

INDIVIDUAL INCOME TAX

(CONSENSUS FORECASTING GROUP)

THOMAS JONES, PH.D.

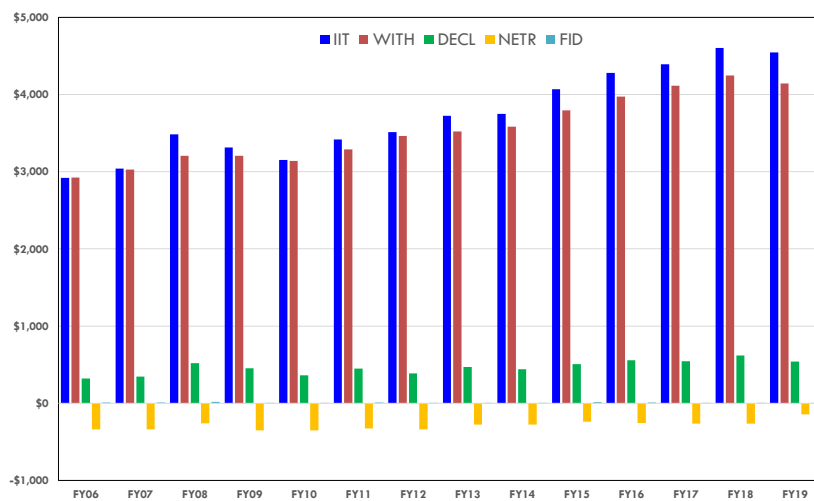
DECEMBER 17, 2019

Office of State Budget Director

Individual Income Tax History

(\$ millions)

2



Withholding History

(\$ millions)

3

DATE	WITH	% chg
FY17Q1	982.5	4.9
FY17Q2	1,002.5	3.5
FY17Q3	1,075.6	2.3
FY17Q4	1,052.8	3.5
FY18Q1	1,020.8	3.9
FY18Q2	1,035.7	3.3
FY18Q3	1,102.2	2.5
FY18Q4	1,089.7	3.5
FY19Q1	995.6	-2.5
FY19Q2	1,027.2	-0.8
FY19Q3	1,075.7	-2.4
FY19Q4	1,046.3	-4.0
FY20Q1	1,016.8	2.1

Withholding 2nd Quarter

(\$ millions)

4

	WITH	% chg
OCT 2019	336.9	4.7
NOV 2019	367.2	13.9
DEC 2019*	380.7	-0.6
Q2	1,084.8	5.6

* ARIMA estimation

Withholding Methodology

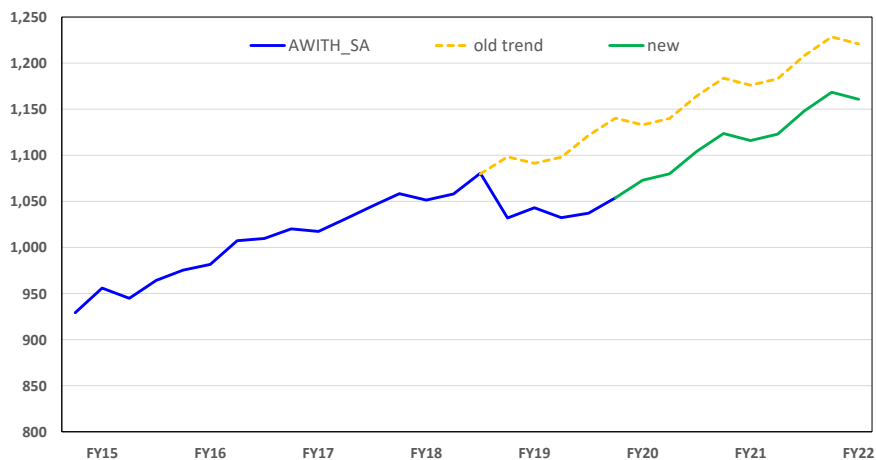
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Withholding receipts = $f(\text{Kentucky Wages and Salaries})$

- OLS
- econometric range CY2000Q1 to CY2018Q2
- forecast range CY2018Q3 to CY2022Q2
- capture growth rates for CY2020Q3 to CY2022Q2
- Seasonally-adjusted
- First-differenced to achieve stationarity
- Autocorrelation detected and corrected

Conceptualization

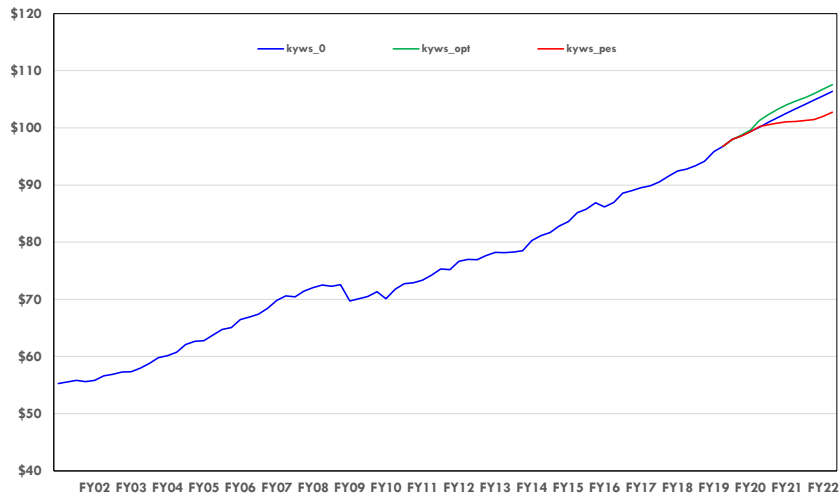
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KY Wages and Salaries: 3 Scenarios

(\$ millions)

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Withholding Forecasts

(\$ millions)

8

	FY20		FY21		FY22	
	Est	% chg	Est	% chg	Est	% chg
CON	4,290.9	3.5	4,416.1	2.9	4,538.3	2.8
OPT	4,300.0	3.7	4,452.9	3.6	4,568.6	2.6
PES	4,291.5	3.5	4,382.7	2.1	4,451.3	1.6

Withholding Control Comparison

(\$ millions)

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	<u>FY20</u>	<u>% chg</u>	<u>FY21</u>	<u>% chg</u>	<u>FY22</u>	<u>% chg</u>
AUG	4,286.1	3.4	4,409.9	2.9	4,536.6	2.9
OCT	4,242.5	2.4	4,362.4	2.8	4,475.8	2.6
DEC	4,290.9	3.5	4,416.1	2.9	4,538.3	2.8

Declarations Methodology

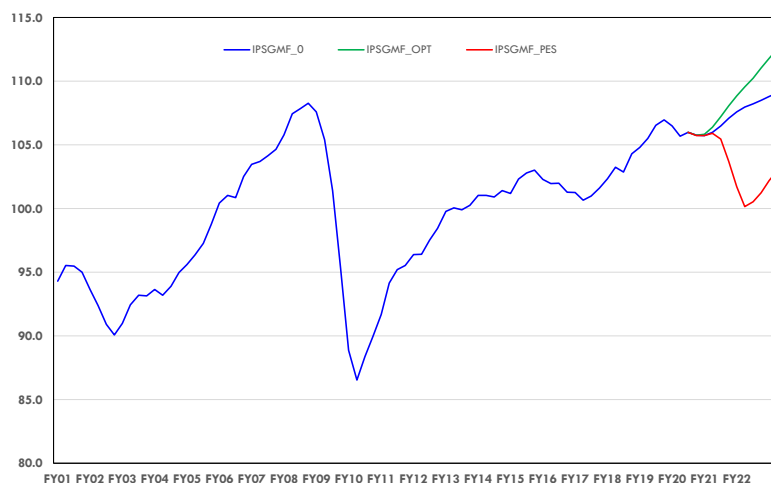
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Declarations receipts = f(Industrial Production Index –
All Manufacturing, Prime Rate at Commercial Banks)

- OLS
- Seasonally-adjusted
- First-differenced to achieve stationarity
- Autocorrelation detected and corrected

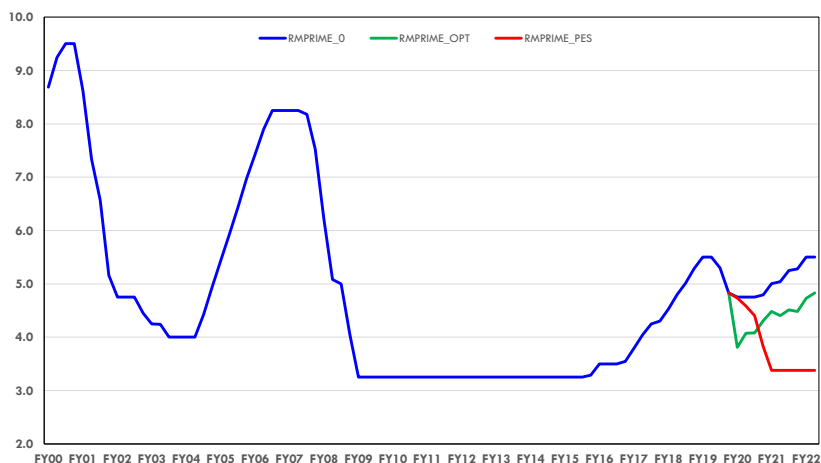
Industrial Production Index – All Manufacturing (2012 = 100)

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Prime Interest Rate at Commercial Banks (%)

12



Declarations Forecast

(\$ millions)

13

	<u>FY20 % chg</u>		<u>FY21 % chg</u>		<u>FY22 % chg</u>	
AUG	555.1	2.8	583.6	5.1	607.4	4.1
OCT	578.8	7.2	574.7	-0.7	575.5	0.2
DEC	547.1	1.3	550.9	0.7	558.2	1.3

Net Returns & Fiduciary Forecasts

(\$ millions)

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NETR	<u>FY20 % chg</u>		<u>FY21 % chg</u>		<u>FY22 % chg</u>	
AUG	-179.0	25.1	-165.9	-7.3	-147.7	-11.0
OCT	-177.0	23.7	-165.9	-6.3	-147.7	-11.0
DEC	-177.0	23.7	-165.9	-6.3	-147.7	-11.0
FID	<u>FY20 % chg</u>		<u>FY21 % chg</u>		<u>FY22 % chg</u>	
AUG	2.8	-5.6	3.1	12.3	3.0	-5.5
OCT	3.2	7.9	3.1	-1.8	3.0	-5.5
DEC	2.8	-5.6	3.1	12.3	3.0	-5.5

IIT Control Comparison

(\$ millions)

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	<u>FY20</u>	<u>% chg</u>	<u>FY21</u>	<u>% chg</u>	<u>FY22</u>	<u>% chg</u>
AUG	4,664.9	2.6	4,830.7	3.6	4,999.3	3.5
OCT	4,647.5	2.3	4,774.3	2.7	4,906.6	2.8
DEC	4,663.8	2.6	4,804.3	3.0	4,951.8	3.1

IIT Optimistic Comparison

(\$ millions)

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	<u>FY20</u>	<u>% chg</u>	<u>FY21</u>	<u>% chg</u>	<u>FY22</u>	<u>% chg</u>
AUG	4,661.1	2.6	4,837.9	3.8	5,020.4	3.8
OCT	4,653.2	2.4	4,791.5	3.0	4,934.0	3.0
DEC	4,672.9	2.8	4,841.0	3.6	4,982.1	2.9

IIT Pessimistic Comparison

(\$ millions)

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	<u>FY20</u>	<u>% chg</u>	<u>FY21</u>	<u>% chg</u>	<u>FY22</u>	<u>% chg</u>
AUG	4,636.9	2.0	4,732.2	2.1	4,885.5	3.2
OCT	4,644.2	2.2	4,733.9	1.9	4,830.7	2.0
DEC	4,664.4	2.6	4,770.9	2.3	4,864.8	2.0

SALES TAX

CONSENSUS FORECASTING GROUP

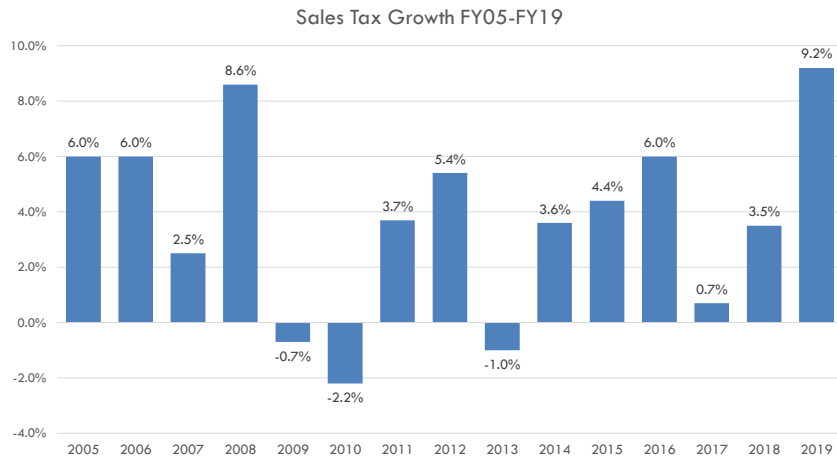
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Historical Sales Tax Growth

(Percentage Change by Fiscal Year)

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FY20 Sales Tax

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- Sales Tax grew 7.8% in the first quarter
- Sales tax has cooled slightly in the 2nd quarter
 - ▣ October 9.2%
 - ▣ November 3.1%
 - ▣ Top-20 businesses have been running below 2.0% this quarter
 - ▣ December estimated 4.2%
- Increased the estimate for Marketplace Providers in the October meeting
- Last three quarters of FY19 grew swiftly
 - ▣ Qtr 2: 9.0%
 - ▣ Qtr 3: 7.9%
 - ▣ Qtr 4: 11.5%

Sales Tax 2nd Quarter

(\$ millions)

21

	Sales	% chg
OCT 2019	\$340.1	9.2
NOV 2019	\$346.6	3.1
DEC 2019	\$352.9	4.2
FY20Q2	\$1,039.6	5.4

Note: December 2019 is estimated, not actual

Reminder of Tax Reform

(2018 and 2019 Combined Changes)

22

- Base Broadening
 - ▣ Selected Services
 - ▣ Installation and Repair
 - ▣ Remote Retailers and Marketplace Providers
- Estimated Fiscal Impacts of Tax Reform
 - ▣ FY19 – \$208.2 million
 - ▣ FY20 – \$264.3 million + \$40 million
 - ▣ FY21 – \$274.6 million + \$40 million
 - ▣ FY22 – \$275.8 million + \$40 million

Modeling Strategy

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- Dependent Variable with non-static policy history
- Lowers degrees of freedom if we truncate the data used for estimation
- Approach Taken:
 - ▣ Create policy-neutral sales tax variable for projections
 - Withhold the six quarters of “corrupt” data
 - Forecast with in-sample estimation (Sample becomes CY2001q1 through CY 2018q2)
 - Project the policy-neutral series (2018q3 through 2022q2)
 - Add back the estimated policy impacts (FY19 through FY22)

Types of Modeling for the Sales Tax

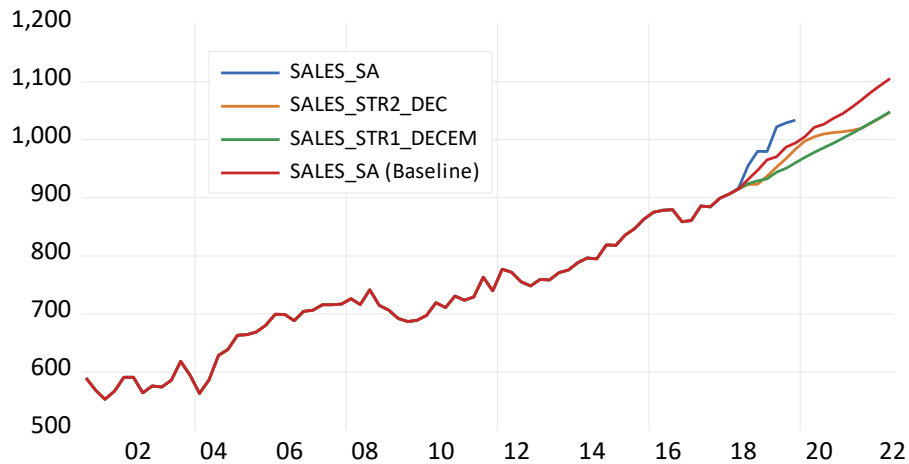
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- Quarterly sales tax data have several correctible sources of variation
 - ▣ Seasonality – Census X12
 - ▣ Trend – Differencing
- Types of final model
 - ▣ VAR (Kentucky W&S, US Retail Sales - predetermined)
 - ▣ Structural models
 - Differenced Model #1 (US State & Local Government – Personal Tax Receipts)
 - Differenced Model #2 (Consumer spending on Other Durable Goods)

Sales Tax with New Tax Law

(Control Forecast, Seasonally Adjusted, Millions \$)

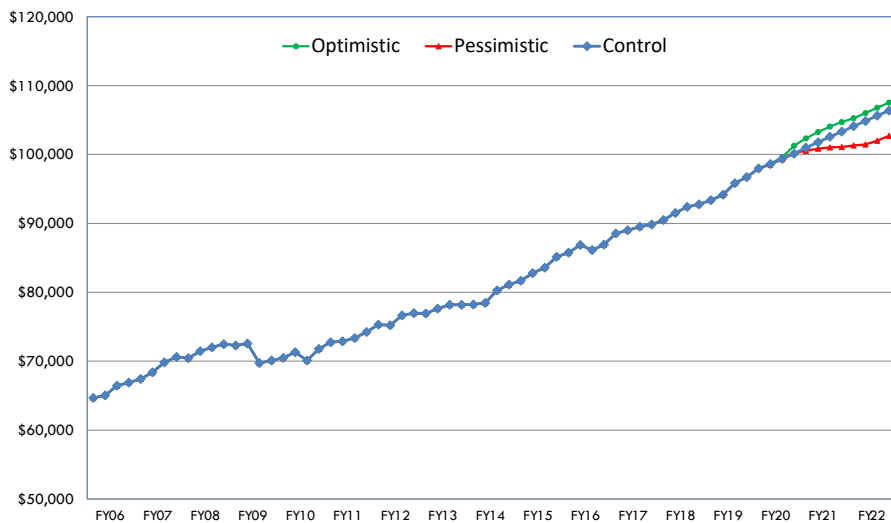
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Kentucky Wages and Salaries

(Millions of Dollars, KY MAK Model)

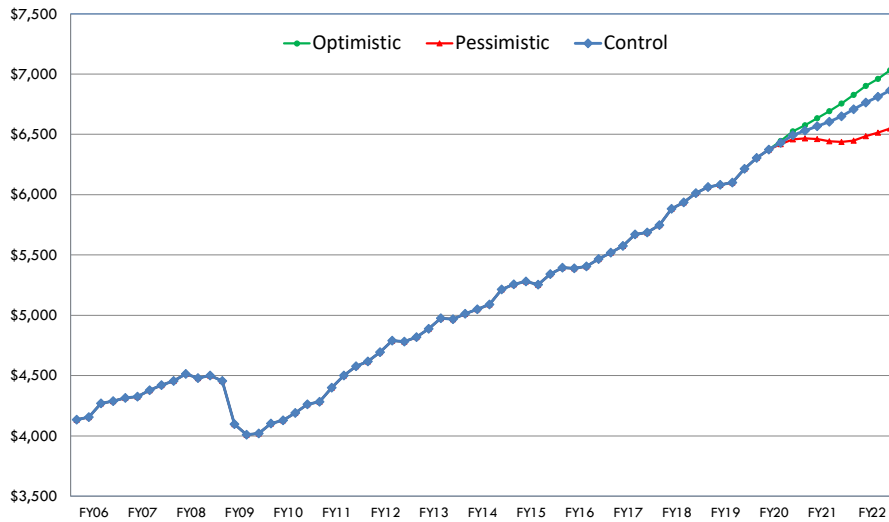
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Retail Sales – Including Food Service

(Billions of Dollars, Annual Rate, Census)

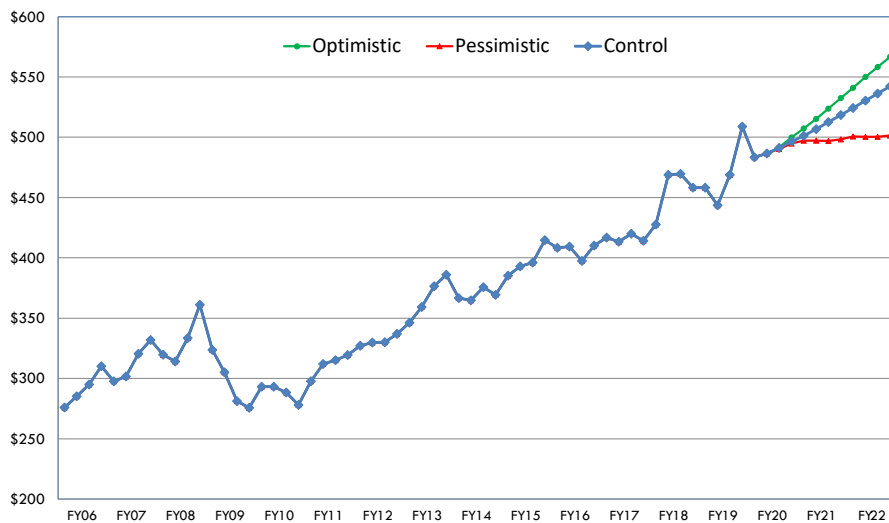
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US State & Local Government – Personal Tax Receipts

(Billions of Dollars, Annual Rate, BEA)

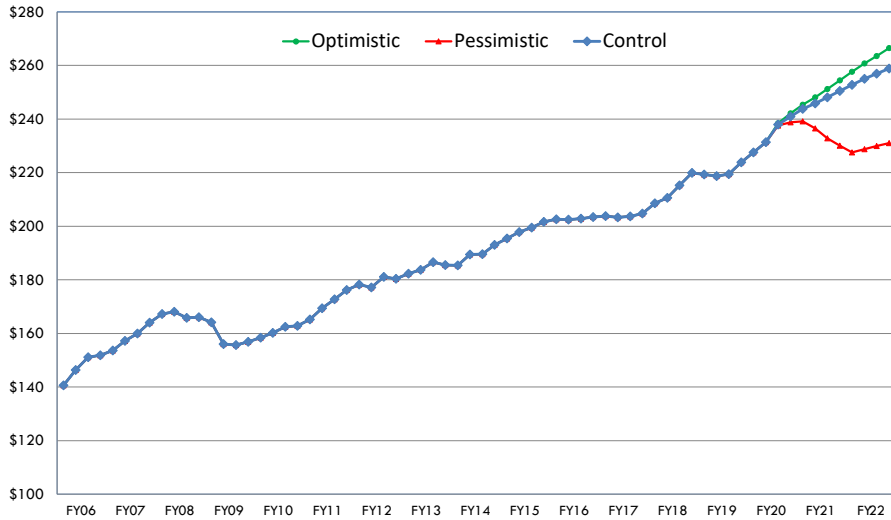
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Consumer Spending – Other Durable Goods

(Billions of Dollars, Annual Rate, BEA)

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Control, Optimistic, Pessimistic Forecast

(FY Sales Tax Estimates, Millions \$)

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	FY20	FY21	FY22
Control	\$4,175.6 (6.0%)	\$4,262.9 (2.1%)	\$4,374.8 (2.6%)
Pessimistic	\$4,129.8 (4.9%)	\$4,190.6 (1.5%)	\$4,259.3 (1.6%)
Optimistic	\$4,193.6 (6.5%)	\$4,305.8 (2.7%)	\$4,429.1 (2.9%)

Control, Optimistic, Pessimistic Forecast

(Difference from October, Millions \$)

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	FY20	FY21	FY22
Control	+\$1.3	+\$1.6	-\$1.4
Pessimistic	+\$8.2	+\$12.2	+\$5.7
Optimistic	+\$11.7	+\$13.7	+\$16.1
70:30 Blend	+\$3.4	+\$4.8	+\$0.7

CORPORATION & LLET TAX FORECASTS

(CONSENSUS FORECASTING GROUP)

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Corporate & LLET Forecast

(Millions \$)

	FY19		FY20		FY21		FY22	
	Actual	Estimate	%Chg	Estimate	%Chg	Estimate	%Chg	
Blend	762.7	617.1	(19.1)	600.9	(2.6)	677.4	12.7	
Control		632.5	(17.1)	624.5	(1.3)	696.6	11.5	
Optimistic		636.7	(16.5)	643.1	1.0	742.9	15.5	
Pessimistic		581.1	(23.8)	545.9	(6.1)	632.7	15.9	

Forecast Change Breakdown

(Millions \$)

FY19 Actual	762.7	
FY20 Control	632.5	(17.1%)
Difference	(130.2)	
Legislative Impact	(75.5)	
Refund	<u>(22.0)</u>	
Economic Change	(32.7)	(4.3%)

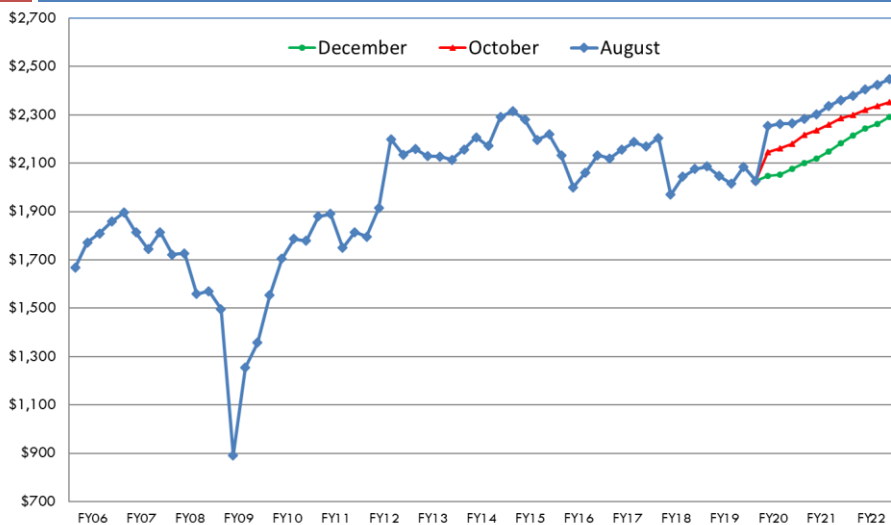
Corporate & LLET Forecast

(Difference From October, Millions \$)

	FY20	FY21	FY22
Blend	6.6	(26.5)	(23.9)
Control	8.7	(33.0)	(21.1)
Optimistic	1.5	(45.0)	(30.2)
Pessimistic	1.7	(11.1)	(30.2)

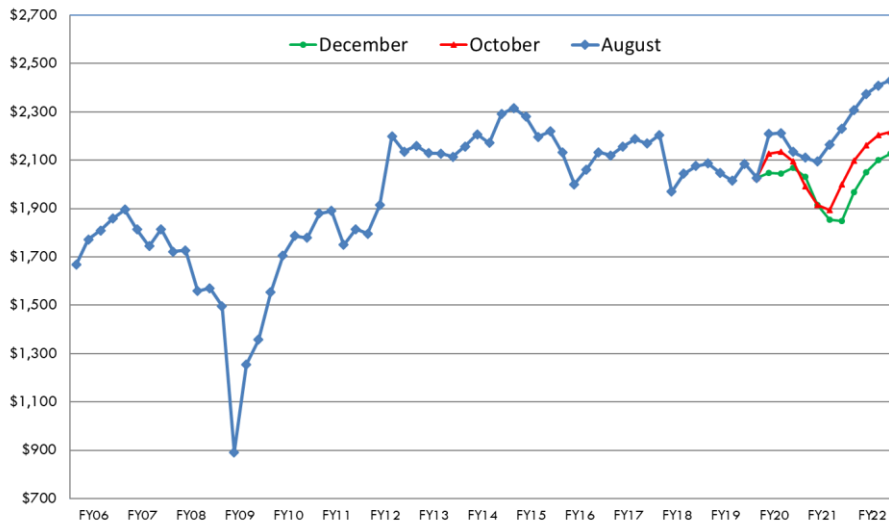
Corporate Profits – Before-Tax

Control Forecast – IHS Markit
(Billions of Dollars, Annual Rate, BEA)



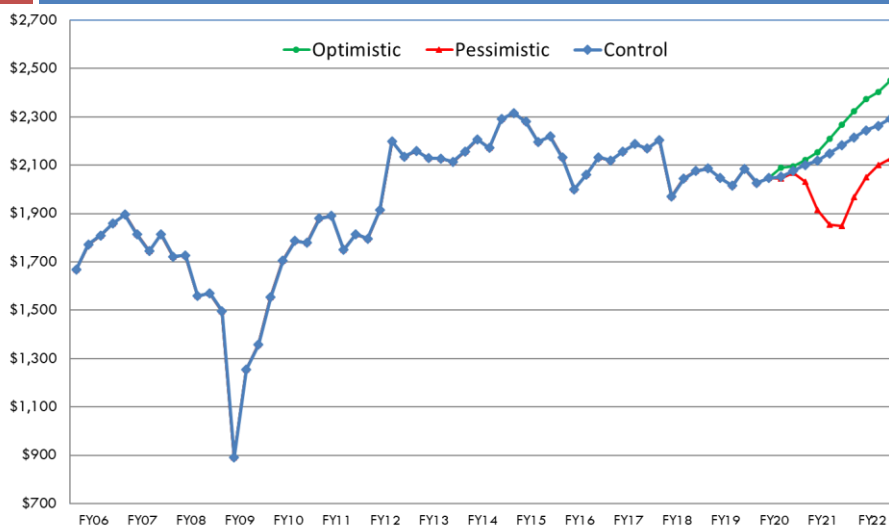
Corporate Profits – Before-Tax

Pessimistic Forecast – IHS Markit
(Billions of Dollars, Annual Rate, BEA)



Corporate Profits – Before-Tax

(Billions of Dollars, Annual Rate, BEA)



Monthly Fluctuations in Corporate & LLET Needs

(Percent Change)

	FY19	FY18
November	5.4	3.5
December	10.3	(2.8)
January	13.4	(4.3)
February	15.8	1.7
March	12.2	(2.0)
April	(14.0)	(18.6)
May	(18.0)	(14.6)
June	1.8	0.9

PROPERTY TAX FORECAST

(CONSENSUS FORECASTING GROUP)

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Property Tax Forecast

FY20 – FY22

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	FY19		FY20		FY21		FY22	
	Actual	\$M	%Chg	\$M	%Chg	\$M	%Chg	
REAL	293.7	304.9	3.8%	316.5	3.8%	328.2	3.7%	
TANGIBLE	258.5	264.6	2.4%	267.6	1.1%	275.4	2.9%	
OM & DELIN	20.1	16.6	(17.4%)	15.5	(6.6%)	16.2	4.5%	
PUBLIC SERVICE	71.0	67.0	(5.6%)	70.0	4.5%	73.0	4.3%	
ALL OTHER	3.7	4.0	6.7%	2.1	(47.5%)	2.2	4.8%	
TOTAL PROPERTY	647.0	657.1	1.6%	671.7	2.2%	695.0	3.5%	

COAL SEVERANCE TAX

(CONSENSUS FORECASTING GROUP)

THOMAS JONES, PH.D.

DECEMBER 17, 2019

Office of State Budget Director

Coal Severance History

(\$ millions)

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	<u>Receipts</u>	<u>% chg</u>
FY16	120.6	-33.1
FY17	100.5	-16.7
FY18	*89.6	-10.8
FY19	**92.9	3.6
FY20Q1	*17.6	-11.9
Oct 2019	*5.1	-26.8
Nov 2019	*3.6	-43.8
Dec 2019	4.7	-26.7

* record low

** late payments

Methodology

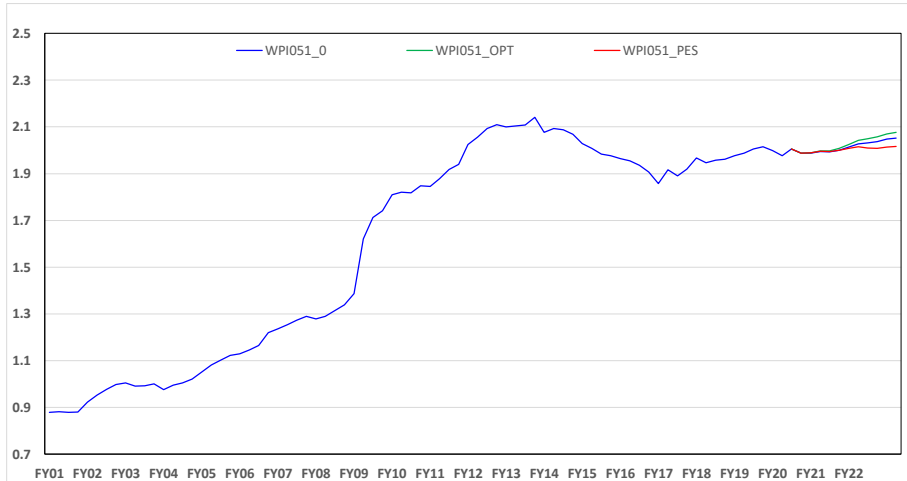
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- coal receipts = $f(\text{Producer Price Index} - \text{Coal, Price of Henry Hub Natural Gas, Price of West Texas Intermediate Oil, Real GDP})$
- OLS
- First differenced to achieve stationarity
- Receipts are estimated in Seasonally Adjusted form
- No autocorrelation detected

Producer Price Index – Coal

(1982 = 1.0, SA, BLS)

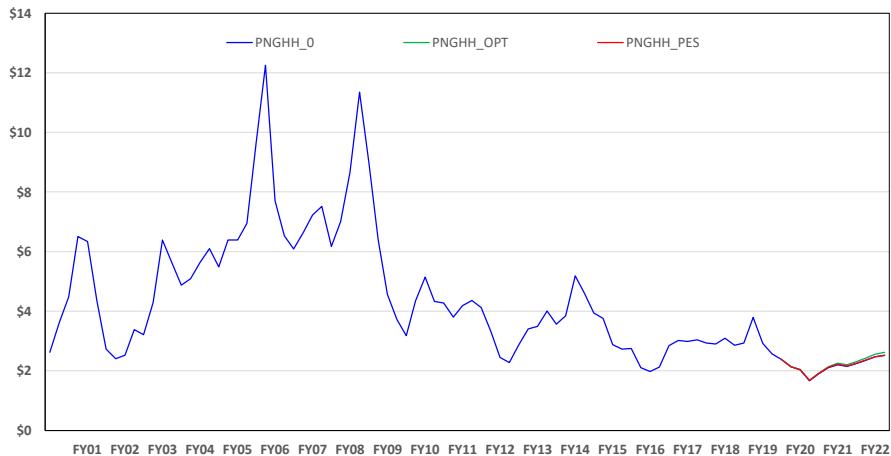
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Henry Hub Price of Natural Gas

(\$ / million BTU, NSA, IHS)

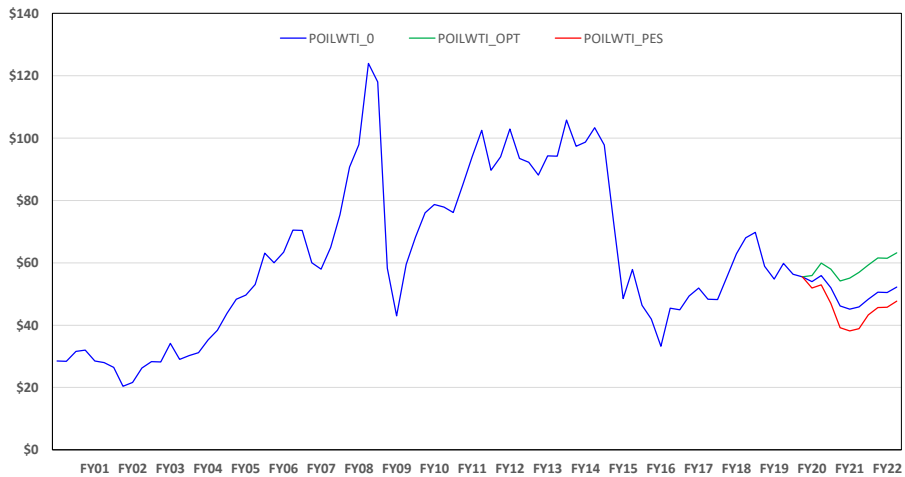
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Price of West Texas Intermediate Oil

(\$ / barrel, NSA, Investors Business Daily)

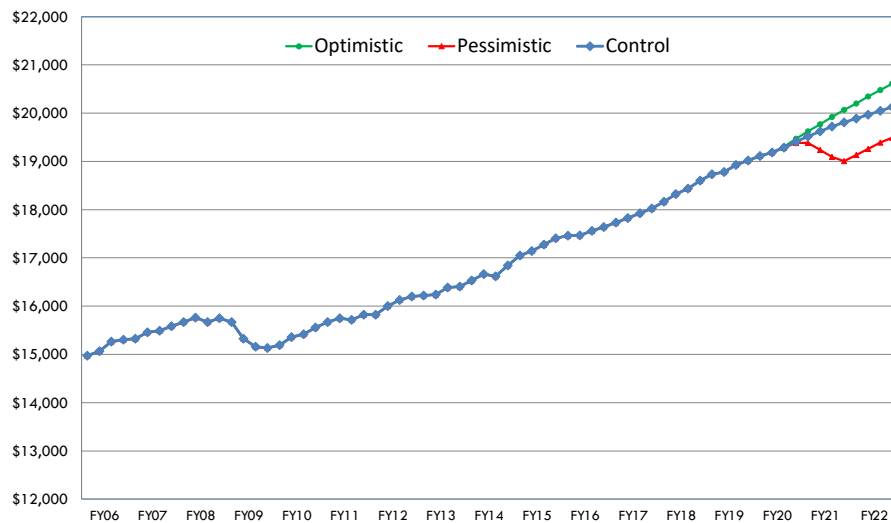
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Real GDP

(Billions of Chained 2012 Dollars, Annual Rate, BEA)

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Coal Severance Forecast

(\$ millions)

49

	<u>FY20 % chg</u>		<u>FY21 % chg</u>		<u>FY22 % chg</u>	
CON	57.1	-38.6	39.7	-30.5	31.5	-20.5
OPT	56.0	-39.8	34.1	-39.1	22.0	-35.5
PES	58.3	-37.2	60.3	3.4	49.6	-17.7

CIGARETTE TAX

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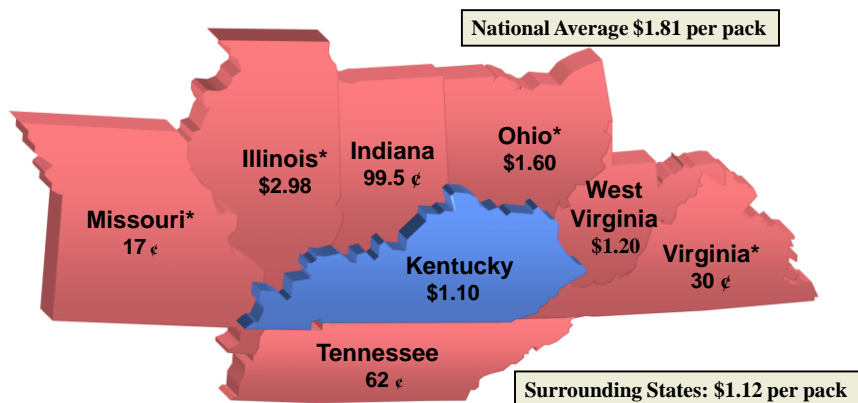
Cigarette Trends

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- Year-to-date cigarette tax in FY20: -1.8%
- FY18 total packs – 363.5 million
- FY19 total packs – 327.6 million
- Quantity Reduction from FY18 to F19 – 9.9%
- Percentage change in tax rate – 83.3%
- Percentage change in pack price – 10.0%
- U.S. Smoking Trends
 - ▣ In the last 14 months the rate of decline in the U.S. has accelerated to 6.1%
(Source: Department of the Treasury – Alcohol and Tobacco Tax and Trade Bureau)

State Excise Taxes on Cigarettes

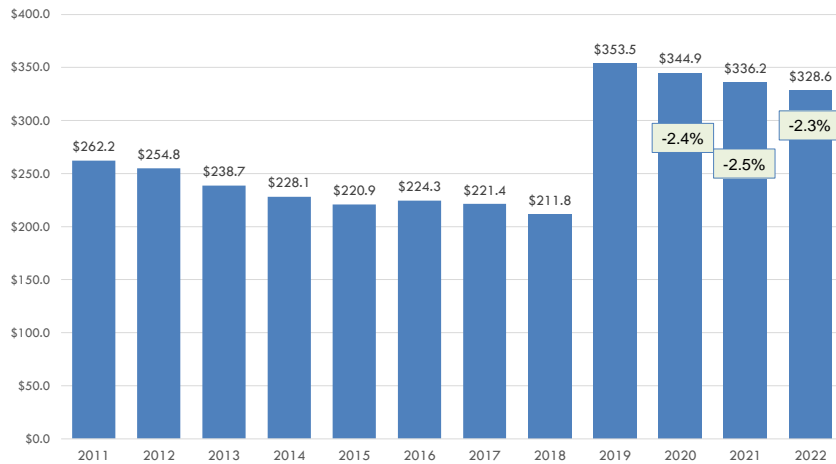
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* Does not include sales tax or local excise rates imposed by cities and counties

Cigarette Tax Forecast

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KENTUCKY LOTTERY CONSENSUS FORECASTING GROUP

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DECEMBER 17, 2019

Office of State Budget Director

Kentucky Lottery Corporation (KLC) in 2019

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- Sales in 2019 represent the ninth consecutive year of record sales for the KLC and the third consecutive year that sales exceeded \$1 billion.
- Scratch-off tickets were the largest individual game category -- and grew 9.2% to \$669.2 million. 2019 represents the fifth consecutive year the KLC has achieved record instant ticket sales.
- Draw game sales increased 5.7% to a record \$443.1 million.
- Mega Millions, which benefited from a \$1.5 billion jackpot run, saw the largest percentage sales increase, rising 58.6% to \$63.1 million.
- Keno generated sales of \$84.3 million and has increased each year since sales began in FY 2014.
- iLottery instant play games generated sales of \$17.3 million, exceeding the prior year by \$7.0 million or 68.0 percent.

Lottery Dividends FY20-FY22

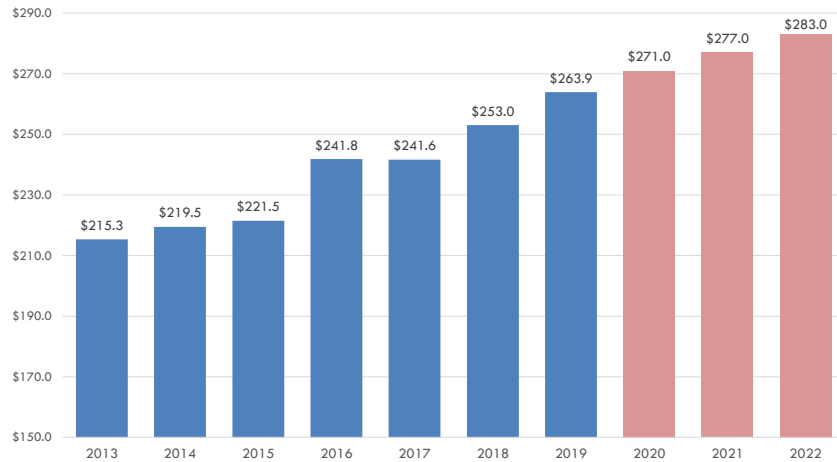
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- Despite the relative maturity of the Kentucky Lottery, dividend payments continue to rise.
 - ▣ New Game Offerings
 - I-Lottery
 - KENO
 - New scratch-off price points
 - ▣ Ability to advertise the beneficiaries of KY Lottery dividends.
 - KEES scholarships
 - Need-based scholarships
- Forecast calls for continued growth throughout the biennium
- Forecast developed jointly between OSBD and the Kentucky Lottery Corporation
- Goal is to maximize total dividends returned to the State, not dividends as a percentage of sales

Kentucky Lottery Forecast

(Fiscal Years, Millions \$)

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MISCELLANEOUS “OTHER” TAXES

(CONSENSUS FORECASTING GROUP)

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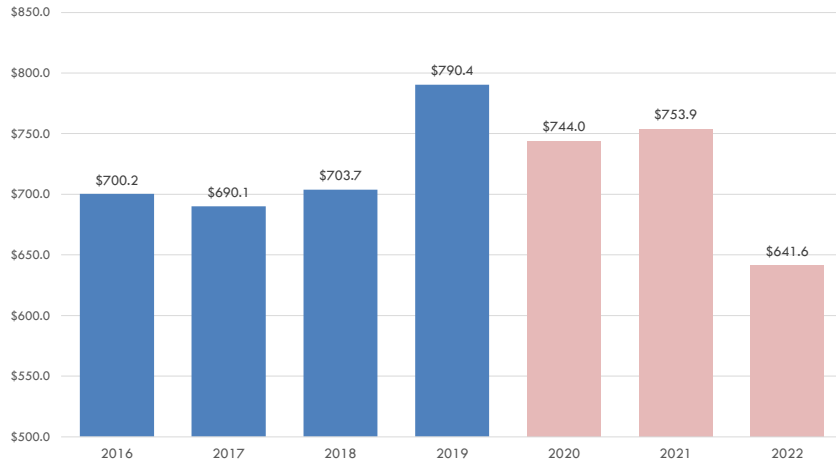
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“Other” Receipts

(Millions \$)

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GF Estimates for the Largest “Other Taxes”

(Million of Dollars)

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Control Scenario	FY19	FY20	FY21	FY22
	Actual	Estimate	Estimate	Estimate
Insurance premium taxes	165.5	168.8	172.4	174.9
Bank franchise taxes	119.8	120.2	120.6	0
Abandoned Property	72.2	31.2	31.7	31.0
Alcohol Taxes	147.1	154.2	158.0	161.8
Telecommunication taxes	55.8	59.9	59.3	59.2
Inheritance taxes	44.4	44.9	44.1	44.3
Floor Stocks Tax	21.3	0.03	.008	.007

Tax Reform Impact on Other Taxes

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- Repeal of the Bank Franchise Tax
 - ▣ Repeal Date 1-Jan-2021
 - ▣ Last year of collections FY21
 - ▣ Estimated revenue loss \$120 million (net \$60.0 million)
- Broadening the base of the Telecommunications tax
 - ▣ +\$5.5 million in FY20
 - ▣ +\$6.0 million going forward
- TVA PILOT – State Portion (HB 114, 2018 RS)
 - ▣ -\$4.0 million in FY20
 - ▣ -\$6.0 million FY21 and beyond

Other Revenue Projections

(Millions \$)

62

Fiscal Year	(\$ mil)
2019	\$790.4 12.3%
2020	\$744.0 -5.9%
2021	\$753.9 1.3%
2022	\$641.6 -14.9%

Other Revenue Projections

(Changes from October, Millions \$)

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Fiscal Year	(\$ mil)
2020	+\$10.8
2021	+\$6.4
2022	+\$7.0