FY 2021
Economic and Revenue Outlook

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Introduction

The Economic and Revenue Outlook is a volume designed to enhance the presentation and transparency of the FY 2021 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) believes the information will aid the Legislature and the public in fully understanding and evaluating the economic assumptions and receipts estimates underlying the FY 2021 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 sections:

- **Economic Backdrop:** Provides a detailed description of the Division's forecast of key economic indicators for the national and New York State 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

- U.S. Real Gross Domestic Product is projected to increase 2.0 percent in 2020 and 2021, following estimated growth of 2.3 percent in 2019. The deceleration in the rate of growth is due to waning fiscal stimulus from the Tax Cuts and Job Act (TCJA) of 2017, labor market capacity constraints, trade frictions, and relatively weak global growth.

- Extra fiscal stimulus, improvement in consumer fundamentals, and equity market gains are expected to support above potential real GDP growth through 2020.

- U.S. employment gains are expected to lose momentum during the forecast horizon. The Division of the Budget projects the national unemployment rate to stay in the 3.5 percent neighborhood through mid-2020 and is expected to start edging up in the latter part of 2020.

- Despite tight labor markets, muted wage pressures have kept consumer price inflation relatively subdued. Consumer Price Inflation is projected to rise 2.2 percent in 2020 after growing 1.8 percent in 2019.

- The Division of the Budget expects that the Federal Reserve will keep the federal funds rate target at its current levels until the first quarter of 2021.

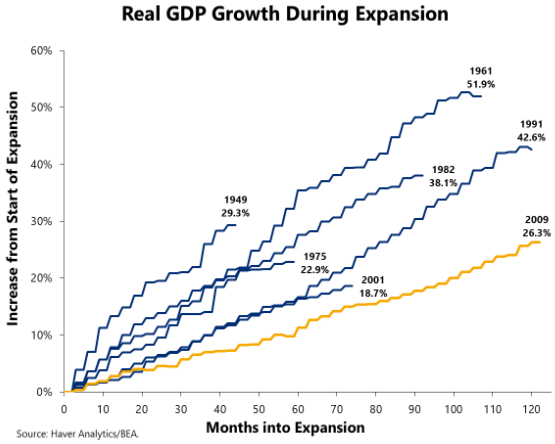
- New York State has experienced 36 consecutive quarters of job growth, adding approximately 1.3 million private sector jobs and marking the longest period of employment growth on record.

- New York State's private sector employment is estimated to have increased by 1.4 percent in 2019, followed by 1.2 percent growth in 2020 as national and global economic growth tapers off.

- Recent layoffs at Wall Street banks and weak IPOs and debt underwriting activity are expected to lead to finance and insurance bonuses decline of 1.7 percent in Fiscal Year 2019-20. However, the sector bonuses are projected to grow 3.3 percent in Fiscal Year 2020-21. Wages are, therefore, projected to grow slightly higher, at four percent, in Fiscal Year 2020-21.

The U.S. Economy

December 2019 marked the 126th month of the current U.S. economic expansion, officially the longest U.S. expansion on record. In July the recovery surpassed in length the previous record-holder, which spanned the 120 months between March 1991 to March 2001, according to the National Bureau of Economic Research (NBER). Though record-breaking in duration, the current expansion, which started in June 2009 after a particularly deep recession (Great Recession, December 2007-June 2009), has been marked by slower real Gross Domestic Product (GDP) growth than previous postwar expansions. Job gains have also been slower than usual for a postwar economic expansion, even though the September, November, and December 2019 readings of the unemployment rates were the lowest since December 1969.



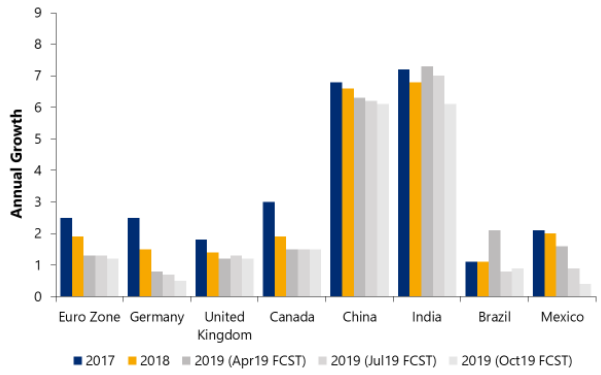
The economy showed vulnerability on two separate occasions in 2019: during the first two months of the year, and in the last two months of the third quarter. In the former instance, worries about the prospects for continued expansion intensified starting in late 2018 due to slowing global growth, waning support from fiscal stimulus, heightened trade frictions with China, a partial Federal government shutdown, and fears that the Federal Reserve was raising the federal funds rate too aggressively. In addition, several economic indicators were signaling that a downturn might be on the horizon, including the December 2018 retail sales report, the first estimate of February payrolls, and a brief inversion of the yield curve. However, as the first quarter of 2019 continued, there was a resurgence of optimism triggered by the end of the government shutdown and signals that the Federal Reserve had likely put further rate hikes on hold. U.S. equity markets started bouncing back from their late-2018 tumble, and incoming data for March and April pointed to stronger economic growth.

Recession worries started to flare up again in the summer of 2019, but these dissipated considerably in the last quarter of 2019 due to an easing in economic policy uncertainty and trade tensions, record-high equity market indices, the reversal of the yield curve inversion, three Federal Reserve rate cuts (July, September, and October), relatively strong economic data on the consumer and housing fronts, a very well-received November payrolls report, and the bottoming-out of the global manufacturing downturn.

The Global Economy

The International Monetary Fund (IMF) marked down its forecast for global economic growth and growth in several key economies in its January, April, July, and October 2019 outlooks.[1] The main culprits in the projections for slower growth have been rising trade barriers, a global manufacturing downturn, and elevated levels of economic policy uncertainty. In the last two months of 2019, trade tensions eased with the likely implementation of the United States-Mexico-Canada (USMCA) trade agreement, the announcement of a "phase-one" trade deal between the U.S. and China, and the result of the United Kingdom's election, which gave Boris Johnson's Conservative Party a clearer path toward the country's exit from the European Union (EU). In addition, monetary policy stimulus from major central banks including the Federal Reserve is helping to stabilize demand. Recent readings of IHS Markit Manufacturing PMIs (Purchasing Managers' Index) for major economies are suggesting that the global manufacturing downturn has bottomed out. IHS Markit estimates real global – excluding the U.S. – growth to reach 2.7 percent in 2019, the weakest growth rate since 2012. Growth in the global economy – excluding the U.S. – is expected to stay at 2.7 percent in 2020 and then to pick up steam in 2021.

IMF Revised Down 2019 World GDP Growth

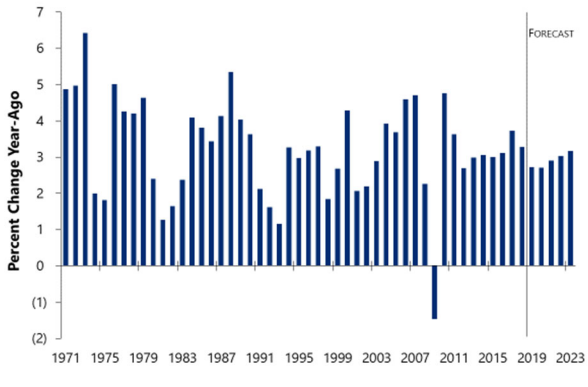


Note: Grey bars show IMF's forecasts for 2019 world GDP growth, projected in April, July and October respectively.
Source: IMF World Economic Outlook.

Global Economic Uncertainty Remains Elevated

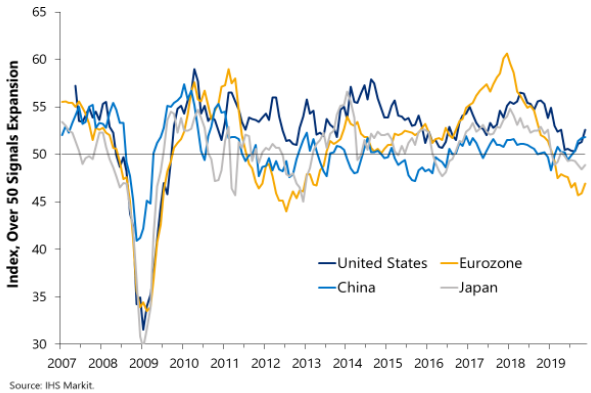
Note: Global Economic Policy Uncertainty (EPU) Index is calculated as the GDP-weighted average of monthly EPU index values for US, Canada, Brazil, Chile, UK, Germany, Italy, Spain, France, Netherlands, Russia, India, China, South Korea, Japan, Ireland, Sweden, and Australia, using GDP data from the IMF's 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

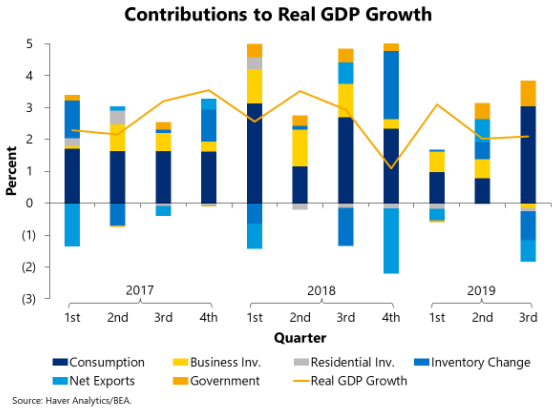


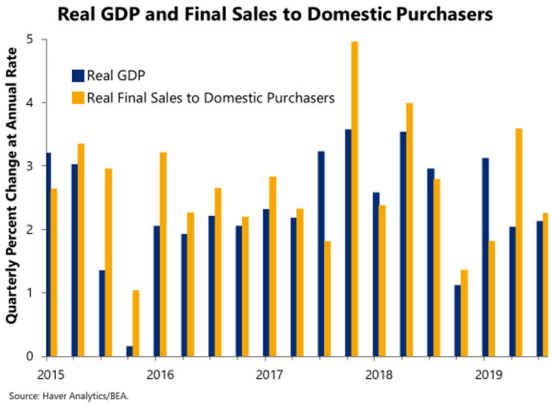
Source: IHS Markit.

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

U.S. Macro Forecast

Real GDP in the third quarter of 2019 grew 2.1 percent at an annual rate according to the Bureau of Economic Analysis (BEA) third estimate. This was unrevised from the second estimate, reported in November. The third estimate included upward revisions to consumption, nonresidential investment, and government expenditures that were offset by downward revisions to net exports, residential investment, and inventory accumulation. This reflects positive contributions to overall growth in the third quarter from consumption, residential investment, exports, and government spending. The balance between real GDP and Final Sales to Domestic Purchasers growth rates has improved considerably after the first two quarters of 2019.



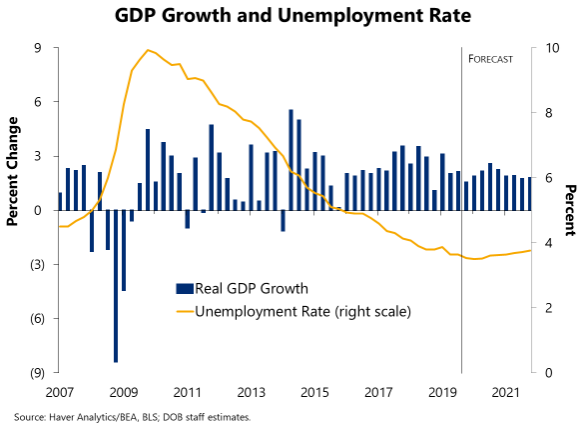


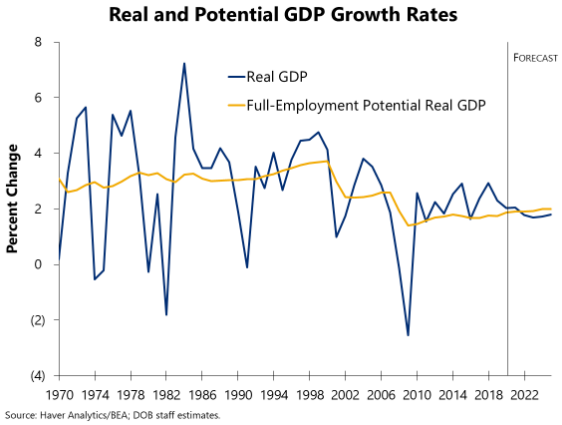
DOB's U.S. forecast incorporates the second estimate of 2019 third quarter GDP, October personal income and outlays estimates, the initial estimate of November 2019 employment, and the November 2019 CPI report. DOB expects real GDP to grow 2.3 percent in 2019 on an annual average basis, slower than the 2.9 percent pace set in 2018. Growth in 2019 has been led by consumer spending and government expenditures. Real consumption, the largest component of GDP, is forecast to grow 2.6 percent. Government consumption and gross investment growth throughout the year has been supported more by Federal than by state and local spending. GDP growth in 2019 has been constrained by declining net exports, a reduction in inventories after a surge in the first quarter, and weak residential and nonresidential fixed investment.

DOB expects real GDP growth to slow further to 2.0 percent in 2020 and remain at 2.0 percent through 2021. The deceleration in U.S. GDP growth is due to waning fiscal stimulus from the Tax Cuts and Job Act (TCJA) of 2017, labor market capacity constraints, trade frictions, and relatively weak global growth. DOB expects real GDP growth to systematically cross below real potential GDP growth in the last half of 2021.[2] On an annual average basis, real GDP growth has been above real potential GDP growth since 2017. DOB's baseline projection estimates that real GDP growth will remain above potential on an annual average basis by 0.5, 0.2, and 0.1 percentage points respectively in 2019, 2020 and 2021. The above- or at-potential GDP growth forecast for 2020 and the first half of 2021 is supported by continued strength from consumer spending, easing of

[2] Potential real GDP is the level of output the economy can produce when all available resources are being used at efficient levels.

economic policy uncertainty, and a reduction in trade tensions and tariffs between the U.S. and China, Federal Reserve rate cuts of 75 basis points in the latter part of 2019, monetary policy remaining on hold until the first quarter of 2021, additional Federal government spending due to the Bipartisan Budget Act of 2019 (BBA 19), and a pick-up in global growth in the latter part of 2019.



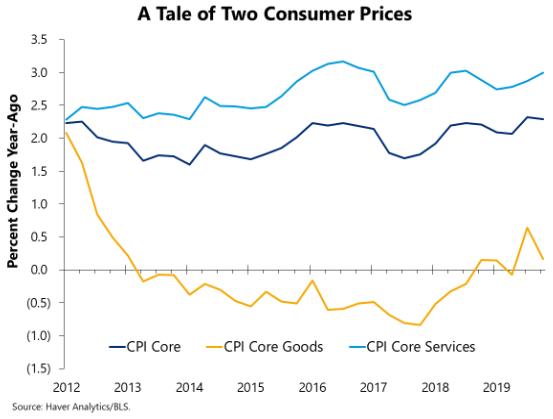


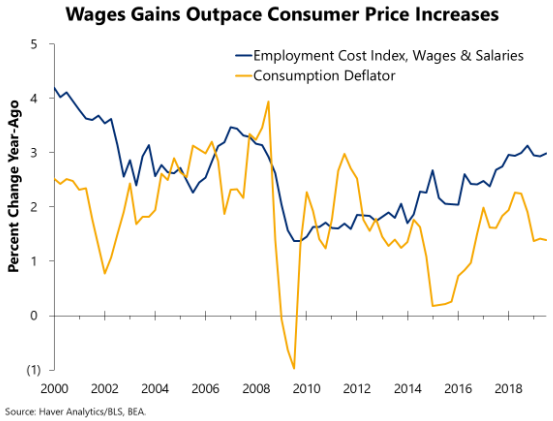
The U.S. economy added 145,000 nonfarm payroll jobs in December, bringing the average monthly gain to 176,000 for 2019. Employment gains are expected to lose momentum over the next several years.

Consistent with capacity-constrained labor markets and a current unemployment rate that is 1.1 percentage points below the Congressional Budget Office (CBO's) Non-Accelerating Inflation Rate of Unemployment (NAIRU), the outlook for wage growth is expected to remain relatively robust.[3] However, recent wage and salary data have been softer than expected; estimated growth of wages and salaries as measured by the BEA for 2019 is on par with that of 2018 at 5.0 percent and is expected to decelerate to 4.2 percent in 2020 and soften further to 3.9 percent by 2021. As real GDP growth slips beneath potential GDP's growth rate, the unemployment rate begins drifting up and approaches the CBO's NAIRU in a few years.

Despite tight labor markets, muted wage pressures have kept consumer price inflation relatively subdued. The Consumer Price Index (CPI) is projected to rise 2.2 percent in 2020 and 2021 after growing 1.8 percent in 2019. On a quarterly, year-over-year basis there has been a noticeable uptick in core goods consumer price inflation during the first three quarters of 2019. However, the fourth quarter core prices and core consumer goods inflation were mild. The good news on the consumer front is that wage gains, as measured by the Employment Cost Index (ECI), have outpaced consumer price increases on a year-over-year basis since the early part of 2013.

[3] The Non-Accelerating Inflation Rate of Unemployment (NAIRU) is also known as the Natural Rate of Unemployment Rate. This is a theoretical level of unemployment below which inflation would be expected to rise.





The Federal Reserve cut its benchmark interest rate by 25 basis points at each of its end-of-July, mid-September, and mid-October 2019 Federal Open Market Committee (FOMC) meetings. At its mid-December 2019 FOMC meeting, the Committee placed further rate cuts on hold. The three rate cuts in 2019 followed four rate hikes in 2018 and were viewed as insurance against downside risks, including softening domestic growth, tariff policy uncertainty, slower global growth, fading impacts of fiscal stimulus, and tepid core consumer price inflation. DOB expects the Federal Reserve to remain on hold until the early part of 2021, since the recent consumer price inflation data have been tepid.

Longer-term Treasury yields fell along with a slowdown in economic growth in most of 2019. Ten-year Treasury yields even fell below 3-month and 2-year Treasury yields during the summer, causing recession fears. However, longer-term Treasury yields moved moderately higher afterwards, reflecting the easing of U.S.-China trade tensions, stabilizing manufacturing sector activities, better-than-expected employment reports, and signs of global growth recovery. Stock prices have also ramped up accordingly. The S&P 500 stock price index closed 2019 at a record 3,231, nearly 30 percent higher than a year ago, representing the best gain in almost two decades. DOB expects growth in equity prices to moderate in 2020 while bond yields are expected to continue to firm.

Consumers did most of the heavy lifting in 2019 due to elevated levels of confidence, solid job prospects, gains in real wages, rising household net worth, and low interest rates. Real consumption is anticipated to grow at a slower pace due to waning fiscal stimulus from the TCJA, a slowdown in consumer auto demand, and other headwinds such as high student loan debt and an aging population. Light vehicle unit sales peaked in 2016 and have been on a slightly downward trajectory. The main culprits for the modest decline in auto sales in recent years are changing consumer preferences related to transportation, increased longevity of light vehicles over the past two decades, and the satisfaction of previously pent-up demand. Real consumption is anticipated to grow 2.6 percent in 2019, 0.4 percentage point below the 2018 reading. Real consumption growth is expected to decelerate further to 2.5 percent in 2020 and 2.2 percent in 2021.

Following the declines in other long-term rates, the 30-year fixed mortgage rate dropped around 90 basis points within 12 months and averaged 3.7 percent in December 2019. While the decline

in mortgage rates should have encouraged housing activity, it did little to stimulate new construction until the last two quarters of 2019. After contracting for six consecutive quarters, real residential fixed investment rebounded and grew 4.6 percent at an annualized rate in the third quarter of 2019. Recent news on the housing front has been positive, on balance. Real residential investment is forecast to recover from declines of 1.5 percent in 2018 and 1.6 percent in 2019 and grow 1.9 percent in 2020.

Real business fixed investment declined in the second and third quarters of 2019 as global growth cooled, trade policy uncertainty deterred businesses from enacting capital investment plans, and the continuing saga of Boeing's 737 MAX aircraft unfolded. [4] Real business fixed investment is estimated to slow to a 2.2 percent growth rate in 2019 from a 6.4 percent gain in 2018. The abrupt slowdown in business investment in 2019 was centered on very poor performance in structures and a slowdown in equipment spending, though intellectual property products have been a bright spot. Recent developments in trade negotiations between the U.S. and China are a slight positive, but the difficulties with the 737 MAX jets are a major headwind for 2020. Real business fixed investment is expected to decelerate further in 2020 to a 1.5 percent growth rate before accelerating to a 3.2 percent gain in 2021.

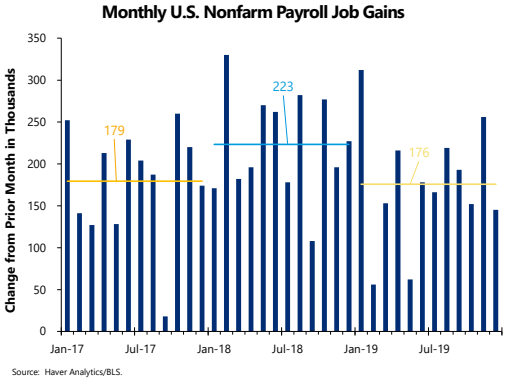
Real U.S. exports flatlined during 2019 from a 3.0 percent growth rate in 2018 due to a slowdown of the global economy, a halt in Boeing 737 MAX deliveries, trade tensions between the U.S. and China, a strong dollar, and elevated levels of economic policy uncertainty. Entering 2020, global economic growth has shown signs of turning around and the U.S. and China have reached a "phase-one" trade agreement, both of which are positive for U.S. exports. We also assume that Boeing 737 MAX aircraft deliveries will resume in the middle part of 2020, pumping up exports of aircraft. DOB expects real U.S. export growth to rebound to 1.4 percent in 2020 and 3.2 percent in 2021 after a slight decline in 2019. Real U.S. imports have also shrunk over the course of 2019, due in part to a sudden drop in imports from China. As trade tensions ease and the dollar remains high relative to its historical average, imports are also expected to increase in 2020. On balance, real net exports are likely to not decline steeply in 2020, reaching a $975 billion deficit in 2020 from a $973 billion deficit in 2019. A bright spot on the trade front is the continuing real trade services surplus.

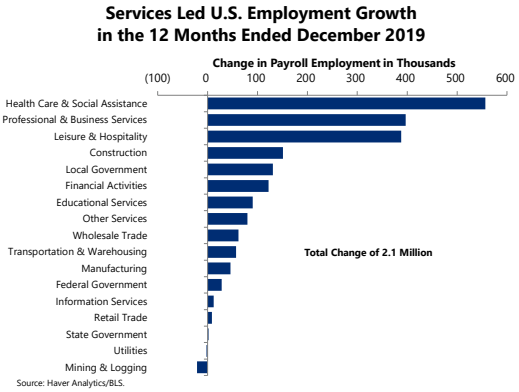
[4] Following 256 deliveries of the 737 MAX jets during 2018, Boeing delivered 57 during the first three months of 2019. After the second crash in March of 2019, the Federal Aviation Administration (FAA) and other global aviation authorities grounded all Boeing 737 MAX jets and Boeing halted the deliveries of its jetliner.

Labor Markets

Key Points

- The U.S. economy added 145,000 nonfarm payroll jobs in December, following 256,000 in November, bringing the average monthly gain to 176,000 for 2019; this is considerably weaker than the 223,000 monthly average for 2018. However, DOB expects the 2018 average monthly gain to be revised down to 191,900 after the benchmark revisions are implemented by BLS in February 2020.
- The slowing in nonfarm payroll gains is due to constrained labor markets, including shortages of skilled labor, and real GDP growth softening toward its trend rate.
- Employment gains are expected to lose momentum over the next several years. Total nonfarm employment growth of 1.3 percent is projected for 2020, followed by 0.8 percent growth for 2021. Employment growth for 2019 was 1.6 percent.
- The unemployment rate is likely to start edging up in the latter part of 2020 and then slightly accelerate as real GDP growth systematically falls below trend growth in the last half of 2021.





Recent Developments

The U.S. economy added 145,000 nonfarm payroll jobs in December, following a robust 256,000 jobs gain in November, bringing the 2019 average monthly gain to 176,000; this is considerably weaker than the 223,000 monthly average for 2018, but higher than the 2017 reading of 179,000. DOB expects the 2018 monthly average gain to be revised down to 191,900 by the Bureau of Labor Statistics (BLS) in February 2019. The economy added 139,000 private nonfarm payroll jobs in December compared with 243,000 in November and 164,000 in October. These figures were influenced by the United Auto Workers (UAW) strike against General Motors, which took jobs out of the October tally and added them back in November; employment at motor vehicles and parts manufacturers fell by 43,600 in October before surging by 39,300 in November. The unemployment rate remained at 3.5 percent in December, matching its September value – both being the lowest jobless rates since December 1969. During 2019, a total of 2.1 million payroll jobs were added to the economy, with the health care and social assistance, leisure and hospitality, and professional and business services sectors capturing over 60 percent of the job gains. The largest net job loser was mining and logging. Meanwhile retail trade managed a slight gain of only 8,500 jobs as online consumer purchasing continues to hurt both sales and employment at traditional brick-and-mortar retailers.

Outlook

Labor markets are tight. The unemployment rate in December 2019 was 1.1 percentage points below the CBO's estimated NAIRU. However, there may remain some extra capacity available among those marginally attached to the labor force, including discouraged workers, and persons employed part time for economic reasons. The U-6 unemployment rate, which includes these additional categories, has been closely correlated with the U-3 unemployment rate in a fixed ratio for most of its history; since 1994, the U-6 was typically 75 percent greater than the U-3. However, the gap between the two widened in 2012, and the U-6 unemployment rate remains elevated relative to its historical ratio with the U-3, thus suggesting the existence of some untapped willingness to work more. For example, part-time "gig" work has blossomed in recent years as the Internet and mobile apps have made it easier for the worker and customer to connect. During the past year, the gap between U-6 and U-3 has narrowed somewhat. In December 2019, the number of employees working part-time for economic reasons was almost 507,000 lower than in December 2018.

The number of job openings as reported in the Job Openings and Labor Turnover Survey (JOLTS) was 7.3 million in October. While this figure is among the highest in the survey's 19-year history, it does not quite approach the 7.6 million peak seen in late 2018 and early 2019. Job openings slipped in February after the disruptions caused by the plunge in the stock market and the partial shutdown of the Federal government. However, the total number of unemployed, as measured by the household survey, has maintained a steady downward trend. In early 2018 the number of job seekers fell below the number of job openings for the first time in the JOLTS history; this continued through October 2019. While the changing nature of the job seeking process means that historical data may not be perfectly comparable to today's, it also suggests that employment opportunities are plentiful. Before the ascendency of web-based job platforms and internet access, the cost and time of posting and applying for employment was higher.

The availability of employment prospects is pulling Americans into the workforce. The prime-age (25-54 years) civilian labor force participation rate was 82.9 percent in December, up from a 30-year low of 80.6 percent in September 2015. While this figure was higher during most of the period from 1990 through the Great Recession, it has grown steadily in the last four years and has narrowed the gap to its all-time high of 84.6, set in January 1999. Similarly, the prime-age employment-to-population ratio (proportion of employed to total population) was 80.4 in December 2019; the last time this figure was higher was July 2001.

Average monthly payroll gains in 2018 were the strongest since 2015. However, in August 2019 the BLS announced its preliminary benchmark revision estimates for establishment employment, indicating a downward adjustment of 501,000 to the March 2019 payrolls figure – the largest revision since 2009. The average monthly change from April 2018 to March 2019 is likely to be revised down by 41,750. Applying this revision in average monthly terms to all of 2018 would lower the year's monthly increase in nonfarm employment from an average of 223,250 to 191,900. The final benchmark revision will be issued in February 2020 with the publication of the January 2020 *Employment Situation* report.

DOB expects temporary hires of approximately 500,000 during the first five months of 2020 due to the 2020 Decennial Census, but this will unwind over the remainder of the year. This will temporarily increase the labor force and the employment-to-population ratio in the first five months of 2020. The previous three Decennial Census years saw temporary Census hiring of 335,000 in 1990, 530,000 in 2000, and 564,000 in 2010. However, employment gains are expected to lose momentum over the next several years. Total nonfarm employment growth of 1.3 percent is projected for 2020, followed by 0.8 percent growth for 2021. Employment growth for 2019 was 1.6 percent. The unemployment rate is likely to start edging up in the latter part of 2020 and then gently accelerate as real GDP growth systematically falls below trend growth in the last half of 2021.

Risks

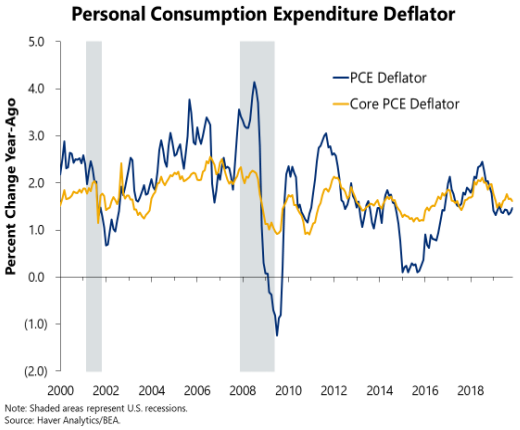
A sharp increase in productivity growth is an upside risk to the DOB forecast. Facing tight labor markets, which make hiring more difficult, a boost in productivity would provide the potential for businesses to increase rates of production using existing resources, which could sustain real GDP growth at above-trend rates for longer than in the DOB forecast, while resulting in sustained employment growth.

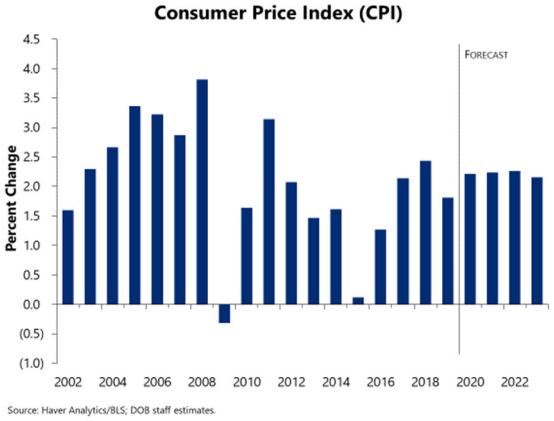
Structural changes such as the aging of population represent a downside risk to the DOB forecast. Since baby boomers will continue to reach retirement age in elevated numbers until 2029, the decline in labor force participation attributable to aging is expected to continue.

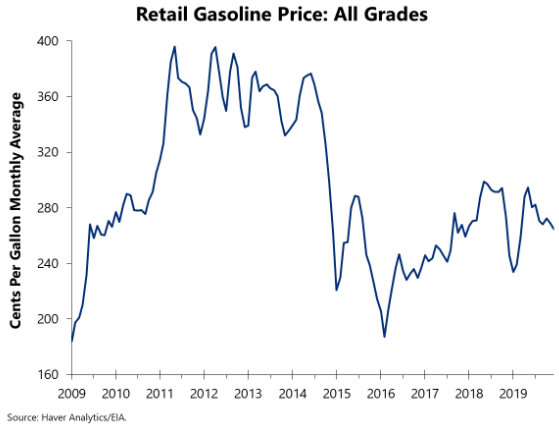
Inflation

Key Points

- Consumer price inflation remains relatively stable. The core personal consumption expenditures (PCE) price index has not systematically exceeded the Federal Reserve's target of 2.0 percent on a year-over-year basis since the Great Recession.
- Inflation expectations have been trending sideways in recent years.
- Recent developments in the Persian Gulf place considerable risks to oil prices in the near-term.
- The CPI is projected to rise 2.2 percent in both 2020 and 2021, after growing 1.8 percent in 2019.







Recent Developments

The headline CPI inflation rose 0.2 percent on a month-over-month basis in December 2019, due to sizable increases in energy and healthcare prices. November core PCE price inflation fell to a 1.6 percent rate on a year-over-year basis, from a 1.7 percent reading in October. The rollback of tariffs included in the "phase-one" trade agreement between the U.S. and China is expected to assist further in placing downward pressure on core consumer goods price inflation in the first quarter of 2020.

Outlook

The core PCE price index has not been above the Federal Reserve's target of 2.0 percent on a year-over-year basis systematically since the aftermath of the Great Recession, despite tight labor markets and an unemployment rate that has been at or below the CBO's NAIRU since the first quarter of 2017. The December 2019 unemployment rate was 1.1 percentage points below CBO's NAIRU. In the run-up to the fall of 2018, it appeared that core PCE price inflation would top the 2.0 percent target and then remain around that level, but in recent months core consumer price inflation has softened considerably.

This inflation softness has been a dilemma for the Federal Reserve and for believers in the Phillips Curve.[5] One possible explanation is that the Phillips Curve is flatter than in the past. At least through the mid-1990s the relationship, when visualized, was negative: lower unemployment rates were associated with stronger inflation rates, suggesting a trade-off between low inflation and low unemployment. In addition, inflation expectations five years hence have been drifting lower. In December 2019, five-year inflation expectations were at 2.2 percent compared to 2.8 percent at the end of 2014. Over the last 20 years, the link between inflation and unemployment has weakened substantially; however, recent research cautions practitioners that the Phillips Curve is still alive and relevant.

Other explanations for weak inflation include the strength of the dollar and the acceleration of online sales, which have kept consumer goods prices down. Core consumer goods inflation did see a noticeable uptick during the first three quarters of 2019 on a year-over-year basis, but it diminished in October and November. Lower consumer goods inflation is good news for consumers, as wage gains measured by the Employment Cost Index (ECI) have outpaced consumer price increases on a year-over-year basis since early 2013.

The CPI is projected to rise 2.2 percent in both 2020 and 2021, after growing 1.8 percent in 2019.

Risks

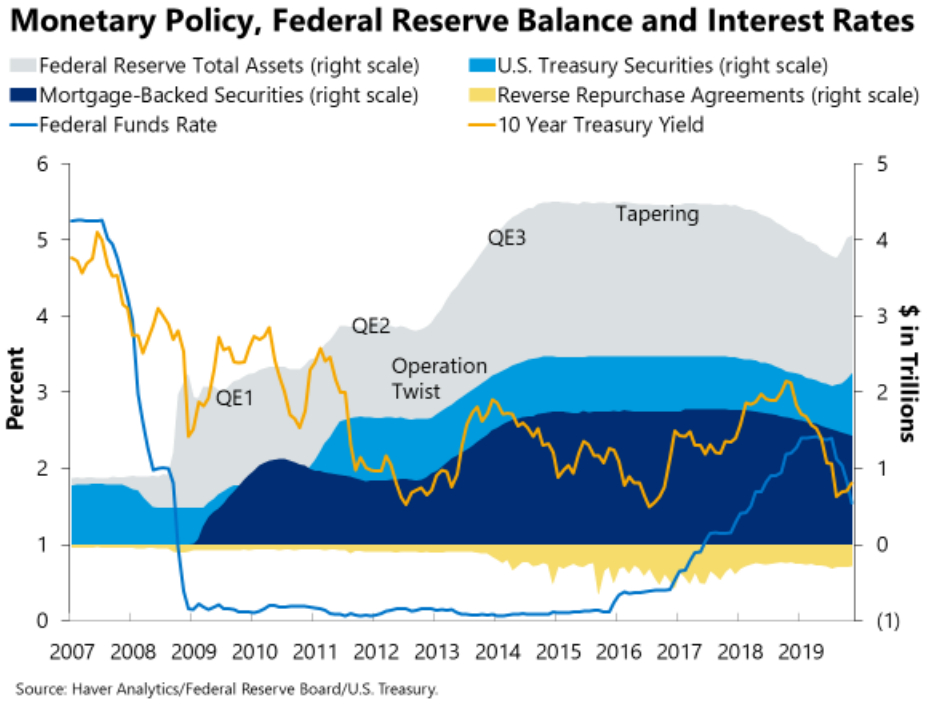
Recent events in the Persian Gulf region could send oil prices persistently higher, causing increased inflation.

[5] The Phillips Curve describes the empirical relationship between the unemployment rate and price inflation.

Federal Reserve Call

Key Points

- DOB expects that the Federal Reserve will not change the target range for the federal funds rate in 2020 and will remain on hold until the first half of 2021.
- However, the Federal Reserve remains data dependent, so material changes in the economic outlook could invalidate this expectation.
- After increasing the target band for the federal funds rate from December 2015 through December 2018, the Federal Reserve reversed itself and lowered the band three times in 2019.



DOB expects that the FOMC to remain on hold until at least into the first half of 2021, with no changes to the FOMC's target range for the federal funds rate foreseen until near the close of the coming fiscal year. Consistent with this, DOB anticipates that the effective federal funds rate will be 1.6 percent on an annual average basis in 2020, after averaging 2.2 percent in 2019. The effective federal funds rate for 2021 is expected to be 1.9 percent, consistent with an expected tightening by the FOMC. In consequence, the yield on 10-year Treasuries is expected to average 2.1 percent in 2019, dipping to 2.0 percent in 2020, before rebounding to 2.4 percent for 2021.

This expected lack of action by the FOMC will be a significant departure from recent years when it abruptly reversed course from the tightening path it embarked on four years earlier. In December 2015, the federal funds rate target range was raised by 25 basis points from zero to 0.25 percent, the first increase in its target since June 2006. By the end of 2017 the target band was 1.25 percent.

The FOMC then increased the target band in four 25 basis point steps to reach a 2.25 percent to 2.5 percent points range by December 2018. Amid heightened uncertainty brought on by trade tensions, a plunging stock market in late 2018, and a partial shutdown of the Federal government that lasted from late December 2018 until late January 2019, the FOMC paused any action with respect to the target federal funds rate band from January 2019 through June 2019. From there, the FOMC reversed course and lowered the target band, again using 25-basis point steps, after its meetings in July, September, and October, leaving it at a range of 1.25 to 1.5 basis points as 2019 ended.

DOB's forecast follows the signals given by the FOMC itself, as well as the chair of the Federal Reserve's Board of Governors, Jerome Powell. In its latest policy statement, the FOMC said that it would "continue to monitor the implications of incoming information for the economic outlook as it assesses the appropriate path of the target range for the federal funds rate," which is not new verbiage, but wording included in the September policy statement regarding contemplating the future path of the target range was not included in the December statement. Chair Powell, in his post-meeting press conference, said that the FOMC believes "monetary policy is in a good place," and that a change in policy would stem from "… developments … that cause a material reassessment of our outlook," but the "baseline outlook remains favorable." According to Powell's press conference comments, the FOMC will be on hold as long as the economy grows at a moderate pace, with a strong labor market and inflation near the Committee's two percent objective.

In other monetary policy developments, the FOMC put a stop to its process of gradually shrinking its balance sheet in July. The Federal Reserve System's balance sheet, around $900 billion in November 2007 (prior to the official start of the Great Recession), exploded to just over $4.5 trillion by December 2014, as a consequence of not only policy actions taken to combat the recession and accompanying financial crisis but also due to the unconventional policy steps (quantitative easing, or purchases by the Federal Reserve of longer-term Treasury securities and agency-issued mortgage-backed securities) undertaken by the FOMC to stimulate the economy during the early part of the expansion, which was very sluggish.

A surprise development, possibly related to the portfolio shrinkage, occurred in mid-September 2019 when the Secured Overnight Funding Rate (SOFR) – an interest rate on very short-term lending based on the market for repurchase agreements (repos) – jumped from 2.43 percent to 5.25 percent overnight from September 16 to September 17. Besides the sudden spike, the intraday rates spread was around 700 basis points, an unusual event in a market where the intraday range is generally just 10 basis points. In addition, there were spillover effects into the federal funds rate market. The event garnered a prompt response from the Federal Reserve, which at the same time stressed that its operations in the repo market did not amount to a change in the stance of monetary policy.

Early thinking was that two events in mid-September coincided to bring about the spike. One was that corporations needed to withdraw funds from money market accounts to make payments on their quarterly tax bills, but as that was happening, financial institutions and investors who purchased some $78 billion in U.S. Treasury notes and bonds that were sold during the week of September 9 needed to settle those purchases. Finally, reserves that banks keep on deposit with

the Federal Reserve were at their lowest level since March 2011, in part because of the Federal Reserve's winding down of its asset holdings. These reserves can be lent by banks to other banks on an overnight basis and are a segment of this very short-term lending market. Federal Reserve Bank of New York President John Williams alluded to these factors in an October speech.[6] Williams explained that in January 2019 the Federal Reserve moved to an "ample reserves framework" to implement monetary policy, but he noted, "The level of reserves consistent with 'ample' is inherently highly uncertain, so we have been actively looking for signs that reserves might be growing scarce." In his speech, Williams said that slowing the reduction in the Federal Reserve's asset portfolio earlier in 2019 and the complete halt in July were meant to assist in the transition to a reserve level consistent with "ample reserves."

However, researchers at the Bank for International Settlements (BIS), an international central bank for national central banks, argued that structural factors helped cause the spike in the SOFR, as well as the coincidental factors noted above. Claudio Borio, Head of Monetary and Economic Development at the BIS, stated that the two structural factors were high demand for repo funding from non-financial institutions (noting hedge funds in particular), while on the other side, the unwillingness of the big four banks to supply that funding.[7] The research underlying Borio's remarks says that as repo rates began to rise above the "interest on excess reserves" (IOER), a rate paid to banks for deposits they hold with the Federal Reserve in excess of those required by bank regulations, the U.S. banking system as a whole switched to become a net provider of funds to repo markets, rather than a net provider of collateral. In particular, the big four banks had a net lending position of about $300 billion by the end of June 2019, making them a key player in the market.[8] The three researchers also said that as of the second quarter of 2019, the big four banks held 50 percent of total Treasury securities held by U.S. banks, while at the same time they had only 25 percent of reserves – funds that they would be able to supply quickly to the repo markets.

Borio remarked that the big four banks appear to have become less willing to supply funds into the repo markets, which "seems to reflect post-crisis changes in internal risk management practices and, possibly, the lack of flexibility to take advantage of short-lived arbitrage opportunities."[9] He suggested that this lower degree of flexibility reflected the many years of abundant excess reserves in the banking system, which in turn reduced the need to obtain and to grant short-term liquidity.

Meanwhile, the Federal Reserve has continued to implement its "ample reserves" policy. Minutes of the December FOMC meeting state, "Reserve management purchases of Treasury bills continued at a pace of $60 billion per month," with the trading desk at the New York Federal Reserve Bank continuing to conduct regular repo operations "in order to maintain reserves at or above the level that prevailed in early September." Repos outstanding totaled "roughly $215 billion

[6] John C. Williams, "Money Markets and the Federal Funds Rate: The Path forward," Remarks at the MFA Outlook 2019, New York City, October 17, 2019, p. 2. Available at https://www.newyorkfed.org/newsevents/speeches/2019/wil191017.
[7] Claudio Borio and Hyun Song Shin, "BIS speech," December 8, 2019, in BIS Quarterly Review, December 2019 – media briefing, p. 3. Available at https://www.bis.org/publ/qtrpdf/r_qt1912_ontherecord.htm.
[8] Fernando Avalos, Torsten Ehlers and Egemen Eren, "September stress in dollar repo markets: passing or structural?," *BIS Quarterly Review*, December 2019 (December 8, 2019), p. 3. Available at https://www.bis.org/publ/qtrpdf/r_qt1912v.htm.
[9] Borio and Shin, p. 3.

per day," made up of both overnight and term repos.[10] Term and overnight repurchase operations are to continue at least through January 2020.

Risks

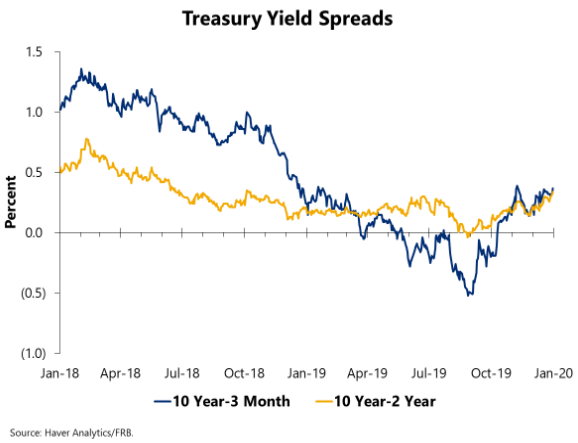
With the FOMC remaining in "data dependent" mode, the risks to DOB's "Federal Reserve Call" are essentially the risks to the national economic outlook. If monthly gains to nonfarm payrolls continue to show strength, and if the manufacturing sector appears to stabilize, and if trade tensions (particularly with China) moderate, then the FOMC will likely remain on hold through 2020. On the other hand, slowing nonfarm payrolls growth, increased trade frictions, consistent failure to hit the FOMC's two percent inflation target, or indications that the overall economy is slowing could all cause the FOMC to cut the federal funds rate target range instead.

[10] "Minutes of the Federal Open Market Committee, December 10-11, 2019," released January 3, 2020, p. 5. Available at https://www.federalreserve.gov/monetarypolicy/files/fomcminutes20191211.pdf.

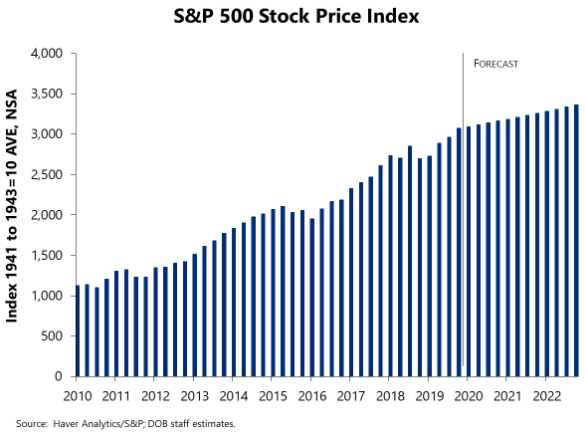
Financial Markets

Key Points

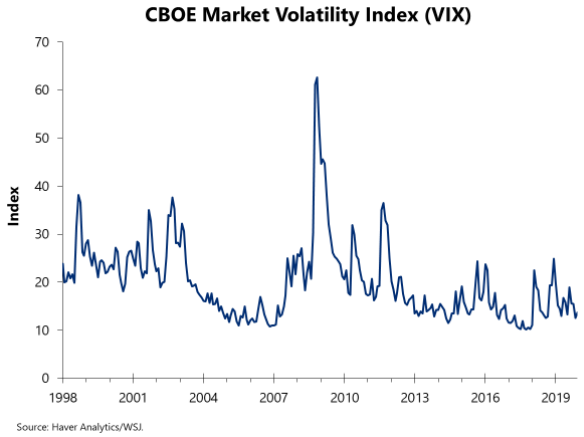
- Financial market conditions tightened significantly heading into 2019, but the Federal Reserve's dovish pivot in the latter half of 2019 helped reverse that. Longer-term Treasury yields were on a downward trend for most of 2019. The 10-year Treasury note yield plunged 120 basis points from 2.7 percent at the beginning of 2019 to 1.5 percent at the end of August 2019.
- Longer-term Treasury yields have moved moderately higher since September 2019, reflecting the easing of U.S.-China trade tensions, stabilizing manufacturing sector activities, better-than-expected employment reports, and signs of a global growth recovery.
- The yield curve briefly inverted in the middle of 2019. The spread between the 10-year and 3-month Treasury yields was negative from May to October, and the spread between the 10-year and 2-year Treasury yields dipped negative at the end of August. The yield curve inversion caused fears of recession and volatility in financial markets, but the curve would need to invert further and for a more extended period to be a real concern.
- The risk spread between yields on Baa corporate bonds and 20-year Treasury notes spiked late in 2018, narrowed through April 2019, and then widened again as uncertainty over trade policy renewed in May. Risk spreads have moved lower since the recent peak in June and are expected to narrow further in the next couple of years, supported by stable financial conditions.
- Uncertainty over U.S. trade policy sent equity markets into a roller coaster ride during 2019, but in the end, 2019 might be the best year equity markets have had in two decades. The S&P 500 stock price index closed 2019 at 3,231. Compared with the close of 2018 at 2,507, it increased 28.9 percent, slightly shy of the 31.0 percent year-end growth in 1997.
- DOB expects growth in stock prices to moderate in 2020 while bond yields continue to firm.

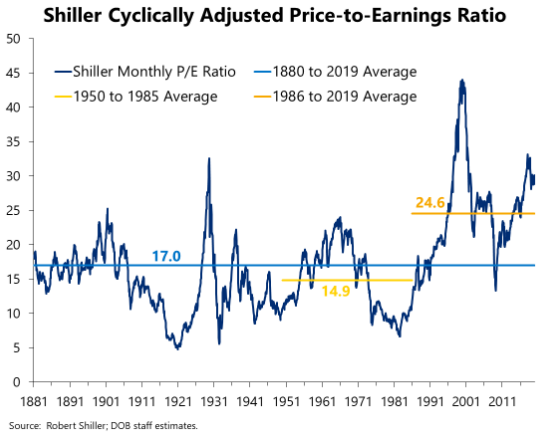


Source: Haver Analytics/FRB.



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





Outlook

DOB forecasts that 10-year Treasury yields will rise gradually from an average of 1.8 percent in the fourth quarter of 2019 to 2.1 percent in the fourth quarter of 2020 and reach a long-term rate of 3.5 percent by 2025. The S&P 500 stock price index is projected to grow 2.9 percent in 2020 on a fourth-quarter-over-fourth quarter basis, following year-ago growth of 14.7 percent in the fourth quarter of 2019.

Risks

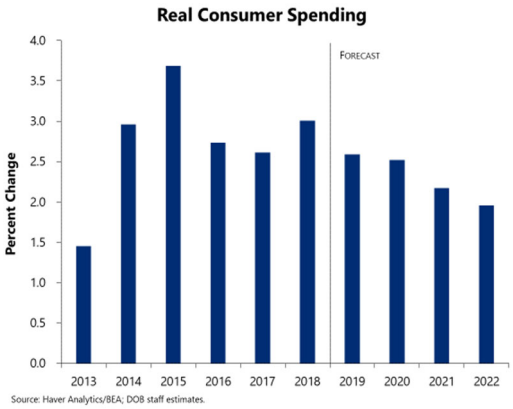
If inflation creeps higher than anticipated, investors may start to worry about another Federal Reserve rate hike, representing a downside risk to the equity market. Continued trade policy uncertainty represents another downside risk: if U.S.-China trade tensions were to escalate again, stock prices could tumble. In addition, if the yield curve were to invert again, looming recession concerns could weigh on the market.

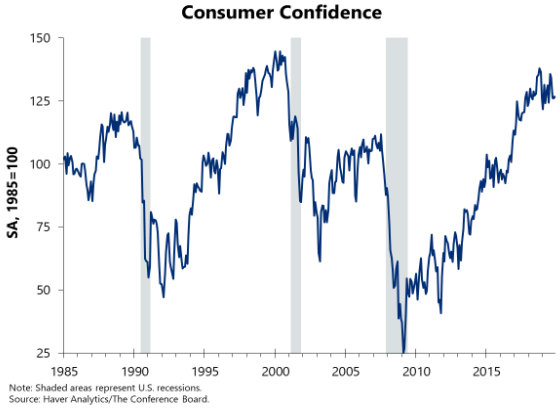
Another challenge for the equity market is whether fundamentals can catch up with the currently very high price-to-earnings (P/E) ratios. In the chart above, the Shiller cyclically adjusted P/E ratio as of December 2019 is 30.1, well above the 24.6 average from January 1986 to December 2019, a period that contains the high-tech/internet bubble of the late 1990s and with P/E ratios well above other historical averages. Over the long run, stock price growth is expected to mirror the expected growth in corporate earnings, discounted by the change in interest rates. Therefore, either an acceleration of earnings growth or a correction of stock prices is expected going forward.

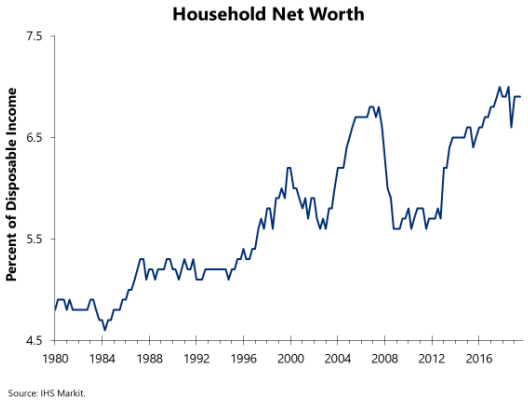
Consumer Markets

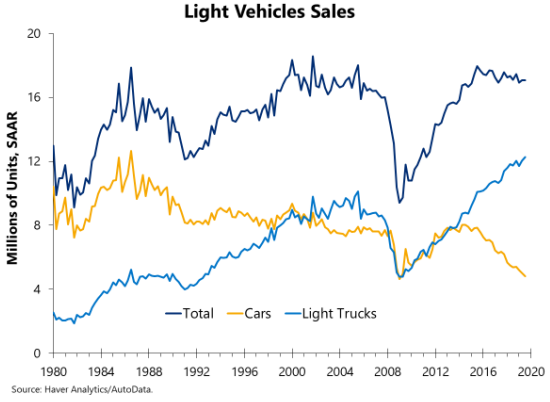
Key Points

- Consumer spending is expected to remain the key source of growth, supported by rising real wages, household net worth gains, solid employment opportunities, income base broadening, elevated levels of confidence, and low interest rates.
- Real consumption is anticipated to grow at a slower pace due to waning fiscal stimulus from the TCJA, and a slowdown in motor vehicle demand. Real consumption growth of 2.6 percent is estimated for 2019, 0.4 percentage point below the 2018 reading. Further deceleration is forecast as real consumption declines to 2.5 percent in 2020 and 2.2 percent in 2021. Household net worth as a percentage of disposable income has been hovering near record highs, mostly due to a record-breaking stock market performance.
- Real disposable income is estimated to increase 2.9 percent in 2019, 1.9 percent in 2020, and 1.8 percent in 2021, considerably weaker than the 4.0 percent showing in 2018.









Recent Developments

According to the BEA's third estimate, real consumer spending grew 3.2 percent in the third quarter of 2019, revised up 0.3 percentage point from the second estimate but below the 4.6 percent showing in the second quarter. The October and November real consumer spending data suggest a more subdued fourth quarter. DOB estimates real consumer spending growth of 2.3 percent in the fourth quarter. Personal interest income gains slowed to a crawl in 2019 compared with 2018 due to the Federal Reserve rate cuts. However, personal interest income is expected to make a comeback in 2021 as the Federal Reserve starts increasing rates. Farm proprietors' income growth has been volatile during the past several quarters due to the timing of agriculture subsidy payments to farmers that have been negatively impacted by Chinese tariffs.

The Conference Board Consumer Confidence Index is near record highs. However, in August, in the wake of tariff announcements and a heightened sense of recession fears, consumer confidence fell for three months in a row before recovering in November. Currently, the Conference Board Consumer Confidence Index is sitting very close to the levels of December 2018; the stock market rally over the last couple months, news of a "phase one" trade deal with China, and the diminishing recession fears are assisting in elevating consumer mood. High levels of consumer confidence assist in consumer spending on motor vehicles and moderately priced big-ticket items. Wealthy households are likely benefitting disproportionately from record-breaking equity markets - this should support spending on big-ticket luxury goods in the first quarter of 2020.

Outlook

American households did most of the heavy lifting in 2019 due to elevated levels of confidence, solid job prospects, real wage gains, rising household net worth, and low interest rates. However, real consumption is anticipated to grow at a slower pace due to waning fiscal stimulus from the TCJA, a slowdown in consumer auto demand, and other headwinds such as high student loan debt and an aging population. Light vehicle unit sales peaked in 2016 and have since been on a slightly downward trajectory. The main culprits for the slight decline in auto sales in recent years are changing consumer preferences related to transportation, increased longevity of light vehicles over the past two decades, and the satisfaction of previously pent-up demand. Since early 2014, the sale of light trucks, the class of light vehicles that includes SUVs, has consistently outstripped unit auto sales, which have continued to decline.

Real consumer spending is estimated to grow 2.6 percent in 2019, 0.4 percentage point below the 2018 reading. Real consumption is expected to decelerate further to 2.5 percent in 2020 and 2.2 percent in 2021. Real disposable income is expected to increase 2.9 percent in 2019, 1.9 percent in 2020, and 1.8 percent in 2021, considerably weaker than the 4.0 percent showing in 2018.

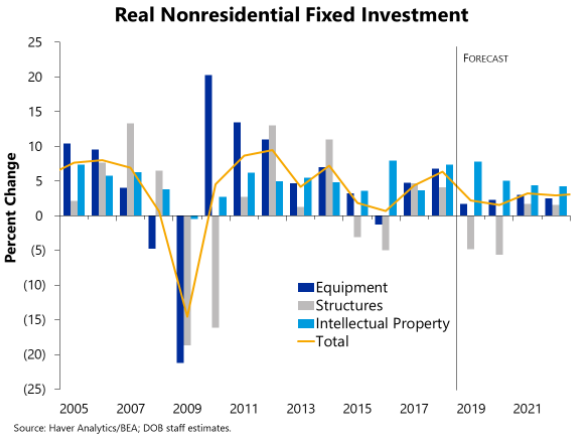
Risks

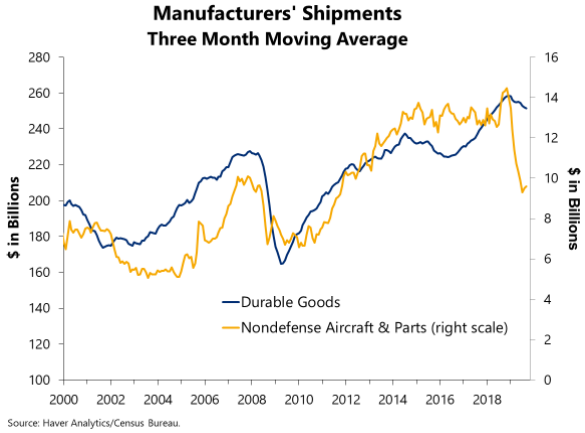
Downside risks to DOB's consumption forecast include oil price spikes, a stock market correction, and increased tariffs on consumer goods.

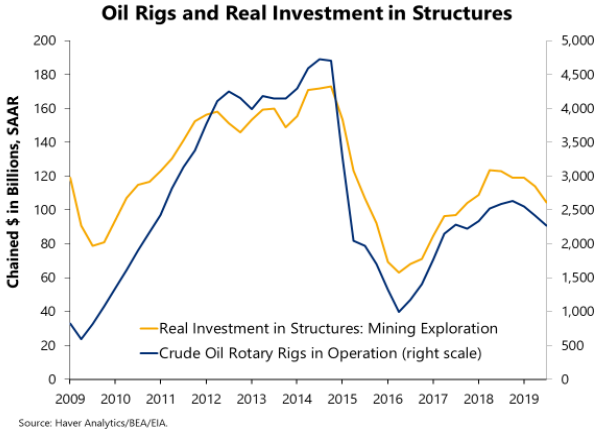
Business Fixed Investment

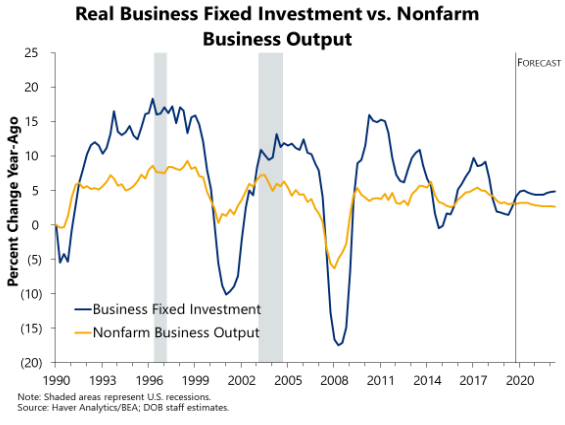
Key Points

- Real business fixed investment declined 2.3 percent annualized in the third quarter of 2019, subtracting 0.3 percentage point from real GDP growth. This is the second consecutive quarterly decline following 4.4 percent growth in the first quarter.
- Real investment in structures, a major driver of declines in total business fixed investment, dropped 11.1 percent in the second quarter of 2019 and 9.9 percent annualized in the third quarter. These declines were in part due to lower oil prices, which led to a reduction in oil rigs and therefore declines in real investment in mining exploration.
- Investment in equipment also declined in the third quarter of 2019 as Boeing's troubled 737 MAX jetliner remained grounded. Nondefense aircraft shipments have been declining throughout the year, bringing down manufacturers' shipments.
- Real investment in intellectual property products (IPP) continued to grow during the second and third quarters of 2019, albeit at a much slower pace compared with double digit growth in the last quarter of 2018 and the first quarter of 2019.









Recent Developments

The most recent data on nonresidential private construction show declines across the board in November 2019 from the prior month, implying continuing weakness in investment in structures.

The General Motors strike that started on September 15, 2019, had a slightly negative impact on third quarter production; however, disruptions in production in the last quarter of 2019 were not as negligible.[11] Shipments of nondefense capital goods excluding aircraft remained below their June levels until November. However, advance manufacturers' orders of nondefense capital goods, excluding aircraft, a leading indicator for equipment investment, was up in October and November 2019, erasing the losses incurred in August and September. It remains uncertain, however, when Boeing will resume production and deliveries of its 737 MAX jetliners.

Capacity utilization was at a relatively low level of 77.3 percent in November 2019, compared with 79.5 percent at the end of 2018, indicating that businesses were reluctant to invest in new capital given the uncertainty caused by trade wars and the global outlook. Increased business costs due to elevated tariffs could not be passed along completely to consumers, contributing to weak business investment even in this low interest environment.

The Conference Board's CEO confidence index fell to 43 in the first and second quarters of 2019 and declined further to 34 in the third quarter. Since a reading of less than 50 points reflects more negative than positive responses, 2019 readings indicate that CEOs have been very cautious regarding investment, likely as a result of trade policy uncertainty and elevated tariffs along with moderating global demand. However, the recent trade deal reached with China is expected to ease some of these concerns.

Outlook

Real business investment is expected to increase modestly during the last quarter of 2019, ending the year with 2.2 percent growth on an annual average basis, decelerating from 6.4 percent growth in 2018. Growth in real business fixed investment is expected to remain low during 2020, consistent with slower growth in nonfarm business output. Real nonfarm business output in the first quarter of 2020 is expected to remain weak as Boeing announced it will halt its production of the 737 MAX jetliner in January. Investment in equipment is expected to pick up later in 2020 and grow 2.3 percent at an annual rate, after growing 1.7 percent in 2019.

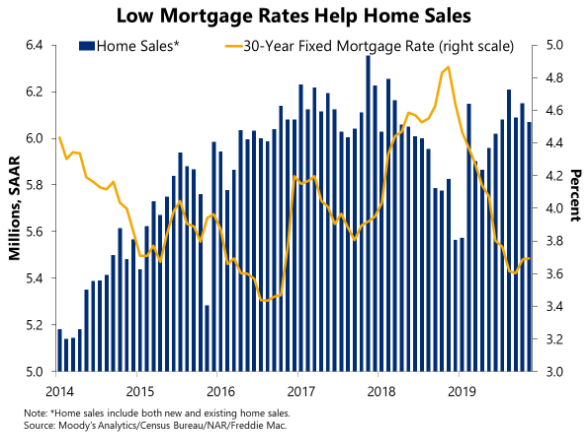
Real investment in structures is expected to decline 4.8 percent in 2019 on an annual average basis, followed by a 5.6 percent decline in 2020. Real IPP investment growth is expected to slow down to 5.0 percent in 2020, following an estimated growth of 7.8 percent in 2019 partly boosted by firms bringing their research and development work to the U.S.

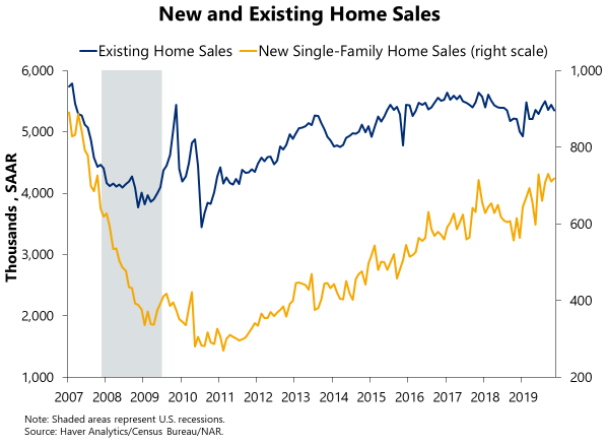
[11] According to Federal Reserve's *Beige Book* from November 2019, the Midwest saw declines in auto production due to the General Motors strike. Please see https://www.federalreserve.gov/monetarypolicy/files/BeigeBook_20191127.pdf for more details.

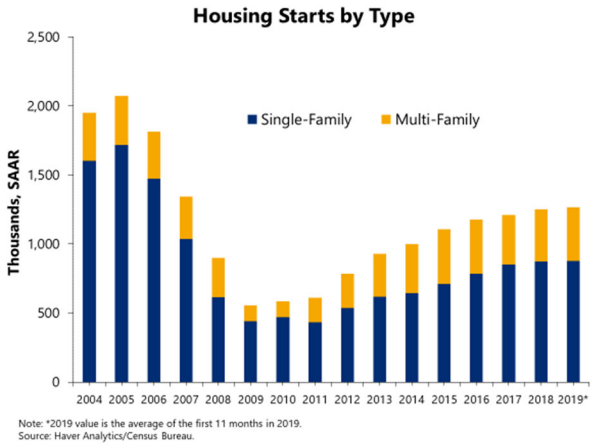
Housing Market

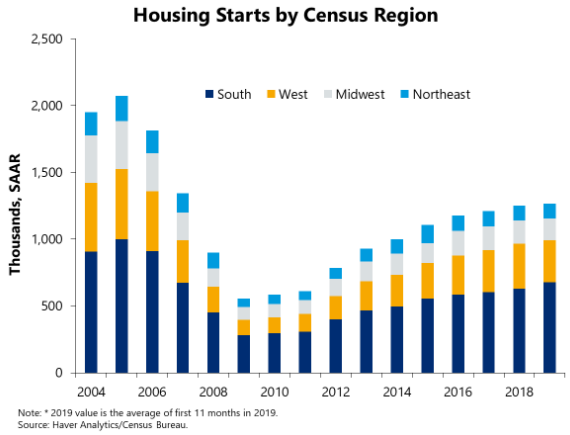
Key Points

- The sharp declines in mortgage rates during 2019 have assisted home buyers and provided the housing market with a much needed lift.
- Housing starts as well as new home sales have been rising since early 2019. After contracting for six consecutive quarters, real residential fixed investment rebounded and grew 4.6 percent at an annualized rate in the third quarter of 2019.
- Shortages in the supply of existing homes, due in part to demographic shifts, have been restraining existing home sales and pushing up prices.
- Half of the national housing starts occur in the South where population growth exceeds the national average.









Recent Developments

As the decade came to an end, the U.S. housing market regained strength in 2019. In the third quarter of 2019, the sum of new and existing home sales exceeded 6.0 million units annualized after falling below 6.0 million for four consecutive quarters since the third quarter of 2018. Home sales are expected to remain above 6.0 million in the fourth quarter of 2019. Driving this uptick in sales was the increase in homebuyer demand brought on by low mortgage rates. Supported by three Federal Reserve rate cuts in 2019, the 30-year fixed mortgage rate dropped around 90 basis points within a year and averaged 3.7 percent in December 2019.

New home sales seem to have benefited more from the reduction in financing costs than existing home sales. The number of new-home sales reached a post-recession peak of 730,000 annualized in September 2019, with almost 60 percent of these sales occurring in the South. However, the number of existing home sales was below the 2017 average of 5.5 million, averaging only 5.3 million annualized during the first 11 months of 2019. This disparity is due, in part, to supply constraints within the existing home market, driving prices higher and reducing affordability for potential buyers. Demographic shifts have played a key role in limiting the amount of available homes for sale, as the elderly are less apt to put their homes up for sale and move. Moreover, according to population data released on December 30, 2019, the U.S. resident population grew only 0.48 percent in 2019, the slowest rate since 1930. The national Case-Shiller home price index continued to grow during the first 10 months of 2019, albeit at a much slower rate of 3.5 percent compared with 5.8 percent growth in 2017 and 2018.

In the first half of 2019, housing starts for both single- and multi-family homes were in decline compared with the first six months of 2018. However, the gains in demand, driven by monetary loosening, have overcome certain supply-side constraints in skilled construction labor. Single-family starts from July to November 2019 increased 5.5 percent compared with the same period in the prior year, while multi-family starts have seen even greater gains of 10.1 percent. Permits have had an even better comeback in the latter half of the year, increasing 9.1 percent, with authorizations for multi-family construction up 18.9 percent.

Outlook

Recent strength in housing permits and starts are expected to help keep residential fixed investment on the upside throughout 2020. Mortgage rates are expected to increase slowly over the course of 2020, with annual averages remaining slightly below their 2019 value. Real residential investment is forecast to recover from declines of 1.5 percent in 2018 and 1.6 percent in 2019 and to grow 1.9 percent in 2020.

Risks

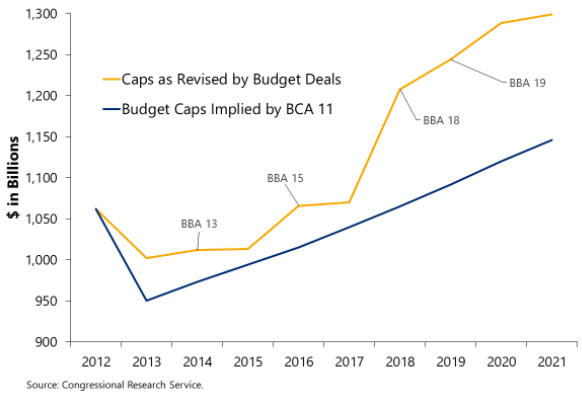
The health of the U.S. consumer has played a crucial role in the housing market. Consumer confidence remained within a healthy range over 2019 despite uncertainty around trade policies, but any factors that would jeopardize consumers' will and ability to either add improvements on their homes or become new homeowners represent downside risks to the housing market.

Fiscal Policy

Key Points

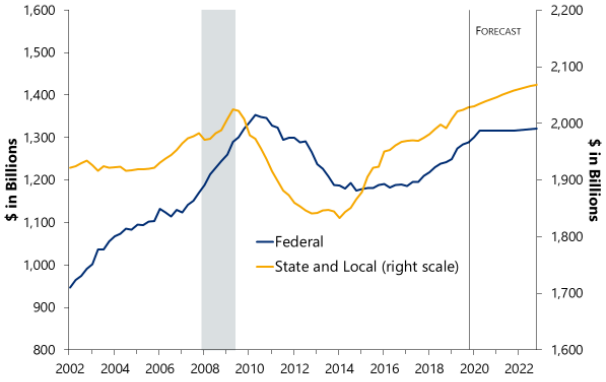
- The Bipartisan Budget Act of 2018 (BBA 18), which raised Federal budget spending caps for Federal Fiscal Year (FFY) 2019, significantly boosted government spending in the first three quarters of calendar year 2019.
- According to the BEA's third estimate, real Federal government spending grew 3.3 percent at an annual rate in the third quarter of 2019, following annualized growth rates of 8.3 percent in the second quarter and 2.2 percent in the first quarter.
- The Bipartisan Budget Act of 2019 (BBA 19) is expected to inject new fiscal stimulus and mitigate downside fiscal risks through 2021.
- The U.S. Federal budget deficit surged 23 percent in the FFY 2019 to $960 billion, reaching its highest level in seven years. It is projected to top $1 trillion in 2020 and stay above $1 trillion over the next decade according to the CBO.

Evolution of the Federal Budget Spending Caps



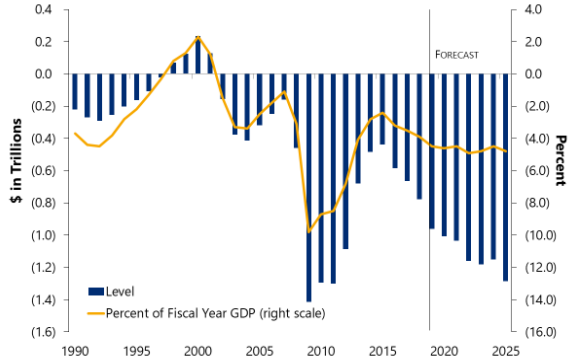
Source: Congressional Research Service.

Real Government Spending



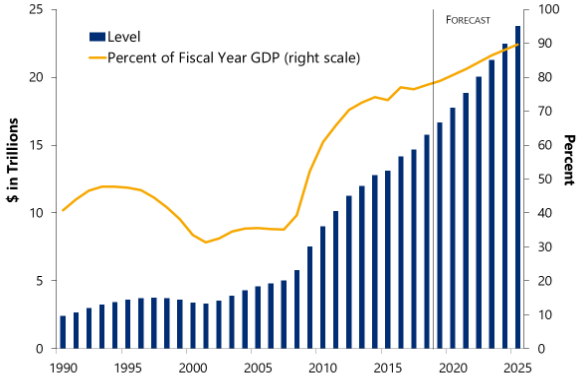
Note: Shaded areas represent U.S. recessions.
Source: Haver Analytics/BEA; DOB staff estimates.

Federal Budget Balance



Source: Haver Analytics/CBO.

Federal Debt Held by the Public



Source: Haver Analytics/CBO.

Recent Developments

BBA 19 is the fourth in a series (BBA 13, BBA 15 and BBA 18) that raised spending caps originally imposed by the Budget Control Act of 2011 (BCA 11). It sets budget authority for FFY 2020 and FFY 2021 approximately $50 billion per year above the budget authority in Federal fiscal year 2019 and suspends the debt ceiling through July 2021. Beyond 2021, there are no current caps in law on defense and nondefense discretionary spending. This act was signed into law by President Donald Trump on August 2, 2019. However, Congress had to enact two continuing resolutions (CRs) in order to fund the government through December 20, 2019, when all appropriation bills were passed by both chambers, reconciled, and signed by the President. Since these CRs restricted Federal government spending at FFY 2019 levels rather than the higher levels set by BBA 19, the fiscal stimulus effect was trimmed in the fourth quarter of 2019.

Owing to the passage of $1.4 trillion in spending bills that will keep the U.S. government funded through September 30, 2020, a Federal government shutdown that could have echoed that at the end of 2018 was avoided in 2019. However, the massive spending measures will add approximately $400 billion to the U.S. Federal budget deficit over the next decade.

Outlook

The stimulus impact from BBA 18 is evident in the growth rate of real Federal government spending, which ramped up from 0.8 percent in 2017 to 2.9 percent in 2018 and further to an estimated rate of 3.4 percent in 2019. Because the increase in budget authority from BBA 19 is only around one-third of that BBA 18, its stimulus impact on Federal government spending in 2020 and 2021 is expected to be less prominent. Meanwhile, the newly passed Federal budget appropriated $7 billion to fund the 2020 Decennial Census, and thus the temporary hiring of several hundred thousand census workers will boost Federal government spending slightly in 2020. Overall, DOB estimates that real Federal government spending will grow 3.0 percent in 2020 before slowing down to 0.3 percent growth in 2021.

State and local government spending is also expected to benefit from the higher Federal budget as Federal funding will flow to states. As shown in the figure above, real state and local government spending bottomed in 2013 and has improved notably since then. By the third quarter of 2019, it had surpassed its prior peak of 10 years ago. DOB expects real state and local government spending to grow 1.5 percent in 2019 following growth of 1.0 percent in 2018, and then slow down to 0.8 percent in both 2020 and 2021.

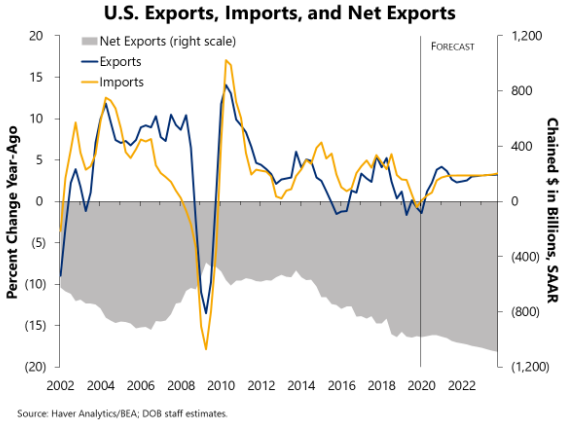
Risks

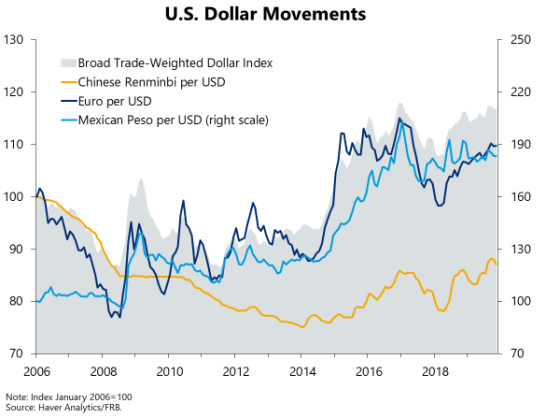
Fiscal policy usually remains broadly neutral ahead of presidential elections. As expected, neither Democrats nor Republicans risked another Federal government shutdown at the end of 2019. And there is an upside risk to having more fiscal stimulus post-election in 2021 no matter which party wins. Although the elevated Federal budget deficit and mounting debt burden shown in the figures above are not an immediate threat, especially under the current low interest rates, it will ultimately depress U.S. economic growth at some point in the coming years.

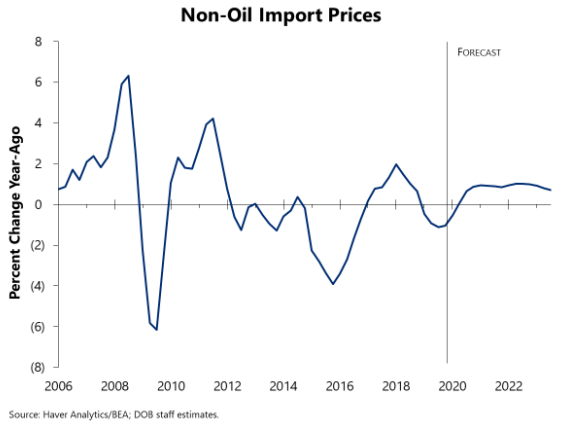
Trade

Key Points

- According to the BEA's third estimate, real net exports of goods and services declined $9.4 billion in the third quarter of 2019, subtracting 1.0 percentage point from real GDP growth in the quarter. Real exports grew 0.9 percent at an annual rate in the third quarter, recovering from a decline of 5.7 percent in the second quarter. Real imports grew 1.8 percent at an annual rate in the third quarter, following flat growth in the second quarter.
- Following a sharp appreciation in 2018, the U.S. dollar has broadly stabilized over 2019. It is expected to remain strong in 2020, but no longer serve as a major headwind for U.S. exports.
- Since global economic growth has begun to stabilize and trade tensions are easing, real exports are expected to improve in 2020. However, weakening domestic demand and higher tariffs are expected to hold back import growth to slightly over one percent on an annual average basis in both 2019 and 2020.
- Delivery of the Boeing 737 MAX aircraft is anticipated to resume sometime in 2020, generating a temporary boost to real exports.







Recent Developments

The U.S. and China announced the "phase-one" trade agreement on December 13, 2019. In this long-anticipated deal, the U.S. agreed to delay the December 15, 2019, tariffs on nearly $160 billion of imported goods from China and to scale back the tariffs imposed on September 1, 2019, from 15 percent to 7.5 percent on roughly $120 billion of Chinese imports. Meanwhile China agreed to increase its purchases of American goods and services by at least $200 billion over the next two years, and to strengthen laws on intellectual property protection, forced technology transfers, illegal industry subsidies, and exchange-rate management.

This "phase-one" deal is expected to boost U.S. exports of agricultural products, manufactured goods, energy and services to China, and to restrain price increases for such consumer goods as apparel, toys, smartphones, and laptops. But earlier tranches of tariffs, which fell more heavily on industrial products, will remain in effect, and will continue taking a substantial toll on business investment.

The second trade deal that was reached in December 2019 and is expected to be passed by Congress in early 2020 is the USMCA trade agreement. Passed overwhelmingly by the House of Representatives in December 2019, it awaits action in the Senate. The USMCA made several key changes to the North American Free Trade Agreement (NAFTA), including: further opening up the Canadian market to U.S. dairy, poultry and eggs; increasing the ratio of a vehicle's parts to be made in North America from 62.5 percent to 75 percent to qualify for tariff-free treatment; requiring more vehicle parts to be made by workers earning at least $16 USD per hour. These new provisions are expected to raise U.S. exports to Canada and Mexico, and to provide a boost to auto manufacturing and employment in the U.S., where wages are higher than in Mexico.

Outlook

Real U.S. exports flatlined during 2019, with an estimated annual decline of 0.3 percent. Lackluster growth in exports is consistent with a slowdown of the global economy in 2019, but it is also affected by idiosyncratic factors such as the halt of Boeing 737 MAX deliveries that reduced U.S. aircraft exports and the U.S.-China trade war that considerably damaged global trade and the global economy. Entering 2020, global economic growth has shown signs of turning around and the U.S. and China have reached a "phase-one" trade agreement, both of which are positive for U.S. exports. Assuming Boeing 737 MAX aircraft deliveries resume sometime in 2020, DOB expects real U.S. export growth to rebound to 1.4 percent on an annual basis in 2020.

Real U.S. imports also shrunk over the course of 2019, due in part to a sudden drop of imports from China. As trade tensions ease and the dollar remains high relative to its historical average, imports are expected to increase in 2020. On balance, real net exports may not decline much in 2020, remaining close to 5.0 percent of real GDP.

The value of the USD appreciated sharply in 2018 before easing slightly at the beginning of 2019, then started to increase as trade tensions between the U.S. and China intensified but retreated again as the two nations reached preliminary trade agreements. In the figure above, the nominal broad trade-weighted dollar index increased 0.4 percent on an annual basis by November 2019,

compared with an appreciation of 4.8 percent in 2018. Similarly, the dollar appreciated 1.2 percent annually against the Chinese yuan by November 2019, after appreciating 4.4 percent in 2018. Against the euro, the dollar rose 4.0 percent in 2018, while appreciating only 2.8 percent on an annual basis through November 2019. The dollar depreciated against the Mexican peso in 2019, compared with a 4.8 percent appreciation in 2018.

After the broad stabilization of the dollar in 2019, DOB expects the dollar to remain strong in 2020 as the U.S. economy is expected to continue outperforming the rest of the world. However, the pace of appreciation is expected to slow, helping U.S. export growth to rebound. A strong dollar, which keeps the price of imported goods low, is also expected to put downward pressure on domestic price levels through both the price of finished goods and the international supply channels which many inputs to domestic production rely on. Therefore, a relatively strong dollar will contribute to keeping overall inflation in check during 2020.

In addition to China, the U.S. has been battling with other major trade partners over the past two years, but the resulting higher tariffs did not reduce the U.S. trade deficit as expected by proponents of the tougher trade policy. As illustrated in the figure above, the trade war with China became a drag on both U.S. exports and imports. U.S. imports from China declined over 20 percent on a 12-month basis in October 2019. Meanwhile, the slowing Chinese economy and China's retaliation tariffs reduced U.S. exports to China over 30 percent annually in 2018 and further in 2019. Even worse, the burden of tariffs may have fallen more heavily on American businesses and consumers than on their Chinese counterparts. Data from U.S. Customs and Border Protection show that companies that import parts and finished products from China have already paid nearly $40 billion in additional taxes since the trade war began. According to the U.S. Department of Agriculture, American agricultural exports to China fell from $19.6 billion in 2017 to $9.2 billion in 2018 and remained depressed in 2019. Worst of all, the uncertainties of trade policy have undermined business sentiment and delayed both investment spending and hiring. Although the "phase-one" trade deal and potential "phase-two" negotiations between the U.S. and China signal a de-escalation of trade conflicts, trade policy uncertainty still represents a downside risk to global trade and the global economy going forward.

Risks

If global economic growth fails to recover in the coming year, the demand for U.S. exports may continue to fall. Global trade would also be negatively affected if trade disputes were to escalate against China or other U.S. trading partners. Moreover, a major downside risk to DOB's 2020 export outlook remains whether the Boeing 737 Max is permitted to fly.

Inventory Investment

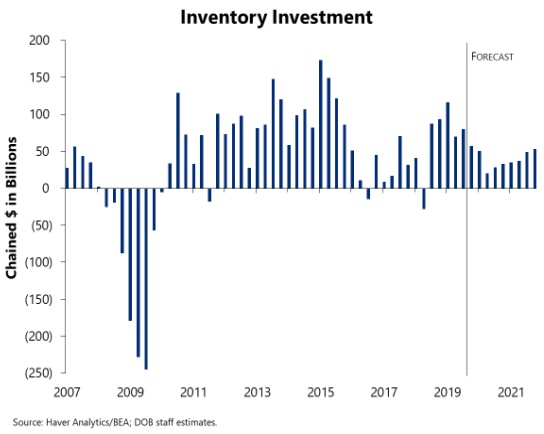
Key Points

- Real inventory investment peaked in the first quarter of 2019 at $116 billion annualized, on the heels of the Federal government shutdown, consistent with strong real nonfarm production and weak real consumption. However, as consumers roared back during the second quarter and manufacturers pulled back on production, inventory accumulation slowed to $69.4 billion and remained steady in the third quarter.
- Strong inventory accumulation during the second and third quarters was partially due to Boeing's inability to deliver its troubled 737 MAX jets, even though its production continued during 2019. However, with uncertainty about the timing and conditions of a return to service, Boeing announced that it will suspend production of 737 MAX jets starting in January 2020 to avoid further inventory accumulation.
- After peaking in December 2018, industrial production declined 1.4 percent during the first four months of 2019, fueling existing recession worries, though it has since leveled off.

Outlook

Weak real investment and consumption growth coupled with Boeing's troubles led to an estimated $80.4 billion real inventory accumulation during 2019. DOB expects real inventory investment to reach $32.7 billion on average in 2020, as Boeing stops producing its troubled 737 MAX jets and perhaps resume deliveries later in the year.

The signing of the U.S.-China trade deal in January 2020 is expected to lift inventory investment as confidence returns and the manufacturing downturn ends.



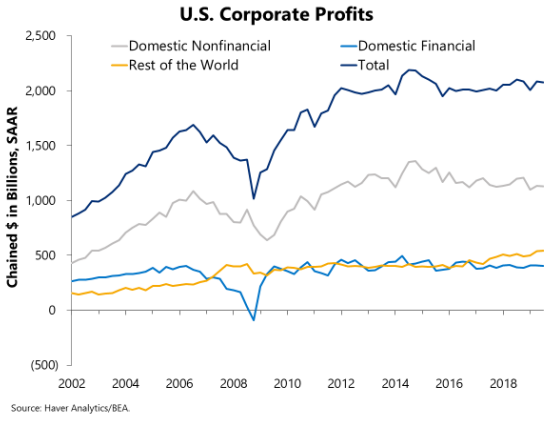
Corporate Profits

Key Points

- U.S. corporate profits from current production decreased $4.7 billion in the third quarter of 2019, following an increase of $75.8 billion in the second quarter and a decrease of $78.7 billion in the first quarter. Corporate profits declined 1.2 percent on a year-ago basis in the third quarter of 2019.
- Weaker profits in 2019 mainly comes from domestic nonfinancial industries. Before-tax profits in this sector decreased 6.0 percent in the third quarter of 2019 from the same quarter of 2018, while financial sector profits increased 3.4 percent and profits from the "rest-of-the-world" grew 6.3 percent.
- The slowdown in domestic nonfinancial sector profits is consistent with the manufacturing sector slowdown and idiosyncratic factors such as the Boeing 737 Max production reduction and delivery halt and the UAW strike against General Motors. As these factors unwind in 2020, corporate profits are expected to rebound.

Outlook

Although U.S. corporate profits in 2019 declined from the level achieved in 2018 (the highest since the 2014 all-time high), DOB expects profits to regain their footing in 2020 as both the global and domestic economies stabilize, and a low interest rate environment holds. On balance, growth in U.S. corporate profits from current production, including the inventory valuation and capital consumption adjustments, is estimated to rise 3.3 percent in 2020 following an estimated decline of 0.3 percent in 2019.



Comparison with Other Forecasters

DOB's US Macro forecast for the FY 2021 Executive Budget incorporates the second estimate of 2019 third quarter real GDP, October personal income and outlays, the first estimate of November 2019 employment, and the November 2019 CPI report.[12]

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 2020 forecasts for real U.S. GDP growth fall into a range from 1.8 percent to 2.1 percent, and DOB's projection of 2.0 percent growth is in the middle of that range. DOB's unemployment rate forecast for 2020 is 3.6 percent, and the forecast for CPI inflation is 2.2 percent for 2020, both of which are the same as the Blue Chip Consensus forecasts. The 2021 outlook shows divergent views amongst the forecasters with respect to inflation and the unemployment rate. DOB's forecast for 2021 CPI inflation is 2.2 percent, higher than the Blue Chip Consensus, but in between the forecasts from IHS Market and Moody's Analytics. DOB expects the unemployment rate to tick up from 3.6 percent in 2020 to 3.7 percent in 2021, the same as the Blue Chip Consensus.

U.S. ECONOMIC FORECAST COMPARISON

	2019	2020	2021
Real Gross Domestic Product (GDP)			
(chained percent change)			
DOB	2.3	2.0	2.0
Blue Chip Consensus	NA	1.9	1.9
IHS Markit	2.3	2.1	2.1
Moody's Analytics	2.3	1.8	2.0
Consumer Price Index (CPI)			
(percent change)			
DOB	1.8	2.2	2.2
Blue Chip Consensus	NA	2.2	2.0
IHS Markit	1.8	1.8	1.7
Moody's Analytics	1.8	2.3	2.4
Unemployment Rate			
(percent of the labor force)			
DOB	3.7	3.6	3.7
Blue Chip Consensus	NA	3.6	3.7
IHS Markit	3.7	3.5	3.5
Moody's Analytics	3.7	3.5	4.0

Source: New York State Division of the Budget, January 2020; Blue Chip Economic Indicators, January 2020; IHS Markit, January 2020; and Moody's Analytics, January 2020.

[12] For a detailed description of the DOB/US model methodology, see New York State Economic, Revenue, and Spending Methodologies, January 2019.

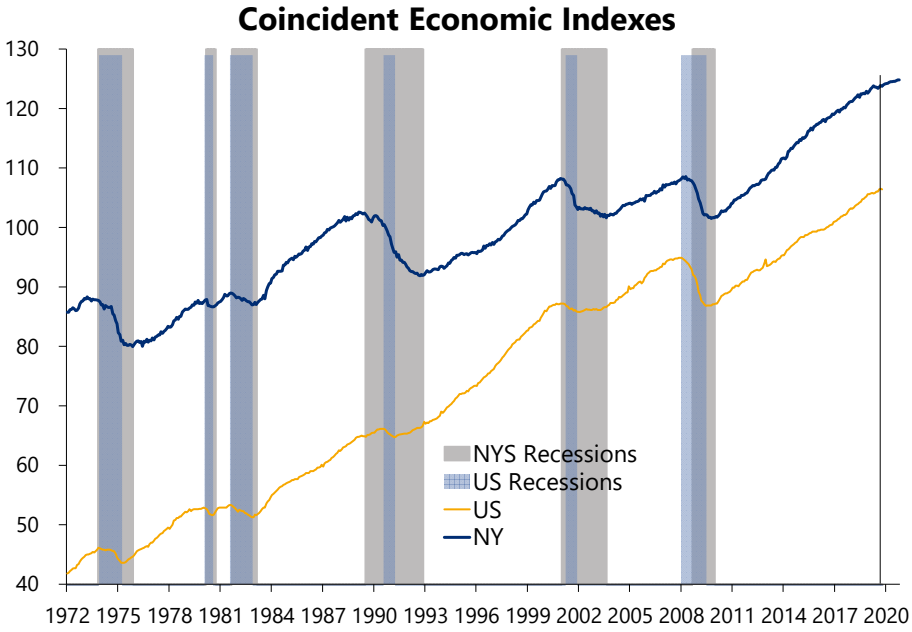
Risks to the U.S. Macro Forecast

Downside risks to the DOB forecast include an escalation of trade disputes between the U.S., China, and other trading partners, anemic global economic growth, geopolitical instability in the Persian Gulf region and North Korea, commodity and oil price instability, a splintering of the eurozone, a stock market correction, unresolved issues in the repo markets, and a reemergence of debt-ceiling crises.

Upside risks include further easing of trade tensions between the U.S. and China, improved and better global economic conditions, a speedy recovery of the housing market, stronger productivity growth, and rising wages that sustain domestic demand.

The New York State Economy

NYS private sector employment trends remain healthy. The most recent data indicate that private sector jobs grew 1.5 percent in 2018. After growth of 1.7 percent in the first quarter of 2019, the second quarter had a slightly weaker growth rate of 1.5 percent over the same quarter a year ago, for an overall 1.6 percent growth in the first half of 2019. However, preliminary data for the second half of 2019 indicate a slight slowdown, resulting in estimated growth of 1.4 percent for 2019. The sectors that led in job growth in the State during 2019 included healthcare, management and administrative services, construction, information, and transportation and warehousing. In contrast, the manufacturing, wholesale trade, retail trade, and utilities sectors continued to lose jobs. Meanwhile, job growth in the professional, scientific, and technical services sector has been slowing. Despite a record number of visitors to New York City in 2019, the leisure and hospitality sector, once a leader in job growth, has also slowed, thanks to ongoing automation and a stronger dollar. Slower total private employment growth of 1.2 percent is projected for 2020 as national and global economic growth taper off.



Note: NYS recession dates are DOB staff estimates; NYS forecast is derived from the New York State Leading Indicators.
Source: Moody's Analytics/Conference Board; NBER; DOB staff estimates.

Consistent with years of streamlining in the wake of the Great Recession, public sector job growth lags well behind private job growth. Following 0.6 percent growth in 2018, public sector employment is estimated to have grown only 0.3 percent in 2019. As a result, overall State employment growth is estimated to have fallen from 1.3 percent in 2018 to 1.2 percent in 2019. Even weaker growth of 1.1 percent is projected for 2020.

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 staff constructed a New York State Index of Coincident Economic Indicators measuring overall economic conditions for New York State.[13] Four State data series – private sector employment, hours worked in the manufacturing sector, the unemployment rate, and sales tax receipts (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, six business cycles have been identified for New York State since the early 1970s, as reported in the table below. 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.

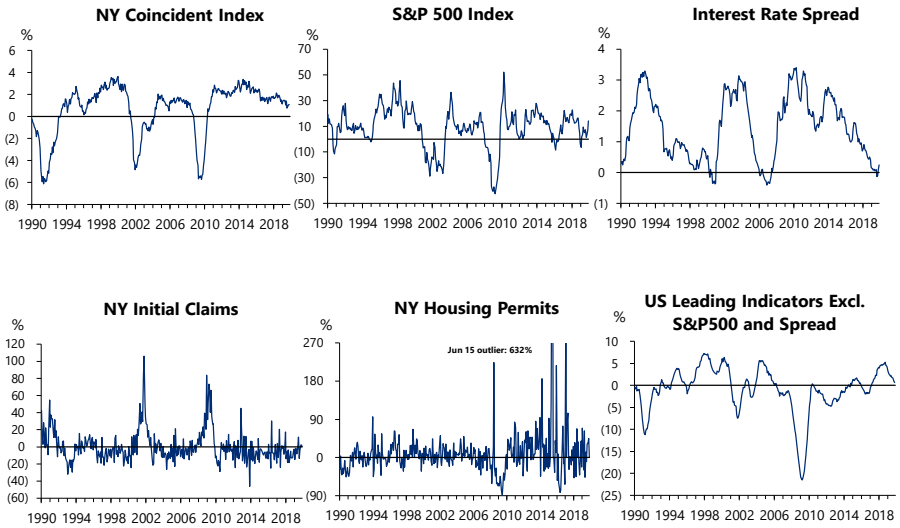
NEW YORK STATE BUSINESS CYCLES

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	329,200
August 2008	December 2009	16	310,600

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 ten-year and one-year U.S. Treasury rates.

Variables Used in New York Index of Leading Indicators



Note: All percent changes are from prior year; the June 2015 outlier in housing permits is removed.
Source: Moody's Analytics; DOB staff estimates.

[13] 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.

With the national economy experiencing the longest expansion since 1850, New York State is similarly in a record-length business cycle. Due to the limited availability of state-level data, DOB cannot document the State's business cycle history prior to the 1970s. DOB uses the New York State Index of Coincident Economic Indicators to determine the turning points to the State's business cycle (see box above). The index is plotted along with a similar index for the U.S., as well as the turning points for both the NYS and U.S. business cycles (see index on Page 35). The New York State Leading Index combines five high-frequency data series to signal either a pickup or a slowdown in economic activity within 6 to 12 months. The Coincident Index exhibited average monthly growth of 0.1 percent for the past 12 months through October 2019. The Leading Index implies slow growth for the 12 months through October 2020.

NYS is home to the world's financial capital, and while that status confers many benefits, it has historically brought a high degree of volatility to employment and wages. However, since the end of the Great Recession, the changing regulatory environment has altered the pattern of risk-taking behavior by Wall Street firms. While the net impact of these changes on finance sector employment and wages has been negative, a side benefit has emerged in the form of lower wage volatility. Looking at the standard deviation, a measure of volatility, we see that during the seven bonus seasons that preceded the worst of the financial crisis, finance and insurance sector bonus growth exhibited a standard deviation of 25.7 percent; in the seven seasons that followed, the standard deviation dropped to 12.4 percent, indicating lower volatility. Thus, the State economy has undergone a period of adjustment, during which above-average private sector job growth is coupled with a less volatile and more diversified wage base.

Employment Outlook

The State's labor market has enjoyed strong private sector job growth since the end of the last recession by historical standards. The table below presents the current profile of the job market by comparing year-ago growth rates for the first half of 2019, 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. Although private employment grew 0.3 percentage point faster for the U.S. than for NYS, NYS led the nation in five sectors: transportation and warehousing; information; finance and insurance; management, administrative, and support services; and healthcare and social assistance. The difference was the largest (2.6 percentage points) for the information sector, followed by healthcare and social assistance (1.6 percentage points).

EMPLOYMENT GROWTH - FIRST HALF OF 2019
(Percent Change Year-Ago)

	NYS	US
Total Private	**1.6**	**1.9**
Utilities	(1.5)	(0.3)
Construction	2.5	3.5
Manufacturing and Mining	(0.4)	1.7
Wholesale Trade	(1.0)	1.7
Retail Trade	(1.8)	(0.3)
Transportation and Warehousing	3.8	3.3
Information	2.1	(0.5)
Finance and Insurance	1.2	0.4
Real Estate and Rental and Leasing	0.5	3.4
Professional, Scientific, and Technical Services	1.2	3.2
Management, Administrative, and Support Services	2.7	1.7
Educational Services	1.6	1.6
Healthcare and Social Assistance	4.1	2.5
Leisure, Hospitality, and Other Services	0.1	2.3
Government	**0.2**	**0.5**
Total	**1.4**	**1.7**

Note: Management, administrative, and support services includes NAICS (North American Industry Classification System) sectors 55 and 56; sum of sectors may not match from the total due to the exclusion of unclassified.

Source: NYS Department of Labor; Moody's Analytics; DOB staff estimates.

Going forward, DOB projects total State employment growth of 1.1 percent for 2020, following growth of 1.2 percent for 2019. Private sector job growth of 1.2 percent is projected for 2020, following estimated growth of 1.4 percent for 2019. The State's pace of labor market growth is slightly below, but comparable to, overall national job growth for 2020 of 1.3 percent and private growth of 1.4 percent.

The table below shows projected changes in employment for 2020 by sector. The transportation and warehousing, and healthcare and social assistance sectors are expected to continue their strong growth during 2020. Education, and management, administrative and support services will still be a source of strength. The government sector is projected to have stronger growth of 0.8 percent in 2020 after just 0.3 percent growth in 2019 due to temporary hiring for the 2020 Decennial Census.

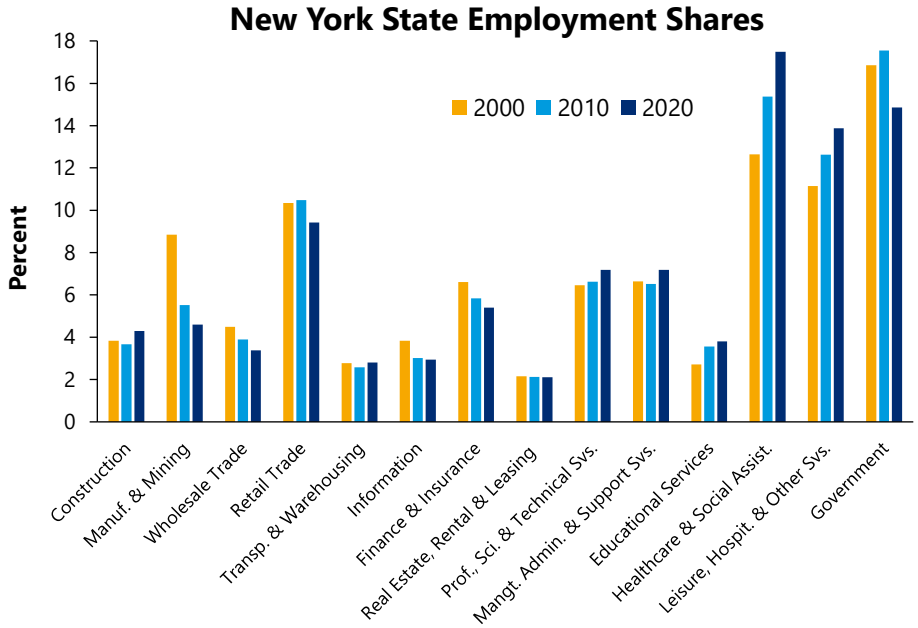
CHANGE IN NEW YORK STATE EMPLOYMENT FOR 2020

	Percent	Levels
Total Private	**1.2**	**94,396**
Utilities	(0.4)	(166)
Construction	1.5	5,939
Manufacturing and Mining	(0.2)	(865)
Wholesale Trade	(0.5)	(1,537)
Retail Trade	(0.9)	(8,292)
Transportation and Warehousing	2.0	5,329
Information	0.6	1,671
Finance and Insurance	0.4	2,107
Real Estate and Rental and Leasing	0.3	703
Professional, Scientific, and Technical Services	1.1	7,218
Management, Administrative, and Support Services	1.7	11,639
Educational Services	1.7	5,962
Healthcare & Social Assistance	3.7	59,911
Leisure, Hospitality and Other Services	0.4	4,778
Government	**0.8**	**10,897**
Total	**1.1**	**105,293**

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.

New York State's industrial composition has changed significantly over the past 20 years. The graph below indicates that the share of employment in the healthcare industry has been increasing rapidly due in part to the aging of the State's population. Educational services and leisure, hospitality and other services are two industries whose employment shares have continuously grown. Conversely, manufacturing and mining, and the finance and insurance industries have been declining due in part to globalization and outsourcing.



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

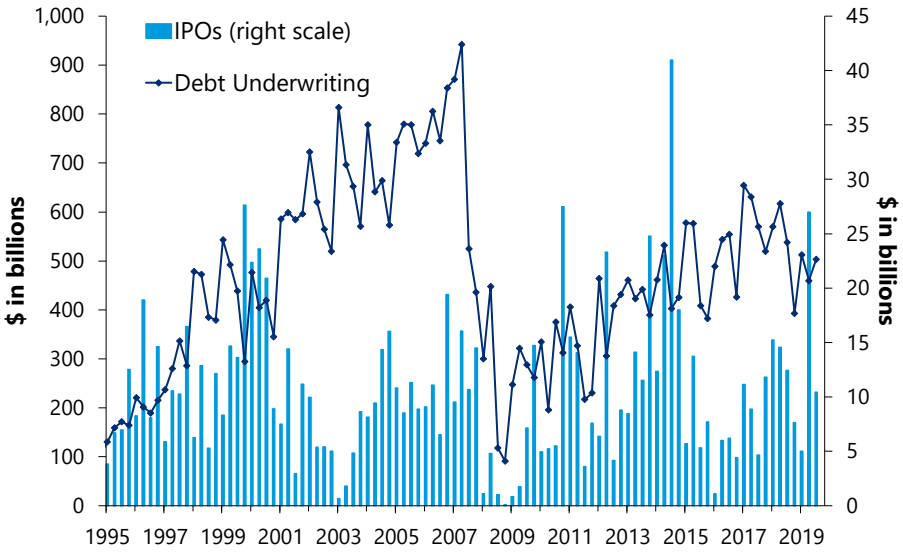
Financial Sector Trends

Initial public offerings (IPOs) and corporate debt underwriting are two important drivers of revenues and profits in the securities industry. 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. The spikes that appear in the figure below correspond to the historically large offerings that gained much attention in recent years, such as the $15.8 billion General Motors IPO in November 2010, the $16.0 billion Facebook offering in May 2012, the $21.8 billion Alibaba IPO in September 2014, and the more recent $8.1 billion Uber IPO in May 2019 and $7.4 billion Slack IPO in June 2019. Although not shown in the figure below, the record setting $25.6 billion Saudi Aramco IPO in December 2019 further helped to boost global IPO proceeds in 2019.[14]

Despite 6.0 percent annual average equity market growth, the U.S. IPO market saw a decline of 16.7 percent in priced IPOs in 2019 due to the trade war, geopolitical uncertainty, and weak outlook for global and national economic growth. There were 160 IPOs priced in 2019, among which 70 were in the health care industry. Total IPO proceeds decreased 1.1 percent to $46.3 billion. Debt underwriting fell 14.5 percent in the first eleven months of 2019. With weak projected economic growth, the IPO market and the debt underwriting are not expected to improve substantially in 2020.

[14] Although Saudi Aramco IPO broke records at $25.6 billion, banks that manage and observed the IPO are expected to earn relatively low fees. See https://www.reuters.com/article/us-saudi-aramco-ipo-banks/aramco-ipo-banks-face-pared-payday-of-90-million-or-less-sources-idUSKBN1XT1PJ.

Major Drivers of Financial Market Activity



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

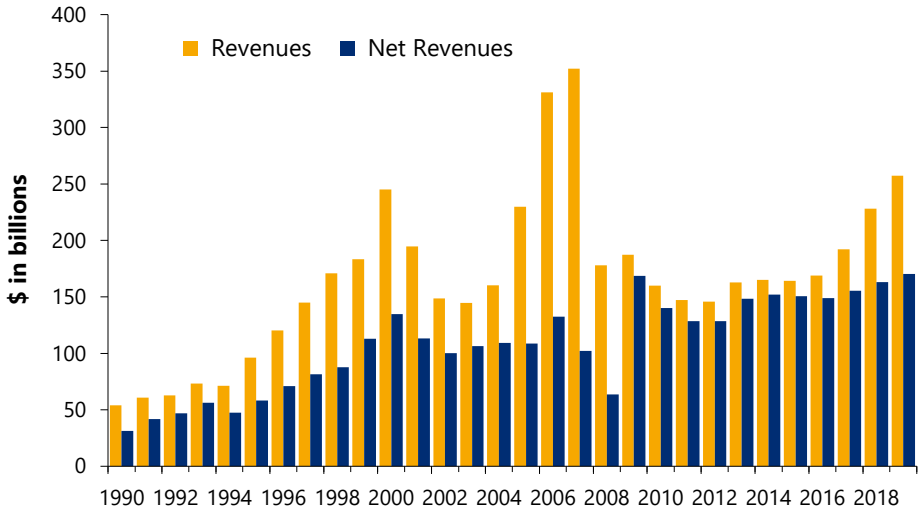
The trade war, geopolitical uncertainty, market volatility, and slowing of the global economy are among the factors putting downward pressure on capital markets. As a result, the first half of 2019 saw an 8.3 percent decrease in the total volume of global merger and acquisition (M&A) activities. It fell another 16 percent from the same quarter year-ago in the third quarter of 2019, and hit its lowest quarterly volume since 2016. Deal-making in the U.S. fell even more, to its lowest volume since 2014. This trend is likely to continue in 2020, assuming continuation of forces noted above, plus the anticipation of the U.S. presidential election. Companies are likely to be less willing to commit huge volumes of capital to new businesses in an uncertain environment.

Top global investment banks, especially those in Europe, experienced significant declines in total revenues during the first half of 2019 thanks to geopolitical tensions and slowing economic growth amidst very low interest rates. Trading revenues for the 12 biggest U.S. and European investment banks declined 11 percent from the first half of 2018. Third quarter earnings for European banks fared similarly while Goldman Sachs also saw revenue losses from the prior year. As a result, several investment banks (such as Deutsche Bank, Citigroup, HSBC, and Macquarie Group Ltd.) have begun to shrink or shut down their equity trading departments. Sluggish trading revenue growth, low net interest margins and a weak outlook for global and national economic growth are causing investment banks to continue to seek ways to cut costs. JPMorgan has been building up its presence in other locations and is considering relocating thousands of NYS-based employees elsewhere to help lower costs. Morgan Stanley recently announced job cuts; banks continue to restructure, thus, further restraining employment gains and lowering costs.[15]

[15] Please see: https://www.forbes.com/sites/jackkelly/2019/07/31/the-ax-is-falling-again-at-the-big-bankscitigroup-announces-hundreds-of-job-cut/#3be7a3cb2a7e.

On the other hand, strengthening equity markets during the course of the year contributed to strong growth for New York Stock Exchange (NYSE) member-firm revenues for the first three quarters of 2019. The figure below shows NYSE member-firm revenues before and after subtracting interest costs. Total revenues are estimated to have risen 12.8 percent in 2019, following 18.6 percent growth in 2018. Despite double-digit total revenue growth for 2018 and 2019, net revenues grew only 4.8 percent in 2018, followed by estimated growth of 4.6 percent in 2019, after deducting interest expenses. With short-term rates rising faster than long-term rates, interest expenses have tended to rise faster than margin interest gains.

NYSE Member Firm Revenues



Note: Estimate for 2019 is based on three quarters of actual data annualized; net revenues exclude interest expenses.
Source: SIFMA; Intercontinental Exchange (ICE).

Even with the strong growth of the last two years, total NYSE firm revenues for 2019 are estimated to remain 26.9 percent below their 2007 peak. This is partly due to new regulations imposed after the Great Recession, including the Dodd-Frank Wall Street Reform and Consumer Protection Act, which aimed at curbing 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.

This 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 will tend 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 such 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

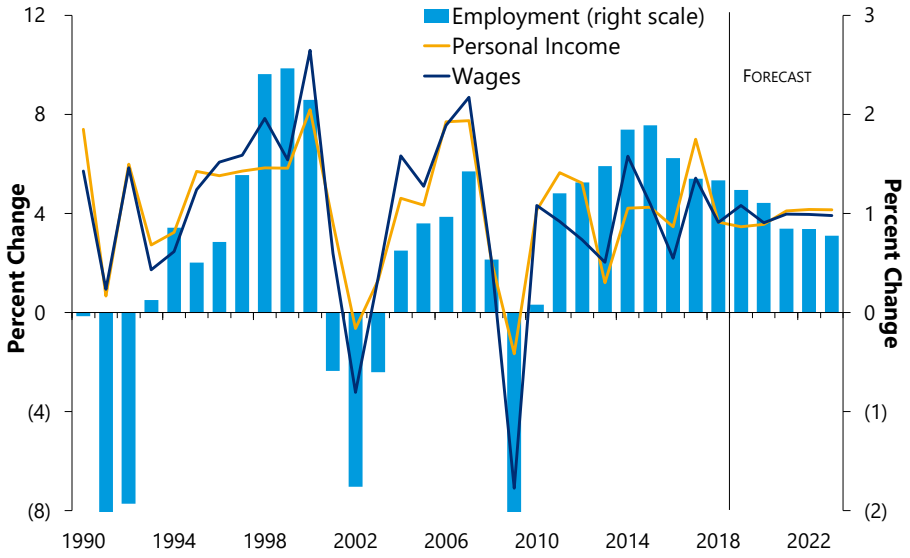
have been too risky. Firms therefore are expected to continue to alter their business practices in favor of less risky behavior both by reducing leverage and by engaging in fewer risky trades.

State Personal Income and Wages

DOB projects total personal income growth of 3.6 percent for 2020, slightly above the 3.5 percent growth estimated for 2019. As shown below, these growth rates are driven mainly by fluctuations in wages, its largest component. New York State wages are estimated to have risen 4.3 percent in 2019 and are projected to grow 3.6 percent in 2020. There has been additional volatility in wage growth in recent years due to Federal income and corporate tax law changes, reflecting behavior changes on the part of employers and employees.

The growth in public sector employment is estimated to have slowed to 0.3 percent in 2019, and is projected to grow 0.8 percent in 2020, bolstered by the 2020 Decennial Census hiring. Consequently, government sector wage growth is projected to be slightly higher in 2020 at 3.3 percent, compared with an estimated 3.2 percent growth in 2019. Private sector wages are projected to grow 3.7 percent in 2020, following 4.5 percent growth in 2019.

New York State Income and Employment Outlook



Source: NYS DOL; DOB staff estimates.

As the state-level wage data published by the U.S. BEA are insufficient for the purpose of forecasting State tax liability, DOB constructs its own wage and personal income series based on QCEW data.[16] Moreover, because of the importance of trends in variable income – composed of stock-related incentive income and other one-time bonus payments – to the understanding of

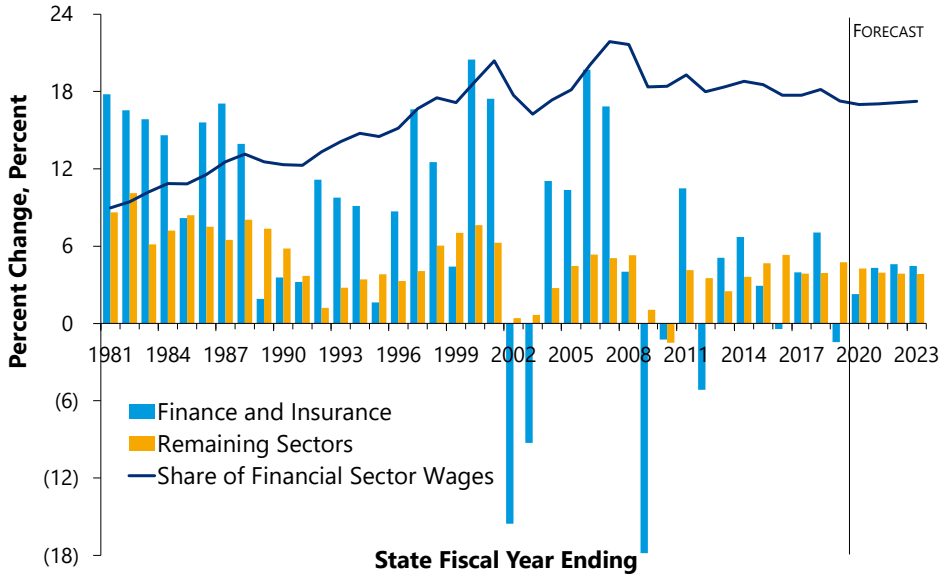
[16] The New York State Department of Labor (NYS DOL) provides DOB with establishment level QCEW data. In a few cases, NYS DOL does not assign a NAICS code to an establishment. DOB has several procedures that make it possible to assign NAICS codes to establishments that are originally unclassified based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

trends in State wages overall, DOB has developed a methodology for decomposing wages into a bonus and a non-bonus series.[17] 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 than wages in the remaining sectors. Since the Great Recession, this trend has become much more muted, and has reversed since Fiscal Year (FY) 2015 (with the exception of FY 2018) and this new trend is expected to continue in FY 2020. In the out-years, financial sector wage growth is expected to be a bit above, but much more consistent with, nonfinancial sector wage growth.

New York State Wage Growth
Finance and Insurance vs. Remaining Sectors



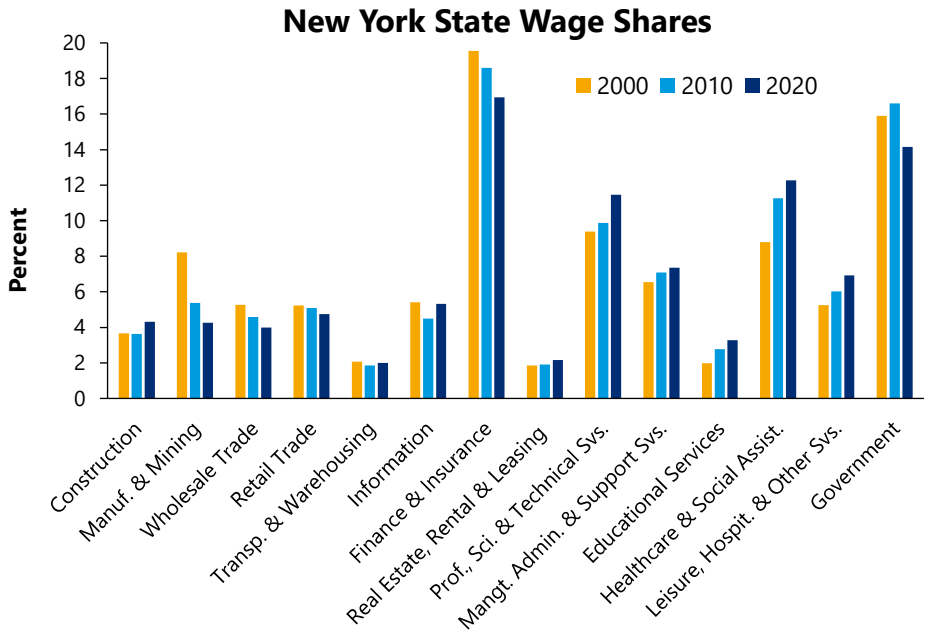
Source: NYS DOL; DOB staff estimates.

The strong wage growth in the finance and insurance sector that started in 2004 led to increases in its share of total State wages, peaking in 2007 at 22.1 percent. In the wake of the Great Recession, the share began declining and currently stands at 17 percent – unlikely to reach its prior peak any time soon. Banks and Wall Street, in general, continue to exhibit weak growth and restructure in accord with the post-crisis regulatory environment. Nevertheless, finance sector workers remain highly compensated on average. Although the fallout from the Great Recession caused average wages in the sector to fall to $174,000 in 2009, finance and insurance sector

[17] 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.

average wages rose to $231,000 in 2018, nearly four times higher than the $64,000 average wage for the rest of the sectors in the State. While average wages are above their pre-recession levels in nominal terms, they have not reached their pre-recession peak in real terms and are not expected to do so before 2025.

As the share of finance and insurance sector wages declined, wage shares in the professional scientific and technical services and the healthcare and social assistance sectors have risen over the last two decades (see below). The healthcare and social assistance sector's average wage was relatively low at only $51,000 in 2018 due partly to high concentrations of part-time workers. However, it enjoys the highest employment share of all sectors, allowing it a high wage share as well. Employment and wages are expected to increase in this sector as an aging population with increasing needs grows as well. On the other hand, average wages are high in the State's professional scientific and technical services sector at $115,000 in 2018. As NYC expands its role as a high-tech hub, the wage share of this sector can be expected to continue to grow.



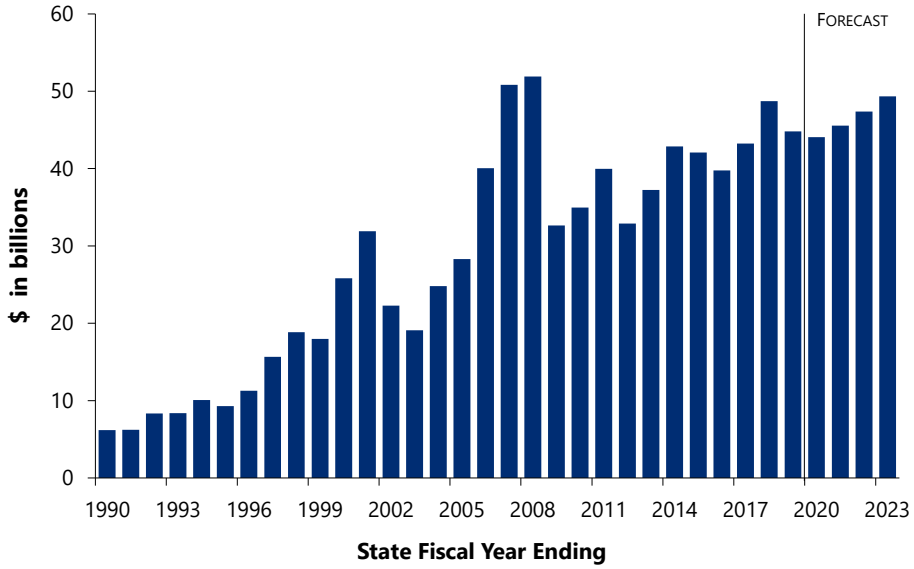
Note: Shares for 2020 are DOB forecast; share of utilities sector is less than one percent, therefore excluded.
Source: NYS DOL; DOB staff estimates.

Variable Income Growth

Variable income is defined as that 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

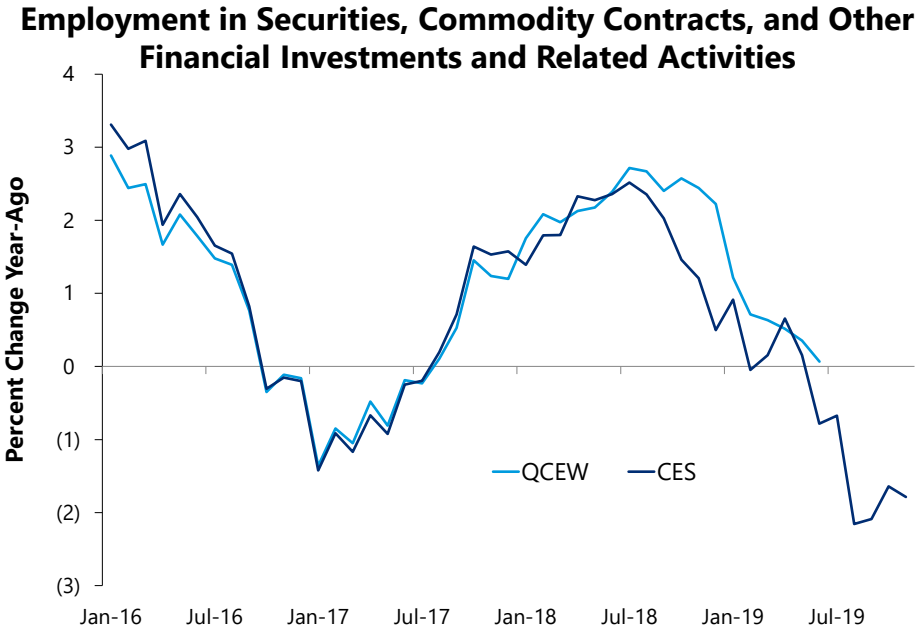


Source: NYS Department of Labor; DOB staff estimates.

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.

Variable income in the finance and insurance sector is estimated to have declined 1.7 percent for the FY 2020 bonus season now in progress, resulting in a payout of $44.1 billion, following an 8.1 percent decline estimated for FY 2019 and a 12.7 percent increase in FY 2018.

Although NYSE member firms posted positive revenue gains in 2019, total revenues from all sources, not just securities divisions, were in decline among Wall Street and European banks. These declines led to layoffs, many of which were announced for the second half of 2019. Although QCEW data are not yet available for the second half of 2019, the decline in growth is evident in the highly compensated subsector of finance and insurance, namely "Securities, Commodity Contracts, and Other Financial Investments and Related Activities." Based on Current Employment Statistics (CES) data, employment in this sector declined during the second half of the year, compared with same period in 2018 (see below). The job losses in this sector are expected to have a negative impact on finance and insurance bonuses, even if average bonuses for the remaining workforce stay flat.



Source: NYS DOL, Current Employment Statistics (CES) and Quarterly Census of Employment and Wages (QCEW).

In recent years, bonuses paid by firms in other sectors, including in professional and business services and information, represented close to half of the State's variable compensation. DOB projects total State variable income to grow 1.1 percent in FY 2020 despite the projected decline in financial sector bonuses. This is due to a 4.3 percent increase in the bonuses paid in all other sectors. The bonus outlook for FY 2021 is expected to stabilize with a modest 3.3 percent growth in the finance and insurance sector, and 2.8 percent growth in all sectors.

Nonbonus Wages

Since nonbonus wages are mostly driven by trends in employment and nonbonus average wages, they are relatively more stable, especially when compared with variable income. Nonbonus average wages for the State's different industrial sectors are estimated to 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.

Nonbonus average wages for all sectors are projected to rise 3.1 percent in 2020, following an estimated 3.2 percent increase in 2019. Average wages in the public sector are projected to rise 2.5 percent in 2020, following 2.9 percent in 2019. Consistent with slightly weaker employment growth, total nonbonus wage growth is projected to slow to 4.2 percent for 2020, following growth of 4.4 percent for 2019.

Average Wages and Inflation

Average wage growth has exhibited a volatile pattern in recent years partly due to the strategic shifting of wages and one-time bonus payments in response to tax law changes. Average wages are estimated to increase 3.0 percent in 2019, following 2.3 percent growth in 2018; with 2.5 percent growth projected for 2020. DOB projects 2.1 percent growth in the composite CPI for NYS in 2020, following 1.7 percent growth for 2019. Projected inflation for the State is 0.1 percentage point lower than that of the nation, which is consistent with the trend in recent years.

Nonwage Income

Growth in the nonwage components of State personal income slowed from 3.7 percent in 2018 down to 2.5 percent in 2019. This was largely due to a deceleration in property income growth from 9.7 percent in 2018 to 2.4 percent in 2019. Property income, one of the largest components of nonwage income at the State level, comprises interest, dividend, and rental income. Dividend income, the largest subcomponent based on State income tax return data, decelerated during 2019 with declining U.S. corporate profits. Interest income, the second largest subcomponent, also decelerated in 2019 due to lower long-term interest rates. DOB projects very little change in long-term interest rates in 2020 with a slight increase in corporate profits. As a result, NYS's property income is projected to grow 2.5 percent in 2020, slightly above the 2.4 percent estimated for 2019.

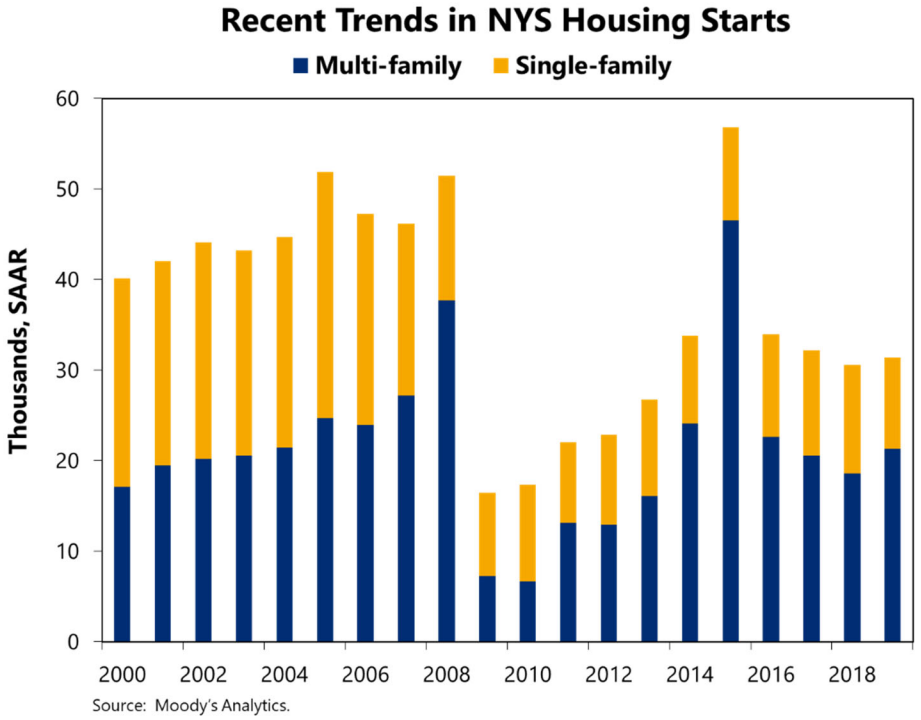
Proprietors' income is estimated to grow 4.4 percent in 2019 following 3.6 percent growth in 2018. Although U.S. farmers benefited from the Federal Market Facilitation Program (MFP), which began in 2018 to offset farmers' financial losses caused by retaliatory Chinese tariffs on agricultural products, NYS farmers did not see substantial benefits. Out of $5 billion paid out nationally during 2018, New York farmers received only $23 million, a mere 0.5 percent of the total.[18] New York State's farmers are expected to have received a very small portion of the estimated $14.5 billion authorized to be paid to all U.S. farmers during 2019.

The employee contribution to Social Security is expected to rise 4.5 percent in 2020, following 5.3 percent growth in 2019, in line with the slowdown in wage growth. Transfer income is expected to grow 4.9 percent in 2020, following growth of 3.1 percent in 2019.

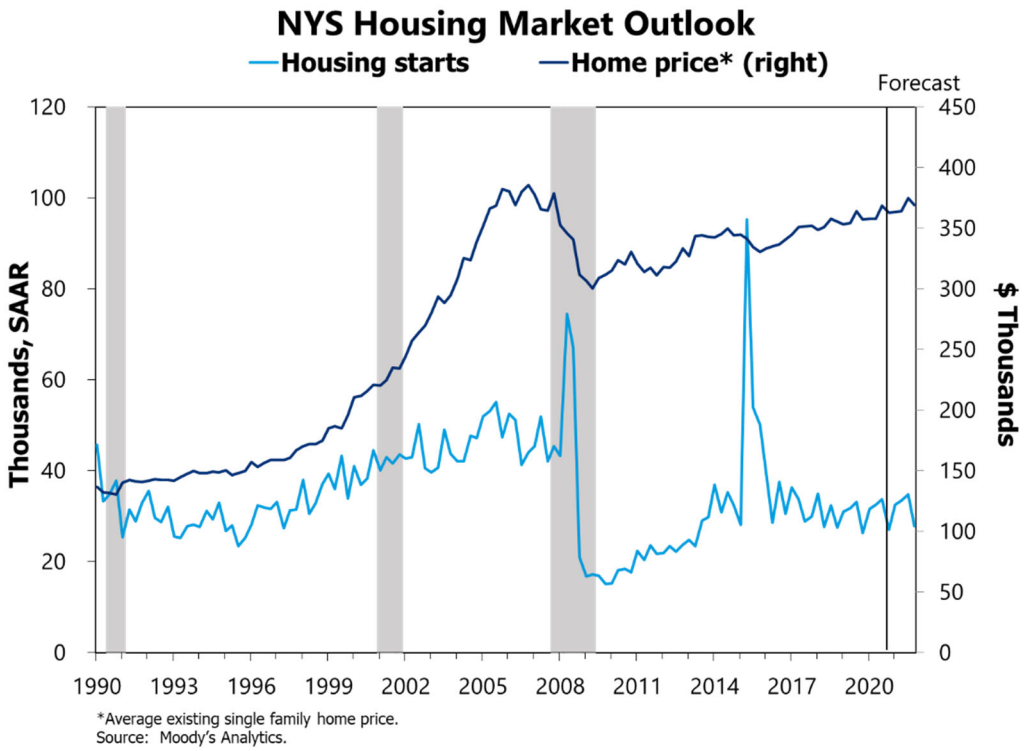
[18] For more information on MFP payments by state please see https://data.ers.usda.gov/reports.aspx?ID=17833.

Housing Outlook

State housing starts fell by 4.9 percent in 2018, similar to the 5.2 percent decline of 2017, but much less than the 40.2 percent fall in 2016. In 2019, housing permits grew 9.3 percent based on data for the first 11 months, and housing starts grew 3.3 percent. Single-family home starts decreased 16.6 percent while multi-family homes increased by the same percentage. The overall increase in starts is explained when observing the level of multi-family homes started compared with traditional single-family homes. The figure below shows the breakdown of NYS housing starts by type. The trends in multi-family homes has lead total starts in the State the last decade. In 2020, starts are projected to rise 2.7 percent, followed by continued growth of 2.8 percent in 2021, as higher employment and wages and lower mortgage rates facilitate modest increases in the demand for new homes.



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 grow 1.2 percent in 2019, following growth of only 0.9 percent in 2018, much less than the 4.0 percent increase in 2017. The drop in sales price appreciation in the State can be attributed to the significant tax law changes of the TCJA, most prominently the loss of state and local tax (SALT) deductibility above the first $10,000 and a more limited deduction for mortgage interest costs, both of which greatly reduce the tax benefits of owning a home in NYS. As a result, the market could settle at prices that are below what they otherwise would have been in the absence of Federal tax law changes. The State's average single-family home price is projected to rise 1.5 percent in 2020.



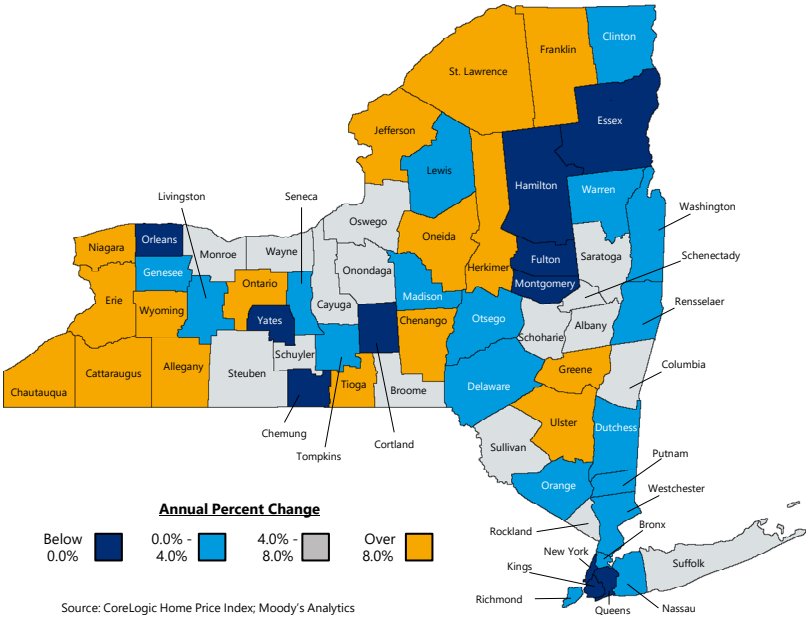
The State's existing-home price trends appear to diverge between the downstate and upstate regions. In the upstate region, prices have increased in each county where the six largest cities are located – Albany (Albany), Broome (Binghamton), Onondaga (Syracuse), Monroe (Rochester), Erie (Buffalo), and Oneida (Utica) counties.[19] Erie and Oneida counties have seen double digit gains in existing home prices at 11.4 and 10.3 percent, respectively for the first 10 months of 2019, but all upstate counties have seen median home prices increase at least five percent compared with the same period in 2018. A tightening in supply due to lack of inventory and available employees in construction seems to be the driver of these trends.

The opposite appears to be true in the downstate region for 2019 based on the first 10 months of data. The three higher-priced boroughs of NYC saw decreases in median home prices. Queens had the largest drop in prices at 4.6 percent, after a 10.8 percent increase the prior year. Brooklyn and Manhattan also saw price decreases of 3.5 percent and 1.6 percent, respectively, with Manhattan experiencing its second consecutive period of home price declines. Looking at sales activity, Staten Island experienced the biggest drop through the first 10 months of 2019, with a 17.3 percent decline in units sold. Queens, the Bronx, and Brooklyn all experienced declines in the same period (4.8 percent, 4.0 percent, and 3.8 percent, respectively). The only borough that experienced an increase in sales was Manhattan at 3.2 percent, and the first time in four years that Manhattan saw yearly growth in the number of sales from January through October.

[19] 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.

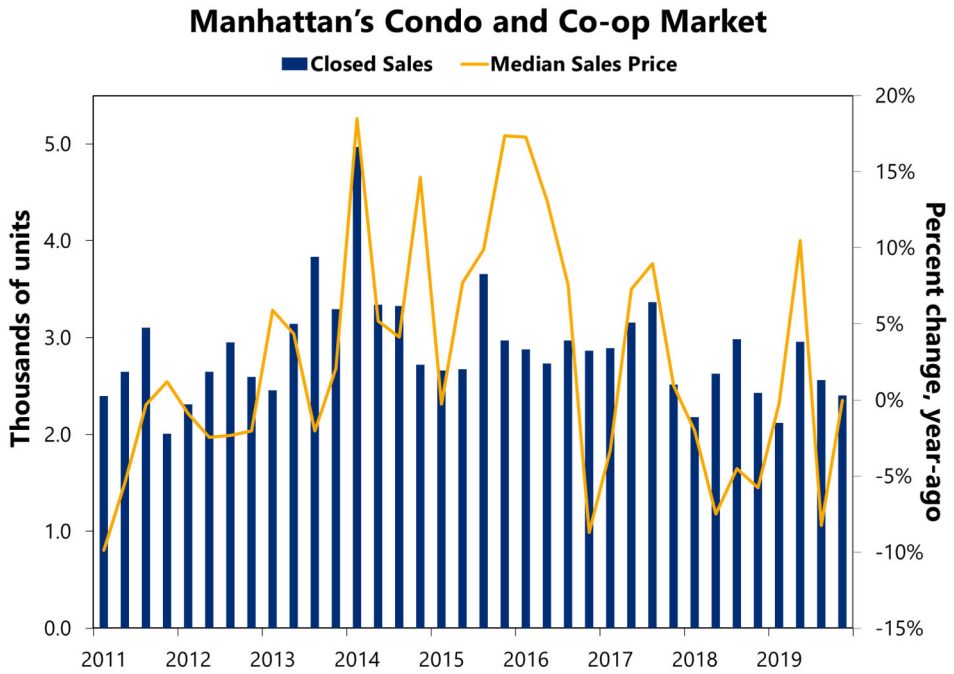
The CoreLogic Home Price Index for each county in the State is displayed below. This index compares sale prices of existing homes to their previous selling prices. The median sale price in each county is used to calculate the index.

Existing-Home Price Appreciation by County (First 10 Months of 2019)



Source: CoreLogic Home Price Index; Moody's Analytics

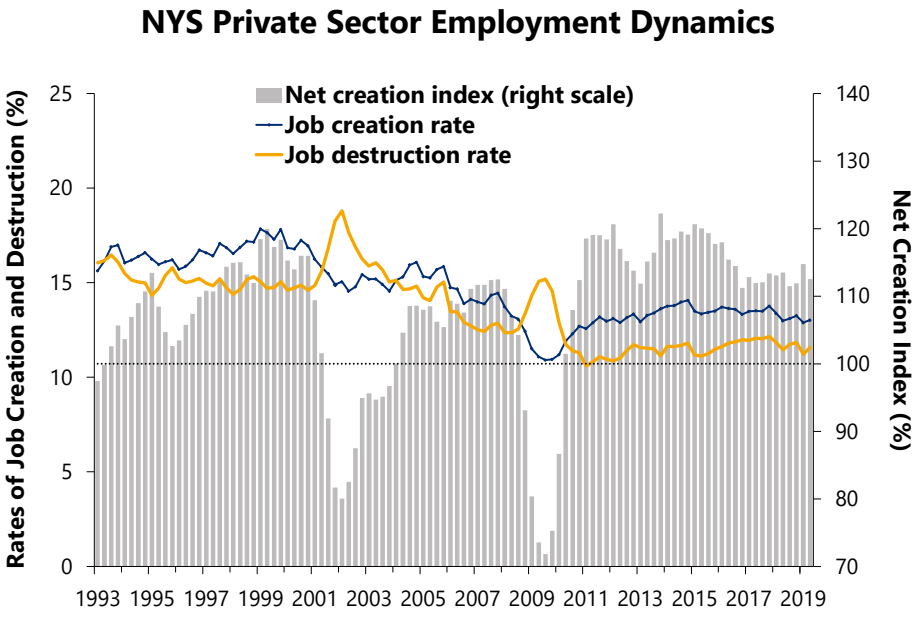
While overall sales in Manhattan seemed to show resilience throughout most of 2019, the condo and co-op market tells a different story. The number of closed sales in the fourth quarter of 2019 fell 6.2 percent over the same period in 2018 and was the eighth decrease in nine quarters. The median listing price remained at $999,000, unchanged from a year ago, but it was preceded by an 8.2 percent decrease in year-ago growth in the third quarter of 2019. Most of the decline in sales occurred in the high-end market, with sales of units above $5 million falling 37.6 percent compared with the last quarter of 2018, before major tax law changes were implemented (in addition to the SALT tax cap). The number of closed condo and co-op sales in Manhattan and the corresponding yearly growth in their median selling prices is displayed below.



Source: Miller Samuel Inc. and Douglas Elliman Real Estate

The resale market in 2019 was affected the most by the recent law changes, as median prices in the third quarter of 2019 dropped 8.0 percent to $915,000, making it the first decline in the past ten quarters and the largest decline since the third quarter of 2012. Market experts believe that purchases are being paused as potential buyers are deterred by the SALT deduction cap, causing sellers to adjust to the decrease in demand by lowering listing prices. The market slowdown is apparent in the number of months taken to sell all active listing inventory at the current rate of sales, known as the months of supply, which slowed 10.7 percent in the fourth quarter of 2019 to 8.3 months. The market share of sales that sold above the previous asking price dropped to only 6.0 percent in the fourth quarter of 2019; in contrast, four years ago the share was over 30 percent.

New York State Labor Market Dynamics



Source: NYS Department of Labor; DOB staff estimates.

Private employment growth in New York State has been slowing since the net job creation index reached a near-term peak of 120.7 percent in the first quarter of 2015. By the fourth quarter of 2016, the index had fallen to 111.2 percent. Since then, the index has generally been on an upward trajectory, 112.7 percent in the 10 quarters since for which QCEW data are available.

DOB expects that private-sector employment increased 1.4 percent in 2019, after gains of 1.5 percent each in 2017 and 2018. With slower economic growth expected on both the State and national levels in the coming years, DOB anticipates NYS private-sector job growth will also slow, to 1.2 percent in 2020 with a further slowdown to 1.1 percent growth in 2021.

The chart also indicates that 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 its series high of 17.8 percent that was 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.

The same tendency has been true of the gross rate of job destruction. 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" national recession and September 11, 2001, terrorist attack in NYC. The job destruction rate subsequently

declined during the recovery that followed, but in the Great 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 11.5 percent.

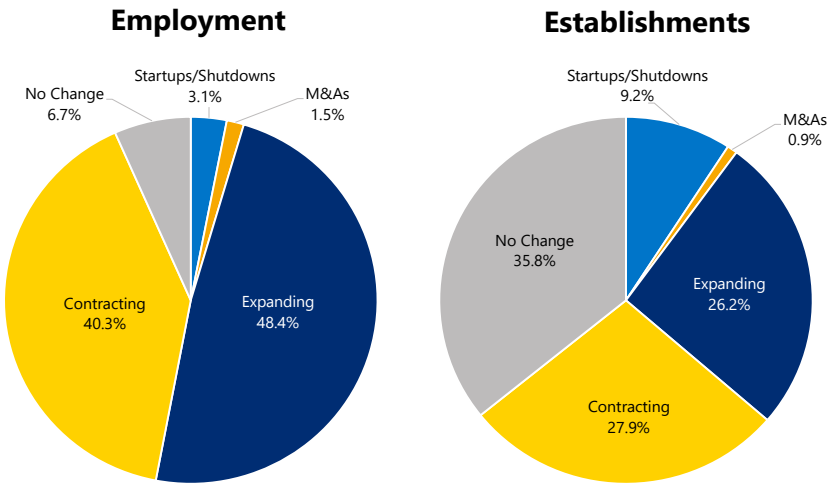
Manufacturing and mining; construction and real estate; and finance and insurance, all have lower rates of both job creation and job destruction since roughly 2011. Private-sector employment shares of some of the industries that have had higher job creation and job destruction rates have also fallen over time, such as manufacturing and mining (down to a 5.6 percent share in 2018, from 6.7 percent in 2010) and financial services (a 6.4 percent share in 2018 versus 7.1 percent in 2010).

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 2019 by type of establishment. Startups and shutdowns accounted for 9.2 percent of the establishment base in that quarter. Because these firms tend to be quite small, averaging around 4.3 employees per firm, they accounted for only 3.1 percent of the State's private-sector employment base. Firms that were either acquired or absorbed by other firms accounted for 0.9 percent of the establishment base. The average size of these firms was about 22 employees, and these firms accounted for 1.5 percent of employment.

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 (89.9 percent of the State's establishment base) and employment (95.4 percent of the job base). As indicated in the right-hand panel of the figure, the three types of existing firms accounted for roughly similar shares of establishments: 26.2 percent were expanding, 27.9 percent were contracting, and 35.8 percent had no change. The employment shares, however, were quite different with 48.4 percent of employment in expanding firms, 40.3 percent in contracting firms, and 6.7 percent in firms with no change. The average size of existing firms also varies by firm type, with those firms experiencing no change in employment averaging just under 2.4 employees, while expanding firms average nearly 24 employees, and contracting firms have an average of just over 18.5 employees.

Composition of State's Employment and Establishment Base 2019Q2



Source: NYS Department of Labor; DOB staff estimates.

Manufacturing

While this sector is still important upstate, where it continues to account for a significant share of private employment, the State has been shedding manufacturing jobs for nearly 30 years and it is the second-smallest of the seven major sectors (ahead of only the information sector, and behind education and health care; trade, transportation and warehousing; professional and business services; construction and real estate; and finance and insurance, in that order). Note that for forecasting purposes, DOB does not discuss mining separately, but combines this very small sector with manufacturing.

While job declines have slowed, the sector continues to shed workers in the State, with DOB anticipating a loss of 1,900 jobs in 2019 (or a 0.4 percent decline in positions), followed by declines of 0.2 percent in 2020 and 0.1 percent in 2021 implying a loss of 500 jobs.[20] Employment in this sector last grew in 2015, by 0.5 percent, but a 1.0 percent drop in jobs followed the next year. New York State relies less on manufacturing and mining employment than does the U.S. – while these sectors made up 10.6 percent of national private-sector nonfarm employment in 2018, they accounted for only 5.6 percent of NYS employment, and while 11.0 percent of U.S. wages came from these sectors, only 4.4 percent of State wages were so derived.

The same trend can be seen in the "Mining and Manufacturing" employment dynamics figure. Note that except for brief periods (the last three quarters of 2011 to mid-2012 and again from the second

[20] Employment levels reported in this section are rounded to the nearest hundred for actual values less than 10,000 and rounded to the nearest thousand for actual values 10,000 and greater.

quarter of 2015 to the first quarter of 2016), the rate of job destruction has been consistently above the rate of job creation since 2001, peaking in particular during the two most recent recessions. In the 74 quarters included in the chart, the net creation index has been above 100 percent in only nine quarters (12.2 percent of the time), an indication that jobs were added on net in those few quarters.

In part, NYS has followed National trends, where manufacturing jobs fell 35.1 percent between their recent peak in March 1998 to their nadir in February 2010. But while manufacturing jobs increased 12.2 percent by August 2019 (then declined in September and October), these jobs continued to be lost in the State. This may reflect the particular mix of manufacturing jobs in New York State – for example, auto-related manufacturing 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 market dynamics that have buffeted each of these industries, such as car-model consolidations and the rise of digital photography.

Construction and Real Estate

DOB combines a services sector (real estate, rental and leasing) 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-sector employment has seen consistent though varying growth since mid-2011, as evidenced by its labor market dynamics figure, 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 declined generally until the second quarter of 2017 after which it began to trend up.

Going forward, DOB estimates 1.5 percent growth for this sector in 2019 (or a gain of 9,000 jobs) after a 2.5 percent increase in 2018, with estimated growth slowing to 1.1 percent in 2020 and cooling further to 0.6 percent growth in 2021, or an increase of 3,900 jobs in that year. Slowing growth is more pronounced on the construction side of the sector (which also has more jobs) than on the real-estate side.

Some of this slowing growth is likely in response to the path of 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. Mortgage interest rates began to fall again in November 2018 and continued to decline as the Federal Reserve reversed course and began to cut the federal funds rate target range. Should mortgage interest rates continue to fall, some improvement in hiring in the construction and real estate sector would be expected, other things being equal. But some of the expected weakness likely also arises from recent completions of longer-term projects, such as the construction of the “Governor Mario M. Cuomo Bridge” and the completion of phase one of the Hudson Yards project in NYC.

Trade, Transportation, and Warehousing

After three consecutive years of growth through 2015, this segment of NYS private-sector employment appears to have settled into a long-run decline, as rates of job destruction consistently have exceeded rates of job creation since the third quarter of 2016, with the gaps growing particularly wide after the second quarter of 2018. 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. After a loss of 8,300 jobs in 2018 (a 0.5 percent decline), DOB estimates losses rising to a 0.7 percent decline for 2019 (or a loss of 10,300 positions), before slowing to a 0.3 percent decline in employment in 2020. DOB projects a 0.1 percent decline in employment in this sector in 2021.

This sector encompasses wholesale trade and retail trade, with transportation and warehousing, which have historically moved together, though they have begun to diverge more recently. Ongoing restructuring in retail trade, whose physical locations are also under pressure from online retailers, is a large part of the story here, as DOB projects a 1.7 percent drop in jobs at retailers in 2019 (after 0.7 percent declines in the prior two years), with job declines slowing to 0.9 percent and 0.4 percent in 2020 and 2021, respectively. The retail trade segment also accounts for some 60 percent of all jobs in this sector, so percentage losses have a larger impact. Wholesale trade, which saw jobs fall 2.4 percent in 2018, is expected to see a decline of 1.0 percent for 2019 with a 0.5 percent decline in 2020 before a flat 2021. Meanwhile, DOB projects the transportation and warehousing sector adding 3.3 percent more jobs in 2019 before cooling to 2.0 percent growth in 2020 and 0.9 percent growth in 2021. This is consistent with ongoing expansion of online retailers, who need their goods stored and delivered to residential customers.

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. The smallest of the seven major employment sectors discussed herein, the number of persons employed in the information sector is just 7.3 percent larger than the number employed in the transportation and warehousing segment of the trade, transportation, and warehousing supersector, as of 2018.

As can be seen in the "Information" labor dynamics figure, both the job creation and job destruction indices have experienced large 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. Over the last couple of years, the job creation index has remained above the job destruction index, and the net creation index has remained well above 100 percent.

Therefore, employment increased 2.4 percent in 2018 after 1.3 percent growth in 2017, but DOB expects growth to slow to 1.8 percent in 2019 (or an increase of 4,900 jobs), with much slower growth of 0.6 percent in 2020 and 0.2 percent in 2021. 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, and the consolidation and restructuring that has taken place in the print media

industry, as well as the print media's response to digital media. Growth in this sector has benefited from Google's arrival in New York City and its expansion over the last several years. Google plans to continue its NYC expansion, boosting employment in the sector.

Finance and Insurance

While not large in terms of employment (only 6.4 percent of total private employment in 2018), the sector remains important because of the outsized importance of its highly paid workforce – at the State level it accounted for 17.3 percent of wages in 2018, holding first place, while this sector made up 7.8 percent of total U.S. wages that year. Highly concentrated in New York City, this sector makes up 7.6 percent of employment and 24.6 percent of wages (its closest competitor with respect to wages, is professional and business services, accounting for 13.4 percent of wages), all based on 2018 data. Given this concentration of wage income, the health of this sector is of high importance to NYC and its surrounding area.

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 due to 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. DOB expects employment to grow 0.9 percent in 2019 – or by 4,700 jobs – before fading to 0.4 percent gains for 2020 and 2021. At an expected level of 522,000 for 2021, finance and insurance jobs would still be 4.0 percent below their pre-recession peak of 544,000, seen in 2007.

The employment dynamics figure for this sector shows that the net creation index has been on a generally rising trend since the third quarter of 2017, albeit growth has been sluggish – except for a sudden spurt in the first quarter of 2019, which was followed by a return to more trend-like growth in the next quarter. While DOB does not envision a return to high job-growth rates in this sector in the near term, especially given the recent layoff announcements on Wall Street. However, more stable financial and economic conditions (e.g., a lowering of trade tensions) could spur growth beyond what the current forecast envisions. On the other hand, continued consolidation of financial institutions and/or movement of operations to other locations could weaken job growth more than forecast.

Professional and Business Services

This combined sector has two components: professional, scientific and technical services (which includes legal, accounting, architectural, engineering, advertising, and technical services -- PST) and management, administrative, and other business support services. PST and the management-administrative services sector contain a similar number of jobs, with 676,000 jobs in PST and 663,000 jobs in management-administrative services (based on 2018 State data).

As indicated by the industry employment dynamics figure, this sector has been one of the most consistent, with respect to job growth, with declines 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 by the first quarter of 2017 but then holding at just above 112 percent until picking up again in 2018. The index was at 114.7 and 113.7 in the first and second quarters of 2019, respectively.

Reflecting this, jobs increased by 1.9 percent in both 2017 and 2018, and DOB estimates that the sector added 26,000 jobs in 2019, or 1.9 percent growth. DOB forecasts that 2020 growth will slow to 1.4 percent with a further slowing to 1.1 percent growth in 2021, indicating a gain of 15,000 jobs that year. 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 different growth paths – PST grew 1.6 percent in 2017, falling to 0.5 percent in 2018 but is estimated to have grown 1.2 percent in 2019. Management-administrative services, on the other hand, had job growth of 2.4 percent in 2017, rising to 3.4 percent in 2018, and slowing to an estimated 2.6 percent in 2019. Going forward, while both are expected to have employment increases of over 1.0 percent in 2021, PST is expected to experience 1.1 percent growth in 2020, while management-administrative services increases jobs by 1.6 percent.

State businesses within the PST classification serve not only a national but an international customer base (this classification includes legal and accounting services, as well as advertising and public relations, and translation services, to name a few) and so can be influenced by global developments. Meanwhile, the management-administrative segment 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 sector, 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. The job creation index has been constantly above the job destruction index over that period, though at times the gap between them has narrowed. Based on 2018 data, the education and health care sector accounts for the largest share of State employment, 20.4 percent, but 14.9 percent of State wages, trailing only finance and insurance in the latter category.

Consistent with a slowing economy, DOB expects that job growth peaked at 3.6 percent in 2019 and will decline to 3.3 percent growth in 2020 and slow further to 3.0 percent growth in 2021. Employment in education and health care increased 3.1 percent in 2017 and by 3.5 percent in 2018. As the employment dynamics figure shows, the net job creation index has been on a generally rising trend since reaching a low of 112.3 percent in the last quarter of 2011 and reached an all-time high of 151.1 percent in the first quarter of 2019 before declining in the following quarter.

Health care and social services, which is over four times as large as education services, is also expected to grow more strongly, adding 63,000 jobs in 2019 (or 4.1 percent growth), with gains slowing to 3.7 percent and 3.4 percent in 2020 and 2021, respectively. Growth in this sector is also influenced by demographics, as an aging population will require additional services. Meanwhile DOB estimates that private educational services added 5,700 jobs for all of 2019, representing 1.6

percent growth, but growth picks up to 1.7 percent in 2020 before easing to 1.6 percent in 2021. Note that this measure of education-related jobs excludes over 600,000 persons employed at public educational institutions.

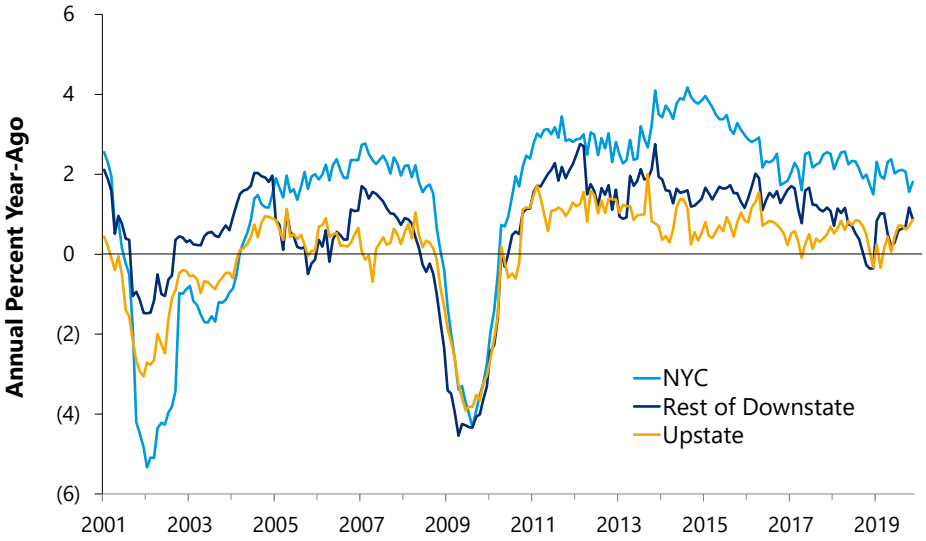
Leisure, Hospitality, and Other Services

This sector combines the "arts, entertainment, and recreation" sector with the "accommodations and food services" sector, and to this DOB adds "other services." As can be observed in the employment dynamics figure, this sector is relatively immune to cyclical fluctuations, with relatively small declines in its net job creation index in the past two recessions.

Jobs growth appears to have peaked in the last quarter of 2013, when the net job creation index reached 139.5 percent; the index has been declining since. More recently, the gap between the job creation index and the job destruction index has closed, leading the net creation index to fall from 110.7 percent in the first quarter of 2018 to 102.8 percent by the first quarter of 2019, and the most recent quarter of actual data shows the index at 98.9 percent for the second quarter of 2019, its first reading below 100 percent since the last quarter of 2009. Employment declined 0.4 percent in accommodation and food services and 0.1 percent in the "other services" sectors, but the arts, entertainment and recreation sector posted a 0.9 percent job increase during the second quarter of 2019. Although DOB does not forecast further declines in employment, rapid job gains in this sector are unlikely in the near term, given the expected outlook in State and national economies.

Recent Regional Job Growth Trends

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).

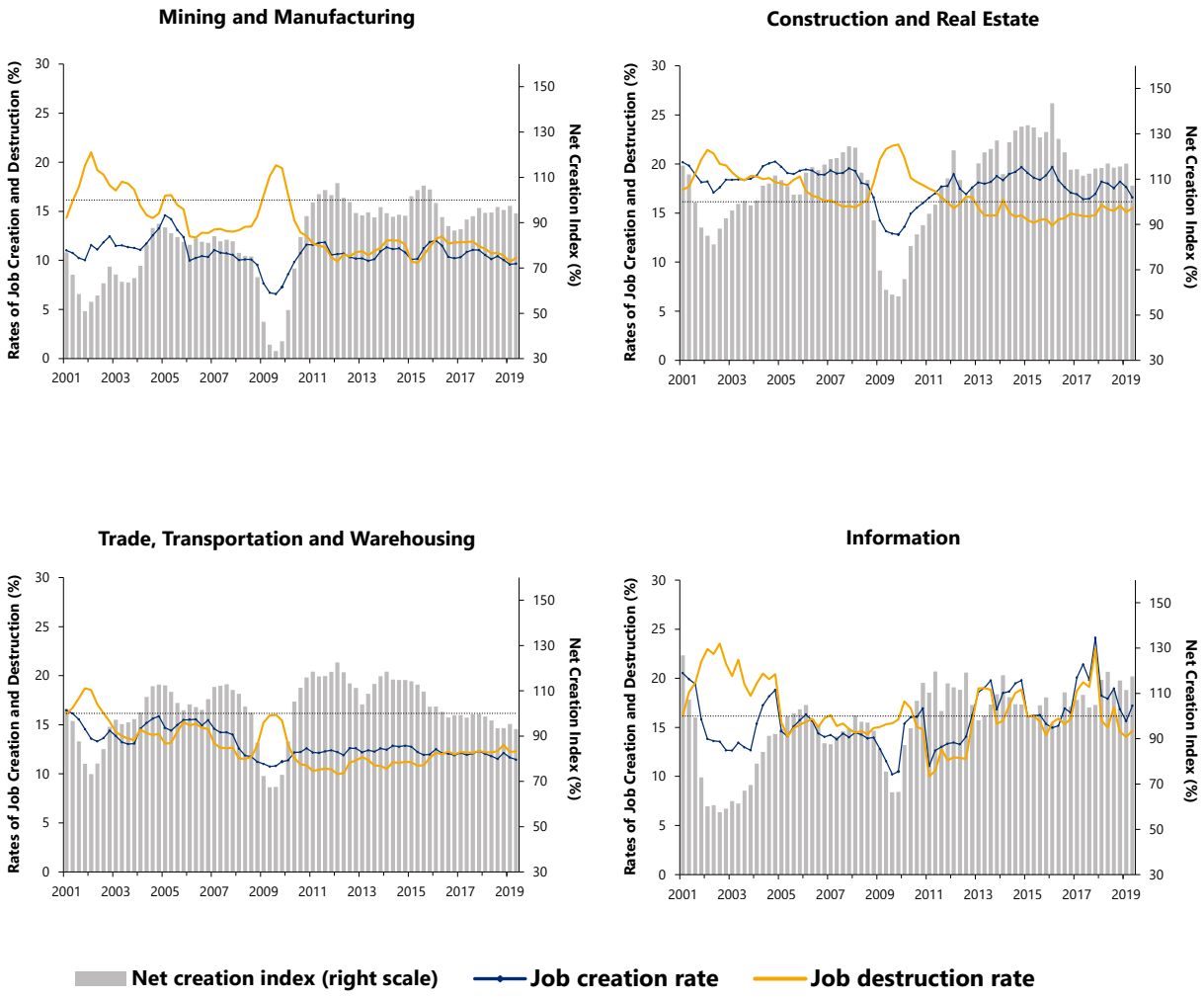
The figure above shows private-sector employment growth on a monthly, year-ago basis, for three major New York State regions: New York City; Downstate excluding New York City (defined as Nassau and Suffolk counties on Long Island, as well as Dutchess, Orange, Putnam, Rockland and Westchester counties) and Upstate (made up of the remaining counties in the State). Since 2005 New York City has been a dominant influence, both during recessions and in recoveries. The figure indicates that some of that dominance faded in 2016 and the first part of 2017. Upstate private employment growth has generally been the laggard, except for the period from June 2018 through December 2018 (when growth in "Rest of Downstate" slowed more rapidly than in Upstate) and from May through September 2019, when Upstate jobs growth kept pace with employment growth in "Rest of Downstate."

Employment was up 4.2 percent on a year-over-year basis in August 2014 in NYC, but employment growth in the "Rest of Downstate' peaked nearly a year before, at 2.7 percent in November 2013. (During that same month the 12-month growth rate was 4.1 percent in NYC, at the time the highest since January 2001.) Meanwhile, year-over-year employment growth in the Upstate counties peaked at 2.0 percent in September 2013.

Since those post-recession peaks, growth on a 12-month basis has slowed generally in NYC. Growth patterns in the other two regions have been more complicated. Growth in "Rest of Downstate" slowed rapidly through May 2014 and fell again from August 2015 through November 2015. Employment growth then accelerated to 2.0 percent by March 2016. However, it settled into an irregular decline after March 2016, with employment contracting 0.4 percent on a 12-month basis in November 2018, in the middle of three consecutive months with negative growth. In the meantime, employment growth downshifted, as measured by the average of the 12-month growth rates, to 1.1 percent in the March 2016-December 2018 period. More recent growth in the "Rest of Downstate" has improved from the declines of the last quarter of 2018, but while it reached 1.2 percent in October 2019, November growth declined to 0.9 percent. Job growth in the "Rest of Downstate" region averaged just 0.7 percent over the first 11 months of 2019.

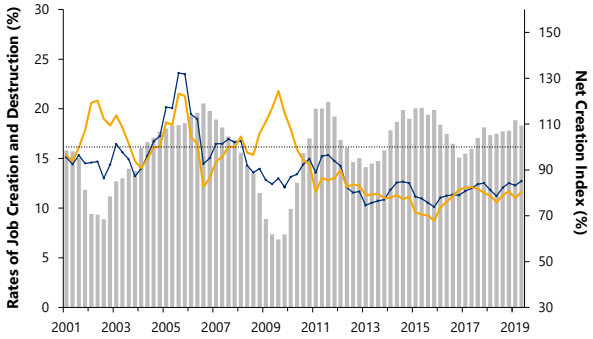
Upstate's 12-month employment growth path has followed that of "Rest of Downstate" in general, albeit with some distinct features of its own. After its September 2013 peak year-over-year growth declined in Upstate, reaching a low of 0.3 percent by March 2014. Growth then rapidly reversed course, reaching 1.4 percent in June and July 2014. (Note that NYC averaged 3.9 percent growth in those months, while growth averaged 1.5 percent in "Rest of Downstate.") Growth receded again, falling to just 0.2 percent by September 2014, but followed that with a long period of irregular but upward-trending movement, until it reached 1.5 percent in April 2016. But it was not sustained – year-ago growth faded to 0.7 percent in May, on its way to a 0.1 percent decrease in April 2017. Once again, that low point proved to be the start of a general rising trend (unlike in the "Rest of Downstate," where growth rates continued to decrease). Growth averaged 0.8 percent Upstate from July through September 2018 as the region outperformed the "Rest of Downstate," where growth averaged 0.3 percent. Growth rates were higher in "Rest of Downstate" than Upstate in the first five months of 2019, as the figure above shows, though growth rates became more similar later in the year, as "Rest of Downstate" and Upstate had 0.9 percent annual growth in November 2019.

New York State Employment Dynamics by Industry

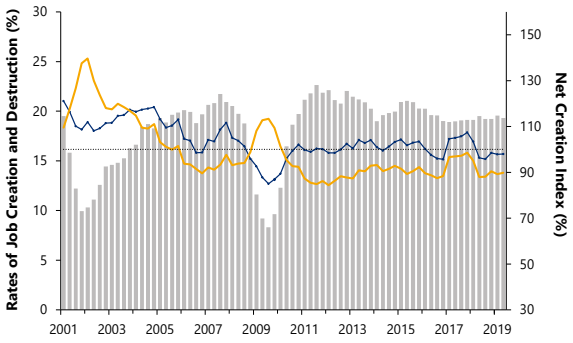


Source: NYS Department of Labor; DOB staff estimates.

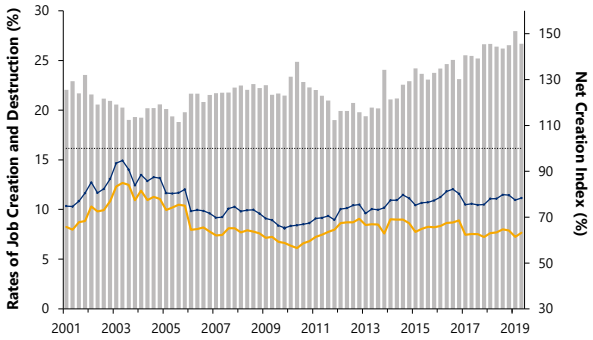
Finance and Insurance



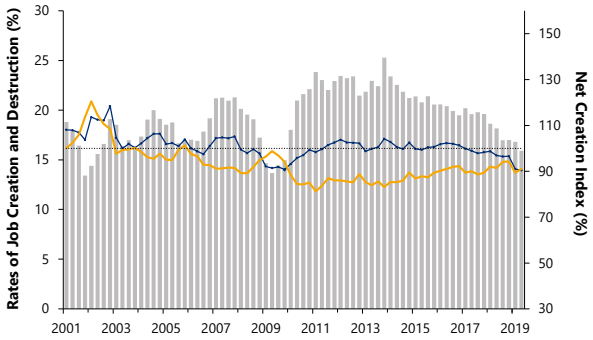
Professional and Business Services



Education, Health Care, and Social Assistance



Leisure, Hospitality, and Other Services



Net creation index (right scale) **Job creation rate** **Job destruction rate**

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.[21] 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 2019, the most recent period for which data are available, the QCEW data covered 690,346 private sector establishments in New York State and 8,144,555 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.[22] 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 2018 and the second quarter of 2019 is constructed by adding together the number of jobs created by firm startups (firms which existed during the second quarter of 2019 but did not exist four quarters prior), expanding firms that existed in both quarters, and firms created through mergers and acquisitions.

$$\text{Gross rate of job gain} = \frac{\text{Startup gain} + \text{Existing firm gain} + \text{M\&A gain}}{\text{Base}} = \frac{1{,}052{,}972}{8{,}085{,}951} = 13.0\%$$

This result indicates that the State's gross rate of job creation for the second quarter of 2019 is 13.0 percent. We similarly construct a gross rate of job destruction by adding together employment at firms that existed in the second quarter of 2018 but not in the second quarter of 2019, jobs lost from contracting firms that existed in both quarters, and jobs lost due to a merger or acquisition. We then divide by the State's job base (as defined above), which for the second quarter of 2019 yields:

$$\text{Gross rate of job loss} = \frac{\text{Startup loss} + \text{Existing firm loss} + \text{M\&A loss}}{\text{Base}} = \frac{935{,}766}{8{,}085{,}951} = 11.6\%$$

This result states that the gross rate at which jobs were lost between the two quarters is 11.6 percent. Thus, for the second quarter of 2019, the gross rate of job creation exceeded the gross rate of job destruction. 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 2019, this calculation yields:

$$\text{Net index of job creation} = \frac{\text{Gross rate of job gain}}{\text{Gross rate of job loss}} = \frac{13.0\%}{11.6\%} = 112.5\%$$

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, as we see above, indicates that employment is growing; a value below 100 percent indicates a net job loss, implying the presence of a "job gap."

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[21] 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.

[22] 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.

Risks to the State Forecast

Although the State's private-sector labor market has stabilized at a healthy pace of growth, there are many risks to the forecast. All the risks to the U.S. forecast apply to the State forecast as well, although, as the nation's financial capital, both the volume of financial market activity and potential volatility in equity markets pose a particularly large degree of uncertainty for New York State. Any weakening in the national and global economies may give rise to concerns of another recession. This can cause uncertainty in business investment and consumer spending. These uncertainties tend to be amplified in the financial market, which shows up as lower volumes and higher volatility. Risks related to geopolitical uncertainties, the strong dollar, and weakening global growth are likely to contribute to volatility and to restrain equity market growth over the near term. Unexpected additional layoffs on Wall Street could pose a significant risk to the wage outlook. Uncertainty related to the coming presidential election can be reflected in the State economy as well. Financial markets also tend to amplify the perturbations associated with shifting monetary policy. Currently the Federal Reserve has placed further changes to the federal funds rate on hold. Any change to this policy will have repercussions in the equity market. Weaker and/or more volatile than anticipated markets could result in weaker bonus and wage growth, as well as lower taxable capital gains realizations than reflected in this forecast. In contrast, stronger equity markets, along with stronger national and global growth, could result in stronger employment and wage growth than is contained in this forecast.

NEW YORK STATE PRIVATE EMPLOYMENT BY INDUSTRY

	Employment in Thousands					Percent Change				
INDUSTRY	**2015**	**2016**	**2017**	**2018**	**2019***	**2015**	**2016**	**2017**	**2018**	**2019***
Mining and Manufacturing	457.5	452.8	448.6	446.3	442.3	0.5	(1.0)	(0.9)	(0.5)	(0.4)
Construction and Real Estate	554.2	575.4	586.7	601.1	594.8	4.6	3.8	2.0	2.5	1.8
Trade, Trans., and Warehousing	1,526.0	1,526.5	1,525.0	1,516.6	1,495.9	1.1	0.0	(0.1)	(0.5)	(0.7)
Information	265.2	265.9	269.3	275.8	278.2	0.5	0.3	1.3	2.4	2.1
Finance and Insurance	507.1	508.6	509.9	513.5	515.8	1.5	0.3	0.3	0.7	1.2
Business and Professional Svs.	1,263.6	1,289.4	1,314.5	1,339.4	1,347.0	2.9	2.0	1.9	1.9	2.0
Education and Health Care	1,739.2	1,792.6	1,848.6	1,914.0	1,974.4	2.7	3.1	3.1	3.5	3.7
Leisure, Hospitality, and Other Svs.	1,256.3	1,287.0	1,315.1	1,327.7	1,308.5	2.9	2.4	2.2	1.0	0.1
Other **	77.7	82.7	82.0	81.5	92.9	(1.6)	6.4	(0.8)	(0.6)	22.1
Statewide	**7,646.7**	**7,780.9**	**7,899.6**	**8,016.0**	**8,049.8**	**2.2**	**1.8**	**1.5**	**1.5**	**1.6**

* Levels for 2019 are based on the first two quarters of the year; 2019 growth rates are relative to the same period in 2018.

** Includes agriculture, utilities, and unclassified firms.

NEW YORK STATE PRIVATE EMPLOYMENT BY REGION

	Employment in Thousands					Percent Change				
REGION	**2015**	**2016**	**2017**	**2018**	**2019***	**2015**	**2016**	**2017**	**2018**	**2019***
New York City	3,544.3	3,626.4	3,714.1	3,804.6	3,871.5	3.2	2.3	2.4	2.4	2.8
Long Island	1,077.1	1,093.7	1,107.5	1,111.4	1,101.1	1.4	1.5	1.3	0.4	0.1
Hudson Valley	750.7	760.3	771.5	781.6	782.9	1.9	1.3	1.5	1.3	1.5
Capital District	403.4	408.9	413.8	416.5	410.0	1.9	1.4	1.2	0.7	(0.3)
Mohawk Valley	126.1	128.2	129.8	129.7	127.8	0.3	1.7	1.3	(0.1)	(0.2)
North Country	105.0	105.8	105.9	106.5	104.0	0.3	0.7	0.1	0.5	(0.3)
Central New York	278.8	280.4	279.9	281.5	279.6	0.3	0.6	(0.2)	0.6	0.5
Southern Tier	228.9	228.4	227.8	228.9	225.3	0.1	(0.2)	(0.3)	0.5	(0.5)
Western New York	520.6	523.8	523.4	525.3	522.1	1.0	0.6	(0.1)	0.4	0.5
Finger Lakes	462.2	467.2	468.6	472.9	468.8	1.1	1.1	0.3	0.9	0.4
Unclassified	149.7	158.0	157.3	157.1	156.6	4.3	5.5	(0.4)	(0.1)	2.8

* Levels for 2019 are based on the first two quarters of the year; 2019 growth rates are relative to the same period in 2018.

REGIONAL EMPLOYMENT SHARES BY INDUSTRY

REGION	**Mining/ Manuf.**	**Constr. & Real Estate**	**Trade, Trans. & Wareh.**	**Info.**	**Finance and Insurance**	**Bus. & Prof. Svs.**	**Educ. & Health Care**	**Leisure, Hosp. & Other Svs.**	**Other**
New York City	1.8	7.5	15.6	5.2	8.7	19.2	24.7	16.5	0.7
Long Island	6.4	8.9	23.0	1.4	4.4	14.7	23.7	16.5	1.0
Mid Hudson	5.6	9.2	21.7	1.8	3.5	13.8	25.7	17.2	1.5
Capital Region	8.5	6.8	20.5	2.2	5.3	14.5	23.7	17.3	1.2
Mohawk Valley	13.1	4.4	24.2	1.4	5.3	7.3	28.0	15.4	1.0
North Country	10.0	6.9	24.5	1.6	2.2	7.1	25.6	18.9	3.2
Central New York	11.1	6.6	22.4	1.6	3.8	13.1	22.6	16.4	2.4
Southern Tier	15.5	5.0	19.5	1.6	3.3	9.7	27.4	16.6	1.5
Western New York	12.6	5.9	20.9	1.5	5.7	13.7	20.9	18.0	0.9
Finger Lakes	13.6	6.3	18.7	1.7	3.2	14.5	25.2	14.9	1.9
Statewide	**5.5**	**7.5**	**18.7**	**3.5**	**6.4**	**16.7**	**24.1**	**16.4**	**1.1**

Note: Shares are based on the period from 2018Q3 through 2019Q2.

REGIONAL EMPLOYMENT TRENDS: 2015-2019										
Region	Employment (000's)					Percent Change				
	2015	2016	2017	2018	2019*	2015	2016	2017	2018	2019*
	Manufacturing and Mining									
New York City	77.5	75.8	73.0	70.0	67.2	1.9	(2.2)	(3.7)	(4.2)	(4.7)
Long Island	71.0	71.0	71.1	70.7	70.7	(0.6)	(0.1)	0.2	(0.5)	0.2
Hudson Valley	45.5	44.6	43.7	43.9	43.8	(0.2)	(1.9)	(2.2)	0.5	(0.1)
Capital District	34.1	34.8	35.3	35.7	34.8	3.9	2.1	1.4	1.0	(1.7)
Mohawk Valley	16.7	16.9	17.0	16.9	16.9	0.9	0.8	0.7	(0.5)	0.7
North Country	10.8	10.4	10.4	10.5	10.5	(0.5)	(3.4)	(0.6)	1.5	1.0
Central New York	30.6	30.3	30.7	31.1	31.3	0.3	(0.8)	1.1	1.3	2.5
Southern Tier	35.9	35.3	35.1	35.3	35.0	(0.6)	(1.5)	(0.6)	0.5	(0.2)
Western New York	67.5	66.7	66.0	65.9	66.1	(0.8)	(1.2)	(1.1)	(0.2)	1.0
Finger Lakes	66.6	65.6	64.3	64.2	64.0	0.7	(1.5)	(2.1)	(0.2)	0.8
Unclassified	1.3	1.4	2.1	2.3	1.9	(0.2)	4.1	57.3	7.3	(11.2)
Statewide	**457.5**	**452.8**	**448.6**	**446.3**	**442.3**	**0.5**	**(1.0)**	**(0.9)**	**(0.5)**	**(0.4)**
	Construction and Real Estate									
New York City	262.0	272.6	279.6	287.5	287.9	5.5	4.0	2.6	2.9	1.8
Long Island	89.1	93.8	97.0	98.9	97.3	3.4	5.3	3.4	2.0	0.8
Hudson Valley	64.5	66.5	68.0	70.5	71.4	6.8	3.1	2.3	3.6	5.2
Capital District	27.7	27.7	28.1	28.3	27.3	4.5	0.0	1.4	0.6	0.8
Mohawk Valley	5.3	5.4	5.6	5.7	5.3	(1.5)	1.7	3.4	1.6	(0.2)
North Country	6.6	6.9	6.9	7.4	6.7	2.0	4.1	(0.3)	8.5	(3.1)
Central New York	17.1	18.0	17.7	18.6	17.4	1.0	5.1	(1.5)	4.8	(1.0)
Southern Tier	10.9	11.3	11.3	11.3	10.8	(2.3)	3.3	0.6	(0.7)	2.3
Western New York	30.3	31.5	30.9	30.8	29.6	3.4	3.9	(1.9)	(0.1)	0.4
Finger Lakes	27.5	28.9	29.1	29.6	29.1	1.3	5.0	0.6	1.7	3.5
Unclassified	13.1	12.8	12.6	12.5	12.0	7.7	(2.2)	(1.9)	(0.3)	(0.2)
Statewide	**554.2**	**575.4**	**586.7**	**601.1**	**594.8**	**4.6**	**3.8**	**2.0**	**2.5**	**1.8**
	Trade, Transportation, and Warehousing									
New York City	598.7	599.4	601.8	601.6	599.5	1.5	0.1	0.4	(0.0)	0.5
Long Island	259.4	259.1	260.2	258.2	253.9	0.7	(0.1)	0.4	(0.8)	(1.5)
Hudson Valley	174.3	173.2	173.2	171.6	168.7	1.1	(0.6)	0.0	(0.9)	(1.3)
Capital District	85.8	86.5	85.7	85.5	83.9	0.6	0.8	(0.9)	(0.2)	(0.6)
Mohawk Valley	30.7	31.3	31.8	31.4	30.8	(0.8)	1.8	1.5	(1.0)	(0.9)
North Country	27.1	27.0	26.7	26.4	25.4	(0.6)	(0.4)	(1.2)	(1.4)	(2.8)
Central New York	66.7	66.1	64.5	63.7	62.2	0.9	(1.0)	(2.4)	(1.3)	(1.4)
Southern Tier	46.0	45.9	45.2	44.9	43.9	0.1	(0.3)	(1.5)	(0.6)	(1.7)
Western New York	113.7	113.0	110.8	110.4	108.8	1.0	(0.6)	(2.0)	(0.4)	(0.7)
Finger Lakes	88.2	88.8	88.9	89.4	87.4	0.5	0.6	0.1	0.5	(1.7)
Unclassified	35.1	36.2	36.2	33.6	31.4	4.9	3.0	0.2	(7.4)	(5.5)
Statewide	**1,526.0**	**1,526.5**	**1,525.0**	**1,516.6**	**1,495.9**	**1.1**	**0.0**	**(0.1)**	**(0.5)**	**(0.7)**
	Information									
New York City	174.8	178.0	186.5	195.7	204.3	2.2	1.8	4.8	5.0	6.2
Long Island	19.6	18.5	18.1	16.9	15.2	(7.6)	(5.7)	(2.2)	(6.4)	(12.0)
Hudson Valley	15.5	15.1	14.5	14.3	14.3	(1.9)	(2.7)	(4.1)	(0.9)	(0.6)
Capital District	9.4	9.5	9.3	9.5	9.0	0.2	0.3	(1.8)	2.0	(5.9)
Mohawk Valley	2.3	2.4	2.3	2.1	1.5	(1.3)	2.4	(3.6)	(7.5)	(28.8)
North Country	1.7	1.7	1.7	1.7	1.7	(2.6)	0.2	(2.4)	(0.1)	2.6
Central New York	4.5	4.7	4.8	4.7	4.5	(3.0)	4.1	0.7	(2.2)	(3.5)
Southern Tier	3.9	3.6	3.6	3.7	3.6	(11.5)	(8.2)	(0.5)	1.9	(0.4)
Western New York	7.9	7.6	7.6	8.0	7.4	(4.5)	(4.1)	(0.1)	5.0	(7.7)
Finger Lakes	9.0	8.7	8.1	8.1	7.9	1.3	(3.3)	(6.6)	(0.8)	(1.7)
Unclassified	16.4	16.2	13.0	11.3	8.7	2.7	(1.3)	(20.1)	(13.0)	(18.4)
Statewide	**265.2**	**265.9**	**269.3**	**275.8**	**278.2**	**0.5**	**0.3**	**1.3**	**2.4**	**2.1**

(Cont'd on next page)

REGIONAL EMPLOYMENT TRENDS: 2015-2019 (*cont'd*)

Region	Employment (000's)					Percent Change				
	2015	2016	2017	2018	2019*	2015	2016	2017	2018	2019*
	Finance and Insurance									
New York City	324.8	327.9	328.3	333.3	336.4	2.0	1.0	0.1	1.5	2.0
Long Island	53.0	51.5	51.2	49.4	48.5	(0.1)	(2.8)	(0.5)	(3.5)	(2.1)
Hudson Valley	28.4	28.0	28.1	27.9	27.7	(2.0)	(1.4)	0.5	(0.7)	(0.4)
Capital District	21.7	21.9	21.4	21.6	22.0	1.0	1.0	(2.3)	0.8	2.3
Mohawk Valley	6.9	6.8	6.6	6.6	7.1	(1.4)	(1.3)	(2.7)	(0.2)	8.4
North Country	2.3	2.3	2.3	2.4	2.4	3.9	(0.3)	1.5	2.3	0.5
Central New York	12.3	11.8	11.2	10.7	10.6	(1.5)	(4.2)	(5.3)	(3.7)	(1.7)
Southern Tier	7.9	7.8	7.6	7.6	7.6	(1.8)	(0.9)	(2.6)	(0.1)	0.1
Western New York	27.6	28.3	30.2	29.8	30.0	4.3	2.4	6.7	(1.4)	0.4
Finger Lakes	15.1	15.0	14.7	15.2	15.2	1.0	(0.8)	(2.1)	3.6	(0.0)
Unclassified	7.1	7.4	8.3	9.0	8.4	6.8	3.3	12.5	8.8	(4.9)
Statewide	**507.1**	**508.6**	**509.9**	**513.5**	**515.8**	**1.5**	**0.3**	**0.3**	**0.7**	**1.2**
	Professional and Business Services									
New York City	668.4	685.8	707.7	727.6	744.5	4.5	2.6	3.2	2.8	3.6
Long Island	163.8	166.7	166.5	164.5	160.1	1.0	1.7	(0.1)	(1.2)	(1.3)
Hudson Valley	100.7	102.4	105.2	107.4	107.9	0.8	1.7	2.8	2.0	2.5
Capital District	58.7	59.2	60.5	60.3	59.8	2.4	0.9	2.1	(0.3)	0.2
Mohawk Valley	9.7	9.7	9.6	9.6	9.4	0.6	0.2	(1.6)	0.6	(2.4)
North Country	7.0	7.2	7.4	7.5	7.5	(4.7)	2.3	2.3	2.1	1.7
Central New York	34.8	34.9	35.8	37.0	36.5	(2.0)	0.3	2.6	3.5	(1.0)
Southern Tier	23.2	22.4	22.1	22.2	21.7	(1.9)	(3.3)	(1.7)	0.5	(0.7)
Western New York	74.2	73.3	71.9	71.5	72.1	0.3	(1.3)	(1.9)	(0.5)	2.3
Finger Lakes	68.0	68.3	68.0	68.8	68.0	2.3	0.4	(0.3)	1.1	(0.2)
Unclassified	55.0	59.5	60.0	62.9	59.6	4.5	8.2	0.8	4.8	(2.7)
Statewide	**1,263.6**	**1,289.4**	**1,314.5**	**1,339.4**	**1,347.0**	**2.9**	**2.0**	**1.9**	**1.9**	**2.0**
	Education, Health Care, and Social Assistance									
New York City	822.3	850.1	885.8	929.3	970.9	3.0	3.4	4.2	4.9	5.3
Long Island	238.8	246.3	251.6	258.8	266.4	3.2	3.1	2.2	2.9	3.7
Hudson Valley	183.7	189.1	195.0	199.8	205.3	3.6	2.9	3.1	2.5	2.8
Capital District	92.8	94.8	97.1	98.7	98.8	1.4	2.1	2.5	1.6	(0.1)
Mohawk Valley	34.0	34.9	35.8	36.3	36.2	1.6	2.9	2.5	1.4	(0.2)
North Country	25.8	26.4	26.8	27.0	27.4	2.0	2.4	1.3	1.0	1.4
Central New York	60.0	61.6	61.6	62.5	64.9	1.0	2.6	0.1	1.5	4.3
Southern Tier	61.3	61.8	62.0	62.6	62.6	2.7	0.7	0.4	0.9	0.0
Western New York	102.6	105.1	107.1	109.8	110.4	0.9	2.5	1.9	2.5	0.5
Finger Lakes	109.4	112.7	115.8	118.2	119.9	1.2	3.0	2.7	2.1	1.7
Unclassified	8.5	9.9	10.0	11.1	11.6	4.9	16.6	0.9	10.6	6.8
Statewide	**1,739.2**	**1,792.6**	**1,848.6**	**1,914.0**	**1,974.4**	**2.7**	**3.1**	**3.1**	**3.5**	**3.7**
	Leisure, Hospitality, and Other Services									
New York City	593.1	611.6	627.2	635.8	633.7	4.3	3.1	2.6	1.4	0.2
Long Island	173.3	177.0	181.9	183.9	178.1	2.0	2.1	2.8	1.1	(0.7)
Hudson Valley	128.0	130.5	132.9	135.2	132.8	1.8	2.0	1.8	1.8	0.9
Capital District	68.4	69.8	71.6	72.1	69.5	2.6	1.9	2.7	0.7	(0.8)
Mohawk Valley	19.1	19.5	19.9	19.8	19.4	0.2	1.8	2.1	(0.5)	1.6
North Country	20.2	20.4	20.4	20.2	19.3	0.4	1.0	(0.1)	(1.2)	(0.5)
Central New York	46.6	46.7	46.9	46.4	45.6	1.3	0.1	0.5	(1.1)	(0.7)
Southern Tier	36.4	36.9	37.5	38.1	36.8	0.2	1.3	1.6	1.6	(1.3)
Western New York	91.7	93.1	94.2	94.6	93.3	1.4	1.6	1.1	0.4	1.0
Finger Lakes	69.4	70.1	70.9	70.7	69.2	0.8	1.1	1.1	(0.3)	(0.3)
Unclassified	10.0	11.3	11.6	10.9	10.9	6.3	13.5	2.9	(6.6)	5.6
Statewide	**1,256.3**	**1,287.0**	**1,315.1**	**1,327.7**	**1,308.5**	**2.9**	**2.4**	**2.2**	**1.0**	**0.1**

* Levels for 2019 are based on the first two quarters of the year; 2019 growth rates are relative to the same period in 2018.

Source: NYS Department of Labor.

New York State Adjusted Gross Income

Personal income tax (PIT) receipts account for almost 60 percent of the State's total tax revenue. Personal income tax 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.[23] 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.

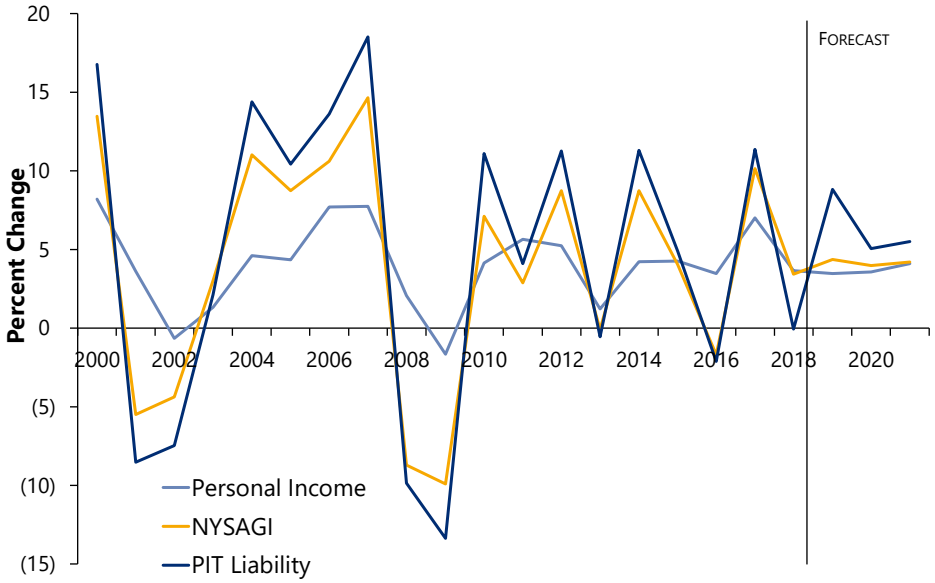
At the aggregate level the components of NYSAGI, such as dividend income and capital gains income, vary with the State and national economies. DOB's forecast of the components of personal income uses these linkages. Anticipated or actual changes in Federal tax law can also generate considerable volatility, 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. Using "frozen" 2002 State tax law to remove the effects of NYS law changes, the figure illustrates the effects of actual and anticipated Federal law changes on NYSAGI. 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. In 2017 the behavioral shift by taxpayers in anticipation of the passing of the 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 TCJA severely limited itemized deductions. In particular, the Federal deductibility of SALT, including property taxes, created an incentive to shift SALT payments in the opposite direction, from 2018 into 2017, 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 or management fees that managers had been able to defer receiving or recognizing if they were charged to offshore funds. These deferred fees had to be recognized for tax purposes by the end of 2017, amplifying NYSAGI's growth that year. In contrast, the Division expects NYSAGI growth to slow to 3.4 percent in 2018, based on preliminary data, improving to 4.4 percent in 2019 but slipping to 4.0 percent growth in 2020 before a small rebound to growth of 4.2 percent in 2021.

[23] 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.

The Indicators of New York State's Tax Base



Note: PIT liability is computed based on 2002 NYS tax law; 2018 liability and NYSAGI data are preliminary.
Source: NYS DTF; Moody's Analytics; DOB staff estimates.

The Major Components of NYSAGI

Prior to Tax Year 2014, DOB forecasts for the components of NYSAGI were based on samples of DTF's 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 2016 onward are based on the forecast growth of total State wages derived from the macroeconomic forecast, which is based on QCEW data.

CHANGES IN NYSAGI AND ITS MAJOR COMPONENTS

	2014	2015	2016	2017	2018*	2019	2020	2021
	Actual				Estimate			
NYSAGI								
Level ($ Billions)	776.5	807.8	794.1	874.6	904.6	944.1	981.7	1,023.0
Change ($ Billions)	62.4	31.3	(13.7)	80.5	30.0	39.5	37.6	41.3
% Change	8.7	4.0	(1.7)	10.1	3.4	4.4	4.0	4.2
Wages								
Level ($ Billions)	558.9	584.3	592.1	626.4	644.1	677.3	701.8	729.7
Change ($ Billions)	32.9	25.5	7.8	34.3	17.7	33.2	24.5	27.9
% Change	6.3	4.6	1.3	5.8	2.8	5.2	3.6	4.0
Capital Gains								
Level ($ Billions)	93.5	95.9	75.3	99.9	101.9	105.5	109.3	113.2
Change ($ Billions)	21.8	2.4	(20.6)	24.6	2.1	3.6	3.8	3.9
% Change	30.5	2.6	(21.5)	32.7	2.1	3.5	3.6	3.6
Partnership/S Corporation								
Level ($ Billions)	86.3	92.5	91.3	108.4	98.9	102.5	108.9	115.7
Change ($ Billions)	3.5	6.2	(1.2)	17.1	(9.5)	3.6	6.4	6.8
% Change	4.2	7.2	(1.3)	18.7	(8.8)	3.6	6.2	6.2

Source: NYS DTF; DOB staff estimates.

*2018 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.[24] 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. DOB projects a

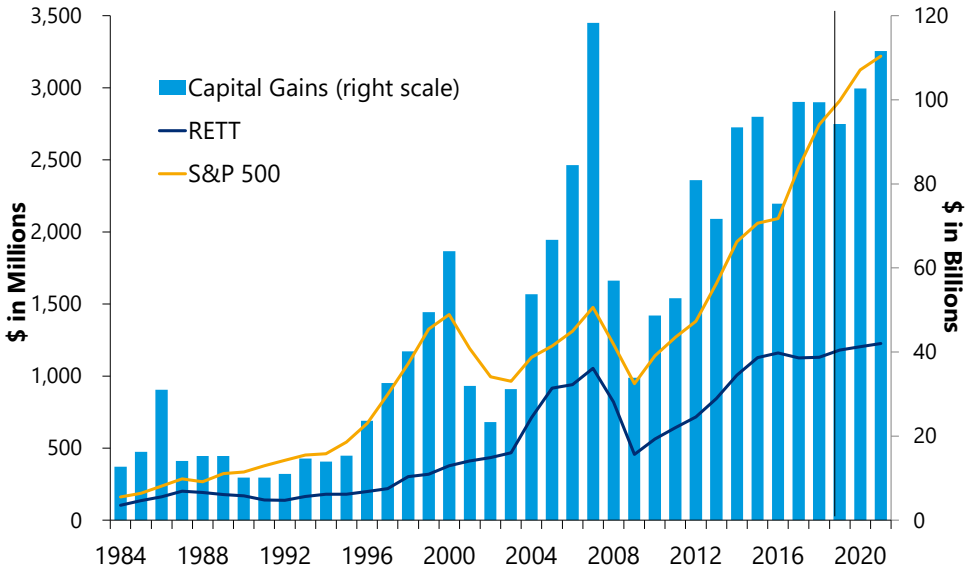
[24] For a discussion of the Division's traditional approach to modeling capital gains realizations, see L. Holland, H. Kayser, R. Megna and Q. Xu "The Volatility of Capital Gains Realizations in New York State: A Monte Carlo Study," *Proceedings, 94th Annual Conference on Taxation*, National Tax Association,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

gain of 2.1 percent in 2018 based on preliminary data, improving to 3.5 percent in 2019 followed by higher 3.6 percent growth each in 2020 and 2021.

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 2008-09 when State taxpayers lost a combined $84.4 billion in capital gains realizations income.

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 grew 12.1 percent that year. DOB estimates that 2019 growth will slow to 6.0 percent, as volatility persisted into the summer. With overall economic growth expected to cool further, DOB anticipates that the index will advance just 7.4 percent on an annual average basis in 2020 prior to slowing to 3.0 percent growth in 2021.

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



Note: 2018 CG realizations are estimated.
Source: Moody's Analytics; NYS DTF; DOB staff estimates.

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. These growth rates are much lower than earlier in the decade, when average annual growth was 16.6 percent.

DOB expects continued slow improvement in a weak housing sector, though the pace may be more uncertain as rising house prices confront long-term interest rates that are expected to begin rising again. This combination will make financing more expensive. The impact of the SALT cap also injects downside risk to 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 funds 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 markets 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 2019. Marketwatch.com reported that on average hedge funds returned nearly seven percent for 2019 (though the data does not include December returns, and covers 85 percent of hedge funds). This was in a year when stock indices such as the Dow Jones Industrial Average, the S&P 500, and the Nasdaq Composite Index all posted returns of over 20 percent. In addition, $131.8 billion was pulled out of hedge funds globally, with almost $59 billion derived from North America.[25]

Private equity activity appears to remain strong. A report on the third quarter of 2019 by Pitchbook.com says that activity was "sustained and healthy." Through the third quarter of 2019 U.S. private equity firms had completed an estimated 3,883 deals with a total value estimated at $501.2 billion, with the deal value at about the same level as that seen through the third quarter of 2018. An estimated 5,334 deals with an estimated valuation of $734.9 billion were completed in 2018, up from 4,774 deals and a valuation of $631.2 billion in 2017.[26] Meanwhile, activity could remain robust in 2020 as PricewaterhouseCoopers says that private equity firms have about $2.4 trillion available for deals, and that even in the event of a recession, "deal activity could avoid the substantial decline of previous downturns," since those cash levels are not likely to fall to the levels seen in the Great Recession.[27]

At this juncture it appears that negative risks to the forecast are more in evidence than positive ones. Weighing in on the negative side are indications of slowing economies in China, Germany and Japan; geopolitical strains with China and Iran; the fate of the trade war with China; and

[25] Andrea Riquier, "Hedge-fund returns badly lagged the stock market in 2019," Marketwatch.com, January 2, 2020. Available at https://www.marketwatch.com/story/hedge-fund-returns-badly-lagged-behind-the-stock-market-in-2019-2020-01-02.
[26] Pitchbook.com, "US PE Breakdown," available at https://pitchbook.com/news/reports/3q-2019-us-pe-breakdown. October 9, 2019. Pitchbook.com, *US PE Breakdown, 3Q 2019*, p. 4.
[27] PricewaterhouseCoopers, *Year-end review and 2020 outlook*. https://www.pwc.com/us/en/services/deals/library/year-end-review-outlook.html.

questions regarding the direction of the stock market. A cessation 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 has since retreated to a lower level than capital gains, but the two income measures are roughly equal in size in DOB's forecast period.

While growing at an average 10.0 percent annually over its history, partnership and S corporation income growth has slowed more recently. After two years of growth of just over four percent, growth rebounded to 7.2 percent in 2015, then fell 1.3 percent in 2016, consistent with financial market turmoil early in that year. Partnership and S corporation income jumped to 18.7 percent growth in 2017 (the most recent complete tax year available). Processing data indicates an 8.7 percent plunge in 2018. DOB forecasts 3.6 percent growth in 2019, to be followed by 6.3 percent and 6.2 percent increases in 2020 and 2021, respectively.

Federal tax law changes play a significant role in the gyrations of this component of income. In 2017, partnership and S corporation income saw its strongest growth since 1988. Although improving national and global economic growth played a role, a Federal law that dates to the Great Recession crisis period appears to have had a profound 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 to be recognized for tax purposes by the end of 2017. This one-time declaration of income would have to be removed from the 2017 base to discern the true underlying growth in this component of NYSAGI.

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 partnership and S corporations is related to both the economy and financial markets. However, average annual growth of 5.6 percent during the current expansion through 2017 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 have made it difficult for new entities to enter as economic conditions improved.

DOB's 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 growth rate ranges 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, due in part to income shifting. Taxable dividend income grew 19.7 percent in 2014 in between declines of 4.8 percent 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. After rising just 0.9 percent in 2016, dividend income jumped to 10.0 percent growth in 2017. Growth is estimated to have eased to 9.5 percent in 2018, based on preliminary processing data, followed by forecasts of 4.8 percent growth in 2019 and 4.3 percent growth in 2020.

State taxable dividend income moves with dividend income in the national economy, a component of the 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 6.3 percent on average between 1976 and 2017 with a standard deviation of 12.5 percentage points, while U.S. dividend income grew an average of 9.3 percent over the same period, with a standard deviation of 10.2 percentage points.

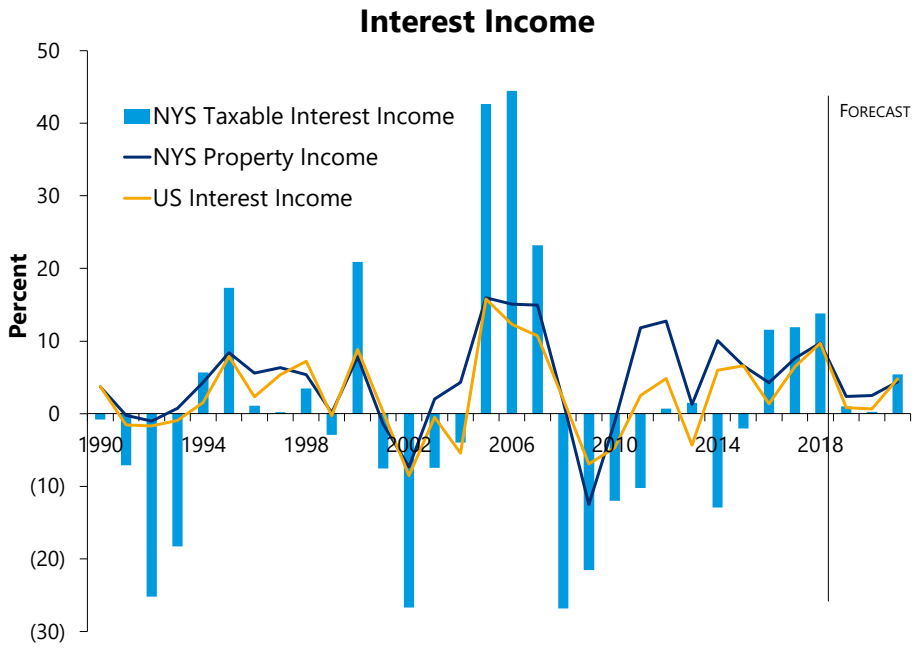
Risks to the dividend income forecast are closely linked to the risks embedded in the U.S. equity markets, corporate profitability and the performance of publicly traded private equity firms.

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 after falling 2.0 percent in 2015 as the Federal Reserve began increasing the target band for the federal funds rate in December 2015. Processing information for 2018 indicates growth of 13.8 percent, but it is forecast to slow to 1.0 percent in Tax Year 2019 and just 0.2 percent in 2020 as the Federal Reserve reduced the target range in 2019 and is expected to keep the range unchanged until sometime in 2021; growth of 5.4 percent is forecast for that year.

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 2017 the standard deviation of the annual growth of NYS property income was 6.9 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

7.6 percentage points. In contrast, State taxable interest income annual growth had a standard deviation of 17.2 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: 2017 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. Should the Federal Reserve continue to reduce the target band on the federal funds rate, either because of a slowing economy or continued failure of inflation to reach the two percent goal, then growth in taxable interest income will slow further or it may even once again decrease. On the other hand, if fears of recession dissipate or inflation shows signs of overshooting the Federal Reserve's target it may need to resume increasing the target band, thus helping interest income growth and outpacing DOB's forecast.

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. Nearly flat in 2016, it grew just 0.4 percent after two years of declining growth, then surged to 7.8 percent growth in 2017, the fastest growth in 11 years. Preliminary data show small business and farm income falling 1.6 percent in Tax Year 2018 while DOB projects 5.6 percent growth in 2019 with a slowdown to 5.1 percent growth in Tax Years 2020 and 2021. Some income-shifting was likely over the 2016-2018 period, as the new 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 but between 1991 and 2017 small business income grew only at an annual average rate of 4.0 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 5.0 percent annual average growth over the two periods, though the standard deviation of growth increased, from 8.4 percentage points in the earlier period to 10.5 percentage points from 1991 to 2017.

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. Agriculture nationwide has been a particular victim of the trade wars, despite Federal attempts to support farmers' income, so 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 1.5 percent in 2016, it rebounded to 5.3 percent growth in 2017. Preliminary data for 2018 indicate a slowing to 4.5 percent growth, and DOB anticipates even slower growth of 4.0 percent for 2019, 3.7 percent growth in 2020 with a further decline to growth of 3.2 percent in 2021.

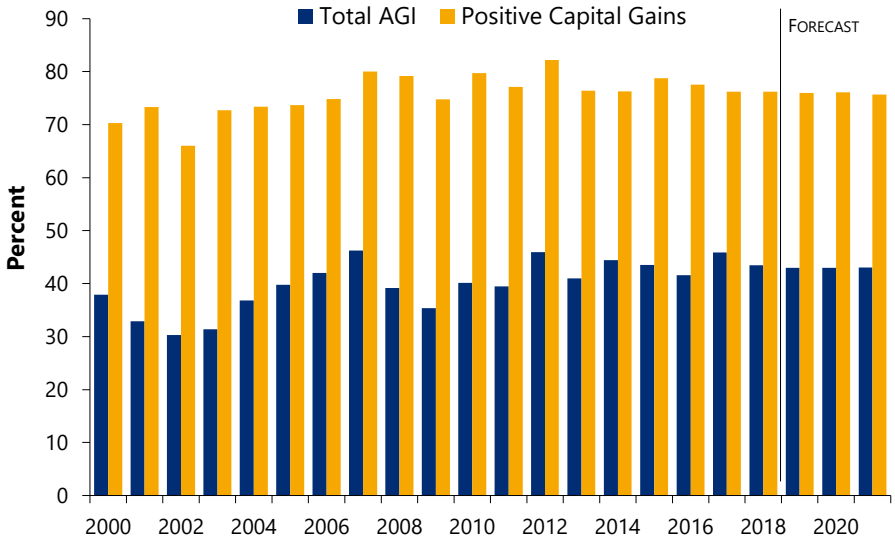
Pension income, which includes payments from retirement plans, life insurance annuity contracts, profit-sharing plans, military retirement pay, and employee savings plans, is linked to prior-year long-term interest rates, suggesting that firms base the level of pension and life insurance benefits they 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 between 1980 and 1990 to 6.3 percent between 1991 and 2013. This coincides with a 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 recent 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 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 having reversed course in 2019, DOB forecasts declines to 2.1 percent and 2.0 percent in 2019 and 2020, with a pickup to 2.4 percent by 2021. 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. If the economy slows from its current pace of expansion, the Federal Reserve may resume cutting the Federal funds target band, thus affecting long-term interest rates and thereby pension income.

Changes in the State Distribution of Income and Revenue Risk

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



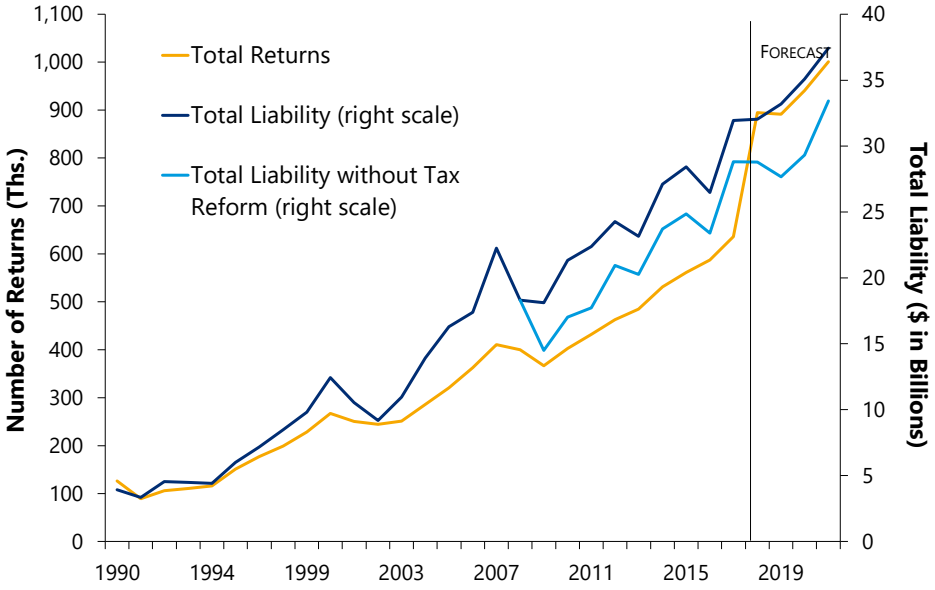
Note: For nonresident taxpayers, shares are based on total income.
Source: NYS DTF; DOB staff estimates.

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 in 2017, and also accounted for 76.2 percent of capital gains realizations (see figure above). Preliminary data for 2018 indicate that the AGI share of these filers is 43.4 percent while their share of positive capital gains remained unchanged at 76.2 percent. Note that at the recent peak share of capital gains (in 2012) 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, with an estimated increase of 73.6 percent in returns as the increase in liability kept pace with a 76.5 percent rise – this includes 2017 data, but not the preliminary information on 2018. 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 2012-13 and 2017-18.

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 6.0 percent by Tax Year 2017. Meanwhile, the liability share reached a peak of 63.2 percent in 2007, falling to 57.9 percent the next year. 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 in the absence of the rate increase under the tax reform, high income taxpayers' share of liability would not have been expected to exceed the 2007 peak within the forecast horizon, though data for Tax Year 2017 show a new peak of 66.5 percent under the reform law.

NYSAGI exhibits more volatility than does State personal income, while tax liability is more volatile than NYSAGI. See below for a comparison of three important indicators of the State's PIT base and a discussion of their respective volatilities.

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.[28] 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.[29] 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 4.0 percent, while NYSAGI grew a stronger 8.6 percent and PIT liability under constant law grew an even stronger 11.6 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.[30] 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 adjusted gross income. The opposite occurs as incomes fall. For example, the average effective tax rate fell from a high of 4.81 percent in 2000 to a low of 4.51 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 can have accounted 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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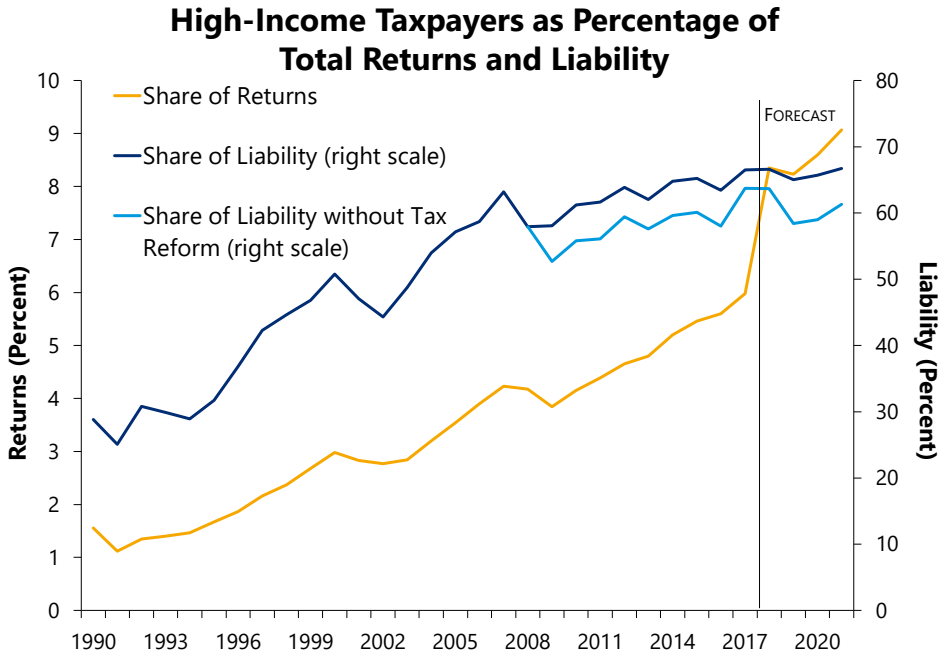
[28] For a detailed discussion of personal income tax liability, see "Personal Income Tax" in the "Receipts Explanation" part of this document.

[29] 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.

[30] However, any transaction cost generated by such a sale would add value to current production and would therefore be included in personal income.



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

The table below shows the changes in the concentration of income and liability from the pre-recession peak in 2007 to the trough in 2009, and in 2018, the most recent year for which taxpayer data are available. Because of the recession, the share of nonwage income accruing to the top 10 percent of taxpayers fell by 7.2 percentage points between 2007 and 2009; but in 2018, this group did not exceed the share in 2007 (76.5 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 2018 the 45.2 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 2018 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.

THE CONCENTRATION OF STATE INCOME AND LIABILITY
2007, 2009, and 2018

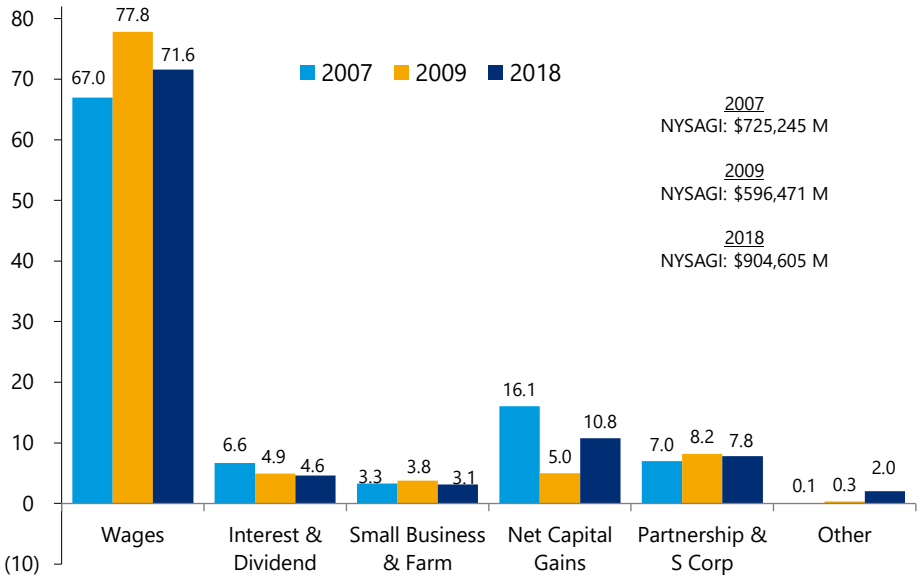
	Number of Returns	Gross Income	Wage Income	Nonwage Income	Liability
2007					
Total ($ in millions)	8,860,413	$778,402	$485,565	$292,837	$35,217
Share: Top 1%	–	34.4	19.5	59.2	46.4
Share: Top 5%	–	49.7	35.4	73.3	65.1
Share: Top 10%	–	59.2	46.7	79.8	75.2
Share: Top 25%	–	76.7	68.5	90.4	90.2
2009					
Total ($ in millions)	9,524,621	$646,935	$463,939	$182,995	$31,168
Share: Top 1%	–	25.8	15.9	50.7	42.6
Share: Top 5%	–	41.6	32.3	65.2	61.5
Share: Top 10%	–	52.6	44.7	72.6	72.6
Share: Top 25%	–	73.5	67.8	87.8	89.5
2018					
Total ($ in millions)	10,492,628	$965,158	$642,916	$322,242	$48,586
Share: Top 1%	–	27.9	15.8	52.1	41.8
Share: Top 5%	–	44.8	33.0	68.2	60.9
Share: Top 10%	–	55.7	45.2	76.5	71.5
Share: Top 25%	–	75.4	67.7	90.6	87.6

Note: Returns are ranked on the basis of gross income; data for 2018 are preliminary.
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 2018, for all taxpayers and for high-income taxpayers, defined here as those reporting NYSAGI of $200,000 or more.

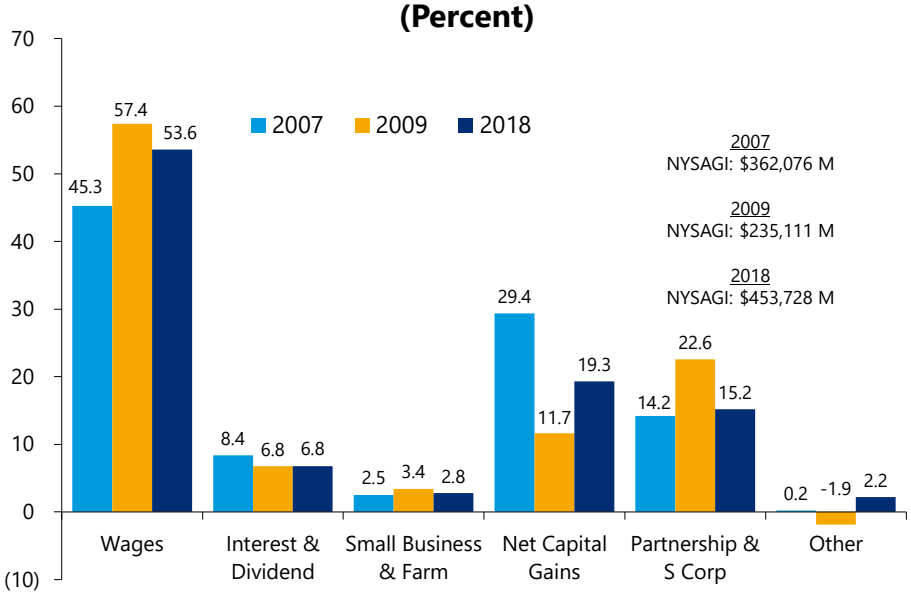
With faster economic growth over the past two years, the shares of NYSAGI based on preliminary 2018 data resemble those of 2007 more closely, though there are some interesting divergences. At 71.6 percent the wage income share is closer to the 67.0 percent share of 2007, and shares of business and farm income have also moved closer. Partnership income, at 7.8 percent, is a larger share than in 2007 while the residual "other" income category, a negligible 0.1 percent in 2007, now accounts for 2.0 percent of NYSAGI. This reflects in part the increasingly older State population. The share from interest and dividends has fallen, likely in part due to reasons discussed earlier in this section. While net capital gains in 2018 are slightly more than double their share in the recession year of 2009, at 10.8 percent they remain well below their 2007 share.

Composition of NYSAGI for All Taxpayers (Percent)



Note: Capital gains and partnership/S corporation gains income are net of losses. 2018 numbers are based on processing information.
Source: NYS DTF; DOB staff estimates.

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 2018 numbers are based on processing information.
Source: NYS DTF; DOB staff estimates.

Considering the high-income filers, wage income remains more prominent in 2018 than it was in 2007; the same is true of partnership income but to a much lesser extent. The 2018 share of net capital gains is just over 10 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 2.2 percent than it was in 2007 (0.2 percent).

Even after so many years since the Great Recession, some of the large changes in income shares brought about by the Great Recession do not appear to have been unwound yet, testifying to the weak nature of the ongoing 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.

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 indicator 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, because of the prominence of bonus income and capital gains realizations in taxable income, the risks and uncertainties are heightened and, as a consequence of the State's progressive tax system, even more so for PIT revenues.

SELECTED ECONOMIC INDICATORS
(Calendar Year)

	2018 (actual[31])	2019 (estimate)	2020 (forecast)	2021 (forecast)	2022 (forecast)	2023 (forecast)
U.S. Indicators[32]						
Gross Domestic Product (current dollars)	5.4	4.1	4.1	4.2	3.9	3.8
Gross Domestic Product	2.9	2.3	2.0	2.0	1.8	1.7
Consumption	3.0	2.6	2.5	2.2	2.0	1.8
Residential Fixed Investment	(1.5)	(1.6)	1.9	1.1	1.1	1.4
Nonresidential Fixed Investment	6.4	2.2	1.5	3.2	2.9	3.2
Change in Inventories (dollars)	48.2	80.4	32.7	43.5	54.2	54.5
Exports	3.0	(0.3)	1.4	3.2	2.8	3.2
Imports	4.4	1.3	1.1	3.0	3.1	3.2
Government Spending	1.7	2.2	1.6	0.6	0.5	0.5
Corporate Profits[33]	3.4	(0.3)	3.3	4.0	4.0	4.1
Personal Income	5.6	4.5	3.8	4.0	4.0	3.9
Wages	5.0	4.9	4.2	3.9	3.7	3.5
Nonagricultural Employment	1.7	1.6	1.3	0.8	0.7	0.6
Unemployment Rate (percent)	3.9	3.7	3.6	3.7	3.9	4.2
S&P 500 Stock Price Index	12.1	6.0	7.4	3.0	3.1	3.8
Federal Funds Rate	1.8	2.2	1.6	1.9	2.2	2.5
10-year Treasury Yield	2.9	2.1	2.0	2.4	2.8	3.2
Consumer Price Index	2.4	1.8	2.2	2.2	2.3	2.2
New York State Indicators						
Personal Income[34]	3.7	3.5	3.6	4.1	4.2	4.2
Wages and Salaries[34]						
Total	3.6	4.3	3.6	4.0	4.0	3.9
Without Bonus[35]	4.7	4.4	4.2	3.9	3.9	3.9
Bonus[35]	(3.4)	3.5	(0.7)	4.2	4.3	4.4
Finance and Insurance Bonuses[35]	(6.5)	1.0	(1.3)	4.0	4.1	4.1
Wage Per Employee	2.3	3.0	2.5	3.1	3.1	3.1
Property Income	9.7	2.4	2.5	4.4	4.6	4.6
Proprietors' Income	3.6	4.4	4.6	4.4	4.5	4.6
Transfer Income	(1.2)	3.1	4.9	4.7	4.8	4.8
Nonfarm Employment[34]						
Total	1.3	1.2	1.1	0.8	0.8	0.8
Private	1.5	1.4	1.2	1.1	1.0	0.9
Unemployment Rate (percent)	4.1	4.0	4.0	4.1	4.2	4.3
Composite CPI of New York State[35]	2.1	1.7	2.1	2.2	2.2	2.1
New York State Adjusted Gross Income						
Capital Gains	2.1	3.5	3.6	3.6	3.1	3.1
Partnership/ S Corporation Gains	(8.7)	3.6	6.3	6.2	5.9	5.5
Business and Farm Income	(1.6)	5.6	5.1	5.1	4.6	4.5
Interest Income	13.8	1.0	0.2	5.4	5.4	5.6
Dividends	9.5	4.8	4.3	5.7	6.0	6.1
Total NYSAGI	**3.4**	**4.4**	**4.0**	**4.2**	**4.1**	**4.1**

[31] For NYSAGI variables, 2018 is preliminary.

[32] 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.

[33] Includes inventory valuation and capital consumption adjustments.

[34] Nonagricultural employment, wage, and personal income numbers are based on CEW data.

[35] Series created by DOB.

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

SELECTED ECONOMIC INDICATORS
(State Fiscal Year)

	FY 2019 (actual)	FY 2020 (estimate)	FY 2021 (forecast)	FY 2022 (forecast)	FY 2023 (forecast)	FY 2024 (forecast)
U.S. Indicators[36]						
Gross Domestic Product (current dollars)	5.3	3.9	4.2	4.1	3.9	3.8
Gross Domestic Product	2.9	2.1	2.1	1.9	1.7	1.7
Consumption	2.9	2.7	2.3	2.1	1.9	1.8
Residential Fixed Investment	(2.3)	(0.3)	1.7	1.2	1.2	1.4
Nonresidential Fixed Investment	6.1	0.9	2.5	3.0	3.1	3.2
Change in Inventories (dollars)	67.1	64.0	28.8	48.3	54.2	55.0
Exports	2.3	(0.9)	2.8	2.7	2.9	3.2
Imports	3.8	0.7	1.8	3.1	3.1	3.3
Government Spending	1.8	2.3	1.3	0.5	0.4	0.5
Corporate Profits[37]	2.1	1.4	3.1	4.0	4.1	4.2
Personal Income	5.3	4.3	3.8	4.1	3.9	3.9
Wages	4.9	4.6	4.3	3.9	3.6	3.5
Nonagricultural Employment	1.7	1.5	1.2	0.8	0.6	0.6
Unemployment Rate (percent)	3.8	3.6	3.6	3.7	4.0	4.2
S&P 500 Stock Price Index	7.5	9.4	4.9	3.0	3.2	3.9
Federal Funds Rate	2.1	1.9	1.6	1.9	2.2	2.5
10-year Treasury Yield	2.9	1.9	2.1	2.5	2.9	3.2
Consumer Price Index	2.3	2.0	2.2	2.3	2.2	2.1
New York State Indicators						
Personal Income[38]	3.2	3.6	3.8	4.1	4.2	4.2
Wages and Salaries[38]						
Total	3.6	3.9	4.0	4.0	3.9	3.9
Without Bonus[39]	4.7	4.3	4.2	3.9	3.9	3.9
Bonus[39]	(3.9)	1.1	2.8	4.3	4.3	4.4
Finance and Insurance Bonuses[39]	(8.1)	(1.7)	3.3	4.1	4.1	4.2
Wage Per Employee	2.2	2.7	2.9	3.1	3.1	3.1
Property Income	8.3	2.2	2.9	4.5	4.6	4.6
Proprietors' Income	3.5	4.9	4.3	4.4	4.5	4.7
Transfer Income	(2.2)	4.7	4.7	4.7	4.8	4.8
Nonfarm Employment[38]						
Total	1.4	1.1	1.1	0.8	0.8	0.8
Private	1.5	1.3	1.1	1.0	0.9	0.9
Unemployment Rate (percent)	4.0	4.0	4.0	4.1	4.2	4.3
Composite CPI of New York[39]	2.0	1.9	2.1	2.2	2.2	2.1

[36] 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.

[37] Includes inventory valuation and capital consumption adjustments.

[38] Nonagricultural employment, wage, and personal income numbers are based on CEW data.

[39] Series created by DOB.

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

E-Commerce – National and New York State Trends

One of the bright spots of the U.S. economy in the last decade has been the growth of consumer spending, which outpaced broader GDP growth in seven of the last 10 years. Online retail sales have been a key driver of this growth and the expansion of E-Commerce continues to change consumer product pricing, supply-chain dynamics, transportation networks, and consumer shopping patterns. In addition, the growth of online sales has impacted the employment dynamics of traditional retailers and other services industries.

An overview of the recent national trends as well as DOB estimates for the level and growth rates of E-Commerce retail sales in New York State is provided herein.

National Trends in E-Commerce

Business-to-consumer (B2C) E-Commerce is catching up to business-to-business (B2B)

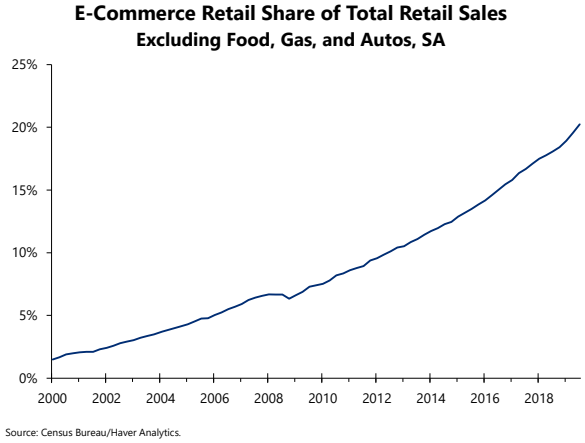
Although E-Commerce sales have experienced rapid growth in the last two decades, the consumer sector is a relative newcomer to the online trade landscape. E-Commerce enjoys considerably greater adoption in the wholesale and manufacturing sectors, which are typically associated with B2B sales.[40] According to the U.S. Census Bureau, manufacturing E-Commerce shipments exceeded $3.7 trillion in 2017, an increase of 7.5 percent over 2016.[41] In contrast, E-Commerce retail sales, at $461 billion, comprised a mere 9.1 percent of retail trade in 2017 (total retail sales excluding restaurants). But if B2C E-Commerce has historically lagged B2B in terms of levels and market share of online trade, it is rapidly catching up. Growth of E-Commerce retail sales has typically outpaced the B2B sectors since 2000. In 2017, E-Commerce retail sales grew 16.0 percent, versus 4.0 percent growth for total retail sales. The growth rate of E-Commerce retail sales has exceeded 13.5 percent every year since 2010.[42]

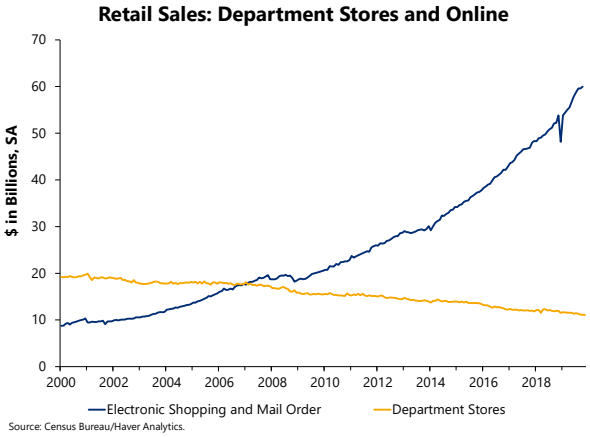
The clicks continue to outpace the bricks

E-Commerce retail sales growth has outpaced traditional brick-and-mortar retail sales every quarter since the U.S. Census began releasing E-Commerce retail sales figures in the late 1990s. Retail E-Commerce weathered the Great Recession relatively well, albeit with considerably slower growth than had been seen prior to the financial crisis. In the third quarter of 2019, E-Commerce retail sales (adjusted for seasonal patterns) grew at a 16.9 percent rate on a year-over-year basis, reaching $154.5 billion, representing the strongest quarterly showing since the first quarter of 2012. Third-quarter 2019 E-Commerce retail sales made up 20.2 percent of retail sales excluding automobile dealerships, gasoline stations, food and beverage stores, and restaurants, up from 18.1 percent in the third quarter of 2018 and 1.5 percent in early 2000.

[40] See Christopher, Chris G. and Deull, David. "E-Commerce in a Connected World", CSCMP's Supply Chain Quarterly, Quarter 2 2018.
[41] Source: https://www.census.gov/content/dam/Census/library/publications/2017/econ/e17-estats1.pdf
[42] Source: https://www.census.gov/retail/mrts/www/data/pdf/ec_current.pdf

The dramatic increase of E-Commerce retail sales has started to make inroads into types of retail that typically had a small online presence to date, such as food and beverage stores, in part due to Amazon's acquisition of Whole Foods. Currently, the only remaining retail channels whose volumes still exceed online retail sales are automobile dealerships and restaurants, but it is very likely that restaurants will be surpassed before the end of 2020.





Impact on traditional retailers

According to Coresight Research, retail store closings in 2019 are on track to surpass 9,300, breaking the previous year's record, with the number of store closings in 2019 likely to be almost double the numbers seen in 2008.[43] While the cannibalization of traditional brick-and-mortar sales by online retailers is the primary cause of this trend, other factors include: [44, 45, 46]

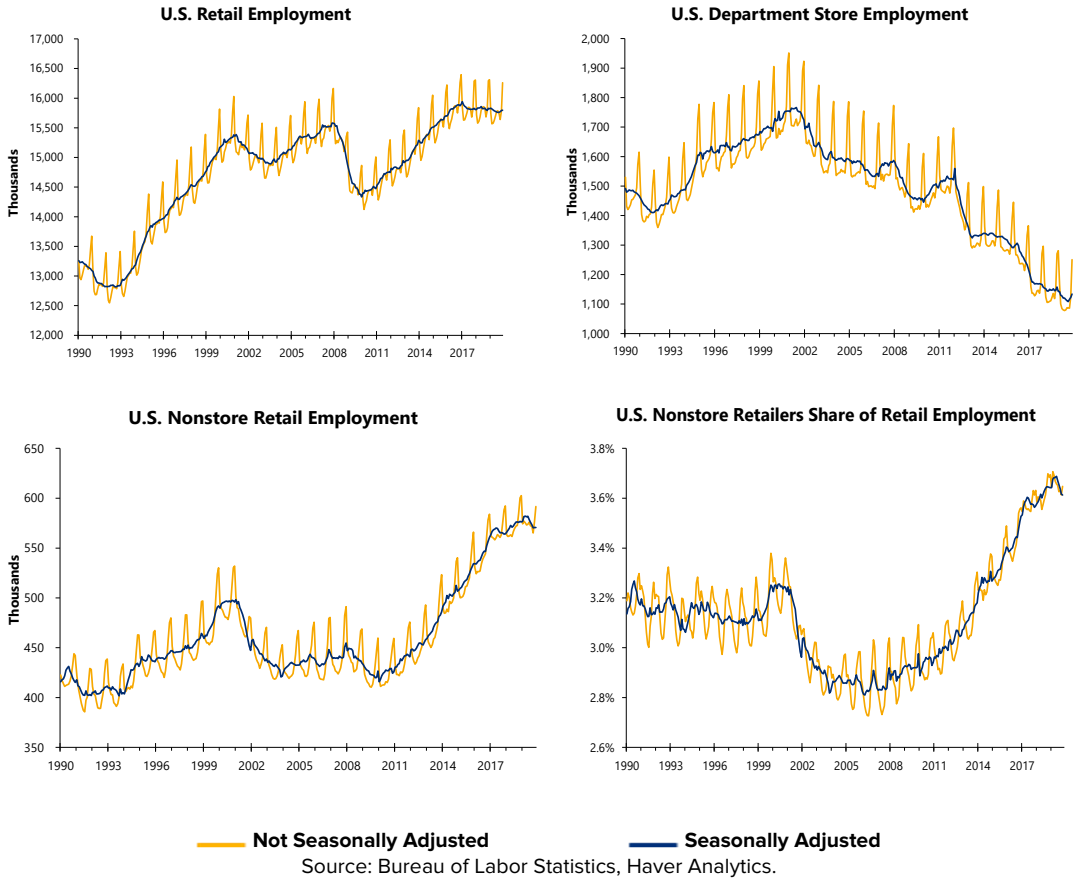
- an excessive amount of retail real estate space per capita in the U.S. compared with other advanced countries, such as Germany or the United Kingdom;
- a shift in spending habits away from consumer goods purchases and toward experiences such as travel or dining out;
- the rising cost of healthcare, which leaves less disposable income available for discretionary goods spending, particularly for older generations;
- stagnant wages and the struggles of the middle class in the aftermath of the Great Recession;
- increased price competition from online and discount retailers; and
- the rise of discount stores at the expense of the traditional middle-tier retailers.

[43] Source: https://www.businessinsider.com/stores-closing-in-2019-list-2019-3
[44] Source: https://www.theatlantic.com/business/archive/2017/04/retail-meltdown-of-2017/522384/
[45] Source: Christopher, Chris G. and Deull, David "Dynamics and impacts of the Growth of E-Commerce", IHS Markit, August 2018.
[46] Christopher, Chris G. "The Economic Impact of E-Commerce", CSCMP's Supply Chain Quarterly, Quarter 2 2011.

Where sales go, jobs (mostly) follow

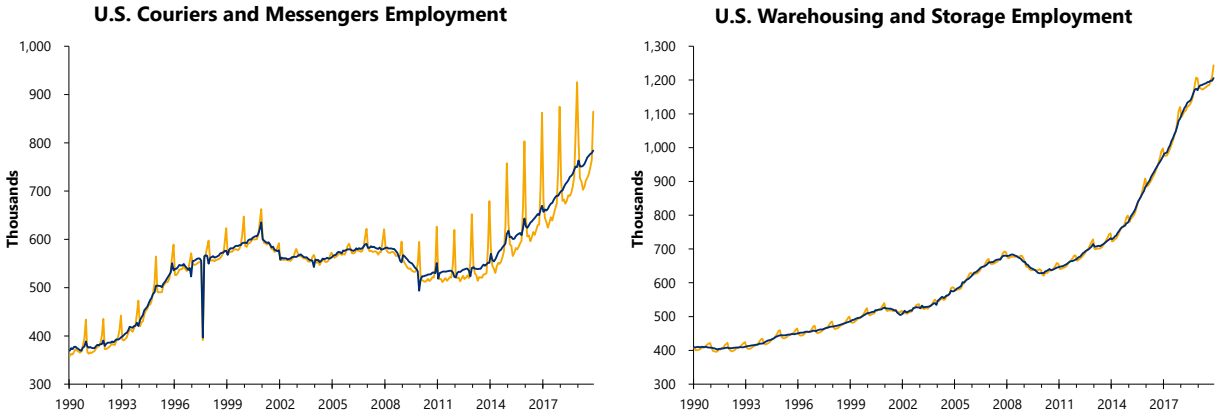
Through 2010, E-Commerce had an ambiguous effect on retail employment, with payrolls at non-store (mostly online) retailers drifting downward despite strong sales growth. As fewer employees were needed for a given number of transactions online, the share of "non-store" retail employees remained roughly stable between 2003 and 2009 at around 2.9 percent - even as non-store retailers' share of total retail sales more than doubled. Between 2010 and 2017, non-store retail employment shot up, rising from an average of 425,000 in 2010 to 567,000 in 2017, with its share of retail jobs rising to 3.6 percent. More recently, total retail employment has fallen back, declining by 31,000 in the 12 months ending in November 2019, while the non-store share of retail employment remained at 3.6 percent.[47]

On the other hand, the rapid growth of E-Commerce retail sales has provided a major boost to residential parcel delivery services. Between 2012 and 2018, employment of couriers and messengers increased from an average of 534,000 to 726,000, while payrolls at warehousing and storage facilities soared from 692,000 to 1,140,000. In the last 12 months through November 2019, total employment in the transportation and warehousing industry grew 73,000, more than offsetting retail's 31,000 decline.



Source: Bureau of Labor Statistics, Haver Analytics.

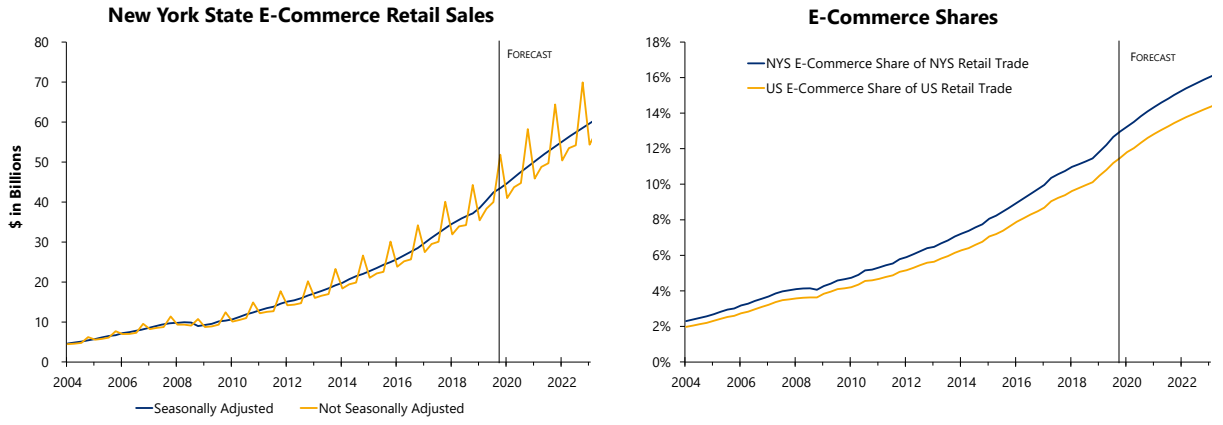
[47] Current Employment Statistics, BLS, November 2019 release.



Source: Bureau of Labor Statistics, Haver Analytics.

Growth of E-Commerce in New York State

To better understand the changing landscape of New York State consumer spending patterns, DOB constructed a quarterly index and forecast of New York State E-Commerce retail sales. The DOB methodology quantifies the amount of E-Commerce retail trade that is ordered (by destination) by customers with delivery addresses in New York State.[48] NYS growth rates and seasonal factors are found to be very similar to those on the national level.



Source: Bureau of Economic Analysis/Census Bureau/IHS Markit/DOB Estimates.

Source: Bureau of Economic Analysis/Census Bureau/IHS Markit/DOB Staff Estimates.

DOB estimates New York State E-Commerce retail trade to be approximately $40.0 billion (non-seasonally-adjusted annualized rate) as of the third quarter of 2019, with expectations for growth to be $58.2 billion by the fourth quarter of 2020. The proportion of E-Commerce retail trade to total NYS retail trade was 12.7 percent in the third quarter of 2019 and is estimated to increase to

[48] The Index was constructed based on data (forecasts and other assumptions) from IHS Markit's U.S. consumption and retail sales forecasts, and NYS consumption and retail sales forecasts.

14.1 percent by the end of 2020. This share is higher than the national average of 11.2 percent. Several factors may explain this difference:

- Differences in Income: In 2018, NYS median household income as measured by the American Community Survey (ACS) was 10 percent higher than the national median household income. NYS disposable personal income per capita as measured by the BEA was 21 percent higher, while NYS personal income per capita as measured by BEA was 25 percent higher. (Excluding state and local taxes or fees, the prices of online retail goods do not vary by state.)

- Adjusted for inflation, median household incomes are higher in New York State. Real median household income increased 0.8 percent nationally in 2018, while New York State experienced significantly stronger growth (2.5 percent), with income increasing to $67,844 or $5,907 above the national median. New York State's ranking of real median household income among all states remained unchanged at 15th in 2018.

- Personal consumption expenditures per capita as measured by the BEA were 23 percent higher in New York State than the nation, and personal consumption expenditure categories that correspond to the types of goods ordered online were 26 percent higher.[49]

- Educational attainment (as measured by the share of the population that has an undergraduate and graduate degree) in New York State is higher than the national average. A more educated population corresponds to higher levels of internet availability and usage.

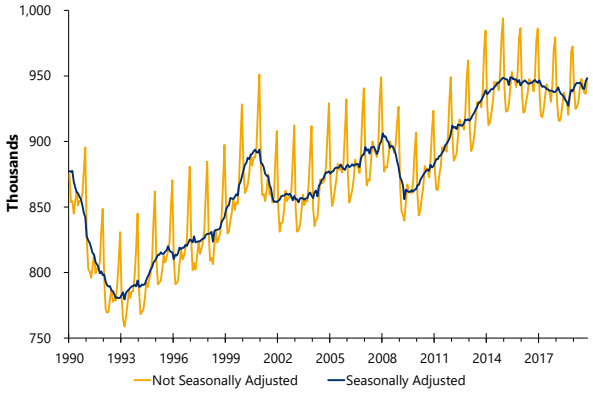
- New York State has a higher urbanization rate (percent of the population that lives in an urban setting) than the nation. Households in an urban setting have better access to the internet and may have a higher propensity to buy online due to lower levels of automobile ownership.[50]

- The median age in NYS, at 36.6 years, is lower than the national average of 38.1. A younger population is more likely to make use of the internet.

NYS retail employment trends are consistent with the national outlook. However, national employment trends are substantially stronger than for New York State for couriers and messengers, warehousing and storage facilities, and non-store retailers.

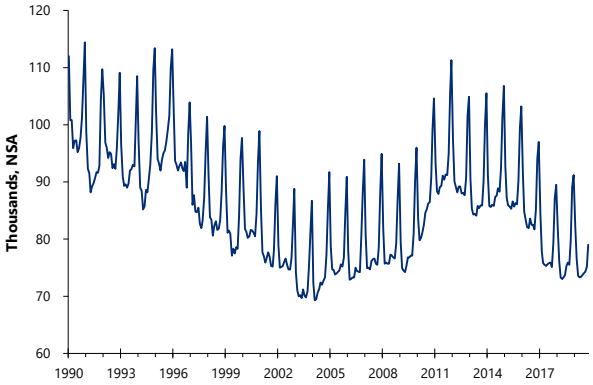
[49] Durable consumption goods excluding motor vehicles, nondurable consumption goods excluding food and energy.
[50] Source: https://www.pewresearch.org/fact-tank/2019/04/22/some-americans-dont-use-the-internet-who-are-they/

New York State Retail Employment



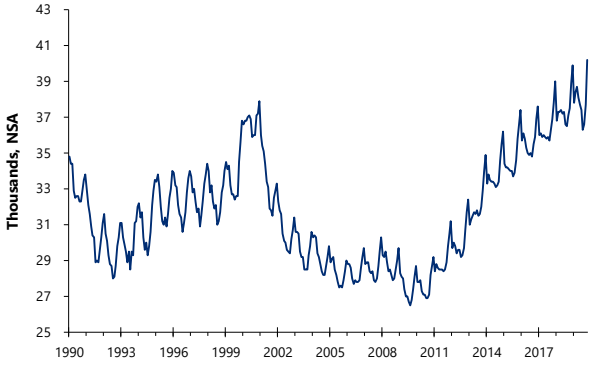
Source: Moody's Analytics.

NYS Department Store Employment



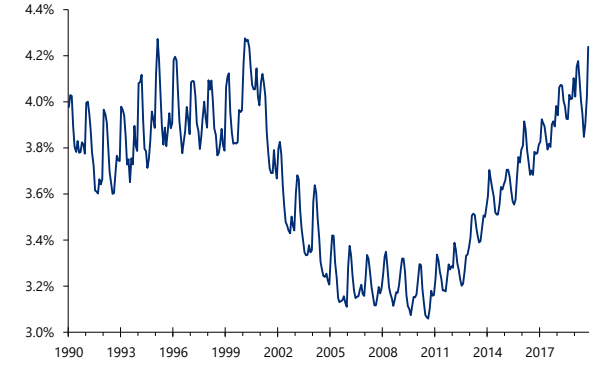
Source: Moody's Analytics.

NYS Nonstore Retail Employment



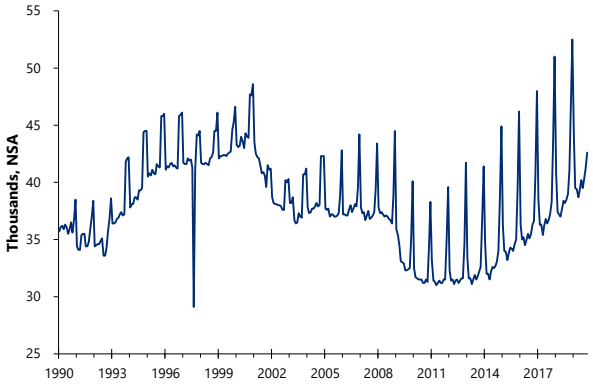
Source: Moody's Analytics.

NYS Nonstore Retailers Share of NYS Retail Employment



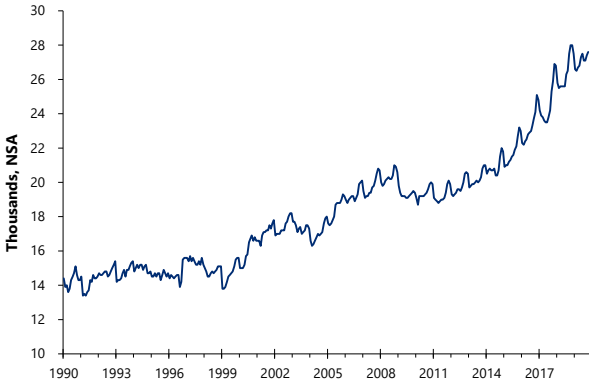
Source: Moody's Analytics.

NYS Couriers and Messengers Employment



Source: Moody's Analytics.

NYS Warehousing and Storage Employment



Source: Moody's Analytics.

Receipts Explanation

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 following taxes: sales and use; motor fuel, highway use, and auto rental; cigarette, tobacco, and vapor products; medical cannabis and opioid taxes; and alcoholic beverages.
- 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.

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*.

	FY 2021	FY 2022	FY 2023	FY 2024
Personal Income Tax	**(40)**	**(5)**	**(159)**	**(154)**
Reduce the Burden on Small Businesses	-	(3)	(6)	(6)
Enhance Empire State Child Credit	-	-	(157)	(157)
Authorize DTF to Provide Unclaimed Tax Benefits	(2)	(2)	(2)	(2)
Cap the Maximum Amount and Income for the Long-Term Care Insurance Credit	-	28	28	28
Make Warrantless State Tax Debt Collection Methods Permanent	40	40	40	40
Shift Basic STAR Exemptions to the Credit Program	(74)	(68)	(62)	(57)
Make Exceptions for Late Enhanced STAR Filers	(4)	-	-	-
Deny STAR Benefits to Delinquent Property Owners	-	-	-	-
Remove References to the STAR Offset Program	-	-	-	-
Consumption/Use Taxes	**5**	**53**	**75**	**131**
Enact a Comprehensive Tobacco Control Policy	(25)	(33)	(33)	(33)
Reform the Tobacco Products Tax	10	23	23	23
Enact the Cannabis Regulation and Taxation Act	20	63	85	141
Enhance Cigarette Tax Enforcement and Penalties	-	-	-	-
Make Technical Amendments Related To Alcoholic Beverage Taxes	-	-	-	-

	FY 2021	FY 2022	FY 2023	FY 2024
Business Taxes	**-**	**(36)**	**(55)**	**(41)**
Reduce the Burden on Small Businesses	-	(36)	(50)	(36)
Extend Excelsior Tax Credit Program and Enhance Tax Credits for Green Projects	-	-	-	-
Extend and Reform the Film Production Tax Credit	-	-	-	-
Extend Hire-A-Vet Credit for Two Years	-	-	(5)	(5)
Other Actions	**85**	**100**	**100**	**100**
Extend Oil and Gas Fee for Three Years	-	-	-	-
Establish a Motion Picture Theater Alcohol Permit	0	-	0	-
Impose Certificate of Need Fee	70	70	70	70
Update Criminal Tax Fraud Statutes	-	-	-	-
Make Technical Amendments to Telecommunications and Railroad Ceiling Programs	-	-	-	-
Abolish the State Board of Real Property Taxes	-	-	-	-
Allow for the Appointment of Acting County Directors of Real Property Tax Services	-	-	-	-
Provide Local Options for Placing Converted Condos into the Homestead Class	-	-	-	-
Modernize and Merge Real Property Tax Forms and Processes	-	-	-	-
Amend Sports Wagering Lounge Restrictions	-	-	-	-
Eliminate QuickDraw Minimum Size Restriction	15	30	30	30
Extend Pari-Mutuel Tax Rates and Simulcast Provisions for One Year	-	-	-	-
Build a New Equine Drug Testing Lab	-	-	-	-
Authorize Entry Into the Mid-Atlantic Drug Compact	-	-	-	-
TOTAL ALL FUNDS LEGISLATION	**51**	**112**	**(39)**	**36**

PERSONAL INCOME TAX
(millions of dollars)

		FY 2019 Results	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Withholding		41,084	42,574	1,490	3.6	44,429	1,855	4.4
Estimated Payments	Current Year	10,481	10,956	475	4.5	11,679	723	6.6
	Prior Year[1]	3,529	6,026	2,497	70.8	6,190	164	2.7
	Total	14,010	16,982	2,972	21.2	17,869	887	5.2
Final Returns	Current Year	344	299	(45)	(13.1)	316	17	5.7
	Prior Year[1]	2,341	3,114	773	33.0	3,292	178	5.7
	Total	2,685	3,413	728	27.1	3,608	195	5.7
Delinquent		1,396	1,509	113	8.1	1,646	137	9.1
	Gross Receipts	**59,175**	**64,478**	**5,303**	**9.0**	**67,552**	**3,074**	**4.8**
Refunds	Prior Year[1]	6,034	5,959	(75)	(1.2)	6,342	383	6.4
	Previous Years	589	608	19	3.2	638	30	4.9
	Current Year[1]	2,249	2,250	1	0.0	1,750	(500)	(22.2)
	Advanced Credit Payment	1,080	1,495	415	38.4	738	(757)	(50.6)
	State/City Offset[1]	1,135	1,149	14	1.2	1,274	125	10.9
	Total	11,087	11,461	374	3.4	10,742	(719)	(6.3)
	Net All Funds Receipts[2]	**48,088**	**53,017**	**4,929**	**10.2**	**56,810**	**3,793**	**7.2**
Fund Distribution	General Fund	21,621	24,333	2,712	12.5	26,406	2,073	8.5
	Debt Service Funds (RBTF)	24,044	26,509	2,465	10.2	28,405	1,897	7.2
	Special Revenue Funds (STAR)	2,423	2,176	(247)	(10.2)	2,000	(177)	(8.1)

[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 2020 receipts are estimated to increase primarily reflecting exceptional growth in extension payments for Tax Year 2018, coupled with modest growth in withholding, partially offset by growth in total refunds.

Withholding in FY 2020 is estimated to be higher compared to the prior year, reflecting a combination of moderate growth in non-bonus wages and weak growth in bonus wages. Estimated payments for Tax Year 2019 are estimated to increase, driven by modest growth in nonwage income. Extension payments (i.e., prior year estimated) for Tax Year 2018 will increase significantly in response to a shift in taxpayer payment-timing behavior. Delinquent collections and final return payments are also projected to increase.

The Tax Year 2018 extensions displayed exceptional growth, primarily driven by taxpayer behavior in response to TCJA. The TCJA, among its many provisions, capped deductible state and local taxes paid at $10,000 annually, beginning with Tax Year 2018. This legislation prompted taxpayers to accelerate payments – which would have otherwise been made as extensions in April 2018 - into December 2017 to benefit from the final year of uncapped state and local tax deductions. The fourth quarterly estimated payment of Tax Year 2018 - which would have been made by many

taxpayers at the end of December 2018 under pre-TCJA tax law - were then delayed and paid in April 2019 as extensions. FY 2020 extensions growth has been a product of a weak FY 2019 base and a post-TCJA concentration of payments in extensions.

The increase in total refunds reflects a steep increase in advanced credit payments attributable to Tax Year 2019, coupled with modest growth in both refunds related to tax years prior to 2018 and the State-City offset. These increases are partially offset by a decline in prior year refunds related to Tax Year 2018. The strong growth in advanced credit payments attributable to Tax Year 2019 reflects increases in the Property Tax Relief Credit and the Homeowners STAR Conversion Credit.

The primary risks to FY 2020 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 State fiscal year. 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 2021 receipts are projected to increase, reflecting growth in withholding, Tax Year 2020 current estimated payments, Tax Year 2019 extension payments, final returns, and delinquencies, coupled with a decline in total refunds.

The decrease in total refunds is driven largely by a steep decline in advanced credit payments related to Tax Year 2020, due to the expired Property Tax Relief Credit program, as well as a decrease in the administrative refund cap in January to March 2021. These decreases are partially offset by moderate increases projected in prior year refunds related to Tax Year 2019, refunds related to tax years prior to 2019, and the State-City offset.

Base and Rate

The personal income tax is by far NYS's largest source of tax receipts, accounting for approximately 64 percent of All Funds tax collections in FY 2019. The State's PIT structure adheres closely to the definitions of adjusted gross income 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 adjusted gross income; 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 2019, 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 2020 are enumerated below.

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

		2012	2013	2014	2015	2016	2017-2020
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-Income Tax Cut established permanent tax rate reductions for taxpayers with taxable income between $26,000 and $300,000.[52] 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. Barring further legislation, these rate reductions will be phased in over the course of eight years, with full implementation occurring in Tax Year 2025. The top tax bracket, with its associated marginal tax rate of 8.82 percent, was extended through Tax Year 2024 in 2019.

[52]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 2019 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	6.21%	$ 43,000
$161,550 - $323,200	$ 9,455	6.49%	$ 161,550
$323,200 - $2,155,350	$ 19,946	6.85%	$ 323,200
$2,155,350 and over	$ 145,448	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	6.21%	$ 21,400
$80,650 - $215,400	$ 4,721	6.49%	$ 80,650
$215,400 - $1,077,550	$ 13,467	6.85%	$ 215,400
$1,077,550 and over	$ 72,524	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	6.21%	$ 32,200
$107,650 - $269,300	$ 6,253	6.49%	$ 107,650
$269,300 - $1,616,450	$ 16,744	6.85%	$ 269,300
$1,616,450 and over	$ 109,024	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			
	2011	2012	2013	2014	2015	2016	2017	2018[1]	2019	2020	2021
NYSAGI											
Amount	657,298	714,698	714,046	776,477	807,775	794,105	874,568	904,605	944,079	981,652	1,022,958
Growth	2.9%	8.7%	(0.1%)	8.7%	4.0%	(1.7%)	10.1%	3.4%	4.4%	4.0%	4.2%
Wages											
Amount	499,425	515,645	525,924	558,857	584,317	592,135	626,377	644,055	677,271	701,834	729,747
Growth	3.5%	3.2%	2.0%	6.3%	4.6%	1.3%	5.8%	2.8%	5.2%	3.6%	4.0%
NYSAGI Share	76.0	72.1	73.7	72.0	72.3	74.6	71.6	71.2	71.7	71.5	71.3
Net Capital Gains											
Amount	48,800	77,248	68,492	90,918	93,409	72,465	96,426	99,532	102,918	106,674	110,507
Growth	9.2%	58.3%	(11.3%)	32.7%	2.7%	(22.4%)	33.1%	3.2%	3.4%	3.6%	3.6%
NYSAGI Share	7.4	10.8	9.6	11.7	11.6	9.1	11.0	11.0	10.9	10.9	10.8
Interest and Dividends											
Amount	29,240	33,433	32,604	34,970	33,591	35,014	38,749	39,471	44,499	45,785	48,363
Growth	(3.2%)	14.3%	(2.5%)	7.3%	(3.9%)	4.2%	10.7%	1.9%	12.7%	2.9%	5.6%
NYSAGI Share	4.4	4.7	4.6	4.5	4.2	4.4	4.4	4.4	4.7	4.7	4.7
Taxable Pension											
Amount	37,052	39,040	40,394	42,461	44,131	44,815	47,175	49,318	51,291	49,820	49,820
Growth	4.1%	5.4%	3.5%	5.1%	3.9%	1.6%	5.3%	4.5%	4.0%	3.7%	3.2%
NYSAGI Share	5.6	5.5	5.7	5.5	5.5	5.6	5.4	5.5	5.4	5.1	4.9
Net Business and Partnership Income											
Amount	74,148	84,363	83,995	89,448	95,745	94,548	111,115	99,492	103,714	110,206	116,529
Growth	(0.3%)	13.8%	(0.4%)	6.5%	7.0%	(1.3%)	17.5%	(10.5%)	4.2%	6.3%	5.7%
NYSAGI Share	11.3	11.8	11.8	11.5	11.9	11.9	12.7	11.0	11.0	11.2	11.4
All Other Incomes and Adjustments[2]											
Amount	(31,367)	(35,031)	(37,363)	(40,178)	(43,418)	(44,873)	(45,273)	(27,263)	(35,614)	(36,049)	(37,107)
Growth	10.5%	11.7%	6.7%	7.5%	8.1%	3.4%	0.9%	(39.8%)	30.6%	1.2%	2.9%
NYSAGI Share	(4.8)	(4.9)	(5.2)	(5.2)	(5.4)	(5.7)	(5.2)	(3.0)	(3.8)	(3.7)	(3.6)

[1]Estimates for 2018 are based on processing data.
[2]Includes alimony received, unemployment income, IRA income, and other incomes. This number is negative due to Federal and New York
Source: NYS Department of Taxation and Finance; DOB staff estimates.

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

	NYSAGI		Liability		Effective
	Amount	Growth	Amount	Growth	Tax Rate
2010	638,855	7.1%	34,834	11.8%	5.5%
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[2]	874,568	10.1%	48,000	15.0%	5.5%
2018[2]	904,605	3.4%	48,586	1.2%	5.4%
2019[2]	944,079	4.4%	51,090	5.2%	5.4%
2020[2]	981,652	4.0%	53,404	4.5%	5.4%

[1]Liability divided by AGI.
[2]Estimates and projections
Source: NYS Department of Taxation and Finance; 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 by their nature no prior time pattern or amount is available.

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 state and local taxes, including property taxes. Note the decline to 1.2 percent liability growth estimated 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 5.2 percent is expected for tax year 2019, with a slower economy in 2020 reducing liability growth to 4.5 percent for that year.

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 the particular tax 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 State fiscal years. 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 2019 will be received before the end of FY 2020. Settlement payments – those payments received when taxpayers file final returns for a tax year – tend to be received in the next State fiscal year after the end of a tax year. Thus, settlement payments for Tax Year 2019 will be received largely in FY 2021.

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 in FY 2019. A total of $2,250 million is scheduled to be refunded in FY 2020.

History

PERSONAL INCOME TAX RECEIPTS HISTORY
(millions of dollars)

		FY 2010	FY 2011	FY 2012	FY 2013	FY 2014	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019
Withholding		29,443	31,240	31,199	31,958	33,368	34,907	36,549	37,524	40,269	41,084
Estimated Payments	Current Year	6,938	7,386	8,097	9,001	9,454	10,367	11,561	10,912	14,329	10,481
	Prior Year[1]	2,090	2,349	3,532	3,192	5,183	3,376	4,550	4,060	3,452	3,529
	Total	9,028	9,735	11,628	12,193	14,637	13,743	16,111	14,972	17,781	14,010
Final Returns	Current Year	206	215	224	204	250	254	269	261	308	344
	Prior Year[1]	1,616	1,749	1,893	1,945	2,145	1,952	2,360	2,328	2,170	2,341
	Total	1,822	1,964	2,117	2,148	2,395	2,206	2,630	2,588	2,478	2,685
Delinquent		1,100	1,063	1,086	1,144	1,175	1,393	1,310	1,434	1,507	1,396
Gross Receipts		**41,393**	**44,002**	**46,030**	**47,443**	**51,575**	**52,248**	**56,600**	**56,518**	**62,036**	**59,175**
Refunds	Prior Year[1]	4,986	5,170	4,693	4,568	5,367	4,961	5,130	5,199	6,292	6,034
	Previous Years	468	772	454	588	554	458	618	474	527	589
	Current Year[1]	1,250	1,750	1,750	1,750	2,078	1,950	2,550	1,750	2,249	2,249
	Advanced Credit Payment	0	0	0	0	0	579	571	678	610	1,080
	State/City Offset[1]	(62)	100	366	309	615	591	675	851	856	1,135
	Total	6,642	7,792	7,263	7,216	8,614	8,539	9,545	8,952	10,534	11,087
Net All Funds Receipts		**34,751**	**36,210**	**38,768**	**40,227**	**42,961**	**43,710**	**47,055**	**47,566**	**51,501**	**48,088**
Fund Distribution	General Fund	22,654	23,894	25,843	26,884	28,864	29,485	31,957	32,535	36,037	21,621
	Debt Service Funds (RBTF)	8,688	9,052	9,692	10,057	10,740	10,927	11,764	11,891	12,875	24,044
	Special Revenue Funds (STAR)	3,409	3,263	3,233	3,286	3,357	3,297	3,335	3,139	2,589	2,423

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

Significant statutory changes since 2010 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 three times since through Tax Year 2024. Beginning in 2010, $7 million of the credit was dedicated to post production, then increased to $25 million in 2015.

- In 2010, aggregate business-related tax credit claims were capped at $2 million per taxpayer annually for Tax Years 2010 through 2012, with any credits thus deferred claimed by affected taxpayers on returns for Tax Years 2013 through 2015.

- In 2010, itemized deductions for taxpayers with NYSAGI above $10 million were limited to 25 percent of charitable contributions. This has subsequently 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 is available through 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-Income 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 state and local tax 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.

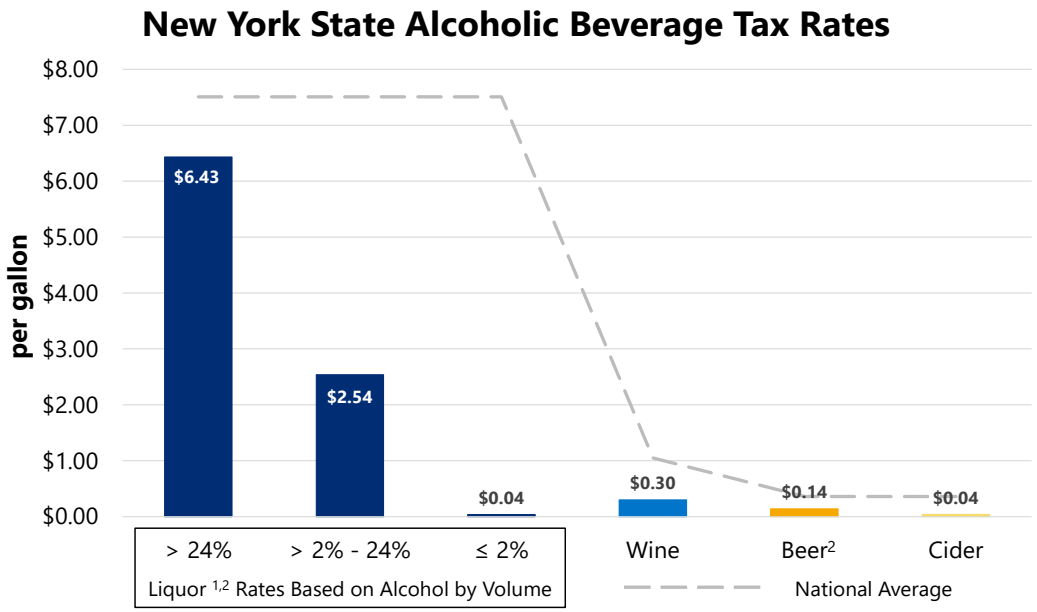
ALCOHOLIC BEVERAGE TAXES (millions of dollars)								
		FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
General Fund	Beer	45.5	45.6	0.1	0.2	45.6	0.0	0.0
	Liquor	196.4	198.8	2.4	1.2	202.6	3.8	1.9
	Wine and Other	20.5	20.6	0.1	0.5	20.8	0.2	1.0
	Total	262.4	265.0	2.6	1.0	269.0	4.0	1.5
All Funds Total		**262.4**	**265.0**	**2.6**	**1.0**	**269.0**	**4.0**	**1.5**

FY 2020 receipts are estimated to increase primarily due to the continuation of recent wine and liquor consumption trend growth.

FY 2021 receipts are projected to increase as liquor and wine consumption are expected to grow slightly, while beer consumption is expected to remain relatively flat.

Base and Rate

NYS imposes excise taxes at various rates on liquor, beer, wine and cider beverages. As of June 2019, compared to alcoholic beverage tax rates in other states, NYS currently has the 26th lowest liquor tax; the 12th lowest beer tax; and the 5th lowest wine tax.



[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 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 2010	44	163	19	226	226
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

Since 2010, changes have been infrequent, with the only significant statutory change being the 2016 tax exemption of products used in on-site tastings.

AUTO RENTAL TAX (millions of dollars)								
		FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Capital Projects Funds	DHBTF	81.0	87.5	6.5	8.0	88.4	0.9	1.0
Special Revenue Funds	MTAFAF[1]	49.0	0.0	(49.0)	(100.0)	0.0	0.0	0.0
	PTSOA	0.0	19.5	19.5	N/A	26.6	7.1	36.4
	Total	49.0	19.5	(29.5)	(60.2)	26.6	7.1	36.4
All Funds Total		**130.0**	**107.0**	**(23.0)**	**(17.7)**	**115.0**	**8.0**	**7.5**

FY 2020 receipts are estimated to decrease mainly due to an accounting change that directs all Metropolitan Commuter Transportation District (MCTD) supplemental receipts to the Metropolitan Transit Authority (MTA)[53]. This decline is slightly offset by new revenue from extending the supplemental rate to car rentals outside the MCTD.

FY 2021 receipts are projected to increase due to the first full year of revenue collections from the supplemental rate outside the MCTD.

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) 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.

[53] In 2019, several taxes and fees collected by the State and remitted to the MTA will no longer be subject to annual appropriation by the State legislature. These receipts are now remitted directly to the MTA, increasing timeliness and removing any uncertainty related to the appropriation process. Accordingly, beginning in FY 2020, the Financial Plan does not include the receipts and related local assistance disbursements for these taxes and fees.

History

AUTO RENTAL TAX RECEIPTS HISTORY (millions of dollars)					
	Capital Projects Funds (DHBTF)	Special Revenue Funds			All Funds Total
		MTAFAF[1]	PTSOA	Total	
FY 2010	52	24	0	24	76
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

Since 2010, 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 TAXES (millions of dollars)								
		FY 2019	FY 2020	Change		FY 2021	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	Cigarette Tax	246.4	224.1	(22.3)	(9.0)	209.7	(14.4)	(6.4)
	Tobacco Tax	75.1	73.2	(1.9)	(2.5)	83.2	10.0	13.7
	Registration Fees	6.1	6.1	0.0	0.2	6.1	0.0	0.0
	Total	327.5	303.4	(24.1)	(7.4)	299.0	(4.4)	(1.5)
HCRA	Cigarette Tax	780.2	709.6	(70.6)	(9.0)	664.0	(45.6)	(6.4)
All Funds Total		**1,107.8**	**1,013.0**	**(94.8)**	**(8.6)**	**963.0**	**(50.0)**	**(4.9)**

FY 2020 receipts are estimated to decrease due to a continued greater-than-trend decline in cigarette consumption, in part due to bootlegging. It is estimated that this decline has been partly reduced due to enforcement efforts of the Governor's Cigarette Strike Force. Tobacco products tax receipts are expected to remain at a similar level compared to the prior year.

FY 2021 receipts are projected to decrease due to the continuation of the greater-than-trend decline in cigarette consumption, partially offset by an increase of $10 million in tobacco products tax receipts due to legislation proposed with this Budget that would reform 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.

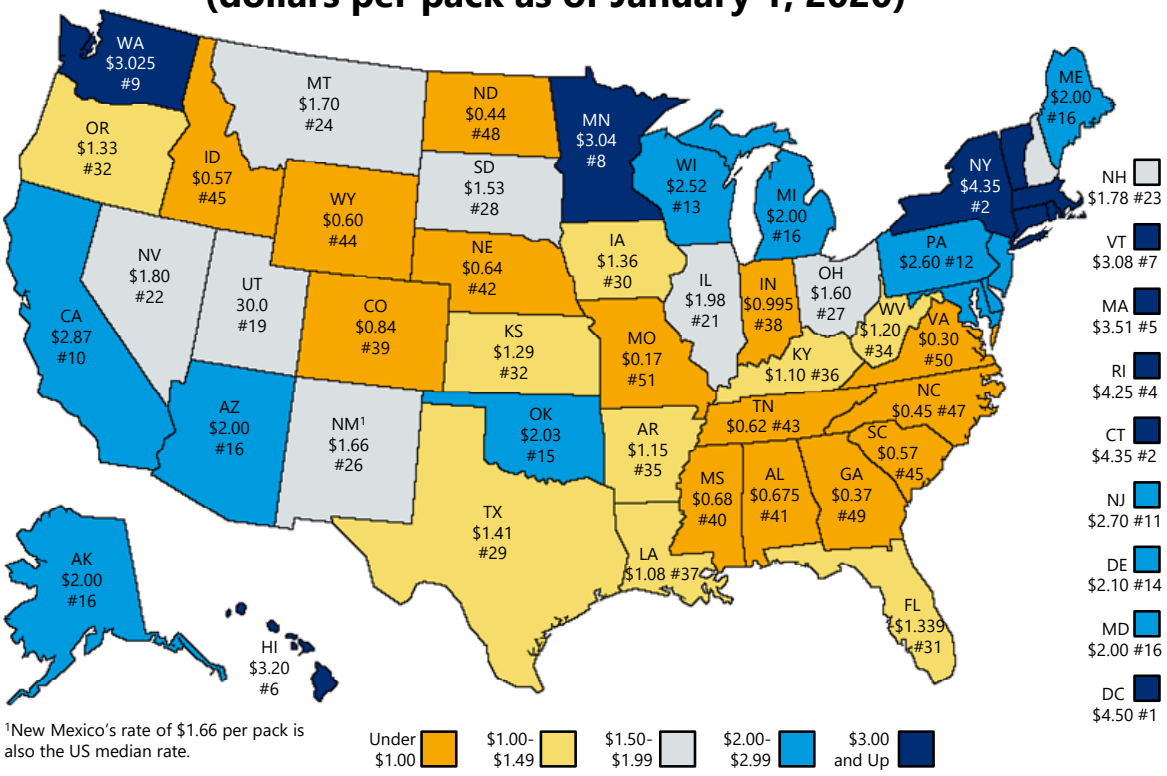
Liability

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 $1.66 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. A recently busted illegal cigarette trafficking operation, 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, 2020)



[1]New Mexico's rate of $1.66 per pack is also the US median rate.

DTF continues to vigorously pursue cigarette bootlegging through investigatory and enforcement efforts. For CY 2019 through November, the Cigarette Strike Force seized over 7,200 cartons of untaxed cigarettes, more than 83,000 counterfeit tax stamps, over 26,000 untaxed cigars, approximately 125 pounds of untaxed tobacco, and an estimated $105,000 in illegal proceeds. The FY 2021 Executive Budget proposes to enhance such enforcement efforts by increasing deterrents for evading the cigarette tax and closing licensing loopholes that enable violators to avoid facing harsh penalties.

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 2010	378	64	14	456	910	1,366
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

Significant statutory changes since 2010 are:

- In 2010, the NYS tax rate on cigarettes increased from $2.75 to $4.35 (until 2000, the NYS tax rate on cigarettes had been below $1.00 for over sixty years). The NYC tax rate has been $1.50 since 2002 and the Federal cigarette tax rate has been $1.01 since 2009.

- 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.

HIGHWAY USE TAX (millions of dollars)								
		FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Capital Projects Funds (DHBTF)	TMT	120.6	114.9	(5.7)	(4.7)	115.3	0.4	0.3
	Fuel Use	25.4	26.1	0.7	2.9	26.8	0.7	2.6
	Decal	0.5	0.5	0.0	0.0	0.5	0.0	0.0
	Total	146.5	141.6	(5.0)	(3.4)	142.6	1.0	0.7
Special Revenue Funds (HUTAA)	Registrations	(1.6)	0.4	2.0	(125.8)	0.4	0.0	0.0
All Funds Total		**145.0**	**142.0**	**(3.0)**	**(2.1)**	**143.0**	**1.0**	**0.7**

FY 2020 receipts are estimated to decrease due to a return to historical trend levels for the TMT following an artificially inflated TMT base in FY 2019 related to the transfer of misallocated receipts from the HUTAA to the DHBTF. This shift represents the proper accounting of TMT revenues that were previously misclassified as registration fee receipts.

FY 2021 receipts are projected to slightly increase due to recent trends (notwithstanding the artificially higher TMT base in FY 2019) in TMT collections and projected growth in diesel consumption, which is used as a proxy for fuel use tax collections. Additionally, registrations are projected to stay flat due to FY 2021 being a non-triennial year.

Base and Rate

There are three components of the highway use tax (HUT):[54]

- The TMT is levied on motor carriers who operate commercial vehicles on NYS public highways.
- The fuel use tax 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.
- A HUT or automotive fuel carrier (AFC) decal is required to be affixed to each vehicle. The cost of the certification and decal fee is $1.50.

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

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 the International Fuel Tax Agreement (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	Decal	Registrations	Total	Registrations	Total
FY 2010	99	28	10	2	137	0	137
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

Significant statutory changes since 2010 are:

- Enacted in 2006, the exemption on alternative fuels (E85, B20, CNG, and hydrogen) has been extended several times, most recently in 2016 through August 31, 2021.

- 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 (millions of dollars)			FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Special Revenue Funds (MCTF)	Counties	Manufacturer	0.9	1.4	0.5	55.2	1.4	0.0	0.0
		Distributor	0.9	1.4	0.5	55.2	1.4	0.0	0.0
	Agency Operations	OASAS	0.2	0.3	0.1	55.2	0.3	0.0	0.0
		DCJS	0.2	0.3	0.1	55.2	0.3	0.0	0.0
	Undistributed Balance		1.7	2.7	1.0	55.2	2.7	0.0	0.0
	Total		3.9	6.0	2.1	55.2	6.0	0.0	0.0
All Funds Total			**3.9**	**6.0**	**2.1**	**55.2**	**6.0**	**0.0**	**0.0**

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

FY 2021 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 December 31, 2019, there were 2,615 registered practitioners authorizing the medical use of cannabis to 111,742 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.[55]

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.

[55] 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.[56]

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

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.

[56] 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 RECEIPTS
(millions of dollars)

		FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Special Revenue Funds (MMTOA)	Gasoline	84.4	84.2	(0.2)	(0.3)	83.8	(0.4)	(0.4)
	Diesel	26.6	25.2	(1.4)	(5.3)	26.3	1.1	4.4
	Total	111.0	109.3	(1.6)	(1.5)	110.1	0.7	0.7
Capital Projects Funds (DHBTF)	Gasoline	371.9	370.8	(1.1)	(0.3)	369.2	(1.6)	(0.4)
	Diesel	45.2	42.8	(2.4)	(5.3)	44.7	1.9	4.4
	Total	417.1	413.7	(3.5)	(0.8)	413.9	0.3	0.1
All Funds	**Gasoline**	**456.3**	**455.0**	**(1.3)**	**(0.3)**	**453.0**	**(2.0)**	**(0.4)**
	Diesel	**71.8**	**68.0**	**(3.8)**	**(5.3)**	**71.0**	**3.0**	**4.4**
	Total	**528.1**	**523.0**	**(5.1)**	**(1.0)**	**524.0**	**1.0**	**0.2**

FY 2020 receipts are estimated to decrease due to a minor decline in gasoline consumption, paired with small growth in diesel fuel consumption. A small increase in estimated diesel refunds and decrease in estimated audit collections results in an estimated decrease in diesel tax receipts. FY 2020 gasoline receipts are estimated to keep pace with the historical level reached in the prior year. This appears to be the new normal as the financial incentive to purchase fuel in New Jersey at a lower gasoline tax rate compared to NYS has all but dissipated as a result of recent increases to New Jersey's gasoline tax rate ($0.23 per gallon increase in 2016 and $0.043 per gallon increase in 2018). Based on data from the Federal Highway Administration, New Jersey experienced a year-over-year decline in taxable gasoline gallonage of approximately 220 million gallons (5.6 percent) during the first full year following its 2016 gasoline tax rate increase. New Jersey's current gasoline tax rate of $0.41 per gallon is now higher than the $0.33 per gallon gasoline tax rate imposed in NYS.

FY 2021 receipts are projected to slightly increase primarily due to moderate growth in diesel consumption, partially offset by a minor decline in gasoline consumption.

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.

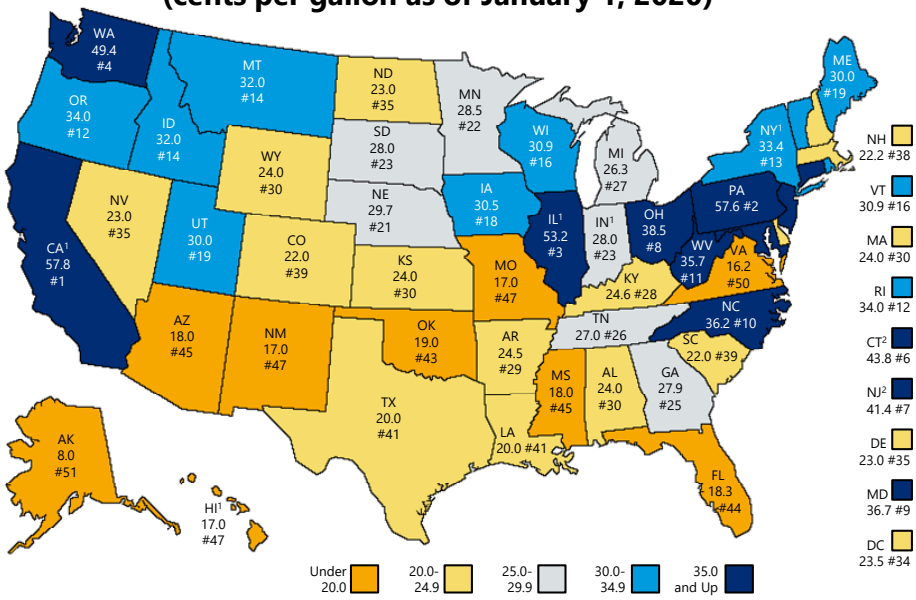
Liability

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 13th on overall state taxes per gallon imposed on fuel.

Total State Tax Rates* on Motor Fuel
(cents per gallon as of January 1, 2020)



*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, since 2016, crude oil prices have been steadily climbing, with fuel prices pushing closer and closer to $3.00 per gallon; specifically, during the past 12 months as of December 2019, the average fuel price has been approximately $2.73 per gallon. 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. The last few years have seen diesel receipts increase due to lower refund payments.

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 2010	82	24	106	360	41	401	442	65	507
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

Significant statutory changes since 2010 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, most recently in 2016 through August 31, 2021.

OPIOID EXCISE TAX (millions of dollars)							
	FY 2019	FY 2020	Change		FY 2021	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	N/A	50.0	50.0	N/A	100.0	50.0	100.0
All Funds Total	**N/A**	**50.0**	**50.0**	**N/A**	**100.0**	**50.0**	**100.0**

FY 2020 receipts are estimated to be $50 million due to the partial-year impact with the tax effective July 1, 2019.

FY 2021 receipts are projected to increase due to the impact of the first full year of revenue collections.

Base and Rate

There is an excise tax on the first sale of an opioid unit in NYS[57] 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.

Administration

All first sales of an opioid unit by a registrant[58] 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 is not due until January 21, 2020 for the period of July 1, 2019 through December 31, 2019. The next return due date is April 20, 2020.

[57] 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.
[58] 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 (millions of dollars)								
		FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
General Fund		7,090.8	7,505.0	414.2	5.8	7,828.0	323.0	4.3
Debt Service Funds	LGAC	3,536.8	3,752.5	215.7	6.1	3,914.0	161.5	4.3
	STRB	3,536.8	3,752.5	215.7	6.1	3,914.0	161.5	4.3
	Total	7,073.6	7,505.0	431.4	6.1	7,828.0	323.0	4.3
Special Revenue Funds	MTOA	963.1	1,022.0	58.9	6.1	1,063.0	41.0	4.0
All Funds Total		**15,127.5**	**16,032.0**	**904.5**	**6.0**	**16,719.0**	**687.0**	**4.3**

FY 2020 receipts are estimated to increase due to an increase in taxable consumption and an estimated $346 million in additional revenues from the enactment of the requirement that marketplace providers collect sales and use tax on sales that they facilitate and the elimination of the Energy Service Companies (ESCOs) exemption, coupled with DTF guidance associated with the U.S. Supreme Court Wayfair ruling. For the first three quarters of FY 2020, the sales tax base has grown 3.6 percent, 2.6 percent, and 3.6 percent, respectively. Base growth for the final quarter is estimated to be 5.6 percent. This equates to estimated base growth of 3.8 percent for FY 2020.

FY 2021 receipts are projected to increase due to projected base growth of 3.8 percent, and an additional $148 million in projected revenue due to the full-year impact of the FY 2020 Enacted Budget legislation and guidance related to the Wayfair ruling noted above.

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.[59]

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 $45.3 million in FY 2018 and $36.2 million in FY 2019 from this line.

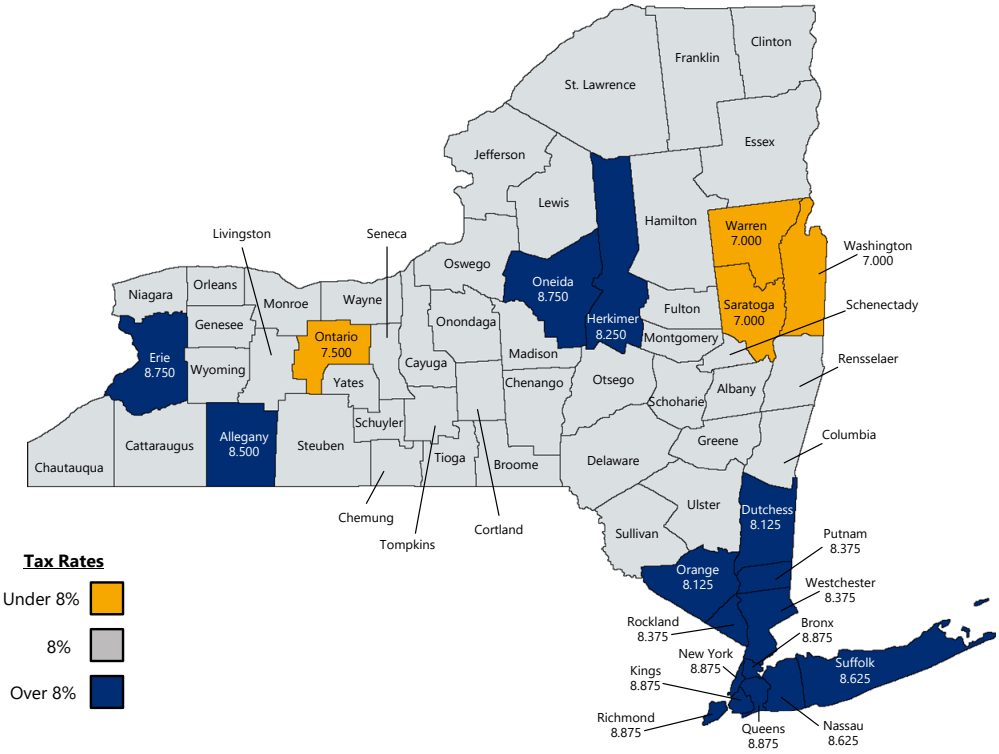
[59] See https://www.tax.ny.gov/pdf/publications/sales/pub750.pdf for a complete description of the sales tax base.

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, 2019



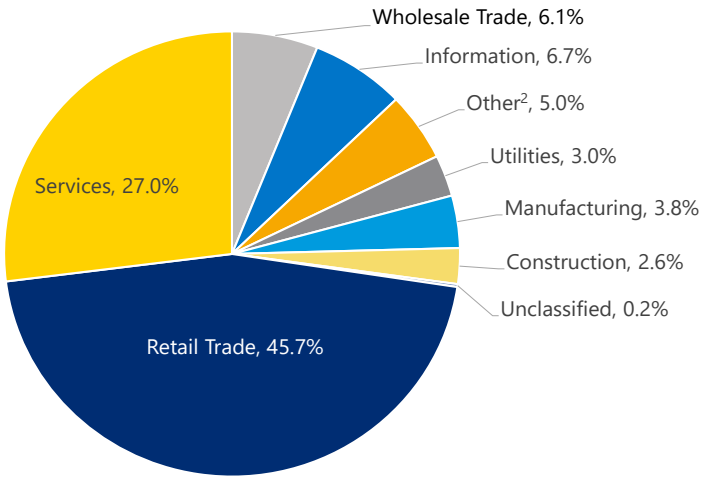
- An additional 0.375 percent sales and use tax is imposed in the MCTD.

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 20 percent of FY 2019 All Funds tax receipts, is the second largest NYS tax revenue source. Over 72 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 2009-2018, with 2018 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.

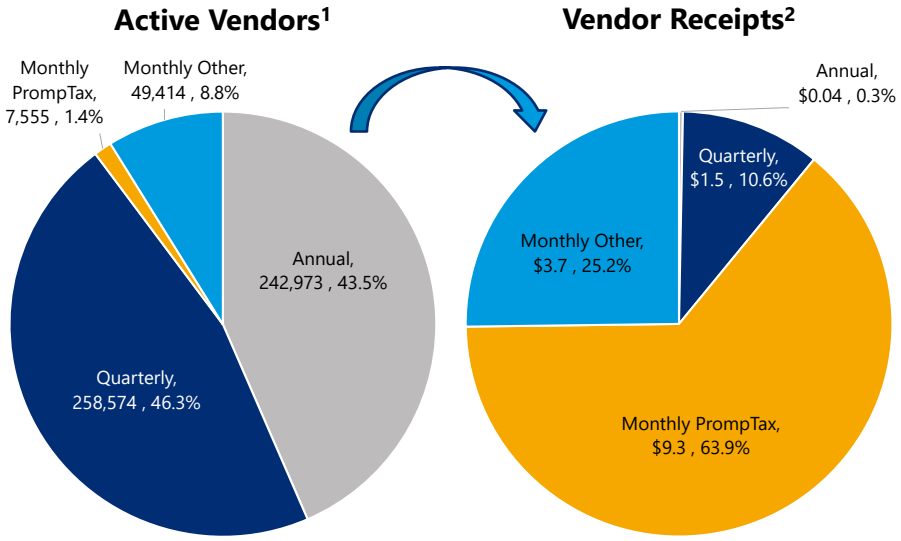
- Annual: Vendors collecting less than $3,000 yearly may elect to file annually, in March.

- 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 10, 2019.
[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 2010	7,404	656	2,467	0	2,467	10,527
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

Significant statutory changes since 2010 are:

- In 2010, a State sales tax exemption on clothing and footwear costing $110 or less became permanent. Eight localities and NYC elected to provide this exemption. Currently, the MCTD tax exemption applies in NYC only.

- 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 was eliminated.

VAPOR PRODUCTS TAX (millions of dollars)								
		FY 2019	FY 2020	Change		FY 2021	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
Special Revenue Funds	HCRA	N/A	10.0	10.0	N/A	14.0	4.0	40.0
All Funds Total		**N/A**	**10.0**	**10.0**	**N/A**	**14.0**	**4.0**	**40.0**

FY 2020 receipts are estimated to be $10 million due to the partial-year impact with the tax effective on December 1, 2019.

FY 2021 receipts are projected to increase, however the impact of the first full year of collections is almost entirely offset by a decrease of $25 million due to legislation proposed with this Budget to ban all flavored vapor products, other than tobacco flavored products, effective June 2020.

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 DTF commissioner 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 RECEIPTS (millions of dollars)								
		FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
General Fund	Non-Audits	2,984.8	3,456.0	471.2	15.8	3,848.0	392.0	11.3
	Audits	424.9	450.0	25.1	5.9	730.0	280.0	62.2
	Total	3,409.7	3,906.0	496.3	14.6	4,578.0	672.0	17.2
Special Revenue Funds (MMTOA)	Non-Audits	788.6	904.0	115.4	14.6	942.0	38.0	4.2
	Audits	98.3	67.0	(31.3)	(31.8)	120.0	53.0	79.1
	Total	886.9	971.0	84.1	9.5	1,062.0	91.0	9.4
All Funds	**Non-Audits**	**3,773.4**	**4,360.0**	**586.6**	**15.5**	**4,790.0**	**430.0**	**9.9**
	Audits	**523.2**	**517.0**	**(6.2)**	**(1.2)**	**850.0**	**333.0**	**64.4**
	Total	**4,296.6**	**4,877.0**	**580.4**	**13.5**	**5,640.0**	**763.0**	**15.6**

FY 2020 receipts are estimated to increase reflecting strong growth in gross receipts partially offset by higher refunds.

FY 2021 receipts are projected to increase reflecting projected growth in corporate profits and higher audits.

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 2016, this tax base represents approximately 86 percent of C corporations' tax liability;

- A tax measured by the capital base subject to the rates below, representing approximately 11 percent of C corporations' liability for Tax Year 2016; and

C CORPORATIONS CAPITAL BASE RATES			
	TY 2019	TY 2020	TY 2021 & Thereafter
Qualified New York Manufacturers and QETCs	0.038%	0.019%	0.000%
Cooperative Housing Corporations	0.040%	0.025%	0.000%
Remaining Taxpayers	0.050%	0.025%	0.000%

- A tax measured by the fixed dollar minimum, with the remaining three percent of tax liability for Tax Year 2016.

C-Corps conducting business in the MCTD are subject to an additional surcharge of 28.9 percent in TY 2019 and 29.4 percent in TY 2020. 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 nine 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 a 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, 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 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 2010	1,542	603	2,145	271	95	366	1,814	698	2,511
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

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

Significant statutory changes since 2010 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; and extended the claims period through Tax Year 2029. 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 three times through Tax Year 2024. Beginning in 2010, $7 million of the credit was dedicated to post production, then increased to $25 million in 2015.

- In 2010, the aggregate business-related tax credit claims were capped at $2 million per taxpayer annually for Tax Years 2010 through 2012, with any credits thus deferred, claimed by affected taxpayers on returns for Tax Years 2013 through 2015.

- 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 new 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 TAXES (millions of dollars)								
		FY 2019	FY 2020	Change		FY 2021	Change	
		Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund		495.3	502.0	6.7	1.4	483.0	(19.0)	(3.8)
Special Revenue Funds (MTOAF)	Transmission Tax	61.2	64.0	2.8	4.6	60.0	(4.0)	(6.3)
	MCTD Surcharge	100.7	104.0	3.3	3.3	99.0	(5.0)	(4.8)
	Total	161.9	168.0	6.1	3.8	159.0	(9.0)	(5.4)
Capital Projects Funds	DHBTF	15.3	16.0	0.7	4.6	15.0	(1.0)	(6.3)
All Funds Total		**672.5**	**686.0**	**13.5**	**2.0**	**657.0**	**(29.0)**	**(4.2)**

FY 2020 receipts are estimated to increase reflecting a modest increase in utilities gross receipts, combined with an increase in overall audit collections. This growth is partially offset by a slight decline in telecommunications gross receipts.

FY 2021 receipts are projected to decrease due to an anticipated decline in telecommunications liability payments and slightly weaker utilities collections.

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 two 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:

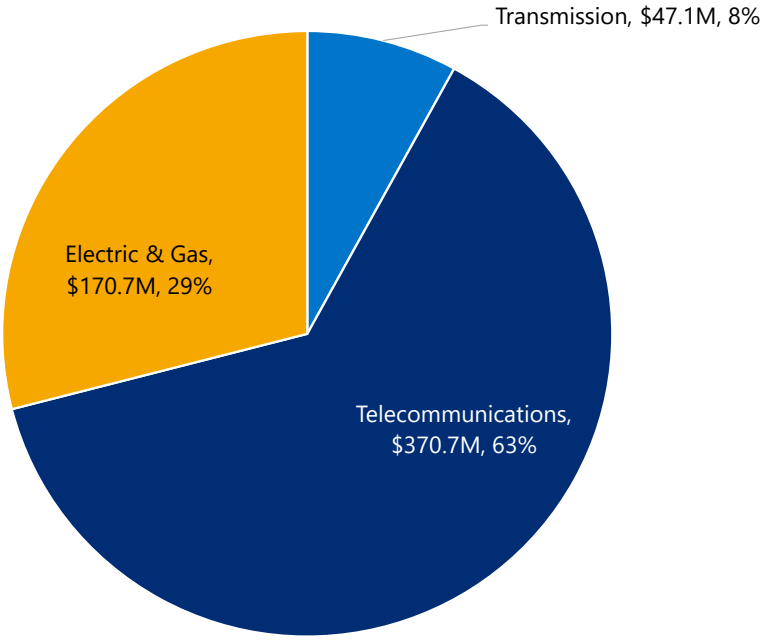
- 1.5 mills per dollar of the net value of capital stock allocated to NYS;
- 0.375 mills per dollar of par value for each one percent of dividends paid on capital stock if dividends amount to six percent or more; or
- A minimum tax of $75.

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

2016 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)

	General Fund	Special Revenue Funds (MTOAF)			Capital Projects Fund (DHBTF)	All Funds Total
		Transmission Tax	MCTD Surcharge	SRF Total		
FY 2010	722	79	134	212	20	954
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

Significant statutory changes since 2010 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 (millions of dollars)	FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
General Fund	1,637.7	1,995.0	357.3	21.8	2,092.0	97.0	4.9
Special Revenue Funds (MMTOA)	199.1	249.0	49.9	25.1	272.0	23.0	9.2
All Funds Total	**1,836.8**	**2,244.0**	**407.2**	**22.2**	**2,364.0**	**120.0**	**5.3**

FY 2020 receipts are estimated to increase due to a combination of base growth in tax liability and the first year of liability payments resulting from the conversion of a not-for-profit health insurer to a for-profit health insurer in 2018 (first payment received in FY 2020).

FY 2021 receipts are projected to increase over FY 2020 as growth in tax liability is expected to continue to occur.

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.

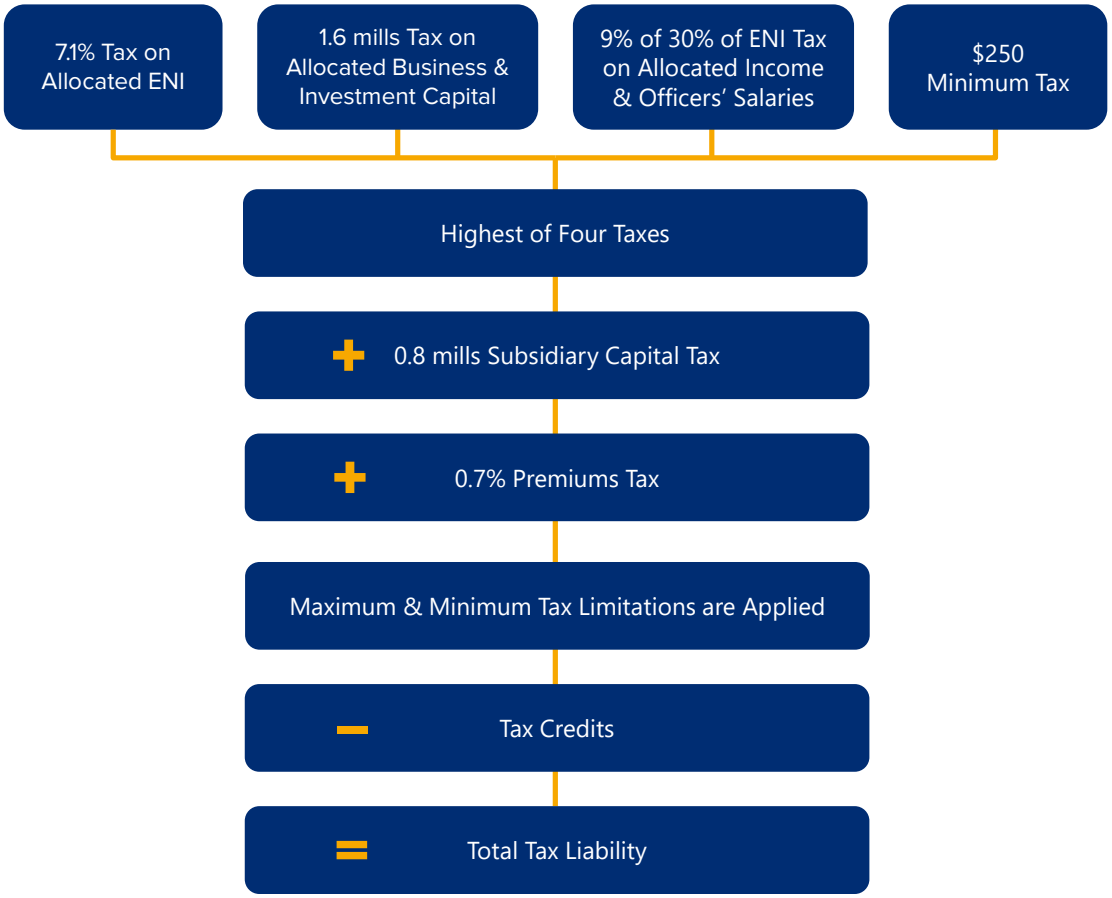
Non-life insurers are subject to a premiums-based tax with a $250 minimum tax:

- 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 the State 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 a 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 State fiscal year.

NYS property and casualty sector premiums history and growth from 2011 through 2018 are listed below.

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

Insurance Lines	2011	2012	2013	2014	2015	2016	2017	2018
Automobile								
Premiums	12,148	12,637	13,074	13,584	14,145	15,004	15,876	16,635
Growth	2.1%	4.0%	3.5%	3.9%	4.1%	6.1%	5.8%	4.8%
Workers' Compensation								
Premiums	4,157	4,755	5,192	5,261	5,524	5,894	5,943	5,918
Growth	14.7%	14.4%	9.2%	1.3%	5.0%	6.7%	0.8%	(0.4%)
Commercial Multi-Peril								
Premiums	3,057	3,249	3,488	3,614	3,592	3,659	3,863	3,958
Growth	2.4%	6.3%	7.3%	3.6%	(0.6%)	1.9%	5.6%	2.5%
General Liability								
Premiums	4,089	4,466	4,978	5,314	5,710	5,830	5,647	6,093
Growth	(1.2%)	9.2%	11.5%	6.8%	7.5%	2.1%	(3.1%)	7.9%
Homeowner's Multi-Peril								
Premiums	4,500	4,704	4,902	5,086	5,196	5,224	5,286	5,397
Growth	3.8%	4.5%	4.2%	3.8%	2.2%	0.5%	1.2%	2.1%
Other								
Premiums	6,196	6,133	6,373	6,436	6,392	6,381	6,295	6,628
Growth	2.7%	(1.0%)	3.9%	1.0%	(0.7%)	(0.2%)	(1.4%)	5.3%
Total Property and Casualty Premiums								
Premiums	**34,148**	**35,944**	**38,005**	**39,294**	**40,558**	**41,993**	**42,908**	**44,629**
Growth	**3.4%**	**5.3%**	**5.7%**	**3.4%**	**3.2%**	**3.5%**	**2.2%**	**4.0%**

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 liability.

History

INSURANCE TAXES RECEIPTS HISTORY (millions of dollars)			
	General Fund	Special Revenue Funds (MMTOA)	All Funds Total
FY 2010	1,331	160	1,491
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

Significant statutory changes since 2010 are:

- In 2010, the aggregate business-related tax credit claims were capped at $2 million per taxpayer annually for Tax Years 2010 through 2012, with any credits thus deferred claimed by affected taxpayers on returns for Tax Years 2013 through 2015.

- 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.

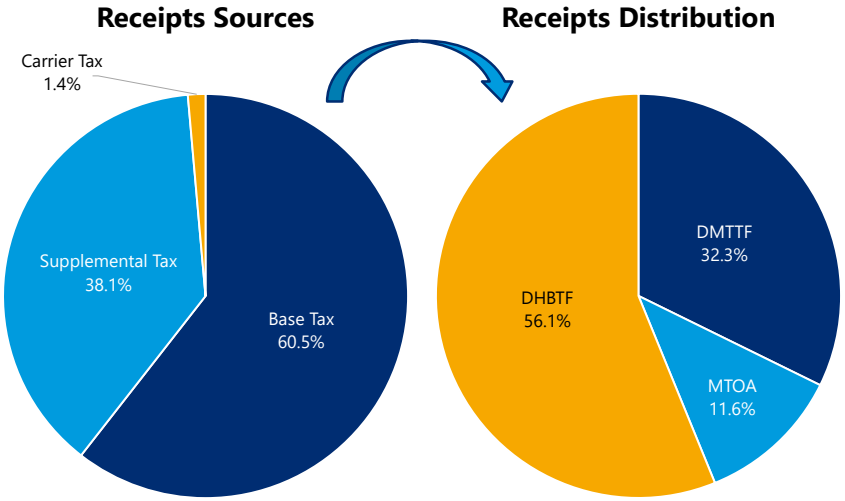
PETROLEUM BUSINESS TAXES (millions of dollars)									
			FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Receipts Sources		Base Tax	705.3	715.5	10.2	1.4	703.0	(12.5)	(1.7)
		Supplemental Tax	443.5	445.5	2.0	0.4	439.0	(6.5)	(1.5)
		Carrier Tax	16.3	17.0	0.7	4.3	17.0	0.0	0.0
		Total Taxes	**1,165.2**	**1,178.0**	**12.8**	**1.1**	**1,159.0**	**(19.0)**	**(1.6)**
Fund Distribution	Capital Projects Funds (DHBTF)		654.4	661.7	7.3	1.1	651.3	(10.4)	(1.6)
	Special Revenue Funds	DMTTF	376.1	379.8	3.7	1.0	373.7	(6.1)	(1.6)
		MTOA	134.7	136.5	1.8	1.3	134.1	(2.5)	(1.8)
		Total	510.8	516.3	5.5	1.1	507.7	(8.6)	(1.7)
	All Funds Total		**1,165.2**	**1,178.0**	**12.8**	**1.1**	**1,159.0**	**(19.0)**	**(1.6)**

FY 2020 receipts are estimated to increase primarily due to the impact of the five percent increase in the PBT rate index on January 1, 2019, paired with a two percent decline in the PBT rate index on January 1, 2020.

FY 2021 receipts are projected to decrease mainly due to the 2 percent decline in the PBT rate index effective January 1, 2020, coupled with an estimated 4.4 percent decline in the PBT rate index on January 1, 2021.

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 2019, gasoline and diesel receipts based on reported gallonage constituted 85 and 12 percent of the total, respectively.

FY 2019 Actual PBT Resources



Base and Rate

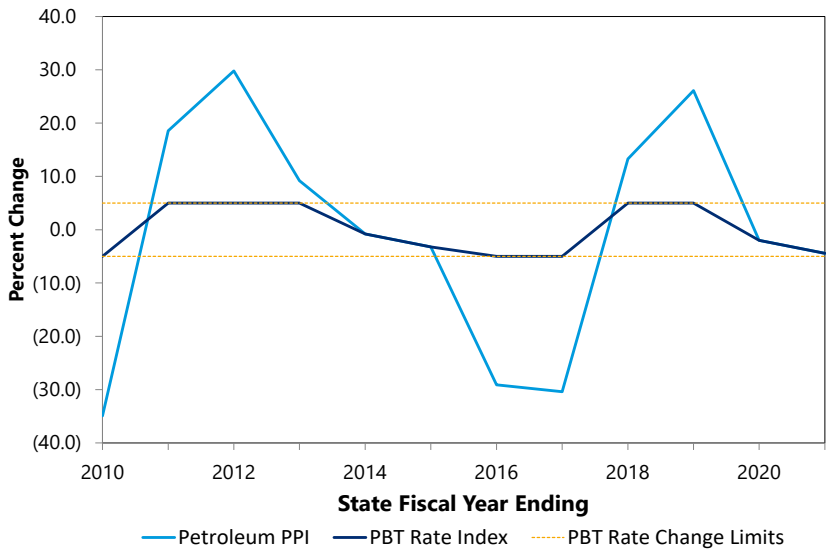
Article 13-A of the Tax Law imposes a tax on petroleum businesses for the privilege of operating in NYS, based upon the quantity of various petroleum products imported for sale or use in NYS. PBT rates have two components: the base tax, whose rates vary by product type; and the supplemental tax, which, 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 increased by five percent on January 1, 2019, and declined by two percent on January 1, 2020. The petroleum PPI is estimated to decline by 4.4 percent from September 2019 through August 2020, resulting in an estimated 4.4 percent decline in PBT rates on January 1, 2021.

Petroleum Producer Price and PBT Rate Indexes



The *Motor Fuel Tax* section of this volume contains a map that ranks New York State 13th 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 2010	674	411	18	1,104	613	360	131	1,104
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

Significant statutory changes since 2010 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, most recently in 2016 through August 31, 2021.
- In 2016, all revenue collected from the PBT on aviation fuel was set aside for airport use in accordance with Federal regulations.

AUTHORIZED COMBATIVE SPORTS TAX (millions of dollars)							
	FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
General Fund	2.0	2.1	0.1	4.6	2.0	0.0	0.0
All Funds Total	**2.0**	**2.1**	**0.1**	**4.6**	**2.0**	**0.0**	**0.0**

FY 2020 and FY 2021 receipts are estimated to be relatively flat as the number of premier events and popularity of participants are expected to remain similar to recent years.

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 2010	350	350
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

Since 2010, 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 TAXES (thousands of dollars)							
	FY 2019	FY 2020	Change		FY 2021	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	0.1	0.8	0.7	700.0	1.8	1.0	118.8
Debt Service Funds (RBTF)	0.1	0.8	0.7	700.0	1.8	1.0	118.8
All Funds	**0.2**	**1.6**	**1.4**	**700.0**	**3.6**	**2.0**	**125.0**

All Funds FY 2020 receipts are estimated to increase substantially reflecting the first full year of Employer Compensation Expense Program (ECEP) receipts, as well as increases in participation, wage growth, and the applicable tax rate. This follows FY 2019 receipts which consisted of just one quarter of tax collections.

All Funds FY 2021 receipts are projected to increase considerably driven by continued increases in participation, wage growth, 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.

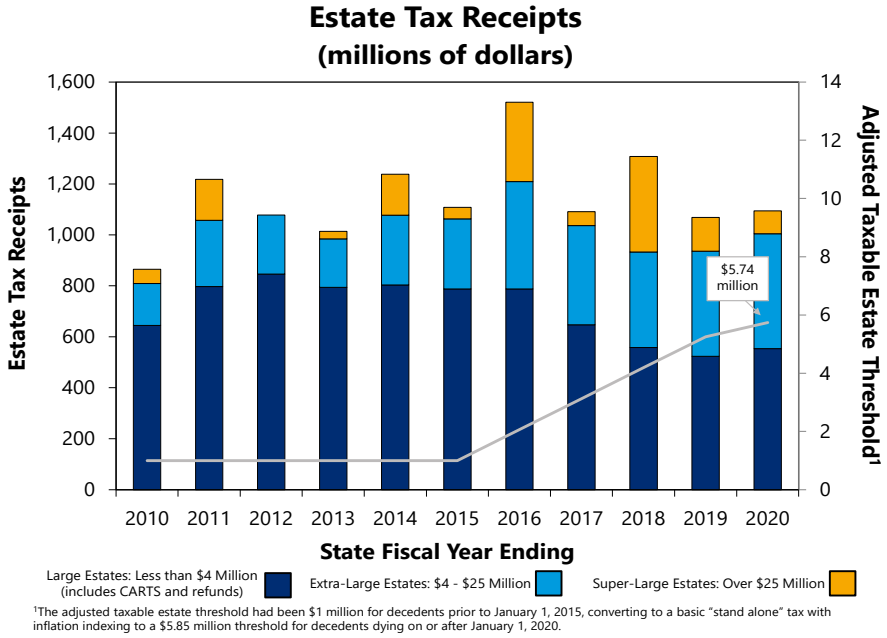
ESTATE TAXES (millions of dollars)		FY 2019 Actual		FY 2020 Estimated		Receipts Change		FY 2021 Projected		Receipts Change	
		Number	Receipts	Number	Receipts	Dollar	Percent	Number	Receipts	Dollar	Percent
General Fund	Large	466	523.3	475	583.0	59.7	11.4	505	617.0	34.0	5.8
	Extra-Large	50	412.7	46	421.0	8.3	2.0	46	467.0	46.0	10.9
	Super-Large	3	132.3	3	90.0	(42.3)	(32.0)	3	90.0	0.0	0.0
	Total	519	1,068.3	524	1,094.0	25.7	2.4	554	1,174.0	80.0	7.3
All Funds		**519**	**1,068.3**	**524**	**1,094.0**	**25.7**	**2.4**	**554**	**1,174.0**	**80.0**	**7.3**

FY 2020 receipts are estimated to increase primarily due to estimated growth in household net worth, partially offset by a decline in the expected average payment value of super-large payments.

FY 2021 receipts are projected to increase mainly due to 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.[60] 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.[61]

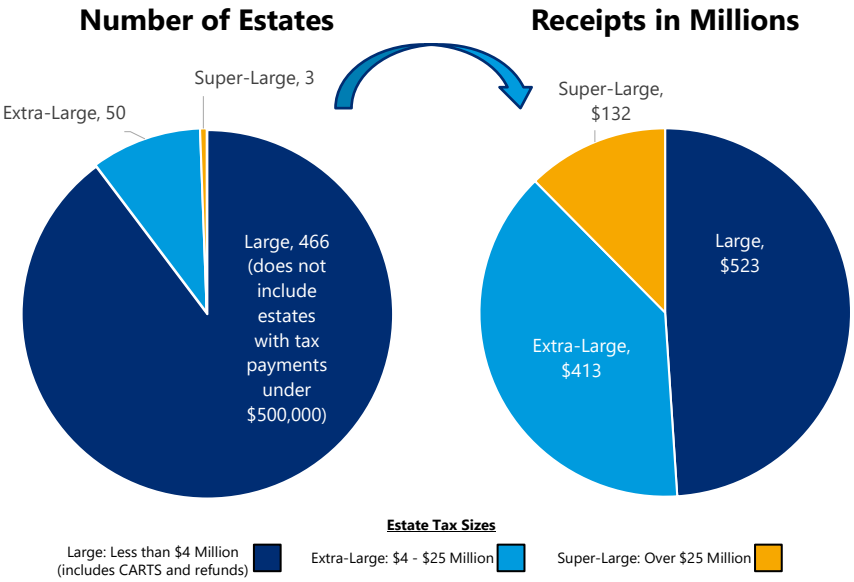


[60] NYS follows Federal Guidelines for applicable estate tax deductions. See https://www.irs.gov/pub/irs-pdf/i706.pdf.
[61] See https://www.tax.ny.gov/pit/estate/etidx.htm for specific metrics on these provisions and rates.

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.

FY 2019 Estate Tax Receipts by Estate Size



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.

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
	Number	Taxes	Number	Taxes	Number*	Taxes	Taxes
FY 2010	1	56	22	164	197	645	865
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

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

Since 2010, 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 $5.85 million for decedents dying on or after January 1, 2020.

GAMING RECEIPTS
(millions of dollars)

			FY 2019 Actual	FY 2020 Estimated	Change Dollar	Change Percent	FY 2021 Projected	Change Dollar	Change Percent
Special Revenue Funds	Lottery	Education	2,533.0	2,422.0	(111.0)	(4.4)	2,512.0	90.0	3.7
	VLTs	Education	939.0	944.0	5.0	0.5	977.0	33.0	3.5
	Casinos	Education	135.7	158.4	22.7	16.7	171.2	12.8	8.1
		Localities	33.9	39.6	5.7	16.7	42.8	3.2	8.1
		Total	169.6	198.0	28.4	16.7	214.0	16.0	8.1
	IFS	Education	5.3	6.0	0.7	13.2	6.0	0.0	0.0
	TSC	State	53.0	303.8	250.8	473.2	137.5	(166.3)	(54.7)
		Localities	36.6	171.5	134.9	368.6	81.9	(89.6)	(52.2)
		Total	89.6	475.3	385.7	430.5	219.4	(255.9)	(53.8)
All Funds		**Education**	**3,613.0**	**3,530.4**	**(82.6)**	**(2.3)**	**3,666.2**	**135.8**	**3.8**
		State	**53.0**	**303.8**	**250.8**	**473.2**	**137.5**	**(166.3)**	**(54.7)**
		Localities	**70.5**	**211.1**	**140.6**	**199.3**	**124.7**	**(86.4)**	**(40.9)**
		Total	**3,736.5**	**4,045.3**	**308.8**	**8.3**	**3,928.4**	**(116.9)**	**(2.9)**

FY 2020 receipts:

- Traditional lottery (lottery) receipts are estimated to decrease primarily due to a lack of significant jackpot rollups for Mega Millions and Powerball, especially considering the record Mega Millions jackpot of $1.5 billion that occurred in October 2018. Quick Draw sales are estimated to decline significantly due to reduced promotional spending, while Cash4Life weekly sales growth has generally been over 50 percent since the game began being offered daily in July 2019.

- Video Lottery Gaming (VLG) receipts are estimated to grow slightly due to continued growth at Jake's 58, partially offset by the closing of Monticello and the overall financial impact at Aqueduct (i.e., the education rate for Aqueduct machines decreased from 43 to 40 percent, while the number of Nassau OTB machines at Aqueduct reached 1,000).

- Commercial gaming receipts are estimated to increase primarily due to the continued ramp up at Resorts World Catskills in its second full year of operations combined with strong year-to-date growth at Rivers.

- Interactive Fantasy Sports (IFS) receipts are estimated to increase slightly due to year-to-date trends.

- Tribal State Compact (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.

FY 2021 receipts:

- Lottery receipts are projected to increase primarily due to the combination of there being an extra week of revenue in this fiscal year and a return to more historical levels of sales for Powerball and Mega Millions.

- VLT receipts are projected to increase mainly due to the full year effect of the 1,000 Nassau OTB machines, as well as there being an extra week of revenue owing to an additional Wednesday payment date within the year.

- Commercial gaming receipts are projected to increase primarily due to a continued ramp up in operations as casinos enter their third and fourth full year of operations, as well as the impact from the completion of certain amenities and projects. There will also be an extra week of revenue owing to an additional Wednesday payment date within the year.

- IFS receipts are projected to remain unchanged.

- TSC receipts are projected to decrease reflecting a return to the regular payment schedule from the Seneca Nation to NYS.

Base and Rate

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

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 2019, these games constituted approximately 65 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 2019, these games constituted approximately 35 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 (VLT) 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 2019, approximately 64 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 receive 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.

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 March 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.

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 three Class III casinos, Turning Stone (1993), Yellow Brick Road (2015), and Point Place (2018).

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 has continued with the regulation and taxation of IFS and will continue to do so 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. 19 IFS entities are registered in NYS, with 14 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 2010	2,152	493	N/A	N/A	N/A	N/A	130	2,774
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

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

Significant statutory changes since 2010 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, Finger Lakes VLT facility was provided with an additional commission and 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.

PARI-MUTUEL TAX (millions of dollars)							
	FY 2019	FY 2020	Change		FY 2021	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	15.4	15.0	(0.4)	(2.6)	15.0	0.0	0.0
All Funds Total	**15.4**	**15.0**	**(0.4)**	**(2.6)**	**15.0**	**0.0**	**0.0**

FY 2020 receipts are estimated to remain relatively flat, which has been the general trend in recent years.

FY 2021 receipts are projected to remain unchanged compared to the prior year.

Base and Rate

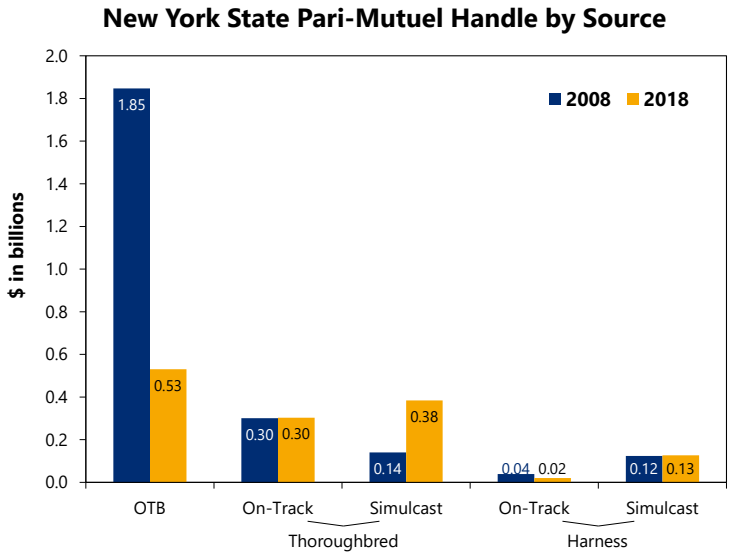
PMT is levied on pari-mutuel wagering activity conducted at horse racetracks and Off-Track Betting (OTB) facilities. This tax includes a portion of commissions withheld from handle (wagering pools) and a remittance of the breakage (the difference between a wager pool for a given bet and the total payout 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 2018) and shift in handle, namely a 37 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 27 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 2010	6,710	669	11,439	18,818	18,818
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

Significant statutory changes since 2010 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 2019, 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 (millions of dollars)							
	FY 2019	FY 2020	Change		FY 2021	Change	
	Actual	Estimated	Dollar	Percent	Projected	Dollar	Percent
General Fund	0.6	0.5	(0.1)	(16.7)	0.5	0.0	0.0
All Funds Total	**0.6**	**0.5**	**(0.1)**	(16.7)	**0.5**	**0.0**	**0.0**

FY 2020 receipts are estimated to decrease slightly as the prior year included increased attendance due to Justify's successful completion of the American Triple Crown at the Belmont Stakes in June 2018.

FY 2021 receipts are projected to remain flat as the trend of minor fluctuations in racing attendance in recent years is generally expected to continue.

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 2010	340	340
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

Since 2010, there have been no significant statutory changes.

REAL ESTATE TRANSFER TAX (millions of dollars)							
	FY 2019	FY 2020	Change		FY 2021	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)	1,016.2	1,007.9	(8.3)	(0.8)	1,024.9	17.0	1.7
All Funds Total	**1,135.3**	**1,127.0**	**(8.3)**	**(0.7)**	**1,144.0**	**17.0**	**1.5**

FY 2020 receipts are estimated to decrease slightly due to sluggish activity in the NYC real estate market, specifically the luxury residential market (see *Economic Backdrop* section of this volume for more details), partially offset by overall slight estimated growth in both housing starts and housing prices, as well as higher than typical audit collections.

FY 2021 receipts are projected to increase due to projected growth in housing starts and housing prices, partially offset by a decline in audit collections as they are expected to return to a historical level.

The mansion tax has played an important role in the receipts growth that has characterized recent fiscal years. In FY 2008, mansion tax liability was $316 million (31.1 percent of total liability). In FY 2019, mansion tax liability was $398 million (35.6 percent of total liability), substantially higher than the 2008 pre-recession peak. This growth in mansion tax liability has largely been driven by an increase in the volume of sales as the number of transactions in FY 2019 was 25 percent higher than the number in FY 2008.

Base and Rate

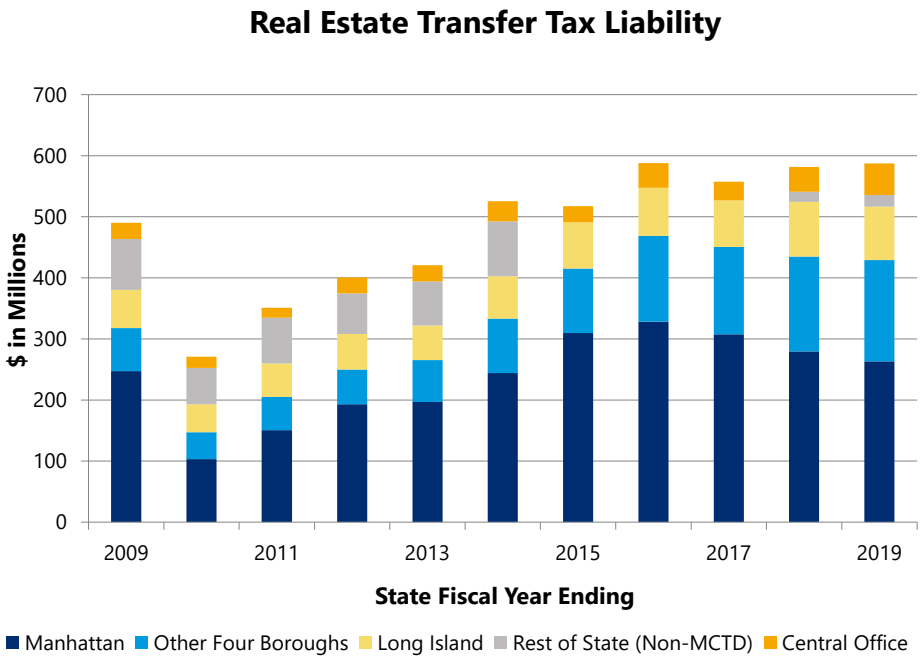
The real estate transfer tax is imposed on each conveyance of real property or interest therein, when the consideration (price) exceeds $500, at a rate of 0.4 percent. An additional one percent tax is imposed on conveyances of residential real property only when the consideration is $1 million and above. 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 2019.



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 2010	199	294	493
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

Significant statutory changes since 2010 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.

Glossary of Acronyms

ABT	Alcoholic Beverage Taxes
AFC	Automotive Fuel Carrier
AGI	Adjusted Gross Income
ART	Auto Rental Tax
BBA	Bipartisan Budget Act
BCA	Budget Control Act
BCP	Brownfield Cleanup Program
BCP-EZ	Expedited Brownfield Cleanup Program
BEA	Bureau of Economic Analysis
BIS	Bank for International Settlements
BLS	Bureau of Labor Statistics
CBO	Congressional Budget Office
CES	Current Employment Statistics
CFT	Corporation Franchise Tax
CPI	Consumer Price Index
CPI-U	Consumer Price Index for All Urban Consumers
CPS	Current Population Survey
CR	Continuing Resolution
CUNY	City University of New York
CUT	Corporation and Utilities Tax
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
ECEP	Employer Compensation Expense Program
ECI	Employment Cost Index
ENI	Entire Net Income
EPF	Environmental Protection Fund
EPU	Economic Policy Uncertainty
ESCO	Energy Service Companies
ETIP	Employee Training Incentive Program
EU	European Union

FAA	Federal Aviation Administration
FFY	Federal Fiscal Year (October 1 through September 30)
FOMC	Federal Open Market Committee
FY	Fiscal Year
FYE	Fiscal Year Ending
GDP	Gross Domestic Product
GILTI	Global Intangible Low-Taxed Income
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
IOER	Interest on Excessive Reserves
IPO	Initial Public Offering
IPP	Intellectual Property Products
IRS	Internal Revenue Service
JOLTS	Job Openings and Labor Turnover Survey
LATAs	Local Access Transport Areas
LGAC	Local Government Assistance Corporation
LIHC	Low Income Housing Credit
M&A	Mergers & Acquisitions
MCTD	Metropolitan Commuter Transportation District
MCTF	Medical Cannabis Trust Fund
MFP	Market Facilitation Program
MME	Morphine Milligram Equivalent
MTA	Metropolitan Transportation Authority
MTOAF	Metropolitan Transit Operating Assistance Fund
NAFTA	North American Free Trade Agreement
NAICS	North American Industry Classification System
NAIRU	Non-Accelerating Inflation Rate of Unemployment
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
OTB	Off-Track Betting

P/E	Price-to-Earnings
PBT	Petroleum Business Tax
PCE	Personal Consumption Expenditures
PI	Personal Income
PIT	Personal Income Tax
PMI	Purchasing Managers Index
PMT	Pari-Mutuel Tax
PPI	Producer Price Index
PST	Professional, Scientific, and Technical Services
QCEW	Quarterly Census of Employment and Wages
QETC	Qualified Emerging Technology Companies
RBTF	Revenue Bond Tax Fund
REIT	Real Estate Investment Trust
repo	Repurchase Agreement
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
SOFR	Secured Overnight Funding Rate
STAR	School Tax Relief
STBF	Sales Tax Bond Fund
SUNY	State University of New York
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	Official Unemployment Rate
U-6	Unemployment Rate expanded to include: persons marginally attached to the labor force, including discouraged workers; and persons employed part time for economic reasons.
UAW	United Auto Workers
USD	United States Dollar
USMCA	United States-Mexico-Canada Agreement
VIX	Volatility Index
VLG	Video Lottery Gaming
VLT	Video Lottery Terminal