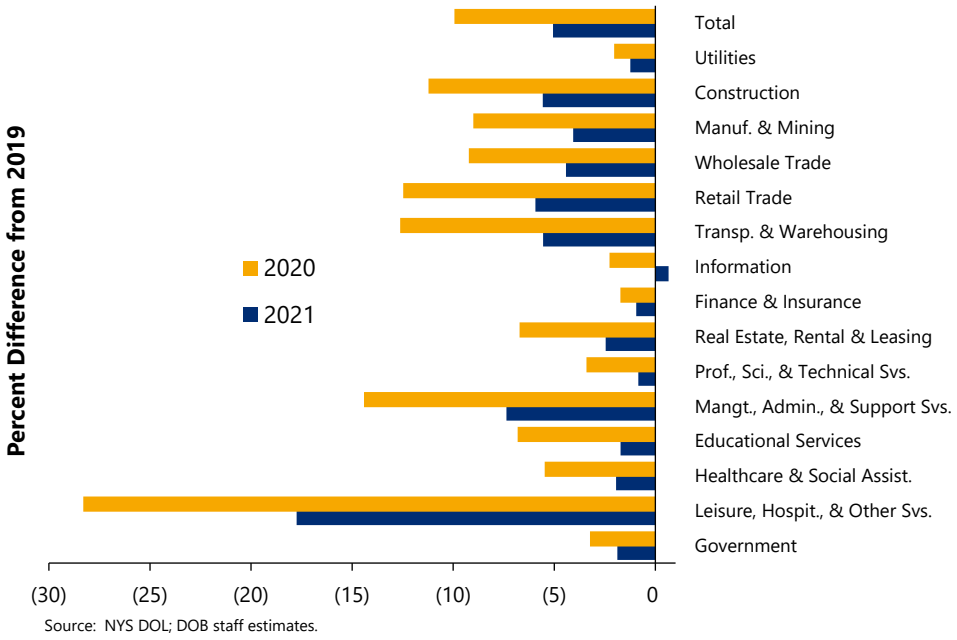
	2020		2021	
	Percent	Levels	Percent	Levels
Total Private	**(11.1)**	**(900,038)**	**6.2**	**447,558**
Utilities	(2.0)	(755)	0.8	295
Construction	(11.2)	(45,546)	6.3	22,720
Manufacturing and Mining	(9.0)	(39,785)	5.4	21,817
Wholesale Trade	(9.2)	(30,074)	5.3	15,660
Retail Trade	(12.5)	(114,005)	8.0	64,382
Transportation and Warehousing	(12.6)	(33,745)	8.1	18,945
Information	(2.3)	(6,301)	3.0	8,118
Finance and Insurance	(1.7)	(8,973)	0.8	4,067
Real Estate and Rental and Leasing	(6.7)	(13,584)	4.6	8,642
Professional, Scientific, and Technical Services	(3.4)	(23,358)	2.7	17,569
Management, Administrative, and Support Services	(14.4)	(98,536)	8.2	48,186
Educational Services	(6.8)	(24,414)	5.5	18,239
Healthcare & Social Assistance	(5.5)	(88,867)	3.7	57,301
Leisure, Hospitality, and Other Services	(28.3)	(376,215)	14.6	138,809
Government	**(3.2)**	**(45,986)**	**1.4**	**19,267**
Total	**(9.9)**	**(946,024)**	**5.4**	**466,825**

Note: Management, administrative, and support services includes NAICS sectors 55 and 56; sum of sectors may vary from the total due to the exclusion of unclassified.

Source: NYS DOL; Moody's Analytics; DOB staff estimates.

Although a number of sectors are projected to grow significantly in 2021, employment in these sectors will remain well below their 2019 levels. As the figure below shows, employment in the leisure, hospitality, and other services sector in 2021 is expected to be 17.9 percent below its 2019 level, even after growing 14.6 percent in 2021. The only sector that is expected to surpass its 2019 level is the information sector, as firms like Google, Facebook, and Amazon expand their footprint in New York City.

New York State Employment Relative to 2019



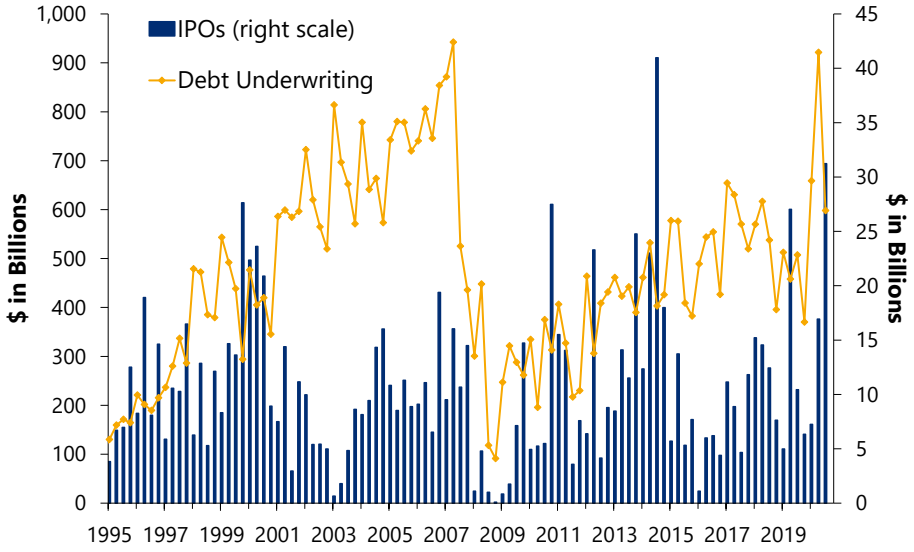
Source: NYS DOL; DOB staff estimates.

Financial Sector Trends

The initial spread of COVID-19 led to equity market selloffs both in the U.S. and around the world, leading to a substantial rise in equity market volatility. While the markets have since rebounded, investor uncertainty, especially surrounding pandemic developments, continues to contribute to such volatility. Altogether, this is likely to have a substantial impact on the income generated by New York State's securities industry during the current bonus season. Initial public offerings (IPOs) and corporate debt underwriting are both important drivers of revenues and profits in the securities industry, as well as useful indicators of trends in this key sector. While debt underwriting is closely linked to interest rates and the overall level of economic activity, IPOs tend to rise and fall with the secondary equity market.

Historically, the IPO market has tended to stall as volatility climbs. On the heels of a 33.9 percent decline in the S&P 500 between February 19 and March 23, the IPO market crashed during the months of March, April, and May 2020. The IPOs that were marketed during those three months raised 84.9 percent less capital than during the same period in 2019 and 57.2 percent less than in the prior three months. Indeed, only five IPOs were completed for the entire month of March, as widespread shutdowns due to the pandemic caused many companies to shelve their IPO plans.

Major Drivers of Financial Market Activity



Source: Securities Industry and Financial Markets Association (SIFMA).

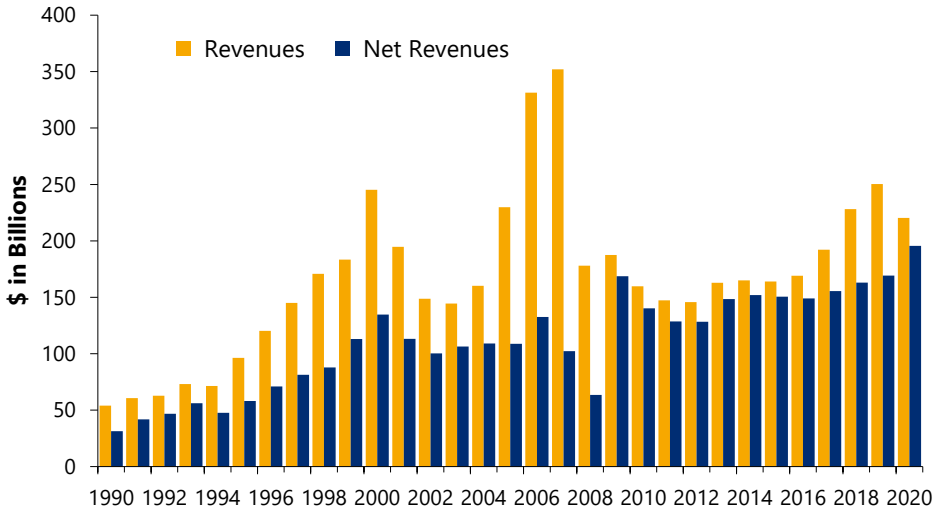
However, IPO activity roared back in June as equity prices took off from their March lows, aided by extraordinary support from monetary and fiscal policy. Accordingly, the S&P 500 rose 63.7 percent between March 23 and December 1, with the fortunes of Wall Street appearing to starkly diverge from those of Main Street. But the adaptation of workplace practices in response to COVID-19 restrictions created new levels of demand and innovation for technology-based communications

services, raising the value of companies providing these services. Moreover, the low interest rate environment created by global central banks ensured a large pool of investor demand.

Through the first 11 months of 2020, IPOs raised $72 billion, or 57.7 percent more than in the same period in 2019, with activity mainly concentrated in the health care and technology industries. Meanwhile, debt underwriting increased 33.8 percent over the same period. As indicated in the figure above, IPOs are headed for their best year since 2014, with debt underwriting having its best year since 2007. With the economic recovery expected to be fueled by the ongoing nationwide vaccination program, IPO and debt underwriting growth are expected to remain solid through 2021.

To combat the recession induced by the pandemic, the Federal Reserve lowered interest rates to near zero to stabilize the financial markets and boost the economy. However, ultra-low interest rates hurt commercial banks, especially small ones, as it squeezes their earnings. Low net interest margins, elevated default risk, and a weak outlook for global and national economic growth are causing banks to continue to seek ways to cut costs, such as closing branches and reducing their workforce. DOB estimates that the finance and insurance sector lost 16,400 jobs between the fourth quarter of 2019 and the fourth quarter of 2020. By the fourth quarter of 2021, only 12,000 of those jobs are expected to have been regained.

NYSE Member Firm Revenues



Note: Estimate for 2020 is based on three quarters of actual data annualized; net revenues exclude interest expenses.
Source: SIFMA; Intercontinental Exchange (ICE).

Despite strengthening equity markets, New York Stock Exchange (NYSE) member-firm revenues for the first three quarters of 2020 were down 14.4 percent from the same period in 2019, following a 9.8 percent increase for all of 2019. The figure above shows NYSE member-firm revenues before and after subtracting interest costs. In contrast with the decline in total revenue, net revenue, which removes interest expenses, grew 14.7 percent for the first three quarters of 2020, following lower growth of 3.8 percent in 2019. With historically accommodative monetary policy and the federal

funds rate hovering near zero, interest expenses in the second and third quarters of 2020 were the lowest since 2013, leading to the observed divergence between total and net revenue growth.

The figure above indicates that total NYSE member-firm revenues for both 2018 and 2019 were well below the 2007 peak despite relatively strong revenue growth. Indeed, total revenue for 2020 is estimated to be 33.5 percent below that of 2007. The large step-down in financial firm revenues is partly due to regulations imposed in the wake of the Great Recession, including the Dodd-Frank Wall Street Reform Act and the Consumer Protection Act, both of which were intended to curb excessive risk-taking behavior. Some of the key goals of the Dodd-Frank reform were strengthening bank capital requirements, limiting counterparty risk, and ultimately reducing systemic risk.

The new regulatory environment led to changes in business practices among banks in two fundamental ways. First, the composition of executive compensation has evolved away from cash in favor of deferred compensation and stock grants, thus more closely tying pay to the long-term performance of the firm. As a result, the revenue growth estimated for a given year may not translate into an equivalent rise in taxable bonus pay for the ensuing bonus season. The deferral of compensation has tended to smooth out bonus payments, as the cash portion of current-year compensation packages combines with the deferred portions of prior years.

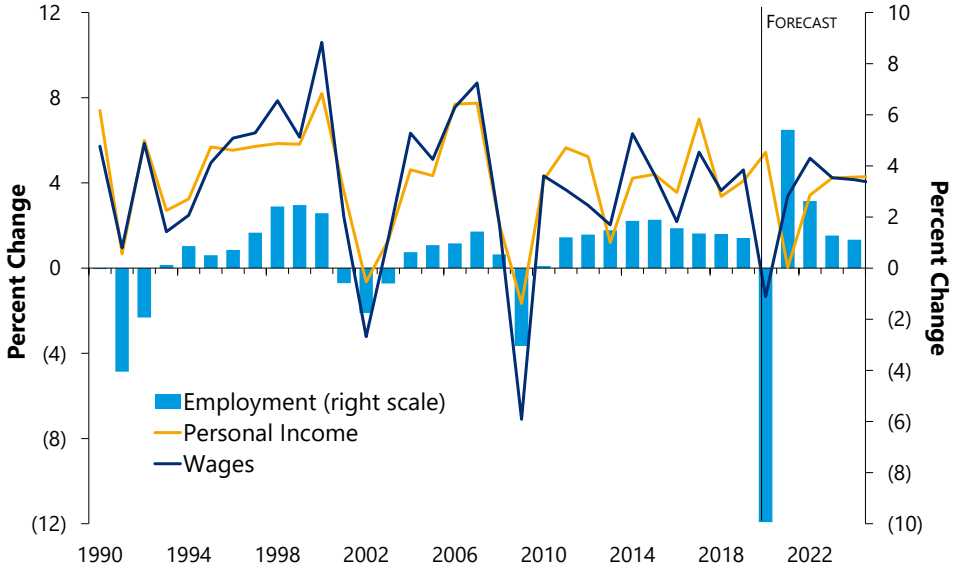
Second, to reinforce long-term incentives, compensation packages now include claw-back provisions that allow firms to take back a portion of bonus pay if actions taken by an employee are ultimately judged to have been too risky. As a consequence of the shift in financial firm behavior, bonus growth has become less volatile since the 2008-09 bonus season, when Wall Street bonuses fell 37.1 percent from their historically high 2007-08 base. Given the uncertainty surrounding the pace of the post-pandemic economic recovery, financial sector firms are expected to maintain this relatively low-risk profile, resulting in rates of bonus growth near 4.0 percent in the outyears.

State Personal Income and Wages

Growth in total New York State personal income for 2021 is projected to be essentially flat (0.4 percent), following estimated growth of 5.4 percent for 2020. These growth rates are driven mainly by fluctuations in the non-wage components of personal income. The unprecedented magnitude of federal stimulus funding that poured into the economy to cushion households and businesses against the impact of the pandemic resulted in a partial replacement of lost wages with transfer income, largely but not solely in the form of unemployment insurance. Transfer income is estimated to have grown 40.4 percent in 2020, the strongest growth since 1946. Stimulus funding under the Payroll Protection Program also partially replaced lost proprietors' income, which is estimated to have fallen 1.6 percent in 2020. As a result, non-wage income is estimated to have grown 12.9 percent in 2020 and is projected to be followed by a 2.4 percent decline in 2021 as the economy recovers and the need for federal aid subsides. Total New York State wages are estimated to have fallen 1.3 percent in 2020 due to the job losses induced by the pandemic and are projected to grow 3.4 percent in 2021.

Despite substantial federal government hiring to conduct the 2020 Decennial Census, public sector employment in New York State is estimated to have fallen 3.2 percent in 2020 due to the impact of the pandemic on municipal government revenues. Government jobs are projected to grow 1.4 percent in 2021 as these revenues start to recover. Consequently, public sector wage growth is projected to grow 2.8 percent in 2021, compared with estimated growth of 0.9 percent in 2020. Private sector wages are projected to grow 3.5 percent in 2021, following an estimated 1.7 percent decline in 2020.

New York State Income and Employment Outlook

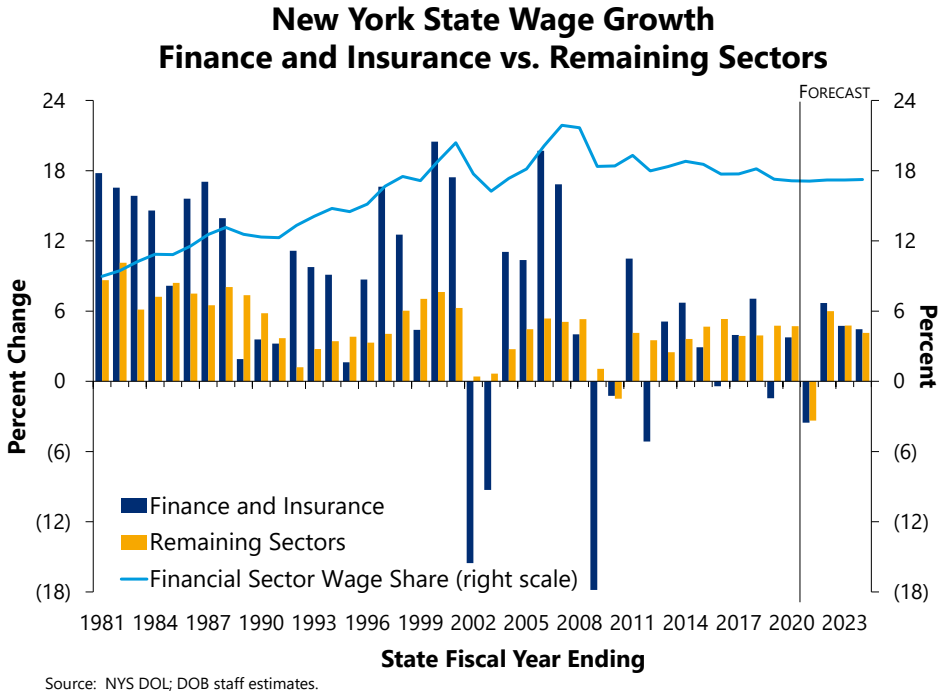


Source: NYS DOL; DOB staff estimates.

As the state-level wage data published by BEA are insufficient for the purpose of forecasting State tax liability, DOB constructs its own wage and personal income series based on QCEW data.[12] Moreover, because of the importance of trends in variable income – composed of stock-related incentive income and other one-time cash bonus payments – to the understanding of trends in State wages overall, DOB has developed a methodology for decomposing wages into a bonus and a non-bonus series.[13] DOB's outlook for State income is based on these constructed series.

Financial sector wages have a significant impact on employment and income in NYC and its surrounding suburbs, both directly – through purchases made by finance sector firms and compensation paid to their workers, and indirectly – as finance sector workers spend their incomes on housing, entertainment, and other goods and services.

As illustrated below, finance and insurance wages have traditionally grown much faster and been much more volatile than wages in the other sectors. Since the Great Recession, this trend has become much more muted, with finance and insurance wage growth even turning negative in some years. This more recent trend is expected to continue into FY 2021 and beyond. In the outyears, financial sector wage growth is expected to slightly exceed nonfinancial sector wage growth but be otherwise more consistent with it than before the 2008-09 Financial Crisis.



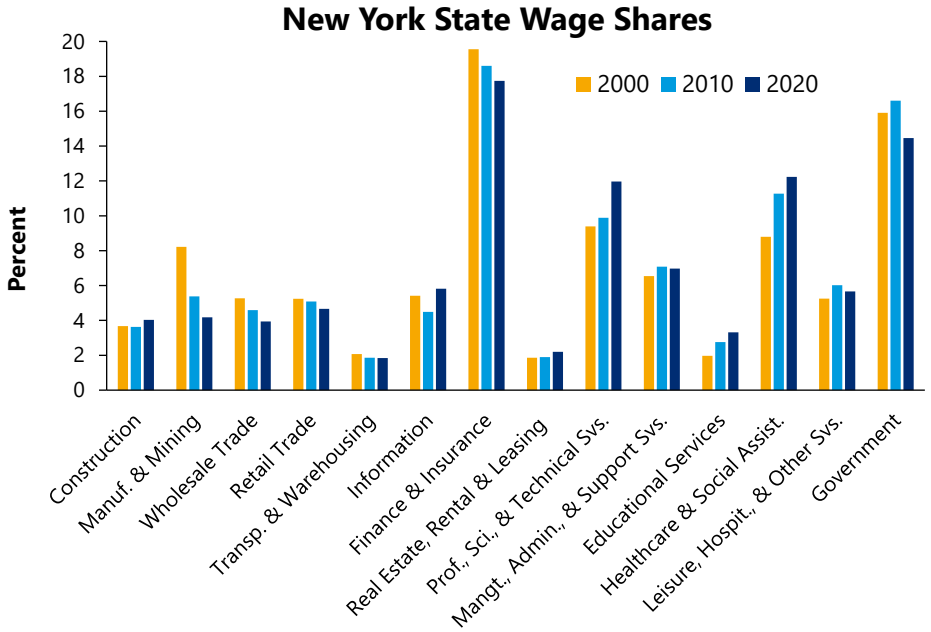
Source: NYS DOL; DOB staff estimates.

[12] The New York State Department of Labor (NYS DOL) provides DOB with establishment level QCEW data. In a few cases, NYS DOL does not assign a NAICS (North American Industry Classification System) code to an establishment. DOB has several procedures that make it possible to assign NAICS codes to establishments that are originally unclassified based on mergers and acquisitions (M&A) information.

[13] For a more detailed discussion, see FY 2020 Economic and Revenue Outlook, p.93. https://www.budget.ny.gov/pubs/archive/fy20/exec/ero/fy20ero.pdf.

Outsized growth in State finance and insurance sector wages led to steady increases in their share of total State wages, peaking in FY 2007 at 21.9 percent. In the wake of the Great Recession, that share began declining and as of FY 2020 stood at 17.1 percent. It is unlikely to reach its prior peak in the near future. Wall Street firms continue to exhibit relatively muted revenue growth and have continued to restructure in accordance with the post 2008 financial crisis regulatory environment. Nevertheless, finance sector workers remain highly compensated on average. The fallout from the Great Recession caused the average wage in the finance and insurance sector to fall from its most recent peak of $205,800 in FY 2008 to $174,400 in FY 2009. However, by FY 2020 it reached $239,400, nearly four times the average wage in the remaining sectors ($66,800).

With the relative share of finance and insurance sector wages falling over the last two decades, the wage shares for the professional scientific and technical services sector and the healthcare and social assistance sector have risen (see below). The healthcare and social assistance sector's average wage was relatively low at only $52,600 in CY 2019, due in part to high concentrations of part-time workers. However, that sector enjoys the highest employment share of any sector, giving rise to a high wage share as well. Employment and wages are expected to increase in this sector as an aging population with increasing healthcare needs grows as well. On the other hand, average wages in the State's professional scientific and technical services sector are high, at $120,100 in 2019. As NYC expands its role as a high-tech hub, the wage share of this sector can be expected to continue to grow. In contrast, statewide public sector employment has never been able to recover to its pre-Great Recession level, and therefore has seen its employment and wage shares continue to fall since 2009. Nevertheless, its employment share remains relatively high and its average wage is close to the statewide average. Consequently, the public sector continues to have the highest wage share outside of finance and insurance.

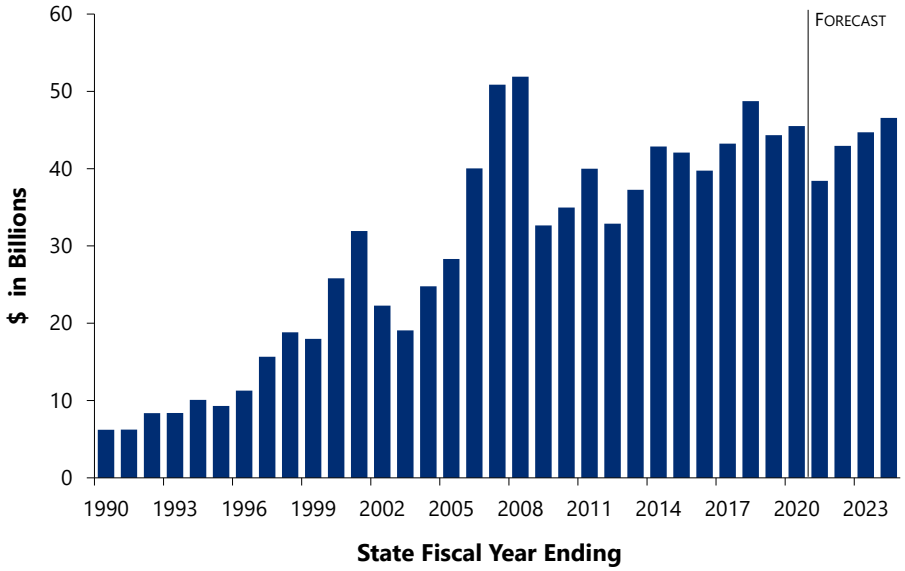


Note: Shares for 2020 are DOB forecast; share of utilities sector is less than one percent, therefore excluded.
Source: NYS DOL; DOB staff estimates.

Variable Income Growth

Variable income is defined as the portion of wages derived primarily from bonus payments, stock incentive income including stock options and restricted stock grants, and other one-time payments. Firms tend to grant employee bonus packages during either the fourth quarter of a given year or the first quarter of the following year as a form of performance incentive for the prior calendar year. Although the cash component of bonus income is unambiguously counted as wages (from which taxes are withheld) in the quarter in which it was granted by the firm, stock incentive income typically is not. Stock grants do not appear in wage data until they are vested. Nevertheless, variable income payments are sufficiently concentrated in the fourth and first calendar-year quarters to make the State fiscal year a logical period of analysis for discussing the determinants of variable income growth.

New York State Finance and Insurance Sector Bonuses



Source: NYS Department of Labor; DOB staff estimates.

An incentive-based payment structure allows employers to share with employees the risks of doing business and has been particularly attractive to the securities industry given the degree of volatility in industry profits. The figure above shows the dramatic growth in variable income paid to workers in the finance and insurance sector since 1990, with exceptionally high payments just before the Great Recession. Since then, firms have changed their compensation structure, moving away from cash in favor of deferred compensation in the form of stock grants and options.

Unsurprisingly, variable income has historically been highest in the finance and insurance sector, for which the share of total variable income peaked at 62.5 percent in FY 2007. But that share has fallen virtually every year since. Nevertheless, the finance and insurance sector accounts for the largest sectoral component of total bonuses and is expected to do so over the entire forecast horizon. Variable income in the finance and insurance sector is estimated to fall 15.5 percent for

the FY 2021 bonus season now in progress, resulting in a payout of $38.4 billion, following 2.6 percent growth for FY 2020. If the current estimate comes to pass, it will put this sector's share of total variable income below 50 percent for the first time since 2003.

In the meantime, bonuses paid outside of finance and insurance have continued to grow as a share of the statewide total. Total State variable income is projected to decline 8.3 percent in FY 2021, a smaller decline than that projected for the financial sector. Indeed, bonuses paid outside of finance and insurance are only expected to fall 0.4 percent for FY 2021, with strong growth estimated for the professional and business services sector and the information sector. This growth reflects the increased dependence of the economy on communications and other forms of technology during the pandemic. For FY 2022, 11.8 percent growth is projected for the finance and insurance sector, although its level at $42.9 billion is projected to remain $2.5 billion below FY 2020. Statewide bonus growth of 8.0 percent is projected for FY 2022.

Nonbonus Wages

As nonbonus wages are largely driven by trends in employment and nonbonus average wages, they are relatively stable, especially when compared with variable income. Nonbonus average wages for the State's various industrial sectors have a stable long-run relationship with U.S. average wages, which in turn is determined by labor productivity and prices. However, State average wages can deviate from their long-run trend due to short-term fluctuations related to business cycles, shocks to the regional economy, or shocks to a specific industrial sector that is relatively important to the State economy, such as finance and insurance. In 2020, the COVID-19 pandemic resulted in such a deviation due to its disproportionate impact on the State's low-wage workers.

Statewide nonbonus average wages are projected to decline 0.4 percent in 2021, following an estimated 9.0 percent increase in 2020. The strong growth in 2020 was the result of wages falling by much less than total employment due to the concentration of those job losses among the lowest-paid workers. With these jobs expected to start to recover in 2021, the statewide nonbonus average wage is expected to fall 0.4 percent. Average wages in the public sector are projected to rise 1.4 percent in 2021, following 4.3 percent growth in 2020. As a result, total nonbonus wage growth of 5.0 percent is projected for 2021 consistent with strong projected employment growth and a recovering State economy, following a 1.9 percent decline for 2020.

Average Wages and Inflation

Average wage volatility is typically due to irregularly timed bonus payments and strategic behavior by payees in response to changes in tax law. But similar to average nonbonus wages, the dramatic rise in average wages in 2020 is mainly a result of the decline in employment in low-wage sectors which have been hit hardest by the pandemic. Average wages are estimated to increase 9.6 percent in 2020, following 3.4 percent growth in 2019. As employment in these low wage sectors recovers, volatility is expected to persist with average wages expected to decline 1.9 percent in 2021, after which they will return to pre-pandemic trends. NYS composite CPI is projected to grow

2.0 percent in 2021, following 1.5 percent growth for 2020.[14] Projected consumer price inflation for the State is 0.1 percentage point lower than that of the nation.

Nonwage Income

Growth in the nonwage components of State personal income shot up from 3.5 percent in 2019 to 12.9 percent in 2020 as a result of the CARES Act, which boosted income by $179.7 billion and $97.6 billion, on an annualized basis, during the second and third quarters of 2020 respectively. BEA reported that nearly 90 percent of the boost to personal income from the stimulus came in the form of transfer income, while the rest was proprietors' income.[15] DOB projects that the recently passed Emergency Coronavirus Relief Act of 2020 will increase transfer income by another $81 billion at an annualized rate in the first quarter of 2021, most of which will be paid as stimulus checks and unemployment insurance benefits. The act's impact on proprietors' income is expected to be smaller.

Transfer income is expected to decline by 9.1 percent in 2021, following growth of 40.4 percent in 2020, as both the pandemic and fiscal support subsides. Additional transfer payments assumed for 2021 include extended and increased unemployment insurance benefits, small business loans, and direct relief payments, which buoy total personal income in spite of declines in most other components of personal income including wages, property income, and other labor income.

Property income, one of the largest components of nonwage income at the State level, comprises interest, dividend, and rental income, the latter of which has suffered from high vacancy rates in New York City. Long-term interest rates are projected to remain low in 2021 with an increase in corporate profits. As a result, NYS property income is projected to grow 1.3 percent in 2021, after a 1.5 percent estimated decline for 2020.

Even with the boost from the CARES Act, proprietors' income is estimated to decline 1.6 percent in 2020, following 4.7 percent growth in 2019. The employee contribution to Social Security is expected to rise 4.9 percent in 2021, following a 1.3 percent decline in 2020, in line with wage growth.

[14] DOB constructs a New York composite CPI using the national CPI and the CPI for the New York City region. For further details please refer to https://www.budget.ny.gov/pubs/archive/fy21/methodology-report-fy22.pdf.
[15] https://www.bea.gov/system/files/2020-12/covid-workbook.pdf.

EFFECTS OF SELECTED FEDERAL PANDEMIC RESPONSE PROGRAMS ON NYS PERSONAL INCOME
(in millions, annualized)

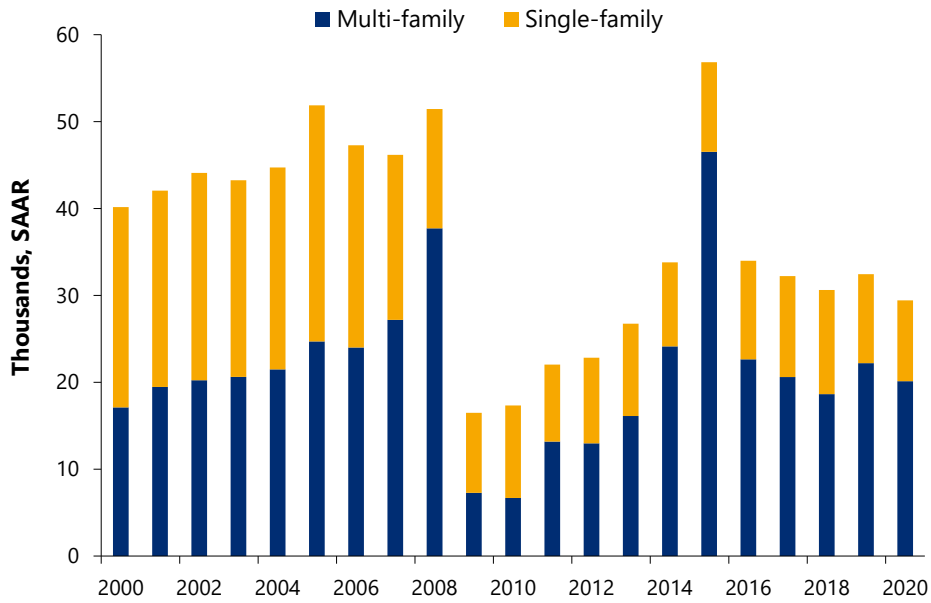
	2020Q2	2020Q3
Personal Income	**179,745**	**97,617**
Proprietor's Income	**15,179**	**20,696**
Farm Proprietors' Income	692	462
Coronavirus Food Assistance Program	468	297
PPP Loans to Businesses	224	165
Nonfarm Proprietors' Income (PPP)	14,487	20,234
Transfer Income	**164,566**	**76,921**
State Unemployment Insurance	76,170	53,750
Pandemic Emergency Unemployment Compensation (PEUC)	550	2,175
Pandemic Unemployment Assistance (PUA)	7,767	11,942
Pandemic Unemployment Compensation Payments	67,853	39,633
Other Transfers	88,396	23,172
Economic Impact Payments	63,218	915
Lost Wages Supplemental Payments	0	10,590
PPP Loans to NPISH	1,786	5,274
Provider Relief Fund to NPISH	22,840	5,550
Increase in Medicare Reimbursement Rate	553	843

Source: Bureau of Economic Analysis.

Housing Outlook

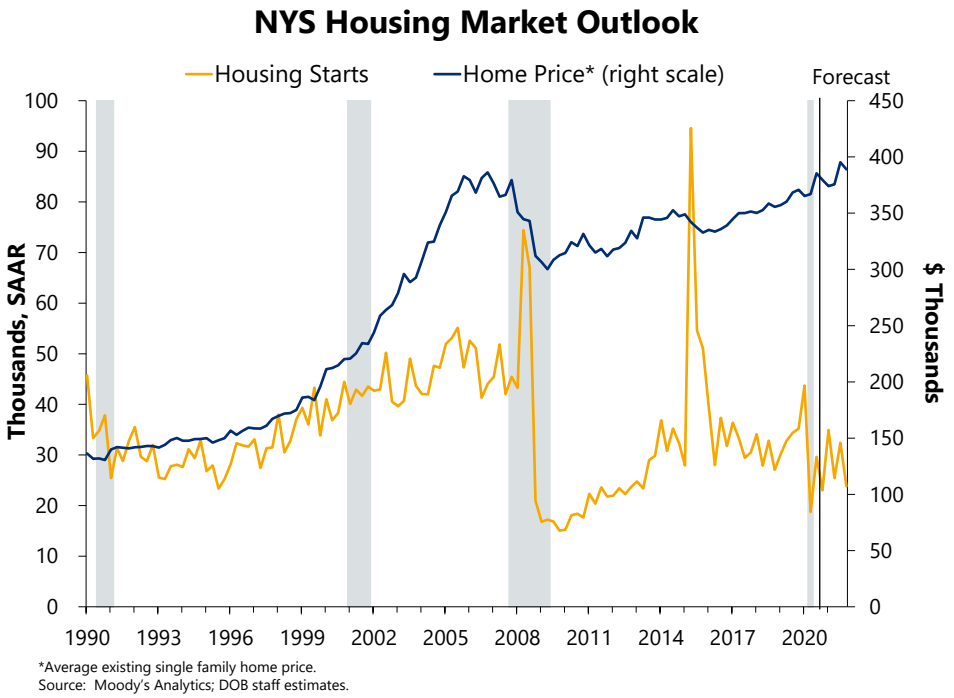
New York State housing starts rose by 8.8 percent in 2019, more than reversing the 6.0 percent decline in 2018. It was the first time new residential construction registered yearly growth since the 68.8 percent surge in 2015. However, the lockdown measures early on during the COVID-19 pandemic led to a 75.0 percent decline in the State's housing starts, recording a record low in April 2020, compared to the same month of the prior year. Following another decline in May 2020, the housing starts posted positive growth during four of the five following months. Based on data for the first 10 months of 2020, housing starts declined 10.0 percent compared to the same period in 2019. Single-family home starts decreased 9.4 percent while multi-family home starts decreased even further, by 10.3 percent. Trends in multi-family homes have led total starts in the State during the last two decades. Starts are estimated to have fallen 13.2 percent in 2020; however, as the NYS economy begins to recover, so would the housing market, with housing starts growing 1.3 percent in 2021.

Recent Trends in NYS Housing Starts



Note: 2020 data is through October.
Source: Moody's Analytics.

Prospects for the State's residential housing market also depend on the outlook for house prices. NYS's average single-family home price is expected to increase 2.8 percent in 2020, same as 2019, but greater than the 1.5 percent increase in 2018. The State's increase in home prices in 2020 can be attributed to a tight supply of houses on the market, as new residential construction stalled in the beginning of the year because of COVID-19 related shutdowns. Furthermore, record breaking low mortgage rates have boosted home buyers' demand, as well as the desire to move to larger homes with home offices more suitable for remote work. New York State average single-family home price is projected to rise 2.4 percent in 2021.



*Average existing single family home price.
Source: Moody's Analytics; DOB staff estimates.

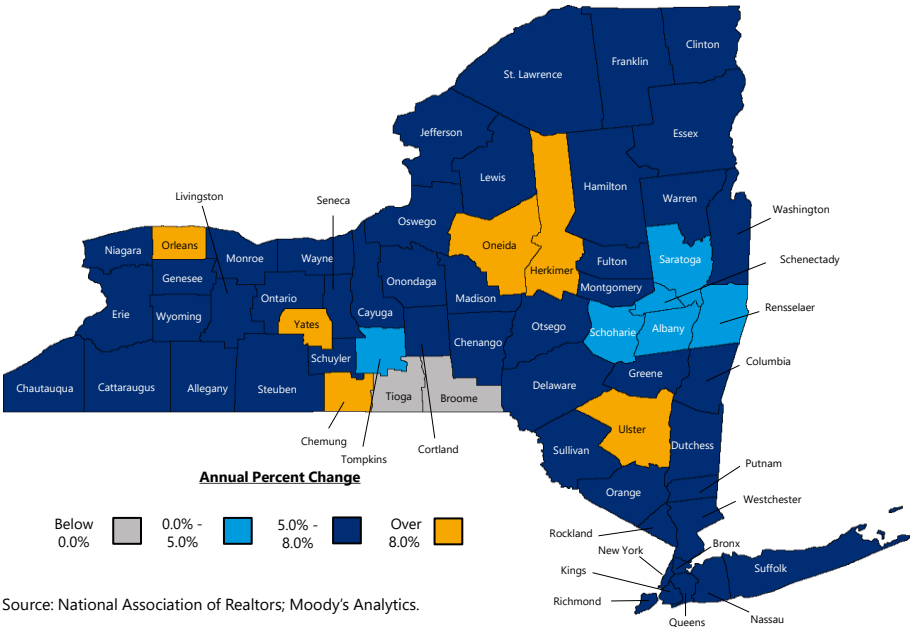
Median existing home sales prices have been increasing across all the State's regions. Prices have increased in all the counties where the State's six largest upstate cities are located – Erie (Buffalo), Monroe (Rochester), Onondaga (Syracuse), Albany (Albany), Schenectady (Schenectady), and Oneida (Utica) counties.[16] For the first nine months of 2020, Oneida county saw strong growth in prices at 8.9 percent. Monroe, Onondaga, and Erie counties all had growth near 8 percent during the same period. As New York City was the epicenter of the initial viral outbreak, many potential buyers migrated upstate, some temporarily, where population density, and thus infection rates, remained relatively lower.

For the first 11 months of 2020, all five NYC boroughs experienced steep drops in units sold compared to the previous year. Manhattan led the trend with a 35.7 percent decline, followed by Staten Island, Queens, Brooklyn, and the Bronx (28.6, 28.5, 27.0, and 26.8 percent, respectively). Despite the dismal sales activity, existing single-family median home prices appreciated more than 6.0 percent in all five boroughs over the first nine months of 2020 compared with the same period in 2019.

Growth in the median sales price of existing homes for each county in the State is displayed below. Only two counties saw a decline in prices compared to a year ago, Tioga and Broome Counties. Meanwhile, one county, Ulster, saw growth in the double-digits at 15.6 percent.

[16] The Downstate region includes the following counties: Sullivan, Ulster, Dutchess, Orange, Putnam, Rockland, Westchester, Bronx, New York, Richmond, Kings, Queens, Nassau, and Suffolk. The Upstate region consists of the remaining counties in the State.

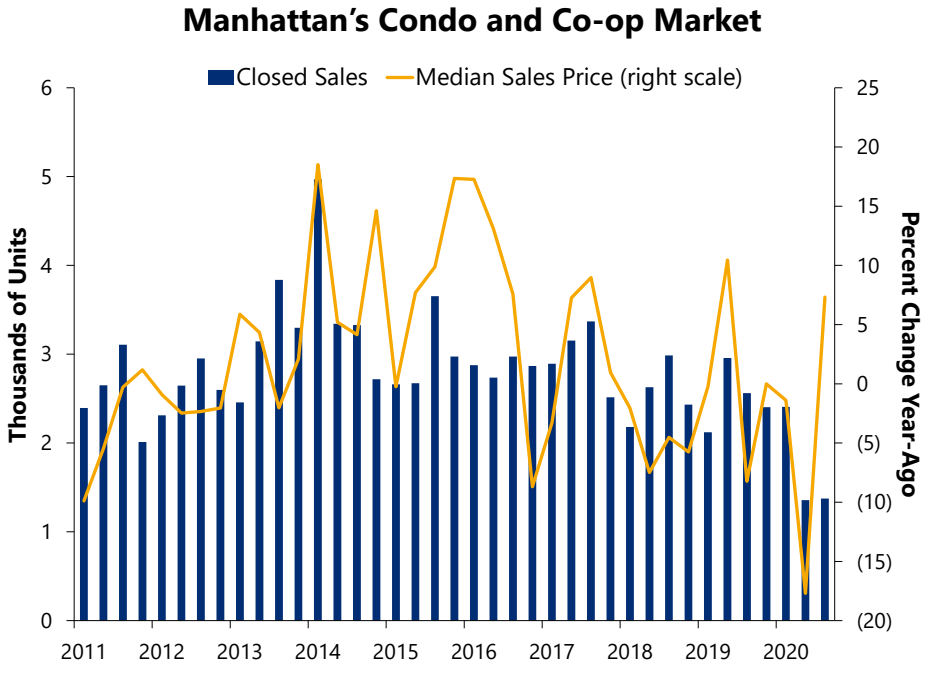
Existing-Home Price Appreciation by County
(first 9 Months of 2020)



Source: National Association of Realtors; Moody's Analytics.

Manhattan's condo and co-op markets were devastated during the COVID-19 pandemic, as the number of closed sales during the second and third quarters of 2020 were nearly half their 2019 levels for the same quarters. The number of condo and co-op sales fell 54.1 percent in the second quarter followed by 46.3 percent in the third.[17] However, the median listing price rebounded to $1.1 million in the third quarter of 2020, 7.3 percent above year ago prices, preceded by 17.7 percent and 1.4 percent year-over-year declines in the first two quarters. The average sales price of condos and co-ops increased to $2.18 million in the third quarter of 2020, the largest value reported in a decade. This was due to smaller declines in sales in the high-end market (units listed above $5 million) compared to very large declines in the sales of condos below $5 billion. The figure below shows the number of closed condo and co-op sales in Manhattan and the corresponding yearly growth in their median selling prices.

[17] https://www.millersamuel.com/files/2020/10/Manhattan-2Q_2020.pdf.



Source: Miller Samuel Inc. and Douglas Elliman Real Estate.

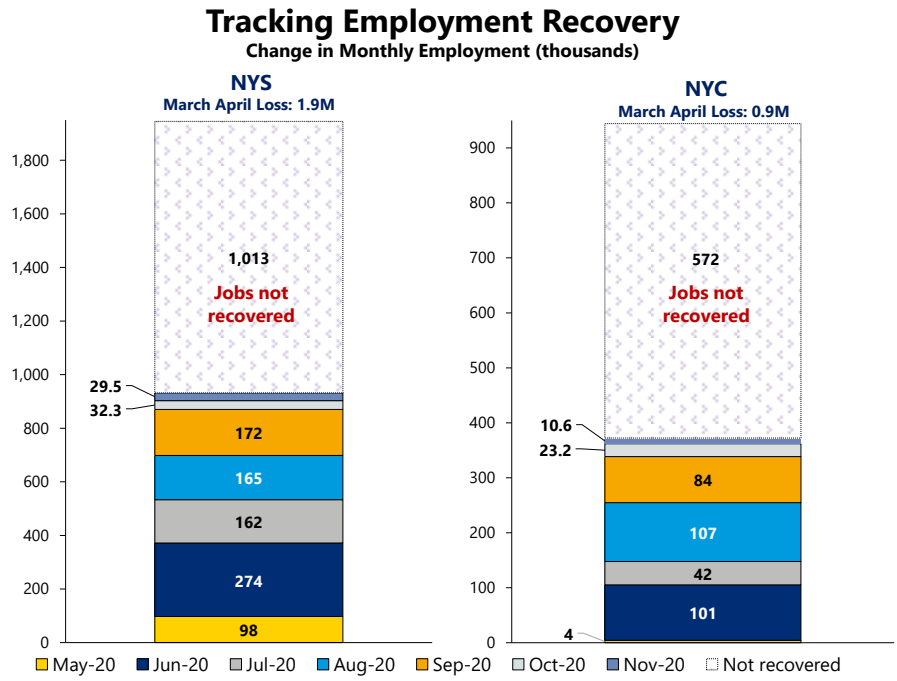
The resale market in 2020 struggled to regain its sales activity following shutdowns in early spring. The number of months taken to sell all active listing inventory at the current rate of sales, known as the months of supply, slowed to 21.4 months in the third quarter of 2020, more than twice its pace a year ago. Listing inventory surged as a result of supply accumulation during the spring lockdowns along with the slow rebound in sales after the lockdowns were lifted. The market share of sales that sold above the previous asking price was only 3.6 percent in the third quarter, the lowest level in more than eleven years, but well above its average of 31.0 percent five years ago. Despite these constraints, the median sales price of existing co-ops and condos increased 0.5 percent to $920,000 in the third quarter of 2020, compared to a year ago.

The rental market in New York City was also hit by the COVID-19 pandemic. Some residents relocated out of NYC as remote work and remote learning at colleges became the new normal. In November of 2020, average rent in Manhattan was 4.2 percent below October and 16.1 percent below November of 2019. Although the number of leases went up on a year over year basis, the vacancy rate increased to 6.1 percent in November, compared to a 1.8 percent increase the prior year.[18]

[18] https://www.millersamuel.com/files/2020/12/rental-11_2020.pdf.

Recent Regional Job Growth Trends

After leading the State in employment growth for over a decade, New York City fell victim to the COVID-19 pandemic early in 2020. Of the more than 1.9 million jobs the State lost in March and April, 944,000 were in New York City. Although almost half of those jobs have been recovered in the State as of this publication, only 39.4 percent of NYC jobs have returned. As illustrated in the figure below, the pace of the recovery in New York City's labor market initially underperformed that of the State as the spread of the virus was more prevalent. As a result of the easing of lockdown restrictions, job gains accelerated, and the City added 334,000 jobs between June and September.



Source: Moody's Analytics/BLS.

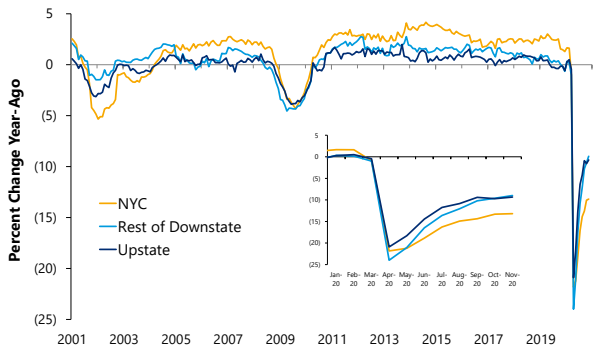
The figure below shows private-sector employment growth for three major New York State regions: New York City; Rest of Downstate (defined as Nassau, Suffolk, Dutchess, Orange, Putnam, Rockland, and Westchester counties), and Upstate (comprising the remaining counties in the State). Although all three regions saw private sector employment declines of more than 20 percent in April 2020, on a year-over-year basis, recovery was slower for NYC than "Rest of Downstate" and Upstate. As of November 2020, employment remains 12.2 percent below the February (pre-pandemic) level in New York City, 8.3 percent below in Rest of Downstate, and 8.8 percent below in Upstate.

Job losses in the Rest of Downstate region were greater than in New York City early in the pandemic. As a result, by April 2020, employment had declined 18.1 percent on a year-over-year basis in the Upstate region, 19.3 percent in New York City, and 21.3 percent in the Rest of Downstate. However, as the virus spread into NYC and remote work became the new normal, the Rest of Downstate region saw an influx of NYC residents, which contributed to the faster pace of

recovery in the region relative to New York City. By November, the year-over-year declines in employment were 8.4 percent in the Upstate region, 11.9 percent in New York City, and 8.2 percent in Rest of Downstate. Job losses in the Upstate region were milder than in the downstate regions throughout the pandemic thanks to the lower incidence of the virus. In addition, a higher share of employment in the government sector, and to some extent the manufacturing sector, shielded the region's economy, as job losses in the public sector and manufacturing were not as severe as in other private services.

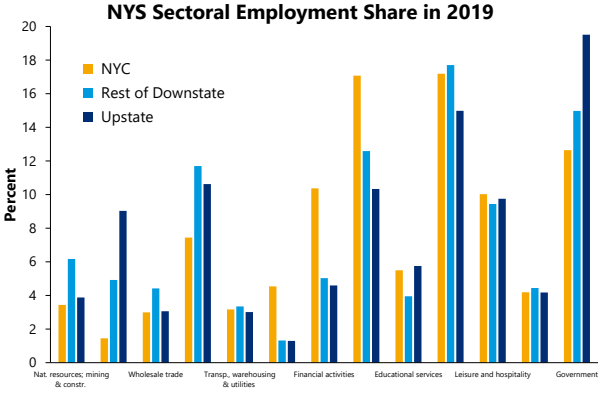
As illustrated below, the leisure and hospitality sector initially saw the largest drop in employment in all three regions of the State, and it remains the sector with the highest rate of job losses due to the pandemic. As the home of two international airports and one of the largest subway systems in the world, the City will continue to be hampered in its labor market recovery by the slow-to-recover transportation sector, as well as other services, manufacturing, and education.

New York State Private Sector Employment by Region



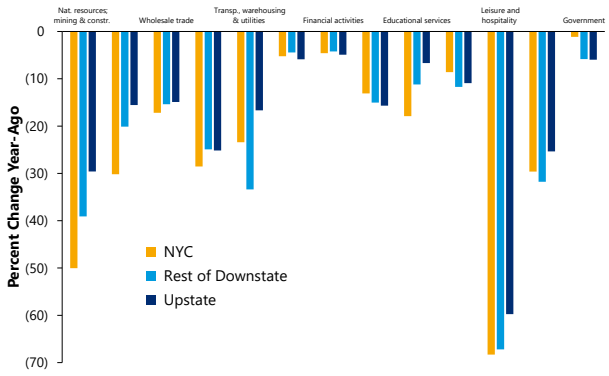
Note: Rest of downstate includes Nassau, Suffolk, Dutchess, Putnam, Orange, Rockland, and Westchester counties.
Source: NYS DOL, Current Employment Statistics (CES).

NYS Sectoral Employment Share in 2019



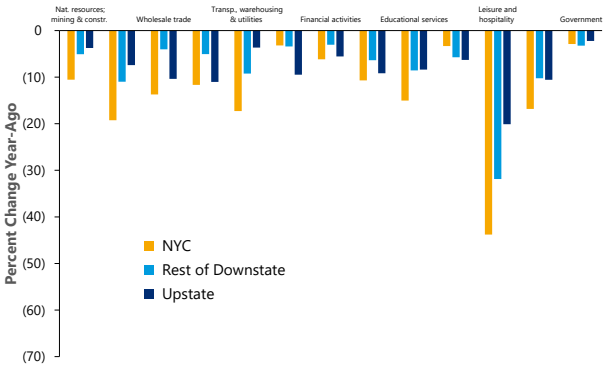
Note: Rest of downstate includes Nassau, Suffolk, Dutchess, Putnam, Orange, Rockland, and Westchester counties.
Source: NYS DOL; DOB staff estimates.

NYS Employment in April 2020



Note: Rest of downstate includes Nassau, Suffolk, Dutchess, Putnam, Orange, Rockland, and Westchester counties.
Source: NYS DOL; DOB staff estimates.

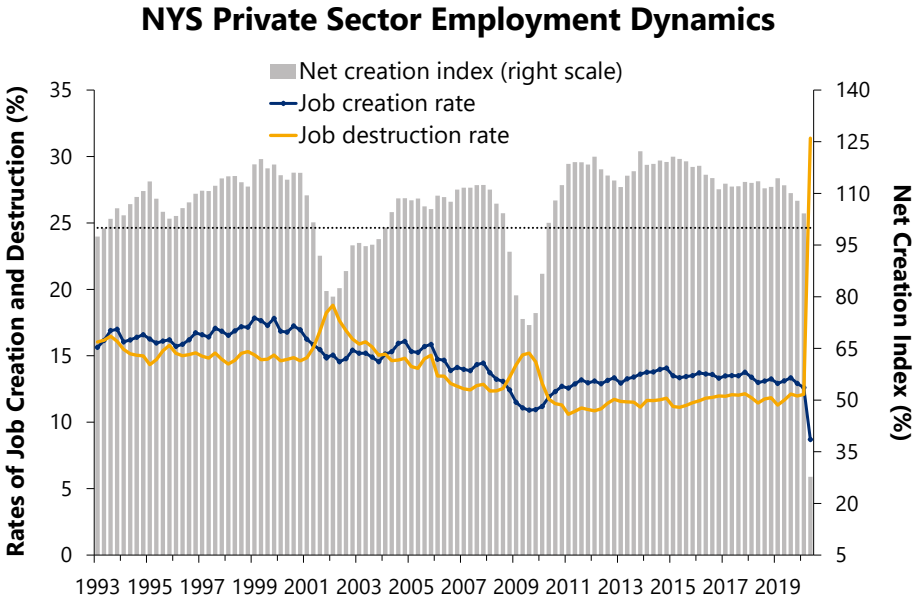
NYS Employment in November 2020



Note: Rest of downstate includes Nassau, Suffolk, Dutchess, Putnam, Orange, Rockland, and Westchester counties.
Source: NYS DOL; DOB staff estimates.

New York State Labor Market Dynamics

Private-sector employment growth in New York State was slowing even before the collapse of the labor market, caused by the need to control COVID-19, in the second quarter of 2020. Private employment growth in New York State had been slowing since the net job creation index reached a near-term peak in the first quarter of 2015. The index essentially stagnated in 2017 and 2018 and, after a pickup in the first quarter of 2019, began a decline that predated the onset of the COVID-19 pandemic. When the pandemic hit in the second quarter of 2020, the job destruction rate shot up to 31.4 percent, 170 percent higher than the prior record. COVID-19 also hammered the job creation rate which declined to 8.7 percent, even lower than the 10.9 percent level reached during the great recession.



Source: NYS Department of Labor; DOB staff estimates.

The State's private-sector job market appears to have become less dynamic in the aftermath of the Great Recession. After hitting an all-time low of 10.9 percent in the third quarter of 2009, the gross rate of job creation peaked at 14.1 percent in the fourth quarter of 2014, well below the series high of 17.8 percent, reached in the first quarter of 1999. The rate was consistently above 15.5 percent in all quarters from the first quarter of 1993 until the third quarter of 2001, when it reached 15.5 percent, approximately. This has been true of the gross rate of job destruction as well. This index, which averaged 15.1 percent from the first quarter of 1993 to the fourth quarter of 2000, began rising and reached a series high of 18.8 percent in the first quarter of 2002 in the wake of the "dot-com" related national recession and September 11, 2001, terrorist attack in New York City. The job destruction rate subsequently declined during the recovery that followed, but in the next recession it only reached a high of 15.2 percent (in the third quarter of 2009). Since hitting an all-time low of 10.6 percent in the first quarter of 2011, the job destruction rate has averaged 11.6 percent

(excluding the unusual record reading of 31.4 percent for the second quarter of 2020 as business activity restrictions due to COVID-19 were imposed).

DOB expects that private sector employment fell 11.1 percent in 2020, after increasing 1.3 percent in 2019. Employment growth is expected at 6.2 percent in 2021, as the rebound in activity from the pandemic-induced shutdowns continues. Going forward, State private-sector job growth will slow substantially to still-robust growth of 3.0 percent in 2022.

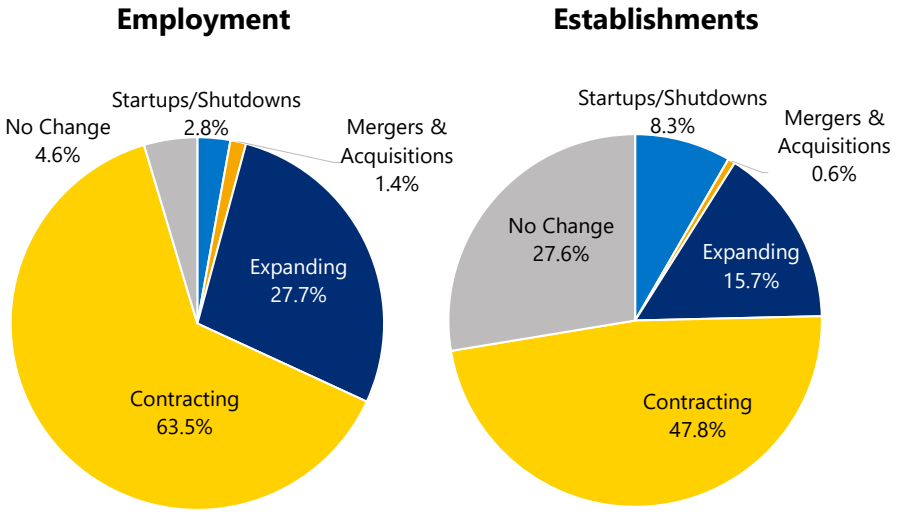
The State's Employment and Establishment Base

The figure below shows the composition of the State's employment and establishment base for the second quarter of 2020 by type of establishment.[19] Existing firms are classified according to whether their employment levels (a) expanded, (b) contracted, or (c) experienced no change relative to the same quarter of the prior year. Existing firms represent an overwhelming share of both establishments and employment: 91.1 percent of the State's establishment base and 95.8 percent of the job base. The impact of the pandemic is apparent, as 63.5 percent of firms had contracting employment (as opposed to 40.3 percent in the second quarter of 2019), while just 27.7 percent saw increased employment (versus 48.4 percent in the same quarter of 2019). The effect of COVID-19 was similar in terms of establishments – while in the second quarter of 2019 contracting firms had a 27.9 percent share and expanding firms had a 26.2 percent share (or the shares were about equal) – in 2020, 47.8 percent of firms were contracting and just 15.7 percent were expanding. The share of firms with no change in employment fell to 27.6 percent in 2020 from 35.8 percent in the same quarter of 2019. The average size of existing firms also varies by firm type, with those firms experiencing no change in employment averaging 1.9 employees in the second quarter of 2020, while expanding firms averaged 20.4 employees, and contracting firms had an average of 15.4 employees.

Startups and shutdowns accounted for 8.3 percent of the establishment base in the second quarter of 2020. Because these firms tend to be quite small, averaging 4.0 employees per firm, they accounted for only 2.8 percent of the State's private sector employment base. Firms that were either acquired or absorbed by other firms accounted for 0.6 percent of the establishment base. The average size of these firms was 25.0 employees, and these firms accounted for 1.4 percent of employment.

[19] "Base" is defined as the average of the two quarters: second quarters of 2019 and 2020.

Composition of State's Employment and Establishment Base
Second Quarter of 2020



Source: NYS Department of Labor; DOB staff estimates.

ANALYZING PRIVATE SECTOR EMPLOYMENT DYNAMICS AT THE ESTABLISHMENT LEVEL

The expansion or contraction of an industry over time is usually measured by the net change or net growth in jobs. However, a look beneath the net numbers into the mechanics of job creation and destruction at the establishment level facilitates a deeper understanding of the underlying dynamics.[20] The data for this study derive from the Quarterly Census of Employment and Wages (QCEW) program. These data include all establishments subject to Federal unemployment insurance laws and cover approximately 98 percent of all employment. For the second quarter of 2020, the most recent period for which data are available, the QCEW data covered 688,614 private sector establishments in New York State and 6,484,869 private sector employees.

Establishment-level data facilitate the investigation of questions that cannot be addressed at the aggregate level. Such questions include whether the primary source of job creation is new firm startups or existing firms that have chosen to expand, or whether net employment growth is the result of an increase in the rate of job creation or a decrease in the rate of job destruction. Previous studies have found that an increase in the turnover rate tends to be associated with an increase in net growth.[21] Hence, the underlying dynamics may give clues as to the near-term direction of the business cycle, and an industry that suddenly starts to experience an increase in firm startups or gross job creation may turn out to be a leading industry in the economy's next growth phase. Moreover, one can also determine whether new jobs are being created in relatively high-wage or low-wage industries.

The gross number of jobs created between the second quarter of 2019 and the second quarter of 2020 is constructed by adding together the number of jobs created by firm startups (firms which existed during the second quarter of 2020 but did not exist four quarters prior), expanding firms that existed in both quarters, and firms created through mergers and acquisitions (M&As).

$$\text{Gross rate of job gain} = \frac{\text{Startup gain + Existing firm gain + M\&A gain}}{\text{Base}} = \frac{636{,}115}{7{,}314{,}431} = 8.7\%$$

This result indicates that the State's gross rate of job creation for the second quarter of 2020 is 8.7 percent. Similarly, a gross rate of job destruction is constructed by adding together employment at firms that existed in the second quarter of 2019 but not in the second quarter of 2020, jobs lost from contracting firms that existed in both quarters, and jobs lost due to a merger or acquisition. This is then divided by the State's job base (as defined above), which for the second quarter of 2020 yields:

$$\text{Gross rate of job loss} = \frac{\text{Startup loss + Existing firm loss + M\&A loss}}{\text{Base}} = \frac{2{,}295{,}239}{7{,}314{,}431} = 31.4\%$$

This result states that the gross rate at which jobs were lost between the two quarters is 31.4 percent. Thus, for the second quarter of 2020, the gross rate of job destruction exceeded the gross rate of job creation. A net index of job creation is constructed by dividing the gross rate of job gains by the gross rate of job losses. For the second quarter of 2020, this calculation yields:

$$\text{Net index of job creation} = \frac{\text{Gross rate of job gain}}{\text{Gross rate of job loss}} = \frac{8.7\%}{31.4\%} = 27.7\%$$

A net index value of exactly 100 percent implies that the gross number of jobs created is entirely offset by the number of jobs destroyed; a value above 100 percent indicates that employment is growing; a value below 100 percent, as seen above, indicates a net job loss, implying the presence of a "job gap."

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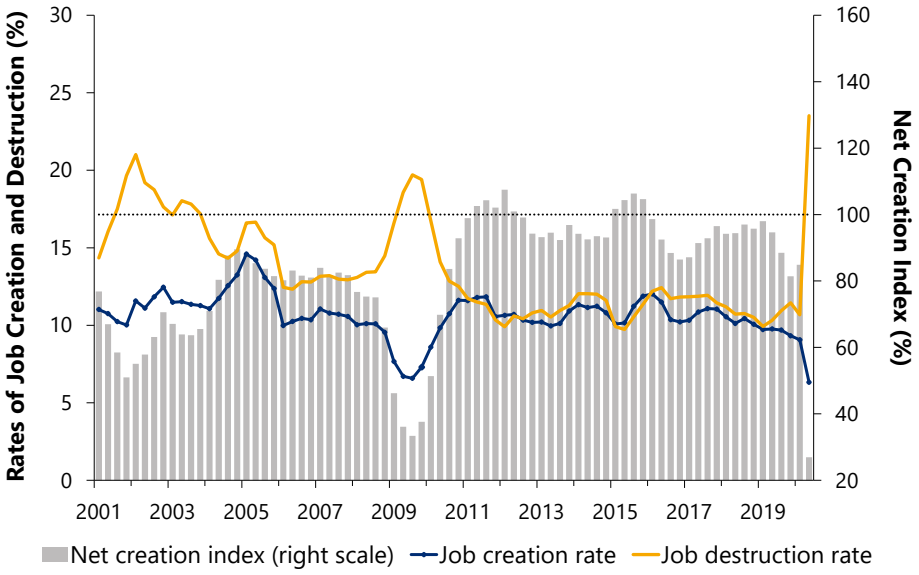
[20] For a similar analysis for the U.S., see U.S. Bureau of Labor Statistics (BLS), "Business Employment Dynamics: First Quarter 2014," <http://www.bls.gov/news.release/pdf/cewbd.pdf>.

[21] See R. Jason Faberman, "Job Flows and Labor Dynamics in the U.S. Rust Belt." Monthly Labor Review, September 2002, Vol. 125, No. 9, pages 3-10.

Manufacturing

This sector was one of the three hardest hit by the COVID-19 pandemic, with the third-lowest net job creation index in the second quarter of 2020 (the other two were leisure and hospitality and trade, transportation and utilities). While this sector is still important Upstate, where it continues to account for a significant share of private employment, the State overall has been shedding manufacturing jobs for nearly 30 years and the sector is the second-smallest of the eight major sectors (it is larger only than the information sector). Note that for forecasting purposes, the very small mining sector is combined with manufacturing–mining will not be discussed separately. Employment in this sector last increased in the State in 2015, rising 0.4 percent. New York State relies less on manufacturing and mining employment than does the U.S. – while these sectors made up 10.0 percent of national private-sector nonfarm employment in 2019, they accounted for 4.6 percent of NYS employment, and while 11.6 percent of U.S. wages came from manufacturing and mining, only 4.2 percent of State wages were derived from these sectors.

Mining and Manufacturing



Source: NYS Department of Labor; DOB staff estimates.

With the exception of brief periods (the last three quarters of 2011 to mid-2012 and again over the four quarters of 2015), the rate of job destruction has been consistently above the rate of job creation since 2001, with especially high peaks during recessions. Additionally, the net creation index has been above 100 in only nine of the 78 quarters included in the above chart, an indication that jobs were added, on net, in those few quarters.

In part, New York State has followed the national trend, as manufacturing jobs nationwide fell 35.1 percent from a recent peak in March 1998, bottoming in February and March 2010. But while manufacturing jobs at the national level then began to increase, there was essentially no growth in

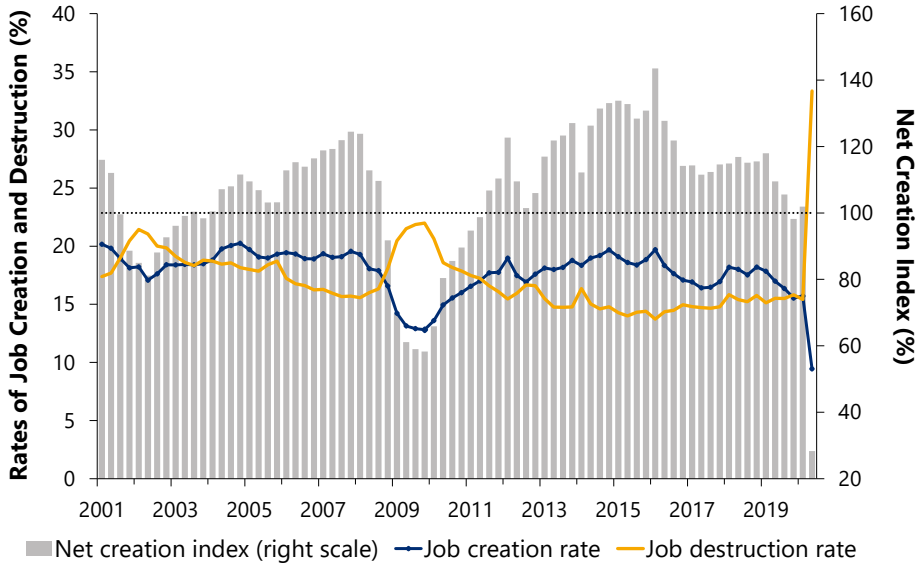
New York State through 2012, after which a general, very gradual decline began. This may reflect in part the particular mix of manufacturing jobs in New York State – for example, automobile-related in the Buffalo region; photographic and copier equipment in the Rochester area; aerospace and defense-related manufacturing in the Southern Tier and on Long Island – and the special factors that have affected each of these industries, such as the elimination of certain car models and the rise of digital photography.

While job losses slowed in 2018, falling just 0.5 percent between losses of 0.9 percent and 1.0 percent in 2017 and 2019, respectively, COVID-19 effects are expected to have caused jobs to fall 9.0 percent in 2020. Assuming the economy continues to recover, job growth is expected to jump to 5.4 percent in 2021, slowing to a still-strong gain of 2.6 percent in 2022.

Construction and Real Estate

A services sector (real estate, rental, and leasing) is combined with a sector that produces a physical product (apartments, houses, offices, etc.) for analyzing labor dynamics. The construction and real estate segment of New York State private employment has seen consistent growth, though at varying levels, since mid-2011, where rates of job creation have exceeded rates of job destruction, leading to net job additions. However, the net creation index peaked in the first quarter of 2016 and generally declined until the second quarter of 2017. A rising trend that year stopped with the second quarter of 2018; the net creation index fell until it reached a nearly nine-year low in 2019's final quarter. A sudden rebound in the first quarter of 2020 was immediately followed by a record-setting plunge in the second quarter, again due to the impact of COVID-19 restrictions.

Construction and Real Estate



Source: NYS Department of Labor; DOB staff estimates.

Some of the recent movement in the net job creation index is likely due to movements in mortgage interest rates, which generally fell during the first three-quarters of 2017 after a sharp runup in late 2016, then began rising in the last quarter of 2017, moving up as the Federal Reserve continued to raise its target for the federal funds rate. Rates began to fall again in November 2018 and continued to decline as the Federal Reserve reversed itself and began to cut the target for the federal funds rate range. Continued low mortgage interest rates should lead to improved hiring in the construction and real estate sector, other things being equal and if COVID-19 remains under control in New York State. The commercial real estate sector is expected to be negatively impacted in the medium to long-term as the popularity of teleworking is expected to remain even after the pandemic subsides.

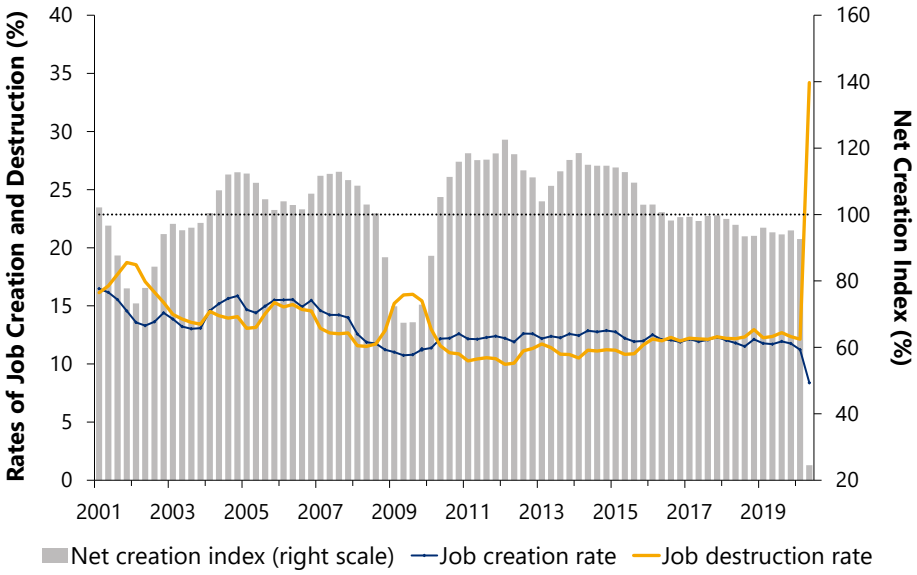
While jobs in this sector increased 1.2 percent in 2019, activity restrictions due to the COVID-19 pandemic induced a 9.7 percent decline for 2020. Assuming the virus remains contained going forward, and with recovery from the shutdowns, a 5.7 percent gain is estimated for 2021, slowing to an increase of 2.4 percent in 2022.

Trade, Transportation, and Warehousing

This sector was the second-hardest hit by the COVID-19 pandemic, with a net job creation index higher than only the leisure and hospitality sector in the second quarter of 2020. This aligns with large segments of this customer-facing sector, particularly retail stores, being closed in the initial attempt to control the spread of the virus.

After encouraging growth from an 11-quarter low in the first quarter of 2013 to a two-year high in 2014's first quarter, this segment of State private employment settled into a long-run decline after plateauing from early 2014 to the first quarter of 2015. Rates of job destruction have continually exceeded rates of job creation since the third quarter of 2016, with the gaps growing particularly wide from the second quarter of 2018 on. Accordingly, the net job creation index fell below 100 percent in the third quarter of 2016 and has remained below the breakeven mark each quarter since. The sector shrank 0.6 percent in 2019, followed by an estimated decline of 11.8 percent in 2020 as the pandemic struck. Growth is expected to surge to 7.4 percent in 2021 as the recovery takes hold before easing to 3.0 percent growth in 2022.

Trade, Transportation and Warehousing



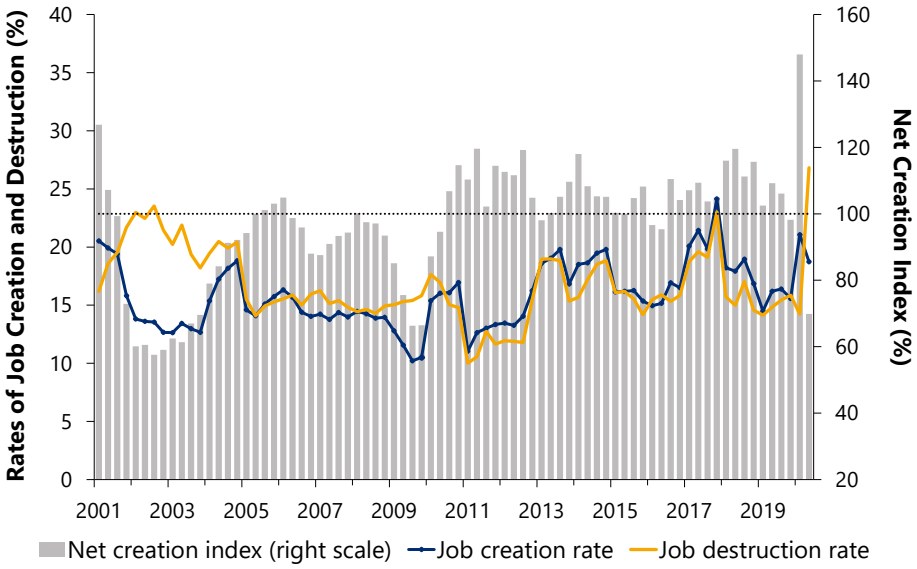
Source: NYS Department of Labor; DOB staff estimates.

This sector encompasses wholesale and retail trade, with transportation and warehousing grouped together. Ongoing restructuring in retail trade, whose physical locations are also under pressure from online retailers, is a large part of the story. DOB anticipates a 1.8 percent drop in jobs at retailers in 2019 (after 0.7 percent declines in the prior two years), with job declines plunging to 12.5 percent in 2020 before recovering to 8.0 percent and 2.9 percent growth in 2021 and 2022, respectively. The retail trade segment also accounts for some 60 percent of all jobs in this sector, leading percentage changes to have a larger impact. Wholesale trade saw jobs fall 1.2 percent in 2019 and is expected to see a decline of 9.2 percent for 2020. The economic recovery is expected to result in outsized 5.3 percent job growth in 2021 before slowing to 3.3 percent growth in 2022. Meanwhile, the transportation and warehousing sector is expected to add 4.2 percent more jobs in 2019 before a pandemic-induced 12.6 percent drop in 2020. The ongoing recovery is expected to result in 8.1 percent growth in 2021 followed by 2.9 percent growth in 2022.

Information (Media and Communications)

This sector, which contains publishing, motion pictures, broadcasting, and telecommunications, is the most regionally concentrated employment sector in the State, with over 70 percent of NYS employment located in New York City. It is also the smallest of the eight major employment sectors under discussion in this section; in 2019 it accounted for 2.9 percent of State total nonfarm employment. However, with a net job creation index of nearly 70 percent in the second quarter of 2020, it was one of the two sectors least affected by the COVID-19 pandemic (the other being financial services and insurance).

Information



Source: NYS Department of Labor; DOB staff estimates.

Information job creation and job destruction indices have experienced significant swings. Both recent recessions were accompanied by large declines in the creation index, large leaps in the destruction index, and consequent declines in the net creation index. In recent years, the job creation index had remained above the job destruction index, and the net creation index had remained well above 100 percent. After declining over the last three quarters of 2019 the net creation index soared in the first quarter of 2020, but further potential jobs growth was cut short by the onset of the COVID-19 pandemic.[22]

Besides moving with the overall economy, this industry has also been affected by idiosyncratic economic forces, such as the "dot-com" bubble at the start of the century, consolidation and restructuring of telecommunications and the cable industry, as well as the consolidation and

[22] Part of the increase in the net job creation index was due to reclassification of firms from professional and business services sector to information sector.

restructuring that has taken place in print media, including the response to digital media. Growth in this sector benefited strongly from Google's arrival in New York City and its expansion over the last several years.

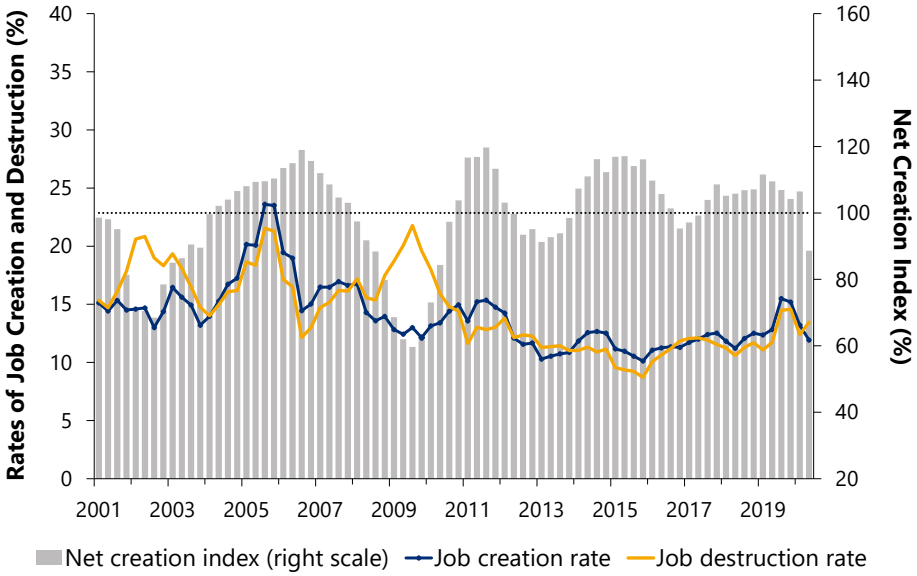
Employment increased just 0.6 percent in 2019, with a COVID-19 influenced decline of 2.3 percent in 2020. Once again, the bounce back from the interruption in activity caused by the pandemic is projected to bring outsized job gains of 3.0 percent in 2021, benefiting from the expansion of firms like Google, Facebook, and Amazon in New York City.

Finance and Insurance

Of the eight major employment sectors reviewed in this section, finance and insurance shows the least impact from the restrictions on activity that were imposed earlier in 2020 due to the COVID-19 pandemic. This is likely due to the ability of these office-based workers to transition to work from home fairly easily. What this will mean for employment growth in this sector going forward remains to be seen.

While not large in terms of employment, the sector is critical because of the outsized importance of its highly paid workforce – at the State level it accounted for 19.8 percent of private-sector wages (the highest in the State) in 2019, while making up 9.3 percent of private-sector U.S. wages. This sector is also highly concentrated in New York City, where it makes up 10.6 percent of employment, and 26.8 percent of wages, based on 2019 data. Given this concentration of wage income, the health of this sector is of high importance to New York City and its surrounding area.

Finance and Insurance



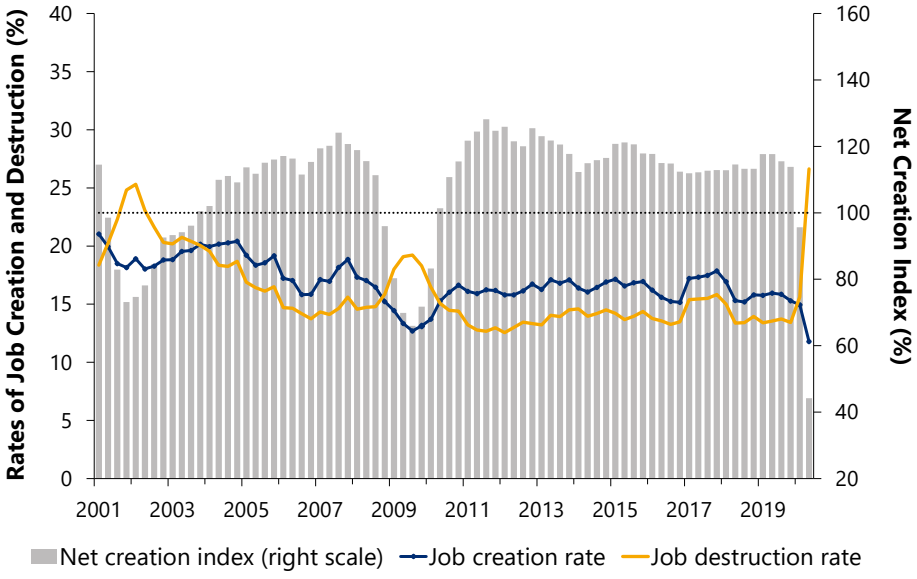
Source: NYS Department of Labor; DOB staff estimates.

Employment growth in this sector has been uneven since the Great Recession, in part owing to the slow and uneven pace of recovery and in part because of reforms enacted in response to the financial crisis that accompanied the recession – in particular the Dodd-Frank legislation and the regulations related to its enforcement. The net job creation index fell below 100 percent from the last quarter of 2016 through the second quarter of 2017 as the job destruction index topped the creation index, and employment increased just 0.3 percent in 2017 before better growth of 0.7 percent the next year. The employment dynamics for this sector show that the net creation index has been on a generally rising trend since the third quarter of 2017, though the growth has been sluggish. After a sudden spurt in the first quarter of 2019, slowing growth followed for the rest of that year and into the start of 2020. More steady growth is expected going forward, as uncertainty from the national election fades. Employment in this sector increased 1.0 percent in 2019, followed by a decline of 1.7 percent in 2020 as the pandemic took hold, the smallest loss among the sectors discussed in this section. Job growth of 0.8 percent is anticipated for 2021, with a 1.0 percent increase in 2022. Despite years of economic growth and relatively minor losses due to the pandemic, the expected level of finance and insurance jobs at the end of 2022 would remain 5.1 percent below their pre-Great Recession peak of 544,000 in 2007.

Professional and Business Services

This supersector has two segments: professional, scientific, and technical services (which includes legal, accounting, architectural, engineering, advertising, and technical services -- PST) and management, administrative, and other business support services. Unlike most of the other supersectors, PST and the management-administrative services sector are essentially equal in the number of jobs they contain, with about 685,000 jobs in each (2019 data).

Professional and Business Services



Source: NYS Department of Labor; DOB staff estimates.

This sector has been one of the most consistent with respect to job growth, with declines only coinciding with recessions. According to the net job creation index, recent growth peaked in the second quarter of 2015 with a reading of 121.2 percent, slowing gradually to a low of 111.9 percent by the first quarter of 2017 but then holding at just above 112 percent until picking up in 2018. Job growth was on the upswing in 2019, but then this sector was one of the few that saw an early reaction to the pandemic, as the net job creation index fell to 95.6 percent in the first quarter of 2020 from 113.9 percent in the fourth quarter of 2019, before dropping to 44.2 percent in the second quarter of 2020.

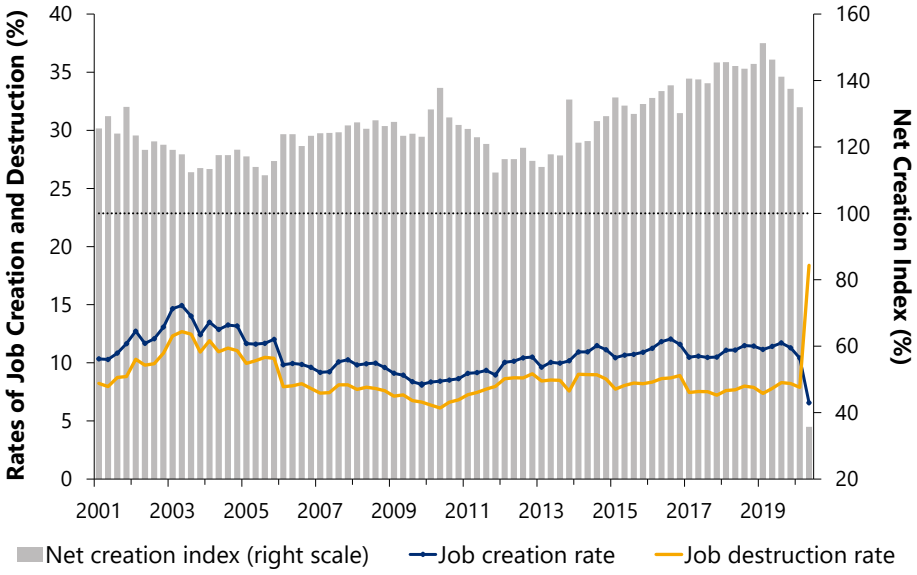
Prior to the pandemic, jobs increased 2.2 percent in 2019, after two successive years of 1.9 percent gains. Jobs are forecast to decline 8.9 percent in 2020 due to the pandemic, followed by 5.3 percent growth in 2021 with slower growth of 2.4 percent in 2022 as the COVID-19 shock fades further. While growth in this sector is among the strongest of the seven sectors (being exceeded only by that of education and health services), its two component sectors have had different growth paths – PST grew 1.3 percent in 2019 while management-administrative services saw 3.1 percent growth. Management-administrative services are estimated to have had job losses of 14.4 percent in 2020 due to COVID-19, while jobs fell a milder 3.4 percent in the PST sector. Going forward, the rebound in the PST sector will also be smaller, as 2.7 percent growth is expected in 2021 and growth of 1.6 percent in 2022, while jobs are expected to increase 8.2 percent in the management-administrative services sector in 2021 with 3.3 percent growth in 2022.

This growth is due, in part to New York State businesses within the PST classification serving not only a national customer base, but also an international customer base (this classification includes legal and accounting services, as well as advertising and public relations, and translation services) making it subject to influence by global events. Meanwhile, the management-administrative segment of the supersector contains the very large temporary help industry, which is much more oriented to the domestic economy, as well as the business-support services industry.

Education and Health Care

This supersector, which combines private educational services with the health care and social assistance sector, is unique among the seven main job sectors in not having its net job-creation index fall beneath 100 percent in any quarter since 2001, including during the two recession periods. However, that record was broken in 2020 by the COVID-19 pandemic. The job creation index has been constantly above its job destruction index over that period, though at times the gap between them has narrowed. Based on 2019 data, the education and health care supersector accounts for the largest share of private-sector State employment, nearly 22 percent, but just over 15 percent of wages, trailing both financial activities and professional and business services in the distribution of wages.

Education, Health Care, and Social Assistance



Source: NYS Department of Labor; DOB staff estimates.

After fairly consistent and strengthening growth from 2014 through 2018, net job creation began slowing after a net index reading of 151.2 percent in the first quarter of 2019 – an all-time high. The index fell to 132.0 percent by the first quarter of 2020, still much higher than in several other sectors, before plunging to 35.7 percent in the second quarter, as COVID-19 restrictions were imposed.

Job growth reached 3.5 percent in 2019, followed by an estimated decline of 5.7 percent in 2020. As the economy recovers from the shock of COVID-19, the sector is anticipated to grow 4.0 percent in 2021 before slowing to 3.1 percent growth in 2022.

Health care and social services, which is over four times as large as education services, is also expected to grow more strongly, seeing 4.0 percent growth in 2019. However, this sector is

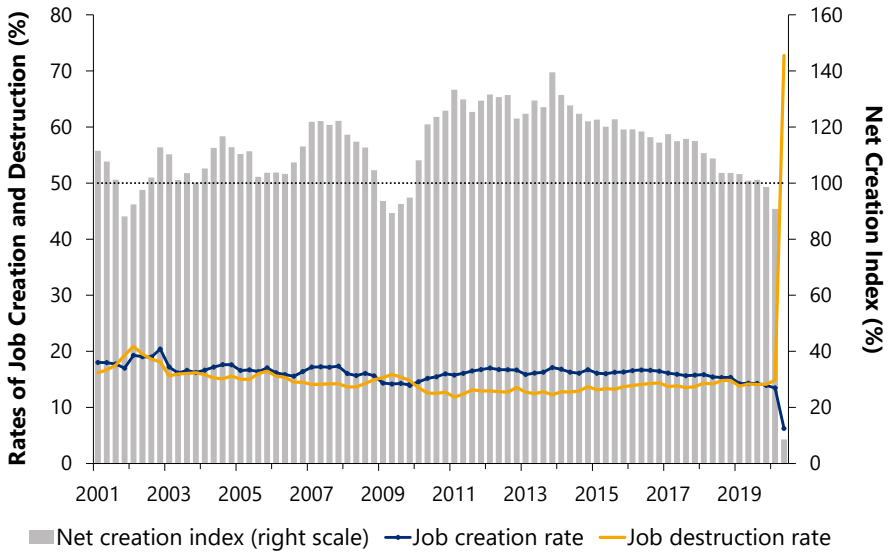
expected to decline 5.5 percent in 2020, followed by projected increases of 3.7 percent in 2021 and 3.1 percent in 2022. Growth in this sector is also influenced by demographics, as an aging population will require additional services. In addition, the sector is expected to continue transitioning towards new technologies, such as telemedicine, after the pandemic. Meanwhile, private educational services are estimated to have increased 1.2 percent in 2019, while jobs fell 6.8 percent due to COVID-19 restrictions on activity in 2020.[23] As the recovery takes hold in 2021, DOB expects a 5.5 percent jobs gain, slowing to a still strong 3.0 percent increase in 2022.

Leisure, Hospitality, and Other Services

This supersector combines the "arts, entertainment, and recreation" sector with the "accommodations and food services" sector, and "other services." This supersector is relatively immune to cyclical fluctuations, with relatively small declines in its net job creation index in the past two recessions. However, as one of the foremost "customer-facing" sectors, it was hit hard by the pandemic restrictions on economic activity, with its net job-creation index dropping to 8.6 percent, the lowest among all sectors reviewed in this section, by the second quarter of 2020 (the index was at 24.5 percent in the next lowest sector, namely trade, transportation, and utilities).

Jobs growth appears to have peaked in the last quarter of 2013, however, when the net job creation index reached 139.5 percent; the index has been on the decline since. More recently, the gap between the job creation index and the job destruction index has narrowed, leading the net creation index to fall from 110.7 percent in the first quarter of 2018 to 98.6 percent for the fourth quarter of 2019, its first reading below 100 since the last quarter of 2009. The net creation index fell again in the first quarter of 2020 to 90.8 percent, a possible early casualty of the pandemic.

Leisure, Hospitality, and Other Services



Source: NYS Department of Labor; DOB staff estimates.

[23] This measure of education-related jobs excludes over 600,000 persons employed at public educational institutions.

Consistent with the net job-creation index, DOB estimates that jobs showed almost no growth in this supersector in 2019, rising just 0.1 percent. COVID-19 restrictions weighed more heavily on this sector, and jobs are estimated to have fallen 28.3 percent in 2020, the largest percentage decline of any sector. Jobs are expected to jump 14.6 percent in 2021 before slowing to a 5.8 percent rate of growth in 2022 as the recovery continues. Even with these high growth rates, a full return to pre-pandemic levels is not expected for several years.

Risks to the State Forecast

All the risks to the U.S. forecast also apply to the State forecast. The State, like the nation, remains vulnerable to a resurgence of the virus due to holiday travel and cold weather forcing people indoors. The continued rise of COVID-19 cases threatens the economic recovery and adds more uncertainties, especially in the service sectors. Further shutdowns and restrictions due to the new surge could pose significant downside risks to DOB's employment and personal income outlook. Risks related to geopolitical uncertainties and weakening global growth could contribute to volatility and restrain equity market growth over the near term. Weaker and/or more volatile than anticipated equity markets in turn could result in unexpected layoffs, weaker bonus and wage growth, as well as lower taxable capital gains realizations than are reflected in this forecast. Lastly, the persistence of telework and relocation of urban workers out of State, even after the pandemic subsides, poses a risk to the New York State economy.

On the other hand, newly developed vaccines, if trusted by the public and distributed efficiently and widely, present a potential upside risk to the forecast, resulting in a sooner-than-expected return to normal economic conditions and therefore more robust national and global growth through higher employment and output. In addition to the newly passed stimulus bill, it is possible that the next Congress and the new administration may pass additional stimulus bills to aid the economy, resulting in higher than expected income growth.

NEW YORK STATE PRIVATE EMPLOYMENT BY INDUSTRY	Employment in Thousands					Percent Change				
INDUSTRY	**2016**	**2017**	**2018**	**2019**	**2020***	**2016**	**2017**	**2018**	**2019**	**2020***
Mining and Manufacturing	452.8	448.6	446.3	441.8	403.8	(1.0)	(0.9)	(0.5)	(1.0)	(8.8)
Construction and Real Estate	575.4	586.7	601.1	608.1	531.9	3.8	2.0	2.5	1.2	(10.8)
Trade, Trans., and Warehousing	1,526.5	1,525.0	1,516.6	1,507.2	1,319.4	0.0	(0.1)	(0.5)	(0.6)	(11.9)
Information	265.9	269.3	275.8	277.5	273.6	0.3	1.3	2.4	0.6	(0.4)
Finance and Insurance	508.6	509.9	513.5	518.6	514.0	0.3	0.3	0.7	1.0	(0.4)
Business and Professional Svs.	1,289.4	1,314.5	1,339.4	1,369.0	1,253.4	2.0	1.9	1.9	2.2	(7.3)
Education and Health Care	1,792.6	1,848.6	1,914.0	1,981.6	1,890.6	3.1	3.1	3.5	3.5	(4.3)
Leisure, Hospitality, and Other Svs.	1,287.0	1,315.1	1,327.7	1,329.4	965.9	2.4	2.2	1.0	0.1	(26.3)
Other **	82.7	82.0	81.5	88.1	86.5	6.4	(0.8)	(0.6)	8.1	6.6
Statewide	**7,780.9**	**7,899.6**	**8,016.0**	**8,121.3**	**7,239.1**	**1.8**	**1.5**	**1.5**	**1.3**	**(10.1)**

* Levels for 2020 are based on the first two quarters of the year; 2020 growth rates are relative to the same period in 2019.
** Includes agriculture, utilities, and unclassified firms.

NEW YORK STATE PRIVATE EMPLOYMENT BY REGION	Employment in Thousands					Percent Change				
REGION	**2016**	**2017**	**2018**	**2019**	**2020***	**2016**	**2017**	**2018**	**2019**	**2020***
New York City	3,626.4	3,714.1	3,804.6	3,916.3	3,494.1	2.3	2.4	2.4	2.9	(10.0)
Long Island	1,093.7	1,107.5	1,111.4	1,115.1	974.8	1.5	1.3	0.4	0.3	(11.7)
Hudson Valley	760.3	771.5	781.6	793.1	701.5	1.3	1.5	1.3	1.5	(10.7)
Capital District	408.9	413.8	416.5	415.6	375.5	1.4	1.2	0.7	(0.2)	(8.6)
Mohawk Valley	128.2	129.8	129.7	129.4	116.1	1.7	1.3	(0.1)	(0.3)	(9.5)
North Country	105.8	105.9	106.5	105.8	93.7	0.7	0.1	0.5	(0.6)	(10.0)
Central New York	280.4	279.9	281.5	282.9	254.2	0.6	(0.2)	0.6	0.5	(9.2)
Southern Tier	228.4	227.8	228.9	227.1	205.3	(0.2)	(0.3)	0.5	(0.8)	(9.1)
Western New York	523.8	523.4	525.3	526.5	466.2	0.6	(0.1)	0.4	0.2	(10.9)
Finger Lakes	467.2	468.6	472.9	474.2	428.3	1.1	0.3	0.9	0.3	(8.9)
Unclassified	158.0	157.3	157.1	135.2	129.3	5.5	(0.4)	(0.1)	(13.9)	(2.4)

* Levels for 2020 are based on the first two quarters of the year; 2020 growth rates are relative to the same period in 2019.

REGIONAL EMPLOYMENT SHARES BY INDUSTRY									
REGION	**Mining & Manuf.**	**Constr. & Real**	**Trade, Trans. & Wareh.**	**Infor-mation**	**Finance & Insurance**	**Business & Prof. Svs.**	**Educ. & Health Care**	**Leisure, Hosp. & Other Svs.**	**Other**
New York City	1.6	7.4	15.1	5.5	9.1	19.7	26.0	14.9	0.7
Long Island	6.4	8.9	22.8	1.4	4.6	14.9	24.6	15.4	1.1
Mid Hudson	5.6	9.2	21.3	1.9	3.7	14.2	26.6	16.0	1.6
Capital Region	8.8	7.0	20.6	2.2	5.4	14.8	24.0	15.8	1.3
Mohawk Valley	13.0	4.5	24.6	1.1	5.7	7.3	28.3	14.4	1.1
North Country	9.7	6.9	24.7	1.5	2.3	7.1	26.7	17.7	3.4
Central New York	11.3	6.5	22.1	1.5	3.9	13.4	23.3	15.1	2.6
Southern Tier	15.5	4.9	19.6	1.6	3.5	9.8	28.3	15.1	1.6
Western New York	12.8	5.9	21.0	1.4	5.9	14.0	21.4	16.6	0.9
Finger Lakes	13.9	6.4	18.7	1.6	3.4	14.6	25.9	13.6	2.0
Statewide	**5.5**	**7.5**	**18.4**	**3.6**	**6.7**	**17.1**	**25.1**	**15.0**	**1.2**

Note: Shares are based on the period from 2019Q3 through 2020Q2.

REGIONAL EMPLOYMENT TRENDS: 2016-2020

Region	Employment (000's)					Percent Change				
	2016	2017	2018	2019	2020*	2016	2017	2018	2019	2020*
	Manufacturing and Mining									
New York City	75.8	73.0	70.0	66.7	53.6	(2.2)	(3.7)	(4.2)	(4.7)	(20.4)
Long Island	71.0	71.1	70.7	70.5	64.4	(0.1)	0.2	(0.5)	(0.3)	(8.9)
Hudson Valley	44.6	43.7	43.9	43.9	40.8	(1.9)	(2.2)	0.5	(0.1)	(7.0)
Capital District	34.8	35.3	35.7	35.2	34.0	2.1	1.4	1.0	(1.1)	(2.4)
Mohawk Valley	16.9	17.0	16.9	16.9	15.2	0.8	0.7	(0.5)	0.1	(10.3)
North Country	10.4	10.4	10.5	10.4	9.2	(3.4)	(0.6)	1.5	(1.2)	(12.4)
Central New York	30.3	30.7	31.1	31.5	29.6	(0.8)	1.1	1.3	1.4	(5.6)
Southern Tier	35.3	35.1	35.3	34.9	32.4	(1.5)	(0.6)	0.5	(1.1)	(7.4)
Western New York	66.7	66.0	65.9	66.0	61.6	(1.2)	(1.1)	(0.2)	0.2	(7.0)
Finger Lakes	65.6	64.3	64.2	64.6	61.2	(1.5)	(2.1)	(0.2)	0.7	(5.1)
Unclassified	1.4	2.1	2.3	1.2	1.6	4.1	57.3	7.3	(49.7)	37.0
Statewide	**452.8**	**448.6**	**446.3**	**441.8**	**403.8**	**(1.0)**	**(0.9)**	**(0.5)**	**(1.0)**	**(8.8)**
	Construction and Real Estate									
New York City	272.6	279.6	287.5	291.8	257.4	4.0	2.6	2.9	1.5	(11.1)
Long Island	93.8	97.0	98.9	99.4	85.4	5.3	3.4	2.0	0.5	(12.6)
Hudson Valley	66.5	68.0	70.5	73.2	63.4	3.1	2.3	3.6	3.9	(11.9)
Capital District	27.7	28.1	28.3	28.7	26.0	0.0	1.4	0.6	1.3	(5.2)
Mohawk Valley	5.4	5.6	5.7	5.7	5.0	1.7	3.4	1.6	(0.2)	(6.0)
North Country	6.9	6.9	7.4	7.2	6.1	4.1	(0.3)	8.5	(3.4)	(8.3)
Central New York	18.0	17.7	18.6	18.3	16.2	5.1	(1.5)	4.8	(1.4)	(7.7)
Southern Tier	11.3	11.3	11.3	11.5	9.4	3.3	0.6	(0.7)	1.8	(14.0)
Western New York	31.5	30.9	30.8	31.1	26.3	3.9	(1.9)	(0.1)	0.8	(11.7)
Finger Lakes	28.9	29.1	29.6	30.3	26.7	5.0	0.6	1.7	2.7	(8.4)
Unclassified	12.8	12.6	12.5	11.0	10.1	(2.2)	(1.9)	(0.3)	(12.4)	(4.6)
Statewide	**575.4**	**586.7**	**601.1**	**608.1**	**531.9**	**3.8**	**2.0**	**2.5**	**1.2**	**(10.8)**
	Trade, Transportation, and Warehousing									
New York City	599.4	601.8	601.6	607.0	516.0	0.1	0.4	(0.0)	0.9	(14.4)
Long Island	259.1	260.2	258.2	256.3	220.8	(0.1)	0.4	(0.8)	(0.7)	(13.4)
Hudson Valley	173.2	173.2	171.6	170.1	149.2	(0.6)	0.0	(0.9)	(0.9)	(11.9)
Capital District	86.5	85.7	85.5	85.2	77.7	0.8	(0.9)	(0.2)	(0.3)	(7.6)
Mohawk Valley	31.3	31.8	31.4	31.3	29.0	1.8	1.5	(1.0)	(0.4)	(6.7)
North Country	27.0	26.7	26.4	25.8	23.5	(0.4)	(1.2)	(1.4)	(2.0)	(7.7)
Central New York	66.1	64.5	63.7	62.5	56.8	(1.0)	(2.4)	(1.3)	(1.8)	(8.8)
Southern Tier	45.9	45.2	44.9	44.2	40.6	(0.3)	(1.5)	(0.6)	(1.6)	(7.7)
Western New York	113.0	110.8	110.4	109.8	99.2	(0.6)	(2.0)	(0.4)	(0.6)	(9.1)
Finger Lakes	88.8	88.9	89.4	88.0	80.8	0.6	0.1	0.5	(1.6)	(7.8)
Unclassified	36.2	36.2	33.6	27.0	25.9	3.0	0.2	(7.4)	(19.6)	(3.4)
Statewide	**1,526.5**	**1,525.0**	**1,516.6**	**1,507.2**	**1,319.4**	**0.0**	**(0.1)**	**(0.5)**	**(0.6)**	**(11.9)**
	Information									
New York City	178.0	186.5	195.7	203.8	205.3	1.8	4.8	5.0	4.2	2.1
Long Island	18.5	18.1	16.9	15.1	14.5	(5.7)	(2.2)	(6.4)	(10.5)	(4.9)
Hudson Valley	15.1	14.5	14.3	14.4	13.7	(2.7)	(4.1)	(0.9)	0.7	(5.3)
Capital District	9.5	9.3	9.5	9.0	8.7	0.3	(1.8)	2.0	(5.6)	(3.1)
Mohawk Valley	2.4	2.3	2.1	1.5	1.3	2.4	(3.6)	(7.5)	(29.5)	(12.1)
North Country	1.7	1.7	1.7	1.7	1.4	0.2	(2.4)	(0.1)	(1.4)	(17.3)
Central New York	4.7	4.8	4.7	4.5	3.9	4.1	0.7	(2.2)	(4.3)	(13.4)
Southern Tier	3.6	3.6	3.7	3.6	3.4	(8.2)	(0.5)	1.9	(2.7)	(7.5)
Western New York	7.6	7.6	8.0	7.4	6.7	(4.1)	(0.1)	5.0	(7.3)	(10.4)
Finger Lakes	8.7	8.1	8.1	7.8	6.8	(3.3)	(6.6)	(0.8)	(3.7)	(13.7)
Unclassified	16.2	13.0	11.3	8.8	7.8	(1.3)	(20.1)	(13.0)	(21.8)	(5.2)
Statewide	**265.9**	**269.3**	**275.8**	**277.5**	**273.6**	**0.3**	**1.3**	**2.4**	**0.6**	**(0.4)**

(Cont'd on next page)

REGIONAL EMPLOYMENT TRENDS: 2016-2020 (*cont'd*)

Region	Employment (000's)					Percent Change				
	2016	2017	2018	2019	2020*	2016	2017	2018	2019	2020*
	Finance and Insurance									
New York City	327.9	328.3	333.3	339.3	335.7	1.0	0.1	1.5	1.8	(0.3)
Long Island	51.5	51.2	49.4	48.7	48.1	(2.8)	(0.5)	(3.5)	(1.4)	(1.2)
Hudson Valley	28.0	28.1	27.9	28.0	27.5	(1.4)	0.5	(0.7)	0.3	(0.9)
Capital District	21.9	21.4	21.6	21.9	21.5	1.0	(2.3)	0.8	1.5	(2.1)
Mohawk Valley	6.8	6.6	6.6	7.1	6.9	(1.3)	(2.7)	(0.2)	7.8	(2.4)
North Country	2.3	2.3	2.4	2.4	2.3	(0.3)	1.5	2.3	(0.0)	(2.7)
Central New York	11.8	11.2	10.7	10.6	10.5	(4.2)	(5.3)	(3.7)	(1.3)	(0.5)
Southern Tier	7.8	7.6	7.6	7.6	7.5	(0.9)	(2.6)	(0.1)	(0.2)	(0.9)
Western New York	28.3	30.2	29.8	29.9	29.4	2.4	6.7	(1.4)	0.4	(2.0)
Finger Lakes	15.0	14.7	15.2	15.4	15.2	(0.8)	(2.1)	3.6	0.8	(0.6)
Unclassified	7.4	8.3	9.0	7.9	9.3	3.3	12.5	8.8	(12.8)	20.9
Statewide	**508.6**	**509.9**	**513.5**	**518.6**	**514.0**	**0.3**	**0.3**	**0.7**	**1.0**	**(0.4)**
	Professional and Business Services									
New York City	685.8	707.7	727.6	760.3	693.3	2.6	3.2	2.8	4.5	(7.7)
Long Island	166.7	166.5	164.5	163.0	148.2	1.7	(0.1)	(1.2)	(0.9)	(7.7)
Hudson Valley	102.4	105.2	107.4	109.9	101.7	1.7	2.8	2.0	2.4	(6.2)
Capital District	59.2	60.5	60.3	60.6	57.0	0.9	2.1	(0.3)	0.4	(5.2)
Mohawk Valley	9.7	9.6	9.6	9.4	8.7	0.2	(1.6)	0.6	(2.2)	(7.8)
North Country	7.2	7.4	7.5	7.5	6.8	2.3	2.3	2.1	(0.2)	(9.9)
Central New York	34.9	35.8	37.0	37.1	34.9	0.3	2.6	3.5	0.1	(4.5)
Southern Tier	22.4	22.1	22.2	22.1	20.1	(3.3)	(1.7)	0.5	(0.4)	(7.4)
Western New York	73.3	71.9	71.5	72.9	66.0	(1.3)	(1.9)	(0.5)	1.9	(8.8)
Finger Lakes	68.3	68.0	68.8	68.6	63.3	0.4	(0.3)	1.1	(0.2)	(7.4)
Unclassified	59.5	60.0	62.9	57.6	53.2	8.2	0.8	4.8	(8.5)	(5.9)
Statewide	**1,289.4**	**1,314.5**	**1,339.4**	**1,369.0**	**1,253.4**	**2.0**	**1.9**	**1.9**	**2.2**	**(7.3)**
	Education, Health Care, and Social Assistance									
New York City	850.1	885.8	929.3	978.6	947.6	3.4	4.2	4.9	5.3	(2.6)
Long Island	246.3	251.6	258.8	267.4	248.0	3.1	2.2	2.9	3.3	(7.1)
Hudson Valley	189.1	195.0	199.8	205.7	193.5	2.9	3.1	2.5	3.0	(6.1)
Capital District	94.8	97.1	98.7	98.3	93.3	2.1	2.5	1.6	(0.4)	(5.6)
Mohawk Valley	34.9	35.8	36.3	36.2	33.8	2.9	2.5	1.4	(0.4)	(6.8)
North Country	26.4	26.8	27.0	27.5	26.2	2.4	1.3	1.0	1.5	(4.4)
Central New York	61.6	61.6	62.5	65.1	60.6	2.6	0.1	1.5	4.1	(6.7)
Southern Tier	61.8	62.0	62.6	62.4	60.6	0.7	0.4	0.9	(0.3)	(3.1)
Western New York	105.1	107.1	109.8	110.2	102.7	2.5	1.9	2.5	0.3	(6.8)
Finger Lakes	112.7	115.8	118.2	120.3	114.4	3.0	2.7	2.1	1.8	(4.7)
Unclassified	9.9	10.0	11.1	9.9	9.9	16.6	0.9	10.6	(10.5)	(2.5)
Statewide	**1,792.6**	**1,848.6**	**1,914.0**	**1,981.6**	**1,890.6**	**3.1**	**3.1**	**3.5**	**3.5**	**(4.3)**
	Leisure, Hospitality, and Other Services									
New York City	611.6	627.2	635.8	642.1	458.4	3.1	2.6	1.4	1.0	(28.1)
Long Island	177.0	181.9	183.9	183.4	134.7	2.1	2.8	1.1	(0.3)	(24.7)
Hudson Valley	130.5	132.9	135.2	136.3	100.4	2.0	1.8	1.8	0.8	(24.8)
Capital District	69.8	71.6	72.1	71.6	52.3	1.9	2.7	0.7	(0.7)	(24.9)
Mohawk Valley	19.5	19.9	19.8	20.0	14.9	1.8	2.1	(0.5)	1.1	(23.7)
North Country	20.4	20.4	20.2	20.0	14.8	1.0	(0.1)	(1.2)	(0.7)	(23.0)
Central New York	46.7	46.9	46.4	46.4	34.6	0.1	0.5	(1.1)	0.0	(24.3)
Southern Tier	36.9	37.5	38.1	37.4	27.7	1.3	1.6	1.6	(1.8)	(25.0)
Western New York	93.1	94.2	94.6	94.6	69.8	1.6	1.1	0.4	0.0	(25.3)
Finger Lakes	70.1	70.9	70.7	70.2	52.0	1.1	1.1	(0.3)	(0.7)	(25.0)
Unclassified	11.3	11.6	10.9	7.2	6.2	13.5	2.9	(6.6)	(33.5)	(15.2)
Statewide	**1,287.0**	**1,315.1**	**1,327.7**	**1,329.4**	**965.9**	**2.4**	**2.2**	**1.0**	**0.1**	**(26.3)**

* Levels for 2020 are based on the first two quarters of the year; 2020 growth rates are relative to the same period in 2019.
Source: NYS Department of Labor.

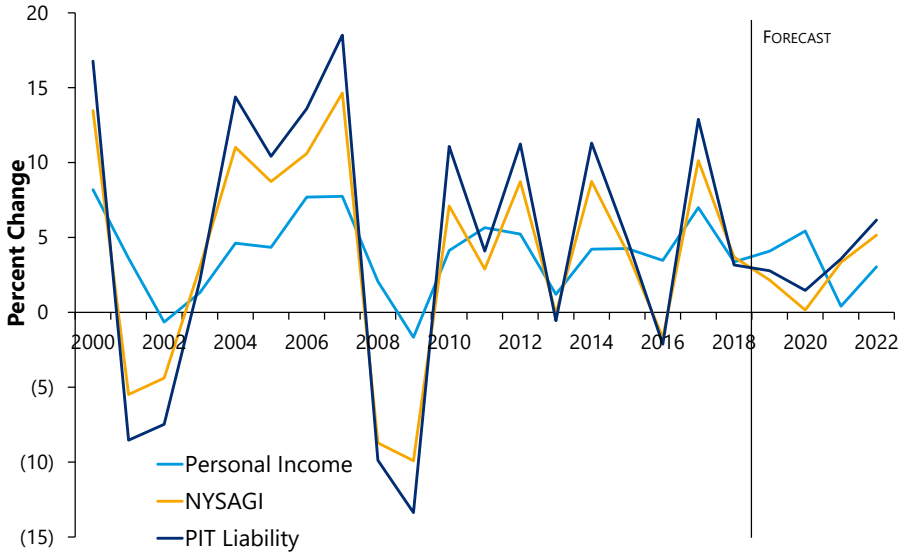
New York State Adjusted Gross Income

Personal income tax (PIT) receipts account for 65 percent of the State's total tax revenue. PIT liability is based on taxable income, which in turn is derived from New York State adjusted gross income (NYSAGI), in conformity with New York State tax laws.[24] Detailed knowledge of the composition of this personal income tax base and its determinants is critical to accurately projecting New York State's largest revenue source.

At the aggregate level the components of NYSAGI, such as dividend income and capital gains income, vary with the State and national economies. DOB's forecast of the components of personal income uses these linkages. Anticipated or actual changes in Federal tax law can also generate considerable volatility, which DOB aims to incorporate into its forecast.

As illustrated below, growth in personal income is less volatile than growth in NYSAGI and in PIT liability, with movements in those two concepts closely related. The figure below illustrates the effects of actual and anticipated Federal law changes on NYSAGI, using "frozen" 2002 State tax law to remove the effects of NYS law changes. For example, expecting a lower tax rate to expire at the end of 2012, taxpayers realized capital gains early and firms distributed dividends and bonuses early, creating a shift of income from 2013 into 2012 that led to 8.7 percent NYSAGI growth in 2012, followed by a 0.1 percent decrease in 2013. NYSAGI growth of 8.7 percent in 2014 was also affected by the shift, since that growth rate was based on a lower level in 2013. Similarly, NYSAGI fell 1.7 percent in 2016, despite personal income growth of 3.5 percent.

The Indicators of New York State's Tax Base



Note: PIT liability is computed based on 2002 NYS tax law; 2019 liability and NYSAGI data are preliminary.
Source: NYS DTF; Moody's Analytics; DOB staff estimates.

[24] A detailed discussion of the relationship between three important indicators of the size of the State's PIT base, PIT liability, NYSAGI, and state personal income, can be found later in this section.

In 2017 the behavioral shift by taxpayers in anticipation of the adoption of Federal tax law changes caused NYSAGI growth to rebound to 10.1 percent. This shift also affected growth in 2018, not only because of the larger base in the prior year, but also because the Tax Cuts and Jobs Act of 2017 (TCJA) significantly limited itemized deductions. In particular, the Federal deductibility of state and local taxes (SALT), including property taxes, created an incentive to shift SALT payments in the opposite direction, from 2018 into 2017, in order to take advantage of the last tax year under the prior Federal law. Income growth in 2017 was also affected by a 10-year-old Federal law requiring the repatriation of hedge fund incentive and management fees that managers had been able to defer receiving or recognizing if they were in offshore funds. These deferred fees had to be recognized for tax purposes by the end of 2017, thus amplifying NYSAGI's growth that year.

NYSAGI growth slowed to 3.7 percent in 2018. Based in part on preliminary processing data, growth slowed further to 2.2 percent in 2019. Under the impact of the COVID-19 pandemic NYSAGI is forecast to edge up just 0.2 percent in 2020. With a new Federal economic stimulus and an ongoing economic recovery, NYSAGI is expected to expand 3.3 percent in 2021 before further recovery from the pandemic helps NYSAGI grow a forecasted 5.2 percent in 2022.

The Major Components of NYSAGI

Prior to Tax Year 2014, DOB forecasts for the components of NYSAGI were based on samples of detailed historical tax return data. Beginning with Tax Year 2015, data are based on the entire population of tax returns and are used to construct estimates for all the income components.

Although the measure of taxable wages derived from State tax returns does not precisely match the dollar amount derived from QCEW data, they tend to follow a similar trend. To be consistent with DOB's New York State macroeconomic forecast, projected growth rates for taxable wages from 2019 onward are based on the estimated growth of total State wages derived from the macroeconomic forecast, which is based on QCEW data.

CHANGES IN NYSAGI AND ITS MAJOR COMPONENTS

	2015	2016	2017	2018	2019*	2020	2021	2022
	Actual				Estimate			
NYSAGI								
Level ($ Billions)	807.8	794.1	874.6	906.9	926.4	927.9	958.9	1,008.3
Change ($ Billions)	31.3	(13.7)	80.5	32.3	19.6	1.5	31.0	49.4
% Change	4.0	(1.7)	10.1	3.7	2.2	0.2	3.3	5.2
Wages								
Level ($ Billions)	558.9	592.1	626.4	645.4	670.0	661.0	683.5	718.7
Change ($ Billions)	32.9	25.5	34.2	19.0	24.6	(9.0)	22.4	35.3
% Change	4.6	1.3	5.8	3.0	3.8	(1.3)	3.4	5.2
Capital Gains								
Level ($ Billions)	93.5	75.3	99.9	102.2	92.7	81.4	99.8	105.6
Change ($ Billions)	21.8	(20.6)	24.6	2.3	(9.5)	(11.3)	18.4	5.8
% Change	2.6	(21.5)	32.7	2.3	(9.3)	(12.2)	22.6	5.8
Partnership/S Corporation								
Level ($ Billions)	86.3	91.3	108.4	99.3	98.2	94.2	106.5	115.8
Change ($ Billions)	3.5	(1.2)	17.1	(9.1)	(1.1)	(4.0)	12.3	9.3
% Change	7.2	(1.3)	18.7	(8.4)	(1.1)	(4.1)	13.0	8.7

Source: NYS DTF; DOB staff estimates.

*2019 estimates are based on processing data except for wages.

Positive Capital Gains Realizations

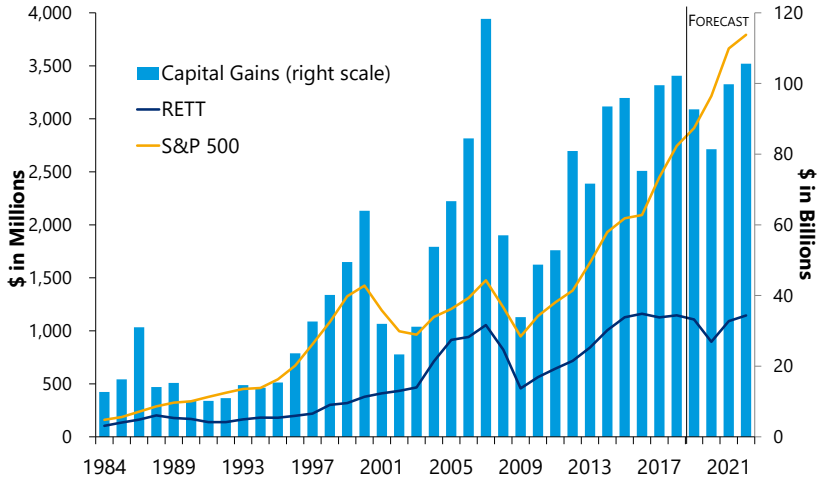
Positive capital gains realizations play a large role in determining NYSAGI, both because they provide a relatively large share of income and because they are volatile. DOB's forecasting model attempts to capture the inherent volatility in capital gains income by incorporating those factors

that are most likely to influence capital gains realization behavior, such as anticipated and actual tax law changes, financial market activity, and real estate market activity.[25] Realization behavior has been shown in the past to be greatly affected by Federal and State taxes on capital gains income as they constitute a cost associated with the buying and selling of capital assets. Taxpayers may decide to realize capital gains earlier than planned if they expect taxes on capital gains to increase.

Capital gains plunged 21.5 percent in 2016 after growth of just 2.6 percent in 2015. While economic growth was weak in 2016, the U.S. economy was not in recession, implying that there were other forces at work. As discussed, taxpayers appear to have delayed realizing capital gains from 2016 into 2017, anticipating a capital gains tax rate reduction that never materialized. This shift both depressed capital gains growth in 2016 and elevated 2017 growth to 32.7 percent. Capital gains grew just 2.3 percent in 2018. A decline of 9.3 percent is projected in 2019 based on preliminary data, worsening to a drop of 12.2 percent in 2020 due to disruptions caused by the COVID-19 pandemic. As the pandemic recedes, capital gains growth of 22.6 percent and a more-moderate 5.8 percent are expected for 2021 and 2022, respectively.

The figure below shows how fluctuations in equity markets (measured by the S&P 500 index) and real estate markets (measured by State real estate transfer tax collections) help explain the magnitude of fluctuations in capital gains realizations. The collapse of capital gains realizations during the Great Recession is particularly striking, even though the magnitude of the decline in the S&P 500 was roughly that of the 2001-02 recession. The simultaneous decline in the real estate market clearly contributed to the unprecedented collapse in capital gains realizations in 2008 and 2009 when State taxpayers lost a combined $84.4 billion in capital gains realizations income.

Capital Gains Realizations, Real Estate Transfer Taxes, and S&P 500 Index



Note: 2019 CG realizations are estimated.
Source: Moody's Analytics; NYS DTF; DOB staff estimates.

[25] For a discussion of the Division's traditional approach to modeling capital gains realizations, see L. Holland, H. Kayser, R. Megna and Q. Xu "The Volatility of Capital Gains Realizations in New York State: A Monte Carlo Study," *Proceedings, 94th Annual Conference on Taxation*, National Tax Association, Washington, DC, 2002, pages 172-183.

After years of steady but slowing growth, equity prices (measured by the S&P 500 index) surged 17.0 percent in 2017 on an annual average basis. Despite high volatility in 2018, brought on in part by trade disputes and failure to resolve Brexit, the index still increased 12.1 percent that year. The index rose 6.1 percent in 2019, despite volatility that lasted into the summer that year. In spite of a plunge in the spring of 2020 as COVID-19 pandemic shutdowns surged, the reopening economy and news of advances toward a COVID-19 vaccine led the index to rise 10.5 percent for 2020. DOB anticipates that the index will advance 14.0 percent on an annual average basis in 2021, spurred in part by the COVID-19 vaccination effort, prior to slowing to 3.5 percent growth in 2022.

As discussed, the health of the real estate market plays a critical role in determining capital gains realizations. New York State real estate transfer tax (RETT) data provide a timely indicator of the strength of real estate sales and therefore of the possible impact of the real estate market on taxable gains (see figure above). RETT collections, up 2.9 percent in 2016, fell by the same percentage in 2017, the first decline since 2009, but increased 1.6 percent in 2018 before falling 3.4 percent in 2019. The recent growth rates are much lower than earlier in the decade, namely 2010-2015, when average annual growth was 16.4 percent. Gyrations in the real-estate market due in part to COVID-19 effects has the forecast for RETT collections dropping 19.1 percent in 2020, then bouncing up 21.8 percent in 2021 before settling at 4.9 percent growth in 2022. Aside from the hopefully temporary fluctuations due to the pandemic, the effect of the SALT cap also appears to have tempered State real estate gains. Thus, the residential housing market's contributions to capital gains realizations in coming years is unlikely to be substantial.

Fluctuating levels of private equity and hedge fund activity and profitability also contribute to capital gains realizations. Private equity firms own stakes in companies not listed on a public stock exchange, generally receiving a return on their investment in one of three ways: through a sale or merger of the company; a recapitalization; or by selling shares back to the public through an IPO. The returns on private equity investments often are not realized for several years, but the rate of return is generally high relative to returns on publicly held stocks, to compensate for the higher degree of risk and the value added through the extraction of operating efficiencies. Though related to the performance of equity and real estate markets, capital gains from private equity funds have their own dynamics.

Hedge funds, investment partnerships that are limited to very high-income individuals and use aggressive and sometimes risky trading techniques to try to generate high returns, failed to outperform the broader market again in 2020, the same as in 2019. Hedge funds fell 7.9 percent in the first half of the year, the steepest decline in records that go back to 2008. Meanwhile, by the end of June the S&P 500 jumped 38.6 percent from its March 23 low.[26] At the same time, investors pulled $55.4 billion from hedge funds, putting the industry on pace to see redemptions exceed the $102.3 billion withdrawn from funds in 2019. At the time, hedge funds had not seen aggregate funds inflows since the first quarter of 2018.[27] However, by the end of 2020's third quarter, year-

[26] "Hedge funds plunge 7.9 percent in pandemic-plagued first half," July 9, 2020, available at https://www.pionline.com/hedge-funds/hedge-funds-plunge-79-pandemic-plagued-first-half.
[27] "Halfway through 2020, hedge fund investor redemptions on pace to exceed 2019 outflows," July 24, 2020, available at https://www.opalesque.com/industry-updates/6055/half-way-through-2020-hedge-fund-investor-redemptions.html#:~:text=Year%2Dto%2Ddate%20(YTD,from%20the%20industry%20in%202019.

to-date redemptions slowed to $47.8 billion and funds had their first positive quarterly inflow in nine quarters.[28] But hedge funds remained a laggard, with a paltry 1.3 percent aggregate return year-to-date through October while stock indices, after dipping in October in part due to rising uncertainty as the presidential election approached, were about to begin to notch a string of record closings. [29]

The shock and uncertainty of the COVID-19-caused recession likewise struck at private equity. Through the first half of 2020 the deal value of U.S. private equity transactions was 20 percent lower when compared with the first half of 2019, with a value estimated at $326.7 billion involving 2,173 deals. "Many" private-equity managers retreated from previously agreed-upon deals with some managers citing "materially adverse changes" clauses. Domestic funds raised $101.6 billion in 101 funds in the first half of 2020, after raising a record $314.1 billion in 320 funds in all of 2019.[30] However, as portions of the U.S. economy began to reopen in early summer, investment in private equity began to increase by the autumn, as funds adapted to new ways of doing business and as changes caused by COVID-19 showed new opportunities (internet-related businesses and processes, healthcare) and new trouble spots (restaurants; retail; hotels and travel). With deals having "ground to a halt" in April and May, according to a survey of private equity professionals, some 61 percent of managers were expecting to spend more time closing deals in the final two months of the year versus only 21 percent in April.[31] But given the national election results, where the political division of Congress remained uncertain after November, due to then-pending runoff elections for both senators in Georgia, a wave of late-2020 deals driven by tax avoidance desires may not be forthcoming.[32] Through the third quarter of 2020 there were 3,444 deals with an aggregate value of $453.2 billion – or 16.2 percent fewer deals than through the first nine months of 2019, while valuation was down 20.6 percent from the year-ago period, according to PitchBook. However, PitchBook's report also said that announced deal activity had increased, "suggesting that we may be in for a healthy end to 2020 and a robust start to 2021."[33]

It is difficult to weigh upside and downside risks to the capital gains forecast. While the close of 2020 brought good news of apparently successful vaccines (an upside risk), it also brought a new surge of COVID-19 cases (a downside risk). While both houses of Congress are under Democratic control, the Democrats' majority in the House has been reduced while the 50-50 split in the Senate gives Democrats control via Vice President Kamala Harris. Such a close division in Congress would seem to make it difficult for the incoming Biden administration to pursue its tax policies, so it appears that income-shifting strategies by high-income individuals are moot. However, a cessation

[28] Hugh Leask, "Winners and losers: How 2020's hedge fund performance is now weighing more heavily on investor allocations," October 30, 2020, available at https://www.hedgeweek.com/2020/10/30/291546/winners-and-losers-how-2020s-hedge-fund-performance-now-weighing-more-heavily.
[29] See https://www.aurum.com/hedge-fund-data/hedge-fund-performance-by-strategy-latest-data/, with 80 percent of funds reporting, accessed December 4, 2020.
[30] Arleen Jacobias, "Private equity deals tumble 20% in 2020's first half – PitchBook," July 10, 2020, available at https://www.pionline.com/private-equity/private-equity-deals-tumble-20-2020s-first-half-pitchbook.
[31] Atta Tarki, "Private Equity Investors Are Expecting a Tsunami of Deals – How Long Will It Last?" October 28, 2020, available at https://www.entrepreneur.com/article/357616.
[32] Adam Lewis, "Here's why Biden's election may not spur a rush of year-end PE deals," November 11, 2020, available at https://pitchbook.com/news/articles/heres-why-bidens-election-may-not-spur-a-rush-of-year-end-pe-deals.
[33] *US PE Breakdown, Q3 2020,* p. 4, PitchBook.com, available at https://files.pitchbook.com/website/files/pdf/PitchBook_Q3_2020_US_PE_Breakdown.pdf.

of trade hostilities with China would constitute an upside risk to the capital gains (and hence NYSAGI and liability) forecast, as would indications that international tensions are easing.

Rent, Royalty, Partnership, and S Corporation Gains

Partnership and S corporation income overtook capital gains income to become the second-largest income component after wages in 2017, but with considerably less volatility than capital gains. It retreated to a level lower than capital gains in 2018 but based on preliminary processing information was again larger than capital gains in 2019 and will remain so through the forecast period. However, the two income concepts are of roughly similar magnitude.
While growing at an average 9.3 percent annually over its history, partnership and S corporation income growth has both generally slowed and become more volatile in the period since the Great Recession. Partnership and S corporation income jumped to 18.7 percent growth in 2017 then fell 8.4 percent in 2018. Processing data indicate a decline of 1.1 percent for 2019. A decline of 4.1 percent is projected in the 2020 pandemic year, to be followed by a rebound to 13.0 percent growth in 2021 before growth slows to a still-robust 8.7 percent in 2022.

Changes in Federal tax law play a significant role in the abrupt shifts in the growth of this component of income. For example, the growth of partnership and S corporation income in 2017 was the strongest since 1988. Although improved national and global economic growth played a role, a Federal law that dated back to the Great Recession crisis period appears to have had a strong effect on partnership income. Hedge fund managers who had deferred the receipt and recognition of certain management or incentive fees charged to offshore funds before January 1, 2009, were required to recognize these fees for tax purposes by the end of 2017. In order to determine the true underlying growth of partnership and S corporation income, this one-time income declaration would have to be removed from the 2017 base.

Partnership income is the largest contributor to this NYSAGI component, much of which originates within the finance and real estate industries. Another large contributor is income from S corporation ownership. Prior to the passage of the TCJA and its corporate tax rate cut, opting for S corporation status allowed firms to pass earnings through to a limited number of shareholders, avoiding corporate taxation while still enjoying the limited liability that corporate status affords.

Growth in income from partnerships and S corporations is related to both the economy and financial markets. However, average annual growth of 3.6 percent during the most recent expansion (through 2019) is lower than pre-recession relationships would suggest, based on the strength of both the economy and equity markets. Partnership and S corporation income gains and losses tend to rise and fall together, suggesting that the growth rates are linked at least in part to births and deaths of partnerships and S corporations. The severity of the Great Recession forced a large number of entities to exit the market, and tighter credit markets made it difficult for new entities to enter as economic conditions improved.

The partnership and S corporation income forecast contains both upside and downside risks. Like capital gains income, partnership and S corporation income is sensitive to the performance of the private-equity sector and hedge funds, where incomes can be very volatile. In addition, the real

estate market is not captured independently in the forecast model. Since there is a high concentration of real estate partnerships in the State, a better-than-predicted real estate market (due to an improved employment situation and a decline in foreclosures) could lead to higher-than-expected partnership and S corporation gains. Conversely, a slowing real estate market could result in smaller than expected gains.

Dividend Income

Taxable dividend income is a highly volatile component of NYSAGI, as illustrated by a growth rate that has ranged from a drop of 28.7 percent in 2009 to a gain of 26.6 percent in 2004. The volatility has continued during the last few years, once again due, in part, to income shifting. For example, taxable dividend income grew 19.7 percent in 2014 sandwiched by 4.8 percent declines in 2013 and 2015. These growth rates were affected by early dividend payouts made in 2012 to avoid the higher tax rate in 2013, which in turn lowered the 2013 level of dividends and consequently resulted in a higher growth rate for 2014. Growth of 9.8 percent in 2018 was just a bit lower than 2017's growth, but dividend income growth is estimated to have fallen to 8.1 percent in 2019, based in part on preliminary processing information. Dividend income is projected to fall 2.9 percent, due in part to COVID-19, in 2020 but is expected to increase 4.1 percent in 2021. Stronger growth of 6.3 percent is anticipated for 2022.

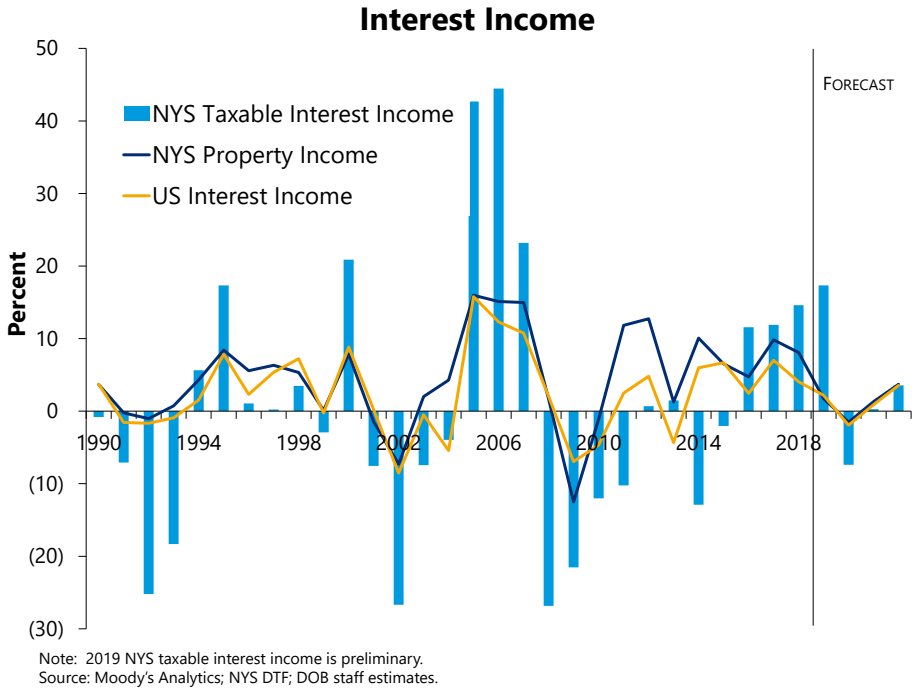
State taxable dividend income moves with dividend income in the national economy, a component of the National Income and Product Accounts (NIPA) definition of U.S. personal income. Other determinants include long-term interest rates, as represented by the 10-year Treasury yield, and the performance of equity markets. Despite the link to the national economy, State taxable dividends grow more slowly but are more variable than U.S. dividend income: they increased 6.4 percent on average between 1976 and 2019 with a standard deviation of 12.2 percentage points, while U.S. dividend income grew an average of 9.2 percent over the same period, with a standard deviation of 10.1 percentage points.

Risks to the dividend income forecast are closely linked to the risks embedded in the U.S. equity markets, corporate profitability, and the performance of publicly traded private equity firms.

Interest Income

From 2008 through 2015, taxable interest income for New York State filers either declined or posted very low growth (e.g., 0.7 percent and 1.5 percent increases in 2012 and 2013, respectively). Growth jumped to 11.6 percent in Tax Year 2016 as the Federal Reserve began increasing the target band for the federal funds rate in December 2015. After increasing 14.6 percent in 2018, partial processing information for 2019 indicates growth of 17.3 percent, the fastest rate since 2007. But after the Federal Reserve cut the federal funds target range to zero to 0.25 percent – effectively zero – in March 2020 as a partial response to the COVID-19 pandemic, interest income is anticipated to fall 7.4 percent in 2020 and show very minor growth of 0.3 percent in 2021. Growth of 3.6 percent is expected in 2022 as the economy recovers further from the pandemic.

For a given amount of assets, an increase in interest rates will increase interest income. In addition, NYS property income, a component of the NIPA definition of state personal income that includes interest income, is a good indicator of the trend in State taxable interest income, despite being much less volatile (see below). Note that from 1977 to 2019 the standard deviation of the annual growth of NYS property income was 6.8 percentage points, while the standard deviation for the growth rate of U.S. interest income, a part of the NIPA definition of U.S. personal income, was 7.4 percentage points. In contrast, State taxable interest income annual growth had a standard deviation of 17.0 percentage points. The additional volatility in this component of NYSAGI could be related to the behavioral response of State taxpayers to past changes in tax law.



Note: 2019 NYS taxable interest income is preliminary.
Source: Moody's Analytics; NYS DTF; DOB staff estimates.

Risks to the interest income forecast are linked to the Federal Reserve's monetary policy. With the target band for the federal funds rate now effectively near zero once again and expected to remain there in the medium term, continued moderate growth in taxable interest income is expected. Given the revised framework for monetary policy adopted in August 2020, under which overshooting of the long-run two percent inflation target "moderately" and "for some time" is envisioned, it is difficult to see any upside risk in the current circumstances.

Small Business and Farm Income

This NYSAGI component contains income from operating a business, practicing a profession as a sole proprietor, or operating a farm. It is expected to vary with the overall strength of the national and State economies, with income shifting adding to volatility. It surged to 7.8 percent growth in 2017, its fastest growth in 11 years, but fell 1.2 percent in Tax Year 2018. Based on preliminary data DOB projects weak 1.9 percent growth in 2019. This income component is expected to fall 7.0

percent in 2020, due in part to restrictions on business activity due to COVID-19. That would be the sharpest decline in DOB's history of the series. However, DOB anticipates a strong recovery to 9.4 percent growth in 2021 before slowing to more trend-like 5.5 percent growth in 2022. Some income-shifting likely occurred over the 2016-2018 period, as the incoming Trump administration raised expectations in late 2016 and early 2017 for rapid changes in Federal tax law, though the new law was not enacted until December 2017.

Small business and farm income growth and volatility has contracted over the years. This component of taxable income grew at an annual average rate of 11.5 percent from 1980 to 1990 with a standard deviation of 10.8 percentage points. However, between 1991 and 2019 it grew only at an annual average rate of 3.8 percent, with a standard deviation of 4.5 percentage points. Proprietors' income, as defined under NIPA, experienced similar changes in growth, falling from 10.5 percent growth to 4.9 percent annual average growth over the two periods; however, the standard deviation of growth increased, from 8.4 percentage points in the earlier period to 10.1 percentage points from 1991 to 2019.

Risks to the forecast of business income are closely linked to the risks to the overall economic forecast as sole proprietors' income is particularly responsive to the state of the business cycle. Of course, consumers becoming more comfortable with in-person shopping and resuming dining out as the pandemic recedes would represent an upside risk to the forecast. Additionally, since agriculture nationwide has been a particular victim of the trade wars, in spite of Federal attempts to support farmers' income, an easing of trade tensions would constitute an upside risk to the forecast.

Pension Income

Growth in pension income in the near term is expected to remain well below its longer-term average growth (8.0 percent over 1981 to 2015). Rising just 1.6 percent in 2016, it rebounded to 5.3 percent growth in 2017. Growth slowed to 4.6 percent in 2018, and even slower growth of 2.5 percent is anticipated for 2019, based in part on preliminary processing data. 2020 growth is expected to fall to 2.3 percent. Pension income growth is projected to slow further, to 2.0 percent in 2021 and down to 1.4 percent in 2022.

Pension income, which includes payments from retirement plans, life insurance annuity contracts, profit-sharing plans, military retirement pay, and employee savings plans, is linked to prior-year long-term interest rates, suggesting that firms base the level of pension and life insurance benefits they offer to employees on their expectations of future profitability, which in turn is tied to the future strength of the economy. The growth rate of pension income has declined considerably over time, from average annual growth of 12.6 percent over 1980-1990 to 6.3 percent growth over 1991-2013. This coincides with the decline in the average 10-year Treasury yield from 10.4 percent in the former period to 4.9 percent in the latter. Both declines are likely the result of lower inflation rates in the later period.

Long-term Treasury yields fell continuously from a local high of 6.0 percent in 2000 to 1.8 percent in 2012 due to highly accommodative monetary policy both in the U.S. and abroad as economies

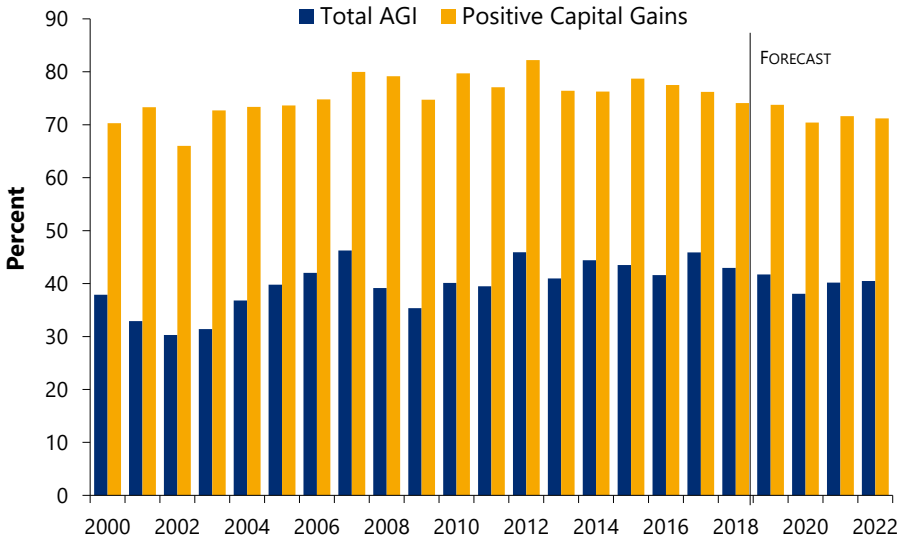
were slow to recover from the two recessions over this period. Yields were around 2.5 percent in 2013 and 2014 but fell to 1.8 percent in 2016. As the Federal Reserve began sustained increases in the target range for the federal funds rate, yields increased to 2.3 percent and 2.9 percent in 2017 and 2018, respectively. With the Federal Reserve reversing course in 2019 and returning to a near-zero federal funds rate target in 2020 in response to the COVID-19 pandemic, the 10-year rate fell to 0.9 percent in 2020 from 2.1 percent in 2019, and is expected to edge up in 2021 and 2022 to 1.1 percent and 1.4 percent respectively. Pension income should follow in the wake of these increases.

The risks to the forecast for pension income are related mainly to the risks to long-term interest rates. However, even if the economy recovers more quickly from the COVID-19-induced shock, the Federal Reserve may be reluctant to resume increasing the federal funds rate target band, given its revised monetary policy framework. This may keep pension income growing slowly for longer, given the link between long-term interest rates and pension income.

Changes in the State Distribution of Income and Revenue Risk

The most volatile components of taxable income, such as bonuses and capital gains realizations, are highly concentrated among the State's highest-income taxpayers. The top one percent of taxpayers, as determined by their NYSAGI, accounted for 45.9 percent of adjusted gross income (AGI) in 2017, the highest proportion since Tax Year 2012, and also accounted for 76.2 percent of capital gains realizations that year (see below). Subsequently, both shares declined in 2018 and 2019 (the latter according to preliminary processing information). The forecast for Tax Year 2020 has the AGI share falling to 38.1 percent (which would be the lowest since 2009) with the share of capital gains decreasing to 70.4 percent (which would make it the lowest since 2002). Thus, even these filers appear not to be immune from the effects of the recession that has accompanied the COVID-19 pandemic. Going forward, the share of AGI among the top one percent of filers is projected to recover only to 40.5 percent by 2022, while the share of realized capital gains will be 71.2 percent.

Income Shares of the Top One Percent Taxpayers
AGI and Capital Gains Realizations



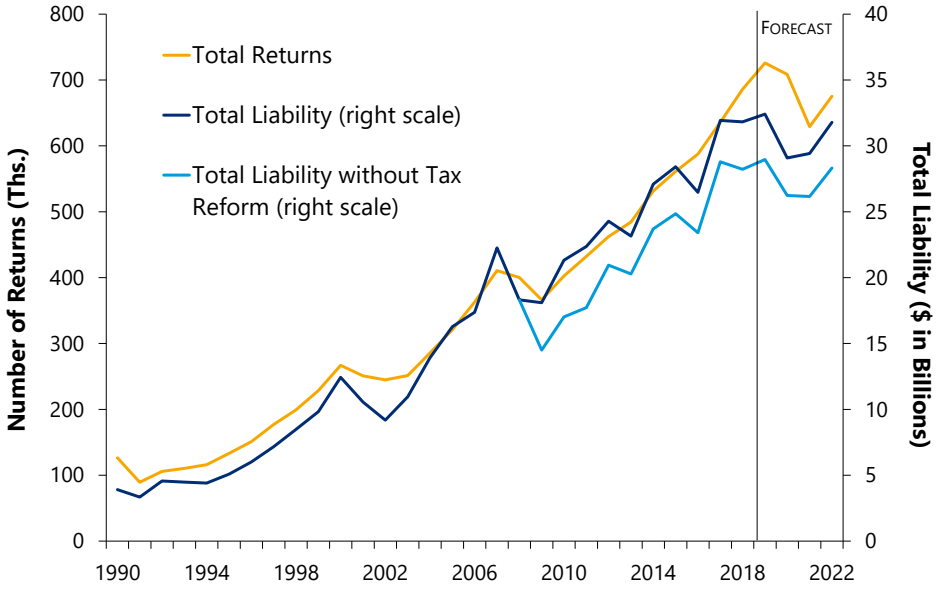
Note: For nonresident taxpayers, shares are based on total income.
Source: NYS DTF; DOB staff estimates.

Note that at the recent peak (in 2012), the shares of these filers represented 45.9 percent of NYSAGI and 82.2 percent of realized capital gains. This was approximately where this very small number of taxpayers was in 2007, just prior to the Great Recession, when they accounted for 46.2 percent of NYSAGI and 80.0 percent of capital gains realizations. Since the income of wealthy taxpayers is taxed at the highest rate, an accurate projection of these income components is critical to an accurate projection of PIT liability.

Between 1985 and 2007 (or prior to the Great Recession), the number of returns generated by high-income taxpayers – those reporting NYSAGI of $200,000 or more – grew at an average

annual rate of 12.8 percent. During the same period, the liability generated by these taxpayers grew somewhat more rapidly, at an annual average rate of 14.2 percent (see figure below). As the economy recovered after 2009, returns and tax liability for wealthier taxpayers also rebounded. Including the projection for 2019 based on preliminary processing information for that year, the number of high-income filers increased 98.1 percent (or nearly doubled from 2009 to 2019) while liability for these taxpayers increased 79.1 percent. Note that liability during this period was also affected by a temporary tax measure that added two more tax brackets for wealthier taxpayers, raising the State's top income tax rate to 8.97 percent for Tax Years 2009 to 2011, from 6.85 percent. A top rate of 8.82 percent for State taxpayers has been in place since 2012. Note that the figure below indicates at least two instances of income shifting, around 2012-2013 and around 2016-2017. Finally, note the apparent effect of the COVID-19 pandemic in the forecast years of 2020 and 2021 where the number of high-income filers falls in those two years (after peaking in 2019) but rises in 2022. Liability of the high-income filers also decreases in the 2020 forecast year and while it increases in 2021 it only recovers to its 2018 level by the 2022 forecast year.

New York State High-Income Tax Returns



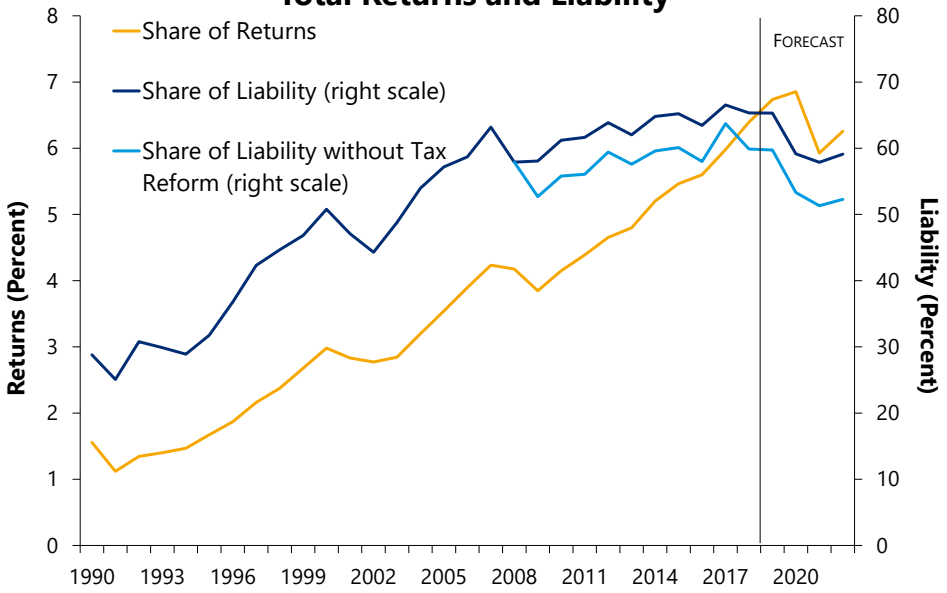
Note: High-income taxpayers are those reporting NYSAGI of $200,000 or more.
Source: NYS DTF; DOB staff estimates.

The large decline in capital gains realizations (and thus NYSAGI) brought about by the Great Recession temporarily unwound some of the concentration of income and the share of high-income filers dropped to 3.8 percent in 2009 from 4.2 percent in 2007, but by 2011 the share of returns was at 4.4 percent and has continued to climb since, reaching 6.4 percent by Tax Year 2018, the last year for which complete information is available. The high-income share for Tax Year 2019 is estimated to be 6.7 percent, based in part on processing information, while it is anticipated to reach an all-time high of 6.9 percent in the 2020 forecast year before declining by a percentage point in 2021.

Meanwhile, the liability share climbed to 63.2 percent in 2007, at the time its peak, before falling to 57.9 percent the next year as the Great Recession took hold. While the share remained near that value in 2009, in the absence of the temporary top rates enacted for Tax Years 2009-2011 it would have been at 52.7 percent instead. By 2012 the liability share had exceeded the prior peak, reaching 63.9 percent, aided by economic growth and the 8.82 percent top rate under the reform law passed in December 2011 (see figure below). The 8.82 percent rate was subsequently extended even as a multiyear middle-class tax cut began on schedule in Tax Year 2018. Note that data for Tax Year 2017 show a new peak of 66.5 percent under the reform law but also that the share slips to 65.3 percent in 2018 (at least in part because some filers in this category are included in the Middle Class Tax Cut reform) and declines further in the forecast period, reaching its lowest share since 2008 (57.9 percent) in 2021, due in part to the economic challenges of the pandemic before recovering in 2022 to a 59.1 percent share.

NYSAGI exhibits more volatility than does State personal income, while tax liability is more volatile than NYSAGI. See the box below for a comparison of three important indicators of the State's PIT base and a discussion of their respective volatilities, while the graph at the beginning of this section provides a visual illustration.

High-Income Taxpayers as Percentage of Total Returns and Liability



Note: High-income taxpayers are those reporting NYSAGI of $200,000 or more. Source: NYS Department of Taxation and Finance; DOB staff estimates.

INCOME TAX LIABILITY AND ALTERNATIVE MEASURES OF INCOME

A major focus of DOB's forecasting effort is an accurate projection of PIT receipts. This requires estimates of income tax liability, which depends on taxpayer income. New York State tax law determines the components of income to be taxed and the corresponding tax rates.

PIT liability is the amount which State taxpayers actually owe for a given tax year and thus measures the State's tax base.[34] It is derived from taxpayers' NYSAGI, in conformity with State tax law. A measure that is closely related to NYSAGI is State personal income, a BEA NIPA concept that measures income derived from value added to current production.[35] This widely available data source is often used as a proxy for NYSAGI. The relative volatility of PIT liability, NYSAGI, and State personal income is presented in the first figure of this section. For example, in 2014, personal income grew 4.2 percent, while NYSAGI grew a stronger 8.7 percent and PIT liability under constant law grew an even stronger 11.3 percent.

Economists use the concept of elasticity to measure the sensitivity of one economic indicator to another. Elasticity is defined as the percentage change in one economic indicator when another changes by one percent. Since tax revenues tend to vary with the business cycle, we are often interested in the elasticity of the tax base with respect to a broad measure of economic conditions, such as GDP. The more sensitive a particular tax base measure is to a change in GDP, the higher the elasticity.

Typically, the elasticity of NYSAGI tends to be higher than that of personal income as NYSAGI measures the taxable components of income, which include realized capital gains and losses. Gains and losses earned on changes in asset prices are not included in the NIPA concept of personal income since they do not represent changes to the value of current production.[36] Unlike the primary drivers of personal income – employment and wages, which have relatively stable bases – income from capital gains realizations can rise and fall dramatically. In an asset market downturn such as occurred in 2008, for example, taxpayers can refrain from selling, which caused a 51.8 percent decline in capital gains realizations. In addition to behavioral responses to changes in market conditions, NYSAGI fluctuations can result from statutory changes and taxpayers' strategic responses to such changes. Taxpayers realized capital gains and received compensation early to avoid higher tax rates in 2013, shifting taxable income from 2013 into 2012, for example.

Personal income tax liability is even more elastic than NYSAGI, primarily because of the progressivity of the State tax system. The volatile components of taxable income, such as bonuses and capital gains realizations, tend to be concentrated among the State's high-income taxpayers, who are also taxed at the highest marginal tax rate. As the more-volatile income components respond strongly to changing economic conditions, the effective or average tax rate changes. Furthermore, as incomes rise, some taxpayers move into higher income tax brackets, increasing the effective tax rate and the amount of liability generated from a given amount of AGI. The opposite occurs as incomes fall. For example, the average effective tax rate fell from a high of 4.8 percent in 2000 to a low of 4.5 percent in 2002 without any significant changes in tax law. This impact is exacerbated in New York by provisions in State laws that recapture the benefits of portions of income being taxed at lower rates for high income taxpayers.

The fact that the most volatile components of income often account for a large portion of the change in NYSAGI poses significant risks to DOB's PIT forecast. Therefore, DOB has consistently maintained that cautious projections are warranted.

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[34] For a detailed discussion of personal income tax liability, see "Personal Income Tax" in the "Receipts Explanation" part of this document.
[35] For a detailed explanation of how the DOB constructs State personal income, see the FY2020 Economic and Revenue Outlook, p.93, located at https://www.budget.ny.gov/pubs/archive/fy20/exec/ero/fy20ero.pdf.
[36] However, any transaction cost generated by such a sale would add value to current production and would therefore be included in personal income.

The table below shows the changes in the concentration of income and liability from the pre-Great Recession peak in 2007 to the trough in 2009, and in 2019. While 2019 is an estimate, it is based on the latest available processing information. The share of nonwage income accruing to the top 10 percent of taxpayers fell by 7.2 percentage points between 2007 and 2009, a result of the Great Recession; but even in 2019, this group is not projected to exceed its 2007 share (76.3 percent versus 79.8 percent in 2007). For wage income, which is more evenly distributed across taxpayers, the share of the top 10 percent of taxpayers fell 2.0 percentage points between 2007 and 2009, but in 2019 the 45.1 percent share remained beneath the 46.7 percent share of 2007. One indication of the severity of the Great Recession can be seen in the fact that even as late as 2019, the shares of gross income, wage income, nonwage income and liability are still generally lower than their counterparts in 2007, even among the most affluent State tax filers. It remains to be seen what the actual (not anticipated) effects of the COVID-19 induced recession will be.

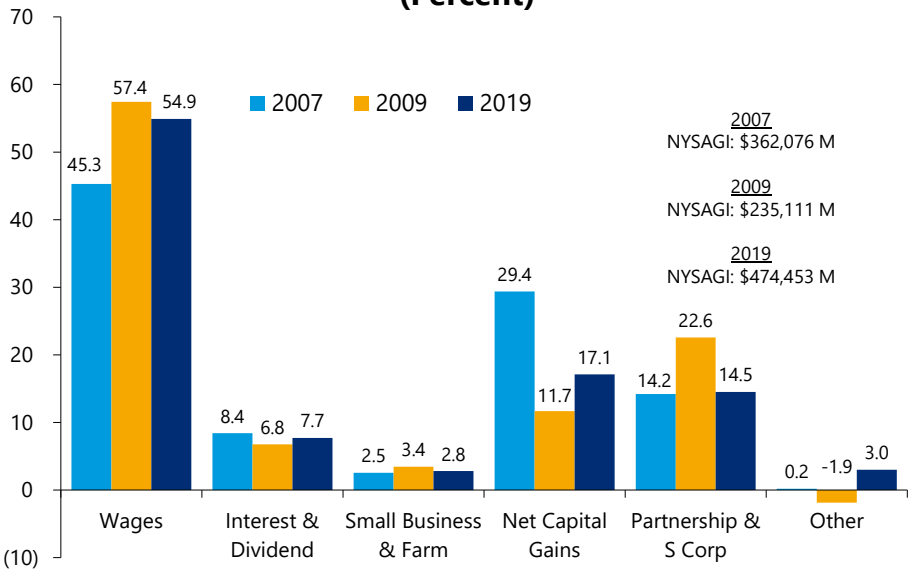
THE CONCENTRATION OF STATE INCOME AND LIABILITY
2007, 2009, and 2019

	Number of Returns	Gross Income	Wage Income	Nonwage Income	Liability
2007					
Total ($ in millions)	8,860,413	$778,402	$485,565	$292,837	$35,217
Share: Top 1%	–	34.4	19.5	59.2	46.4
Share: Top 5%	–	49.7	35.4	73.3	65.1
Share: Top 10%	–	59.2	46.7	79.8	75.2
Share: Top 25%	–	76.7	68.5	90.4	90.2
2009					
Total ($ in millions)	9,524,621	$646,935	$463,939	$182,995	$31,168
Share: Top 1%	–	25.8	15.9	50.7	42.6
Share: Top 5%	–	41.6	32.3	65.2	61.5
Share: Top 10%	–	52.6	44.7	72.6	72.6
Share: Top 25%	–	73.5	67.8	87.8	89.5
2019					
Total ($ in millions)	10,774,882	$990,620	$669,978	$320,642	$49,630
Share: Top 1%	–	27.3	15.7	51.5	40.9
Share: Top 5%	–	44.2	32.9	67.7	59.9
Share: Top 10%	–	55.2	45.1	76.3	70.4
Share: Top 25%	–	75.1	67.6	90.8	86.6

Note: Returns are ranked on the basis of gross income; data for 2019 are estimates.
Data for 2007 and 2009 are based on a weighted statistical sample of all State returns.
Source: NYS DTF; DOB staff estimates.

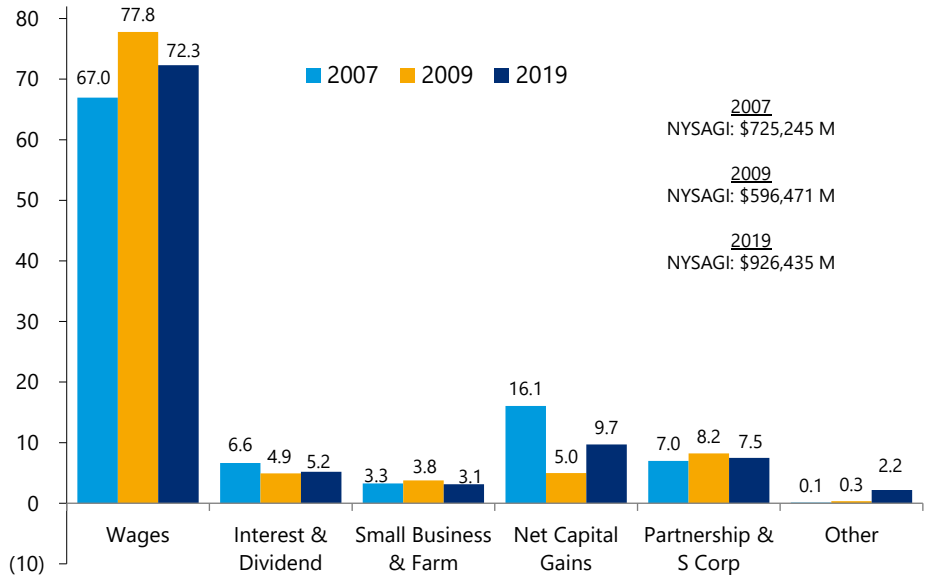
The following figures illustrate the decomposition of NYSAGI into its main components for the 2007 peak year, the 2009 trough year, and the projected components for 2019, for all taxpayers and for high-income taxpayers, defined here as those reporting NYSAGI of $200,000 or more.

Composition of NYSAGI for High-Income Taxpayers (Percent)



Note: Both capital gains and partnership/S corporation gains income are net of losses. High-income taxpayers are those reporting NYSAGI of $200,000 or more. All 2019 numbers are based on processing information.
Source: NYS DTF; DOB staff estimates.

Composition of NYSAGI for All Taxpayers (Percent)



Note: Capital gains and partnership/S corporation gains income are net of losses. 2019 numbers are based on processing information.
Source: NYS DTF; DOB staff estimates.

The shares of NYSAGI estimated for 2019 based in part on preliminary data for that year resemble those of 2007 somewhat more closely, though there are some interesting divergences. At 72.3 percent the wage income share is closer to the 67.0 percent share of 2007, and shares of business and farm income have also moved closer. Partnership income, at 7.5 percent, is a larger share than in 2007 while the residual "other" income category, a negligible 0.1 percent in 2007, now accounts for 2.2 percent of NYSAGI. This reflects in part the increasingly older State population. The share from interest and dividends has fallen from its 2007 share, likely in part due to reasons discussed earlier in this section. While net capital gains in 2019 are nearly double their 2009 share, when the economy began to emerge from the Great Recession, at 9.7 percent they remain well below their 2007 share.

What is striking about the chart for the high-income filers is the extent to which they remain more dependent upon wage income rather than capital gains income. Prior to the Great Recession wage income accounted for 45.3 percent of their NYSAGI; in 2019, it makes up 54.9 percent of NYSAGI and its share is closer to the 2009 value. The 2019 share of net capital gains is just over 12 percentage points lower than it was in 2007. The "other" income category, which contains taxable pensions, alimony, IRA income, and other such components, is a much larger share at 3.0 percent than it was in 2007 (0.2 percent). The 2019 share of dividend and interest income is slightly higher than it was in 2009, while the share of partnership and S corporation income in 2019 is similar to that in 2007 and much lower than the 2009 share.

Some of the large changes in income shares brought about by the Great Recession do not appear to have been unwound yet, despite the passage of more than 10 years since its official end, testifying to the weak nature of the subsequent recovery. In particular, both high-income filers and taxpayers overall remain more dependent on wage income now than in 2007 (and more strikingly so for the high-income taxpayers) while the share of NYSAGI made up of net capital gains income, which in 2007 was more than twice that of the partnership income share, is now much more similar to the latter. It remains to be seen what effects the COVID-19 recession will have on the distribution of AGI income components in the coming years.

Risks to the Forecast

DOB's forecast for PIT provides a balanced picture of upside and downside risks, particularly with respect to its most volatile components. As forecasts of the components of NYSAGI are consistent with economic variables from DOB's macroeconomic forecasting models, much of the risks to PIT are the same as the risks to the State and national economies. However, the risks and uncertainties are heightened in the case of taxable income, because of the prominence of bonus income and capital gains realizations, and even more so for PIT revenues, as a consequence of the State's progressive tax system.

Selected Economic Indicators

SELECTED ECONOMIC INDICATORS (Calendar Year)	2019 (actual[37])	2020 (estimate)	2021 (forecast)	2022 (forecast)	2023 (forecast)	2024 (forecast)
U.S. Indicators[38]						
Gross Domestic Product (current dollars)	4.0	(2.3)	6.0	5.1	4.4	4.3
Gross Domestic Product	2.2	(3.4)	4.4	3.0	2.3	2.2
Consumption	2.4	(3.7)	5.1	3.6	2.5	2.2
Residential Fixed Investment	(1.7)	5.3	6.6	(0.8)	2.4	3.8
Nonresidential Fixed Investment	2.9	(4.6)	3.7	3.7	3.0	2.7
Change in Inventories (dollars)	48.5	(83.1)	52.7	64.0	57.0	55.3
Exports	(0.1)	(13.3)	7.4	5.8	3.8	3.6
Imports	1.1	(10.1)	10.0	5.1	2.8	2.0
Government Spending	2.3	1.0	(0.5)	0.9	0.7	0.7
Corporate Profits[39]	0.3	(7.6)	3.5	5.5	4.1	3.9
Personal Income	3.9	6.4	2.1	2.4	4.3	4.5
Wages	4.7	0.6	5.9	4.3	4.3	4.8
Nonfarm Employment	1.4	(5.7)	2.7	3.0	1.6	1.3
Unemployment Rate (percent)	3.7	8.1	6.1	5.2	4.6	4.3
S&P 500 Stock Price Index	6.1	10.5	14.0	3.5	3.2	3.0
Federal Funds Rate	2.2	0.4	0.1	0.1	0.1	0.1
10-year Treasury Yield	2.1	0.9	1.1	1.4	1.9	2.0
Consumer Price Index	1.8	1.2	2.1	2.2	2.2	2.2
New York State Indicators						
Personal Income[40]	4.1	5.4	0.4	3.0	4.2	4.3
Wages and Salaries[40]						
Total	4.6	(1.3)	3.4	5.2	4.3	4.1
Without Bonus[41]	4.7	(1.9)	5.0	4.7	4.2	4.1
Bonus[41]	4.2	2.6	(7.9)	9.3	4.4	4.4
Finance and Insurance Bonuses[41]	1.5	(0.6)	(14.8)	13.7	4.1	4.2
Wage Per Employee	3.4	9.6	(1.9)	2.5	2.9	3.0
Property Income	1.8	(1.5)	1.3	3.7	4.0	4.2
Proprietors' Income	4.7	(1.6)	6.3	6.0	5.8	4.8
Transfer Income	7.2	40.4	(9.1)	(4.5)	3.7	4.5
Nonfarm Employment[40]						
Total	1.2	(9.9)	5.4	2.6	1.3	1.1
Private	1.3	(11.1)	6.2	3.0	1.4	1.2
Unemployment Rate (percent)	4.0	10.1	8.0	6.5	5.7	5.2
Composite CPI of New York State[41]	1.7	1.5	2.0	2.1	2.2	2.1
New York State Adjusted Gross Income						
Capital Gains	(9.3)	(12.2)	22.6	5.8	5.0	3.4
Partnership/ S Corporation Gains	(1.1)	(4.1)	13.0	8.7	6.6	6.5
Business and Farm Income	1.9	(7.0)	9.4	5.5	5.9	5.6
Interest Income	17.3	(7.4)	0.3	3.6	3.8	4.0
Dividends	8.1	(2.9)	4.1	6.3	6.7	5.3
Total NYSAGI	**2.2**	**0.2**	**3.3**	**5.2**	**4.1**	**4.2**

Source: Haver Analytics; Moody's Analytics; NYS DOL; NYS DTF; DOB staff estimates.

[37] For NYSAGI variables, 2019 is preliminary.
[38] All indicators are percent changes except change in inventories, the unemployment rate, and interest rates; all GDP components refer to chained 2012 dollars, unless otherwise noted.
[39] Includes inventory valuation and capital consumption adjustments.
[40] Nonfarm employment, wage, and personal income numbers are based on CEW data.
[41] Series created by DOB.

SELECTED ECONOMIC INDICATORS (State Fiscal Year)	FY 2020 (actual)	FY 2021 (estimate)	FY 2022 (forecast)	FY 2023 (forecast)	FY 2024 (forecast)	FY 2025 (forecast)
U.S. Indicators[42]						
Gross Domestic Product (current dollars)	3.4	(2.6)	7.2	4.9	4.4	4.3
Gross Domestic Product	1.7	(3.5)	5.2	2.8	2.2	2.2
Consumption	1.9	(3.6)	6.0	3.3	2.3	2.2
Residential Fixed Investment	0.8	5.5	4.0	0.2	2.8	4.1
Nonresidential Fixed Investment	1.4	(4.5)	4.9	3.6	2.8	2.7
Change in Inventories (dollars)	2.9	(50.3)	57.8	61.0	56.5	55.2
Exports	(0.8)	(14.6)	11.7	5.0	3.7	3.6
Imports	(0.9)	(8.5)	11.1	4.6	2.2	2.3
Government Spending	2.5	0.0	(0.0)	0.8	0.7	0.7
Corporate Profits[43]	(1.0)	(5.4)	4.5	4.8	4.0	3.9
Personal Income	3.6	7.9	(0.5)	3.9	4.3	4.5
Wages	4.1	0.3	6.6	4.1	4.5	4.8
Nonfarm Employment	1.3	(7.4)	5.4	2.4	1.5	1.2
Unemployment Rate (percent)	3.7	8.8	5.8	5.0	4.4	4.3
S&P 500 Stock Price Index	9.4	11.8	10.3	3.5	3.1	3.0
Federal Funds Rate	1.9	0.1	0.1	0.1	0.1	0.1
10-year Treasury Yield	1.8	0.8	1.1	1.6	1.9	2.1
Consumer Price Index	1.9	1.1	2.3	2.2	2.2	2.1
New York State Indicators						
Personal Income[44]	4.2	5.5	(0.7)	4.2	4.2	4.3
Wages and Salaries[44]						
Total	4.5	(3.4)	6.1	4.8	4.2	4.1
Without Bonus[45]	4.4	(2.7)	5.9	4.8	4.2	4.1
Bonus[45]	5.6	(8.3)	8.0	4.3	4.4	4.4
Finance and Insurance Bonuses[45]	2.6	(15.5)	11.8	4.1	4.2	4.2
Wage Per Employee	3.5	9.5	(2.2)	2.7	2.9	3.0
Property Income	1.4	(2.5)	2.9	3.8	4.1	4.2
Proprietors' Income	4.3	(2.4)	7.9	6.2	5.3	4.9
Transfer Income	8.6	49.1	(20.7)	2.1	3.9	4.6
Nonfarm Employment[44]						
Total	1.0	(11.8)	8.5	2.0	1.2	1.0
Private	1.0	(13.1)	9.8	2.2	1.4	1.1
Unemployment Rate (percent)	3.8	11.2	7.6	6.4	5.5	5.2
Composite CPI of New York[45]	1.9	1.3	2.2	2.2	2.2	2.1

Source: Haver Analytics; Moody's Analytics; NYS DOL; DOB staff estimates.

[42] All indicators are percent changes except change in inventories, the unemployment rate, and interest rates; all GDP components refer to chained 2012 dollars, unless otherwise noted.
[43] Includes inventory valuation and capital consumption adjustments.
[44] Nonfarm employment, wage, and personal income numbers are based on CEW data.
[45] Series created by DOB.

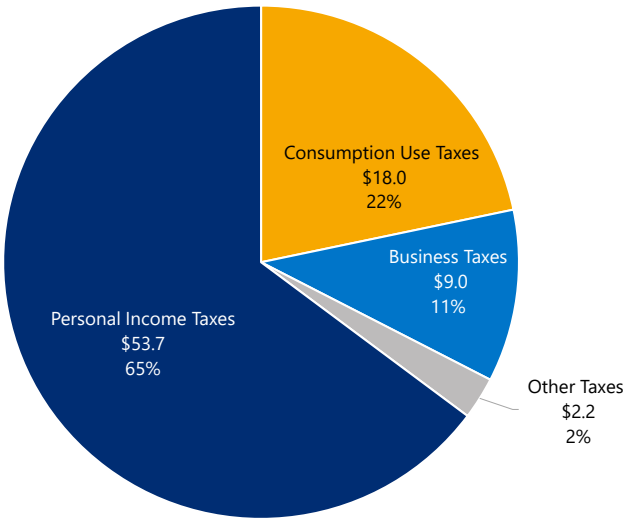
Receipts Explanation

Receipts Overview

The Receipts Explanation part of this volume is presented in smaller sections that group receipts source chapters together by receipts category.

- Personal Income Tax – the largest receipts source.
- Consumption/Use Taxes – includes chapters on the alcoholic beverage taxes, auto rental tax, cigarette and tobacco tax, highway use tax, medical cannabis tax, motor fuel tax, opioid excise tax, sales and use tax and vapor products tax.
- Business Taxes – includes chapters on corporation franchise taxes, corporation and utilities taxes, insurance taxes, and the petroleum business tax.
- Gaming and Other Taxes – includes chapters on taxes associated with gaming, combative sports, estates, real estate transfers, and the employer compensation expense program.

FY 2020 Tax Receipts Cash Basis
All Funds - $82.9 Billion



Revenue Actions

All receipts forecasts in this volume are inclusive of any associated actions listed in the *Revenue Actions* section of the *Executive Budget Briefing Book.* The accompanying table summarizes those actions organized by receipt category, rather than by type of action. The incremental All Funds revenue gain or loss from the proposed action is included (millions of dollars) and represents gross

revenue adds and reductions without any adjustments for associated spending changes, movements across funds, or General Fund spending offsets. For more detailed explanations of these actions, please refer to the *Executive Budget Briefing Book*.

ALL FUNDS LEGISLATION

(millions of dollars)

	FY 2022	FY 2023	FY 2024	FY 2025
Personal Income Tax	**1,912**	**1,750**	**1,536**	**690**
Enact Temporary PIT High Income Surcharge	1,537	1,404	1,195	367
Delay Middle Class Tax Cut by One Year	394	403	445	464
Extend the Farm Workforce Retention Credit for Three Years	-	-	(11)	(11)
Reform and Simplify Various Business Tax Provisions	-	6	6	6
Increase Wage and Withholding Filing Penalty	2	2	2	2
Update Tax Preparer Regulation and Enforcement	15	15	15	15
Preserve Enhanced STAR Exemption Beneficiaries	(36)	(72)	(108)	(144)
Improve Mobile Home STAR Exemption Administration	-	(8)	(8)	(8)
Make Various STAR Program Reforms	-	-	-	-
Consumption/Use Taxes	**27**	**134**	**178**	**268**
Extend the Alternative Fuels Exemption for Five Years	(2)	(2)	(2)	(2)
Extend Certain Sales Tax Exemption Related to the Dodd-Frank Protection Act for Three Years	-	-	-	-
Modernize Tax Law To Include the Vacation Rental Industry	10	18	18	18
Simplify Certain Tax Filing and Reporting Requirements	(1)	-	-	-
Make Technical Changes to Cigarette Licensing Provisions	-	-	-	-
Make Technical Correction to Sales Tax Remote Vendor Registration	-	-	-	-
Make Permanent Local Sales Tax Rate Authorizations	-	-	-	-
Increase the Interest Free Period on Certain Sales Tax Refunds	-	-	-	-
Enact the Cannabis Regulation and Taxation Act	20	118	162	252
Business Taxes	**(36)**	**(100)**	**(25)**	**(37)**
Enact the Pandemic Recovery and Restart Program	(35)	(90)	-	(4)
Enact Employer Child Care Credits	-	-	(5)	(5)
Extend Low-Income-Housing Credits for Five Years	-	(8)	(16)	(24)
Extend the Film Tax Credit for One Year	-	-	-	-
Extend and Enhance Brownfield Tangible Property Redevelopment Credit for Two Years	-	-	-	-
Extend the Alternative Fuels Exemption for Five Years	(1)	(2)	(2)	(2)
Extend the Economic Transformation and Facility Redevelopment Program Tax Credit for Five Years	-	-	(1)	(1)
Extend the Hire-a-Vet Credit for Two Years	-	-	(1)	(1)
Enact a Pass-Through-Entity Tax	-	-	-	-

	FY 2022	FY 2023	FY 2024	FY 2025
Other Actions	**79**	**411**	**519**	**546**
Extend Implementation Deadline for the Secure Choice Program	-	-	-	-
Amend the Collection and Reporting of Taxicab Tax and Congestion Surcharge	-	-	-	-
Reform the State Racing Admissions Tax	-	-	-	-
Modernize and Merge Real Property Tax Forms and Processes	-	-	-	-
Make Technical and Conforming Changes to Real Property Tax Law	-	-	-	-
Allow DTF the Right to Appeal DTA Tribunal Decisions	-	-	-	-
Promote the Development of Renewable Energy Projects	-	-	-	-
Enhance Real Estate Transfer Tax Compliance	-	-	-	-
Authorize Mobile Sports Wagering and Establish a Casino Tax Rate Petition Process	49	357	465	493
Eliminate Quick Draw Restrictions	15	30	30	30
Extend Pari Mutuel Tax Rates and Simulcast Provisions for One Year	-	-	-	-
Decouple the Gaming Commission and the Gaming Inspector General	-	-	-	-
Remove Restrictions on Lottery Draw Game Offerings	7	9	9	9
Authorize a Request for Information for Gaming Facility Licenses	-	-	-	-
Temporarily Suspend Certain Racing Support Payments	-	-	-	-
Expand Hunting and Crossbow Licensing	2	2	2	2
Allow Non-CPA Owners of Public Accounting Firms	2	-	-	-
Impose a DMV Convenience Fee	4	13	13	12
Increase Penalties for Mental Hygiene Law Violations and Establish Application Fees for Office of Mental Health (OMH) Operating Certificates	1	1	1	1
TOTAL ALL FUNDS LEGISLATION	**1,981**	**2,195**	**2,208**	**1,468**

Supplementary Supporting Documentation

In addition to the FY 2022 Executive Budget publications, the following publications provide further detail, history, or context to the various intricacies of the State's tax infrastructure.

- The ***Economic, Revenue, and Spending Methodologies*** [46]provide a comprehensive review of the methods used by DOB in determining the economic and tax receipt projections.

- The ***Annual Information Statement and Financial Disclosure*** [47]is the State's principal means for disclosing the financial information required to meet its legal obligations under federal securities law. To that end, the Statement provides: the Enacted Budget Financial Plan; actual operating results for the prior three fiscal years; economic and demographic data; debt and other capital financing information; State government organization, workforce, pension systems, and financial procedures; certain public authorities and localities for which the State has a significant oversight or financial role; and material litigation against the State.

- Published in conjunction with DTF, the annual report on ***New York State Tax Expenditures***[48] provides descriptions, cost estimates, and effective dates of State tax expenditures, including those contained within the FY 2022 Executive Budget.

[46] https://www.budget.ny.gov/pubs/archive/fy21/methodology-report-fy22.pdf
[47] https://www.budget.ny.gov/investor/ais/ais-fdp.html
[48] https://www.budget.ny.gov/pubs/archive/fy21/exec/ter/fy21ter.pdf

Personal Income Tax

PERSONAL INCOME TAX
(millions of dollars)

		FY 2020 Results	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
Withholding		43,118	41,881	(1,237)	(2.9)	44,617	2,736	6.5
Estimated Payments	Current Year	10,996	9,229	(1,767)	(16.1)	11,305	2,076	22.5
	Prior Year[1]	6,029	5,520	(509)	(8.4)	5,037	(483)	(8.8)
	Total	17,025	14,749	(2,276)	(13.4)	16,342	1,593	10.8
Final Returns	Current Year	339	313	(26)	(7.8)	331	18	5.7
	Prior Year[1]	3,114	3,170	56	1.8	3,651	481	15.2
	Total	3,454	3,483	29	0.9	3,982	499	14.3
Delinquent		1,388	1,411	23	1.7	1,498	87	6.2
	Gross Receipts	**64,985**	**61,524**	**(3,461)**	**(5.3)**	**66,439**	**4,915**	**8.0**
Refunds	Prior Year[1]	5,927	6,122	195	3.3	6,225	103	1.7
	Previous Years	530	463	(67)	(12.7)	494	31	6.7
	Current Year[1]	2,245	1,750	(495)	(22.1)	1,750	0	0.0
	Advanced Credit Payment	1,505	599	(906)	(60.2)	787	188	31.4
	State/City Offset[1]	1,117	1,149	32	2.8	1,274	125	10.9
	Total	11,326	10,083	(1,243)	(11.0)	10,530	447	4.4
	Net All Funds Receipts[2]	**53,659**	**51,441**	**(2,218)**	**(4.1)**	**55,909**	**4,468**	**8.7**
Fund Distribution	General Fund	24,646	23,690	(956)	(3.9)	27,368	3,678	15.5
	Debt Service Funds (RBTF)	26,830	25,721	(1,109)	(4.1)	27,955	2,234	8.7
	Special Revenue Funds (STAR)	2,184	2,030	(153)	(7.0)	587	(1,444)	(71.1)

[1]These components, collectively, are known as the "settlement" on the prior year's tax liability.

[2]PIT Receipts are defined as gross receipts minus refunds.

All Funds FY 2021 receipts are estimated to decrease from FY 2020 results primarily reflecting a substantial decline in estimated payments for Tax Year 2020, coupled with a decline in withholding, partially offset by a decline in total refunds.

Withholding in FY 2021 is estimated to be lower compared to the prior year, reflecting a moderate decline in non-bonus wages and a stronger decline in bonus wages. The substantial negative impact of the COVID-19 pandemic on NYS employment and wages was mitigated by an unprecedented increase in unemployment insurance income (UII), partially due to federal legislation providing weekly federal unemployment benefits – in addition to pre-existing NYS unemployment benefits – and expanding the maximum duration of UII eligibility.

Estimated payments for Tax Year 2020 are estimated to decrease significantly, driven by a decline in nonwage, non-UII income growth. Extension payments (i.e., prior year estimated) for Tax Year

2019 will also decrease. Delinquent collections and final return payments are projected to increase slightly.

The decrease in total refunds reflects a steep decline in advanced credit payments attributable to Tax Year 2020, coupled with a decrease in the administrative refund cap in January to March 2021 and a decline in refunds related to tax years prior to 2019. These decreases are partially offset by an increase in prior year refunds related to Tax Year 2019. The strong decline in advanced credit payments reflects the expiration of the Property Tax Relief Credit.

The primary risks to FY 2021 receipts estimate result from uncertainty surrounding both bonus payments paid by financial services companies and the fourth quarterly estimated tax payment. With respect to financial sector bonuses, a large portion of these payments are typically paid in the last quarter of the SFY. Consequently, complete information about such payments is not available when Budget estimates are constructed. Similarly, the fourth quarterly estimated tax payment is consistently the largest payment, and a significant portion of this revenue is not received until after DOB's forecast has been produced.

All Funds FY 2022 receipts are projected to increase reflecting strong growth in both withholding and Tax Year 2021 current estimated payments, as well as increases in final returns and delinquencies. Strong growth in final returns is expected due to elevated UII received in Tax Year 2020.

These increases are offset by a decline in Tax Year 2020 extension payments and a moderate increase in total refunds, driven by increases in advanced credit payments, the State-City Offset, and refunds related to Tax Years 2020 and earlier.

All Funds FY 2022 receipts include revenue attributable to multiple FY 2022 Executive Budget proposals, most notably the delay of the Middle Class Tax Cut by one year and the enactment of a high income PIT surcharge.

Base and Rate

The personal income tax (PIT) is by far NYS's largest source of tax receipts, accounting for 65 percent of All Funds tax collections in FY 2020. The State's PIT structure adheres closely to the definitions of AGI and itemized deductions used for Federal PIT purposes, with certain modifications, such as: the inclusion of investment income from debt instruments issued by other states and municipalities and the exclusion of income on certain Federal obligations; the exclusion of pension income received by Federal, NYS and local government employees, private pension and annuity income up to $20,000 ($40,000 for married couples filing jointly), and any Social Security Income and refunds otherwise included in Federal AGI; and the subtraction of state and local income taxes from Federal itemized deductions.

NYS allows either a standard deduction or itemized deductions, whichever is greater. Although NYS generally conforms to Federal rules pertaining to itemized deductions, the State imposes some additional limitations. NYS limits itemized deductions for taxpayers with NYSAGI between

$525,000 and $1 million to only 50 percent of Federally allowed deductions, and for taxpayers with incomes above $1 million to only 50 percent of charitable contributions. For Tax Years 2010 to 2024, itemized deductions are limited to only 25 percent of charitable contributions for taxpayers with NYSAGI above $10 million.

Recent and current tax rates and deductions, as well as detailed tax rate schedule for 2021 are enumerated below.

PERSONAL INCOME TOP TAX RATES, STANDARD DEDUCTIONS, AND DEPENDENT EXEMPTIONS
(dollars)

		2012	2013	2014	2015	2016	2017-2021
Top Rate		**8.82%**	**8.82%**	**8.82%**	**8.82%**	**8.82%**	**8.82%**
Thresholds	Married Filing Jointly	2,000,000	2,058,550	2,092,800	2,125,450	2,140,900	2,155,350
	Single	1,000,000	1,029,250	1,046,350	1,062,650	1,070,350	1,077,550
	Head of Household	1,500,000	1,543,900	1,569,550	1,594,050	1,605,650	1,616,450
Standard Deduction	Married Filing Jointly	15,000	15,400	15,650	15,850	15,950	16,050
	Single	7,500	7,700	7,800	7,900	7,950	8,000
	Head of Household	10,500	10,800	10,950	11,100	11,150	11,200
Dependent Exemption		**1,000**	**1,000**	**1,000**	**1,000**	**1,000**	**1,000**

In 2016, the Middle-Class Tax Cut established permanent tax rate reductions for taxpayers with taxable income between $26,000 and $300,000.[49] The Tax Years 2013 through 2017 tax brackets with marginal tax rates of 5.9 percent, 6.45 percent, and 6.65 percent are scheduled to be replaced by two tax brackets with marginal tax rates of 5.5 percent and 6 percent. These rate reductions are scheduled to phase in over the course of eight years, with full implementation occurring in Tax Year 2025 (under current law). The top tax bracket, with its associated marginal tax rate of 8.82 percent, was extended through Tax Year 2024 in 2019.

[49]The cited taxable income amounts apply to taxpayers filing joint returns and are shown absent the influence of CPI adjustments. Tax reductions apply at lower taxable income levels for single and head of household returns.

TAX SCHEDULES FOR 2020 LIABILITY YEAR*
(dollars)

Taxable Income	Dollar per	Tax Rate Percent	of Amount Over
Married - Filing Jointly			
Up to $17,150	$ -	4.00%	$ -
$17,150 - $23,600	$ 686	4.50%	$ 17,150
$23,600 - $27,900	$ 976	5.25%	$ 23,600
$27,900 - $43,000	$ 1,202	5.90%	$ 27,900
$43,000 - $161,550	$ 2,093	6.09%	$ 43,000
$161,550 - $323,200	$ 9,313	6.41%	$ 161,550
$323,200 - $2,155,350	$ 19,674	6.85%	$ 323,200
$2,155,350 and over	$ 145,177	8.82%	$ 2,155,350
Single			
Up to $8,500	$ -	4.00%	$ -
$8,500 - $11,700	$ 340	4.50%	$ 8,500
$11,700 - $13,900	$ 484	5.25%	$ 11,700
$13,900 - $21,400	$ 600	5.90%	$ 13,900
$21,400 - $80,650	$ 1,042	6.09%	$ 21,400
$80,650 - $215,400	$ 4,650	6.41%	$ 80,650
$215,400 - $1,077,550	$ 13,288	6.85%	$ 215,400
$1,077,550 and over	$ 72,345	8.82%	$ 1,077,550
Head of Household			
Up to $12,800	$ -	4.00%	$ -
$12,800 - $17,650	$ 512	4.50%	$ 12,800
$17,650 - $20,900	$ 730	5.25%	$ 17,650
$20,900 - $32,200	$ 901	5.90%	$ 20,900
$32,200 - $107,650	$ 1,568	6.09%	$ 32,200
$107,650 - $269,300	$ 6,162	6.41%	$ 107,650
$269,300 - $1,616,450	$ 16,524	6.85%	$ 269,300
$1,616,450 and over	$ 108,804	8.82%	$ 1,616,450

* Benefits of graduated tax rates are recaptured for taxpayers with adjusted gross incomes above $107,650.

Liability

PIT liability is derived from the NYSAGI income base. As detailed previously in the *Economic Backdrop – New York State Adjusted Gross Income* section of this volume, NYSAGI growth has been somewhat volatile in the years since the Great Recession. The major components, growth rates, and shares of NYSAGI are enumerated below. Growth rates in recent years also show the impact of taxpayers behaving strategically by shifting income in anticipation of tax law changes, which can enhance or swamp the economic drivers of NYSAGI.

NYSAGI MAJOR COMPONENT DISTRIBUTION
(millions of dollars)

Income Component	Actual							Estimate			
	2012	2013	2014	2015	2016	2017	2018	2019[1]	2020	2021	2022
NYSAGI											
Amount	714,698	714,046	776,477	807,775	794,105	874,568	906,868	926,437	927,916	958,884	1,008,283
Growth	8.7%	(0.1%)	8.7%	4.0%	(1.7%)	10.1%	3.7%	2.2%	0.2%	3.3%	5.2%
Wages											
Amount	515,645	525,924	558,857	584,317	592,135	626,377	645,360	669,978	661,018	683,467	718,741
Growth	3.2%	2.0%	6.3%	4.6%	1.3%	5.8%	3.0%	3.8%	(1.3%)	3.4%	5.2%
NYSAGI Share	72.1	73.7	72.0	72.3	74.6	71.6	71.2	72.3	71.2	71.3	71.3
Net Capital Gains											
Amount	77,248	68,492	90,918	93,409	72,465	96,426	99,766	90,047	78,536	96,931	102,903
Growth	58.3%	(11.3%)	32.7%	2.7%	(22.4%)	33.1%	3.5%	(9.7%)	(12.8%)	23.4%	6.2%
NYSAGI Share	10.8	9.6	11.7	11.6	9.1	11.0	11.0	9.7	8.5	10.1	10.2
Interest and Dividends											
Amount	33,433	32,604	34,970	33,591	35,014	38,749	43,175	48,074	45,870	47,120	49,627
Growth	14.3%	(2.5%)	7.3%	(3.9%)	4.2%	10.7%	11.4%	11.3%	(4.6%)	2.7%	5.3%
NYSAGI Share	4.7	4.6	4.5	4.2	4.4	4.4	4.8	5.2	4.9	4.9	4.9
Taxable Pension											
Amount	39,040	40,394	42,461	44,131	44,815	47,175	49,367	50,601	51,785	49,820	49,820
Growth	5.4%	3.5%	5.1%	3.9%	1.6%	5.3%	4.6%	2.5%	2.3%	2.0%	1.4%
NYSAGI Share	5.5	5.7	5.5	5.5	5.6	5.4	5.4	5.5	5.6	5.2	4.9
Net Business and Partnership Income											
Amount	84,363	83,995	89,448	95,745	94,548	111,115	99,519	98,019	87,010	96,708	105,027
Growth	13.8%	(0.4%)	6.5%	7.0%	(1.3%)	17.5%	(10.4%)	(1.5%)	(11.2%)	11.1%	8.6%
NYSAGI Share	11.8	11.8	11.5	11.9	11.9	12.7	11.0	10.6	9.4	10.1	10.4
All Other Incomes and Adjustments[2]											
Amount	(35,031)	(37,363)	(40,178)	(43,418)	(44,873)	(45,273)	(30,318)	(30,283)	3,697	(18,164)	(21,549)
Growth	11.7%	6.7%	7.5%	8.1%	3.4%	0.9%	(33.0%)	(0.1%)	(112.2%)	(591.3%)	18.6%
NYSAGI Share	(4.9)	(5.2)	(5.2)	(5.4)	(5.7)	(5.2)	(3.3)	(3.3)	0.4	(1.9)	(2.1)

[1]Estimates for 2019 are based on processing data.

[2]Includes alimony received, unemployment income, IRA income, and other incomes. This number is negative due to Federal and NYS adjustments to income, which together reduce final NYSAGI.

Source: NYS DTF; DOB staff estimates.

LIABILITY AND EFFECTIVE TAX RATES[1]
(millions of dollars)

	NYSAGI		Liability		Effective
	Amount	Growth	Amount	Growth	Tax Rate
2011	657,298	2.9%	36,296	4.2%	5.5%
2012	714,698	8.7%	38,017	4.7%	5.3%
2013	714,046	(0.1%)	37,331	(1.8%)	5.2%
2014	776,477	8.7%	41,910	12.3%	5.4%
2015	807,775	4.0%	43,503	3.8%	5.4%
2016	794,105	(1.7%)	41,736	(4.1%)	5.3%
2017	874,568	10.1%	48,000	15.0%	5.5%
2018	906,868	3.7%	48,712	1.5%	5.4%
2019[2]	926,437	2.2%	49,630	1.9%	5.4%
2020[2]	927,916	0.2%	49,173	(0.9%)	5.3%
2021[2]	958,884	3.3%	50,844	3.4%	5.3%

[1]Liability divided by AGI.
[2]Estimates and projections
Source: NYS DTF; DOB staff estimates.

Over time the State has become increasingly reliant on its high-income taxpayers as a source of income tax revenues. The State tax law reform enacted in December 2011 and effective with the 2012 tax year increased the share of liability stemming from the top one percent of filers to 43.2 percent in its first year, a recent high. A particular risk to liability estimates also stems from these taxpayers – namely, the challenge of estimating one-time payments to these filers (which can be sizable), since no prior time pattern or amount is available, by their very nature.

The complex interaction between tax policy and taxpayer behavior is only one example of how changes in the economy, government policy, or the institutional practices of firms (i.e., the timing and types, not to mention the size, of bonus payments) that affect a small number of taxpayers in the high-income groups can have disproportionately large effects on State tax revenues. A particular concern to NYS is the severe limits that 2017's TCJA imposed on itemized deductions, especially the deduction for SALT, including property taxes. Note the decline in liability growth to 1.5 percent for 2018 after a surge to 15.0 percent growth in 2017, as taxpayers sought to take advantage of tax provisions that would be taken away by the TCJA in 2018, the first tax year under that law. Growth of just 1.9 percent is expected for Tax Year 2019, based in part on current processing information, while the impact of the COVID-19 pandemic is forecast to cause liability to fall 0.9 percent in 2020. Liability is anticipated to grow 3.4 percent in 2021 as vaccinations accelerate and helped by the $900 billion federal stimulus legislation enacted very late in 2020.

Although significant risks remain in any estimates of income tax liability, estimated tax liability for a particular tax year leads, with a high degree of confidence, to the approximate level of cash receipts that can be expected for such year. Despite this strong relationship, estimation of cash

payments is subject to an important complication that pervades forecasts for the Executive Budget and other State Financial Plan updates, namely determining the portions of tax-year liability that will occur in particular SFYs. Income tax prepayments – withholding tax and quarterly estimated tax payments – tend to be received not long after income is earned. For example, most withholding tax payments and quarterly estimated tax payments for Tax Year 2020 will be received before the end of FY 2021. Settlement payments – those payments received when taxpayers file final returns for a tax year – tend to be received in the next SFY after the end of a tax year. Thus, settlement payments for Tax Year 2020 will be received largely in FY 2022.

Administration

DTF administers PIT in general conformity with the Federal PIT and IRS administration. Taxpayers have taxes withheld from their wages and employers subsequently remit those withholdings to DTF on various schedules based on their payroll size. Taxpayers may be required to remit estimated tax on a quarterly basis if withholding is insufficient or they receive nonwage income. Tax returns are generally due on April 15, though taxpayers may request an extension until October 15. Taxpayers with tax paid in excess of liability may request refunds or opt to credit overpayments toward future tax liabilities.

The payment of refunds during the final quarter of the State's fiscal year is administratively managed in accordance with cash flow expectations and to minimize potential year-end imbalances in the State's General Fund. The administrative refund cap was increased to $2,249 million in FY 2018 and remained steady through FY 2020. A decreased total of $1,750 million is scheduled to be refunded in FY 2021.

History

PERSONAL INCOME TAX RECEIPTS HISTORY
(millions of dollars)

		FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020
Withholding		31,240	31,199	31,958	33,368	34,907	36,549	37,524	40,269	41,084	43,118
Estimated Payments	Current Year	7,344	8,097	9,001	9,454	10,367	11,561	10,912	14,329	10,481	10,996
	Prior Year[1]	2,407	3,532	3,192	5,183	3,376	4,550	4,060	3,452	3,529	6,029
	Total	9,751	11,628	12,193	14,637	13,743	16,111	14,972	17,781	14,010	17,025
Final Returns	Current Year	218	224	203	250	254	269	261	308	344	339
	Prior Year[1]	1,749	1,893	1,945	2,145	1,952	2,360	2,328	2,170	2,341	3,114
	Total	1,967	2,117	2,148	2,395	2,206	2,630	2,588	2,478	2,685	3,454
Delinquent		1,091	1,086	1,144	1,175	1,393	1,310	1,434	1,507	1,396	1,388
	Gross Receipts	**44,049**	**46,030**	**47,443**	**51,575**	**52,248**	**56,600**	**56,518**	**62,036**	**59,175**	**64,985**
Refunds	Prior Year[1]	5,172	4,693	4,568	5,367	4,961	5,130	5,199	6,292	6,034	5,927
	Previous Years	772	454	589	554	458	618	474	527	589	530
	Current Year[1]	1,750	1,750	1,750	2,078	1,950	2,550	1,750	2,249	2,250	2,245
	Advanced Credit Payment	0	0	0	0	579	571	678	610	1,080	1,505
	State/City Offset[1]	100	366	309	615	591	675	851	856	1,135	1,117
	Total	7,793	7,263	7,216	8,614	8,539	9,545	8,952	10,534	11,088	11,326
	Net All Funds Receipts	**36,256**	**38,768**	**40,227**	**42,961**	**43,710**	**47,055**	**47,566**	**51,501**	**48,087**	**53,659**
Fund Distribution	General Fund	23,940	25,843	26,884	28,864	29,485	31,957	32,535	36,037	21,620	24,646
	Debt Service Funds (RBTF)	9,052	9,692	10,057	10,740	10,927	11,764	11,891	12,875	24,044	26,830
	Special Revenue Funds (STAR)	3,263	3,233	3,286	3,357	3,297	3,335	3,139	2,589	2,423	2,184

[1]These components, collectively, are known as the "settlement" on the prior year's tax liability.

Significant statutory changes within the past decade are:

- The Empire State Film Production Tax Credit has been expanded and extended several times since its creation in 2004. Since 2010, $420 million has been the annual authorization for the credit which has been extended four times through Tax Year 2025. Beginning in 2010, $7 million of the credit was dedicated to post production, then increased to $25 million in 2015. In 2020, the credit was reduced to 25 percent from 30 percent, imposed a minimum budget requirement of $1 million for films produced in New York City and the counties of Nassau, Suffolk, Rockland and Westchester ($250,000 if filmed elsewhere in the State), and excluded new variety shows from credit eligibility.

- Itemized deductions for taxpayers with NYSAGI above $10 million have been limited to 25 percent of charitable contributions since Tax Year 2010. This limitation has been extended several times and is effective through Tax Year 2024.

- In 2011, PIT reform lowered middle income taxpayer rates and added a new top tax rate of 8.82 percent, for Tax Years 2012 through 2014. PIT reform also indexed the tax brackets and standard deduction to the CPI-U (Consumer Price Index for All Urban Consumers) in Tax Years 2013 and 2014. These tax rates and associated brackets, including indexation, were subsequently extended through 2017. Additional middle-income tax cuts were

enacted in 2016 and phased-in between Tax Years 2018 and 2025. Separately, the aforementioned top rate was extended two additional times, most recently through Tax Year 2024.

- The New York Youth Works Program was created in 2011, providing a tax credit to businesses employing at-risk youth in part-time or full-time positions.

- The Rehabilitation of Historic Properties Credit is equal to 20 percent of qualified rehabilitation expenditures made by the taxpayer with respect to a qualified historic structure in NYS with a cap of $5 million per structure. Since its creation in 2006, the credit has been extended twice and is effective through Tax Year 2024.

- In 2013, taxpayers with business or farm income not exceeding $250,000 were provided a modification equal to a percentage of business or farm income, reducing Federal AGI by 3 percent in Tax Year 2014, 3.75 percent in Tax Year 2015, and 5 percent for Tax Years 2016 and beyond.

- In 2013, a refundable $350 Middle-Class Family Tax Credit was provided in each of Tax Years 2014 through 2016 to taxpayers with dependents under the age of 17, zero or positive tax liability, and income between $40,000 and $300,000. The delivery of the credit was modified in 2014 to eliminate the prepayment element for Tax Years 2015 and 2016.

- In 2014, a refundable Real Property Tax Freeze Credit was established, providing a two-year tax relief program to offset school and municipal property tax increases for NYS homeowners. The credit was limited to properties that have STAR property tax exemption eligibility and are located within a NYS Property Tax Cap-compliant school/municipal district.

- In 2014, a refundable Enhanced Real Property Tax Credit was established for residents of NYC based on qualifying real property taxes paid or the real property tax equivalent. This was subsequently extended in 2015 for an additional four years, through Tax Year 2019.

- Beginning in Tax Year 2014, the entire net income tax rate for qualified NYS manufacturers was lowered from 6.5 to zero percent, and those manufacturers were eligible for a new Property Tax Credit equal to 20 percent of the real property taxes paid.

- In 2015, a refundable Property Tax Relief Credit was established and administered as an advanced credit payment, to offset property tax increases for all eligible taxpayers who own and primarily reside in real property located within eligible school districts that are compliant with the two percent annual property tax cap. The credit expired after Tax Year 2019.

- In 2015, the Brownfield Cleanup Program (BCP) was reformed, and tax credits extended through FY 2026. Reforms included the prioritization of: site redevelopment in economically distressed areas; low income housing; or properties that are upside down or

underutilized. The Program also provided for the creation of an expedited remediation program (BCP-EZ), gave a more detailed description of eligible costs for redevelopment tax credits, and allowed the real property tax and environmental remediation insurance credits to sunset.

- The refundable Farm Workforce Retention Credit was created in 2016 for farm employers equal to a fixed amount per eligible farm employee, with credit amounts varying between $250 per eligible farm employee in Tax Year 2017 up to $600 in Tax Year 2021. This credit is available through Tax Year 2021.

- In 2016, the STAR PIT credit for eligible NYC resident taxpayers was converted from a credit against NYC tax liability to a credit against NYS tax liability.

- The Middle-Class Tax Cut provided reduced middle-income PIT rates over the course of eight years. The rate cuts began in Tax Year 2018, and in 2024 when fully phased in, the range of marginal tax rates on middle incomes will be reduced from between 5.9 percent and 6.65 percent to between 5.5 percent and 6 percent.

- In 2017, the STAR-related NYC PIT rate reduction benefit was converted into a NYS PIT credit for NYC taxpayers.

- NYS made several changes in 2018 in an effort to combat the effects of the 2017 TCJA, namely:

    - Maintained the 2017 value of the Empire State Child Tax Credit;

    - Decoupled from the federal $10,000 SALT itemized deduction limit, the temporary medical expense deduction increase, and the repeal and limitation of other federal itemized deductions;

    - Maintained the NYS single filer standard deduction and eliminated the restriction that a NYS filer may only itemize deductions if deductions were itemized on the filer's federal return; and

    - Established the Charitable Gifts Trust Fund to accept donations to fund health care and education programs. Contributions made to the Fund or qualified contributions made to the Health Research Inc., the SUNY Impact Foundation, or the CUNY Research Foundation were provided an 85 percent tax credit, while school districts and municipalities were authorized to establish charitable funds through local law and provide up to a 95 percent tax credit for donations to such funds.

Alcoholic Beverage Taxes

ALCOHOLIC BEVERAGE TAXES (millions of dollars)								
		FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
General Fund	Beer	43.6	45.5	1.9	4.4	44.7	(0.8)	(1.8)
	Liquor	196.0	207.1	11.1	5.7	206.2	(0.9)	(0.4)
	Wine and Other	19.4	20.4	1.0	5.2	20.1	(0.3)	(1.5)
	Total	259.0	273.0	14.0	5.4	271.0	(2.0)	(0.7)
All Funds Total		**259.0**	**273.0**	**14.0**	**5.4**	**271.0**	**(2.0)**	**(0.7)**

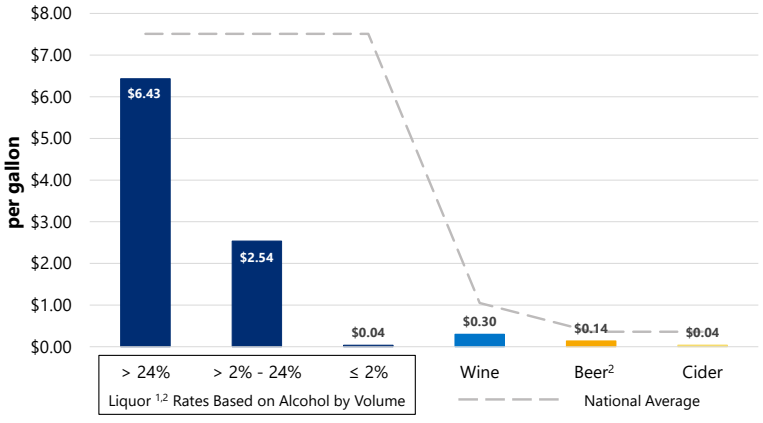
FY 2021 receipts are estimated to increase over FY 2020 results primarily due to a portion of receipts shifted from FY 2020 into FY 2021 due to timing, as well as the continuation of recent wine and liquor consumption trend growth. Additionally, the impact of COVID-19 appears to have resulted in an uptick in overall alcohol consumption.

FY 2022 receipts are projected to decrease slightly from the current year due to the shift in receipts from FY 2020 to FY 2021.

Base and Rate

NYS imposes excise taxes at various rates on liquor, beer, wine and cider beverages. As of June 2020, compared to alcoholic beverage tax rates in other states, NYS currently has the 28th lowest liquor tax; the 12th lowest beer tax; and the 10th lowest wine tax.

New York State Alcoholic Beverage Tax Rates



[1]NYS taxes liquor by the liter, while it taxes all other alcoholic beverages by the gallon. For visual comparison purposes, liquor tax rates of $1.70, $0.67, and $0.01 per liter have been converted (One US Gallon = 3.785 liters) into rates of $6.43, $2.54, and $0.04 per gallon.

[2]NYC imposes an additional tax of 26.04 cents per gallon (6.88 cents per liter) on liquor and 12 cents per gallon on beer.

Liability

In general, wine and liquor consumption have experienced marginal to moderate growth over the past decade, while beer consumption has remained relatively flat, with a few exceptions (e.g., craft brewery boom and subsequent leveling off) during the same period.

Administration

Generally, the alcoholic beverage taxes are remitted by licensed distributors (including producers) and non-commercial importers of such beverages in the month following the month of delivery. Registered distributors can apply for annual filing status, and be approved by DTF, if they produce under a certain volume of alcohol, and do not hold another license with the State Liquor Authority (SLA) that requires them to pay taxes on a monthly basis. This is also the case for individual non-commercial importers of beer or wine; however, it is not an option for liquor importers.

History

ALCOHOLIC BEVERAGE TAXES
DISTRIBUTIONS BY BEVERAGE TYPE BASED ON REPORTED VOLUMES
(millions of dollars)

	General Fund				All Funds
	Beer	Liquor	Wine and Other	Total	Total
FY 2011	45	166	18	230	230
FY 2012	45	174	19	238	238
FY 2013	48	180	19	246	246
FY 2014	47	184	20	250	250
FY 2015	46	185	20	251	251
FY 2016	47	188	20	255	255
FY 2017	47	190	20	258	258
FY 2018	46	193	20	259	259
FY 2019	46	196	21	262	262
FY 2020	44	196	19	259	259

Significant statutory changes within the past decade are:

- In 2016, products used in on-site tastings were exempt from taxation.
- In 2020, liquor under two percent alcohol by volume (ABV) was exempt from taxation.

Auto Rental Tax

AUTO RENTAL TAX (millions of dollars)								
		FY 2020	FY 2021	Change		FY 2022	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
Capital Projects Funds	DHBTF	87.5	45.9	(41.6)	(47.5)	61.1	15.2	33.1
Special Revenue Funds	PTSOA	19.5	11.1	(8.4)	N/A	16.9	5.8	52.3
All Funds Total		**107.0**	**57.0**	**(50.0)**	**(46.7)**	**78.0**	**21.0**	**36.8**

FY 2021 receipts are estimated to decrease from FY 2020 results due to the significant negative impact of COVID-19 on business and leisure travel.

FY 2022 receipts are projected to increase over the current year due to the expectation that travel, tourism, and business activity will begin to slowly recover towards pre-COVID-19 levels.

Base and Rate

NYS levies a 12 percent tax (6 percent statewide special tax and 6 percent special supplemental tax) on charges for the rental or use of a passenger car with a gross vehicle weight of 9,000 pounds or less in NYS, regardless of where the vehicle is registered or the residency of the renter. The tax does not apply to a car lease covering a period of one year or more.

Liability

Auto rental tax (ART) receipts are influenced by overall economic conditions, particularly consumer and business spending on travel. Unusual events that disrupt the flow of travel and tourism within NYS (i.e., catastrophic weather events such as Superstorm Sandy or global pandemics such as COVID-19) can have a significant influence on receipts. The emergence of app-based transportation options has had a predictably adverse effect on the overall demand of rental vehicles.

Administration

Vendors remit ART receipts quarterly to DTF via their sales tax return.

History

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AUTO RENTAL TAX RECEIPTS HISTORY (millions of dollars)					
	Capital Projects Funds (DHBTF)	Special Revenue Funds			All Funds Total
		MTAFAF[1]	PTSOA	Total	
FY 2011	60	35	0	35	95
FY 2012	65	39	0	39	104
FY 2013	68	41	0	41	109
FY 2014	71	43	0	43	114
FY 2015	74	45	0	45	119
FY 2016	79	47	0	47	126
FY 2017	78	49	0	49	127
FY 2018	78	45	0	45	123
FY 2019	81	49	0	49	130
FY 2020	87	0	20	20	107

Within the past decade, changes to ART have been infrequent, with the only significant statutory change being the 2019 MCTD supplemental rate increase (from five to six percent) and extension to car rentals outside of the MCTD. In addition, the revenues from the MCTD supplemental rate were no longer included in ART collections.

Cigarette and Tobacco Tax

CIGARETTE AND TOBACCO TAXES (millions of dollars)								
		FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
General Fund	Cigarette Tax	228.1	222.7	(5.4)	(2.4)	211.6	(11.1)	(5.0)
	Tobacco Tax	79.1	85.7	6.6	8.3	95.7	10.0	11.7
	Registration Fees	5.8	5.6	(0.2)	(2.8)	4.7	(0.9)	(16.1)
	Total	313.0	314.0	1.0	0.3	312.0	(2.0)	(0.6)
HCRA	Cigarette Tax	722.2	705.0	(17.2)	(2.4)	670.0	(35.0)	(5.0)
All Funds Total		**1,035.2**	**1,019.0**	**(16.2)**	**(1.6)**	**982.0**	**(37.0)**	**(3.6)**

FY 2021 receipts are estimated to decrease from FY 2020 results primarily due to a continued decline in taxable cigarette consumption, albeit at a slower pace than the long-term trend. In addition to the continued efforts of the Governor's Cigarette Strike Force, the impact of COVID-19 keeping people at home more (allowing for more opportunities to smoke) and Massachusetts' ban on menthol cigarettes effective June 2020 have also likely had a positive impact on taxable cigarette consumption in NYS. Tobacco products tax receipts are estimated to increase due to a partial-year impact of legislation that reformed the tobacco products tax.

FY 2022 receipts are projected to decrease from the current year due to the resumption of the greater-than-trend decline in taxable cigarette consumption as the reasons noted above for the lessened decline in FY 2021 are expected to no longer be a factor, partially offset by an increase in tobacco products tax receipts due to the full-year impact of legislation that reformed the tobacco products tax.

Base and Rate

The cigarette and tobacco product taxes consist of the following:

- The NYS cigarette excise tax is $4.35 per pack (20 cigarettes) or $43.50 per carton (200 cigarettes). In NYC, there is an additional tax of $1.50 per pack or $15 per carton. In total, in NYC, the combined State and City tax is $5.85 per pack or $58.50 per carton.

- The tax on tobacco products tax is on cigars, little cigars, snuff, and all other tobacco products. The tax per 20 little cigars is $4.35, while the tax on snuff is $2.00 per ounce or fraction thereof. For all other tobacco products (large cigars, chewing tobacco), the tax is 75 percent of the wholesale price.

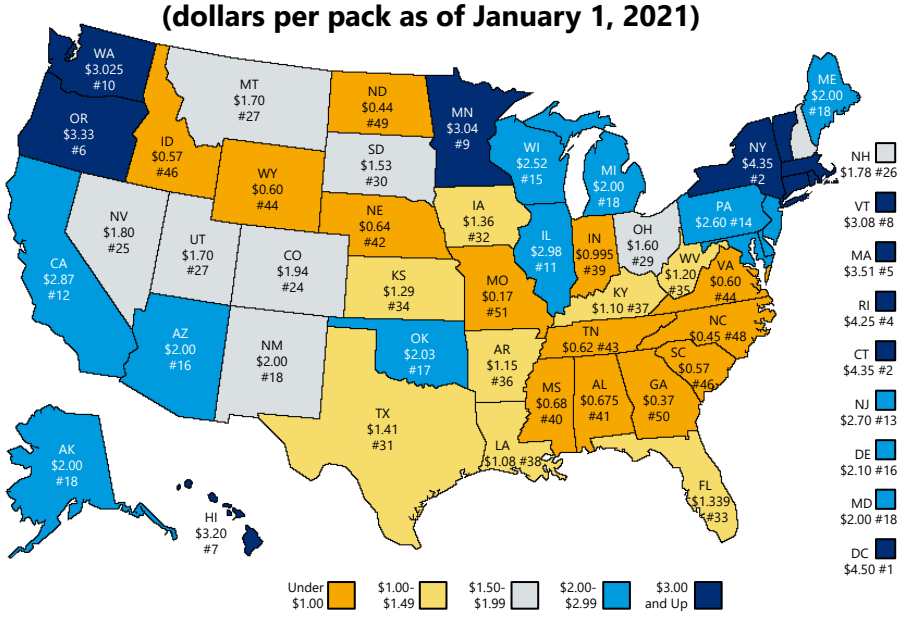
- The registration fee for each retail location is $300, and $100 for each vending machine. The license application fee for either a wholesaler cigarette dealer or cigarette agent is $1,500.

Liability

Taxable cigarette consumption is a function of retail cigarette prices and a long-term downward trend in consumption. The decline in consumption reflects the impact of increased public awareness of the adverse health effects of smoking, smoking restrictions imposed by governments, anti-smoking education programs, and changes in consumer preferences toward other types of tobacco.

At a tax rate of $4.35 per pack, NYS currently has the second-highest state cigarette tax in the nation, behind only the District of Columbia (taxing at a rate of $4.50 per pack). With a national median tax of $1.78 per pack, cigarette tax evasion is a serious problem in NYS and throughout the Northeast. The most significant area of concern is the importation of cigarettes from low-tax states. For example, an illegal cigarette trafficking operation was busted in 2019, in which cigarettes were purchased in North Carolina and sold in NYS, had illegal sales that totaled more than $12 million. Widespread evasion not only reduces State and local revenues, but also reduces the income of legitimate wholesalers and retailers.

State Cigarette Tax Rates
(dollars per pack as of January 1, 2021)



DTF continues to vigorously pursue cigarette bootlegging through investigatory and enforcement efforts. Legislation enacted in 2020 allows the Tax Department to strengthen its enforcement efforts by imposing stricter penalties related to the revocation of the certificate of registration (CoR)

to sell tobacco products and certificate of authority (CoA) to be a sales tax vendor for those retail dealers caught selling untaxed cigarettes.

Administration

Retail establishments that sell cigarettes are required to register with DTF and vending machine owners are required to purchase registration stickers from DTF.

State-registered stamping agents, who are mostly wholesalers, purchase tax stamps from NYS and affix the stamps to cigarette packages to be sold by registered retailers. The tax is paid by the stamping agent and is passed on. Purchasers of non-State stamped cigarettes, such as cigarettes sold out-of-State or on Native American lands, must remit the cigarette excise tax directly to DTF. An individual may bring two cartons into NYS without being subject to the excise tax.

History

CIGARETTE AND TOBACCO TAXES RECEIPTS HISTORY
(millions of dollars)

	General Fund				HCRA	All Funds
	Cigarette Tax	Tobacco Tax	Registration Fees	Total	Cigarette Tax	Total
FY 2011	382	96	3	481	1,136	1,616
FY 2012	367	103	2	472	1,162	1,634
FY 2013	348	91	3	443	1,108	1,551
FY 2014	324	95	7	426	1,027	1,453
FY 2015	303	46	7	355	959	1,314
FY 2016	293	22	7	322	928	1,251
FY 2017	277	76	7	360	876	1,235
FY 2018	262	73	7	342	829	1,171
FY 2019	246	75	6	328	780	1,108
FY 2020	228	79	6	313	722	1,035

Significant statutory changes within the past decade are:

- In 2013, the penalty for possession of unstamped or unlawfully stamped cigarettes was increased from $150 to $600 per carton to reflect increases in the excise tax on cigarettes and to strengthen the deterrent effect in the current environment.

- In 2014, a multi-agency task force was formed to reduce illegal tobacco trafficking and sales. The multi-agency Cigarette Strike Force is composed of State and local agencies that work with Federal agents to stop the influx of counterfeit and untaxed tobacco products into NYS. The Strike Force also focuses on tracing any illicit financial earnings from criminal activity.

- In 2020, the definition of "wholesale price" of tobacco products was reformed to clarify that it means the price for which the tobacco products are sold to a distributor and cigarette enforcement was enhanced via the following amendments:

    - authorized DTF to revoke a retailer's CoR for one year (increased from six months) for its first violation for selling untaxed cigarettes;
    - required that a retail dealer who is caught selling untaxed cigarettes have the CoR revoked at all retail locations. For a second violation within five years, this punishment also applies to any affiliated person of the retail dealer;
    - authorized the automatic start to the Certificate of Authority (CoA) (the required license to collect sales tax and operate a business) revocation process after the third revocation of a retail dealer's registration in five years, effectively shutting down the business' operations; and
    - authorized DTF to deny a retail dealer registration to any applicant with outstanding tax debts.

Highway Use Tax

HIGHWAY USE TAX (millions of dollars)								
		FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
Capital Projects Funds (DHBTF)	TMT	112.7	106.9	(5.7)	(5.1)	109.3	2.4	2.2
	Fuel Use	27.7	23.2	(4.5)	(16.3)	26.8	3.7	15.7
	IFTA Decal	0.5	0.5	0.0	1.5	0.5	(0.0)	(6.7)
	Total	140.9	130.6	(10.2)	(7.3)	136.6	6.0	4.6
Special Revenue Funds (HUTAA)	Registrations	0.5	0.4	(0.1)	(23.5)	1.4	1.0	250.0
All Funds Total		**141.4**	**131.0**	**(10.3)**	**(7.3)**	**138.0**	**7.0**	**5.3**

FY 2021 receipts are estimated to decrease from FY 2020 results due to declines in truck mileage tax (TMT) and fuel use tax (FUT) receipts mainly attributable to the significant negative impact of COVID-19 on the economy. Additionally, registrations are estimated to remain flat due to FY 2021 being a non-triennial year.

FY 2022 receipts are projected to increase from the current year due to small growth in TMT receipts and strong growth in FUT receipts as the economy is expected to continue recovering towards pre-COVID-19 levels. Further, registrations are projected to increase due to FY 2022 being a renewal year in the triennial registration cycle.

Base and Rate

There are four components of the highway use tax (HUT):[50]

- The TMT is levied on motor carriers who operate commercial vehicles on NYS public highways.
- The FUT ensures that motor carriers who purchase fuel out-of-State, but operate a vehicle on NYS public highways is subject to the same taxes as fuel purchased in-State. The current fuel use tax rate is $0.24 per gallon.
- Pursuant to the International Fuel Tax Agreement (IFTA), motor carriers who designate NYS as their base jurisdiction for IFTA licensing purposes must apply and receive one IFTA license per fleet of vehicles and a set of two decals for each qualified vehicle operated

[50] Please refer to https://www.tax.ny.gov/pubs_and_bulls/publications/highway_use_pubs.htm for a detailed description of these components.

under said license. There is no fee for the license, which is valid from January 1st through December 31st of each calendar year. There is, however, an $8 fee for each set of decals issued.

- As part of the HUT or Automotive Fuel Carrier (AFC) registration process, an issued HUT or AFC decal is required to be affixed to each vehicle. The cost of the certification and decal fee is $1.50.

Liability

HUT receipts are generally a function of the demand for trucking, which fluctuates with national and State economic conditions.

Administration

Most taxpayers remit the TMT on a monthly basis, on or before the last day of each month for the preceding month. Fuel use taxpayers file quarterly with their home state under the rules of IFTA. The home state subsequently distributes the funds to the state where the liability occurred. The registration process generally occurs on a triennial basis.

History

HIGHWAY USE TAX RECEIPTS HISTORY
(millions of dollars)

	Capital Projects Funds (DHBTF)					Special Revenue Funds (HUTAA)	All Funds
	TMT	Fuel Use	IFTA Decal	Registrations	Total	Registrations	Total
FY 2011	98	28	3	0	129	0	129
FY 2012	98	30	4	0	132	0	132
FY 2013	98	31	0	15	145	0	145
FY 2014	99	31	0	6	136	0	136
FY 2015	103	31	1	6	140	0	140
FY 2016	108	30	0	20	159	0	159
FY 2017	109	27	0	0	136	2	139
FY 2018	110	25	1	0	136	(43)	93
FY 2019	121	25	1	0	147	(2)	145
FY 2020	113	28	1	0	141	1	141

Significant statutory changes within the past decade are:

- Enacted in 2006, the exemption on alternative fuels (E85, B20, CNG, and hydrogen) has been extended several times for various durations.

- In 2016, the $15 HUT registration fee and $4 decal fees directed to the DHBTF were replaced with a combined HUT registration and decal fee of $1.50, directed to the HUTAA.

Medical Cannabis Tax

MEDICAL CANNABIS TAX (millions of dollars)			FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
Special Revenue Funds (MCTF)	Counties	Manufacturer	1.3	1.8	0.5	40.4	1.8	0.0	0.0
		Distributor	1.3	1.8	0.5	40.4	1.8	0.0	0.0
	Agency Operations	OASAS	0.3	0.4	0.1	40.4	0.4	0.0	0.0
		DCJS	0.3	0.4	0.1	40.4	0.4	0.0	0.0
	Undistributed Balance		2.6	3.6	1.0	40.4	3.6	0.0	0.0
	Total		5.7	8.0	2.3	40.4	8.0	0.0	0.0
All Funds Total			**5.7**	**8.0**	**2.3**	**40.4**	**8.0**	**0.0**	**0.0**

FY 2021 receipts are estimated to increase from FY 2020 results primarily due to the continued maturation of the medical cannabis program stemming from increased program participation by both practitioners and patients alike.

FY 2022 receipts are projected to remain flat.

Base and Rate

An excise tax of seven percent is imposed on the gross receipts from medical cannabis sold or furnished by a registered organization to a certified patient or designated caregiver.

As of January 5, 2021, there were 3,105 registered practitioners authorizing the medical use of cannabis to 134,683 certified patients.

Administration

The medical cannabis program is administered by the NYS Department of Health (DOH), which determines the number of registered manufacturing and distribution organizations permitted within NYS. Registered organizations are responsible for manufacturing and dispensing medical cannabis in NYS, and each is permitted by statute to have up to four dispensing facilities.[51]

The tax is imposed on the registered organization, which must remit the excise tax collections monthly to DTF. The tax return must include the gross receipts by the county where the medical cannabis was manufactured and the county where the dispensing facility is located. Returns must be filed, and the tax paid no later than the 20th of each month following the month in which the product was sold.

[51] Please refer to NYS DOH's Medical Cannabis Program Guide for a complete list of qualified conditions, registered organizations, and laws and regulations.

History

The medical use of cannabis was authorized in 2014 and dispensing of medical cannabis began in 2016.[52]

MEDICAL CANNABIS TAX RECEIPTS HISTORY
(thousands of dollars)

	Special Revenue Funds (MCTF)						All Funds
	Medical Cannabis Counties		Agency Operations		MCTF		
	Manufactured	Distributed	OASAS	DCJS	Undistributed Balance	Total	Total
FY 2016	2.5	2.5	0.6	0.6	5.0	11.0	11.0
FY 2017	131.4	131.4	29.2	29.2	262.8	584.0	584.0
FY 2018	423.0	423.0	94.0	94.0	846.0	1,880.0	1,880.0
FY 2019	870.1	870.1	193.4	193.4	1,740.2	3,867.0	3,867.0
FY 2020	1,282.1	1,282.1	284.9	284.9	2,564.1	5,698.0	5,698.0

Receipts from the excise tax are directed to the Medical Cannabis Trust Fund (MCTF) and subsequently split into its subfunds according to the distribution below:

- 22.5 percent distributed to the counties in which the medical cannabis was manufactured and allocated in proportion to the gross sales originating from medical cannabis manufactured in each such county;
- 22.5 percent distributed to the counties in which the medical cannabis was dispensed and allocated in proportion to the gross sales occurring in each such county;
- 5 percent distributed to the Office of Alcoholism and Substance Abuse Services (OASAS) to be used for additional drug abuse prevention, counseling and treatment services;
- 5 percent distributed to the Division of Criminal Justice Services (DCJS) to provide discretionary grants to NYS and local law enforcement agencies, to support personnel costs of NYS and local law enforcement agencies; and

The undistributed 45 percent of receipts remains in the MCTF balance.

[52] Please see the Medical Use of Marijuana Under the Compassionate Care Act Report for program highlights and the number of registered practitioners, certified patients (including by qualifying condition), caregiver registrations, dispensing transactions and registered organizations over a two-year period (2016-2018).

Motor Fuel Tax

MOTOR FUEL TAX RECEIPTS (millions of dollars)								
		FY 2020	FY 2021	Change		FY 2022	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
Special Revenue Funds (DMTTF)	Gasoline	81.2	67.0	(14.2)	(17.5)	79.8	12.8	19.2
	Diesel	27.0	23.7	(3.4)	(12.4)	25.8	2.1	8.8
	Total	108.2	90.7	(17.6)	(16.2)	105.6	14.9	16.5
Capital Projects Funds (DHBTF)	Gasoline	357.6	295.0	(62.6)	(17.5)	351.6	56.6	19.2
	Diesel	46.0	40.3	(5.7)	(12.4)	43.9	3.5	8.8
	Total	403.6	335.3	(68.3)	(16.9)	395.4	60.1	17.9
All Funds	**Gasoline**	**438.8**	**362.0**	**(76.8)**	**(17.5)**	**431.4**	**69.4**	**19.2**
	Diesel	**73.1**	**64.0**	**(9.1)**	**(12.4)**	**69.6**	**5.6**	**8.8**
	Total	**511.8**	**426.0**	**(85.8)**	**(16.8)**	**501.0**	**75.0**	**17.6**

FY 2021 receipts are estimated to decrease from FY 2020 results due to significant declines in gasoline and diesel consumption, mainly attributable to the significant negative impact of COVID-19 on the economy and travel activity.

FY 2022 receipts are projected to increase from the current year due to strong growth in both gasoline and diesel consumption as the economy and travel activity are expected to continue recovering towards pre-COVID-19 levels.

Base and Rate

Gasoline motor fuel and diesel motor fuel taxes of $0.08 per gallon are imposed upon the sale, generally for highway use, of motor fuel and diesel motor fuel, respectively. The motor fuel tax is levied primarily on fuel used in motor vehicles operating on the public highways of NYS or on fuel used in recreational motorboats operating on the waterways of NYS. Exemptions, credits, and refunds are allowed for certain other uses of gasoline and diesel motor fuel.

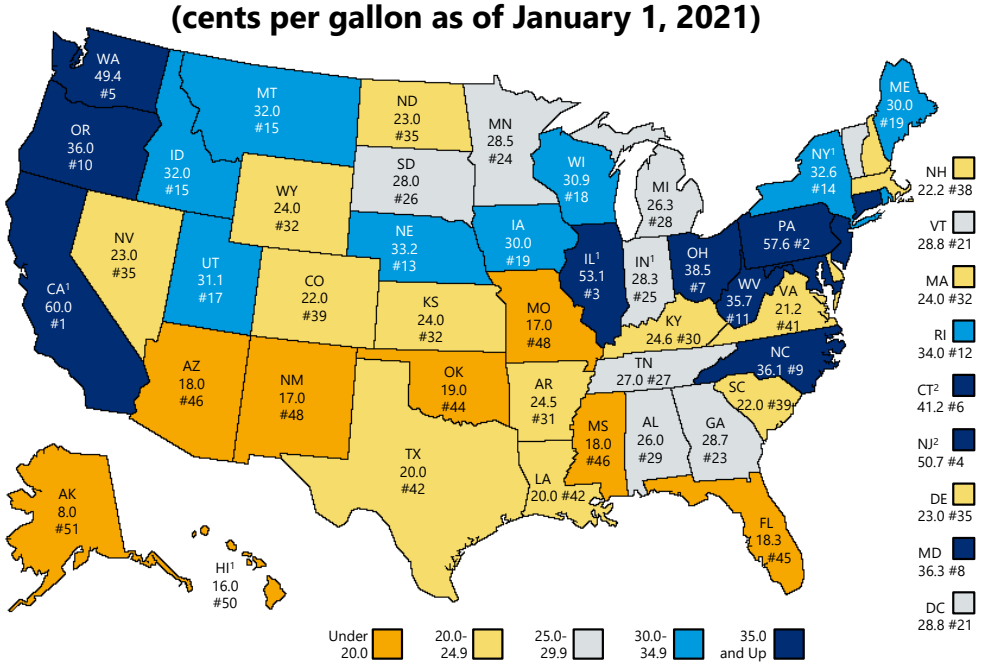
Liability

Although the motor fuel tax is imposed on the consumer, the tax is remitted upon importation into NYS. This tax-on-first-import system is designed to reduce gasoline tax evasion, which previously involved bootlegging from other states and successions of tax-free sales among “dummy” corporations masked by erroneous record keeping and reporting.

Prior to 1988, the diesel motor fuel tax was collected at the time of retail sale or use by a bulk user. Since 1988, taxes on diesel motor fuel have been collected upon the first non-exempt sale in NYS. Interdistributor sales of highway diesel motor fuel sold below the rack are considered tax-exempt.

Compared to other states, NYS is ranked 14th on overall state taxes per gallon imposed on fuel.

Total State Tax Rates* on Motor Fuel
(cents per gallon as of January 1, 2021)



*Includes all applicable State taxes (local taxes not included) levied on motor fuel, including:
[1]State sales tax (NYS's rate is capped at 8 cents per gallon); and
[2]other taxes based on the price of fuel.

Gasoline taxable consumption is heavily influenced by fuel prices which in turn are influenced by domestic and international economic conditions. Since dropping below $3.00 per gallon in January 2015, gas prices have remained below that threshold. The overall decline in crude oil prices is largely the result of an increase in OPEC oil production contributing to an ever-growing global supply, as well as falling global oil consumption. However, prior to the onset of the global pandemic, since 2016, crude oil prices had been steadily climbing, with fuel prices pushing closer to $3.00 per gallon; specifically, during the annual period between January 2019 and December 2019, the average gasoline price in NYS was approximately $2.65 per gallon. Conversely, due to the pandemic's adverse impact on global gasoline consumption levels, gasoline prices have steadily dropped in relation to the comparable period last year; the average gasoline price in NYS has been approximately $2.28 per gallon during the 12-month period between December 2019 and November 2020. A further discussion of energy prices can be found in the *Economic Backdrop* section of this volume.

Diesel consumption is also heavily correlated with economic activity. After taking a nose-dive with the collapse of the financial markets and the deterioration of labor markets during the Great Recession, diesel receipts began to recover slightly, then began to decline again associated with the amount of refunds processed due to multiple Wall Street firms selling off large quantities of tax-paid gallons of highway diesel fuel. These large refunds were paid out for highway diesel motor fuel gallons that were sold outside of NYS up to two years after the tax was originally collected.

Administration

The tax is generally remitted monthly, although vendors whose average monthly tax is less than $200 may remit quarterly. Taxpayers with annual liability of more than $5 million for motor fuel and petroleum business tax (PBT) combined are required to remit taxes electronically, or by certified check on an accelerated timeline, by the 3rd business day following the first 22 days of each month. Taxpayers must make either a minimum payment of 75 percent of the comparable month's tax liability for the preceding year, or 90 percent of actual liability for the first 22 days of the month. Taxes for the balance of the month are remitted by the 20th of the following month.

History

MOTOR FUEL TAX RECEIPTS HISTORY
(millions of dollars)

	Special Revenue Funds (DMTTF)			Capital Projects Funds (DHBTF)			All Funds		
	Gasoline	Diesel	Total	Gasoline	Diesel	Total	Gasoline	Diesel	Total
FY 2011	83	26	108	363	44	407	446	70	516
FY 2012	80	25	105	354	42	396	434	67	502
FY 2013	79	24	103	348	41	389	427	65	492
FY 2014	76	22	99	337	38	374	413	60	473
FY 2015	79	22	101	349	37	386	429	58	487
FY 2016	81	24	105	357	41	398	439	64	503
FY 2017	83	27	109	364	46	410	447	72	519
FY 2018	80	29	109	354	50	403	434	79	513
FY 2019	84	27	111	372	45	417	456	72	528
FY 2020	81	27	108	358	46	404	439	73	512

Significant statutory changes within the past decade are:

- Beginning August 1, 2013, all interdistributor sales of highway diesel motor fuel sold below the rack (i.e., not delivered by truck) are exempt from the tax.

- Originally enacted in 2006, the exemption on alternative fuels (E85, B20, CNG, and hydrogen) has been extended several times for various durations.

Opioid Excise Tax

OPIOID EXCISE TAX (millions of dollars)							
	FY 2020	FY 2021	Change		FY 2022	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	19.4	30.0	10.6	54.6	34.0	4.0	13.3
All Funds Total	**19.4**	**30.0**	10.6	54.6	**34.0**	**4.0**	**13.3**

FY 2021 receipts are estimated to be $30 million due to the impact of the first full year of revenue collections.

FY 2022 receipts are projected to moderately increase over the current year.

Base and Rate

There is an excise tax on the first sale of an opioid unit in NYS[53] at the following rates:

- $0.0025 on each morphine milligram equivalent (MME) with a wholesale acquisition cost of less than $0.50 per unit; or
- $0.015 on each MME with a wholesale acquisition cost of $0.50 or more per unit.

Liability

Opioid excise tax receipts are primarily a function of demand for the drugs subject to the tax. Overall demand is impacted by the current trend in prescriptions level which has been relatively stable following implementation of the tax.

Administration

All first sales of an opioid unit by a registrant[54] in NYS must be reported. Registrants must e-file their calendar quarterly excise tax returns on the 20th of the month following the quarter in which the opioid was sold. The first return was not due until January 21, 2020 covering the period of July 1, 2019 through December 31, 2019. Subsequently, all returns are currently due on the 20th of the following months; January, April, July, and October.

[53] See https://health.ny.gov/professionals/narcotic/docs/opioid_drug_listing.pdf. for a complete list of drugs that are subject to the opioid excise tax.
[54] See https://www.tax.ny.gov/bus/oet/oetidx.htm for more information on those who qualify as a registrant, reporting periods and due dates, and frequently asked questions.

Sales and Use Tax

SALES AND USE TAX (millions of dollars)								
		FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
General Fund		7,446.5	6,578.5	(868.0)	(11.7)	7,049.3	470.8	7.2
Debt Service Funds	LGAC	3,718.3	3,289.3	(429.1)	(11.5)	3,524.6	235.4	7.2
	STRB	3,718.3	3,289.3	(429.1)	(11.5)	3,524.6	235.4	7.2
	Total	7,436.6	6,578.5	(858.1)	(11.5)	7,049.3	470.8	7.2
Special Revenue Funds	MTOA	1,049.0	873.0	(176.0)	(16.8)	938.7	65.7	7.5
All Funds Total		**15,932.1**	**14,030.0**	**(1,902.1)**	**(11.9)**	**15,037.2**	**1,007.2**	**7.2**

FY 2021 receipts are estimated to decrease from FY 2020 results due to significant declines in taxable consumption related to the COVID-19 economic downturn. For the first three quarters of FY 2021, the sales tax base has declined 27.9 percent, 8.1 percent, and 4.3 percent, respectively. Base decline for the final quarter is estimated to be 12 percent mainly due to the impact of the resurgence of COVID-19 on taxable consumption. This equates to estimated base decline of 13.1 percent for FY 2021.

FY 2022 receipts are projected to increase from the current year due to moderate growth in taxable consumption related to the economic recovery from the aforementioned COVID-19 economic downturn. The sales tax base is projected to grow 7.4 percent.

Base and Rate

Generally, all retail sales of tangible personal property are taxed under Article 28 of the Tax Law unless specifically exempt, but services are taxable only if they are enumerated in Tax Law.[55]

The sales tax base has significantly expanded in the last decade to capture the growing online market. From the 2009 law to expand the vendor definition to include out-of-State sellers with related businesses ("affiliates") in NYS, to the implementation of "Wayfair" regulations, to the most recent marketplace law, these measures have created tax fairness between brick and mortar main street businesses and online companies. In addition, effective with the 2003 PIT filing year, the NYS PIT return contains a line on which taxpayers may enter the amount of use tax owed for the preceding calendar year. This line has captured certain online sales made out-of-State (in which use tax was owed) and large use tax purchases made out-of-State that are used in-State. NYS collected $36.2 million in FY 2019 and $30.6 million in FY 2020 from this line.

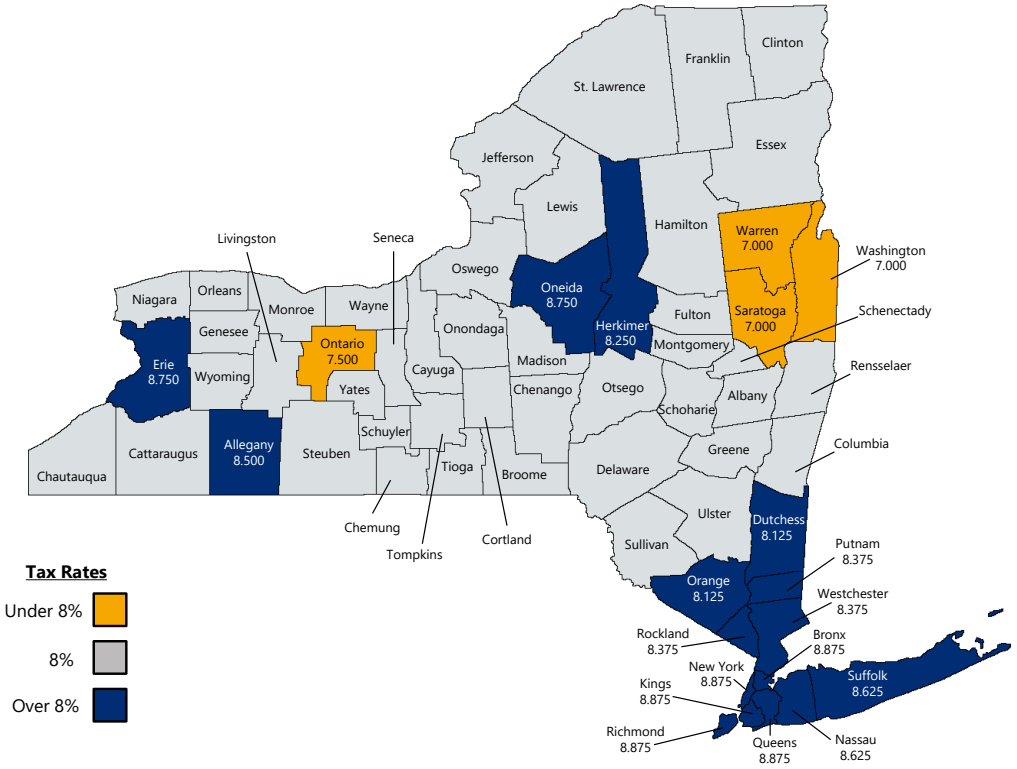
[55] See https://www.tax.ny.gov/pdf/publications/sales/pub750.pdf for a complete description of the sales tax base.

NYS imposes three separate sales and use tax rates.

- Since 1971, the State rate has been 4 percent (with a temporary increase to 4.25 percent from June 1, 2003 to June 1, 2005). The State tax rate on motor fuel and diesel motor fuel is capped at $0.08 per gallon.

- Local county rates range from 3 percent to 4.75 percent. Only Seneca County has elected the sales tax cap on motor fuel and diesel motor fuel at $0.08 per gallon.

Combined State and Local Sales Tax Rate
Effective August 1, 2020



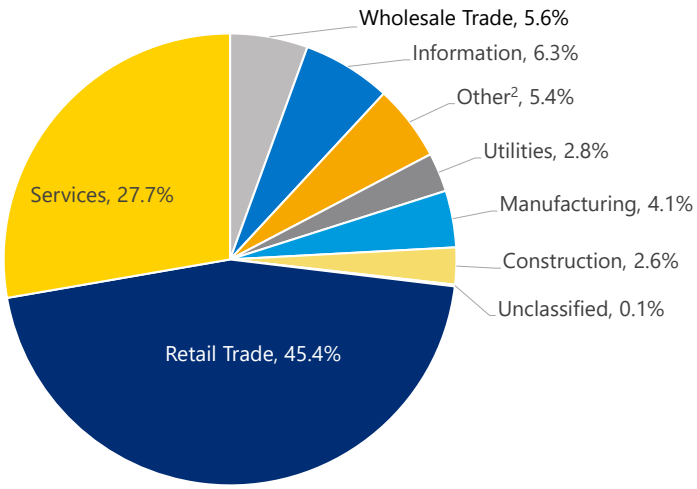
- An additional 0.375 percent sales and use tax is imposed in the MCTD.

In addition to these rates, there is a five percent State sales tax imposed on the receipts from the sale of telephone entertainment services that are exclusively delivered aurally.

Liability

The sales and compensating use tax, which accounted for 19 percent of FY 2020 All Funds tax receipts, is the second largest NYS tax revenue source. Approximately 73 percent of sales and use tax receipts are derived from retail trade and services industries.

Industry Shares of New York State Sales Tax Receipts
Ten Year Historical Average[1]



[1] Covers March-February fiscal years ending 2011-2020, with 2020 preliminary results.
[2] Includes Agriculture, Mining, Transportation, FIRE (Finance, Insurance and Real Estate), Education, and Government.
Source: New York State Department of Taxation and Finance.

Administration

- Monthly PrompTax: Vendors with annual sales and use tax liability exceeding $500,000 or with an annual liability for prepaid sales tax on motor fuel and diesel motor fuel exceeding $5 million. The payment schedule requires tax for the first 22 days of a month to be paid within 3 business days thereafter.

- Monthly Other: Vendors with more than $300,000 of taxable sales and purchases in any of the immediately preceding four quarters must remit the tax monthly by the 20th of the month following the month of collection.

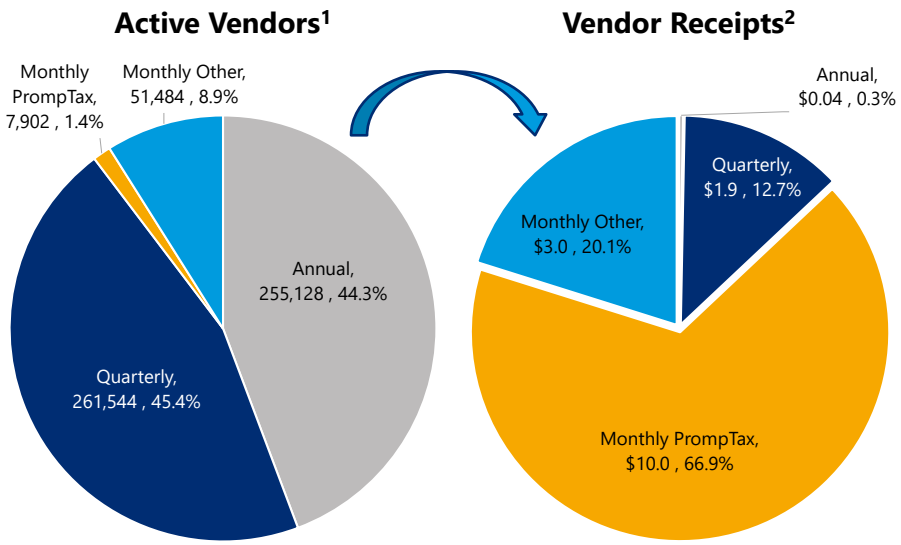
- Annual: Vendors collecting less than $3,000 yearly may elect to file annually, in March.

- Quarterly: All other vendors are quarterly filers.

All filers are subject to a $50 penalty for each failure to e-file, unless the taxpayer can show that the failure was due to reasonable cause.

Quarterly and annual sales tax filers receive a vendor allowance of 5 percent of tax liability, up to a maximum of $200 per quarter for returns filed on time.

Sales Tax Vendors and Taxable Sales



[1]Number of vendors identified as of December 24, 2020.
[2]Vendor receipts in billions of dollars.

History

SALES AND USE TAX RECEIPTS HISTORY (millions of dollars)						
	General Fund	Special Revenue Funds (MTOA)	Debt Service Funds			All Funds Total
			LGAC	STRB	Total	
FY 2011	8,085	756	2,697	0	2,697	11,538
FY 2012	8,346	750	2,780	0	2,780	11,875
FY 2013	8,423	758	2,809	0	2,809	11,989
FY 2014	5,885	802	2,951	2,951	5,901	12,588
FY 2015	6,084	854	3,027	3,027	6,053	12,992
FY 2016	6,243	874	3,121	3,121	6,243	13,359
FY 2017	6,483	903	3,242	3,242	6,483	13,870
FY 2018	6,777	942	3,388	3,388	6,777	14,495
FY 2019	7,091	963	3,537	3,537	7,074	15,127
FY 2020	7,446	1,049	3,718	3,718	7,437	15,932

Significant statutory changes within the past decade are:

- In 2014, an additional one percentage point of the four percent State sales tax was shifted from the General Fund to the sales tax revenue bond fund (STRBF).

- In 2017, the sales tax incentives for businesses to locate or relocate in the Murray Street area and lower Manhattan were extended. The lease must begin by September 1, 2020, for the Murray Street exemption and September 1, 2022, for the lower Manhattan exemption. The exemptions expire in December of the following year. These incentives have been in place since 2005.

- In 2019, NYS required marketplace providers to collect sales tax on sales of tangible personal property that they facilitate for marketplace sellers. Additionally, the outdated exemption for the transportation, transmission or distribution of gas or electricity when purchased from ESCOs (Energy Service Companies) was eliminated.

Vapor Products Tax

VAPOR PRODUCTS TAX (millions of dollars)								
		FY 2020	FY 2021	Change		FY 2022	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
Special Revenue Funds	HCRA	10.4	27.0	16.6	159.6	16.0	(11.0)	(40.7)
All Funds Total		**10.4**	**27.0**	**16.6**	**159.6**	**16.0**	**(11.0)**	**(40.7)**

FY 2021 receipts are estimated to increase from FY 2020 results mainly due to the first full-year of the tax being effective partially offset by the part-year impact of the ban on all flavored vapor products other than tobacco flavored products.

FY 2022 receipts are projected to decrease from the current year due to the full-year impact of the ban on all flavored vapor products other than tobacco flavored products.

Base and Rate

A 20 percent tax is imposed on receipts from the retail sale of vapor products sold in NYS. It is collected by the vapor products dealer and remitted monthly, quarterly, or annually with applicable sales tax returns to DTF. Vapor products include any noncombustible liquid or gel, regardless of the presence of nicotine, that is used in an electronic cigar, cigarillo, pipe, as well as vaping or hookah pens or other similar devices. Vapor products do not include any FDA approved drug or medical device.

Liability

Taxable vapor products consumption is a function of retail vapor product prices and trends in vapor products consumption.

Administration

Vapor products dealers are licensed by the commissioner of DTF to sell vapor products in NYS. Dealers apply and register each location or each vending machine in which vapor products are sold. Registered dealers must reapply for the following calendar year annually on or before September 20th.

Corporation Franchise Tax

CORPORATION FRANCHISE TAX RECEIPTS (millions of dollars)								
		FY 2020	FY 2021	Change		FY 2022	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	Non-Audits	3,388.5	3,097.0	(291.5)	(8.6)	2,882.0	(215.0)	(6.9)
	Audits	402.6	305.0	(97.6)	(24.2)	630.0	325.0	106.6
	Total	3,791.1	3,402.0	(389.1)	(10.3)	3,512.0	110.0	3.2
Special Revenue Funds (MMTOA)	Non-Audits	930.8	836.0	(94.8)	(10.2)	842.0	6.0	0.7
	Audits	102.4	65.0	(37.4)	(36.5)	100.0	35.0	53.8
	Total	1,033.2	901.0	(132.2)	(12.8)	942.0	41.0	4.6
All Funds	**Non-Audits**	**4,319.3**	**3,933.0**	**(386.3)**	**(8.9)**	**3,724.0**	**(209.0)**	**(5.3)**
	Audits	**505.0**	**370.0**	**(135.0)**	**(26.7)**	**730.0**	**360.0**	**97.3**
	Total	**4,824.3**	**4,303.0**	**(521.3)**	**(10.8)**	**4,454.0**	**151.0**	**3.5**

FY 2021 receipts are estimated to decrease from FY 2020 results, due to the expectation of gross receipts declining as a result of projected large declines in corporate profits and investment in equipment and software, in addition to the continued phase-out of the capital base that will be complete in 2021. Audit collections are also expected to decrease from FY 2020.

FY 2022 receipts are projected to increase from FY 2021 as audit collections are projected to increase substantially over the current fiscal year. Gross receipts are projected to increase slightly while refunds are expected to decrease slightly.

Base and Rate

The corporation franchise tax is levied by Articles 9-A and 13 of the Tax Law on a variety of different corporation types, namely: C corporations, S corporations, manufacturers, real estate investment trusts (REITs), and regulated invest companies (RICs).

For C corporations under Article 9-A, corporation franchise tax liability is the highest tax calculated under three alternative bases which are:

- A tax measured by the business income base subject to a tax rate of 6.5 percent, except qualified emerging technology companies (QETC), which are subject to a tax rate of 4.875 percent, and manufacturers, which are exempt from this base. For Tax Year 2017, this tax base represents approximately 87 percent of C corporations' tax liability;

- A tax measured by the capital base subject to the rates below, representing approximately 10 percent of C corporations' liability for Tax Year 2017; and

C CORPORATIONS CAPITAL BASE RATES		
	TY 2020	TY 2021 & Thereafter
Qualified New York Manufacturers and QETCs	0.019%	0.000%
Cooperative Housing Corporations	0.025%	0.000%
Remaining Taxpayers	0.025%	0.000%

- A tax measured by the fixed dollar minimum, with the remaining three percent of tax liability for Tax Year 2017.

C-Corps conducting business in the MCTD are subject to an additional surcharge of 29.4 percent in TY 2020 and 30.0 percent in TY 2021. The rate is computed annually by DTF to maintain a flat liability with a fluctuating tax base.

Under Article 9-A, REITs, RICs and S-corps pay the fixed dollar minimum amount.

Under Article 13, a 9 percent tax is imposed on certain not-for-profit entities on business income earned from activities not related to their exempt purpose.

Liability

The link between underlying corporate tax liability and cash receipts in any given SFY is often obscured by the timing of payments, the carry forward of prior year losses or credits and the reconciliation of prior year liabilities. Tax collections are the net payments and adjustments made by taxpayers on returns and extensions over the course of the SFY.

Tax liability in the current year is based on estimated economic performance for the same year. It is generally calculated by using tax bases, tax rates, special deductions and additions, losses, and tax credits. Since taxpayers must pay estimated taxes months in advance of knowing actual liability, it is difficult for taxpayers to determine the proper level of payments needed over the course of a year. This is especially true when business or economic conditions change. Volatility in the underlying relationship between payments and liability is often compounded by the difference between a taxpayer's tax year and the SFY.

Administration

Corporation franchise taxpayers make quarterly tax payments after their fiscal year ends based on their estimated tax liability, making periodic adjustments to these payments as their actual liability for a given tax year becomes more definite. A final settlement payment is due 106 days from the end date of a taxpayer's fiscal year to reconcile that year's tax liability.

The overwhelming majority of corporation franchise taxpayers have a December 31st FYE (Fiscal Year End), but all taxpayers follow the same quarterly schedule based on their own FYE.

Corporations that reasonably expect their tax liability to exceed $1,000 for the current tax year are required to make a mandatory first installment payment based on their tax liability from two years prior. For corporations expecting a liability of $100,000 or more, the mandatory first installment payment is 40 percent of the corporation's tax liability. The remainder of corporations are required to pay 25 percent of their tax liability.

History

CORPORATION FRANCHISE TAX RECEIPTS HISTORY
(millions of dollars)

	General Fund			Special Revenue Funds (MMTOA)			All Funds		
	Non-Audit	Audits	Total	Non-Audit	Audits	Total	Non-Audit	Audits	Total
FY 2011	1,788	684	2,472	248	126	374	2,036	810	2,846
FY 2012	1,805	919	2,724	292	161	453	2,097	1,080	3,176
FY 2013	1,964	659	2,624	292	93	385	2,257	752	3,009
FY 2014	2,261	984	3,245	394	173	567	2,654	1,158	3,812
FY 2015	2,470	520	2,990	463	95	558	2,933	615	3,548
FY 2016[1]	3,013	750	3,763	574	190	764	3,587	940	4,527
FY 2017	1,937	538	2,476	515	175	690	2,452	713	3,166
FY 2018	1,764	562	2,326	564	190	754	2,328	752	3,080
FY 2019	2,985	425	3,410	789	98	887	3,773	523	4,297
FY 2020	3,389	403	3,791	931	102	1,033	4,319	505	4,824

[1]Corporate tax reform merged the bank tax into the corporation franchise tax.

Significant statutory changes within the past decade are:

- The Excelsior Jobs Program was created in 2010 as New York State's primary economic development program—making fully refundable tax credits for tax years beginning in 2011, over a benefit period of up to five years, available to qualifying businesses engaged in biotechnology, pharmaceuticals, high tech, green tech, financial services, agriculture, and manufacturing. Since its creation, the Program has: added an energy incentive; lengthened the benefit period from five to ten years; made tax credits more flexible; expanded eligibility to include qualifying business engaged in entertainment, music production, and video game software development, extended the claims period through Tax Year 2039; and increased incentives for a number of targeted industries. In addition to the larger Excelsior Jobs Program, three sub-programs have been created under both its heading and funding:

- Empire State Jobs Retention Program Tax Credit: Beginning in 2012, qualifying businesses at risk of leaving the State due to a natural disaster were offered a tax credit equal to 6.85 percent of gross wages of jobs retained in New York State.

- Employee Training Incentive Program (ETIP) Tax Credit: Beginning in Tax Year 2015, qualifying businesses were offered a tax credit equal to 50 percent of employee training or internship costs with a maximum credit allowance of $10,000 per employee and $3,000 per intern, and a $5 million annual allocation cap.

- Life Sciences Research and Development Tax Credit: Beginning in 2018, existing life science companies were eligible to participate in the Excelsior Jobs Program and new life sciences companies were eligible for a 15 or 20 percent refundable tax credit on new research and development expenditures based on company size.

- The Empire State Film Production Tax Credit has been expanded and extended several times since its creation in 2004. Since 2010, $420 million has been the annual authorization for the credit which has been extended four times through Tax Year 2025. Beginning in 2010, $7 million of the credit was dedicated to post production, then increased to $25 million in 2015. In 2020, the credit was reduced to 25 percent from 30 percent, imposed a minimum budget requirement of $1 million for films produced in New York City and the counties of Nassau, Suffolk, Rockland and Westchester ($250,000 if filmed elsewhere in the State), and excluded new variety shows from credit eligibility.

- The New York Youth Works Program was created in 2011, providing a tax credit to businesses employing at-risk youth in part-time or full-time positions.

- The Rehabilitation of Historic Properties Credit is equal to 20 percent of qualified rehabilitation expenditures made by the taxpayer with respect to a qualified historic structure in New York State with a cap of $5 million per structure. Since its creation in 2006, the credit has been extended twice and is effective through Tax Year 2024.

- In 2014, Corporate Tax Reform established a single modern system of taxation for general business corporations and banking corporations by repealing the separate provisions of the Tax Law for banking corporations (Article 32) and amending the business corporation tax under Article 9-A to accommodate changes in the financial services industry and make other modernization changes. This was accomplished by replacing the entire net income base with a similar business income base at a tax rate of 6.5 percent, phasing out the capital base over a six-year period, and making the MTA surcharge permanent.

- Beginning in 2014, the entire net income tax rate for qualified NYS manufacturers, which was 6.5 percent, was eliminated. Those manufacturers are eligible for a non-refundable Property Tax Credit equal to 20 percent of the real property taxes paid.

- In 2015, the Brownfield Clean-Up Program was reformed, and tax credits were extended through FY 2026. Reforms included the prioritization of site redevelopment in economically distressed areas, low income housing, or properties that are upside down or underutilized. The Program also provided for the creation of an expedited remediation program (BCP-EZ), gave a more detailed description of eligible costs for redevelopment tax credits, and allowed the real property tax and environmental remediation insurance credits to sunset.

Corporation and Utilities Tax

CORPORATION AND UTILITIES TAXES (millions of dollars)		FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
General Fund		518.2	460.0	(58.2)	(11.2)	449.0	(11.0)	(2.4)
Special Revenue Funds (MTOAF)	Transmission Tax	58.3	44.0	(14.3)	(24.5)	56.0	12.0	27.3
	MCTD Surcharge	113.7	90.0	(23.7)	(20.9)	89.0	(1.0)	(1.1)
	Total	172.0	134.0	(38.0)	(22.1)	145.0	11.0	8.2
Capital Projects Funds	DHBTF	14.6	11.0	(3.6)	(24.5)	14.0	3.0	27.3
All Funds Total		**704.7**	**605.0**	**(99.7)**	**(14.2)**	**608.0**	**3.0**	**0.5**

FY 2021 receipts are estimated to decrease from FY 2020 results due to declines in telecommunications and utilities gross receipts collections. Audit collections are expected to return to trend after particularly strong FY 2020 levels and refunds are anticipated to increase over the prior fiscal year.

FY 2022 receipts are projected to increase slightly over the current fiscal year as an expected decline in refunds will be largely offset by further declines in telecommunications gross receipts. Utilities gross receipts are projected to remain level with FY 2021.

Base and Rate

The corporation and utilities tax is an accumulation of several smaller taxes levied on the telecommunications industry, utilities, and transportation and transmission companies.

A gross receipts tax on telecommunications services is levied at a rate of 2.5 percent on non-mobile telecommunication services, and at 2.9 percent on mobile telecommunication services.

A 2 percent gross receipts tax is imposed on charges for the transportation, transmission, distribution, or delivery of electric and gas utility services for residential customers.

Transportation and transmission companies are taxed both on their gross earnings and their capital stock. A franchise tax of 0.375 percent is levied on the gross earnings of transportation and transmission companies excluding international, interstate, and inter-Local Access Transport Areas (LATAs) services, and 30 percent of intra-LATA gross receipts. In addition, a franchise tax on the capital stock of transportation and transmission companies is imposed at the highest of the following three alternatives:

- 1.5 mills per dollar of the net value of capital stock allocated to NYS;

- 0.375 mills per dollar of par value for each one percent of dividends paid on capital stock if dividends amount to six percent or more; or

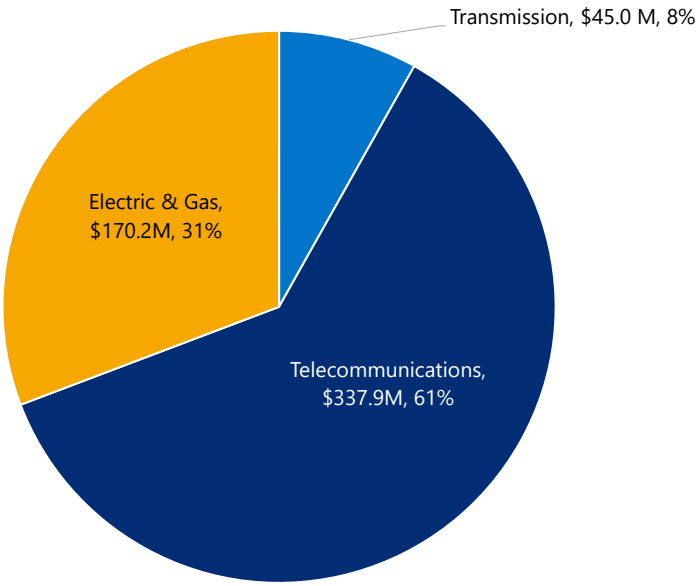
- A minimum tax of $75.

Railroad and trucking companies subject to the corporation and utilities tax are taxed at a rate of 0.375 percent of gross earnings, including an allocated portion of receipts from interstate transportation-related transactions.

Corporation and utilities taxpayers conducting business within the MCTD are subject to a 17 percent surcharge on their MCTD-associated liability, collections from which are directed to the Mass Transportation Operating Assistance Fund (MTOAF).

Liability

2017 Corporation and Utilities Tax Liability by Industry



Administration

Corporation and utilities taxpayers make quarterly tax payments after their fiscal year end based on their estimated tax liability, making periodic adjustments to these payments as their actual liability for a given tax year becomes more definite. A final settlement payment is due 106 days from the end date of a taxpayer's fiscal year to reconcile that year's tax liability. Additionally, in March of every year, taxpayers are required to make a mandatory first installment equal to 40 percent of their tax from two tax years prior.

The vast majority of corporation and utilities taxpayers have a December 31st FYE, but all taxpayers follow the same quarterly schedule based on their own FYE.

History

CORPORATION AND UTILITIES TAXES RECEIPTS HISTORY
(millions of dollars)

		Special Revenue Funds (MTOAF)				
	General Fund	Transmission Tax	MCTD Surcharge	SRF Total	Capital Projects Fund (DHBTF)	All Funds Total
FY 2011	616	66	116	181	16	814
FY 2012	617	53	114	167	13	797
FY 2013	686	59	135	194	15	895
FY 2014	615	54	115	169	14	797
FY 2015	576	38	103	141	10	727
FY 2016	594	58	107	165	15	774
FY 2017	538	61	106	167	15	720
FY 2018	570	55	109	164	14	748
FY 2019	495	61	101	162	15	673
FY 2020	518	58	114	172	15	705

Significant statutory changes within the past decade are:

- In 2014, corporate tax reform repealed the organization tax on in-State corporations and the license and maintenance fees on out-of-state corporations.

- In 2015, a State excise tax rate of 2.9 percent and a 0.721 percent MCTD rate was imposed on the sale of mobile telecommunications services.

Insurance Taxes

INSURANCE TAXES (millions of dollars)							
	FY 2020	FY 2021	Change		FY 2022	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	2,052.6	1,919.0	(133.6)	(6.5)	1,973.0	54.0	2.8
Special Revenue Funds (MMTOA)	253.3	224.0	(29.3)	(11.6)	237.0	13.0	5.8
All Funds Total	**2,306.0**	**2,143.0**	**(163.0)**	**(7.1)**	**2,210.0**	**67.0**	**3.1**

FY 2021 receipts are estimated to decrease significantly from FY 2020 results due to a decline in gross receipts. FY 2020 gross receipts included payments covering two liability periods from the conversion of a not-for-profit insurer to a for-profit insurer. This is not expected to reoccur in FY 2021. Corporate profits are also projected to decline sharply in 2020.

FY 2022 receipts are projected to increase over FY 2021 as growth in base tax liability is expected to occur. Refunds are also expected to decline to trend levels.

Base and Rate

The State imposes taxes on insurance corporations, insurance brokers, and certain insured for the privilege of conducting business or otherwise exercising a corporate franchise in NYS. These are grouped into two categories for tax purposes: non-life insurers and life insurers.

Non-life insurers are subject to a premiums-based tax with a $250 minimum tax:

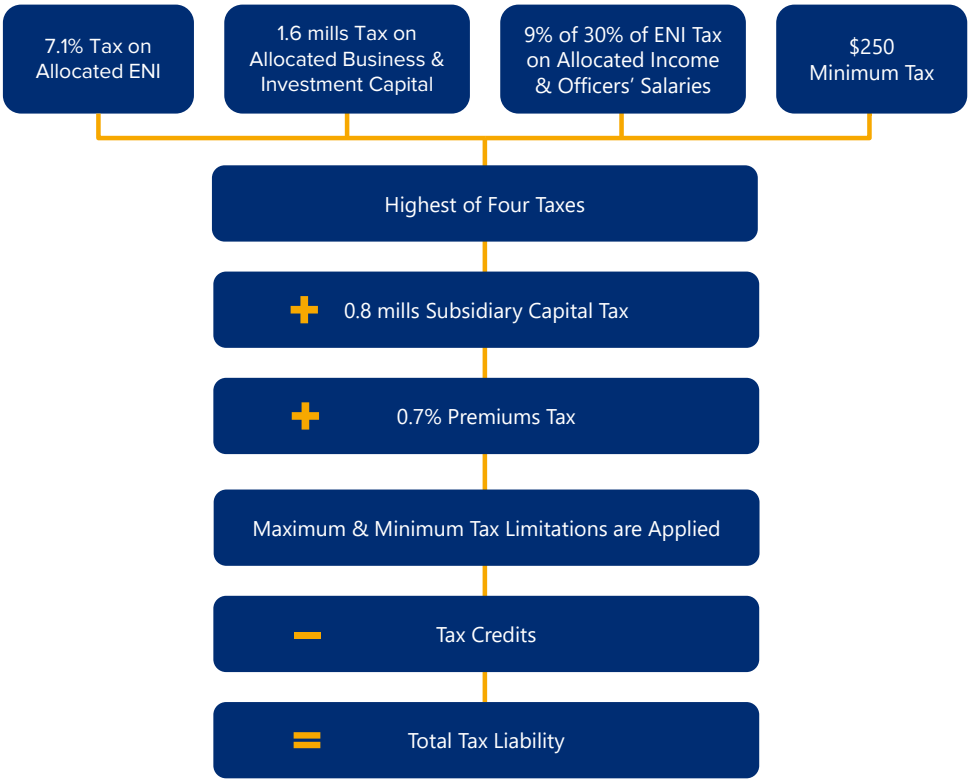
- Accident and health premiums received by non-life insurers are taxed at 1.75 percent; and
- All other premiums received by non-life insurers are taxed at the rate of 2 percent.

The franchise tax on life insurers has two components:

- One component is the highest amount of liability computed under four alternative bases. In addition, this component includes a 0.8 of one mill tax rate, which applies to each dollar of subsidiary capital allocated to NYS. Tax is allocated to NYS under the entire net income (ENI) base by a formula that apportions ENI based on weighted ratios of premiums (with a weight of nine) and wages (with a weight of one) earned or paid in NYS, to total premiums and total wages for all employees for the tax year.
- An additional component is a 0.7 percent tax on gross premiums, less returned premiums, that applies to premiums written on risks located or resident in NYS. This tax is added to the sum of the tax due on the highest of the alternatives from the income base plus the tax

imposed on subsidiary capital. Maximum and minimum tax limitations are computed based on net premiums. Life insurers determine their maximum limitation by multiplying net premiums by 2 percent and their minimum limitation by multiplying net premiums by 1.5 percent, with their total tax calculated within these limits.

The computation of tax on life insurance companies is illustrated below.



Taxpayers conducting business in the MCTD are subject to a 17 percent surcharge on the portion of their tax liability, which is attributable to the MCTD area. The collections from the surcharge are deposited into the MTOAF.

There is also a premiums tax imposed on captive insurance companies (i.e., affiliates that insure the risks of the other corporate members) licensed by the Superintendent of the Department of Financial Services (DFS) for the privilege of conducting business or otherwise exercising a corporate franchise in NYS. The tax is imposed on net premiums and net reinsurance premiums (gross premiums less return premiums) written on risks located or residing in NYS at rates which vary based on the amount of net premiums. The top rate is 0.4 percent on direct premiums and 0.225 percent on reinsurance premiums. Captive insurers are subject to a minimum tax of $5,000. Tax credits are not allowed against the tax imposed on captive insurance companies, and these companies are not subject to the MCTD business tax surcharge.

Other Taxes Imposed on Insurers

Article 33-A of the Tax Law imposes a tax at the rate of 3.6 percent of premiums on independently procured insurance. This tax is imposed on any insured purchase or renewal of an insurance contract covering certain property and casualty risks from an unauthorized insurer where the home state of the insured is NYS. An unauthorized insurer is an insurer not authorized to transact business in NYS under a certificate of authority from the Superintendent of DFS.

The Insurance Law imposes a premiums tax on a licensed excess line insurance broker (i.e., covering unique or very large risks) when a policy covering a risk, where the home state of the insured is NYS, is procured through such broker from an unauthorized insurer. Transactions involving a licensed excess lines broker and an insurer not authorized to do business in NYS, are permissible under limited circumstances delineated in Article 21 of the Insurance Law. The tax is imposed at a rate of 3.6 percent of premiums covering risks located in NYS.

The Dodd-Frank Wall Street Reform and Consumer Protection Act of 2010 gave the home state of the insured the sole authority to regulate and collect taxes on these transactions. Generally, the insured's home state is the state where it is headquartered, or in the case of individuals, their place of residence.

The Insurance Law authorizes the Superintendent of DFS to assess and collect retaliatory taxes from a foreign insurance corporation when the overall tax rate imposed by its home jurisdiction on NYS companies exceeds the comparable tax rate imposed by NYS on such foreign insurance companies.

Retaliatory taxes have been employed by the states since the 19th century to ensure a measure of fairness in the interstate taxation of insurance corporations. Retaliatory taxes deter other states from discriminating against foreign corporations and effectively require states with a domestic insurance industry to maintain an overall tax rate on insurance corporations that is generally consistent with other states.

Nevertheless, there are a variety of mechanisms for taxing insurance corporations, and differences in overall tax rates among states are inevitable. NYS provides an additional measure of protection for its domestic insurance industry by allowing domestic corporations to claim a credit under Article 33 of the Tax Law for 90 percent of the retaliatory taxes legally required to be paid to other states.

Liability

The link between underlying insurance tax liability and cash receipts in any given SFY is often obscured by the timing of payments and the reconciliation of prior year liabilities. Tax collections are the net payments and adjustments made by taxpayers on returns and extensions over the course of the SFY.

Tax liability in the current year is based on estimated performance for the same year. It is generally calculated by using premiums, tax bases, tax rates, special deductions and additions, losses, and

tax credits. Since taxpayers must pay estimated taxes months in advance of knowing actual liability, it is difficult for taxpayers to determine the proper level of payments needed over the course of a year. This is especially true if business or economic conditions change. Volatility in the underlying relationship between payments and liability is often compounded by the difference between a taxpayer's tax year and the SFY.

NYS property and casualty sector premiums history and growth from 2012 through 2019 are listed below.

NEW YORK STATE CALENDAR YEAR PROPERTY AND CASUALTY INSURANCE PREMIUMS
(millions of dollars)

Insurance Lines	2012	2013	2014	2015	2016	2017	2018	2019
Automobile								
Premiums	12,637	13,074	13,584	14,145	15,004	15,876	16,635	17,045
Growth	4.0%	3.5%	3.9%	4.1%	6.1%	5.8%	4.8%	2.5%
Workers' Compensation								
Premiums	4,755	5,192	5,261	5,524	5,894	5,943	5,918	5,621
Growth	14.4%	9.2%	1.3%	5.0%	6.7%	0.8%	(0.4%)	(5.0%)
Commercial Multi-Peril								
Premiums	3,249	3,488	3,614	3,592	3,659	3,863	3,958	4,097
Growth	6.3%	7.3%	3.6%	(0.6%)	1.9%	5.6%	2.5%	3.5%
General Liability								
Premiums	4,466	4,978	5,314	5,710	5,830	5,647	6,093	6,760
Growth	9.2%	11.5%	6.8%	7.5%	2.1%	(3.1%)	7.9%	10.9%
Homeowner's Multi-Peril								
Premiums	4,704	4,902	5,086	5,196	5,224	5,286	5,397	5,593
Growth	4.5%	4.2%	3.8%	2.2%	0.5%	1.2%	2.1%	3.6%
Other								
Premiums	6,133	6,373	6,436	6,392	6,381	6,295	6,628	6,751
Growth	(1.0%)	3.9%	1.0%	(0.7%)	(0.2%)	(1.4%)	5.3%	1.9%
Total Property and Casualty Premiums								
Premiums	**35,944**	**38,005**	**39,294**	**40,558**	**41,993**	**42,908**	**44,629**	**45,867**
Growth	**5.3%**	**5.7%**	**3.4%**	**3.2%**	**3.5%**	**2.2%**	**4.0%**	**2.8%**

Source: New York State Department of Financial Services Annual Report to the Governor and the Legislature and the NAIC's I-site after 2012.

Administration

Insurance taxpayers make quarterly estimated payments after their fiscal year-end based on their estimated tax liability, making periodic adjustments to these payments as their actual liability for a given tax year becomes more definite. A final settlement payment is due 106 days from the end date of a taxpayer's fiscal year to reconcile that year's tax liability.

The overwhelming majority of insurance taxpayers have a December 31st FYE, but all taxpayers follow the same quarterly schedule based on their own FYE.

Insurers that reasonably expect their tax liability to exceed $1,000 for the current tax year are required to make a mandatory first installment payment based on their tax liability from two years prior. For corporations expecting a liability of $100,000 or more, the mandatory first installment payment is 40 percent of the insurer's tax liability, with the remainder paying 25 percent of their tax liability.

History

INSURANCE TAXES RECEIPTS HISTORY
(millions of dollars)

	General Fund	Special Revenue Funds (MMTOA)	All Funds Total
FY 2011	1,217	134	1,351
FY 2012	1,257	157	1,413
FY 2013	1,346	163	1,509
FY 2014	1,298	146	1,444
FY 2015	1,375	158	1,533
FY 2016	1,419	161	1,580
FY 2017	1,410	170	1,580
FY 2018	1,609	168	1,777
FY 2019	1,638	199	1,837
FY 2020	2,053	253	2,306

Significant statutory changes within the past decade are:

- The Rehabilitation of Historic Properties Credit is equal to 20 percent of qualified rehabilitation expenditures made by the taxpayer with respect to a qualified historic structure in New York State with a cap of $5 million per structure. Since its creation in 2006, the credit has been extended twice and is effective through Tax Year 2024.

- The NYS Low Income Housing Credit (LIHC) is based on the existing Federal program and requires an agreement between the taxpayer and the Division of Housing and Community Renewal (DHCR) for a long-term commitment to low-income housing. The credit amount allocated is allowed as a credit against tax for ten years. Since its creation in 2000, the allocation pool has been increased and extended numerous times and expanded to allow transferability to third parties.

Petroleum Business Taxes

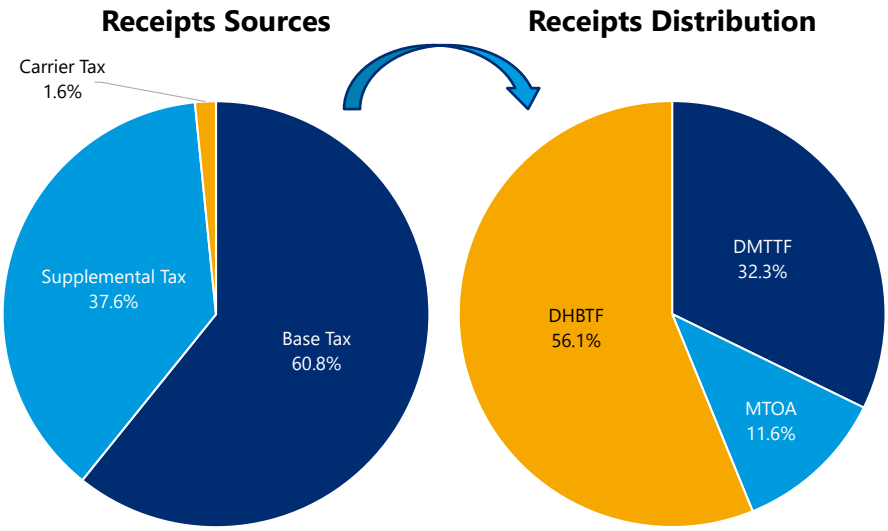
PETROLEUM BUSINESS TAXES (millions of dollars)									
			FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
Receipts Sources		Base Tax	705.5	585.8	(119.7)	(17.0)	638.9	53.1	9.1
		Supplemental Tax	436.9	364.2	(72.7)	(16.6)	402.2	38.0	10.4
		Carrier Tax	18.3	16.9	(1.4)	(7.7)	17.9	1.0	5.7
		Total Taxes	**1,160.8**	**967.0**	**(193.8)**	**(16.7)**	**1,059.0**	**92.0**	**9.5**
Fund Distribution	Capital Projects Funds (DHBTF)		651.9	539.7	(112.2)	(17.2)	593.0	53.2	9.9
	Special Revenue Funds	DMTTF	374.3	314.3	(60.0)	(16.0)	343.3	29.0	9.2
		MTOA	134.6	113.0	(21.6)	(16.0)	122.7	9.7	8.6
		Total	508.9	427.3	(81.6)	(16.0)	466.0	38.8	9.1
	All Funds Total		**1,160.8**	**967.0**	**(193.8)**	**(16.7)**	**1,059.0**	**92.0**	**9.5**

FY 2021 receipts are estimated to decrease from FY 2020 results due to significant declines in gasoline and diesel consumption, mainly attributable to the significant negative impact of COVID-19 on the economy and travel activity. Additionally, receipts are further impacted by the two percent decline in the PBT rate index effective January 1, 2020, paired with a five percent decline in the PBT rate index effective January 1, 2021.

FY 2022 receipts are projected to increase from the current year due to strong growth in both gasoline and diesel consumption as the economy and travel activity are expected to continue recovering towards pre-COVID-19 levels. The projected increases in gasoline and diesel demand are slightly offset by the five percent decline in the PBT rate index effective January 1, 2021, coupled with an estimated five percent decline in the PBT rate index effective January 1, 2022.

Petroleum business tax receipts derived from motor fuel and diesel motor fuel are assumed to follow the same consumption trends as fuel subject to the motor fuel excise tax (refer to *Motor Fuel Tax* section of this volume). In terms of the share of PBT base and supplemental receipts in FY 2020, gasoline and diesel receipts based on reported gallonage constituted 85 and 12 percent of the total, respectively.

FY 2020 Actual PBT Resources



Base and Rate

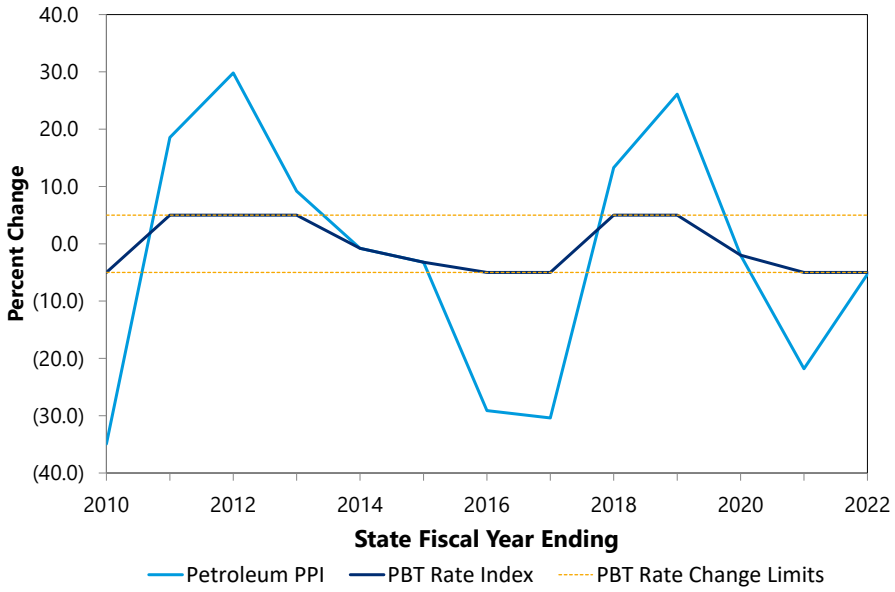
Article 13-A of the Tax Law imposes a tax on petroleum businesses for the privilege of operating in NYS, based upon the quantity of various petroleum products imported for sale or use in NYS. PBT rates have two components: the base tax, whose rates vary by product type; and the supplemental tax, which, in general, is imposed at a uniform rate. The following product types are subject to the petroleum business tax:

- automotive fuel;
- aviation gasoline or kerosene-jet fuel;
- non-highway use diesel fuels;
- railroad diesel fuel; and
- residual petroleum products.

Tax rates are indexed with annual adjustments made on January 1st of each year to the base and supplemental tax rates to reflect the percent change in the producer price index (PPI) for refined petroleum products for the 12 months ending August 31st of the preceding year. To prevent significant changes in tax rates resulting from large changes in the petroleum PPI, tax rates cannot increase or decrease by more than five percent per year. In addition to the five percent cap on tax rate changes, the statute requires, in general (i.e., excluding diesel), that the base and supplemental tax rates each be rounded to the nearest tenth of one cent. As a result, the percentage change in tax rates is usually less than the five percent limit. Refer to DTF for specific tax indexes.

Based on changes in the petroleum PPI, the PBT rate index declined by two percent effective January 1, 2020, and declined by five percent effective January 1, 2021. The petroleum PPI is estimated to decline by 5.3 percent from September 2020 through August 2021, resulting in an estimated five percent decline in PBT rates effective January 1, 2022.

Petroleum Producer Price and PBT Rate Indexes



The *Motor Fuel Tax* section of this volume contains a map that ranks New York State 14th in combined fuel taxes imposed among the 50 states and the District of Columbia.

Liability

PBT receipts are primarily a function of the number of gallons of fuel imported into NYS by distributors. Taxable gallonage is largely determined by overall fuel prices, the number of gallons held in inventories, the fuel efficiency of motor vehicles and overall State economic performance.

Administration

The tax is collected monthly in conjunction with NYS motor fuel tax (Article 12-A). Article 13-A also imposes the petroleum business carrier tax on fuel purchased outside NYS and consumed within NYS. The carrier tax is collected quarterly along with the fuel use tax portion of the highway use tax (refer to *Highway Use Tax* section of this volume).

Businesses with annual motor fuel and petroleum business tax liability of more than $5 million are required to electronically remit their tax liability for the first 22 days of the month, within 3 business days after that date. Taxpayers may make either a minimum payment of 75 percent of the

comparable month's tax liability for the preceding year, or 90 percent of actual liability for the first 22 days. The tax for the balance of the month is paid with the monthly returns filed by the 20th of the following month.

History

PETROLEUM BUSINESS TAX RECEIPTS HISTORY
(millions of dollars)

	Receipts Sources				Fund Distribution			
	Base Tax	Supplemental Tax	Carrier Tax	Total Taxes	Capital Projects Funds (DHBTF)	Special Revenue Funds DMTTF	Special Revenue Funds MTOA	All Funds Total
FY 2011	661	413	17	1,090	606	356	129	1,090
FY 2012	661	419	19	1,100	612	359	129	1,100
FY 2013	688	430	21	1,140	634	372	134	1,140
FY 2014	704	429	22	1,155	641	376	137	1,155
FY 2015	700	436	22	1,158	644	378	136	1,158
FY 2016	677	426	20	1,124	625	367	132	1,124
FY 2017	682	423	18	1,124	624	367	133	1,124
FY 2018	664	413	15	1,092	608	355	129	1,092
FY 2019	705	444	16	1,165	654	376	135	1,165
FY 2020	705	437	18	1,161	652	374	135	1,161

Significant statutory changes within the past decade are:

- Beginning August 1, 2013, all interdistributor sales of highway diesel motor fuel sold below the rack (i.e., not delivered by truck) are exempt from tax.
- Originally enacted in 2006, the exemption on alternative fuels (E85, B20, CNG, & hydrogen) has been extended several times for various durations.
- Effective in 2016, all revenues collected from the PBT on aviation fuel are set aside for airport use in accordance with Federal regulations.

Authorized Combative Sports Tax

AUTHORIZED COMBATIVE SPORTS TAX (millions of dollars)							
	FY 2020	FY 2021	Change		FY 2022	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	1.7	0.1	(1.6)	(94.0)	1.9	1.9	1,850.0
All Funds Total	**1.7**	**0.1**	**(1.6)**	**(94.0)**	**1.9**	**1.9**	**1,850.0**

FY 2021 receipts are estimated to substantially decrease from FY 2020 results due to the negative impact of COVID-19 on premier events being held in NY.

FY 2022 is expected to rebound to typical levels as the economy improves and entertainment venues reopen.

Base and Rate

Authorized combative sports fall into one of two categories for NYS tax purposes.

- The following is levied on boxing, sparring, and wrestling events:
    - a 3 percent tax on gross receipts from ticket sales (with a maximum of $50,000 in taxes due per event); plus
    - a 3 percent tax on gross receipts from broadcasting rights (with a maximum of $50,000 in taxes due per event).
- The following is levied on kick boxing, single discipline martial arts, and mixed martial arts events:
    - an 8.5 percent tax on gross receipts from ticket sales (no maximum amount of taxes due per event); plus
    - a 3 percent tax on gross receipts from broadcasting rights and digital internet streaming (with a maximum of $50,000 in taxes due per event).

Liability

Authorized combative sports tax liability is largely affected by participant popularity and the number of high-profile events held in a given State Fiscal Year.

Administration

Taxes on gross receipts from ticket sales are remitted to DTF no later than 10 days after the event. Taxpayers remit combative sports taxes on gross receipts from broadcasting rights and digital internet streaming (kick boxing, single discipline martial arts, or mixed martial arts events, only) to DTF by the end of the month in which the event occurred (or within the first five days of the following month if the event occurred in the last five days in a month).

History

AUTHORIZED COMBATIVE SPORTS TAX RECEIPTS HISTORY
(thousands of dollars)

	General Fund	All Funds Total
FY 2011	361	361
FY 2012	413	413
FY 2013	658	658
FY 2014	645	645
FY 2015	627	627
FY 2016	871	871
FY 2017	2,378	2,378
FY 2018	2,033	2,033
FY 2019	1,959	1,959
FY 2020	1,661	1,661

Within the past decade, the only significant statutory change was the 2016 expansion of the tax base to include kick boxing, single discipline martial arts, and mixed martial arts events.

Employer Compensation Expense Program

EMPLOYER COMPENSATION EXPENSE PROGRAM TAXES (thousands of dollars)							
	FY 2020	FY 2021	Change		FY 2022	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	1.0	1.6	0.6	64.3	2.9	1.3	79.5
Debt Service Funds (RBTF)	(1.0)	(1.6)	(0.6)	64.3	(2.9)	(1.3)	79.5
All Funds	**2.0**	**3.3**	**1.3**	**64.3**	**5.9**	**2.6**	**79.5**

All Funds FY 2021 receipts are estimated to increase substantially from FY 2020 results, reflecting increases in participation and the applicable tax rate. Wage declines are expected to suppress ECEP tax growth, but the projected effect is minimal.

All Funds FY 2022 receipts are projected to increase driven by wage growth coupled with continued increases in participation and the applicable tax rate.

Base and Rate

Employers electing to participate in the program are subject to a State tax on all annual payroll expenses in excess of $40,000 per employee. The tax rate is 1.5 percent in 2019, 3 percent in 2020, and 5 percent thereafter.

Liability

ECEP liability is a function of salaries earned by employees of participating employers and the applicable tax rate. Since liability is generated on a calendar year basis, collections in any given SFY will be a combination of liability from two distinct calendar years.

Administration

Employers wishing to participate in the ECEP during a given year must enroll with the DTF by December 1st of the preceding year. Employers may not deduct from an employee's wages an amount representing all or any portion of ECEP taxes.

Participating employers remit ECEP tax payments electronically with withholding tax payments, within three days of the respective payroll date. Taxpayers making quarterly withholding payments also make quarterly ECEP tax payments, due the last business day of the month following the end of the calendar quarter in which the taxpayer made the payroll (e.g., January 31st for the calendar quarter ending December 31st).

History

The ECEP was established in 2018, with Tax Year 2019 as the first year of participation eligibility. Participating employers pay an optional tax intended to mitigate the tax burden for employees affected by the SALT deduction limit. While the TCJA limits deductibility for individuals, it does not cap deductibility for ordinary and necessary business expenses paid or incurred by employers in carrying on a trade or business.

Estate Tax

ESTATE TAXES (millions of dollars)											
		FY 2020 Actual		FY 2021 Estimated		Receipts Change		FY 2022 Projected		Receipts Change	
		Number	Receipts	Number	Receipts	Dollar	Percent	Number	Receipts	Dollar	Percent
General Fund	Large	446	548.7	477	566.9	18.2	3.3	485	578.5	11.6	2.0
	Extra-Large	46	414.4	50	452.5	38.1	9.2	42	419.5	(33.0)	(7.3)
	Super-Large	3	107.0	5	192.6	85.6	80.0	2	60.0	(132.6)	(68.8)
	Total	495	1,070.1	532	1,212.0	141.9	13.3	529	1,058.0	(154.0)	(12.7)
All Funds		**495**	**1,070.1**	**532**	**1,212.0**	**141.9**	**13.3**	**529**	**1,058.0**	**(154.0)**	**(12.7)**

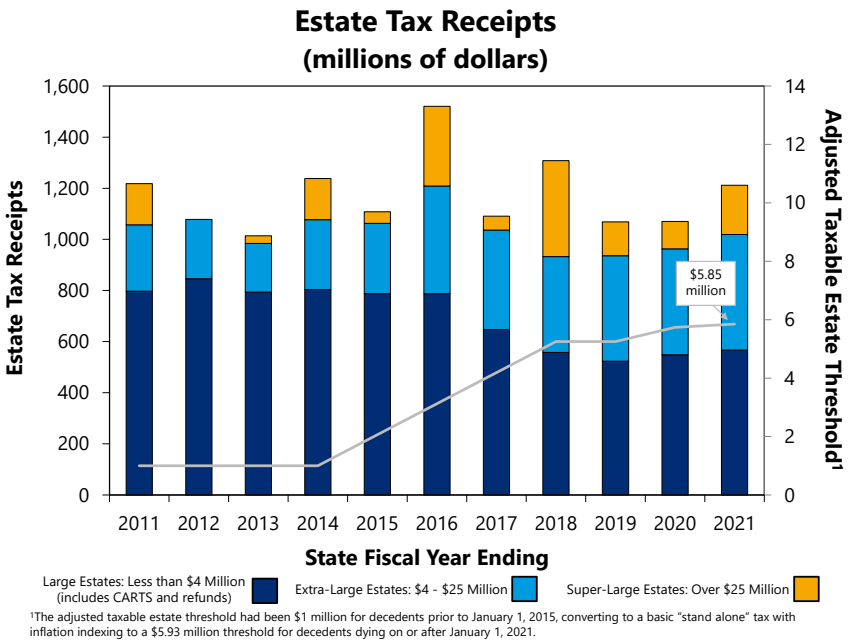
FY 2021 receipts are estimated to increase from FY 2020 results primarily due to the receipt of five super-large payments as of early January 2021.

FY 2022 receipts are projected to decrease from the current year mainly due to an expected return to a more historical number and average value of super-large payments, partially offset by projected growth in household net worth.

Base and Rate

NYS imposes a tax on the estates of deceased NYS residents and on the part of a non-resident's estate made up of real and tangible personal property located within NYS, less applicable deductions.[56] Based on the Federal Internal Revenue Code estate tax provisions, with minor modifications, NYS estate taxes are levied on a graduated scale with rates ranging from 3.06 to 16 percent of adjusted taxable estates.[57]

[56] NYS follows Federal guidelines for applicable estate tax deductions. See https://www.irs.gov/pub/irs-pdf/i706.pdf.
[57] See https://www.tax.ny.gov/pit/estate/etidx.htm for specific metrics on these provisions and rates.



Liability

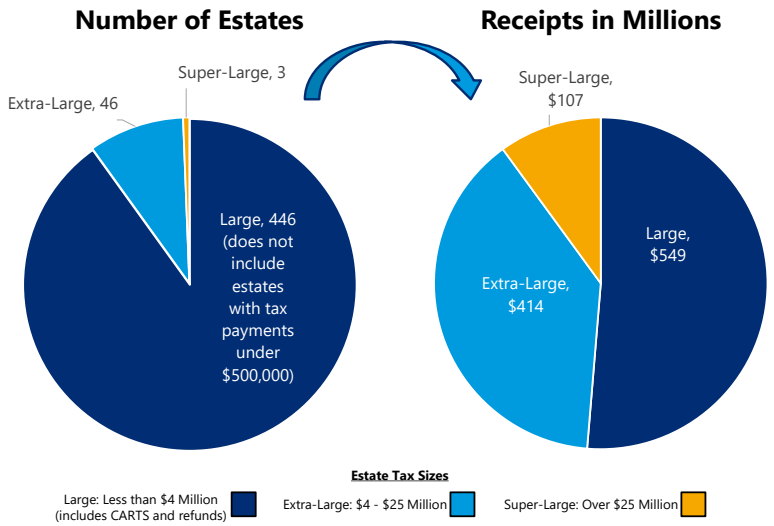
Estate tax receipts are historically volatile, as receipts are heavily influenced by both annual variations in the relatively small number of extra-large and super-large estates and the value of the equity market, given the large component of corporate stock in large taxable estates.

Administration

In general, estate tax is due to DTF nine months following the decedents death, with daily compounding interest charged on late payments. The DTF Commissioner may authorize a 12-month extension, or up to a 4-year extension in cases of undue hardship. The Surrogate Court has jurisdiction of the probate of the estate and the authority to finalize the amount of the estate tax owed.

The executor and beneficiaries who have received property are personally liable for the payment of the estate tax. In cases lacking a will, the Federal, NYS, and foreign death taxes are apportioned among the beneficiaries. Reciprocity with other states for the collection of inheritance and estate taxes aids NYS in the collection of non-resident estates.

FY 2020 Estate Tax Receipts by Estate Size



History

ESTATE TAX RECEIPTS HISTORY
(millions of dollars)

	Super-Large Estates (Over $25 Million)		Extra-Large Estates ($4 - $25 Million)		Large Estates* (Less than $4 Million)		Total Estate Taxes
	Number	Taxes	Number	Taxes	Number*	Taxes	
FY 2011	4	161	30	260	279	797	1,218
FY 2012	0	0	30	232	306	846	1,078
FY 2013	1	30	24	190	273	794	1,014
FY 2014	4	161	32	273	285	804	1,238
FY 2015	1	45	37	276	285	787	1,108
FY 2016	6	312	49	421	358	788	1,521
FY 2017	2	54	42	389	385	647	1,091
FY 2018	6	375	50	375	409	558	1,308
FY 2019	3	132	50	413	466	523	1,068
FY 2020	3	107	46	414	446	549	1,070

*Large Estates include CARTS and refunds; number of payments excludes estates with tax payments under $500,000.

Within the past decade, changes have been infrequent, with the only significant statutory change being the creation of a "stand alone" NYS estate tax in 2014. With a basic threshold amount that increased over four years, it equaled what would have been the Federal basic exemption amount (pursuant to Federal law as it existed on December 1, 2017) beginning January 1, 2019. The basic threshold amount is indexed to inflation on an annual basis. The basic exemption amount is $5.93 million for decedents dying on or after January 1, 2021.

Gaming

GAMING RECEIPTS (millions of dollars)									
			FY 2020 Actual	FY 2021 Estimated	Change Dollar	Change Percent	FY 2022 Projected	Change Dollar	Change Percent
Special Revenue Funds	Lottery	Education	2,472.7	2,250.0	(222.7)	(9.0)	2,466.0	216.0	9.6
	VLTs	Education	944.0	373.0	(571.0)	(60.5)	746.0	373.0	100.0
	Casinos	Education	150.7	56.0	(94.7)	(62.8)	128.8	72.8	130.0
		Localities	37.7	14.0	(23.7)	(62.8)	32.2	18.2	130.0
		Total	188.4	70.0	(118.4)	(62.8)	161.0	91.0	130.0
	IFS	Education	6.1	5.0	(1.1)	(18.0)	6.0	1.0	20.0
	TSC	State	52.4	338.4	286.0	545.8	102.8	(235.6)	(69.6)
		Localities	35.8	189.8	154.0	430.2	63.0	(126.8)	(66.8)
		Total	88.1	528.2	440.1	499.5	165.8	(362.4)	(68.6)
All Funds		**Education**	**3,573.5**	**2,684.0**	**(889.5)**	**(24.9)**	**3,346.8**	**662.8**	**24.7**
		State	**52.4**	**338.4**	**286.0**	**545.8**	**102.8**	**(235.6)**	**(69.6)**
		Localities	**73.5**	**203.8**	**130.3**	**177.4**	**95.2**	**(108.6)**	**(53.3)**
		Total	**3,699.4**	**3,226.2**	**(473.2)**	**(12.8)**	**3,544.8**	**318.6**	**9.9**

FY 2021 receipts compared to FY 2020 results:

- Traditional lottery (lottery) receipts are estimated to decrease primarily due to the negative impact of COVID-19 on sales in the first quarter of the fiscal year. Since that time through December 2020, no overall sales week has experienced more than a single digit percentage decline compared to the same week of the prior year, with several exhibiting positive growth.

- VLT receipts are estimated to decrease significantly due to COVID-19 resulting in VLTs being required to be closed from April through August. VLTs were able to reopen, starting September 9, 2020, with a 25 percent capacity restriction. With fewer people visiting the facilities, it is estimated that overall gaming spending will continue to be down compared to the prior year.

- Commercial gaming tax receipts are estimated to decrease significantly due to the same reasons noted above for VLG receipts. Additionally, poker rooms remain closed as of the start of 2021, and table game revenue has been negatively impacted to a greater degree compared to slot machine tax revenue.

- IFS receipts are estimated to decrease slightly due to the cancellation of certain professional sporting events during the initial wave of COVID-19.

- TSC receipts are estimated to increase primarily due to the anticipated receipt of outstanding payments owed by the Seneca Nation since the onset of FY 2018. This is slightly offset by facility closures over the first quarter of the fiscal year.

FY 2022 receipts compared to current year estimates:

- Lottery receipts are projected to increase towards typical trends primarily due to FY 2021 having a weak first quarter because of the COVID-19 pandemic.

- VLT and commercial gaming receipts are projected to increase mainly due to the facilities being open for the full year, as well as increased visitation rates.

- IFS receipts are projected to increase slightly as sports leagues return to typical schedules.

- TSC receipts are projected to decrease reflecting a return to the regular payment schedule from the Seneca Nation to NYS. This is slightly offset by the facilities being open for a full year along with higher visitation rates.

Base and Rate

Gaming revenue includes receipts from traditional lottery games, Video Lottery Gaming (VLG), commercial gaming, Interactive Fantasy Sports (IFS), and Tribal State Compacts (TSC).

Traditional Lottery

There are two types of lottery games:

- Draw games include Cash4Life, Lotto, Mega Millions, Numbers, Powerball, Quick Draw, Pick 10, Take 5 and Win 4. In FY 2020, these games constituted approximately 68 percent of the education contribution from traditional lottery games.

- Instant scratch-off games have either a 64.25 or 74.25 percent prize-payout. In FY 2020, these games constituted approximately 32 percent of the education contribution from traditional lottery games.

The statutory distribution of lottery sales among prizes, education funding, and the remaining allowance for expenses related to game administration is shown below.

LOTTERY RECEIPTS DISTRIBUTION AND DRAWING FREQUENCY					
Lottery Game	Prize Payouts	Education Funding	Administrative Allowance	Inception Date	Drawing Frequency
Mega Millions*	50%	35%	15%	2002	Tuesday and Friday at 11:00 PM
Powerball*	50%	35%	15%	2010	Wednesday and Saturday at 10:59 PM
Cash4Life	55%	35%	10%	2014	Once Daily
Lotto	40%	45%	15%	1976	Wednesday and Saturday at 11:21 PM
Numbers	50%	45%	5%	1980	Twice Daily
Win 4	50%	45%	5%	1981	Twice Daily
Pick 10	50%	45%	5%	1988	Once Daily
Take 5	50%	45%	5%	1992	Once Daily
Quick Draw	60%	25%	15%	1995	Every four minutes
Instant (65%)	65%	20%	15%	1999	N/A
Instant (75%)	75%	10%	15%	2002	N/A

*Mega Millions and Powerball can offer a prize payout up to 55 percent.

Video Lottery Gaming

Video Lottery Terminals (VLTs) are in use at Batavia Downs Gaming, Empire City Casino by MGM Resorts, Finger Lakes Gaming & Racetrack, Hamburg Gaming, Jake's 58 (Suffolk OTB facility), Resorts World Casino (which also hosts the Nassau OTB machines), Saratoga Casino, and Vernon Downs Casino. In FY 2020, approximately 60 percent of the education funding contribution from VLT facilities was derived from Resorts World and Empire City.

The statutory distribution of VLT Net Machine Income (NMI) (after prize payouts) is among education funding, agent commission, and the remaining allowance for administration expenses.

VLT RECEIPTS DISTRIBUTION BY LOCATION (After Prize Payouts)			
	Education Funding	Agent Commission	Administrative Allowance
Hamburg Gaming at the Fairgrounds Vernon Downs Casino & Hotel	34.0%	56.0%	10.0%
Batavia Downs Gaming	39.0%	51.0%	10.0%
Resorts World Casino New York City	40.0%	50.0%	10.0%
Nassau Downs OTB at Resorts World Casino New York City Jake's 58 Hotel & Casino	45.0%	45.0%	10.0%
Saratoga Casino Hotel	50.5%	39.5%	10.0%
Empire City Casino at Yonkers Raceway	50.5%	39.5%	10.0%
Finger Lakes Gaming & Racetrack	52.5%	37.5%	10.0%

Saratoga and Finger Lakes currently receive an additional commission (capped at 10 percent) to offset the reduction in revenues due to competition from a nearby casino. Vernon Downs is provided with a 6.4 percent additional commission and may retain up to an additional 7.5 percent out of the 10 percent administrative allowance, provided such financial relief does not cause it to more than break even and it maintains certain employment requirements.

Commercial Gaming Casinos

Four casinos are licensed and operating in NYS:

- Tioga Downs Casino Resort opened in December 2016;
- del Lago Resort & Casino and Rivers Casino & Resort both opened in February 2017; and
- Resorts World Catskills opened in February 2018.

Three more casino licenses may be issued in NYS, but a new location cannot open earlier than November 23, 2023 without NYS incurring a financial penalty.

COMMERCIAL GAMING TAXES LEVIED
(Percent of Gaming Revenue Generated)

	Table Games*	Slot Machines
del Lago Resort & Casino	10.0%	37.0%
Tioga Downs Casino Resort	10.0%	37.0%
Resorts World Catskills	10.0%	39.0%
Rivers Casino & Resort	10.0%	45.0%

*Table game revenue includes sports wagering.

Legislation proposed with this Budget would authorize online sports wagering in NYS. The Gaming Commission will issue a request for proposals to select and license a platform provider to offer online sports wagering in New York. This platform provider must have a partnership with at least one of the existing licensed commercial casinos. The Commission will also require any entity operating mobile wagering apps include safeguards against abuses and addiction.

Tribal State Compact

NYS has TSC agreements with three Nations:

- Seneca Nation operates three Class III casinos in the Western region including Seneca Niagara Casino (2002), Seneca Allegany Casino (2004), and Seneca Buffalo Casino (2007);

- Mohawk Nation operates the Class III Akwesasne Mohawk Casino (1999); and
- the Oneida Nation operates four Class III casinos, Turning Stone (1993), Yellow Brick Road (2015), Point Place (2018) and Lake House Casino (2020).

Pursuant to these TSCs, each Nation directs 25 percent of the casino's net drop from slots to NYS. The distribution is:

- 25 percent to the host county or counties;
- 10 percent to regional counties on a per capita basis;
- Madison County receives an annual payment of $3.5 million and Oneida County receives $2.5 million; and
- The remainder (plus interest) is directed to NYS.

Interactive Fantasy Sports

IFS operators offer fee-based contests in which participants assemble a fantasy roster of players using their skills and knowledge, then compete against other participants. NYS levies a 15 percent tax on IFS gross revenue generated in NYS and an additional tax rate of 0.5 percent (capped at $50,000 per taxpayer annually).

In October 2018, the NYS Supreme Court rendered a split decision that IFS is in violation of the State Constitution as a form of unlawful gambling, but it does not constitute gambling under NYS Penal Law. The State Attorney General appealed the decision in November 2018, which stayed the lower court ruling. The Gaming Commission will continue with the regulation and taxation of IFS during the appeals process.

Administration

Gaming components noted herein are administered by the NYS Gaming Commission.

Traditional Lottery

The Gaming Commission develops new lottery games, markets and advertises existing games, distributes games, provides terminals and computer programming for betting, and regulates and performs all other functions necessary to operate an effective NYS lottery.

The Lottery game vendor notifies sales agents of the State's share of sales proceeds by the Monday following the liability week. The sales agent makes necessary deposits and the operations vendor then tenders them to the Gaming Commission.

Video Lottery Gaming

The Gaming Commission collects revenue from VLT licensees daily and holds these funds in its sole custody account. On a weekly basis, revenues collected are transferred to the State Treasury and allocated to the Video Gaming Education Account, Video Gaming Administration Account, and the Video Gaming Prize Pending Account based on statutory requirements.

Commercial Gaming

The Gaming Commission regulates commercial gaming facilities and administers the tax on commercial gaming revenues. Gaming facilities file tax returns and remit payment to the State Treasury on a weekly basis based on statutory rates for slot and table games. Funds from such payments are then allocated to the Commercial Gaming Revenue Fund. The Commission also collects license fees as established by the New York State Resort Gaming Facility Location Board.

Interactive Fantasy Sports

The Gaming Commission administers and regulates IFS entities. 18 IFS entities are registered in NYS, with 13 actively operating and filing tax returns with the Gaming Commission on a monthly basis. Funds underlying each registrant's tax obligation are also remitted monthly to a commission account and are then transferred to the State Treasury to be allocated to the IFS Education Account.

Tribal State Compact

Per the TSC agreements, NYS collects exclusivity payments from the Oneida Nation, Saint Regis Mohawk Tribe, and the Seneca Nation on a quarterly basis. Exclusivity payments are remitted directly by the Tribe or Nation to the State Treasury and allocated to the Tribal State Compact Fund. Each Seneca Nation casino is accounted for separately, while the Oneida Nation casinos are aggregated.

History

GAMING RECEIPTS BY COMPONENT
(millions of dollars)

	Special Revenue Funds							All Funds
	Lottery	VLTs	Casinos			IFS	TSC	
	Education	Education	Education	Localities*	Total	Education	Total	Total
FY 2011	2,108	907	N/A	N/A	N/A	N/A	0	3,015
FY 2012	2,147	682	N/A	N/A	N/A	N/A	0	2,829
FY 2013	2,217	857	N/A	N/A	N/A	N/A	0	3,074
FY 2014	2,235	938	N/A	N/A	N/A	N/A	482	3,655
FY 2015	2,191	907	N/A	N/A	N/A	N/A	161	3,258
FY 2016	2,351	961	121	30	151	N/A	233	4,074
FY 2017	2,322	958	31	8	38	3	207	3,773
FY 2018	2,301	958	88	22	110	5	81	3,656
FY 2019	2,533	939	136	34	170	5	90	3,996
FY 2020	2,473	944	151	38	188	6	88	3,888

*A portion of commercial gaming casinos (20 percent) and Tribal State Compact (various) receipts are directed to localities.

Significant statutory changes within the past decade are:

- In 2014, Suffolk and Nassau OTBs were authorized to have up to 1,000 VLT terminals, and the VLT free play allowance was increased from 10 to 15 percent.
- In 2015, VLTs were authorized to offer certain electronic table games (ETGs).
- In 2016, the operation of IFS was legalized in NYS.
- In 2017, NYRA was reprivatized and regulations were modified to require horsemen and racetracks to contribute to equine drug testing.
- In 2018, the VLT hold harmless transfer provision was eliminated. Previously, the VLT amount for education could not be lower than $958.2 million and an annual transfer would be made from the commercial gaming education to VLT education to make up the difference if the amount was lower than $958.2 million.
- In 2019, the distribution structure of VLT NMI was simplified by reducing the number of VLG commission rates from over 20 to just 6. Marketing allowance and capital awards were made part of the operators' commission and the operators now have more flexibility in marketing spending.

- In June 2019, the Gaming Commission adopted regulations to allow sports wagering at the four commercial casinos. All four casinos are now operating a sports book at their facility.

- In 2020, the Gaming Commission was given permission to approve additional locations within a casino for operation of a sports pool.

Pari-Mutuel Tax

PARI-MUTUEL TAX (millions of dollars)							
	FY 2020 Actual	FY 2021 Estimated	Change		FY 2022 Projected	Change	
			Dollar	Percent		Dollar	Percent
General Fund	13.9	11.0	(2.9)	(21.0)	14.0	3.0	27.3
All Funds Total	**13.9**	**11.0**	**(2.9)**	**(21.0)**	**14.0**	**3.0**	**27.3**

FY 2021 receipts are estimated to decrease from FY 2020 results primarily due to fewer race days and overall races compared to the prior year as a result of COVID-19.

FY 2022 receipts are projected to rebound to typical levels as a full racing season is expected.

Base and Rate

PMT is levied on pari-mutuel wagering activity conducted at horse racetracks and Off-Track Betting (OTB) facilities. This tax includes a portion of commissions withheld from handle (wagering pools) and a remittance of the breakage (the difference between a wager pool for a given bet and the total payout to bettors) and is collected from:

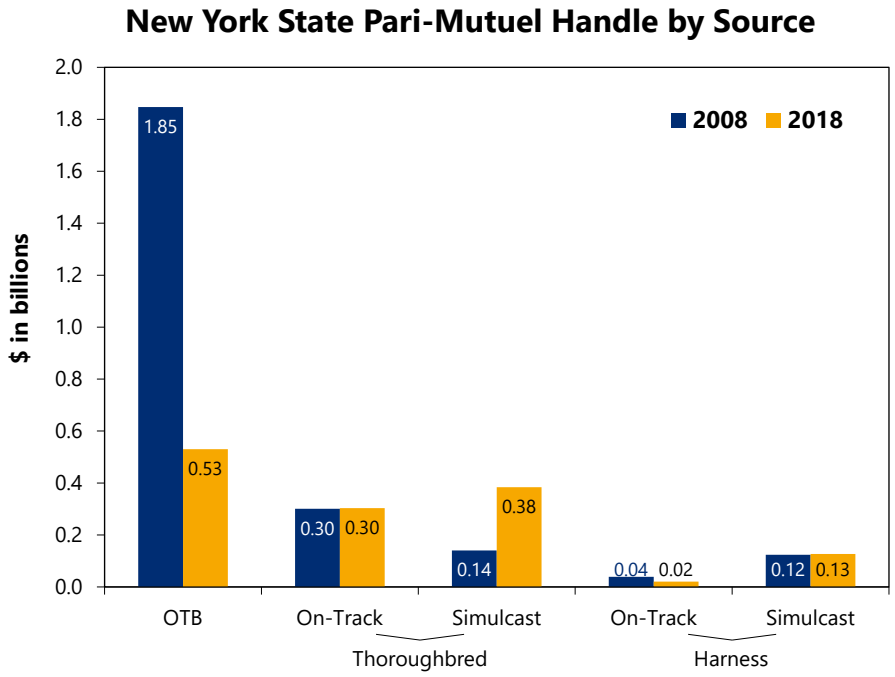
- The four thoroughbred flat track facilities including Finger Lakes, Aqueduct, Belmont, and Saratoga;

- The seven harness tracks located in Batavia, Buffalo, Monticello, Saratoga, Tioga, Vernon, and Yonkers; and
- The OTB facilities located in five NYS regions including the Capital District, Catskill, Nassau, Suffolk and Western.

There are numerous tax rates imposed, which vary depending upon the type of racing, the type of wager (regular, multiple, or exotic), and location at which it is placed.

Liability

Over the course of the past decade, there has been a significant decline ($2.5 billion in 2008 down to $1.4 billion in 2019) and shift in handle, namely a 42 percentage point reduction in OTBs' handle share, a result of the closure of New York City's OTB in December 2010. This decline is partially offset by a 21 percentage point increase in simulcasting's handle share over the same period.



Administration

The Gaming Commission regulates all horse racing and pari-mutuel wagering in NYS. Racetracks and OTBs calculate the pari-mutuel tax owed to NYS from the portion of the commission (the "takeout") withheld from wagering pools and then remit the taxes on a monthly basis to DTF.

History

In 2008, NYS awarded a 25-year license to the NYRA to operate Aqueduct, Belmont, and Saratoga Racetracks.

PARI-MUTUEL TAX RECEIPTS HISTORY
(thousands of dollars)

	General Fund				All Funds
	Flat	Harness	OTB	Total	Total
FY 2011	7,355	661	9,024	17,040	17,040
FY 2012	10,903	589	5,706	17,198	17,198
FY 2013	11,407	593	5,416	17,416	17,416
FY 2014	11,039	538	5,244	16,821	16,821
FY 2015	12,428	482	5,128	18,038	18,038
FY 2016	11,423	466	5,293	17,182	17,182
FY 2017	10,604	426	4,726	15,756	15,756
FY 2018	10,318	378	4,676	15,373	15,373
FY 2019	10,510	353	4,504	15,367	15,367
FY 2020	9,299	332	4,286	13,917	13,917

Significant statutory changes within the past decade are:

- In 2013, a market origin fee was imposed equal to five percent of wagers taken by out-of-State advanced deposit wagering providers from NYS residents.

- In 2020, the State continued to extend for one year reduced on-track rates by as much as 90 percent at thoroughbred and harness tracks and certain simulcasting provisions.

Racing Admissions Tax

RACING ADMISSIONS TAX (millions of dollars)							
	FY 2020 Actual	FY 2021 Estimated	Change		FY 2022 Projected	Change	
			Dollar	Percent		Dollar	Percent
General Fund	0.4	0.0	(0.4)	(16.7)	0.1	0.1	0.0
All Funds Total	**0.4**	**0.0**	**(0.4)**	(16.7)	**0.1**	**0.1**	**0.0**

FY 2021 receipts are estimated to decrease from FY 2020 results to a negligible amount due to restrictions on fan attendance at races stemming from COVID-19.

FY 2022 receipts are projected to be minimal due to Budget legislation that would eliminate the racing admissions tax and instead have the State sales tax be imposed on racing admissions effective September 2021. This proposal would have no impact on local taxes on racing admissions.

Base and Rate

A four percent racing admissions tax is levied on the charge for admissions to racetracks and simulcast theaters throughout NYS.

Liability

Racing admissions tax liability is largely affected by both the number of customers who attend on-track races and the price of admission. Customer volume, in turn, is dependent on outside factors such as the weather and competition from other types of entertainment.

Administration

Racetracks and simulcast theaters remit taxes to DTF within 10 days after the close of the race meeting for race meetings 30 days or less, or on or before the 10th day of each month for the previous month's admissions for race meetings greater than 30 days.

History

RACING ADMISSIONS TAX RECEIPTS HISTORY (thousands of dollars)		
	General Fund	All Funds Total
FY 2011	352	352
FY 2012	355	355
FY 2013	371	371
FY 2014	350	350
FY 2015	501	501
FY 2016	554	554
FY 2017	536	536
FY 2018	508	508
FY 2019	599	599
FY 2020	403	403

There have been no significant statutory changes within the past decade.

Real Estate Transfer Tax

REAL ESTATE TRANSFER TAX (millions of dollars)							
	FY 2020	FY 2021	Change		FY 2022	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
Capital Projects Funds (EPF)	119.1	119.1	0.0	0.0	119.1	0.0	0.0
Debt Service Funds (CWCA)	1,004.7	778.9	(225.8)	(22.5)	873.9	95.0	12.2
All Funds Total	**1,123.8**	**898.0**	**(225.8)**	**(20.1)**	**993.0**	**95.0**	**10.6**

FY 2021 receipts are estimated to decrease substantially from FY 2020 results due to the negative impact of COVID-19 on the real estate market, particularly in NYC during the initial months of the pandemic (see Housing Outlook within *the Economic Backdrop* section of this volume for further detail).

FY 2022 receipts are projected to increase from the current year due to strong projected growth in housing starts and housing prices as the real estate market continues to recover from the impact of the COVID-19 economic downturn.

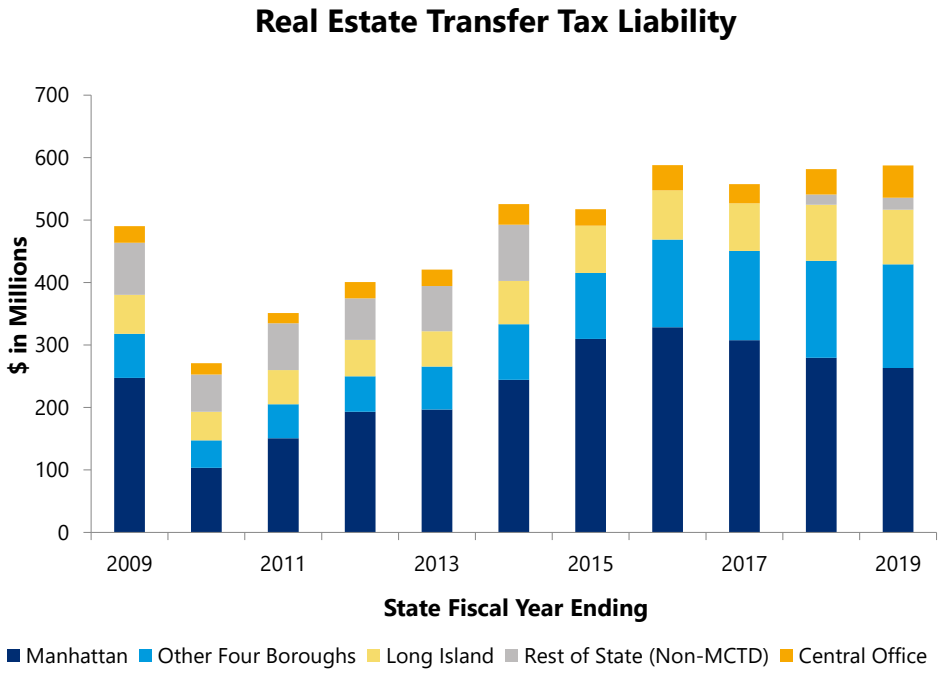
Base and Rate

The real estate transfer tax is imposed on each conveyance of real property or interest therein, when the consideration (price) exceeds $500, at a rate of 0.4 percent. An additional one percent tax is imposed on conveyances of residential real property only when the consideration is $1 million and above. The tax rate for conveyances of real property to existing real estate investment trusts (REIT) is 0.2 percent.

Federal and State entities, as well as the United Nations, are exempt from the tax. If an exempt entity is the grantor in a transfer, the tax burden falls upon the grantee. Other significant exemptions from the tax are conveyances pursuant to the Federal Bankruptcy Act and mere change of identity conveyances.

Liability

Real estate transfer tax receipts are a function of the number and type of conveyances and the consideration per conveyance. Conveyances and prices are largely determined by mortgage rates, vacancy rates and inflation. The Manhattan commercial real estate market, which has historically been subject to large swings in demand and capacity, can have a significant impact on receipts. The Manhattan luxury residential market also has an outsized impact on receipts. Overall, NYC tax liability was 62 percent of total liability in FY 2020.



Administration

Typically, the party conveying the property (grantor) is responsible for payment of the tax to DTF.

For deeded transfers, the tax is paid to a recording agent (generally the county clerk) within 15 days of the transfer. For non-deeded transactions (cooperative housing or stock transfers), payments are made directly to DTF's central office. Counties remit collections to DTF once or twice per month.

- Counties with more than $1.2 million in liability during the previous calendar year remit payments received by the recording agent between the 1st and 15th day of the month to DTF by the 25th day of the same month. Payments received by the recording agent in such counties between the 16th and the final day of the month are due to DTF by the 10th day of the following month;

- All other county recording agents remit collections to DTF by the 10th day of the month following their receipt.

History

REAL ESTATE TRANSFER TAX RECEIPTS HISTORY (millions of dollars)			
	Capital Projects Funds (EPF)	Debt Service Funds (CWCA)	All Funds Total
FY 2011	119	461	580
FY 2012	119	491	610
FY 2013	119	637	756
FY 2014	119	792	911
FY 2015	119	919	1,038
FY 2016	119	1,044	1,163
FY 2017	119	1,007	1,126
FY 2018	119	1,006	1,125
FY 2019	119	1,016	1,135
FY 2020	119	1,005	1,124

Significant statutory changes within the past decade are:

- In 2019, a 0.25 percent real estate transfer tax was imposed on commercial properties $2 million and above and residential properties $3 million and above in NYC. Also, a progressive mansion tax was imposed on residential properties in NYC ranging from 0.25 percent on properties that are $2 million to $3 million, up to 2.9 percent on properties that are $25 million and above.

Comparison with Other States

An important consideration in State tax policy decisions, and by extension in setting Budget priorities, is the relative position of the State in terms of state and local tax rates and tax bases relative to other states.

An emphasis on tax reduction in NYS over the past four decades, but specifically since Governor Cuomo took office in January 2011, has resulted in the majority of years with a reduced disparity between NYS tax burdens and those of the rest of the nation, as well as an improved ranking nationally. However, local taxes in New York State remain high relative to other states.

The data presented here suggest there is pressure on states to remain competitive with respect to tax policy. This is evidenced by the gradual clustering over time of states around the national average tax-to-income ratio. However, there is also a strong tendency for a state tax position to be highly persistent over time; this means movements towards the average have been slow. The persistence most likely reflects a combination of localized spending pressures and priorities and different state and regional attitudes towards tax policy.

Several important points on comparative tax structures can be seen by examining the accompanying tables that show the tax-to-personal income ratios for personal income, corporate income, sales and gross receipts, all other state, and local property taxes. [58]

Total State and Local Taxes

- Overall, state and local tax structures are broadly similar in both the taxes imposed and the rates applied. Average rates measured by the tax-to-income ratios are also roughly equivalent across states, especially when aggregating both state and local taxes.

- The variability across states within each category of tax (e.g., income, sales, or property taxes examined in isolation) is greater than the dispersion for taxes when examined in the aggregate (all state and local taxes added together). For example, a fairly large number of states have excluded the personal income tax from their fiscal policy mix; a smaller subset has excluded corporate taxes, and a few impose no sales tax.

- In general, it appears that the spread of state and local tax burdens across states has been narrowing over time. This may reflect both competitive pressures to keep taxes in line with other states, and the more widespread use of income taxes nationwide.

- The national average state and local tax-to-income ratio has remained relatively stable over time and significantly below that of New York.

[58] The sales and gross receipts taxes category includes general sales and gross receipts taxes. Additionally, it includes selective sales and gross receipts taxes on sales of certain commodities, services, or gross receipts of certain businesses apart from the application of any general sales or gross receipts taxes. Selective sales and gross receipts taxes include the following categories: alcoholic beverages, amusements, insurance, motor fuels, pari-mutuels, public utilities, tobacco products, and other.

- The combined state and local tax-to-income ratio for New York, as shown in table 8b exceeded the national average by $4.57 per $100 of personal income, or 44.2 percent in 1977, ranking New York second nationally. In 2010, the gap was down to $3.54, or 34.9 percent, with New York ranking second nationally. In 2018, the gap was up slightly to $3.94 (41.6 percent) above the national average, ranking New York first nationally.

State Taxes

- Prior to the FY 2016 Executive Budget Comparison, New York's tax-to-personal income ratio had been inherently overstated. The numerator included all personal income tax receipts, whether from residents or non-residents. The denominator, as calculated by the U.S. Bureau of Economic Analysis, excluded the personal income of non-N.Y. residents. Beginning with the FY 2016 Executive Budget Comparison, an adjustment was made to add the personal income of non-New York residents that pay New York personal income tax to the denominator.

- New York is a slightly above average tax state when looking only at state taxes.

- New York's tax burden, as measured by taxes per $100 of personal income, was $0.36 (6.72 percent) above the national average of $5.78 in 2018.

- New York taxes per $100 of personal income declined from $6.38 in 2010 to $6.14 in 2018.

- New York's state tax rank was sixteenth highest in 2010 and improved to twenty-first highest in 2018.

- Legislation enacted in 2012 that reduced the income tax rates of middle-income families, as well as legislation enacted in 2014 that reduced corporate and estate taxes, should continue to serve to lower New York's ranking in future years.

Local Taxes

- At least a portion of New York's significant local tax burden is due to the large portion of sales tax retained by New York localities. This contrasts sharply with other states and reflects, at least in part, the need at the local level in New York for receipts to pay for the local share of Medicaid.

- New York City uniquely imposes taxes that comprise a large portion of New York's total local burden. In 2018, nearly $1.75 of New York's local burden of $7.30 per $100 of state personal income was due NYC personal and corporate income taxes. This accounted for approximately 24 percent of the total local burden.

Property Taxes in New York State

- Higher than average property taxes as a share of income (48.9 percent above the 2018 national average) in New York are tied, for the most part, to the rapid escalation in local Medicaid costs and uncapped growth in school property taxes through 2011. The property tax cap went into effect for local fiscal years beginning in 2012 for local governments and school districts (excluding NYC).

- Though New York's national rank of sixth highest in 2018 was unchanged from 2016, it has seen its local property taxes per $100 of personal income drop from $4.47 to $4.17.

Table Construction

This section compares the state and local tax structure in New York State with other states. Table 1 reports tax rates for the major tax sources utilized by state and local governments. The first and second data columns of the table show the top personal income tax rate by state, and the income level at which the top rate takes effect; the third column lists top corporate tax rates (most state corporate tax structures have relatively flat rate structures, so the rate reported often applies to all corporate income subject to tax); the fourth column reports state sales tax rates; and the final column reports the average combined state and local sales tax rates imposed by the various jurisdictions within such state. The rates are those in effect as of 2020. The income and corporate tax rates reported exclude local rates. This exclusion is important since New York is one of only a handful of states where significant local personal income and corporate taxes are imposed, as in PIT for New York City.

Tables 2 and 3 report state taxes collected by source divided by state personal income for 2010 and for 2018, respectively, with 2018 being the latest year for which complete state and local tax information is available. New York's rank in terms of state taxes fell from sixteenth highest to twenty-first highest over this period.

Tables 4 and 5 report local taxes as a share of state personal income by state in 2010 and in 2018. In 2018, New York had the highest local tax burden using this measure, the same ranking it held in 2010. New York marginally increased from $3.27 above the mean local tax burden in 2010 to $3.58 in 2018. The above-average local tax burden is caused by relatively high property taxes, the large sales tax burden imposed at the local level, and the high ratio in the other category that picks up the income and corporate taxes imposed by New York City.

Tables 6a, 6b and 7 report state and locally imposed taxes as a percentage of state personal income. The data used in the calculations are for fiscal years ending in 2010 and 2018. The tax-to-income ratios included on table 7 are: state and local income taxes, state and local corporate taxes, state and local sales taxes, local property taxes, all other state and local taxes, and finally combined state and local taxes.

Table 8a reports changes in the state tax-to-income ratio over the 1977-2018 period. During this time, New York's state tax burden fell relative to the mean, and has been below the mean for all

but 10 of the last 30 recorded years, though 9 of these 10 years have occurred since 2009. These results reflect the State's temporary high-income PIT bracket first imposed in 2009. Table 8b reports changes in the state and local tax-to-income ratio over the 1977-2018 period. In 1977, New York state and local taxes as a percent of personal income were 444.2 percent above the national average. In 2018, New York was 41.6 percentage points above the national average. The average state and local tax-to-income ratio in 2018 has declined by 9.9 percent compared to 1977, while the New York ratio has declined 13.8 percent over the same period. In every year since 1977, New York has been at least $2.03 in state and local taxes per $100 of personal income above the mean.

The bottom of tables 1-7 report the mean for each tax category, as well as the standard deviation and the Coefficient of Variation (CV). Additionally, the difference between the national average and New York values is reported. While the standard deviation provides a sense of how the data are dispersed around the average value for all states, the CV allows comparisons of spread for data with different averages and is defined simply as the standard deviation divided by the average and is reported as a percentage. It essentially provides a normalized, unit-free measure of dispersion.

The Tax-to-Income Percentage

The tax-to-personal-income percentage offers one simple and commonly used way of comparing states with respect to relative tax burdens. It must be noted that the real effort of tax burden analysis should be to determine who actually faces the economic consequences of a tax, not who is legally required to pay the tax. All simple measures of tax burden across states are inadequate from this perspective. In general, any single indicator of burden will necessarily be limited in value. The following three additional issues should be taken into consideration when relying on this measure:

Tax Exportation

In using taxes per dollar of personal income as a measure of tax burden it must be noted that for many states a significant portion of the tax base is “exported” or paid by out-of-state taxpayers.

For example, in New York, a large number of workers from New Jersey and Connecticut pay tax on New York source income and on taxable sales while in New York. This means that, unless a portion of Connecticut’s and New Jersey’s personal income is also shifted to New York State; the actual burden on New Jersey residents will appear to be a burden on New York residents. Beginning with the FY 2016 Executive Budget Comparison, a residence adjustment has been made to the personal income calculation for each state. The denominator now includes New York source income earned by non-New York residents. The same adjustment has been made for all 50 states.

One example of tax exportation can be seen in states with a large tourism economy. These states will realize increases in their sales tax collections and other excise taxes that may overstate the tax burden actually paid by their citizens.

Another example is that methods used to apportion corporate taxable income are neither consistent across states, nor are they necessarily representative of actual activity. For example,

some states use a three-factor allocation formula that takes into account the percentage of a taxpayer's property, payroll and receipts amounts in the state compared to those amounts everywhere. Other states use different formulas. These differences in allocation formulas could result in either tax importation or exportation, again distorting this measure as a method of comparison of true tax burden imposed on each state's residents.

Overall, it would seem likely that New York State is a net exporter of tax burdens relative to other states. This serves to bias the tax-to-income percentage for New York upward – making burdens in New York appear too high using this measure. The inclusion of the residence adjustment has helped rectify one of the tax exportation issues facing New York.

Income Adjustments

Given two states with identical marginal tax rate structures, differences in the incomes of individuals could yield different tax-to-income percentage results. For example, if New York State and Alabama had identical progressive income brackets built into their respective tax codes, the higher average personal incomes of New York State residents would tend to lead to higher taxes per dollar of personal income due to the nature of the income tax.

Particularly important is the distinction between the NIPA measure of personal income as defined by the BEA, and taxable personal income as defined by each state's respective tax code. For example, the NIPA personal income measure does not include capital gains (by the definition of personal income). However, capital gains are a component of NYAGI that contributes significantly to personal income tax receipts in New York State. States with high income individuals, like New York, would be more likely to have the tax-to-income percentage distorted upward. In the gains example, the percentage of personal income used in Table 2 will be influenced because the numerator will include taxes on capital gains income that is not included in the denominator, effectively overstating the tax burden relative to other states since New York has a disproportionate share of taxpayers with large capital gains incomes.

Federal Offsets

The Federal tax structure allows for the deductibility of certain state and local taxes. Following the 2017 Federal Tax Reform, taxpayers can deduct only up to $10,000 of their state and local taxes. Residents of states with relatively higher state income, property and corporate tax burdens, such as New York State, receive a larger deduction, thereby offsetting a portion of the individual's total tax burden. Again, this is not reflected in the tax-to-income percentage reported here. Therefore, it would appear this serves to bias the measure in a way that makes New York look like a relatively higher tax state than is actually the case.

With all three issues, the tax-to-income percentage calculation likely biases the tax burden in New York upward.

Table 1 - Comparison of 2020 State Top Rates

State	Top PIT Rate	Highest Tax Bracket (Married Filing Joint)	Top Corp. Rate	State Sales Rate	Combined State and Local Sales Tax Rate[1]
Alabama	5	$6,000	6.5	4	9.22
Alaska	-	NA	9.4	-	1.76
Arizona	4.5	$318,000	4.9	5.6	8.40
Arkansas	6.6	$79,300	6.5	6.5	9.5
California	13.3	$1,181,484	8.84	7.25	8.66
Colorado	4.63	Flat Rate	4.63	2.9	7.7
Connecticut	6.99	$1,000,000	7.5	6.35	6.35
Delaware	6.6	$60,000	8.7	-	-
Florida	-	NA	4.46	6	7.1
Georgia	5.75	$10,000	5.75	4	7
Hawaii	11	$400,000	6.4	4	4.44
Idaho	6.925	$23,108	6.93	6	6.03
Illinois	4.95	Flat Rate	9.5	6.25	9.08
Indiana	3.23	Flat Rate	5.5	7	7
Iowa	8.53	$73,710	12	6	6.9
Kansas	5.7	$60,000	7	6.5	8.68
Kentucky	5	Flat Rate	5	6	6
Louisiana	6	$100,000	8	4.45	9.52
Maine	7.15	$105,200	8.93	5.5	5.5
Maryland	5.75	$300,000	8.25	6	6
Massachusetts	5	Flat Rate	8	6.25	6.25
Michigan	4.25	Flat Rate	6	6	6
Minnesota	9.85	$273,470	9.8	6.875	7.5
Mississippi	5	$10,000	5	7	7.07
Missouri	5.4	$8,424	4	4.225	8.18
Montana	6.9	$18,400	6.75	-	-
Nebraska	6.84	$63,500	7.81	5.5	6.93
Nevada	-	NA	-	6.85	8.32
New Hampshire	5	Flat Rate	7.7	-	-
New Jersey	10.75	$5,000,000	10.5	6.625	6.60
New Mexico	4.9	$24,000	5.9	5.125	7.82
New York	**8.82**	**$2,155,350**	**6.5**	**4**	**8.52**
North Carolina	5.25	Flat Rate	2.5	4.75	7.0
North Dakota	2.9	$433,200	4.31	5	6.86
Ohio	4.797	$217,400	-	5.75	7.17
Oklahoma	5	$12,200	6	4.5	8.94
Oregon	9.9	$250,000	7.6	-	-
Pennsylvania	3.07	Flat Rate	9.99	6	6.34
Rhode Island	5.99	$148,350	7	7	7
South Carolina	7	$15,400	5	6	7.46
South Dakota	-	NA	-	4.5	6.40
Tennessee	1.00	Flat Rate	6.5	7	9.53
Texas	-	NA	-	6.25	8.19
Utah	4.95	Flat Rate	4.95	6.1	7.18
Vermont	8.75	$243,750	8.5	6	6.22
Virginia	5.75	$17,000	6	5.3	5.65
Washington	-	NA	-	6.5	9.21
West Virginia	6.5	$60,000	6.5	6	6.41
Wisconsin	7.65	$351,310	7.9	5	5.46
Wyoming	-	NA	-	4	5.3
Mean Values	**5.38**		**6.11**	**5.09**	**6.57**
Standard Deviation	**3.05**		**2.89**	**1.96**	**2.41**
Coefficient of Variation	**56.71**		**47.31**	**38.53**	**36.63**

"-" indicates either no tax or a tax that is not strictly comparable is imposed.

[1]**Source**: Tax Foundation as of January 1, 2020. Reflects combined state and average local rate for each state.

Table 2 - 2010 Components and Percentage of Total State Tax Burden per $100 Personal Income														
State	Total State Taxes	Rank	PIT	Rank	Percent of Total	Sales and Use	Rank	Percent of Total	Corporate	Rank	Percent of Total	Other	Rank	Percent of Total
Alabama	5.27	34	1.64	34	31.1	2.78	27	52.8	0.27	24	5.1	0.58	29	11.0
Alaska	12.75	1	0.00	44	0.0	0.74	49	5.8	1.81	1	14.2	10.20	1	80.0
Arizona	5.00	40	1.13	40	22.5	3.13	20	62.7	0.19	36	3.9	0.55	31	10.9
Arkansas	8.09	7	2.24	18	27.7	3.97	6	49.0	0.41	7	5.1	1.48	8	18.2
California	6.58	12	2.80	5	42.6	2.51	36	38.2	0.56	3	8.5	0.71	22	10.7
Colorado	4.19	47	2.00	26	47.7	1.71	44	40.9	0.18	39	4.2	0.30	47	7.2
Connecticut	5.84	25	2.73	6	46.7	2.54	35	43.5	0.24	30	4.1	0.33	42	5.7
Delaware	7.18	9	2.22	19	30.9	1.20	48	16.8	0.37	13	5.2	3.39	5	47.2
Florida	4.22	46	0.00	44	0.0	3.49	11	82.8	0.25	29	5.9	0.48	36	11.3
Georgia	4.40	44	2.09	22	47.5	1.94	42	44.1	0.20	34	4.6	0.17	50	3.8
Hawaii	8.46	4	2.67	7	31.6	5.32	1	62.9	0.14	42	1.7	0.33	43	3.8
Idaho	5.97	22	2.16	20	36.2	3.05	23	51.1	0.20	35	3.3	0.56	30	9.3
Illinois	5.12	37	1.74	32	33.9	2.38	37	46.5	0.50	5	9.7	0.51	34	9.9
Indiana	6.11	20	1.71	33	28.0	3.76	7	61.5	0.26	25	4.3	0.37	40	6.1
Iowa	5.92	23	2.30	17	38.9	2.77	28	46.8	0.17	40	2.8	0.68	25	11.5
Kansas	5.83	26	2.41	14	41.4	2.66	33	45.6	0.32	19	5.4	0.44	38	7.6
Kentucky	6.52	14	2.16	21	33.1	3.20	18	49.2	0.26	27	4.0	0.89	16	13.7
Louisiana	5.10	38	1.33	39	26.1	2.82	26	55.3	0.23	31	4.5	0.72	20	14.1
Maine	7.04	10	2.63	10	37.3	3.36	13	47.8	0.35	15	5.0	0.69	24	9.9
Maryland	5.73	29	2.33	16	40.7	2.35	38	41.1	0.34	16	5.8	0.71	21	12.4
Massachusetts	5.67	31	2.86	3	50.4	1.92	43	33.9	0.52	4	9.1	0.37	41	6.5
Michigan	6.38	15	1.59	36	24.9	3.57	8	56.0	0.18	37	2.8	1.04	14	16.3
Minnesota	7.57	8	2.84	4	37.5	3.47	12	45.8	0.32	18	4.2	0.94	15	12.5
Mississippi	7.01	11	1.51	37	21.6	4.56	2	65.0	0.35	14	5.0	0.59	28	8.4
Missouri	4.30	45	1.92	27	44.6	2.01	41	46.7	0.09	45	2.1	0.29	49	6.6
Montana	6.04	21	2.01	24	33.4	1.50	47	24.8	0.26	26	4.4	2.26	6	37.5
Nebraska	5.10	39	2.00	25	39.2	2.58	34	50.5	0.20	33	4.0	0.32	44	6.3
Nevada	5.79	28	0.00	44	0.0	4.24	4	73.3	0.00	47	0.0	1.55	7	26.7
New Hampshire	4.00	49	0.14	42	3.6	1.58	46	39.6	0.88	2	22.0	1.39	9	34.8
New Jersey	6.21	18	2.47	12	39.8	2.71	30	43.6	0.49	6	7.9	0.54	32	8.7
New Mexico	6.20	19	1.38	38	22.3	3.33	14	53.7	0.18	38	2.9	1.31	10	21.2
New York	**6.38**	**16**	**3.47**	**2**	**54.5**	**2.11**	**40**	**33.1**	**0.39**	**11**	**6.1**	**0.41**	**39**	**6.4**
North Carolina	6.28	17	2.67	8	42.5	2.75	29	43.8	0.38	12	6.0	0.48	35	7.7
North Dakota	8.73	3	1.00	41	11.5	3.13	21	35.9	0.29	21	3.3	4.30	3	49.3
Ohio	5.56	33	1.86	29	33.4	2.89	25	51.9	0.03	46	0.6	0.78	19	14.0
Oklahoma	5.18	36	1.63	35	31.4	2.18	39	42.0	0.16	41	3.1	1.22	11	23.5
Oregon	5.26	35	3.48	1	66.2	0.70	50	13.4	0.25	28	4.7	0.83	18	15.7
Pennsylvania	5.73	30	1.78	31	31.0	2.94	24	51.3	0.31	20	5.5	0.70	23	12.3
Rhode Island	5.81	27	2.06	23	35.4	3.18	19	54.7	0.28	23	4.7	0.30	48	5.2
South Carolina	4.90	41	1.81	30	36.9	2.68	32	54.8	0.10	43	2.1	0.30	46	6.2
South Dakota	3.92	50	0.00	44	0.0	3.21	17	81.8	0.09	44	2.4	0.62	27	15.8
Tennessee	4.62	43	0.08	43	1.6	3.53	9	76.4	0.40	9	8.6	0.62	26	13.4
Texas	4.08	48	0.00	44	0.0	3.23	16	79.0	0.00	47	0.0	0.86	17	21.0
Utah	5.87	24	2.36	15	40.2	2.70	31	46.0	0.28	22	4.7	0.54	33	9.1
Vermont	9.81	2	1.91	28	19.5	3.30	15	33.7	0.33	17	3.4	4.26	4	43.5
Virginia	4.68	42	2.47	13	52.8	1.68	45	35.8	0.23	32	4.8	0.31	45	6.6
Washington	5.66	32	0.00	44	0.0	4.52	3	79.8	0.00	47	0.0	1.14	13	20.2
West Virginia	8.22	6	2.60	11	31.7	4.00	5	48.7	0.41	8	4.9	1.20	12	14.6
Wisconsin	6.57	13	2.65	9	40.3	3.06	22	46.5	0.39	10	5.9	0.47	37	7.2
Wyoming	8.29	5	0.00	44	0.0	3.52	10	42.4	0.00	47	0.0	4.77	2	57.6
Mean	**6.10**		**1.78**		**29.8**	**2.85**		**48.6**	**0.30**		**4.9**	**1.18**		**16.8**
Standard Deviation	**1.61**		**0.96**			**0.93**			**0.27**			**1.65**		
Coefficient of Variation	**26.37**		**54.19**			**32.54**			**89.41**			**140.30**		
NYS Diff. from Mean	**0.28**		**1.70**		**24.7**	**(0.74)**		**(15.5)**	**0.09**		**1.3**	**(0.77)**		**(10.4)**

Source: Moody's Economy.com, U.S. Census Bureau

Table 3 - 2018 Components and Percentage of Total State Tax Burden per $100 Personal Income

State	Total State Taxes	Rank	PIT	Rank	Percent of Total	Sales and Use	Rank	Percent of Total	Corporate	Rank	Percent of Total	Other	Rank	Percent of Total
Alabama	5.33	31	1.90	33	35.6	2.68	31	50.3	0.28	24	5.3	0.47	32	8.9
Alaska	1.59	50	0.00	44	0.0	0.57	50	35.6	0.44	6	27.6	0.59	20	36.8
Arizona	5.10	34	1.43	40	28.1	3.06	22	60.0	0.12	42	2.3	0.49	25	9.6
Arkansas	7.46	6	2.19	28	29.4	3.70	7	49.5	0.30	19	4.0	1.28	5	17.1
California	6.95	8	3.78	3	54.4	2.14	39	30.8	0.50	3	7.1	0.53	23	7.6
Colorado	4.40	44	2.25	26	51.1	1.71	44	38.9	0.20	34	4.5	0.24	46	5.6
Connecticut	7.61	5	3.88	2	51.0	3.07	21	40.4	0.31	16	4.1	0.35	38	4.6
Delaware	7.86	4	3.08	8	39.2	1.09	48	13.9	0.47	5	6.0	3.22	2	40.9
Florida	4.26	45	0.00	44	0.0	3.56	8	83.7	0.22	31	5.3	0.47	33	11.0
Georgia	4.73	40	2.35	23	49.7	1.84	42	39.0	0.20	33	4.3	0.33	40	7.0
Hawaii	9.84	2	3.10	7	31.5	6.03	1	61.3	0.19	36	1.9	0.52	24	5.3
Idaho	6.32	16	2.40	20	37.9	3.13	19	49.5	0.31	15	5.0	0.48	29	7.6
Illinois	5.46	28	2.10	30	38.4	2.56	32	46.9	0.35	11	6.5	0.45	35	8.2
Indiana	6.25	19	1.87	34	30.0	3.91	5	62.5	0.23	30	3.6	0.25	45	3.9
Iowa	6.44	12	2.49	18	38.6	2.99	25	46.5	0.28	23	4.4	0.68	12	10.5
Kansas	6.43	13	2.31	24	36.0	3.04	23	47.3	0.30	20	4.6	0.78	10	12.1
Kentucky	6.24	20	2.35	22	37.7	2.99	26	47.9	0.27	26	4.3	0.63	14	10.2
Louisiana	5.05	36	1.50	38	29.7	3.17	16	62.8	0.17	38	3.3	0.21	49	4.2
Maine	6.86	9	2.50	17	36.4	3.50	10	51.0	0.29	22	4.2	0.57	22	8.4
Maryland	6.28	18	2.69	13	42.8	2.70	30	43.0	0.29	21	4.6	0.60	18	9.5
Massachusetts	5.89	22	3.23	6	54.9	1.79	43	30.4	0.48	4	8.1	0.39	37	6.6
Michigan	6.42	14	2.16	29	33.6	3.10	20	48.2	0.23	29	3.6	0.94	8	14.6
Minnesota	8.24	3	3.68	5	44.7	3.29	14	39.9	0.42	7	5.1	0.85	9	10.3
Mississippi	7.17	7	1.69	36	23.6	4.60	3	64.1	0.40	9	5.6	0.48	30	6.7
Missouri	4.43	43	2.21	27	50.0	1.88	40	42.5	0.11	43	2.6	0.22	48	4.9
Montana	5.43	29	2.56	16	47.2	1.25	47	22.9	0.35	13	6.4	1.27	6	23.5
Nebraska	5.23	33	2.29	25	43.8	2.43	35	46.4	0.30	18	5.8	0.21	50	4.0
Nevada	5.55	27	0.00	44	0.0	4.84	2	87.1	0.00	47	0.0	0.72	11	12.9
New Hampshire	3.80	47	0.14	42	3.6	1.34	46	35.1	1.03	1	27.0	1.30	4	34.2
New Jersey	6.46	11	2.74	11	42.5	2.82	28	43.6	0.41	8	6.3	0.49	27	7.5
New Mexico	5.31	32	1.44	39	27.0	3.31	13	62.3	0.10	44	2.0	0.46	34	8.7
New York	**6.14**	**21**	**3.72**	**4**	**60.6**	**1.86**	**41**	**30.3**	**0.26**	**27**	**4.2**	**0.30**	**41**	**4.9**
North Carolina	5.79	23	2.62	15	45.3	2.54	33	43.8	0.15	39	2.7	0.48	31	8.2
North Dakota	4.69	41	0.82	41	17.6	3.13	18	66.8	0.24	28	5.1	0.49	26	10.5
Ohio	5.09	35	1.52	37	29.9	3.17	17	62.2	0.00	46	0.0	0.40	36	7.8
Oklahoma	4.92	38	1.94	32	39.4	2.25	37	45.8	0.13	41	2.6	0.59	19	12.1
Oregon	5.73	25	4.03	1	70.3	0.75	49	13.1	0.36	10	6.4	0.58	21	10.2
Pennsylvania	5.76	24	1.81	35	31.5	2.98	27	51.7	0.35	12	6.1	0.62	17	10.7
Rhode Island	6.28	17	2.40	21	38.2	3.03	24	48.3	0.21	32	3.4	0.64	13	10.2
South Carolina	4.82	39	2.02	31	42.0	2.26	36	46.9	0.19	35	4.0	0.34	39	7.1
South Dakota	4.12	46	0.00	44	0.0	3.42	11	83.0	0.07	45	1.7	0.63	15	15.3
Tennessee	4.43	42	0.08	43	1.7	3.22	15	72.6	0.51	2	11.5	0.63	16	14.1
Texas	3.76	48	0.00	44	0.0	3.51	9	93.4	0.00	47	0.0	0.25	44	6.6
Utah	5.39	30	2.69	12	49.9	2.20	38	40.9	0.27	25	5.0	0.23	47	4.2
Vermont	9.94	1	2.48	19	25.0	3.32	12	33.4	0.34	14	3.4	3.80	1	38.2
Virginia	4.95	37	2.99	9	60.4	1.50	45	30.3	0.18	37	3.7	0.27	43	5.6
Washington	5.72	26	0.00	44	0.0	4.38	4	76.6	0.00	47	0.0	1.34	3	23.4
West Virginia	6.84	10	2.67	14	39.0	3.74	6	54.6	0.15	40	2.2	0.29	42	4.3
Wisconsin	6.33	15	2.75	10	43.5	2.78	29	44.0	0.31	17	4.9	0.48	28	7.6
Wyoming	3.68	49	0.00	44	0.0	2.44	34	66.3	0.00	47	0.0	1.24	7	33.7
Mean	**5.78**		**2.02**		**33.3**	**2.81**		**49.8**	**0.27**		**5.0**	**0.68**		**11.9**
Standard Deviation	**1.46**		**1.13**			**1.02**			**0.17**			**0.65**		
Coefficient of Variation	**25.34**		**56.15**			**36.29**			**64.65**			**95.38**		
NYS Diff. from Mean	**0.36**		**1.70**		**27.4**	**(0.95)**		**(19.4)**	**(0.01)**		**(0.9)**	**(0.38)**		**(7.1)**

Source: Moody's Economy.com, U.S. Census Bureau

Table 4 - 2010 Components and Percentage of Total Local Taxes Per $100 of Personal Income											
State	Total	Rank	Property	Rank	Percent of Total	Sales	Rank	Percent of Total	Other	Rank	Percent of Total
Alabama	3.22	42	1.41	49	43.8	1.34	7	41.6	0.47	8	14.6
Alaska	4.52	17	3.26	20	72.1	1.16	12	25.7	0.10	30	2.1
Arizona	4.39	20	2.99	30	68.2	1.23	8	27.9	0.17	23	3.8
Arkansas	2.07	49	0.87	50	42.1	1.17	11	56.3	0.03	49	1.6
California	4.16	27	3.09	26	74.3	0.83	18	19.9	0.24	19	5.8
Colorado	5.33	3	3.36	19	63.0	1.71	2	32.2	0.26	17	4.8
Connecticut	4.41	19	4.35	7	98.7	0.00	49	0.0	0.06	46	1.3
Delaware	2.22	48	1.84	45	82.6	0.03	46	1.2	0.36	13	16.1
Florida	4.76	12	3.90	11	81.8	0.67	25	14.0	0.20	20	4.2
Georgia	4.58	15	3.12	25	68.0	1.36	6	29.7	0.10	29	2.3
Hawaii	3.36	37	2.44	40	72.6	0.62	26	18.6	0.30	16	8.8
Idaho	2.90	47	2.74	35	94.5	0.05	44	1.7	0.11	27	3.8
Illinois	5.23	5	4.35	8	83.2	0.75	21	14.4	0.13	26	2.4
Indiana	4.24	25	3.39	18	80.0	0.07	41	1.6	0.78	6	18.4
Iowa	4.53	16	3.67	13	81.2	0.71	22	15.7	0.14	25	3.1
Kansas	4.41	18	3.45	17	78.3	0.87	16	19.8	0.09	33	2.0
Kentucky	2.93	46	1.69	47	57.8	0.38	31	13.0	0.86	5	29.2
Louisiana	4.36	21	1.97	43	45.2	2.28	1	52.4	0.11	28	2.4
Maine	4.71	14	4.66	4	99.1	0.01	48	0.3	0.03	50	0.6
Maryland	4.82	9	2.91	31	60.3	0.22	33	4.5	1.70	1	35.2
Massachusetts	3.75	33	3.63	14	96.9	0.05	42	1.4	0.06	44	1.6
Michigan	3.75	32	3.50	16	93.4	0.08	39	2.0	0.17	22	4.6
Minnesota	3.26	40	3.06	28	94.0	0.12	37	3.7	0.08	38	2.3
Mississippi	2.98	45	2.77	32	92.9	0.12	38	4.0	0.09	32	3.1
Missouri	4.09	28	2.49	38	61.0	1.18	10	28.9	0.41	9	10.1
Montana	3.33	39	3.24	23	97.2	0.02	47	0.6	0.07	41	2.2
Nebraska	4.78	10	3.78	12	79.1	0.49	27	10.3	0.51	7	10.6
Nevada	4.30	23	3.13	24	72.8	0.85	17	19.7	0.32	15	7.5
New Hampshire	5.15	6	5.07	2	98.4	0.00	49	0.0	0.08	35	1.6
New Jersey	6.03	2	5.93	1	98.3	0.03	45	0.5	0.07	42	1.2
New Mexico	3.37	36	1.85	44	54.9	1.45	3	43.2	0.06	43	1.9
New York	**7.35**	**1**	**4.47**	**6**	**60.7**	**1.39**	**5**	**18.8**	**1.50**	**2**	**20.4**
North Carolina	3.33	38	2.57	36	77.1	0.68	23	20.4	0.08	34	2.5
North Dakota	2.99	44	2.51	37	83.8	0.43	29	14.2	0.06	45	2.0
Ohio	4.73	13	3.09	27	65.3	0.45	28	9.5	1.19	3	25.2
Oklahoma	3.23	41	1.74	46	53.7	1.45	4	45.0	0.04	48	1.3
Oregon	4.23	26	3.58	15	84.7	0.25	32	6.0	0.39	11	9.3
Pennsylvania	4.33	22	3.05	29	70.5	0.21	34	4.8	1.07	4	24.7
Rhode Island	5.10	7	4.98	3	97.6	0.05	43	1.0	0.07	39	1.5
South Carolina	4.06	29	3.26	21	80.1	0.39	30	9.7	0.41	10	10.1
South Dakota	3.74	34	2.74	34	73.3	0.92	15	24.6	0.08	37	2.1
Tennessee	3.43	35	2.23	42	65.2	1.04	13	30.2	0.16	24	4.5
Texas	4.94	8	4.10	10	83.0	0.76	20	15.4	0.08	36	1.6
Utah	3.84	31	2.75	33	71.8	0.99	14	25.7	0.09	31	2.5
Vermont	1.72	50	1.61	48	93.1	0.07	40	4.0	0.05	47	2.9
Virginia	4.26	24	3.24	22	76.0	0.67	24	15.7	0.36	14	8.4
Washington	3.85	30	2.40	41	62.3	1.20	9	31.2	0.25	18	6.5
West Virginia	3.03	43	2.47	39	81.6	0.20	35	6.5	0.36	12	11.9
Wisconsin	4.78	11	4.52	5	94.7	0.18	36	3.8	0.07	40	1.5
Wyoming	5.23	4	4.24	9	81.0	0.81	19	15.5	0.18	21	3.5
Mean	**4.08**		**3.15**		**76.8**	**0.64**		**16.1**	**0.29**		**7.0**
Standard Deviation	**1.00**		**1.01**			**0.55**			**0.37**		
CV	**24.51**		**32.21**			**85.20**			**125.99**		
NYS Diff. from Mean	**3.27**		**1.32**		**(16.1)**	**0.75**		**2.7**	**1.21**		**13.4**

Source: Moody's Economy.com, U.S. Census Bureau
Note: "Other" includes NYC imposed taxes and other categories.

Table 5 - 2018 Components and Percentage of Total Local Taxes Per $100 of Personal Income											
State	Total	Rank	Property	Rank	Percent of Total	Sales	Rank	Percent of Total	Other	Rank	Percent of Total
Alabama	3.00	39	1.22	49	40.7	1.40	4	46.7	0.38	10	12.6
Alaska	4.26	13	3.35	12	78.6	0.83	17	19.4	0.09	40	2.1
Arizona	3.52	28	2.21	38	62.8	1.17	10	33.4	0.13	24	3.8
Arkansas	1.99	50	0.86	50	43.1	1.10	11	55.2	0.03	49	1.7
California	3.73	22	2.52	30	67.6	0.92	15	24.7	0.29	15	7.6
Colorado	4.50	10	2.75	23	61.2	1.57	2	34.8	0.18	21	4.0
Connecticut	4.49	11	4.43	5	98.6	0.00	50	0.0	0.06	47	1.4
Delaware	2.08	48	1.67	47	80.6	0.03	46	1.5	0.37	11	17.9
Florida	3.53	27	2.71	24	76.8	0.61	25	17.3	0.21	19	5.9
Georgia	3.54	26	2.37	32	66.9	1.06	12	29.9	0.11	28	3.2
Hawaii	3.44	31	2.46	31	71.4	0.64	23	18.7	0.34	13	10.0
Idaho	2.50	46	2.34	33	93.6	0.06	42	2.6	0.10	34	3.8
Illinois	4.90	4	3.96	7	80.8	0.82	18	16.7	0.13	26	2.6
Indiana	2.58	45	2.23	36	86.4	0.07	41	2.8	0.28	18	10.8
Iowa	3.93	18	3.42	11	87.0	0.38	30	9.7	0.13	25	3.3
Kansas	3.76	21	2.68	25	71.3	0.98	14	26.0	0.10	32	2.7
Kentucky	2.96	41	1.63	48	54.9	0.40	29	13.5	0.94	5	31.6
Louisiana	4.18	14	1.90	43	45.4	2.19	1	52.4	0.09	37	2.2
Maine	4.68	8	4.62	4	98.8	0.01	48	0.2	0.05	48	1.0
Maryland	4.79	5	2.66	26	55.5	0.28	32	5.8	1.86	1	38.7
Massachusetts	3.68	24	3.50	10	95.1	0.09	39	2.4	0.09	36	2.6
Michigan	2.88	42	2.63	27	91.2	0.06	44	2.0	0.20	20	6.8
Minnesota	2.87	43	2.61	28	90.7	0.16	37	5.4	0.11	29	3.8
Mississippi	3.05	38	2.87	18	93.9	0.11	38	3.4	0.08	42	2.7
Missouri	3.83	19	2.22	37	58.0	1.23	8	32.0	0.39	9	10.1
Montana	3.11	36	3.00	16	96.4	0.03	47	0.9	0.09	41	2.8
Nebraska	4.79	6	3.76	9	78.4	0.50	26	10.4	0.54	6	11.2
Nevada	3.34	34	1.88	44	56.1	1.18	9	35.4	0.28	16	8.5
New Hampshire	5.49	3	5.39	2	98.3	0.00	49	0.1	0.09	39	1.6
New Jersey	5.59	2	5.48	1	98.1	0.03	45	0.6	0.08	43	1.3
New Mexico	3.42	32	1.90	42	55.6	1.44	3	42.3	0.07	46	2.1
New York	**7.30**	**1**	**4.17**	**6**	57.1	**1.38**	**5**	18.9	**1.75**	**2**	**23.9**
North Carolina	2.99	40	2.14	39	71.5	0.74	19	24.6	0.12	27	3.9
North Dakota	3.51	30	2.79	20	79.6	0.62	24	17.6	0.10	33	2.8
Ohio	4.38	12	2.77	22	63.2	0.46	28	10.6	1.15	3	26.2
Oklahoma	3.11	35	1.69	45	54.2	1.33	7	42.8	0.09	35	3.0
Oregon	3.67	25	2.94	17	80.2	0.27	33	7.3	0.46	8	12.5
Pennsylvania	4.14	15	2.87	19	69.2	0.21	34	5.0	1.07	4	25.8
Rhode Island	4.77	7	4.63	3	97.2	0.06	43	1.2	0.07	45	1.5
South Carolina	3.78	20	2.79	21	73.8	0.47	27	12.4	0.52	7	13.7
South Dakota	4.06	16	3.00	15	73.9	0.91	16	22.3	0.15	23	3.7
Tennessee	2.48	47	1.68	46	67.8	0.69	21	28.0	0.10	31	4.2
Texas	4.64	9	3.85	8	83.1	0.71	20	15.3	0.07	44	1.6
Utah	3.40	33	2.27	35	66.9	1.02	13	30.0	0.11	30	3.1
Vermont	2.06	49	1.95	41	94.7	0.08	40	3.7	0.03	50	1.6
Virginia	4.02	17	3.05	14	76.0	0.65	22	16.2	0.31	14	7.8
Washington	3.71	23	2.07	40	55.9	1.36	6	36.5	0.28	17	7.6
West Virginia	2.87	44	2.33	34	81.4	0.18	36	6.2	0.36	12	12.4
Wisconsin	3.51	29	3.24	13	92.3	0.18	35	5.1	0.09	38	2.6
Wyoming	3.08	37	2.58	29	83.8	0.33	31	10.8	0.16	22	5.3
Mean	**3.72**		**2.80**		**75.1**	**0.62**		**17.2**	**0.30**		**7.7**
Standard Deviation	**0.97**		**0.98**			**0.53**			**0.39**		
CV	**26.17**		**34.92**			**84.73**			**131.68**		
NYS Diff. from Mean	**3.58**		**1.37**		**(18.0)**	**0.76**		**1.7**	**1.45**		**16.3**

Source: Moody's Economy.com, U.S. Census Bureau
Note: "Other" includes NYC imposed taxes and all other categories.

Table 6a - State/Local Split of 2010 Tax-to-Income Ratio				
State	State Taxes	Local Taxes	State/Local Total	Total Rank
Alabama	5.27	3.22	8.50	46
Alaska	12.75	4.52	17.27	1
Arizona	5.00	4.39	9.39	37
Arkansas	8.09	2.07	10.16	21
California	6.58	4.16	10.74	13
Colorado	4.19	5.33	9.51	30
Connecticut	5.84	4.41	10.25	19
Delaware	7.18	2.22	9.41	36
Florida	4.22	4.76	8.98	41
Georgia	4.40	4.58	8.98	42
Hawaii	8.46	3.36	11.82	5
Idaho	5.97	2.90	8.86	45
Illinois	5.12	5.23	10.35	17
Indiana	6.11	4.24	10.35	16
Iowa	5.92	4.53	10.45	15
Kansas	5.83	4.41	10.24	20
Kentucky	6.52	2.93	9.45	34
Louisiana	5.10	4.36	9.47	33
Maine	7.04	4.71	11.74	6
Maryland	5.73	4.82	10.55	14
Massachusetts	5.67	3.75	9.41	35
Michigan	6.38	3.75	10.13	22
Minnesota	7.57	3.26	10.83	12
Mississippi	7.01	2.98	9.99	25
Missouri	4.30	4.09	8.39	48
Montana	6.04	3.33	9.37	38
Nebraska	5.10	4.78	9.88	26
Nevada	5.79	4.30	10.08	23
New Hampshire	4.00	5.15	9.15	39
New Jersey	6.21	6.03	12.24	4
New Mexico	6.20	3.37	9.57	29
New York	**6.38**	**7.35**	**13.73**	**2**
North Carolina	6.28	3.33	9.61	28
North Dakota	8.73	2.99	11.72	7
Ohio	5.56	4.73	10.29	18
Oklahoma	5.18	3.23	8.41	47
Oregon	5.26	4.23	9.49	32
Pennsylvania	5.73	4.33	10.06	24
Rhode Island	5.81	5.10	10.91	11
South Carolina	4.90	4.06	8.96	43
South Dakota	3.92	3.74	7.67	50
Tennessee	4.62	3.43	8.05	49
Texas	4.08	4.94	9.03	40
Utah	5.87	3.84	9.71	27
Vermont	9.81	1.72	11.53	8
Virginia	4.68	4.26	8.95	44
Washington	5.66	3.85	9.51	31
West Virginia	8.22	3.03	11.24	10
Wisconsin	6.57	4.78	11.35	9
Wyoming	8.29	5.23	13.52	3
Mean Values	**6.10**	**4.08**	**10.18**	
Standard Deviation	**1.61**	**1.00**	**1.60**	
Coefficient of Variation	**26.37**	**24.51**	**15.69**	
NYS Diff. from Avg.	**0.28**	**3.27**	**3.54**	

Source: Moody's Economy.com, U.S. Census Bureau

Table 6b - State/Local Split of 2018 Tax-to-Income Ratio				
State	State Taxes	Local Taxes	State/Local Total	Total Rank
Alabama	5.33	3.00	8.33	41
Alaska	1.59	4.26	5.86	50
Arizona	5.10	3.52	8.61	37
Arkansas	7.46	1.99	9.45	22
California	6.95	3.73	10.68	10
Colorado	4.40	4.50	8.91	30
Connecticut	7.61	4.49	12.11	3
Delaware	7.86	2.08	9.94	16
Florida	4.26	3.53	7.79	47
Georgia	4.73	3.54	8.27	42
Hawaii	9.84	3.44	13.28	2
Idaho	6.32	2.50	8.81	33
Illinois	5.46	4.90	10.36	12
Indiana	6.25	2.58	8.83	32
Iowa	6.44	3.93	10.37	11
Kansas	6.43	3.76	10.19	14
Kentucky	6.24	2.96	9.21	28
Louisiana	5.05	4.18	9.23	27
Maine	6.86	4.68	11.54	6
Maryland	6.28	4.79	11.07	8
Massachusetts	5.89	3.68	9.57	20
Michigan	6.42	2.88	9.30	25
Minnesota	8.24	2.87	11.11	7
Mississippi	7.17	3.05	10.23	13
Missouri	4.43	3.83	8.26	43
Montana	5.43	3.11	8.54	39
Nebraska	5.23	4.79	10.03	15
Nevada	5.55	3.34	8.90	31
New Hampshire	3.80	5.49	9.29	26
New Jersey	6.46	5.59	12.04	4
New Mexico	5.31	3.42	8.73	36
New York	**6.14**	**7.30**	**13.44**	**1**
North Carolina	5.79	2.99	8.78	35
North Dakota	4.69	3.51	8.20	44
Ohio	5.09	4.38	9.47	21
Oklahoma	4.92	3.11	8.03	46
Oregon	5.73	3.67	9.40	24
Pennsylvania	5.76	4.14	9.90	17
Rhode Island	6.28	4.77	11.04	9
South Carolina	4.82	3.78	8.60	38
South Dakota	4.12	4.06	8.18	45
Tennessee	4.43	2.48	6.91	48
Texas	3.76	4.64	8.39	40
Utah	5.39	3.40	8.79	34
Vermont	9.94	2.06	12.00	5
Virginia	4.95	4.02	8.96	29
Washington	5.72	3.71	9.43	23
West Virginia	6.84	2.87	9.71	19
Wisconsin	6.33	3.51	9.84	18
Wyoming	3.68	3.08	6.77	49
Mean Values	**5.78**	**3.72**	**9.49**	
Standard Deviation	**1.46**	**0.97**	**1.51**	
Coefficient of Variation	**25.34**	**26.17**	**15.87**	
NYS Diff. from Avg.	**0.36**	**3.58**	**3.94**	

Source: Moody's Economy.com, U.S. Census Bureau

Table 7 - 2018 Ratios of Tax Collections to Personal Income by Category									
State	State PIT	Local PIT	State Corporate	Local Corporate	State Sales	Local Sales	Local Property	All Other	Total State/Local
Alabama	1.90	0.06	0.28	0.00	2.68	1.40	1.22	0.79	8.33
Alaska	0.00	0.00	0.44	0.00	0.57	0.83	3.35	0.67	5.86
Arizona	1.43	0.00	0.12	0.00	3.06	1.17	2.21	0.63	8.61
Arkansas	2.19	0.00	0.30	0.00	3.70	1.10	0.86	1.31	9.45
California	3.78	0.00	0.50	0.00	2.14	0.92	2.52	0.82	10.68
Colorado	2.25	0.00	0.20	0.00	1.71	1.57	2.75	0.43	8.91
Connecticut	3.88	0.00	0.31	0.00	3.07	0.00	4.43	0.41	12.11
Delaware	3.08	0.00	0.47	0.01	1.09	0.03	1.67	3.58	9.94
Florida	0.00	0.00	0.22	0.00	3.56	0.61	2.71	0.68	7.79
Georgia	2.35	0.00	0.20	0.00	1.84	1.06	2.37	0.45	8.27
Hawaii	3.10	0.00	0.19	0.00	6.03	0.64	2.46	0.86	13.28
Idaho	2.40	0.00	0.31	0.00	3.13	0.06	2.34	0.57	8.81
Illinois	2.10	0.00	0.35	0.00	2.56	0.82	3.96	0.58	10.36
Indiana	1.87	0.21	0.23	0.00	3.91	0.07	2.23	0.32	8.83
Iowa	2.49	0.07	0.28	0.00	2.99	0.38	3.42	0.74	10.37
Kansas	2.31	0.00	0.30	0.00	3.04	0.98	2.68	0.88	10.19
Kentucky	2.35	0.79	0.27	0.10	2.99	0.40	1.63	0.68	9.21
Louisiana	1.50	0.00	0.17	0.00	3.17	2.19	1.90	0.30	9.23
Maine	2.50	0.00	0.29	0.00	3.50	0.01	4.62	0.62	11.54
Maryland	2.69	1.53	0.29	0.00	2.70	0.28	2.66	0.93	11.07
Massachusetts	3.23	0.00	0.48	0.00	1.79	0.09	3.50	0.48	9.57
Michigan	2.16	0.12	0.23	0.00	3.10	0.06	2.63	1.02	9.30
Minnesota	3.68	0.00	0.42	0.00	3.29	0.16	2.61	0.96	11.11
Mississippi	1.69	0.00	0.40	0.00	4.60	0.11	2.87	0.56	10.23
Missouri	2.21	0.14	0.11	0.03	1.88	1.23	2.22	0.44	8.26
Montana	2.56	0.00	0.35	0.00	1.25	0.03	3.00	1.36	8.54
Nebraska	2.29	0.00	0.30	0.00	2.43	0.50	3.76	0.74	10.03
Nevada	0.00	0.00	0.00	0.00	4.84	1.18	1.88	1.00	8.90
New Hampshire	0.14	0.00	1.03	0.00	1.34	0.00	5.39	1.39	9.29
New Jersey	2.74	0.00	0.41	0.00	2.82	0.03	5.48	0.56	12.04
New Mexico	1.44	0.00	0.10	0.00	3.31	1.44	1.90	0.53	8.73
New York	**3.72**	**0.97**	**0.26**	**0.48**	**1.86**	**1.38**	**4.17**	**0.60**	**13.44**
North Carolina	2.62	0.00	0.15	0.00	2.54	0.74	2.14	0.59	8.78
North Dakota	0.82	0.00	0.24	0.00	3.13	0.62	2.79	0.59	8.20
Ohio	1.52	1.01	0.00	0.05	3.17	0.46	2.77	0.49	9.47
Oklahoma	1.94	0.00	0.13	0.00	2.25	1.33	1.69	0.69	8.03
Oregon	4.03	0.00	0.36	0.04	0.75	0.27	2.94	1.00	9.40
Pennsylvania	1.81	0.75	0.35	0.06	2.98	0.21	2.87	0.87	9.90
Rhode Island	2.40	0.00	0.21	0.00	3.03	0.06	4.63	0.71	11.04
South Carolina	2.02	0.00	0.19	0.00	2.26	0.47	2.79	0.86	8.60
South Dakota	0.00	0.00	0.07	0.00	3.42	0.91	3.00	0.78	8.18
Tennessee	0.08	0.00	0.51	0.00	3.22	0.69	1.68	0.73	6.91
Texas	0.00	0.00	0.00	0.00	3.51	0.71	3.85	0.32	8.39
Utah	2.69	0.00	0.27	0.00	2.20	1.02	2.27	0.33	8.79
Vermont	2.48	0.00	0.34	0.00	3.32	0.08	1.95	3.83	12.00
Virginia	2.99	0.00	0.18	0.00	1.50	0.65	3.05	0.59	8.96
Washington	0.00	0.00	0.00	0.00	4.38	1.36	2.07	1.62	9.43
West Virginia	2.67	0.00	0.15	0.00	3.74	0.18	2.33	0.65	9.71
Wisconsin	2.75	0.00	0.31	0.00	2.78	0.18	3.24	0.57	9.84
Wyoming	0.00	0.00	0.00	0.00	2.44	0.33	2.58	1.40	6.77
Mean Values	**2.02**	**0.11**	**0.27**	**0.02**	**2.81**	**0.62**	**2.80**	**0.85**	**9.49**
Standard Deviation	**1.13**	**0.31**	**0.17**	**0.07**	**1.02**	**0.53**	**0.98**	**0.65**	**1.51**
Coefficient of Variation	**56.15**	**277.95**	**64.65**	**448.01**	**36.29**	**84.73**	**34.92**	**76.74**	**15.87**
NYS Diff. from Avg.	**1.70**	**0.86**	**(0.01)**	**0.46**	**(0.95)**	**0.76**	**1.37**	**(0.25)**	**3.94**

Source: Moody's Economy.com, U.S. Census Bureau

Table 8a - State Tax Burdens as a Percent of Personal Inome, 1977 - 2018					
Year	U.S. National Average	NYS	Standard Deviation	Coefficient of Variation	NY Difference from U.S. National Average
1977	6.43	7.12	1.52	23.57	0.69
1978	6.32	6.65	1.23	19.49	0.33
1979	6.39	6.46	1.56	24.41	0.07
1980	6.37	6.32	2.46	38.60	(0.05)
1981	6.38	6.21	3.66	57.37	(0.18)
1982	6.53	6.33	3.29	50.47	(0.20)
1983	6.34	6.16	2.39	37.62	(0.18)
1984	6.55	6.49	2.19	33.43	(0.06)
1985	6.63	6.67	1.93	29.08	0.04
1986	6.57	6.86	1.87	28.49	0.29
77-86 avg.	**6.45**	**6.53**	**2.21**	**34.25**	**0.08**
1987	6.51	6.98	1.27	19.48	0.47
1988	6.58	6.76	1.33	20.17	0.18
1989	6.50	6.36	1.31	20.17	(0.14)
1990	6.49	6.42	1.34	20.69	(0.07)
1991	6.52	6.35	1.49	22.87	(0.18)
1992	6.47	6.35	1.23	19.08	(0.11)
1993	6.70	6.43	1.51	22.49	(0.27)
1994	6.61	6.64	1.16	17.49	0.03
1995	6.72	6.48	1.34	19.91	(0.24)
1996	6.58	6.11	1.26	19.15	(0.48)
87-96 avg.	**6.57**	**6.49**	**1.32**	**20.15**	**(0.08)**
1997	6.64	5.89	1.27	19.07	(0.75)
1998	6.54	5.76	1.24	18.91	(0.79)
1999	6.56	5.83	1.27	19.42	(0.74)
2000	6.58	5.82	1.15	17.56	(0.76)
2001	6.50	6.04	1.11	17.12	(0.46)
2002	6.16	5.85	1.04	16.95	(0.31)
2003	6.11	5.63	1.04	17.04	(0.47)
2004	6.24	5.82	1.08	17.28	(0.42)
2005	6.54	6.24	1.29	19.66	(0.30)
2006	6.72	6.44	1.37	20.42	(0.28)
97-06 avg.	**6.46**	**5.93**	**1.19**	**18.34**	**(0.53)**
2007	6.78	6.54	1.52	22.40	(0.24)
2008	6.97	6.62	3.10	44.51	(0.34)
2009	6.53	6.77	1.89	29.03	0.24
2010	6.10	6.38	1.63	26.64	0.28
2011	6.20	6.42	1.80	28.96	0.22
2012	6.33	6.43	2.18	34.47	0.10
2013	6.50	6.54	1.89	29.03	0.05
2014	6.23	6.55	1.74	27.87	0.32
2015	6.17	6.37	1.72	27.94	0.20
2016	5.99	6.41	1.45	24.29	0.42
97-06 avg.	**6.38**	**6.50**	**1.89**	**29.51**	**0.12**
2017	5.89	5.86	1.37	23.25	(0.03)
2018	5.78	6.14	1.48	25.60	0.36

Source: Moody's Economy.com, U.S. Census Bureau

Table 8b - State/Local Tax Burdens as a Percent of Personal Income, 1977 - 2018					
Year	U.S. National Average	NYS	Standard Deviation	Coefficient of Variation	NY Difference from U.S. National Average
1977	10.34	14.91	1.66	16.05	4.57
1978	10.06	14.12	1.41	14.03	4.06
1979	10.00	13.42	1.65	16.46	3.42
1980	9.84	13.05	2.51	25.54	3.21
1981	9.77	12.76	3.66	37.53	3.00
1982	9.98	12.90	3.35	33.60	2.93
1983	9.87	12.71	2.59	26.23	2.84
1984	10.03	13.02	2.41	24.07	3.00
1985	10.18	13.36	2.22	21.76	3.18
1986	10.19	13.62	2.21	21.68	3.43
77-86 avg.	**10.02**	**13.39**	**2.37**	**23.69**	**3.36**
1987	10.25	13.98	1.55	15.11	3.74
1988	10.30	13.56	1.49	14.49	3.27
1989	10.18	13.12	1.34	13.14	2.93
1990	10.24	13.18	1.37	13.41	2.94
1991	10.36	13.51	1.54	14.84	3.15
1992	10.23	13.50	1.29	12.63	3.27
1993	10.55	13.80	1.60	15.11	3.25
1994	10.48	13.98	1.12	10.64	3.50
1995	10.58	13.47	1.28	12.09	2.89
1996	10.34	12.96	1.10	10.66	2.62
87-96 avg.	**10.35**	**13.51**	**1.37**	**13.21**	**3.16**
1997	10.38	12.75	1.11	10.67	2.37
1998	10.24	12.50	1.10	10.71	2.26
1999	10.18	12.37	1.00	9.81	2.19
2000	10.08	12.12	0.97	9.62	2.03
2001	10.05	12.15	0.97	9.60	2.09
2002	9.83	12.02	0.90	9.13	2.19
2003	9.86	12.38	0.95	9.64	2.52
2004	10.01	12.88	1.04	10.38	2.87
2005	10.34	13.60	1.20	11.61	3.26
2006	10.52	13.82	1.26	11.96	3.30
97-06 avg.	**10.15**	**12.66**	**1.05**	**10.31**	**2.51**
2007	10.61	13.89	1.46	13.73	3.28
2008	10.82	14.03	3.09	28.56	3.21
2009	10.71	14.28	1.92	17.97	3.57
2010	10.18	13.73	1.61	15.84	3.54
2011	10.09	13.72	1.78	17.63	3.63
2012	10.08	13.68	2.16	21.43	3.60
2013	10.30	14.15	1.83	17.79	3.85
2014	9.96	14.25	1.67	16.79	4.30
2015	9.89	14.05	1.65	16.72	4.16
2016	9.76	14.00	1.41	14.46	4.25
07-16 avg.	**10.24**	**13.98**	**1.86**	**18.09**	**3.74**
2017	9.66	13.09	1.34	13.89	3.43
2018	9.49	13.44	1.52	16.03	3.94

Source: Moody's Economy.com, U.S. Census Bureau

Glossary of Acronyms

Glossary of Acronyms

ABT	Alcoholic Beverage Taxes
AFC	Automotive Fuel Carrier
AGI	Adjusted Gross Income
ART	Auto Rental Tax
BCP	Brownfield Cleanup Program
BCP-EZ	Expedited Brownfield Cleanup Program
BEA	Bureau of Economic Analysis
BLS	Bureau of Labor Statistics
CARES	Coronavirus Aid, Relief, and Economic Security
CBO	Congressional Budget Office
CDC	Centers for Disease Control and Prevention
CES	Current Employment Statistics
CFT	Corporation Franchise Tax
CPFF	Commercial Paper Funding Facility
CPI	Consumer Price Index
CPI-U	Consumer Price Index for All Urban Consumers
CUNY	City University of New York
CUT	Corporation and Utilities Tax
CV	Coefficient of Variation
CWCA	Clean Water/Clean Air
CY	Calendar Year
DCJS	Division of Criminal Justice Services
DFS	Department of Financial Services
DHBTF	Dedicated Highway Bridge and Trust Fund
DHCR	Division of Housing and Community Renewal
DOB	Division of the Budget
DOH	Department of Health
DOL	Department of Labor
DTF	Department of Taxation and Finance
EB	Extended Benefits
ECEP	Employer Compensation Expense Program
ENI	Entire Net Income
EPF	Environmental Protection Fund
EPU	Economic Policy Uncertainty
ESCO	Energy Service Companies
ETIP	Employee Training Incentive Program
FAA	Federal Aviation Administration
FEMA	Federal Emergency Management Agency
FFY	Federal Fiscal Year (October 1 to September 30)
FOMC	Federal Open Market Committee
FY	Fiscal Year
FYE	Fiscal Year Ending
GDP	Gross Domestic Product
HCRA	Health Care Reform Act
HUT	Highway Use Tax
HUTAA	Highway Use Tax Administration Account
IFS	Interactive Fantasy Sports
IFTA	International Fuel Tax Agreement
IMF	International Monetary Fund
IPO	Initial Public Offering
IPP	Intellectual Property Products
IRS	Internal Revenue Service
LATAs	Local Access Transport Areas
LGAC	Local Government Assistance Corporation
LIHC	Low Income Housing Credit
M&A	Mergers & Acquisitions
MBS	Mortgage Backed Security
MCTD	Metropolitan Commuter Transportation District
MCTF	Medical Cannabis Trust Fund
MLF	Municipal Liquidity Facility
MME	Morphine Milligram Equivalent
MMMFLF	Money Market Mutual Fund Liquidity Facility
MSA	Metropolitan Statistical Area
MSLP	Main Street Lending Program
MTA	Metropolitan Transportation Authority
MTOAF	Metropolitan Transit Operating Assistance Fund
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NBER	National Bureau of Economic Research
NIPA	National Income and Product Accounts
NMI	Net Machine Income
NYC	New York City
NYS	New York State
NYSE	New York Stock Exchange
OASAS	Office of Addiction Services and Supports
OPEC+	The Organization of the Petroleum Exporting Countries
OTB	Off-Track Betting
P/E	Price-to-Earnings
PBT	Petroleum Business Tax
PCE	Personal Consumption Expenditures
PDCF	Primary Dealer Credit Facility
PEUC	Pandemic Emergency Unemployment Compensation
PIT	Personal Income Tax
PMCCF	Primary Market Corporate Credit Facility
PMI	Purchasing Managers Index
PMT	Pari-Mutuel Tax
PPI	Producer Price Index
PPPLF	Paycheck Protection Program Liquidity Facility
PST	Professional, Scientific, and Technical Services
PUA	Pandemic Unemployment Assistance

Glossary of Acronyms

PUC	Pandemic Unemployment Compensation
QCEW	Quarterly Census of Employment and Wages
QETC	Qualified Emerging Technology Companies
RBTF	Revenue Bond Tax Fund
REIT	Real Estate Investment Trust
RETT	Real Estate Transfer Taxes
RIC	Regulated Investment Company
SALT	State and Local Tax
SFY	State Fiscal Year (April 1 through March 31)
SLA	State Liquor Authority
SMCCF	Secondary Market Corporate Credit Facilities
STAR	School Tax Relief
STBF	Sales Tax Bond Fund
SUNY	State University of New York
TALF	Term Asset-Backed Securities Loan Facility
TCJA	Tax Cuts and Jobs Act of 2017
TMT	Truck Mileage Tax
TSC	Tribal State Compact
TY	Tax Year (January 1 through December 31)
U.S.	United States
U-3	Headline Unemployment Rate
U-6	Underemployment Rate
UI	Unemployment Insurance
UII	Unemployment Insurance Income
USD	United States Dollar
USMCA	United States-Mexico-Canada Agreement
VIX	Volatility Index
VLG	Video Lottery Gaming
VLT	Video Lottery Terminal