INDIVIDUAL INCOME TAX

(CONSENSUS FORECASTING GROUP)

THOMAS JONES, PH.D. DECEMBER 17, 2021

Office of State Budget Director

Individual Income Tax Receipts History

(\$ millions, nominal)

	IIT	% chg
FY17	4,393.9	2.6
FY18	4,603.6	4.8
FY19	4,544.7	-1.3
FY20	4,765.2	4.9
FY21	5,143.8	7.9
FY22Q1	1,262.3	6.5
Oct-21	433.2	12.3
Nov-21	408.9	13.5

Methodology

Withholding = f(KY Wages and Salaries)
Range: 2001 Q1 to 2022 Q2
Seasonally Adjusted
First Differences
AR(1)

Declarations = 3-yr moving average +\$20 million to FY22

Methodology cont.

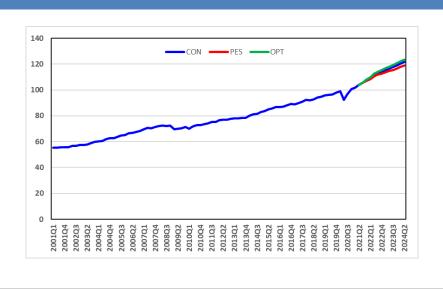
NetReturns:

- * Evaluation of PAYS and REFUNDS for last three years
- * Modified by tax law changes (itemized filers)
- * Modified by UI withholding adjustments

Fiduciary = 3-yr moving average



(\$ billions, SAAR)



Withholding Forecasts

(\$ millions, nominal)

	CON	% chg	PES	% chg	OPT	% chg
FY20	4,276.0	3.2	4,276.0	3.2	4,276.0	3.2
FY21	4,530.2	5.9	4,530.2	5.9	4,530.2	5.9
FY22	4,928.2	8.8	4,919.5	8.6	4,940.1	9.0
FY23	5,162.4	4.8	5,118.0	4.0	5,195.3	5.2
FY24	5,347.7	3.6	5,271.9	3.0	5,392.7	3.8

Withholding Control Comparison

(\$ millions, nominal)

	ОСТ	% chg	DEC	% chg	\$ diff
FY20	4,276.0	3.2	4,276.0	3.2	
FY21	4,530.2	5.9	4,530.2	5.9	
FY22	4,782.2	5.6	4,928.2	8.8	146.0
FY23	4,981.7	4.2	5,162.4	4.8	180.7
FY24	5,149.7	3.4	5,347.7	3.6	198.0

Declarations Forecast

(\$ millions, nominal)

_	OCT !	% chg	DEC	% chg	\$ diff
FY20	523.7	-3.0	523.7	-3.0	
FY21	611.1	16.7	611.1	16.7	
FY22	569.4	-6.8	569.4	-6.8	0.0
FY23	568.1	-0.2	568.1	-0.2	0.0
FY24	582.9	2.6	582.9	2.6	0.0

Net Returns Forecast

(\$ millions, nominal)

	ОСТ	% chg	DEC	% chg	\$ diff
FY20	-35.6	-75.1	-35.6	-75.1	
FY21	3.3	-109.3	3.3	-109.3	
FY22	-50.0	-1,616.4	-50.0	-1,616.4	0.0
FY23	-49.0	-2.0	-49.0	-2.0	0.0
FY24	-48.0	-2.0	-48.0	-2.0	0.0

Fiduciary Forecast

(\$ millions, nominal)

	OCT	% chg	DEC	% chg	\$ diff
FY20	1.1	-61.7	1.1	-61.7	
FY21	-0.8	-168.6	-0.8	-168.6	
FY22	1.6	-306.6	1.6	-306.6	0.0
FY23	1.2	-28.1	1.2	-28.1	0.0
FY24	1.2	0.6	1.2	0.6	0.0

Legislation Adjustments

(\$ millions, nominal)

FY22 -\$30.5 million

FY23 -\$48.8 million

FY24 -\$37.4 million

Individual Income Tax Forecast

(\$ millions, nominal)

	OCT-CON 9	% chg	DEC-CON 9	6 chg	\$ Diff	DEC-PES 9	6 chg	DEC-OPT	% chg
FY20	4,765.2	4.9	4,765.2	4.9		4,765.2	4.9	4,765.2	4.9
FY21	5,143.8	7.9	5,143.8	7.9		5,143.8	7.9	5,143.8	7.9
FY22	5,272.7	2.5	5,418.8	5.3	146.0	5,410.1	5.2	5,430.6	5.6
FY23	5,453.1	3.4	5,633.8	4.0	180.7	5,589.4	3.3	5,666.8	4.3
FY24	5.648.3	3.6	5.846.3	3.8	198.0	5.770.5	3.2	5.891.3	4.0

Individual Income Tax Needs

(\$ millions, nominal)

FY22 Est 5,418.8 FY22 YTD (JUL-NOV) 2,104.3 FY21 YTD (JUL-NOV) 1,930.4 YTD % chg 9.0 FY21 ROY (DEC-JUN) 3,213.3 FY22 ROY NEEDS (DEC-JUN) 3,314.4

3.1

FY22 NEEDS growth (%)

Individual Income Tax Needs

Percent Change

	YTD	FY22 Est	NEEDS	
Control	9.0%	5.3%	3.1%	
Pessimistic	9.0%	5.2%	2.9%	
Optimistic	9.0%	5.6%	3.5%	

COAL SEVERANCE TAX

(CONSENSUS FORECASTING GROUP)

THOMAS JONES, PH.D. DECEMBER 17, 2021

Office of State Budget Director

Coal History

(\$ millions, nominal)

	Actual	% chg
FY16	120.6	-33.1
FY17	100.5	-16.7
FY18	89.6	-10.8
FY19	92.9	3.6
FY20	58.8	-36.7
FY21	56.1	-4.7
FY22Q1	12.9	6.1
Oct 2021	6.3	36.7
Nov 2021	5.5	-24.8

Energy Markets Information

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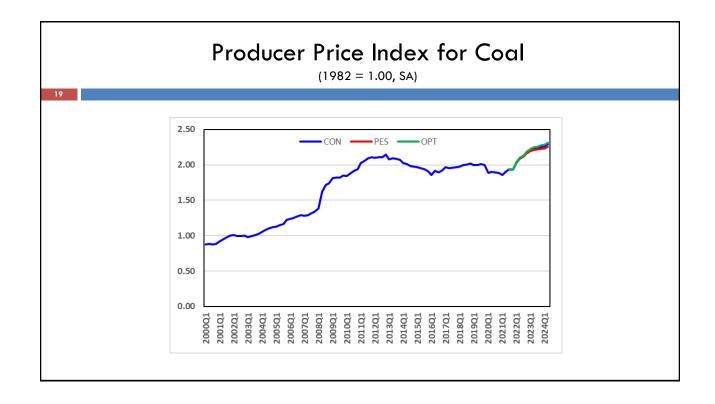
- · Severed Tons falling until recently
- · Severed Tons Rose for last 2 quarters
- · Central Appalachian prices are rising, abruptly
- · Illinois Basin prices are rising somewhat
- Price of West Texas Intermediate has been rising, but is expected to fall over forecast horizon
- · Price of natural gas has been rising, but is expected to fall over forecast horizon

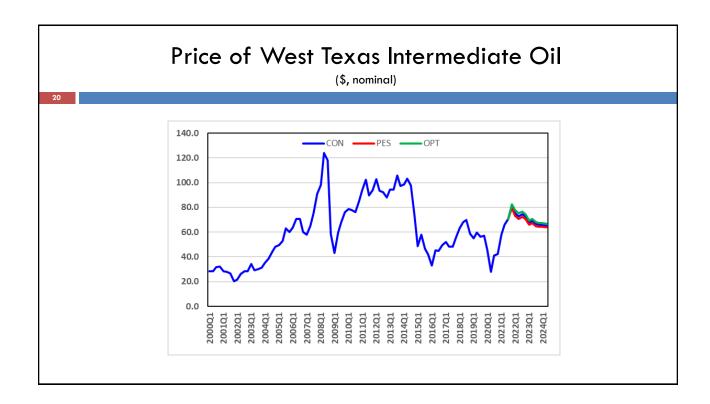
Methodology

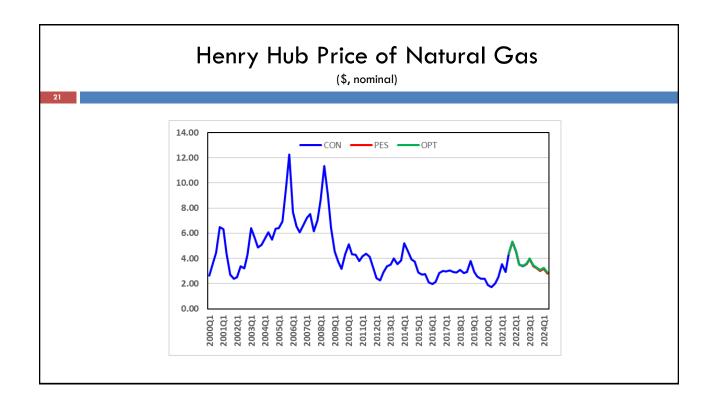
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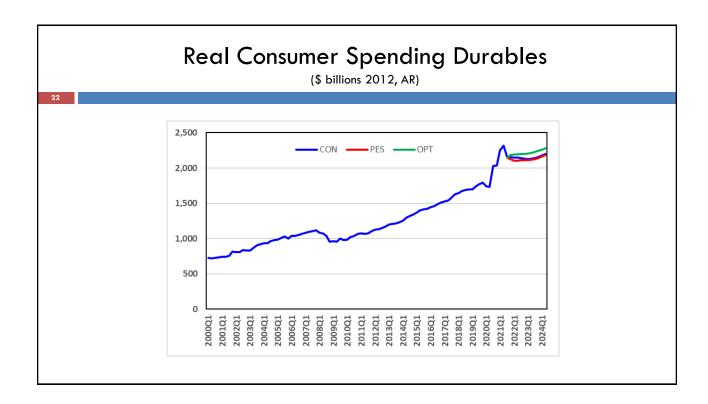
Coal Receipts = f(PPI Coal, West Texas Intermediate Price of Oil, Henry Hub Price of Natural Gas, Real Consumer Spending on Durables)

- * Range: 2001 Q1 to 2022 Q2
- * All Seasonally Adjusted Variables
- * First Differences









Legislation Adjustments

(\$ millions, nominal)

FY22 -1.3 million

FY23 -1.3 million

FY24 -1.3 million

Coal Forecasts

(\$ millions, nominal)

	OCT-CON	% chg	DEC-CON	% chg	\$ Diff	DEC-PES	% chg	DEC-OPT	% chg
FY20	58.8	-36.7	58.8	-36.7		58.8	-36.7	58.8	-36.7
FY21	56.1	-4.7	56.1	-4.7		56.1	-4.7	56.1	-4.7
FY22	64.1	14.4	73.5	31.1	9.4	73.9	31.7	73.2	30.5
FY23	76.6	19.4	99.5	35.3	22.9	99.8	35.1	97.9	33.8
FY24	75.2	-1.8	103.1	3.6	27.9	100.2	0.4	100.9	3.1

Coal Needs

(\$ millions, nominal)

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FY22 Est	73.5
FY22 YTD (JUL-NOV)	24.7
FY21 YTD (JUL-NOV)	24.0
YTD % chg	2.6
FY21 ROY (DEC-JUN)	32.0
FY22 ROY NEEDS (DEC-JUN)	48.8
FY22 NEEDS growth (%)	52.4

Coal Needs

Percent Change

	YTD	FY22 Est	NEEDS
Control	2.6%	31.1%	52.4%
Pessimistic	2.6%	31.7%	53.5%
Optimistic	2.6%	30.5%	51.4%

SALES TAX

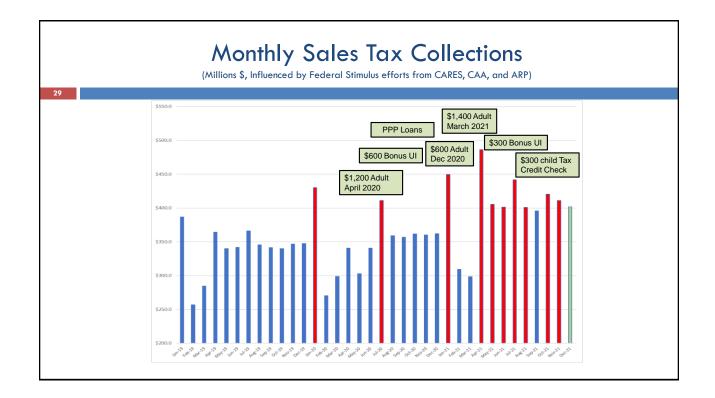
CONSENSUS FORECASTING GROUP

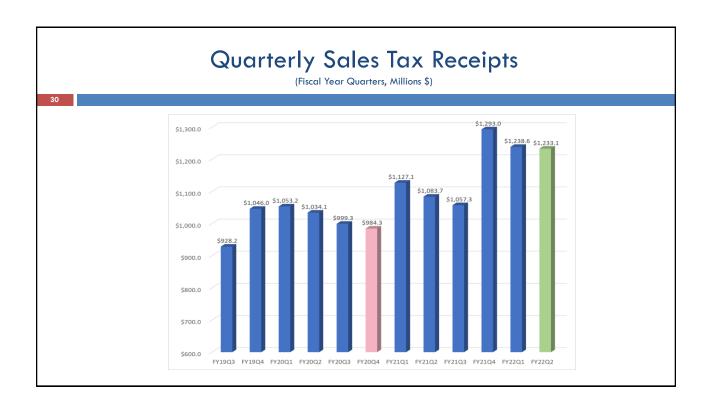
GREG HARKENRIDER DECEMBER 17, 2021

Office of State Budget Director

Trends in the Sales Tax

- □ FY20 growth was 3.4 percent, fourth quarter -5.9 percent
- □ FY21 growth was 12.0 percent, fourth quarter +31.4 percent
 - Kentucky received considerable amounts of federal fiscal stimulus that bolstered consumer spending in FY21
 - Direct stimulus checks
 - Unemployment insurance
 - Payroll protection from PPP Loans
 - Other exogenous spending related to federal aid (Child Tax Credit)
- □ FY22 growth through November is also 12.0 percent
- Sales tax base has been expanding in recent years
 - Adding services, effective July 2018 (FY20 estimate was \$216.1 million when the bill originally passed)
 - Enhanced ability to tax online sales (\$265.6 million in FY21)





Sales Tax Estimate for December

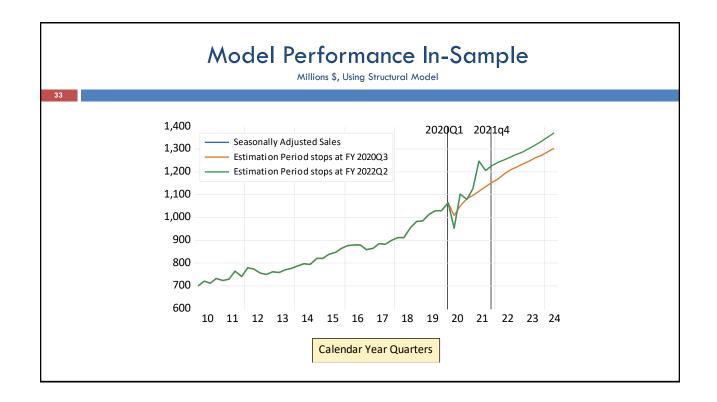
(Quarter Treated as history in the forecasting process)

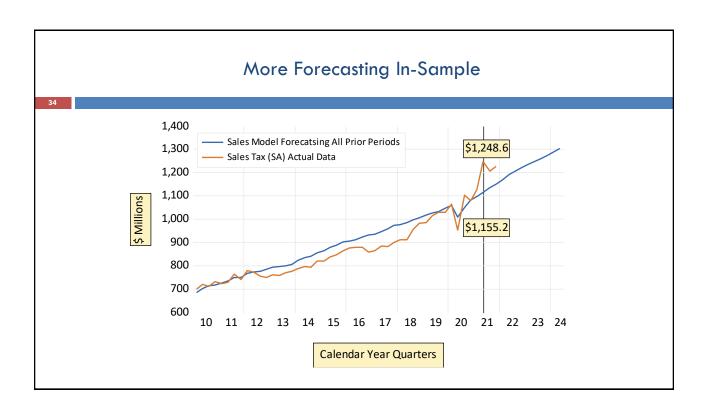
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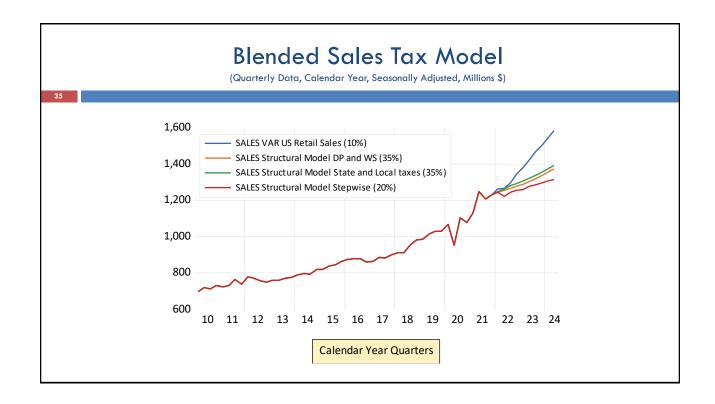
October Actual	\$420.4 million	16.3%
November Actual	\$411.0 million	14.1%
December Estimate	\$401.7 million	11.0%
FY22 Q2 Estimate	\$1,233.1 million	13.8%

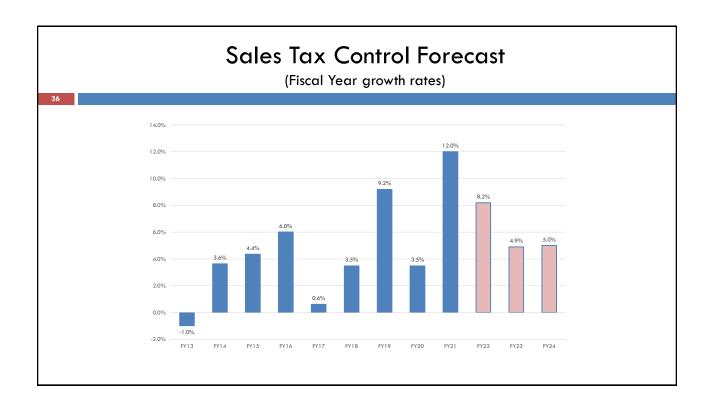
Updating the Sales Tax Estimate

- Estimation Sample FY2010Q1 through FY2022Q2
- □ Re-ran the quarterly structural models and VAR models
 - Tried several structural variables (differenced data due to nonstationarity)
 - Income variables (KY wages, KY personal Income, US counterparts)
 - US State and Local Personal Taxes
 - Consumer spending Durables, Domestic Purchases, U.S. Retail sales
 - VAR has seasonally adjusted sales tax and KY personal income as dependent variables, several different exogenous or predetermined variables
- Ultimately adopted a weighted blend of 4 models, primarily using GARCH estimation of structural and time series models









Sales Tax Projections

(Millions \$)

Fiscal Year	Control	Optimistic	Pessimistic
FY 2021	\$4,561.0	\$4,561.0	\$4,561.0
	12.0%	12.0%	12.0%
FY 2022	\$4,932.8	\$4,968.6	\$4,881.7
	8.2%	8.9%	7.0%
FY 2023	\$5,176.5	\$5,302.2	\$5,007.7
	4.9%	6.7%	2.6%
FY 2024	\$5,434.4	\$5,603.7	\$5,151.6
	5.0%	5.7%	2.9%

Sales Tax Forecast Needs for FY22

Percent Change

	Estimate	YTD	Needs Dec-June
Control	8.2%	12.0%	5.6%
Optimistic	8.9%	12.0%	6.9%
Pessimistic	7.0%	12.0%	3.7%

CORPORATION & LLET TAX FORECASTS

(CONSENSUS FORECASTING GROUP)

GENE ZAPARANICK-BROWN

DECEMBER 17, 2021

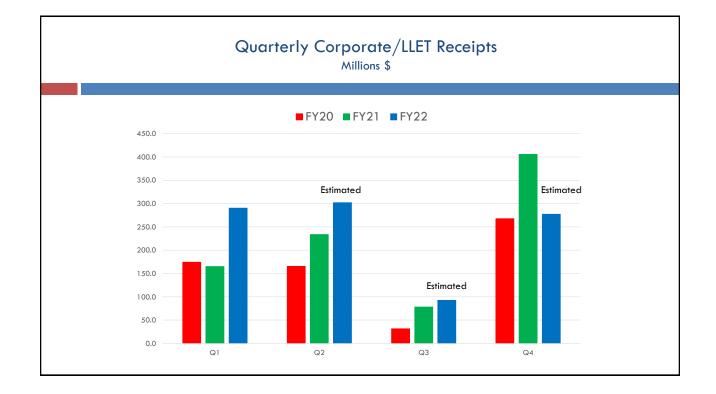
Office of State Budget Director

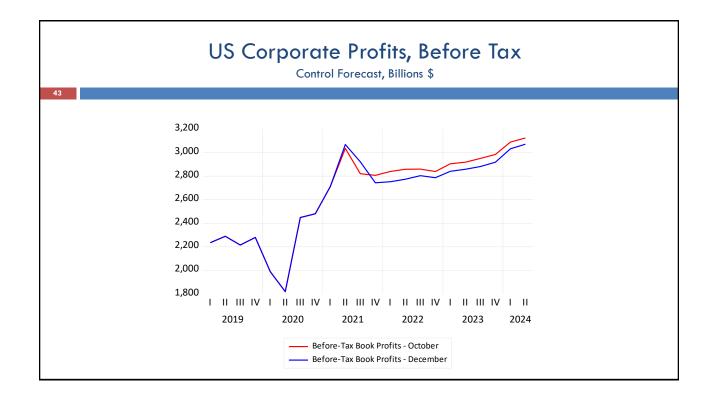
	ate & LLI		cast	
	FY22	FY23	FY24	
Control	(14.5)	(23.7)	(16.0)	
Optimistic	(46.5)	(49.0)	(34.7)	
Pessimistic	(10.1)	(17.3)	(23.5)	

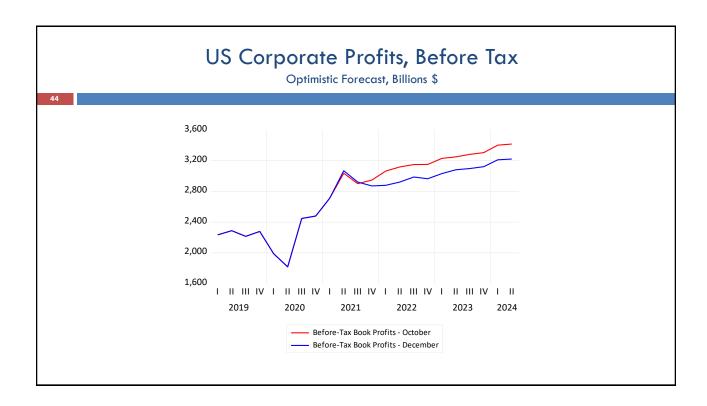
FY22 Corporate/LLET Receipts

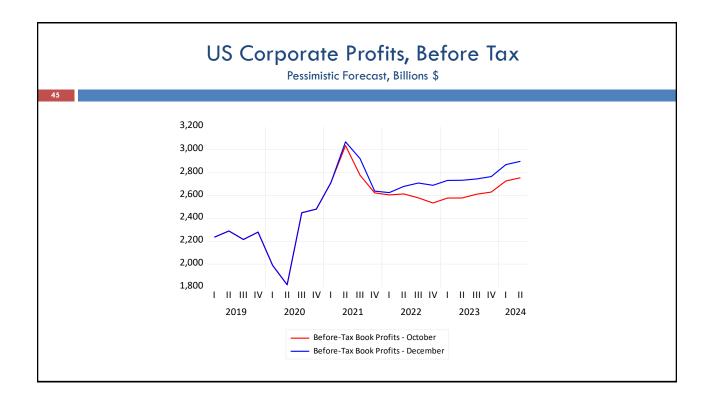
Millions \$

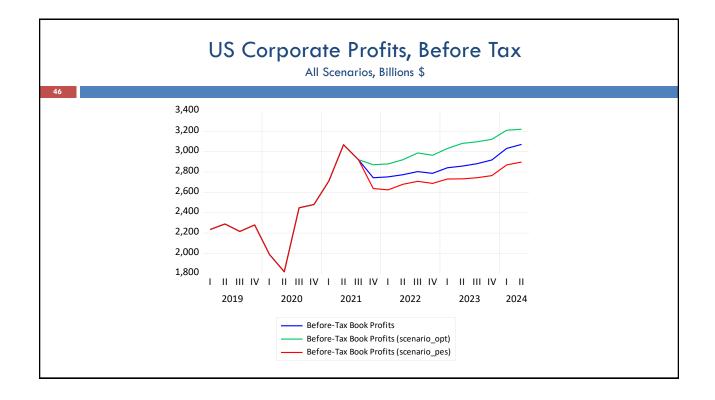
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	Receipts	Inc/Dec	YTD	% Chg
July	\$51.1	\$33.9	\$33.9	196.7%
August	16.7	11.9	45.8	207.3
September	222.7	79.7	125.5	76.0
October	48.1	7.2	132.7	64.4
November	23.9	5.8	138.5	61.7











Corporate & LLET Forecast

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	FY2	2	FY2	.3	FY2	4	
	Estimate	%Chg	Estimate	%Chg	Estimate	%Chg	
							İ
Control	962.3	9.0	878.6	-8.7	931.8	6.1	
Optimistic	978.6	10.8	945.4	-3.4	1,003.2	6.1	
Pessimistic	916.1	3.8	791.2	-13.6	818.4	3.4	

Corporate & LLET Forecast Needs

Percent Change

48				
		Estimate	YTD	Needs
	Control	9.0%	61.7%	-9.0%
	Optimistic	10.8%	61.7%	-6.5%
	Pessimistic	3.8%	61.7%	-16.0%

PROPERTY TAX FORECAST

(CONSENSUS FORECASTING GROUP)

GENE ZAPARANICK-BROWN

DECEMBER 17, 2021

Office of State Budget Director

Changes to the Property Tax Forecast

(\$ millions)

	FY22	FY23	FY24
REAL	0.0	0.0	0.0
TANGIBLE	2.5	4.8	7.1
MOTOR VEHICLE	0.5	(0.5)	(1.4)
DELINQUENT	(0.5)	0.0	0.0
OM TANGIBLE	1.5	1.0	0.0
PUBLIC SERVICE	(1.0)	(1.0)	0.0
OTHER	0.0	0.0	0.0
TOTAL PROPERTY	3.0	4.3	5.7

Property Tax Forecast

FY22-FY24

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- □ Small changes to the forecast
- □ All revisions are based on YTD receipts
- □ Real property, the largest of the accounts, unchanged because of the collection cycle began in November
- □ There is limited information on the remaining accounts as well but enough to make some conclusions
 - Tangible
 - Motor Vehicle
 - Omitted
 - Delinquent
 - Public service

Property Tax Forecast

FY22 - FY24

	FY2	22	FY:	23	FY	24
_	\$M	%Chg	\$M	%Chg	\$M	%Chg
REAL	330.5	4.1	344.1	4.1	357.9	4.0
TANGIBLE	123.7	4.3	127.7	3.2	130.4	2.1
MOTOR VEHICLE	165.0	-0.8	175.0	6.1	183.8	5.0
DELINQUENT	6.5	-12.1	6.0	-7.7	6.0	0.0
OMITTED TANGIBLE	10.5	-0.9	9.0	-14.3	8.0	-11.1
APPORTIONED VEHICLE	5.0	-24.1	5.0	0.0	5.0	0.0
PUBLIC SERVICE	70.5	-3.4	71.0	0.7	72.5	2.1
OTHER	2.3	-11.5	2.2	-4.3	2.1	-4.5
TOTAL	714.0	1.6	740.0	3.6	765.6	3.5

CIGARETTE TAX CONSENSUS FORECASTING GROUP

GREG HARKENRIDER

DECEMBER 17, 2021

Office of State Budget Director

Cigarette Trends

- □ FY20 cigarette tax revenue was 0.4% higher than FY19 on a tax rate-neutral basis
- □ FY21 cigarette tax revenue was 1.4% lower than FY20
- Through November in FY22, cigarette stamp receipts have been down by 6.6%
- □ Prices are rising / discounts abating on many cigarette brands
- "COVID Effect" increase in cigarette usage has waned
- □ Monthly growth rates have been quite volatile, as several large wholesalers dominate the market
- □ Not a monthly return, so payments for stamps can be irregular

Cigarette Tax Forecast

(Millions \$)

Fiscal Year Control

FY 2021 \$349.9
-1.4%

FY 2022 \$334.7
-4.3%

FY 2023 \$322.0
-3.8%

FY 2024 \$309.1
-4.0%

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KENTUCKY LOTTERY CONSENSUS FORECASTING GROUP

GREG HARKENRIDER

DECEMBER 17, 2021

Office of State Budget Director

Lottery Dividends

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- □ FY21 Kentucky Lottery Financials
 - Record sales of \$1,586.3 million (\$382.9 million and 31.8% more than FY20)
 - Instant tickets up 29.8% from FY20 (\$961.7 million total)
 - Draw games 17.9% higher than FY20 (\$506.0 million total)
 - ilottery instant play 256.7% higher than FY20 (\$118.6 million total)
 - Total prizes to players up 33.2%
- Historical Dividend Performance
 - FY20 -- \$271.4 million General Fund
 - FY21 -- \$289.1 million General Fund
 - FY21 -- \$347.1 million General Fund and Trust and Agency Account (per House Bill 192)

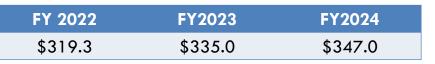
Lottery Trends in FY22

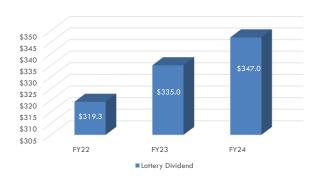
- □ Shift in the mix of ticket sales
 - iLottery instant play games showing continued growth
 - Instant play sales through November are up \$46 million or 139.5% from the same period in FY21 and \$11.3 million or 16.7% compared to budget.
 - Instant play sales account for 11.6% of total sales through November compared to 7.5% in FY21 and 10.7% budgeted.
 - Instant play games have a higher percentage payout than any other lottery product
 - Scratch-off game sales remain strong
 - Growth in Draw Games has slowed
- Operating expenses remain low



(\$ millions)







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MISCELLANEOUS "OTHER" TAXES

(CONSENSUS FORECASTING GROUP)

GREG HARKENRIDER

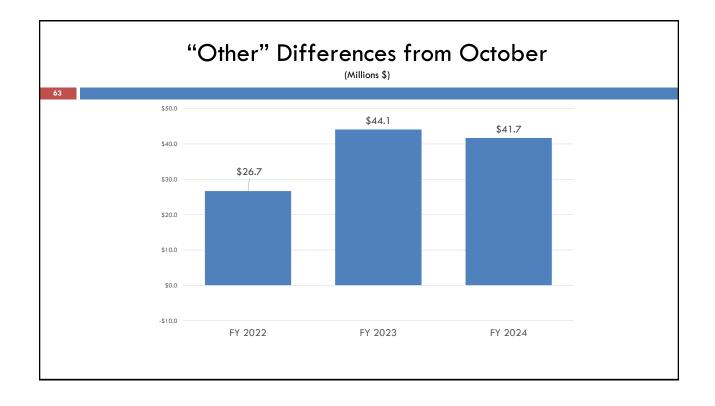
DECEMBER 17, 2021

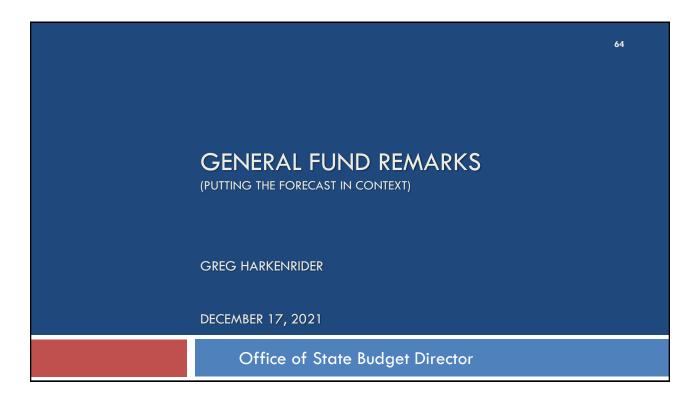
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Changes to Other Taxes Since October

- □ Re-evaluated every account to adjust for YTD FY22 actual receipts
- □ FY22 forecast has been raised by \$26.7 million
- □ Positive upgrades to:
 - Alcohol taxes
 - Insurance premiums
 - Inheritance tax
 - Pari-mutuel
 - Other tobacco products
 - Natural gas Severance/Oil production

"Other" Receipts Forecast (Millions \$) \$1,100.0 \$1,014.0 \$1,000.0 \$900.0 \$842.2 \$831.8 \$810.6 \$790.4 \$800.0 \$763.1 \$703.7 \$700.2 \$690.1 \$700.0 \$600.0 \$500.0 2016 2017 2018 2019 2021 2022 2023 2024 2020





Control Forecast Versus Historical Periods

(Compound Annual Growth Rates)

	Compund Annual Growth Rates		
_	FY21-24	FY15-21	FY10-21
Individual Income Tax	4.4%	4.0%	4.5%
Sales tax	6.0%	5.7%	4.6%
Business Taxes	1.8%	2.7%	7.9%
Property Taxes	2.9%	3.7%	2.8%
Lottery	6.3%	4.5%	3.4%
Cigarettes	-4.0%	8.0%	2.1%
Coal Severance	22.5%	-17.7%	-13.4%
Other _	-0.4%	3.3%	2.7%
General Fund	4.3%	4.3%	4.1%

FY22 Needs to Hit Alternative Scenarios

(Growth over FY21 needed from December 2021 through June 2022 to hit estimates)

Scenario	Needs	
Control	1.4%	
Optimistic	2.1%	
Pessimistic	0.0%	

Differences from Official FY22 Estimate

(Millions \$)

Scenario	FY22 Estimate	FY22 Official Estimate	Difference from Official
Control	\$13,769.4	\$11,849.8	\$1,919.6
Optimistic	\$13,833.0	\$11,849.8	\$1,983.2
Pessimistic	\$13,663.7	\$11,849.8	\$1,813.9



