

# KENTUCKY ECONOMIC AND REVENUE MODELS

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COMMONWEALTH OF KENTUCKY

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Office of State Budget Director

# Introduction and Background

- Kentucky uses the S&P IHS Global US macro model
  - ▣ Contains control, optimistic, and pessimistic scenarios
  - ▣ Been in continuous use since 1991
  - ▣ Considered Moody's Analytics macro model as well
- Kentucky also has a state macro model (MAK)
  - ▣ Forecasts employment by supersector
  - ▣ Forecasts personal income by type
- These two models feed our state revenue models
  - ▣ Run revenue forecasts for the three scenarios
  - ▣ Need economic forecasted values to run structural models

# Control Scenario

(Probability – 55%)

- Recession Fear Ebb
  - ▣ Increased Real GDP growth of 1.9% estimated for FY24
  - ▣ Below-trend growth in FY25 and FY26
  - ▣ Business Fixed Investment slows after recent surge due to CHIPs Act
- Federal Reserve maintains increase of Federal Funds rates to 5.5-5.75% by the end of FY24Q2 with continued balance sheet reductions
- Trends in payroll growth continue to decline, with negative growth in FY25 and FY26, as Fed tightening continues
- Declines from recent highs in West Texas Intermediate oil prices, as oil expected to be \$73.90/bbl in FY24, increasing to \$74.98 in FY25 and \$80.91 in FY26

# Optimistic Scenario

(Probability – 20%)

- GDP growth increases to 2.4% in FY24, trend level growth in FY25 and FY26
  - ▣ Consumer response to Infrastructure Investment and Jobs Act stimulus exceeds baseline forecast
  - ▣ Business fixed investment remains elevated
- Employment increases by 1.5% in FY24
- Real Personal Income has growth in FY24 of 2.4%
- Light Vehicle Sales increase by 6.8% in FY24 and 8.7% in FY25
- Real Consumer Spending increase by 2.5% in FY24
- Cessation of active fighting in Russia-Ukraine conflict lowers global oil prices

# Pessimistic Scenario

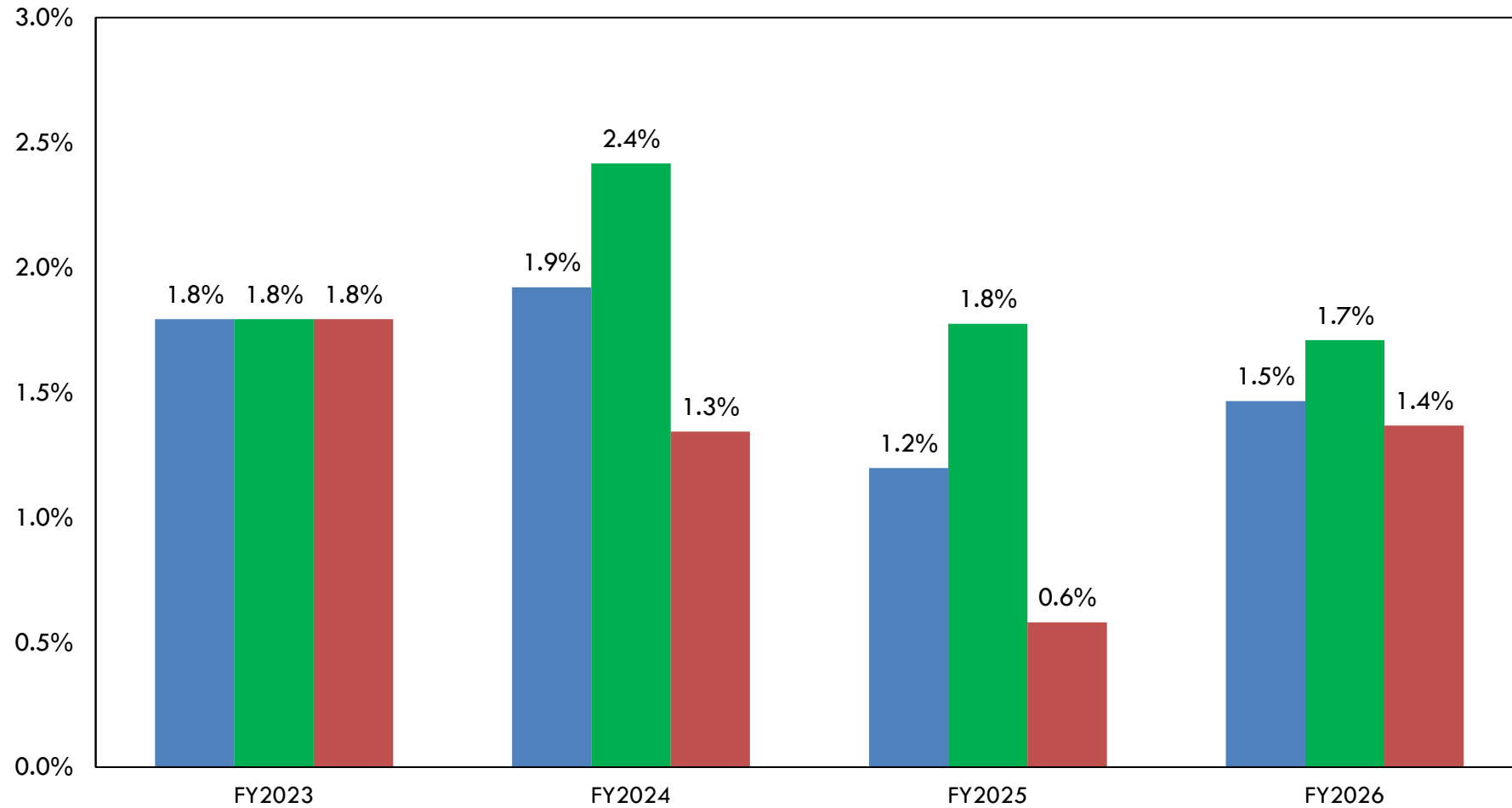
(Probability – 25%)

- GDP growth declines by 1.3% in FY24 and 0.6% in FY25
  - ▣ Russia-Ukraine conflict intensifies leading to higher commodity prices and more pronounced retraction of world economies
  - ▣ Recent turmoil in banking sector leads to tightened lending standards and reduced credit expansion
- Consumer spending growth slows to 1.3% in FY24 and 0.9% in FY25
- Non-Farm Employment decreases by -1.5% in FY25, with Manufacturing Employment decreasing by -4.4% in FY25
- Unemployment rate increases to 6.4% by end of FY25
- Russia-Ukraine conflict drives world oil back over \$100/bbl

# Real GDP

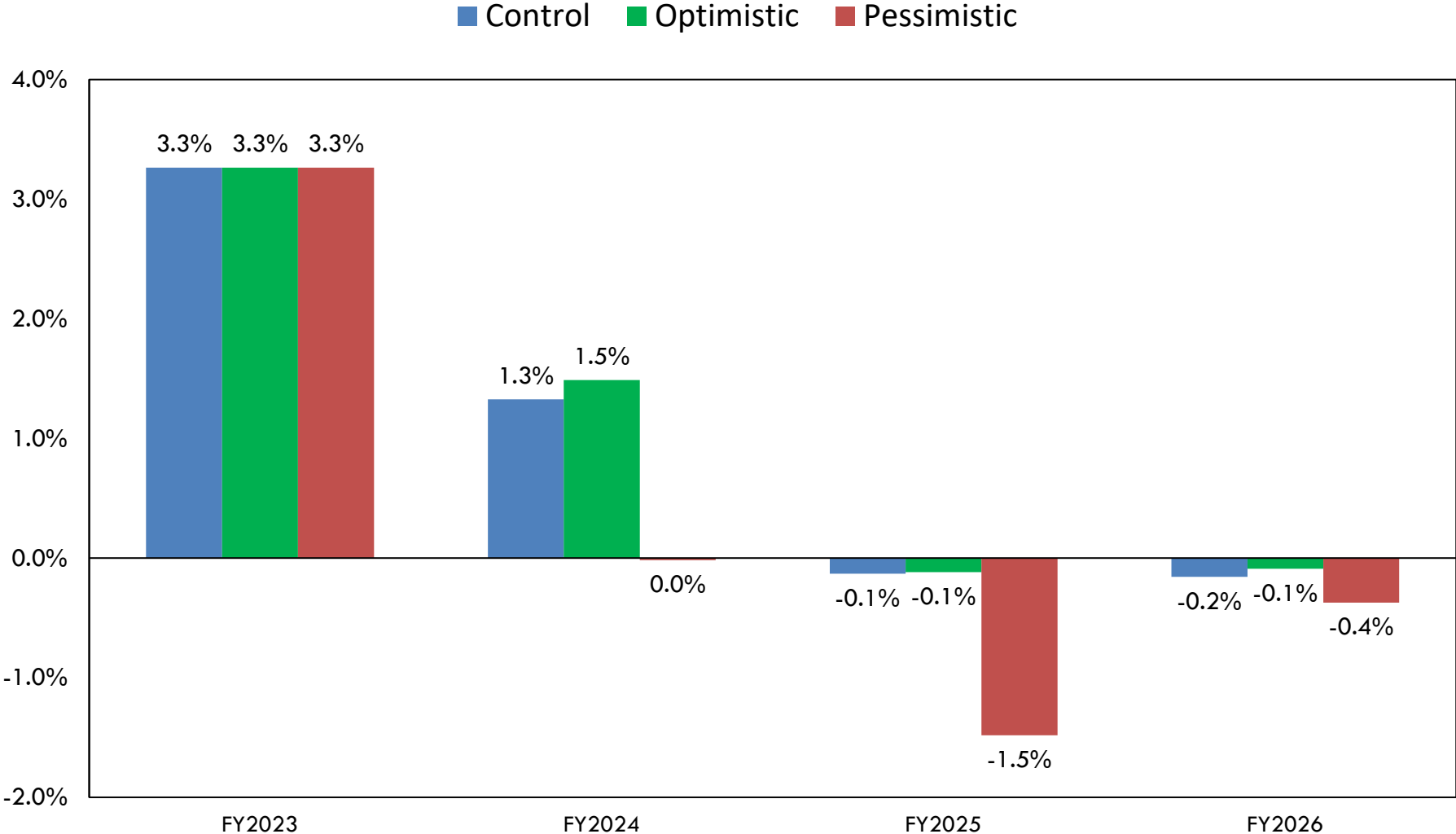
(IHS Markit, Annual Growth Rates)

■ Control ■ Optimistic ■ Pessimistic



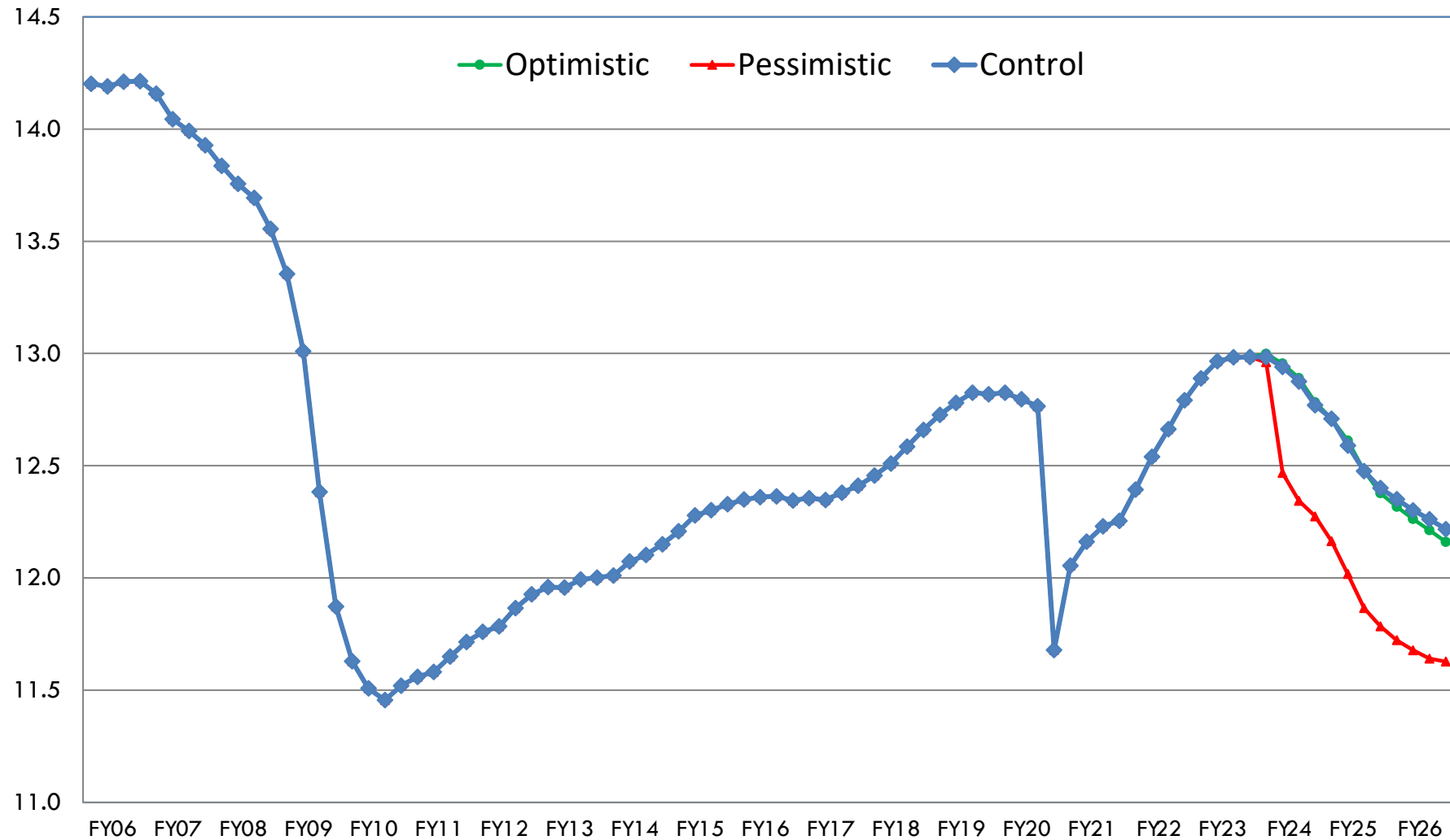
# U.S. Employment – Total Non-Farm Payrolls

(IHS Markit Forecast, Annual Growth Rates)



# U.S. Employment – Manufacturing

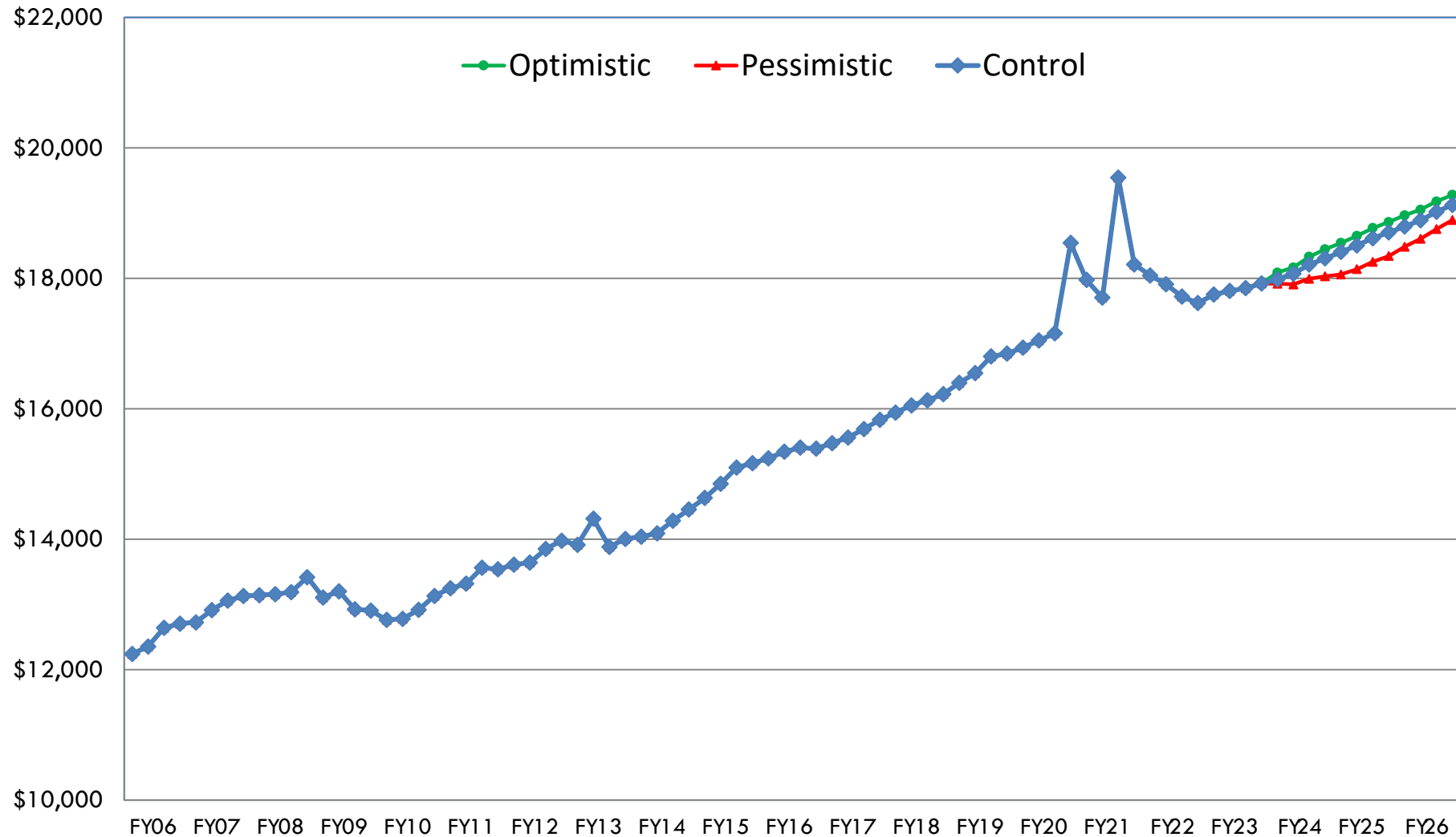
(Millions, BLS)





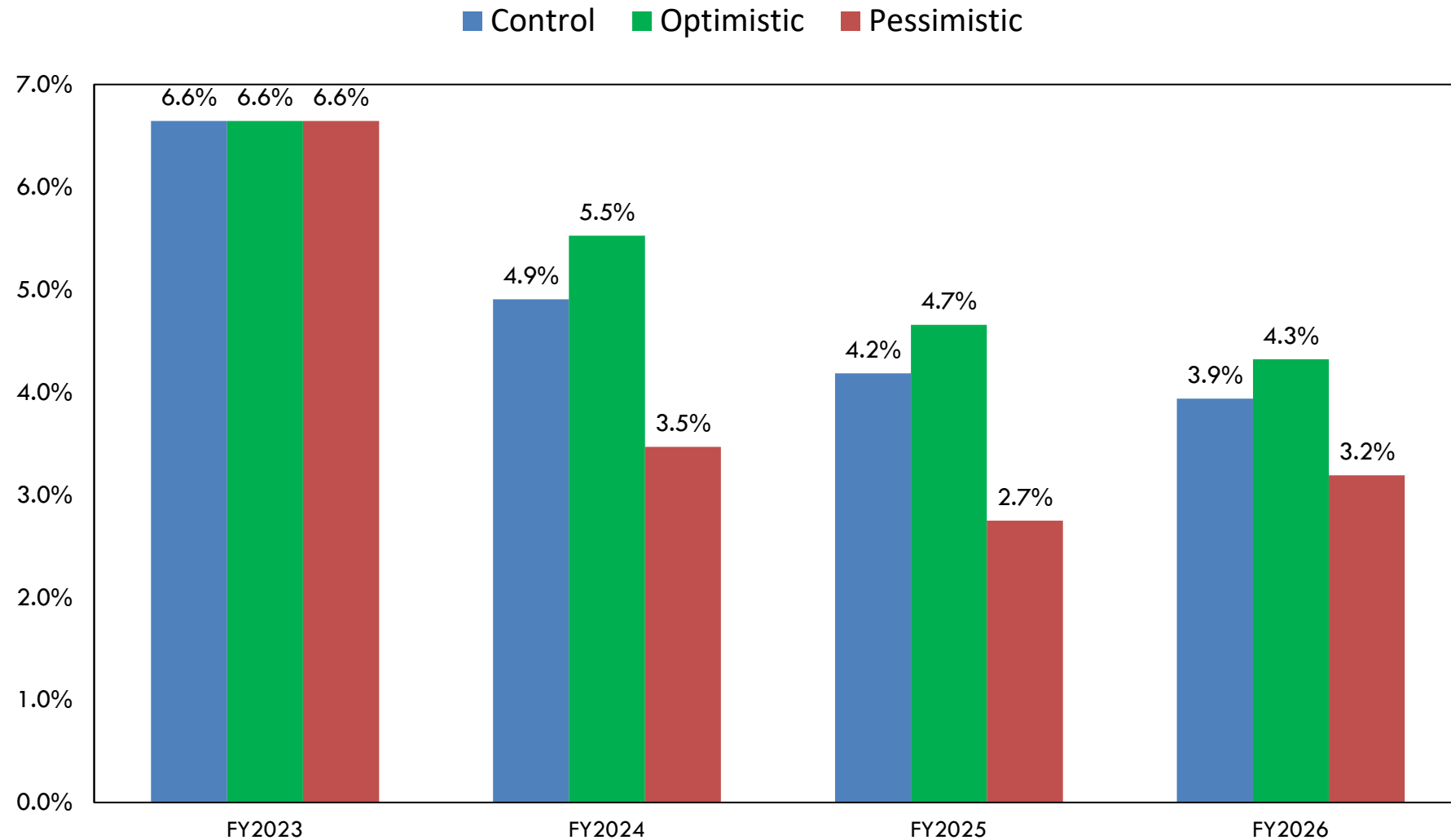
# US Real Personal Income

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



# US Wage and Salary Disbursements

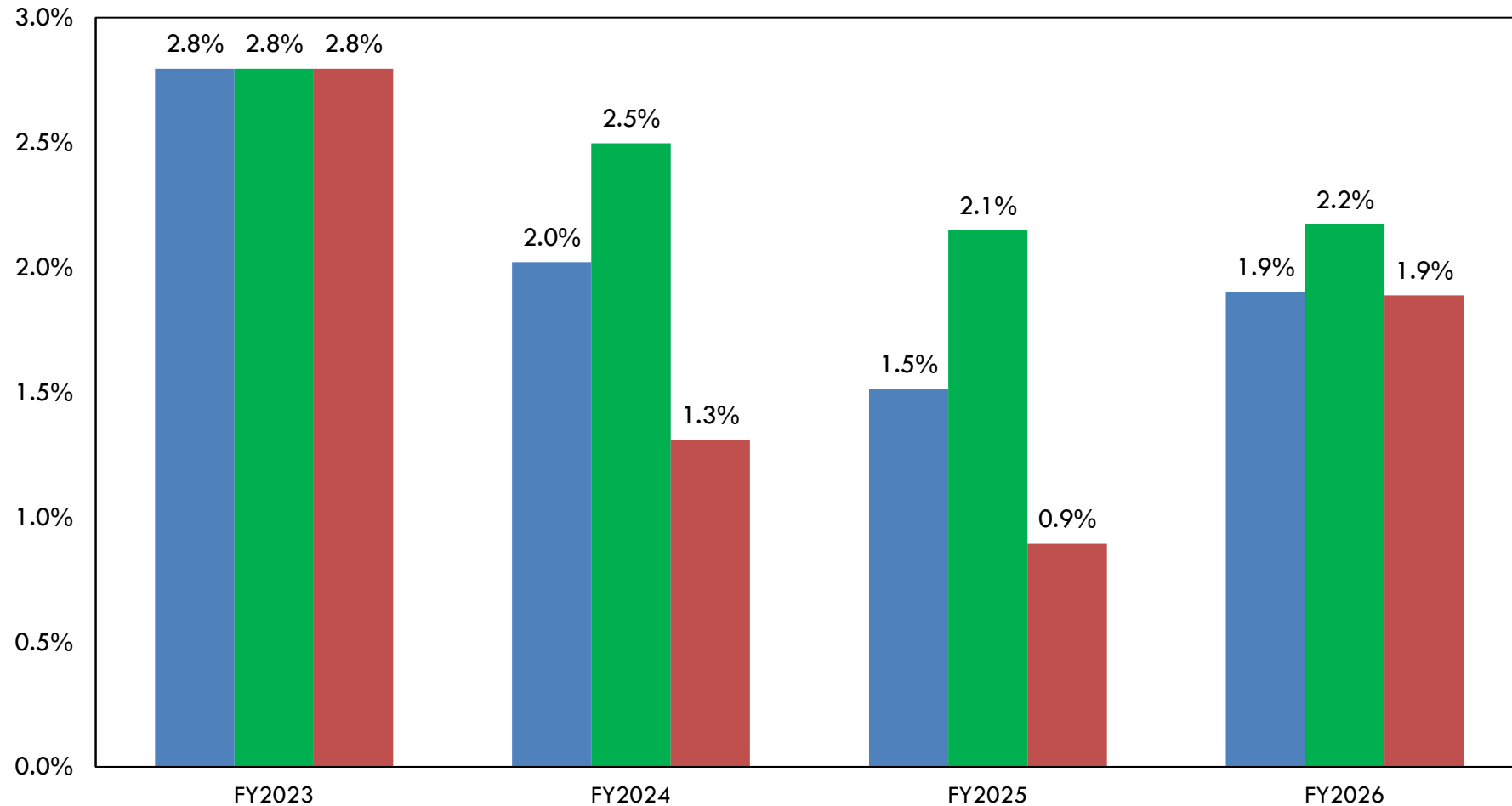
(IHS Markit Forecast, Annual Growth Rates)



# Real Consumer Spending (Excluding Food and Energy)

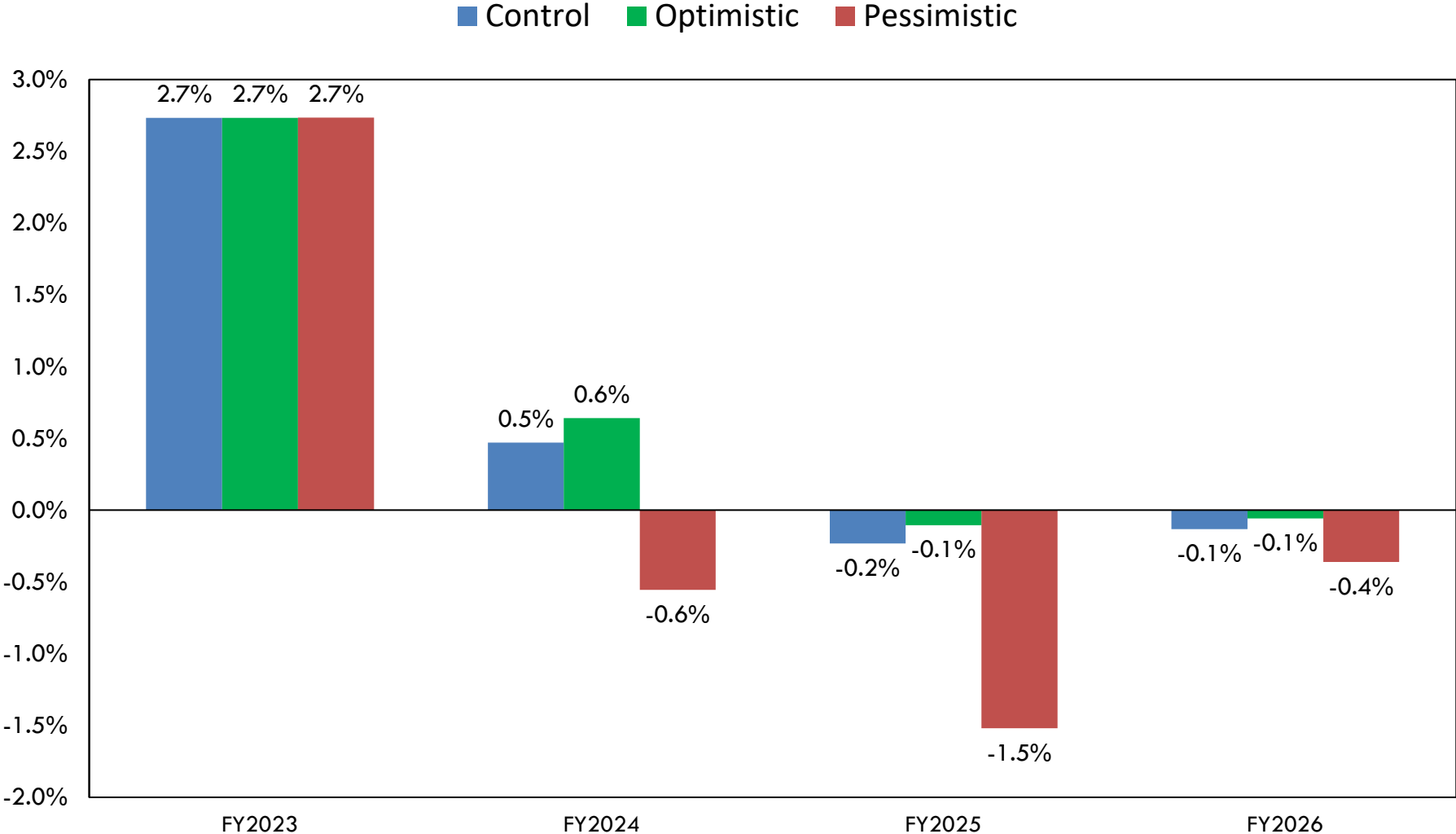
(IHS Markit Forecast, Annual Growth Rates)

■ Control ■ Optimistic ■ Pessimistic



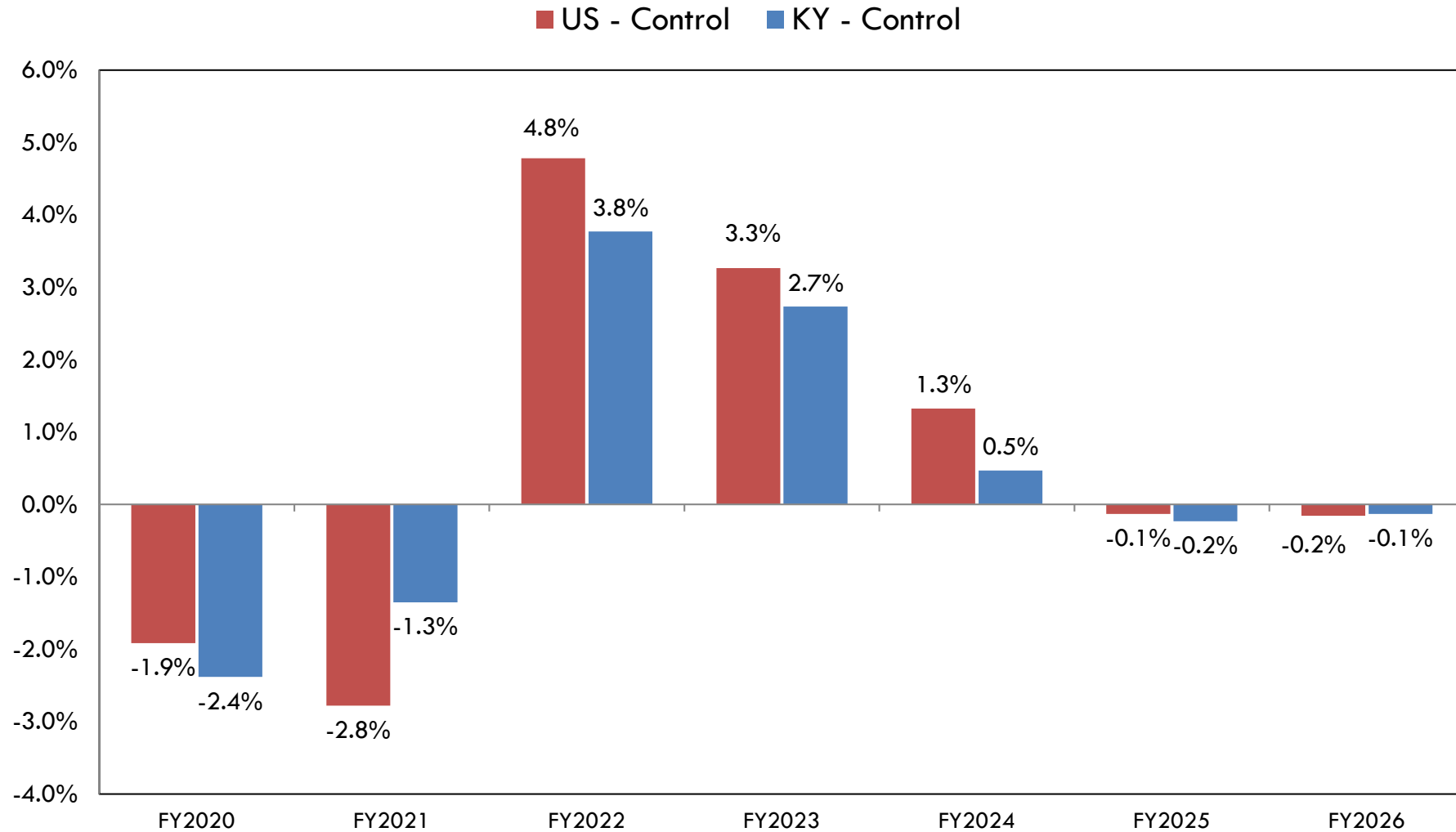
# Kentucky Non-Farm Employment Forecasts

(KY MAK Model, Annual Growth Rates)



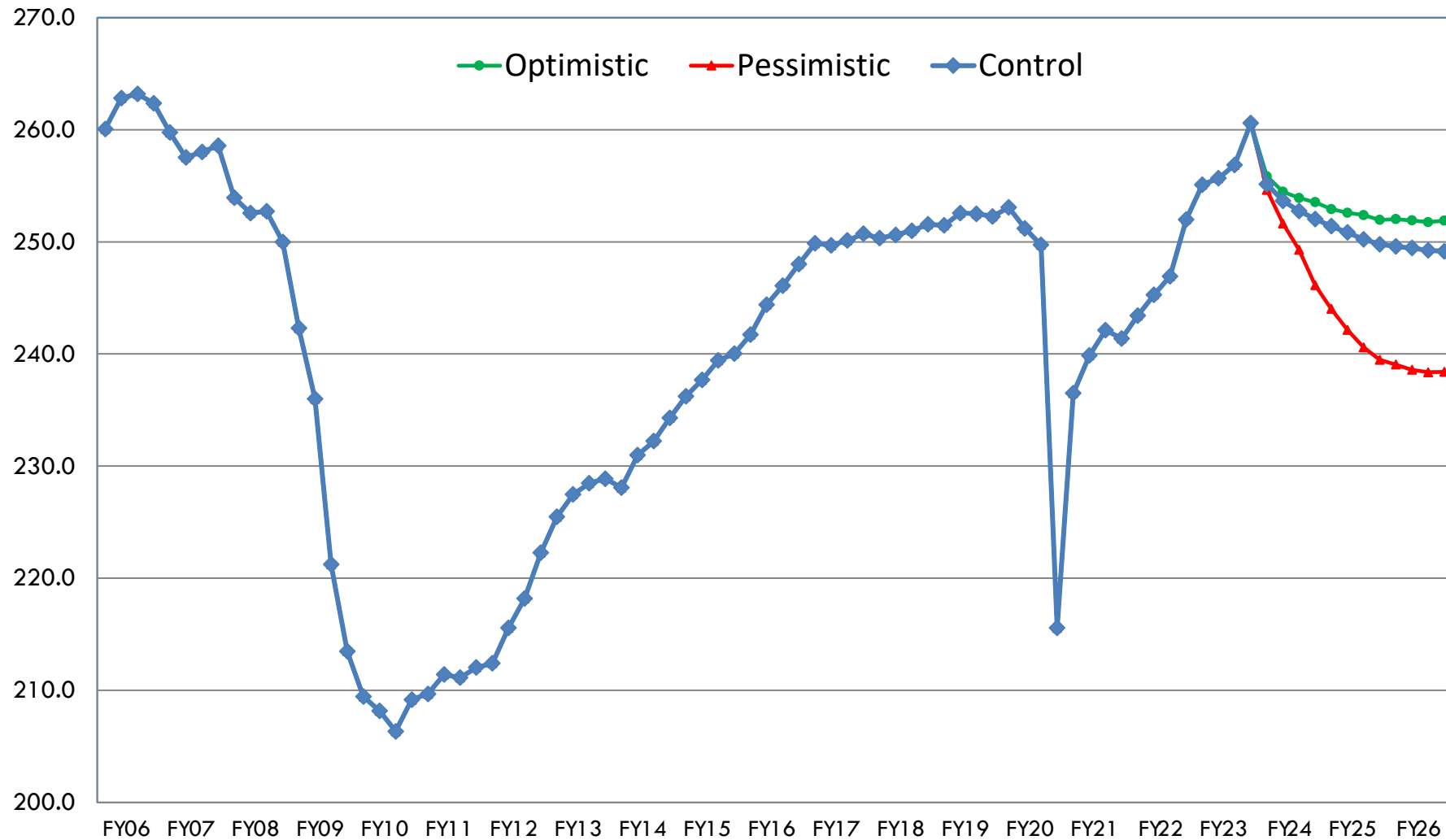
# Non-Farm Employment – US and Kentucky

(Fiscal Year Growth Rates, IHS Markit and KY MAK Model)



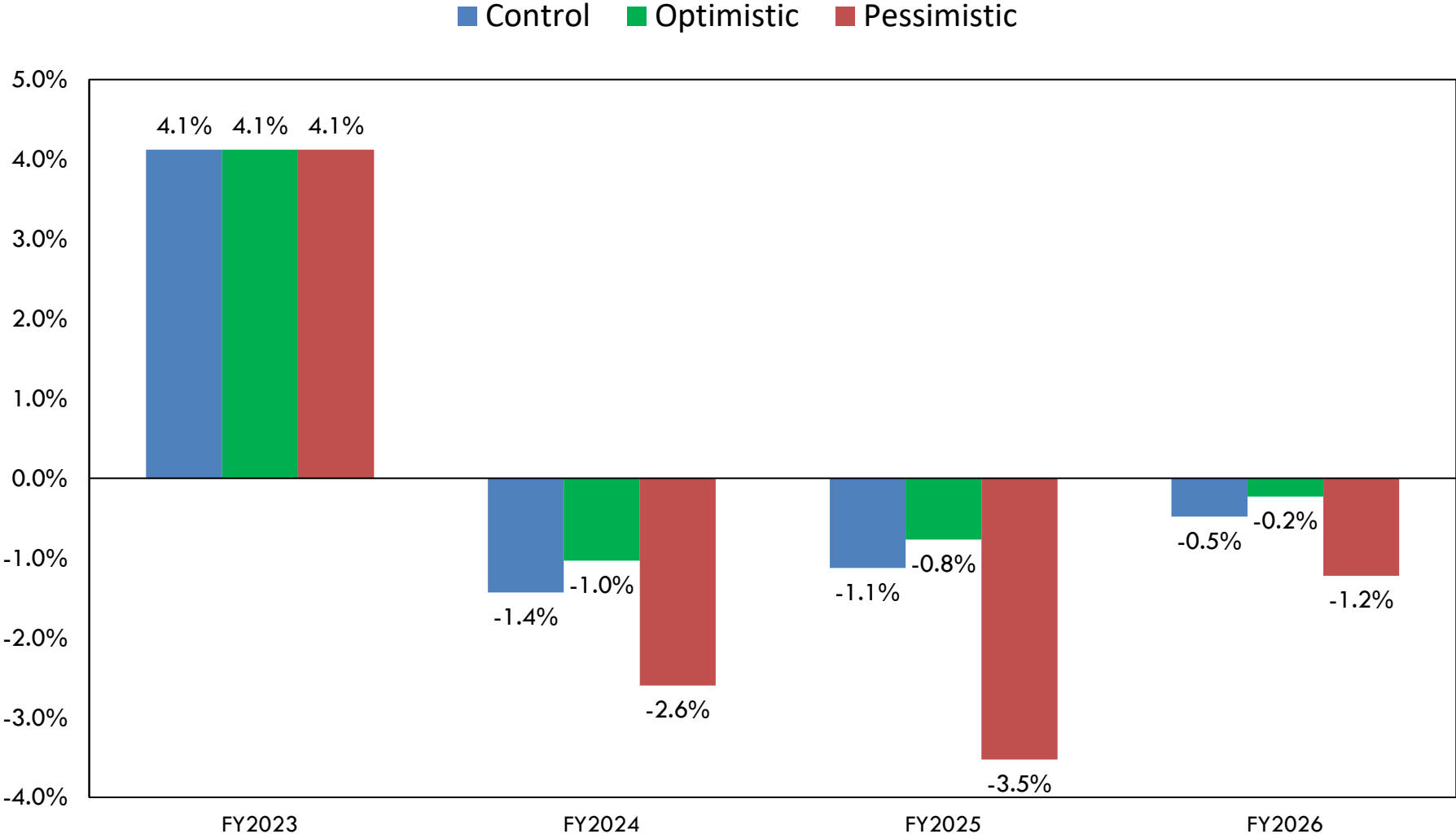
# Kentucky Manufacturing Employment

(Thousands, KY MAK Model)



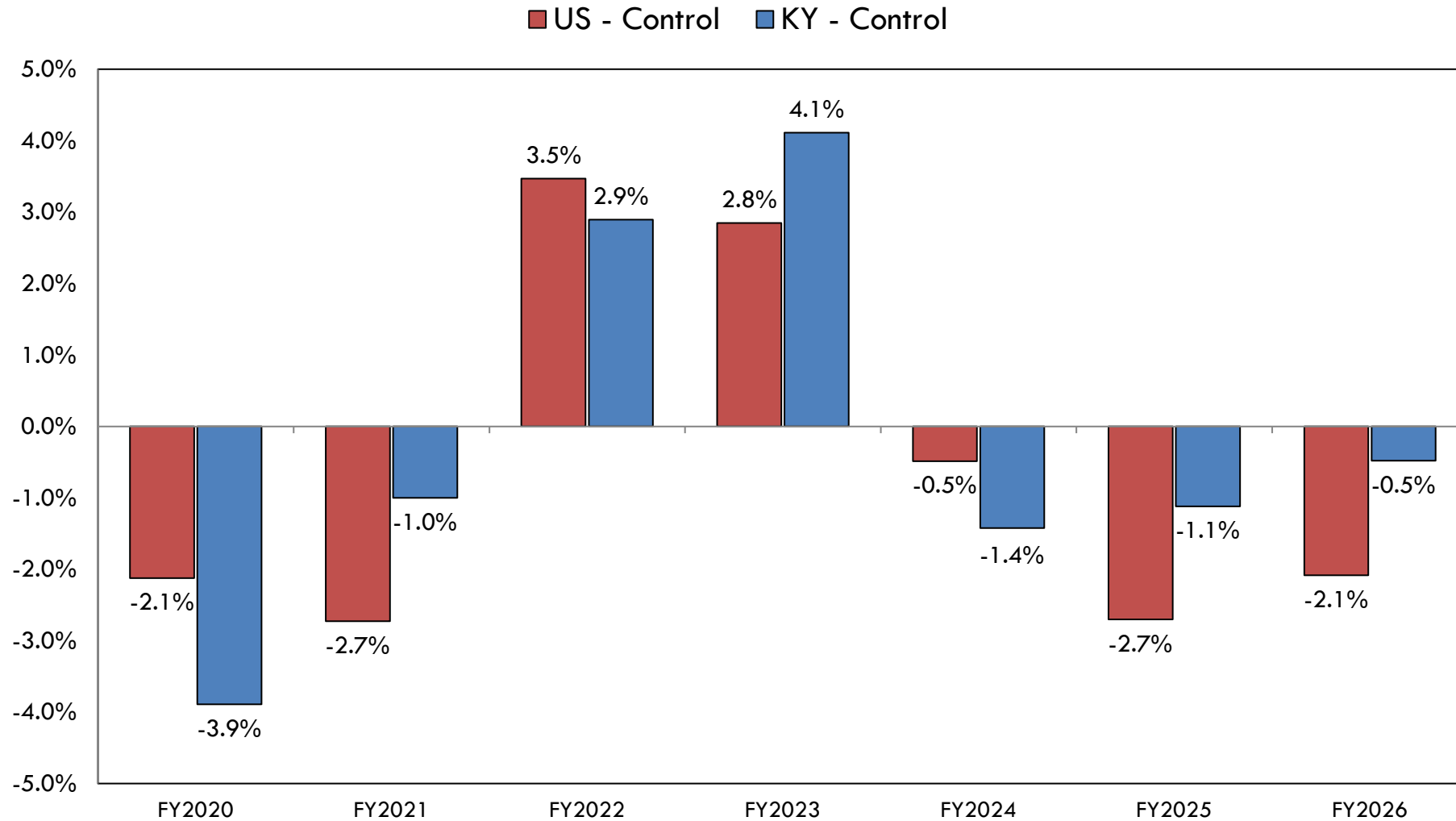
# Kentucky Manufacturing Employment Forecasts

(KY MAK Model, Annual Growth Rates)



# Manufacturing Employment – US and Kentucky

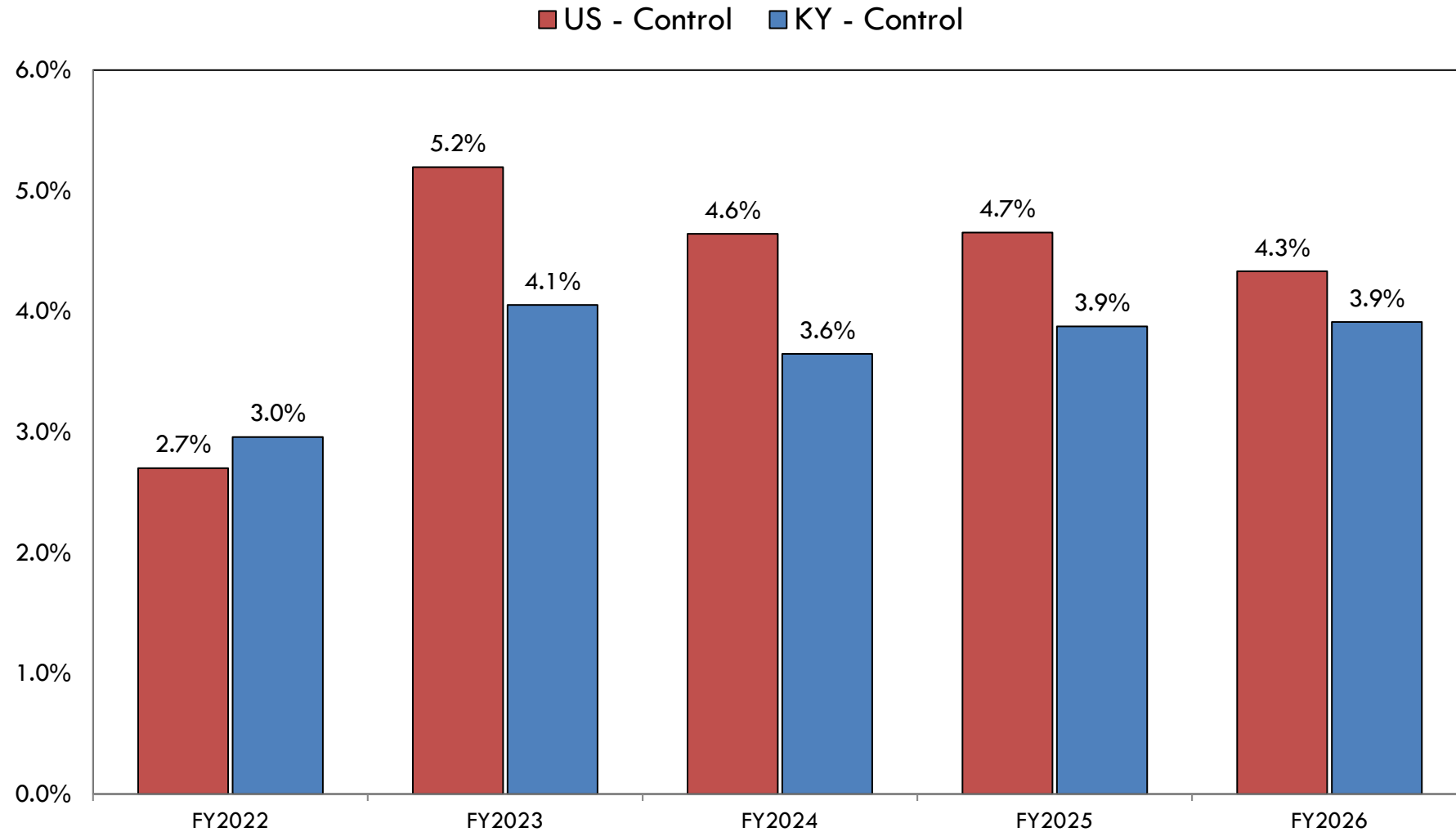
(Fiscal Year Growth Rates, IHS Markit and KY MAK Model)





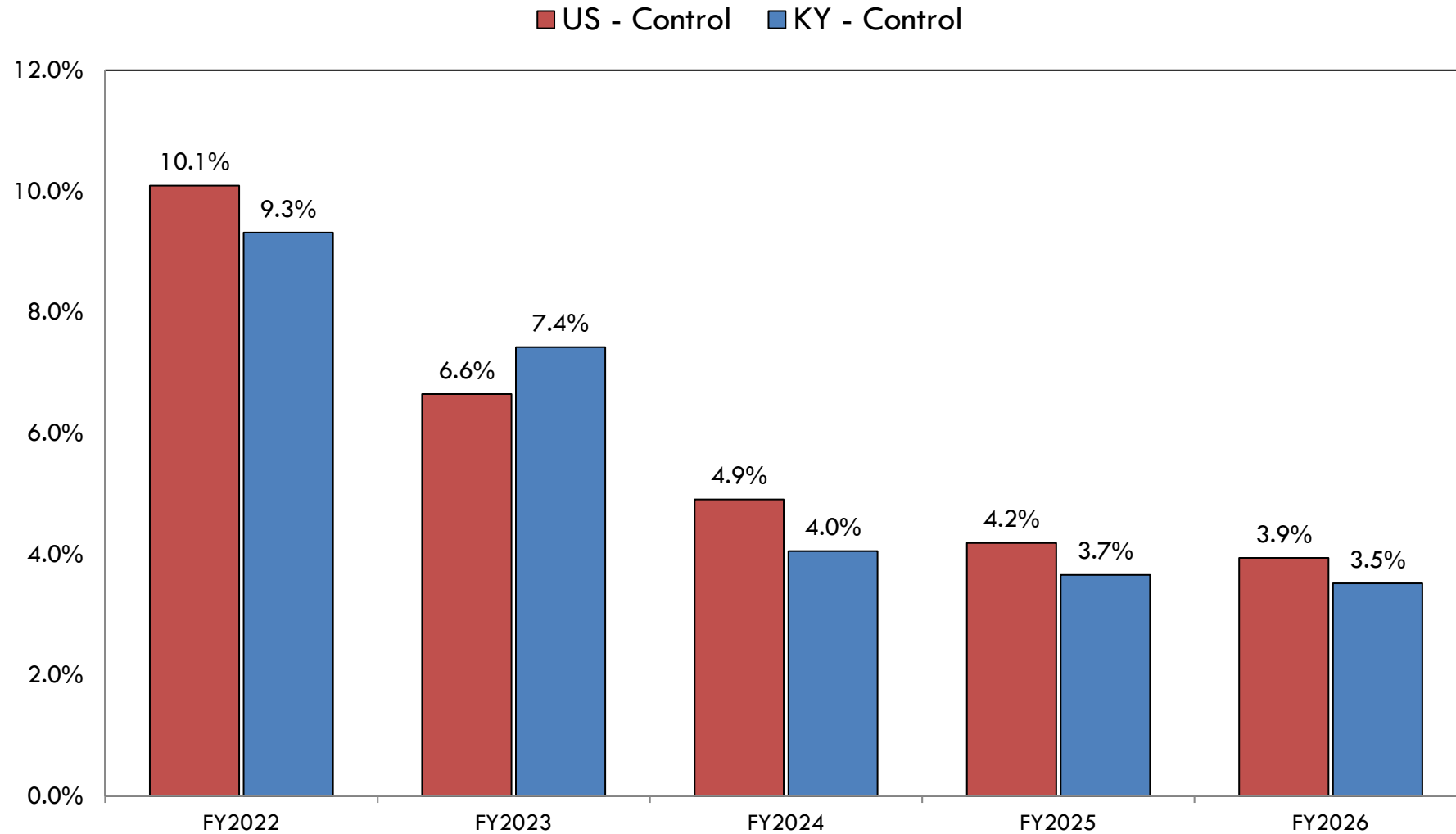
# Personal Income – US and Kentucky

(Fiscal Year Growth Rates, IHS Markit and KY MAK Model)



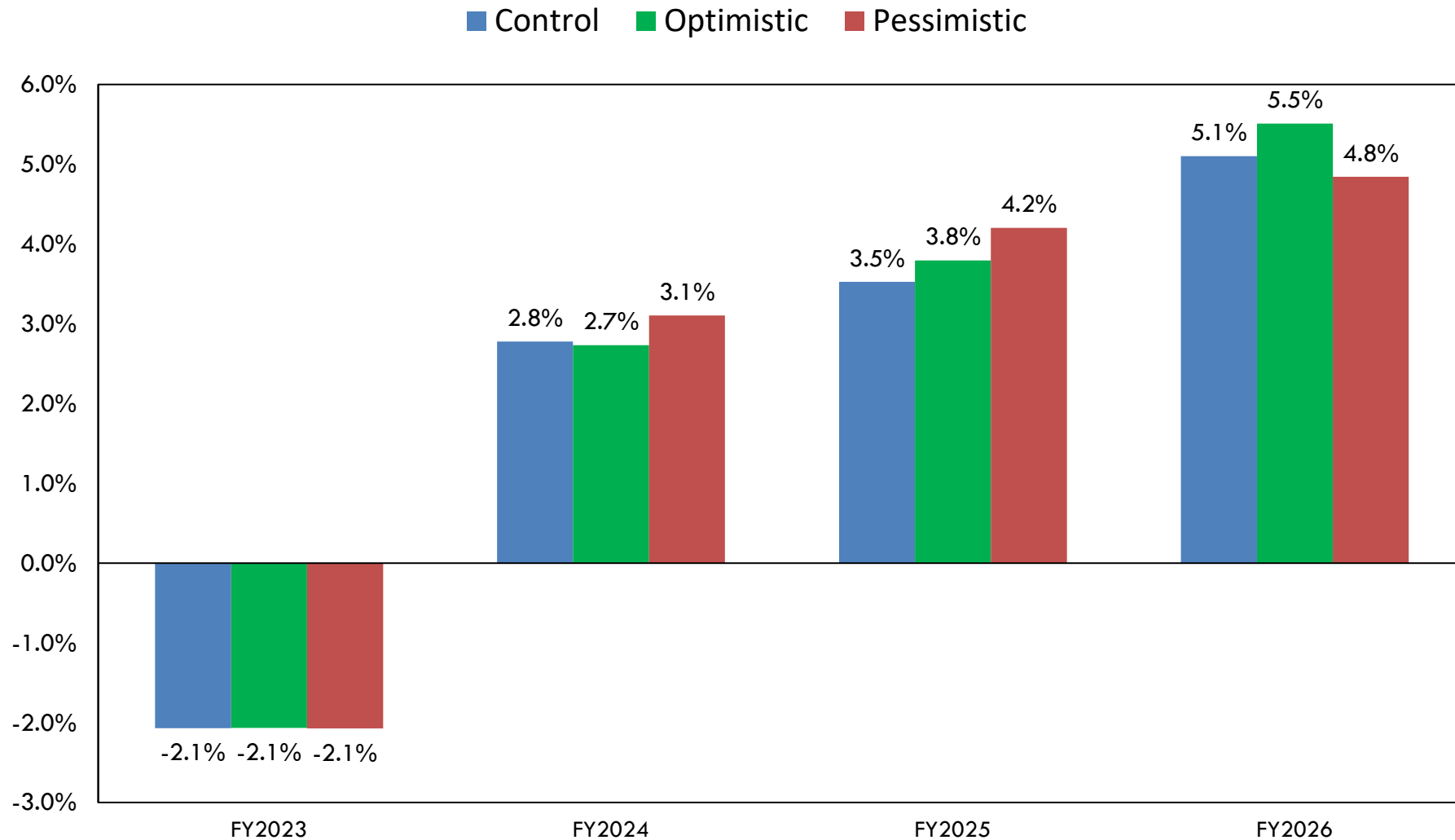
# Wages and Salaries – US and Kentucky

(Fiscal Year Growth Rates, IHS Markit and KY MAK Model)



# Kentucky Transfer Payments Forecasts

(KY MAK Model, Annual Growth Rates)

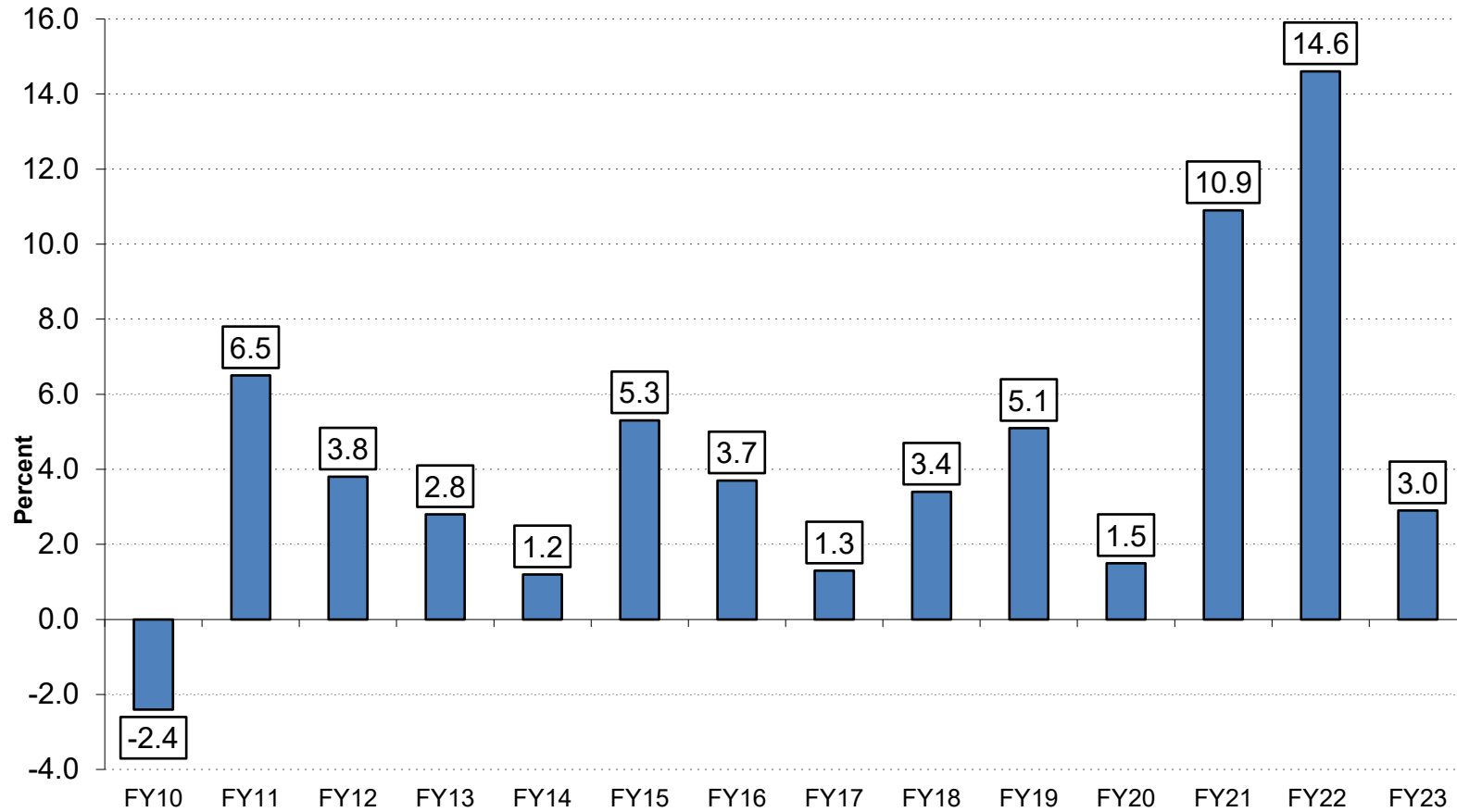


# Economic Models Feed into Revenue

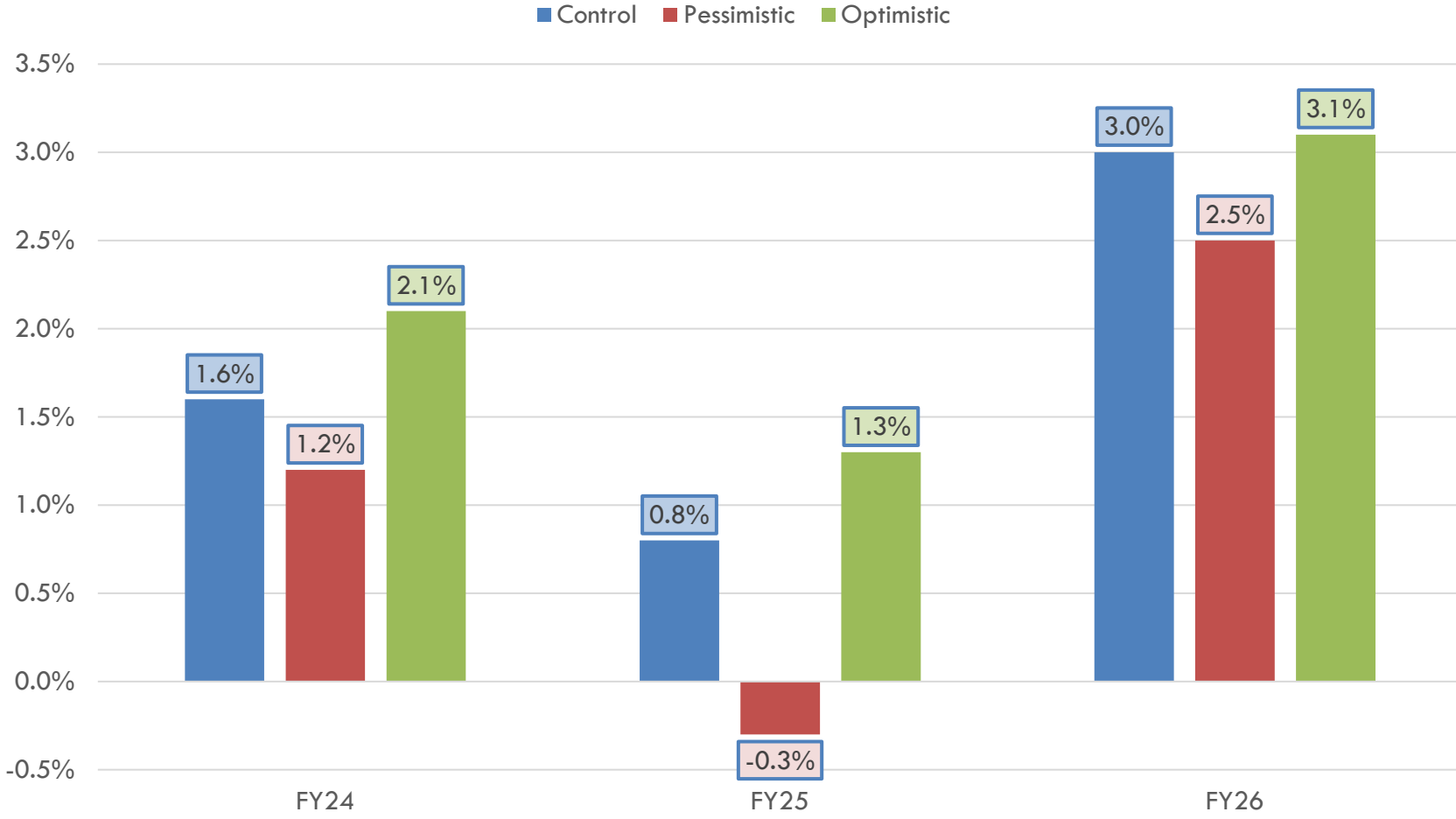
- The national and state economic models are used in structural and time series models for the various taxes
- Focus today will be on the largest two taxes:
  - ▣ Individual Income (Roughly \$6 billion out of a \$15 billion General Fund)
  - ▣ Sales Tax (Roughly \$5.8 billion)
  - ▣ Together the largest two taxes over 78% of the General Fund
- In addition to the economy, tax law changes have a profound impact on revenue estimation
  - ▣ Major Tax reform in 2018
  - ▣ Minor tweaks in 2019-2021
  - ▣ Major tax reform again in 2022

# Annual GF Revenue Growth Rates Since FY10

(Percentage Growth)

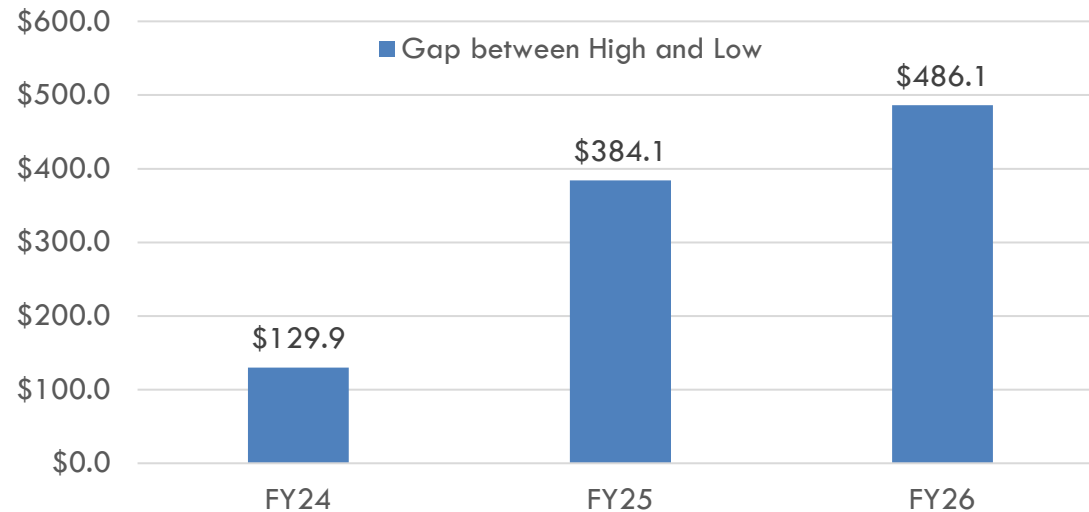


# General Fund Projected Growth



# Implied Variation Among Scenarios

	Pessimistic	Control	Optimistic
FY24	\$15,333.5	\$15,394.2	\$15,463.4
FY25	\$15,278.1	\$15,514.9	\$15,662.2
FY26	\$15,669.0	\$15,987.7	\$16,155.1



# Individual Income Tax Receipts History

(\$ millions, nominal)

24

	<b>IIT</b>	<b>% chg</b>
<b>FY19</b>	4,544.7	-1.3
<b>FY20</b>	4,765.2	4.9
<b>FY21</b>	5,143.8	7.9
<b>FY22</b>	6,047.5	17.6
<b>FY23</b>	5,843.9	-3.4
<b>Jul-23</b>	431.5	4.4
<b>Aug-23</b>	423.6	1.4



# Individual Income Tax Forecasts

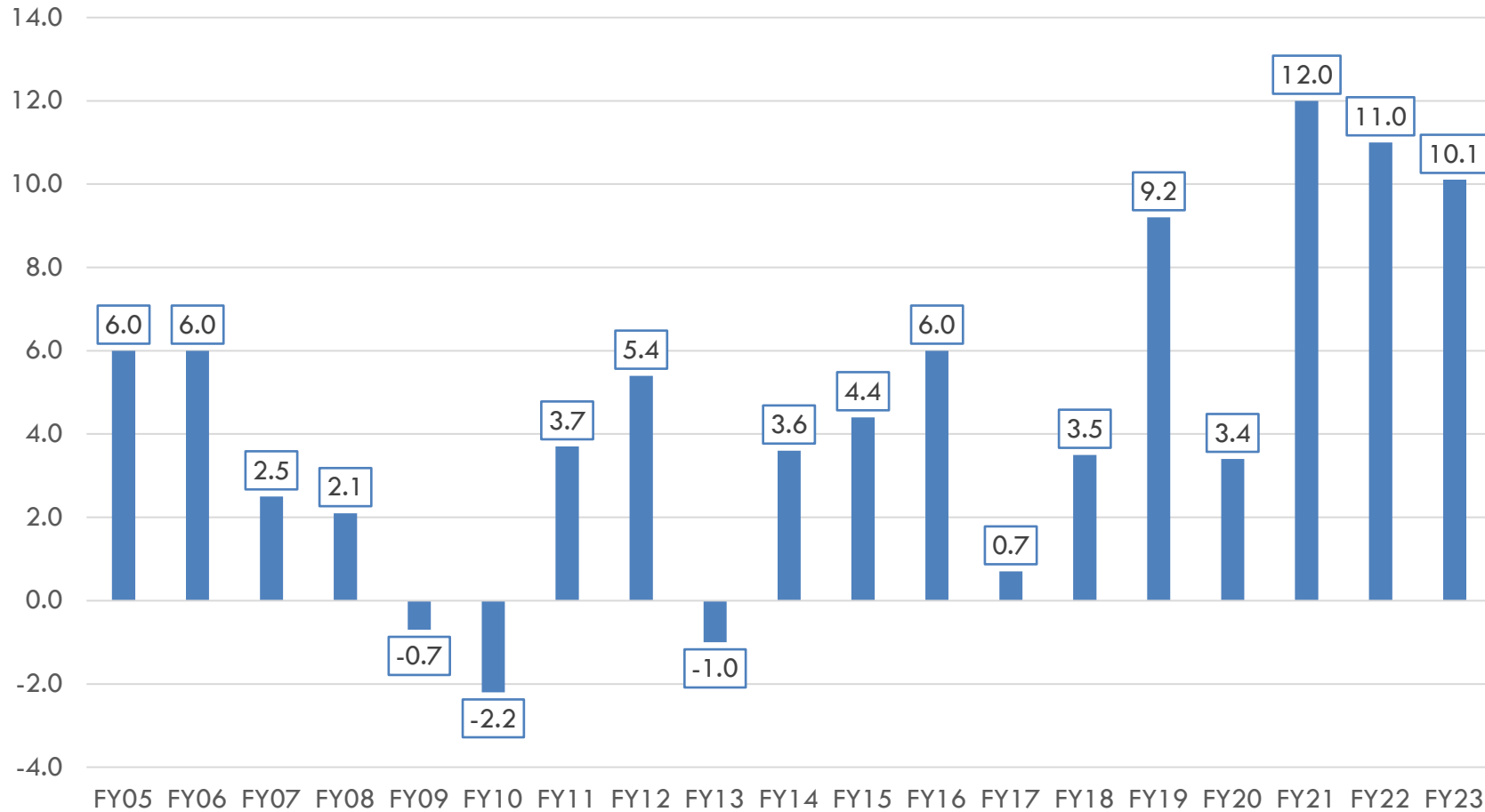
(\$ millions, nominal)

25

	<b>CON</b>	<b>% chg</b>	<b>OPT</b>	<b>% chg</b>	<b>PES</b>	<b>% chg</b>
<b>FY23</b>	5,843.9	-3.4	5,843.9	-3.4	5,843.9	-3.4
<b>FY24</b>	5,600.4	-4.2	5,615.8	-3.9	5,549.0	-5.0
<b>FY25</b>	5,527.8	-1.3	5,562.7	-0.9	5,410.7	-2.5
<b>FY26</b>	5,674.9	2.7	5,726.2	2.9	5,524.2	2.1

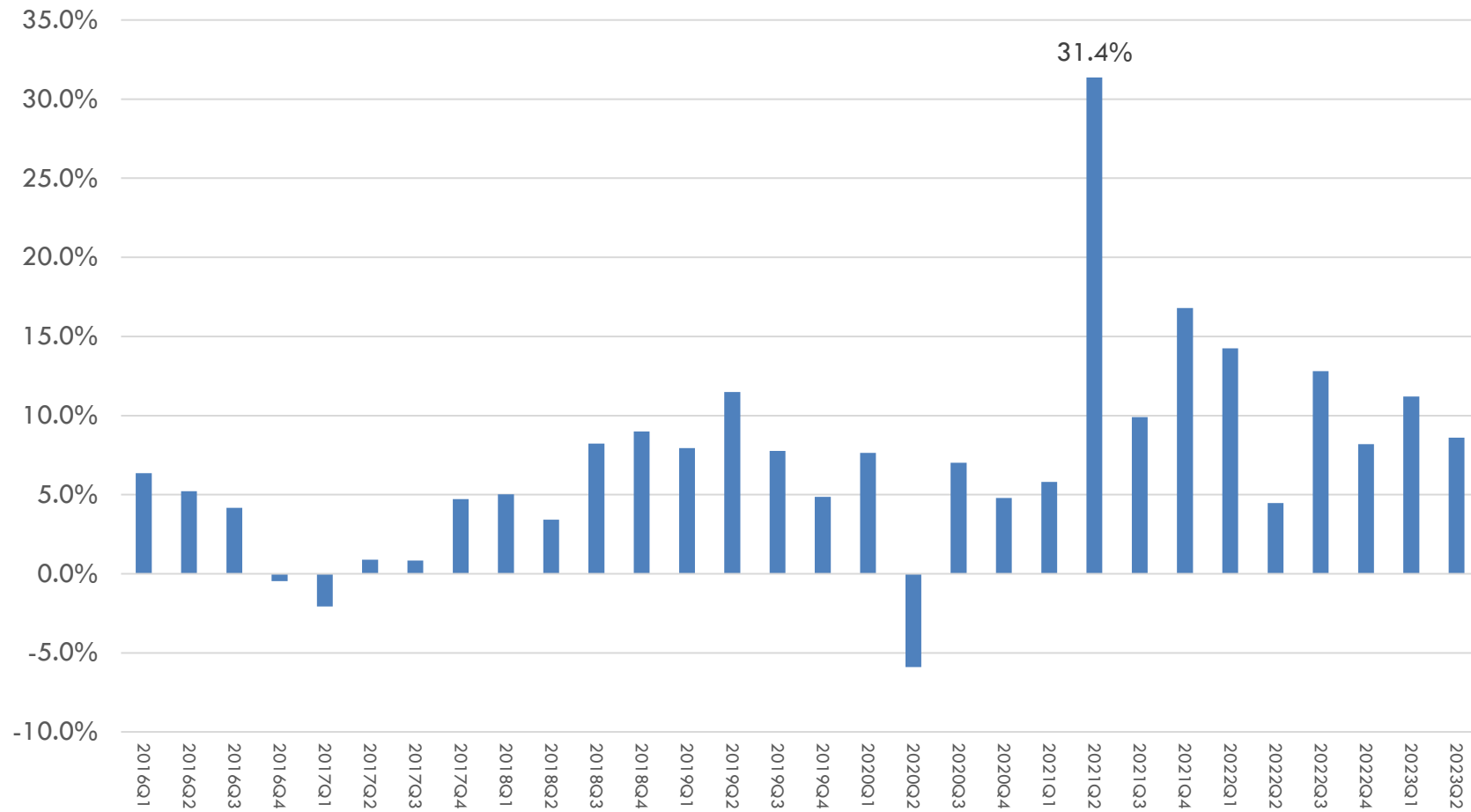
# Sales Tax Growth Rates

(Percentage Change, FY05 through FY23)



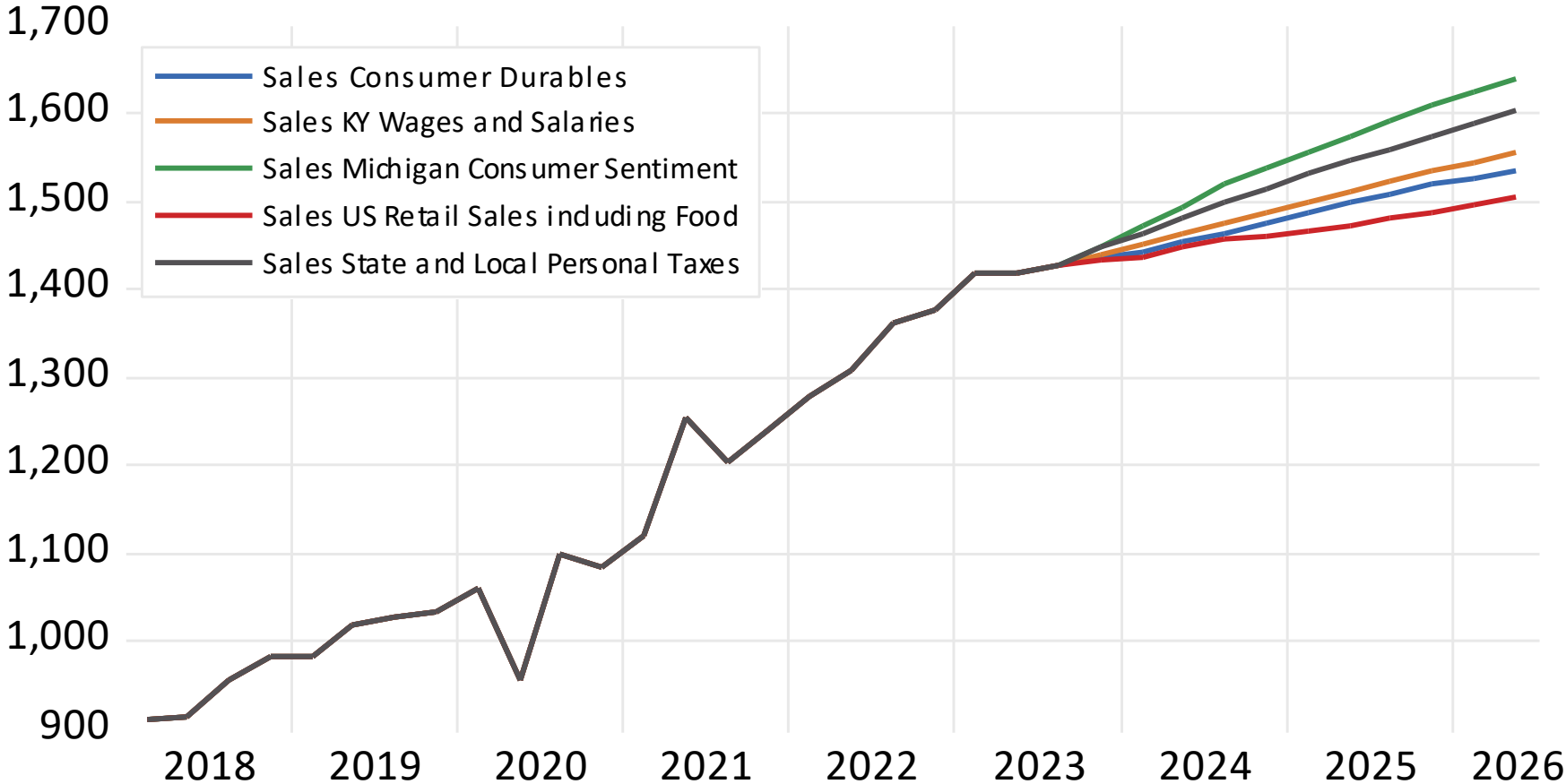
# Historical Quarterly Sales Tax Growth

(Calendar year quarters, Percentage changes)



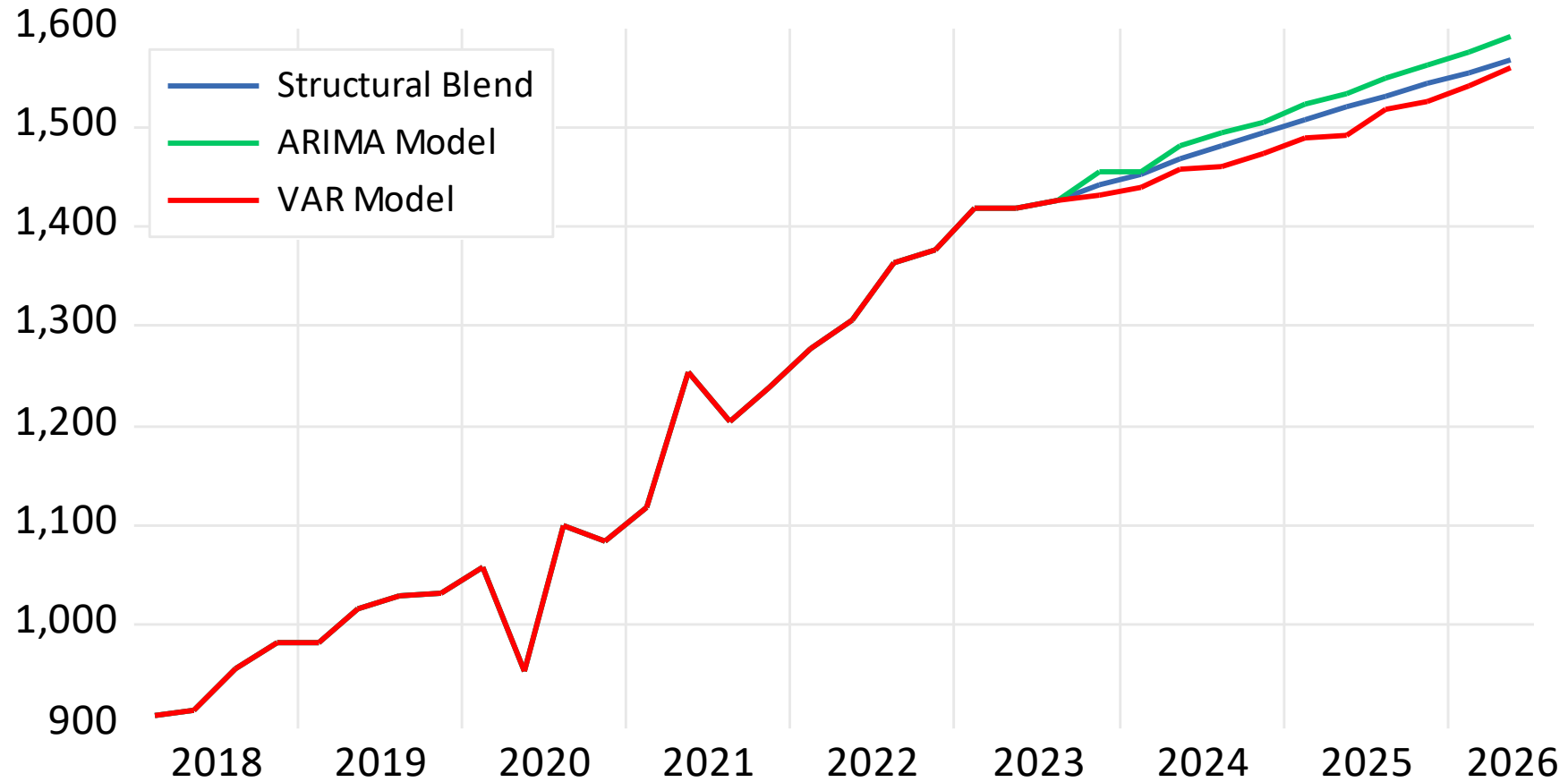
# Sales Tax Structural Models September 2023

(Control Scenario, Quarterly, Millions \$)



# Sales Tax Final Blending Models September 2023

(Control Scenario, Millions \$)



# Sales Tax Projections

(Millions \$)

Fiscal Year	Control	Optimistic	Pessimistic
FY 2024	\$5,788.3 3.8%	\$5,826.3 4.5%	\$5,753.2 3.2%
FY 2025	\$5,990.9 3.5%	\$6,036.7 3.6%	\$5,910.4 2.7%
FY 2026	\$6,207.7 3.6%	\$6,241.0 3.4%	\$6,103.7 3.3%

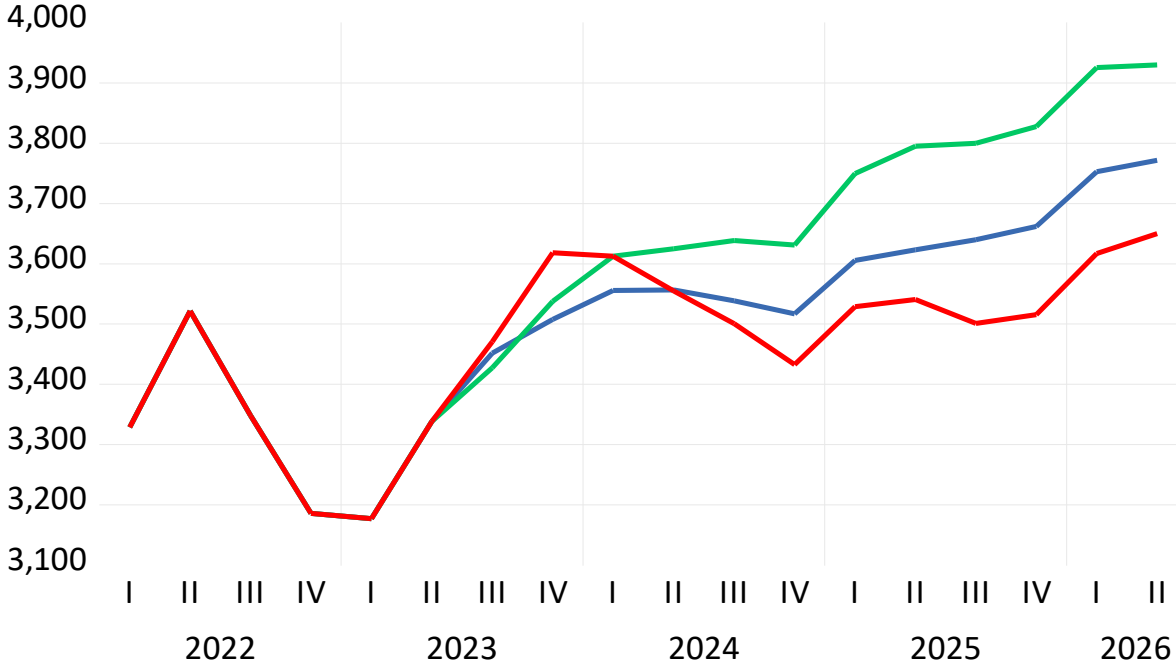
# Major Business Taxes History

FY12-FY23



# US Corporate Profits, Before Tax

(Billions \$, S&P IHS Global)



— Before-Tax Book Profits (Control)  
— Before-Tax Book Profits (Optimistic)  
— Before-Tax Book Profits (Pessimistic)



# Major Business Taxes Forecast

Millions \$

33

Fiscal Year	Control	Optimistic	Pessimistic
FY 2023	\$1,221.6 3.0%	\$1,221.6 3.0%	\$1,221.6 3.0%
FY 2024	\$1,365.1 11.7%	\$1,381.9 13.1%	\$1,388.8 13.7%
FY 2025	\$1,430.7 4.8%	\$1,498.8 8.5%	\$1,394.6 0.4%
FY 2026	\$1,524.5 6.6%	\$1,608.8 7.3%	\$1,454.9 4.3%

# QUESTIONS ??

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