



# Massachusetts Tax Revenue Forecasts for FY 2021 and FY 2022

The Beacon Hill Institute for Public Policy Research

165 Main Street, Medway, MA 021053

[www.beaconhill.org](http://www.beaconhill.org)

855-244-4550

[bhi@beaconhill.org](mailto:bhi@beaconhill.org)

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The Beacon Hill Institute is pleased to offer its updated revenue forecast for Fiscal Year (FY) 2021 and FY 2022.<sup>1</sup> We divide our report into three sections: (1) a summary of our latest forecast, (2) background information on the national and state economies and (3) an overview of the methodology used to provide our projections.

## (1) Current Forecast

BHI predicts that tax revenues will be:

- **\$29.003 billion in FY 2021, 2.3% below FY 2020, and**
- **\$29.769 billion in FY 2022, 2.6% above FY 2021.**

The 2.3 percent fall in FY 2021 tax revenues reflects the negative impact on the state's economy from rising restrictions on businesses as COVID-19 cases surge around the state.<sup>2</sup> BHI projects that state revenues will increase by 2.6 percent in FY 2022 as the state economy recovers.

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<sup>1</sup>Prepared by the staff of the Beacon Hill Institute, including William F. Burke, Frank Conte and David G. Tuerck. The Institute would also like to thank Research Assistant Nicholas Sammaro for his assistance.

<sup>2</sup> Based on BHI calculations.



## (2) Summary of National and State Economies

### (2a) The U.S. Economy

After the initial economic shock from the COVID-19 pandemic in March and April, the U.S. economy rebounded as states lifted restrictions and businesses reopened. However, with the recent surge in cases nationwide, the ongoing recovery is at risk. The development and the deployment of new vaccines could restore economic activity. However, a full recovery is still months away.

The U.S. unemployment rate stands at 6.7 percent, down from its high of 14.7 percent in April.<sup>3</sup>

According to the Bureau of Economic Analysis (BEA), U.S. real gross domestic product (GDP) increased 33.1 percent in the third quarter of 2020.<sup>4</sup> Positive contributions came from increases in “PCE, private inventory investment, exports, nonresidential fixed investment, and residential fixed investment that were partly offset by decreases in federal government spending (reflecting fewer fees paid to administer the Paycheck Protection Program loans) and state and local government spending.”

U.S. personal income decreased by \$130.1 billion (0.7 percent) in October.<sup>5</sup> Disposable personal income (DPI) decreased by \$134.8 billion (0.8 percent) and personal consumption expenditures (PCE) increased by \$70.9 billion (0.5 percent). As of October 2020, the annual inflation rate is 1.2 percent.<sup>6</sup>

According to the IHS Markit U.S. Composite PMI, U.S. output growth regained growth momentum in October, as business activity rose at the fastest rate for 20 months and business optimism improved markedly. IHS Markit reported, “The upturn was largely driven by service providers, though manufacturing firms also reported a further solid increase in production.”<sup>7</sup>

The retail sector continues to struggle with decreased demand, especially during the holiday season. In November, jobs in the retail sector fell by 35,000. Stores that depend on increased sales during the holiday season have been hit hard, and competition from online sales is intensifying. For instance, general merchandise stores lost 21,000 jobs. Sporting goods, hobby, book, and music stores laid off 12,000 workers, and electronics and appliance stores laid off another 1,000. BLS estimates that employment in retail trade is 550,000 lower than in February.<sup>8</sup>

The *Wall Street Journal Economic Forecasting Survey* predicts growth of -2.7%, 3.6% and 2.9% for CY 2020, 2021, and 2022, respectively.<sup>9</sup> The survey also predicts that the unemployment rate for December 2020 will be 3.6%. The *Economist* predicts that U.S. GDP will contract by 3.8% in 2020 and grow by 3.2% in 2021.<sup>10</sup> In its annual *Monetary Report*, The Federal Reserve Bank reports a median estimate of -3.7% for

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<sup>3</sup> Bureau of Labor Statistics, The Employment Situation (November 2020), <https://www.bls.gov/news.release/empsit.nr0.htm>

<sup>4</sup> Bureau of Economic Analysis, Gross Domestic Product (November 2020), <https://www.bea.gov/news/2020/gross-domestic-product-3rd-quarter-2020-second-estimate-corporate-profits-3rd-quarter>

<sup>5</sup> Bureau of Economic Analysis, Personal Income and Outlays (November 2020), <https://www.bea.gov/news/2020/personal-income-and-outlays-october-2020>

<sup>6</sup> Ibid.

<sup>7</sup> IHS Markit PMI (November 2020), <https://www.markiteconomics.com/Public/Home/PressRelease/5b1ec46ccda14387a09ad44655469302>

<sup>8</sup> Ibid.

<sup>9</sup> Wall Street Journal, Economic Forecasting Survey, <https://www.wsj.com/graphics/econsurvey/>

<sup>10</sup> *The Economist* Economic and financial indicators (Updated December 8, 2020) <https://www.economist.com/economic-and-financial-indicators/2018/03/20/economic-and-financial-indicators>



2020, rising to 4.0% in 2021 and falling in 2022 to 3.0%.<sup>11</sup> The OECD projects significant growth in 2021 but notes in its analysis that “in the absence of a new substantial fiscal stimulus programme, a severe fiscal cliff would result in a rapid withdrawal of support to households, massive layoffs, and a wave of bankruptcies.”<sup>12</sup>

**Table 1**  
**Economic Forecasts for the United States, CY 2020 through 2022**

Forecasters	Date of Forecast	Forecast Years		
		2020	2021	2022
<b>Federal Reserve Bank (Median)</b>	<b>September 16, 2020</b>	-3.7	4.0	3.0
<b>OECD</b>	<b>December 8, 2020</b>	-3.7	3.2	3.5
<b>Wall Street Journal Survey (Avg)</b>	<b>November 10, 2020</b>	-2.7	3.6	2.9
<b>The Economist</b>	<b>December 8, 2020</b>	-3.8	3.2	N/A

After showing some resilience, the American jobs machine slowed down in November as the economy was able to generate only 245,000 new jobs. Significant job gains took place in the healthcare, construction, and manufacturing sectors.<sup>13</sup> Also in November, the labor force participation rate fell to 61.5 percent – 1.9 percent below its February level.

New data generated by the Bureau of Labor Statistics offers key insights into the operation of U.S. businesses during the COVID-19 crisis. The data points to how business has responded to the pandemic. Nationwide, 52 percent of establishments (4.4 million) told employees not to work (with or without pay) at at least some point during the survey reference period. Among establishments that told employees not to work, 51 percent (employing 43.5 million workers) continued to pay some or all of their employees while they were not working.<sup>14</sup>

During the pandemic, 31 percent of establishments (employing 68.6 million workers) increased telework offered to employees. Nationwide, 62 percent of establishments (5.3 million) received a coronavirus-related loan or grant tied to rehiring or maintaining employees on the payroll. These establishments employed 74.2 million workers, representing 59 percent of total U.S. private-sector employment.

The monthly churn of jobs is returning to a more normal path with separations stabilizing after a huge spike earlier in the year. However, the number of job openings was little changed at 6.7 million on the last business day of October, according to the BLS. That’s down from 7.3 million a year ago. Hires were little changed at 5.8 million while total separations increased to 5.1 million. Within separations, the quit rate was unchanged at 2.2 percent while the layoffs and discharges rate increased to 1.2 percent. The numbers indicate that fewer workers feel secure enough to quit their jobs for other prospects and that the jobs market is cooling. Overall, the number of job openings in October was lower than the 11.1 million unemployed.

<sup>11</sup> Economic projections of Federal Reserve Board members and Federal Reserve Bank presidents under their individual assessments of projected appropriate monetary policy” (September, 16 2020) <https://www.federalreserve.gov/monetarypolicy/fomcproptabl20200916.htm>.

<sup>12</sup> OECD, United States Economic Forecast Summary (December 8, 2020) <http://www.oecd.org/economy/united-states-economic-snapshot/>.

<sup>13</sup> Bureau of Labor Statistics, Labor Force Participation Rate, <https://www.bls.gov/news.release/empsit.nr0.htm>

<sup>14</sup> Bureau of Labor Statistics, Business Response Survey to the Coronavirus Pandemic, <https://www.bls.gov/brs/2020-results.htm#highlighted-results>

## (2b) The Massachusetts Economy

At the start of the pandemic, Massachusetts had one of the highest levels of coronavirus cases, which led to a shutdown of the state in mid-March. At this time, Massachusetts ranks 9<sup>th</sup> in the number of total cases but the state's infection rate has dropped significantly.<sup>15</sup>

In the first quarter of 2020, the BEA estimated that Massachusetts real GDP was \$516.460 billion.<sup>16</sup> The BEA estimates that GDP declined 31.6 percent, to \$469.669 billion, in the second quarter of 2020.<sup>17</sup>

In October, the Massachusetts unemployment rate decreased to 7.4 percent, down from 9.8 percent in September, tied for 38<sup>th</sup> amongst the nation.<sup>18</sup> The BLS estimated that Massachusetts added 11,400 jobs in October.<sup>19</sup> Massachusetts has lost 340,200 jobs from October of 2019.<sup>20</sup> The Massachusetts Labor Force Participation rate fell to 63.7 percent in October, down from 66.5 percent in the previous month.<sup>21</sup>

The latest Department of Labor Unemployment *Insurance Weekly Claims Report* noted that workers in Massachusetts filed 25,838 unemployment claims in the week ending December 5th.<sup>22</sup> In the previous week, unemployment claims in the state totaled 24,178.<sup>23</sup> Massachusetts had the 6<sup>th</sup> highest insured unemployment rate in the country in the week ending November 21st.<sup>24</sup>

In its most recent *Beige Book*, the Federal Reserve Bank reported that economic activity in New England continued to expand in October and early November.<sup>25</sup> Manufacturing, one of the smallest sectors, saw an increase in revenues in recent weeks compared with a year earlier. However, "tourism and hospitality remained in the doldrums, while brick and mortar retailers saw gains from earlier in the year." While employment recovers slowly, New England real estate markets for industrial and lab space continued strong even as the office and retail real estate markets remained weak, the Fed noted. Even with a sluggish economy and its attendant uncertainty, residential real estate markets across the region continued to experience increases in both sales and prices. No doubt this reflects a willingness of workers to move away from the urban core and toward the suburbs. The *Beige Book* also reported that "staffing firms' revenues were down from a year ago, but they too cited quarter-over-quarter improvements."

Projections for jobs growth in Massachusetts remain conservative. According to the ManpowerGroup *Employment Outlook Survey*, Bay State employers plan "to hire at a reserved pace in Q1 2021."<sup>26</sup> Among employers surveyed, 17 percent plan to hire more employees from January through March. Meanwhile, 69 percent of employers expect to maintain current staff levels and 7 percent indicate they are not sure of their hiring plans. This number is offset by the 7 percent that plan to reduce payrolls. "Compared to Q4 2020

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<sup>15</sup> United States COVID-19 Cases and Deaths by State, <https://www.cdc.gov/covid-data-tracker/#cases>

<sup>16</sup> Massachusetts Gross Domestic Product (November 2020), <https://apps.bea.gov/itable/iTable.cfm?ReqID=70&step=1#reqid=70&step=1&isuri=1>

<sup>17</sup> Ibid.

<sup>18</sup> Bureau of Labor Statistics, "Massachusetts Economy" (November, 2020) <https://www.bls.gov/eag/eag.ma.htm>

<sup>19</sup> Ibid.

<sup>20</sup> Ibid.

<sup>21</sup> Federal Reserve Bank of St. Louis, Labor Force Participation Rate (November, 2020) <https://fred.stlouisfed.org/series/LBSSA25>

<sup>22</sup> U.S. Department of Labor, "Unemployment Insurance Weekly Claims Data – Report" (December 10, 2020) <https://www.dol.gov/ui/data.pdf>

<sup>23</sup> Ibid.

<sup>24</sup> Ibid.

<sup>25</sup> Federal Reserve, Beige Book (October 21, 2020), <https://www.federalreserve.gov/monetarypolicy/beigebook202010.htm>.

<sup>26</sup> ManpowerGroup, Employment Outlook Survey, [https://go.manpowergroup.com/hubfs/MEOS/2021\\_Q1/Massachusetts.pdf](https://go.manpowergroup.com/hubfs/MEOS/2021_Q1/Massachusetts.pdf)



when the Net Employment Outlook was 12 percent, Massachusetts employers have reported a weaker hiring pace,” said Betty Gooding of Manpower.

According to an October 2020 poll by Princeton Research Associates, a plurality of Massachusetts voters — 34.2 percent — believe that the state’s economy will not return to normal until 2022.<sup>27</sup>

In part, Massachusetts exports will depend on how the incoming Biden Administration handles trade policy, in contrast to the outgoing administration. The Bay State’s share of U.S. imports remains stable. However, Massachusetts exports, as a percentage of the national total, declined between 2018 and 2019 by 3.8%.<sup>28</sup> Trade with two of its three largest partners, Canada and China, declined, according to the U.S. Census.

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<sup>27</sup> Princeton Research Associates, “Survey of Likely General Election Voters in Massachusetts. October 1, 2020 poll, <http://www.princetonresearchassociates.com>.

<sup>28</sup> United States Census Bureau, State Exports from Massachusetts (November 2020), <https://www.census.gov/foreign-trade/statistics/state/data/ma.html>.

### (3) Methodology

For FY 2022, we estimate a 2.6 percent increase tax revenues from projected FY 2021 tax revenues. Net personal income tax revenues will increase by 1.2 percent. Corporate income tax revenues will increase by 8.7 percent, and business excise tax revenues will fall by 2.9 percent. Business excise taxes remain the most difficult to forecast. Sales tax revenues will increase by 3.1 percent. Other tax revenues will increase by 16.8 percent, and alcohol taxes will fall by 0.1 percent. Motor fuels taxes will increase by 5.0 percent, and cigarette taxes will increase by 1.6 percent.

We prepared tax revenue forecasts for 11 categories for every month through June 2022. Three steps were needed to develop these forecasts.

1. We used projections of national personal income and real gross domestic product to derive month-by-month growth rates of personal income and real gross domestic product for Massachusetts, allowing us to project personal income and real gross domestic product on a monthly basis through June 2022. Information on both metrics in Massachusetts are available on a quarterly basis. Monthly estimates for personal income were obtained by interpolation.
2. For each tax series, we estimated a regression equation that extrapolates from historical data to predict the future. For estimated and withheld income taxes and other taxes, we included personal income and MA real gross domestic product as an independent variable. We used dummy variables to represent the effect of significant changes in the tax code.
3. In estimating the regressions, we paid particular attention to the structure of the errors, to pick up the effects of seasonal, quarterly and monthly variations in tax collections. This procedure was done by estimating the equations with autoregressive (AR) and moving average (MA) components. The number and nature of the AR and MA lags were determined initially by examining the autocorrelation and partial correlation coefficients in the correlogram, and then fine-tuning after examining the structure of the equation residuals. The details are given in Table 3.

The left side of the table contains the revenues and the percentage increases from the previous year broken out into the individual tax categories – the actual revenues for FY 2020 as well as the BHI projections for FY 2021 and FY 2022. The right side of the table provides the model specification used to forecast each tax and the timeframe for each data series used in the model.<sup>29</sup>

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<sup>29</sup> A complete breakdown of revenue forecasts by month and by the eleven tax headings is available upon request.

**Table 3**  
**Revenue forecasts, disaggregated, for FY2021 and FY2022, including technical estimation details**

	FY20	FY21	FY22	FY20	FY21	FY22	AR	MA	Vars/Dummies	Dates
Income tax										
Estimated payments	2,350	2,170	2,226	-4.8%	-7.7%	2.6%	1,2,4,5,12	3	PI, MA GDP	79:6-20:11
Tax Withheld	13,736	13,666	14,013	4.0%	-5%	2.5%	1,2,3,9,10,12	12	PI, MA GDP	79:6-20:11
Returns & Bills	3,051	2,963	2,833	-1.2%	-2.9%	-4.4%	12	1,12	PI, MA GDP	79:6-20:11
Refunds	1,776	1,669	1,740	-6.7%	-6.0%	4.2%	1,2,12	3,12	PI, MA GDP	79:6-20:11
Income Net	17,361	17,130	17,332	1.5%	-1.3%	1.2%				
Sales & Use taxes	6,810	6,772	6,981	.2%	-6%	3.1%	1,12	1,3,12,13	PI, MA GDP	79:6-20:11
Corporation Excise	2,500	2,631	2,859	-13.5%	5.3%	8.7%	12	1,3,12	CIT(-3)	79:6-20:11
Business Excises	425	449	436	1.1%	5.7%	-2.9%	3,12	1,3,12	BUSEXC(-4)	79:6-20:11
Alcohol Beverages	88	90	90	1.7%	2.8%	-1%	1,12	1,3,12	PI, MA GDP	79:6-20:11
Cigarettes	416	346	340	-5.4%	-16.9%	-1.6%	1, 12	1,24	83:7, 93:1, 96:10, 02:8, 08:7	79:6-20:11
Motor Fuels	708	657	690	-8.7%	-7.2%	5.0%	1,12	1,2,12	PI, MA GDP	79:6-20:11
Other taxes	1,302	1,111	1,297	9.8%	-14.7%	16.8%	1,12	2,12	PI, MA GDP	79:6-20:11
<b>Effect of Tax Law Changes</b>		(182.48)	(256.36)							
<b>Total Taxes</b>	<b>29,692</b>	<b>29,003</b>	<b>29,769</b>	<b>-3%</b>	<b>-2.3%</b>	<b>2.6%</b>				

AR refers to Autoregressive lags used in the regression. MA refers to Moving Average lags used in the regression. "Dummies" gives starting dates of each Dummy variable used (e.g., 01:1 is a dummy that is set equal to 1 from January 2001 onwards and to 0 otherwise). "Dates" refers to a period of data used in regression estimates." (PIEST)-12 refers to the income tax estimated payments data lagged by 12 months. PI refers to Personal Income and MA GDP is Massachusetts Real Gross Domestic Product.

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**165 Main Street, Suite 306,  
Medway, MA 02053  
Tel: 855-244-4550  
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