

INDIVIDUAL INCOME TAX

THOMAS JONES, PH.D.

OCTOBER 15, 2019

Individual Income Tax

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- KRS 141.010, enacted October 1, 1942
- Flat 5% rate on taxable income
- IIT is the largest tax receipts account in the General Fund
- FY19 receipts were \$4,544.7 million
- IIT is composed of 4 components: Withholding, Declarations, Net Returns, and Fiduciary
- Withholding makes up approximately 94% of total IIT receipts

How did WITH do in Q1?

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	WITH	% chg			WITH	% chg
FY18Q1	1,020.8	3.9		FY19Q1	995.6	-2.5
FY18Q2	1,035.7	3.3		FY19Q2	1,027.2	-0.8
FY18Q3	1,102.2	2.5		FY19Q3	1,075.7	-2.4
FY18Q4	1,089.7	3.5		FY19Q4	1,046.3	-4.0
				FY20Q1	1,016.8	2.1

What did we say about WITH Q1 in Aug?

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\$1,016.8 million (Actual Q1)

\$1,034.8 million (AUG Q1 forecast)

-\$17.9 million (1.9% difference)

\$4,286.1 million (AUG FY20 forecast) (3.4%)

Withholding: Methodology

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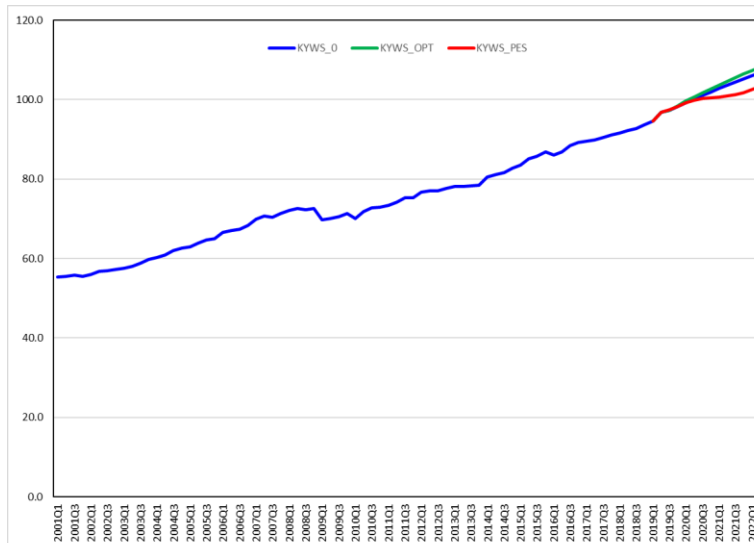
Withholding receipts = $f(\text{Kentucky Wages and Salaries})$

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

KY Wages and Salaries: 3 Scenarios

\$millions, NSA, MAK

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Withholding Forecasts

\$ millions, NSA, GOEA

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	FY20	% chg		FY21	% chg		FY22	% chg
CON	4,242.5	2.4		4,362.4	2.8		4,475.8	2.6
PES	4,239.2	2.3		4,322.0	2.0		4,399.9	1.8
OPT	4,248.2	2.5		4,379.6	3.1		4,503.2	2.8

WITH Control Comparison

\$ millions, NSA, GOEA

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	AUG	% chg		OCT	% chg		\$ Diff
FY19	4,144.7	-2.4		4,144.7	-2.4		
FY20	4,286.1	3.4		4,242.5	2.4		-43.6
FY21	4,409.9	2.9		4,362.4	2.8		-47.5
FY22	4,536.6	2.9		4,475.8	2.6		-60.8

Declarations: Methodology

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Declarations receipts = f(Industrial Production Index: all Manufacturing, Prime Rate at Commercial Banks, DECLDUMMY)

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

Declarations: Forecast

\$ millions, NSA, GOEA

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	AUG	% chg		OCT	% chg		\$ Diff
FY16	557.8	10.2		557.8	10.2		0.0
FY17	542.1	-2.8		542.1	-2.8		0.0
FY18	617.1	13.8		617.1	13.8		0.0
FY19	540.1	-12.5		540.1	-12.5		0.0
FY20	555.1	2.8		578.8	7.2		23.8
FY21	583.6	5.1		574.7	-0.7		-9.0
FY22	607.4	4.1		575.5	0.2		-31.9

Net Returns & Fiduciary: Forecast

\$ millions, NSA, GOEA

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	NETR	% chg		FID	% chg
FY17	-263.4	1.9		1.8	-77.9
FY18	-265.6	0.8		3.7	107.3
FY19	-143.1	-46.1		3.0	-19.1
FY20	-177.0	23.7		3.2	7.9
FY21	-165.9	-6.3		3.1	-1.8
FY22	-147.7	-11.0		3.0	-5.5

Control Comparison

\$ millions, NSA, GOEA

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AUG	FY20	% chg		FY21	% chg		FY22	% chg
WITH	4,286.1	3.4		4,409.9	2.9		4,536.6	2.9
DECL	555.1	2.8		583.6	5.1		607.4	4.1
NETR	-179.0	25.1		-165.9	-7.3		-147.7	-11.0
FID	2.8	-5.6		3.1	12.3		3.0	-5.5
IIT	4,664.9	2.6		4,830.7	3.6		4,999.3	3.5
OCT	FY20	% chg		FY21	% chg		FY22	% chg
WITH	4,242.5	2.4		4,362.4	2.8		4,475.8	2.6
DECL	578.8	7.2		574.7	-0.7		575.5	0.2
NETR	-177.0	23.7		-165.9	-6.3		-147.7	-11.0
FID	3.2	7.9		3.1	-1.8		3.0	-5.5
IIT	4,647.5	2.3		4,774.3	2.7		4,906.6	2.8
\$ Diff	-17.5			-56.4			-92.7	

Pessimistic Comparison

\$ millions, NSA, GOEA

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AUG	FY20	% chg		FY21	% chg		FY22	% chg
WITH	4,258.1	2.7		4,311.4	1.3		4,422.8	2.6
DECL	555.1	2.8		583.6	5.1		607.4	4.1
NETR	-179.0	25.1		-165.9	-7.3		-147.7	-11.0
FID	2.8	-5.6		3.1	12.3		3.0	-5.5
IIT	4,636.9	2.0		4,732.2	2.1		4,885.5	3.2
OCT	FY20	% chg		FY21	% chg		FY22	% chg
WITH	4,239.2	2.3		4,322.0	2.0		4,399.9	1.8
DECL	578.8	7.2		574.7	-0.7		575.5	0.2
NETR	-177.0	23.7		-165.9	-6.3		-147.7	-11.0
FID	3.2	7.9		3.1	-1.8		3.0	-5.5
IIT	4,644.2	2.2		4,733.9	1.9		4,830.7	2.0
\$ Diff	7.3			1.6			-54.8	

Optimistic Comparison

\$ millions, NSA, GOEA

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AUG	FY20	% chg		FY21	% chg		FY22	% chg
WITH	4,282.3	3.3		4,417.0	3.1		4,557.7	3.2
DECL	555.1	2.8		583.6	5.1		607.4	4.1
NETR	-179.0	25.1		-165.9	-7.3		-147.7	-11.0
FID	2.8	-5.6		3.1	12.3		3.0	-5.5
IIT	4,661.1	2.6		4,837.9	3.8		5,020.4	3.8
OCT	FY20	% chg		FY21	% chg		FY22	% chg
WITH	4,248.2	2.5		4,379.6	3.1		4,503.2	2.8
DECL	578.8	7.2		574.7	-0.7		575.5	0.2
NETR	-177.0	23.7		-165.9	-6.3		-147.7	-11.0
FID	3.2	7.9		3.1	-1.8		3.0	-5.5
IIT	4,653.2	2.4		4,791.5	3.0		4,934.0	3.0
\$ Diff	-8.0			-46.3			-86.4	

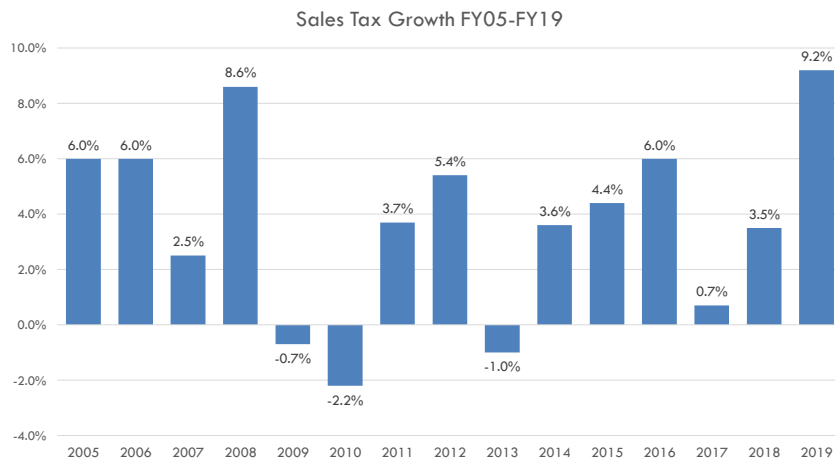
SALES TAX

GREG HARKENRIDER
OCTOBER 15, 2019

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Historical Sales Tax Growth

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FY20 First Quarter Sales Tax

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- Sales Tax grew 7.8% in the first quarter
 - ▣ July: 10.7%
 - ▣ August: 6.4%
 - ▣ September: 6.2%
- First quarter gave insights into our scoring of certain tax proposals
 - ▣ Marketplace Providers language was scored at \$17.0 million for FY20
 - ▣ Nearly exceeded that fiscal impact in 2 months of collections (\$14.8 million in August, September)
- Increased the estimate for Marketplace Providers

Reminder of Tax Reform

(2018 and 2019 Combined Changes)

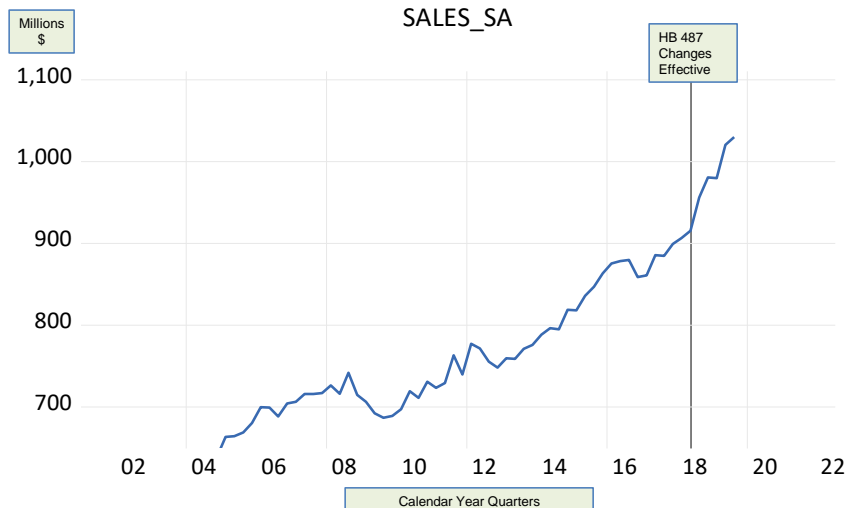
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- Base Broadening
 - ▣ Selected Services
 - ▣ Installation and Repair
 - ▣ Remote Retailers and Marketplace Providers
- Estimated Fiscal Impacts of Tax Reform
 - ▣ FY19 – \$208.2 million
 - ▣ FY20 – \$264.3 million + \$40 million
 - ▣ FY21 – \$274.6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

Sales Tax with New Tax Law

(Quarterly Data, Millions \$)

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Modeling Strategy

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- Dependent Variable with non-static policy history
- Too early for dummy variables
- Too early for switching models
- Approach Taken:
 - ▣ Create policy-neutral sales tax variable for projections
 - Withhold the five quarters of “corrupt” data
 - Forecast with in-sample estimation (Stop estimation at CY 2018q2)
 - Project the policy-neutral series (2018q3 through 2022q2)
 - Add back the estimated policy impacts (FY19 through FY22)

Justification for Modeling Approach

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- FY18 sales tax estimate was accurate
 - ▣ Estimated FY18 -- \$3,611.9
 - ▣ Actual FY18 -- \$3,605.7
 - ▣ Model is working in a policy-neutral world
- FY19 tax fiscal impacts close to estimated
 - ▣ Estimated FY19 fiscal impact -- \$208.2 million
 - ▣ Engineered fiscal impact --\$215.6 million
- Engineered fiscal impact
 - ▣ Actual FY2019 collections, minus
 - ▣ Blended control in-sample forecast for FY19

Types of Modeling for the Sales Tax

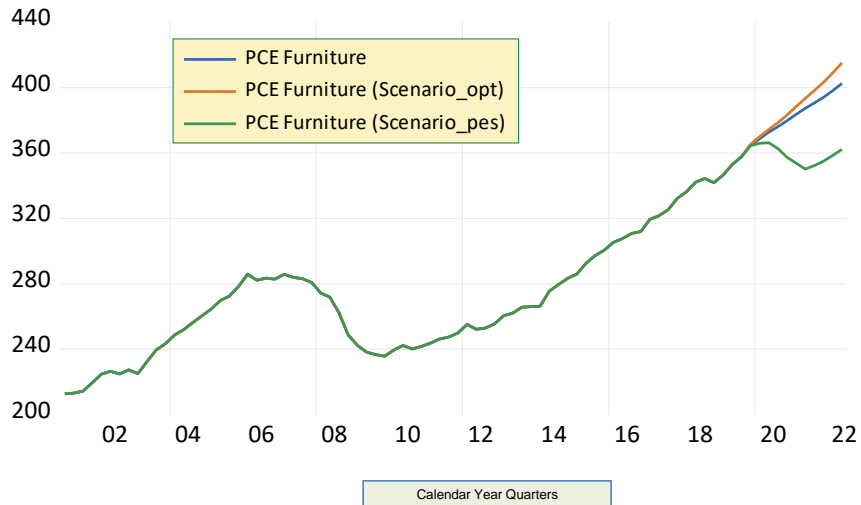
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- Quarterly sales tax data have several correctible sources of variation
 - ▣ Seasonality – Census X12
 - ▣ Trend – Differencing
- Types of final model
 - ▣ ARIMA (Control Only)
 - ▣ Structural models
 - Logs
 - Differences

Furnishings and Durable Household Equipment

(Billions \$)

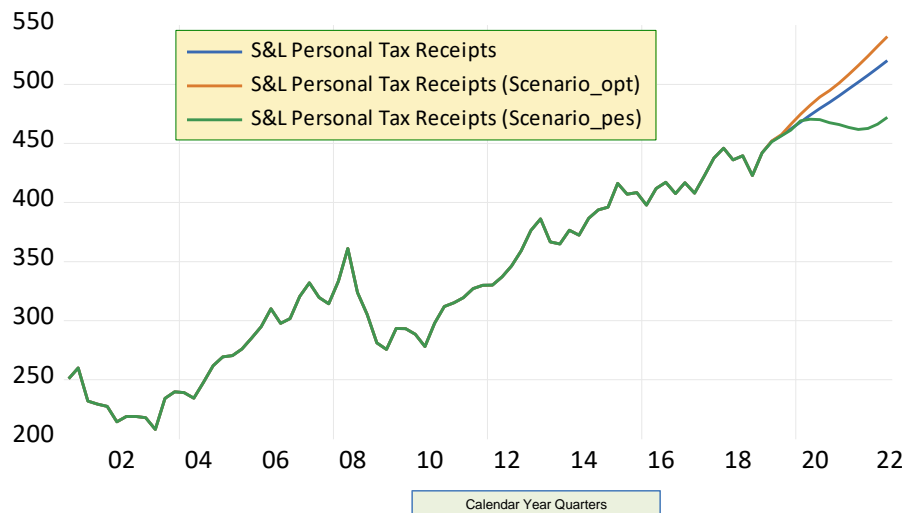
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US State and Local Personal Tax Receipts

(Billions \$)

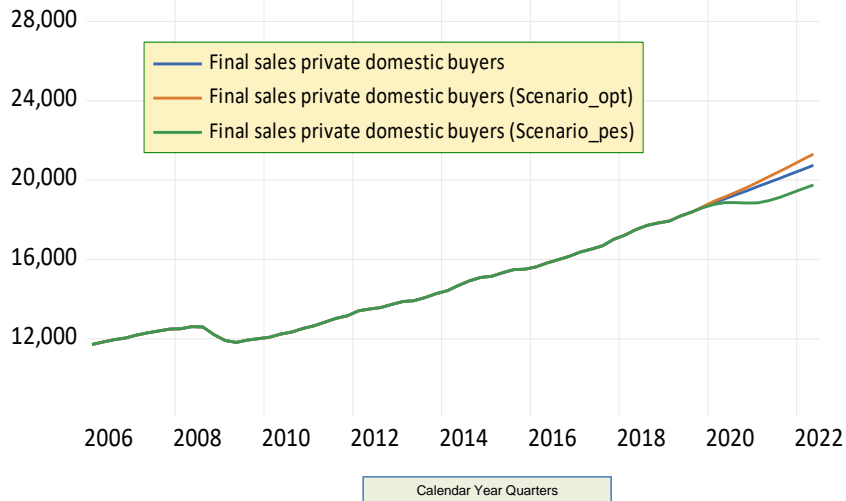
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Final Sales Private Domestic Buyers

(Billions \$)

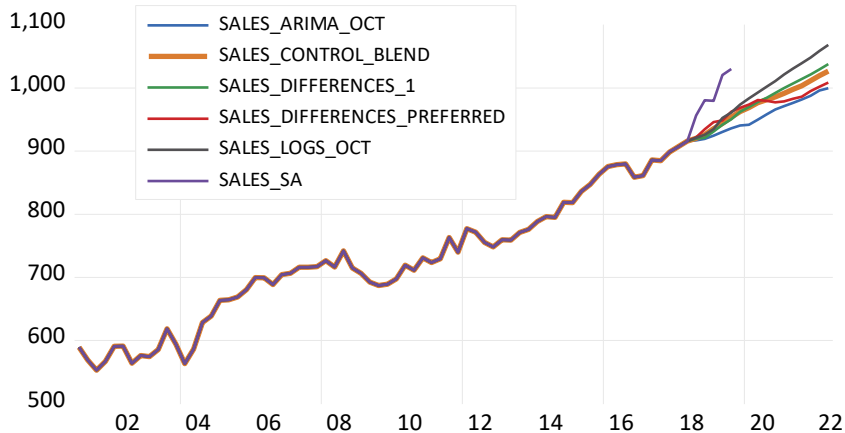
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Sales Tax with New Tax Law

(Seasonally Adjusted, Millions \$)

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Control, Optimistic, Pessimistic Forecast

(FY Sales Tax Estimates, Millions \$)

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	Control	Optimistic	Pessimistic
FY20	\$4,174.3 (6.0%)	\$4,181.9 (6.2%)	\$4,121.6 (4.7%)
FY21	\$4,261.3 (2.1%)	\$4,292.1 (2.6%)	\$4,178.4 (1.4%)
FY22	\$4,376.2 (2.7%)	\$4,413.0 (2.8%)	\$4,253.6 (1.8%)

Difference from August Forecast

(Millions \$)

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	Control	Optimistic	Pessimistic
FY20	+\$38.0	+\$14.5	+\$43.1
FY21	+\$22.0	+\$13.2	+\$74.3
FY22	+\$26.5	+\$16.0	+\$81.3

Control, Optimistic, Pessimistic Forecast

(Variations from Control Forecast, Millions \$)

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	Control	Optimistic	Pessimistic
FY20	\$4,174.3	+\$7.6	-\$52.7
FY21	\$4,261.3	+\$30.8	-\$82.9
FY22	\$4,376.2	+\$36.8	-\$122.6

CORPORATION & LLET TAX FORECASTS

(CONSENSUS FORECASTING GROUP)

GENE ZAPARANICK-BROWN

OCTOBER 15, 2019

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Corporate & LLET Forecast (Millions \$)

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	FY20		FY21		FY22	
	Estimate	%Chg	Estimate	%Chg	Estimate	%Chg
Control	623.8	-18.2	657.5	5.4	717.7	9.2
Optimistic	635.2	-16.7	688.1	8.3	773.1	12.4
Pessimistic	609.4	-20.1	557.0	-8.6	662.9	19.0

Legislation

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- Fiscal impacts:
 - ▣ FY19 -\$27.6M
 - ▣ FY20 -\$75.5M
 - ▣ FY21 -\$72.3M
 - ▣ FY22 -\$38.6M

Corporate & LLET Forecast

Difference From August, Millions \$

33

	FY20	FY21	FY22
Blend	(65.2)	(70.8)	(80.1)
Control	(85.0)	(74.3)	(80.7)
Optimistic	(75.1)	(54.7)	(47.4)
Pessimistic	(19.1)	(62.6)	(78.9)

Why Such a Large Revision?

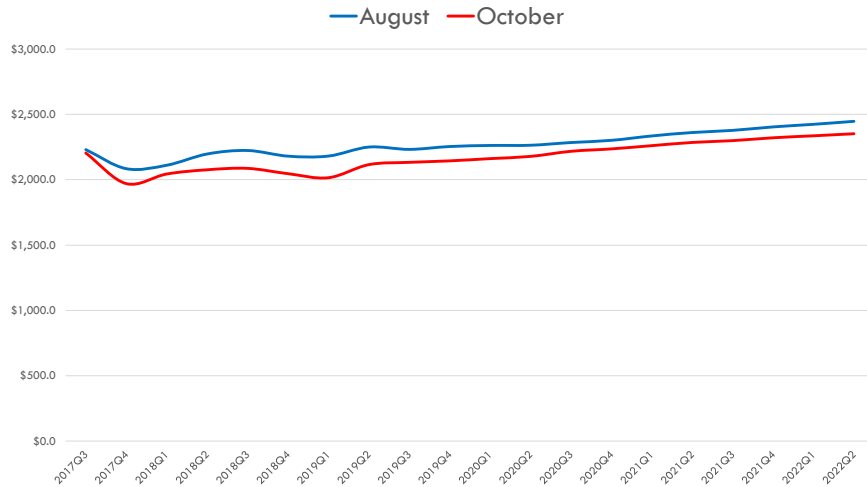
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- Q1 Receipts
- IHS Markit forecast
- Pending Refunds
- Conservatism

US Corporate Profits, Before Tax

Control Forecast, Billions \$

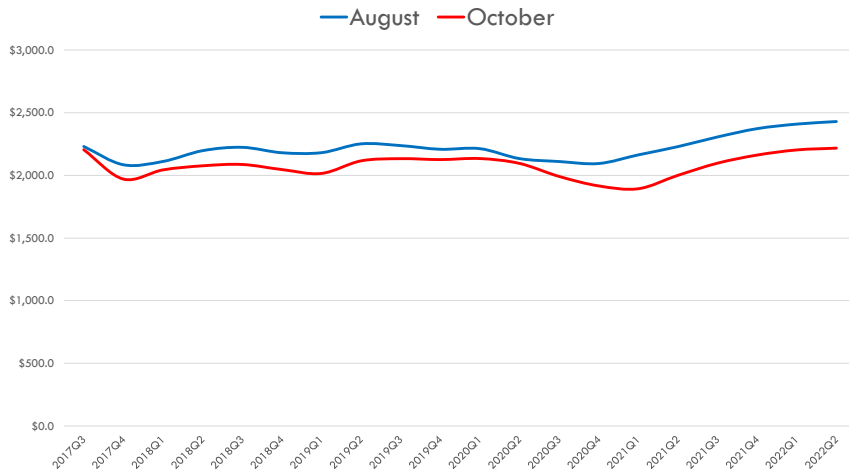
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US Corporate Profits, Before Tax

Pessimistic Forecast, Billions \$

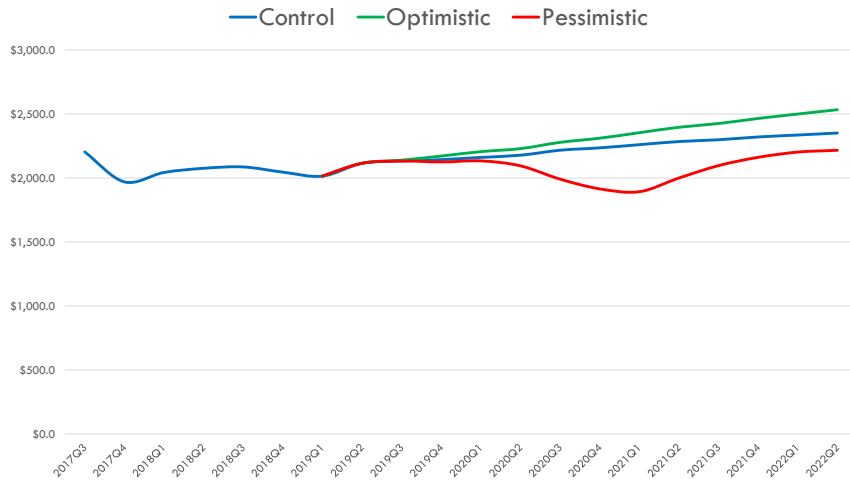
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US Corporate Profits, Before Tax

(October IHS Markit, Billions \$)

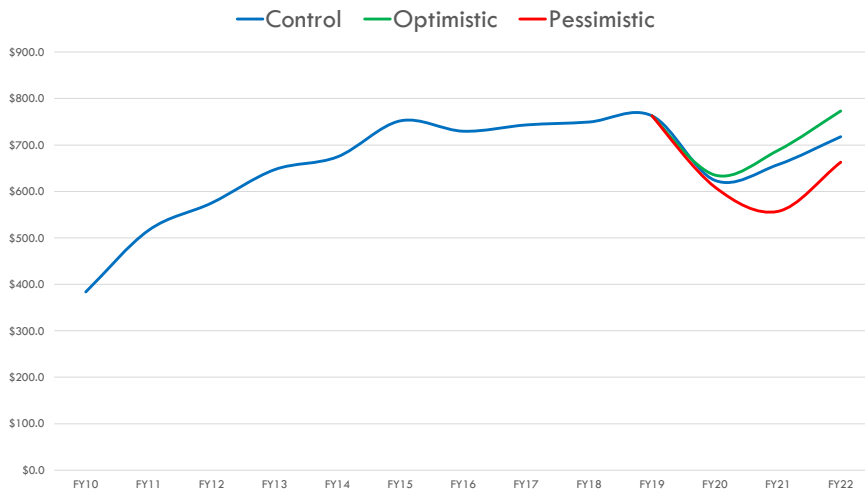
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Combined CIT and LLET Forecast

Millions \$

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PROPERTY TAX FORECAST

(CONSENSUS FORECASTING GROUP)

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Property Tax Forecast

FY20 – FY22

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

COAL SEVERANCE TAX

THOMAS JONES, PH.D.

OCTOBER 15, 2019



Coal Severance Tax

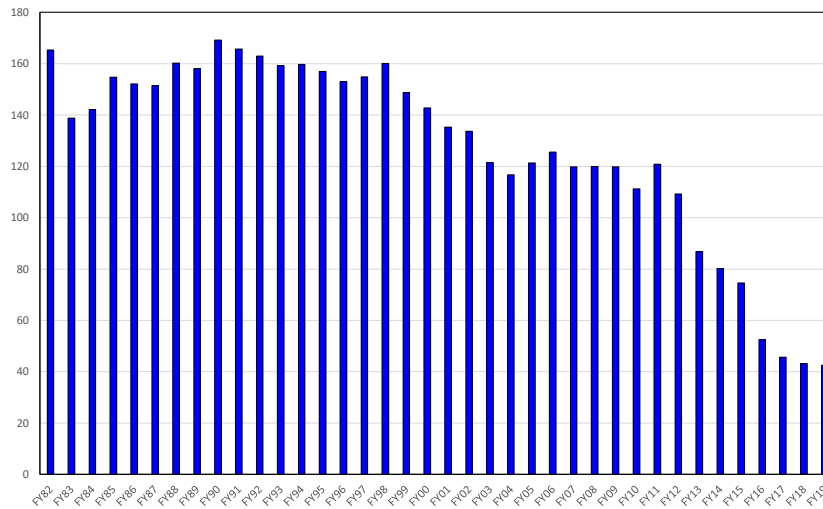
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- KRS 143.020, enacted July 1, 1978
- 4.5% tax on gross value of severed coal
- KY is the fifth largest producer of coal in the US
- In FY19, KY severed 42.5 million tons of coal
- Eastern KY coal is part of the Central Appalachian coal region
- Western KY coal is part of the Illinois Basin coal region
- Union County, KY was the largest coal producer in KY last quarter

Coal Severed Tons

millions, NSA, KY OPV

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Coal Spot Market Prices

\$/ton, NSA, EIA

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DATE	CAP	NAP	IB	PRB	UB
01-04-19	83.90	65.70	38.95	11.90	40.25
06-28-19	61.05	52.20	39.10	12.25	35.75
07-05-19	61.05	52.20	39.10	12.25	35.75
07-12-19	54.55	48.30	39.10	11.95	35.00
07-19-19	65.55	48.30	39.10	12.10	35.00
07-26-19	65.55	48.30	39.10	12.10	35.00

Coal Spot Market Prices

\$/ton, NSA, EIA

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	CAP	NAP	IB	PRB	UB
09-06-19	62.15	51.35	39.10	12.25	34.70
09-13-19	62.80	52.90	39.00	12.20	34.55
09-20-19	62.80	52.90	39.00	12.20	34.55
09-27-19	63.60	54.55	39.00	12.15	34.40
10-04-19	65.55	56.25	39.00	12.10	34.25

Coal Severance Tax History

\$ million, NSA, GOEA

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DATE	Receipts	% chg	DATE	Receipts	% chg
FY00	145.1	-6.0	FY11	295.8	8.8
FY01	141.6	-2.5	FY12	298.3	0.8
FY02	160.2	13.1	FY13	230.5	-22.7
FY03	141.7	-11.5	FY14	197.5	-14.3
FY04	147.5	4.1	FY15	180.3	-8.7
FY05	184.4	25.0	FY16	120.6	-33.1
FY06	224.5	21.7	FY17	100.5	-16.7
FY07	222.0	-1.1	FY18	89.6	-10.8
FY08	233.0	5.0	FY19	92.9	3.6
FY09	292.6	25.6	FY20Q1	17.6	-11.9
FY10	271.9	-7.1			

Coal Methodology

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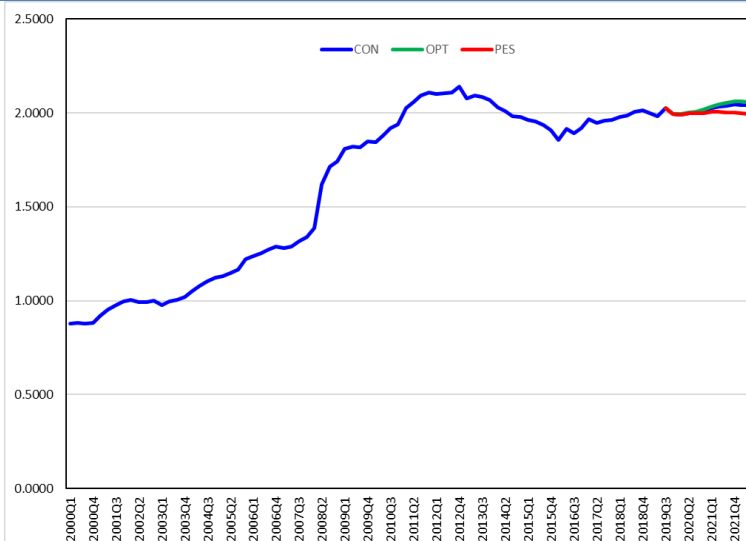
KY Coal Receipts = $f(\text{Producer Price Index} - \text{Coal}, \text{Henry Hub Price of Natural Gas}, \text{Price of West Texas Intermediate Oil}, \text{Real GDP})$

- OLS
- Seasonally-Adjusted
- First-differenced to attain stationarity
- No autocorrelation detected in first-differenced model

Producer Price Index – Coal

1982=1.0, SA, BLS

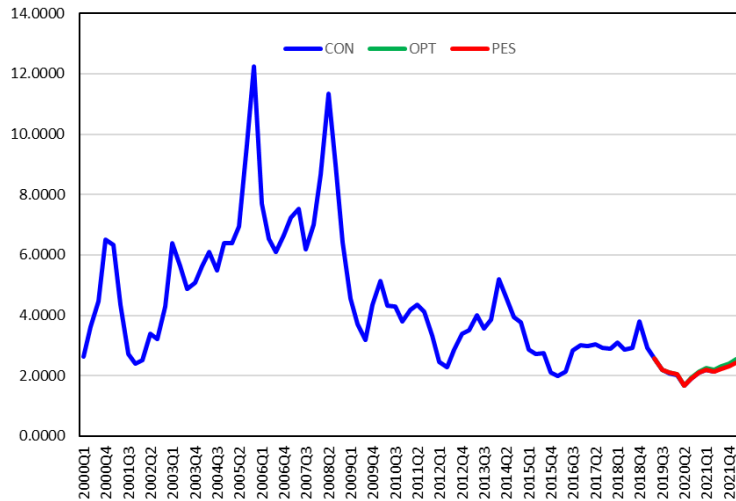
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Henry Hub Price of Natural Gas

\$ / million BTU, NSA, IHS

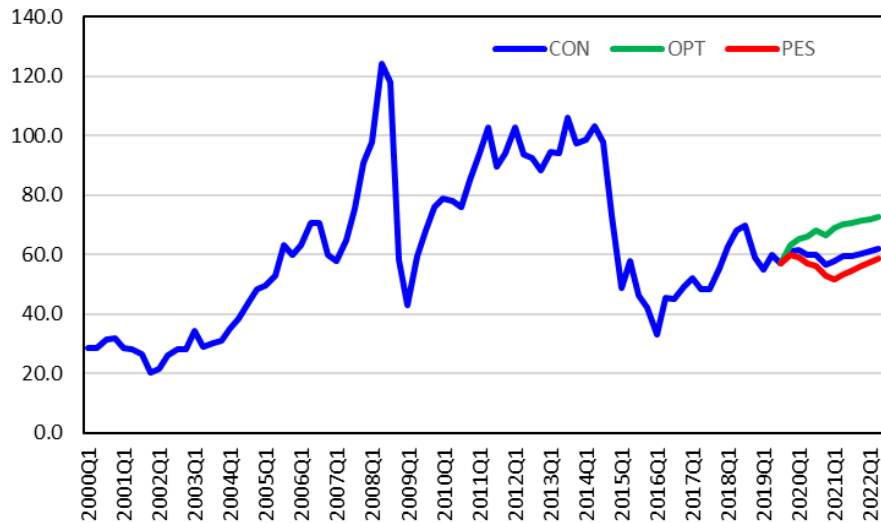
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Price of West Texas Intermediate Oil

\$ / barrel, NSA, Investors Business Daily

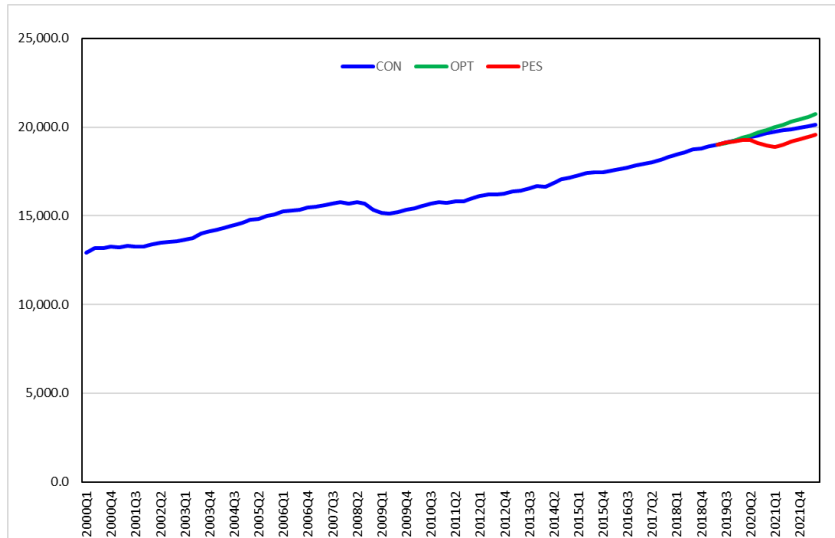
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Real GDP

\$billions, chained 2012, AR, BEA

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Coal Forecasts

\$ millions, NSA, GOEA

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AUG	CON	% chg	PES	% chg	OPT	% chg
FY19	92.9	3.6	92.9	3.6	92.9	3.6
FY20	99.8	7.4	99.2	6.8	100.2	7.8
FY21	93.4	-6.5	77.9	-21.4	100.9	0.7
FY22	86.3	-7.5	51.6	-33.8	102.4	1.4
OCT	CON	% chg	PES	% chg	OPT	% chg
FY19	92.9	3.6	92.9	3.6	92.9	3.6
FY20	66.4	-28.5	66.1	-28.8	66.9	-28.0
FY21	59.4	-10.6	50.4	-23.8	66.3	-0.9
FY22	53.0	-10.7	20.1	-60.1	68.7	3.5

CIGARETTE TAX

GREG HARKENRIDER
OCTOBER 15, 2019

Office of State Budget Director

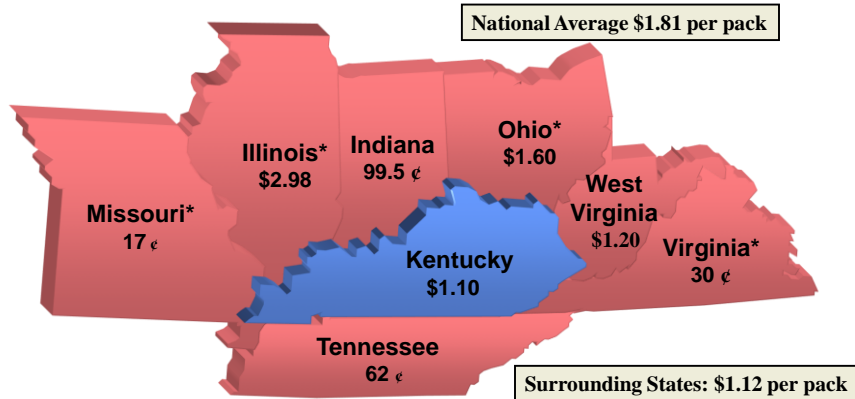
Cigarette Trends

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- Year-to-date cigarette tax in FY20: +0.1%
- FY18 total packs – 363.5 million
- FY19 total packs – 327.6 million
- Quantity Reduction from FY18 to F19 – 9.9%
- Percentage change in tax – 83.3%
- Percentage change in pack price – 10.0%
- U.S. Smoking Trends
 - In the last 12 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

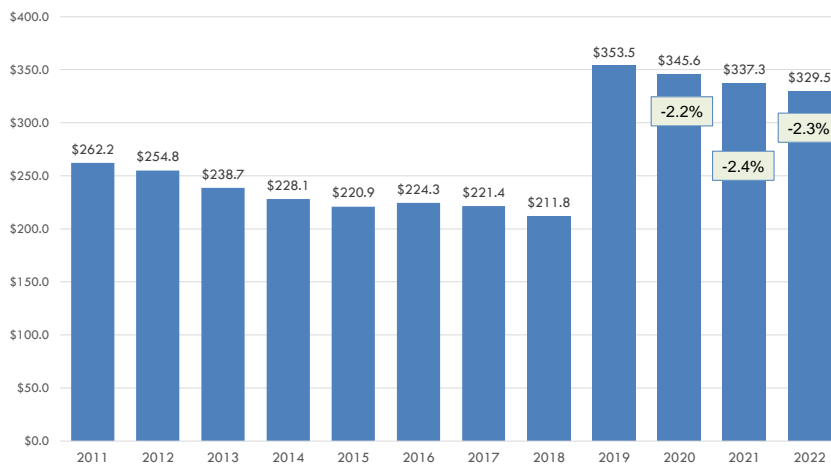
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* Does not include sales tax or local excise rates imposed by cities and counties

Cigarette Tax Forecast

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Difference from August Forecast

(Millions \$)

57

	Control
FY20	+\$6.1
FY21	+\$8.6
FY22	+\$10.8

KENTUCKY LOTTERY

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OCTOBER 15, 2019

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Kentucky Lottery Corporation (KLC) in 2019

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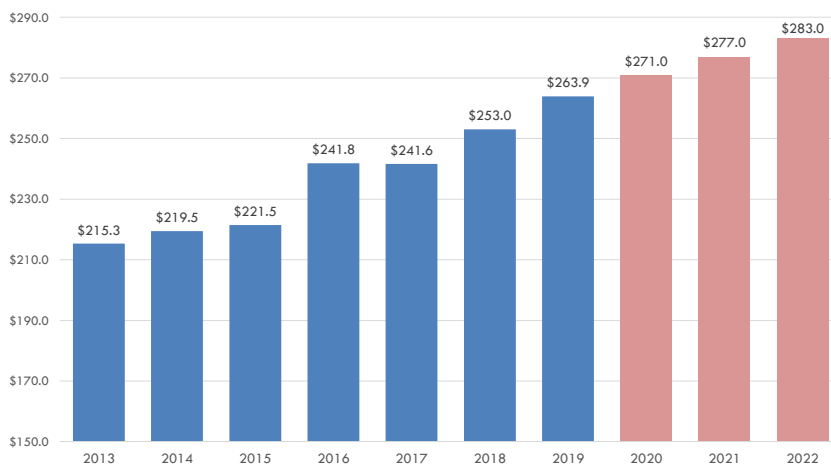
- Sales in 2019 represent the ninth consecutive year of record sales for the KLC and the third consecutive year that sales exceeded \$1 billion.
- Scratch-off tickets were the largest individual game category -- and grew 9.2% to \$669.2 million. 2019 represents the fifth consecutive year the KLC has 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.

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Kentucky Lottery Forecast

(Fiscal Years, Millions \$)

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MISCELLANEOUS “OTHER” TAXES

(CONSENSUS FORECASTING GROUP)

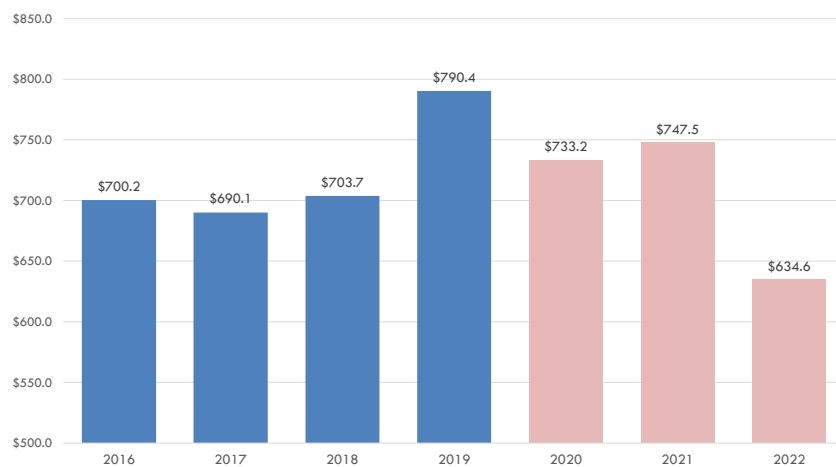
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OCTOBER 15, 2019

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“Other” Receipts

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2019 Variation in “Other” Taxes

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- 2019 was an unusually high year for the “Other” taxes
- Exceeded the estimate by \$72.8 million
- Largest Sources of Variation
 - ▣ Receipts that Overperformed
 - Abandoned Property – \$35.0 million (Sale of Securities)
 - Bank Franchise – \$16.5 million
 - Insurance Tax (other than life) – \$15.2 million
 - Pari-Mutuel – \$7.6 million
 - Cigarette Floor Stocks Tax -- \$4.3 million
 - ▣ Receipts that Underperformed
 - Alcohol Taxes (Beer and Wine) – Estimates too high across the board
 - Inheritance Tax – off \$6.9 million
 - Interest on Investments – off \$5.2 million
 - ▣ Nonrecurring “Other” taxes
 - Cigarette floor stocks (\$21.3 million), part of abandoned property (\$30.0 million)

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	168.4	172.4	174.9
Bank franchise taxes	119.8	120.2	120.6	0
Abandoned Property	72.2	28.2	31.7	31.0
Beer wholesale taxes	56.2	56.8	57.3	57.9
Telecommunication taxes	55.8	58.5	58.9	59.2
Inheritance taxes	44.4	43.3	44.1	44.3
Floor Stocks Tax	21.3	0.03	.008	.007

Tax Reform within 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
- 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)

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Fiscal Year	(\$ mil)
2019	\$790.4 12.3%
2020	\$733.2 -7.2%
2021	\$747.5 2.0%
2022	\$634.6 -15.1%

Other Revenue Projections

(Changes from August)

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Fiscal Year	(\$ mil)
2020	-\$3.0
2021	-\$5.7
2022	-\$6.9