

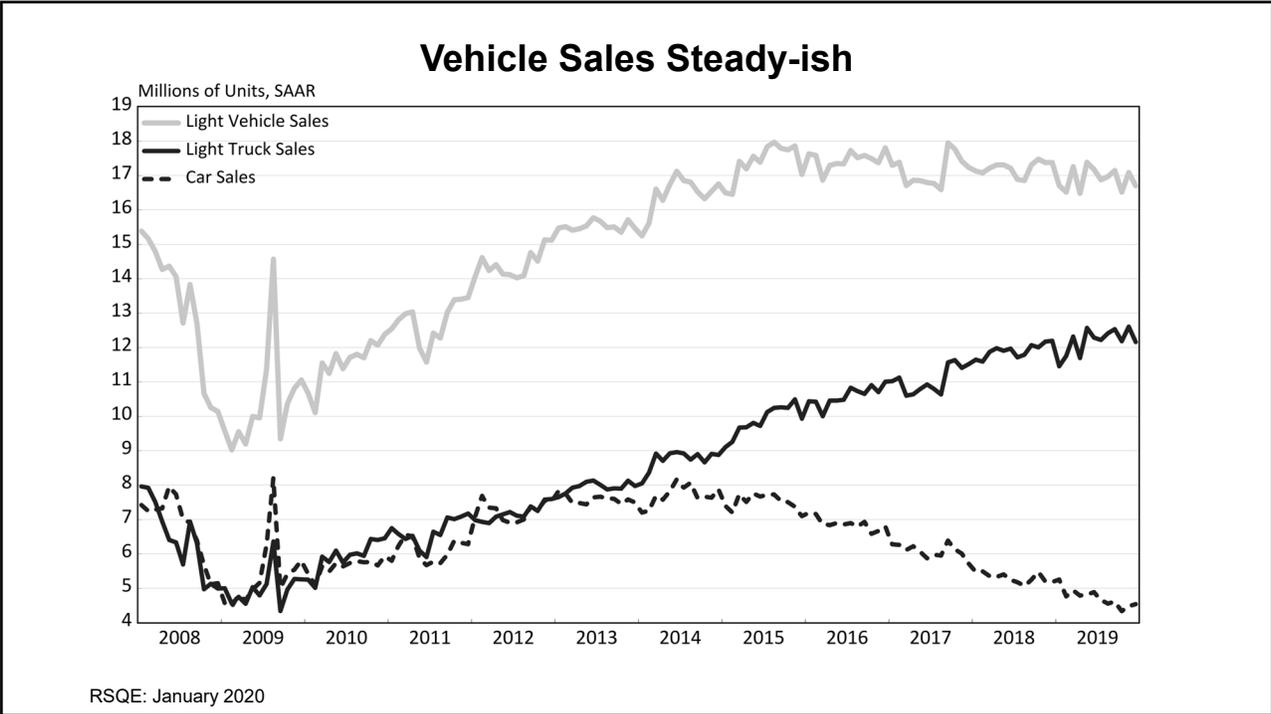
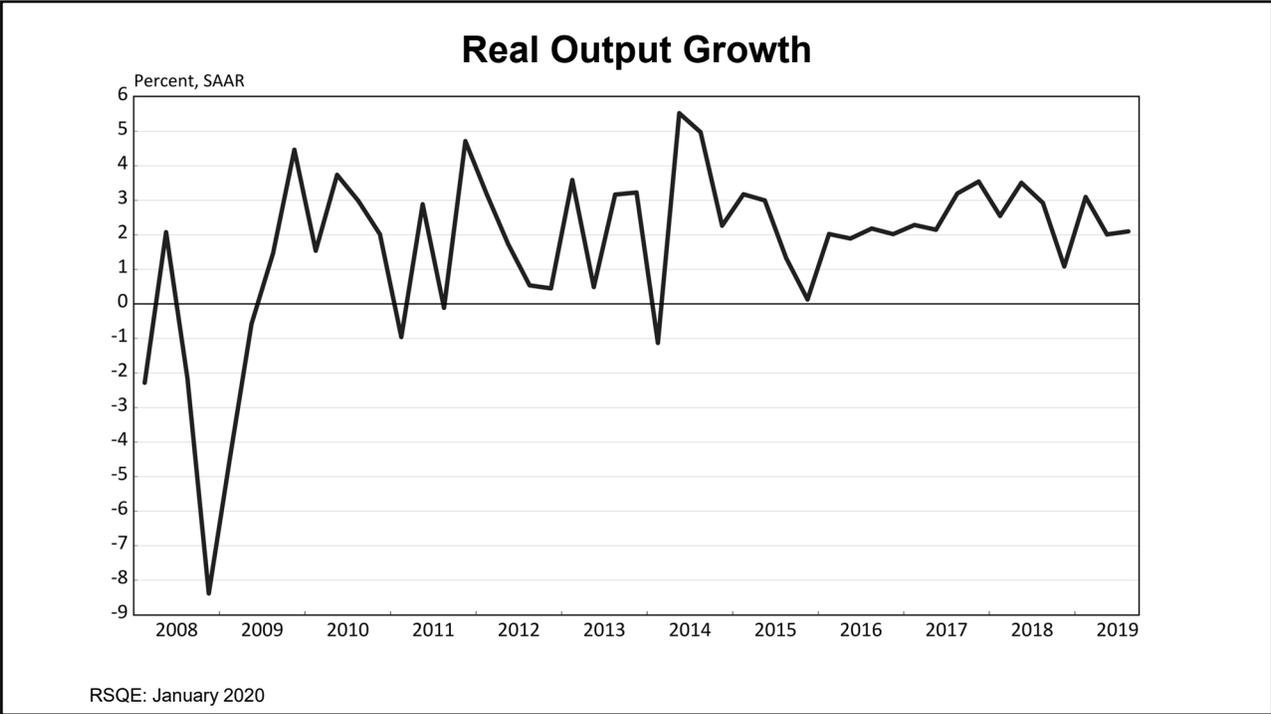
THE U.S. AND MICHIGAN OUTLOOK FOR 2020–2022

**PREPARED FOR PRESENTATION AT THE
CONSENSUS REVENUE ESTIMATING CONFERENCE**

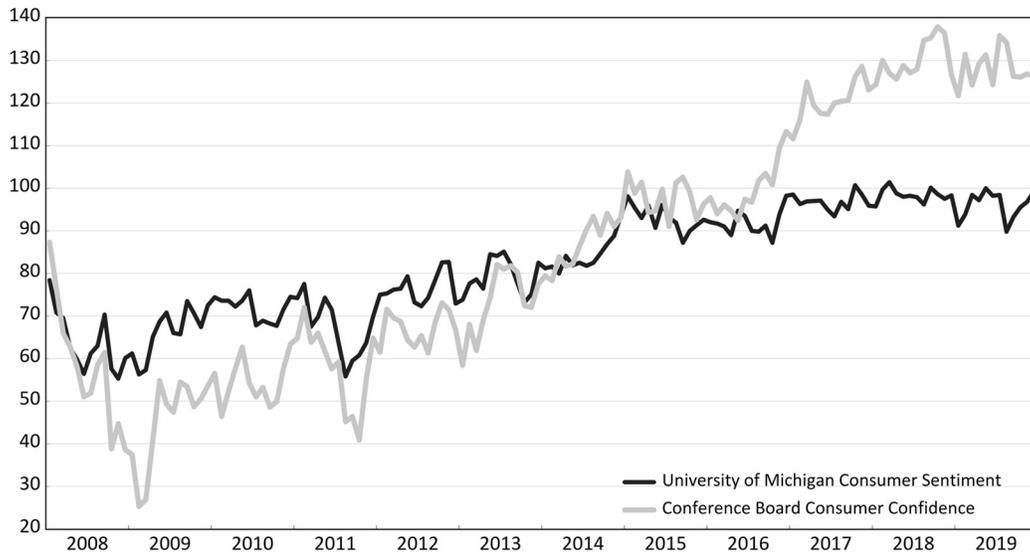
**LANSING, MICHIGAN
JANUARY 10, 2020**

BY

**JACOB BURTON
GABRIEL EHRLICH
DANIIL MANAENKOV
MICHAEL MCWILLIAMS
ADITI THAPAR**

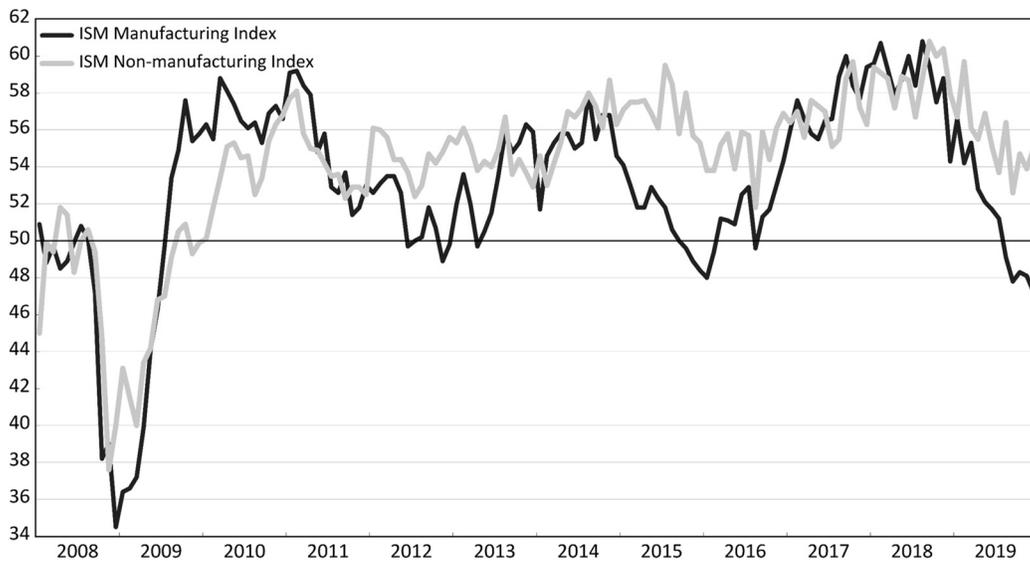


Consumer Sentiment Holding



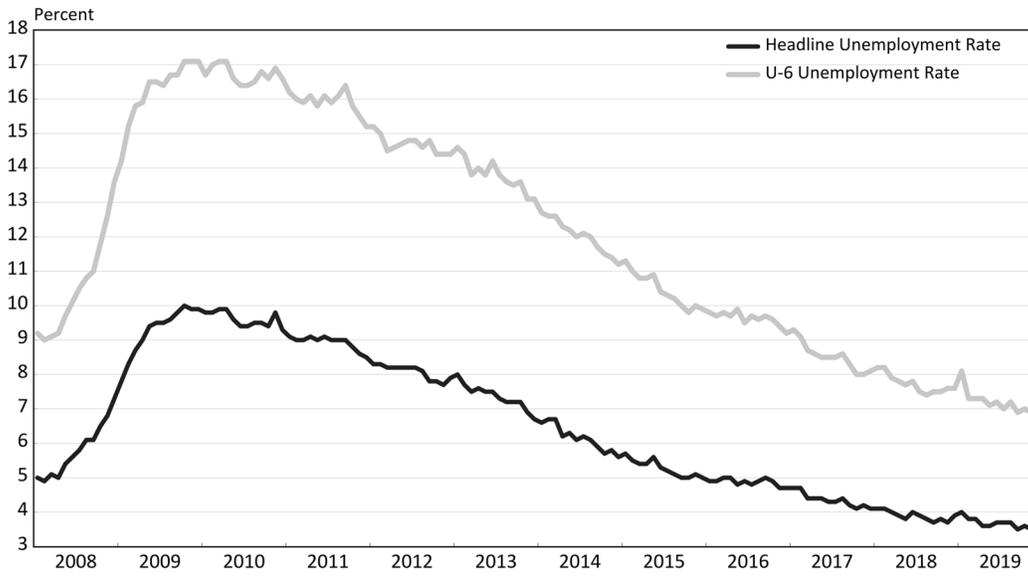
RSQE: January 2020

Institute of Supply Management Indexes: Manufacturing Contracting



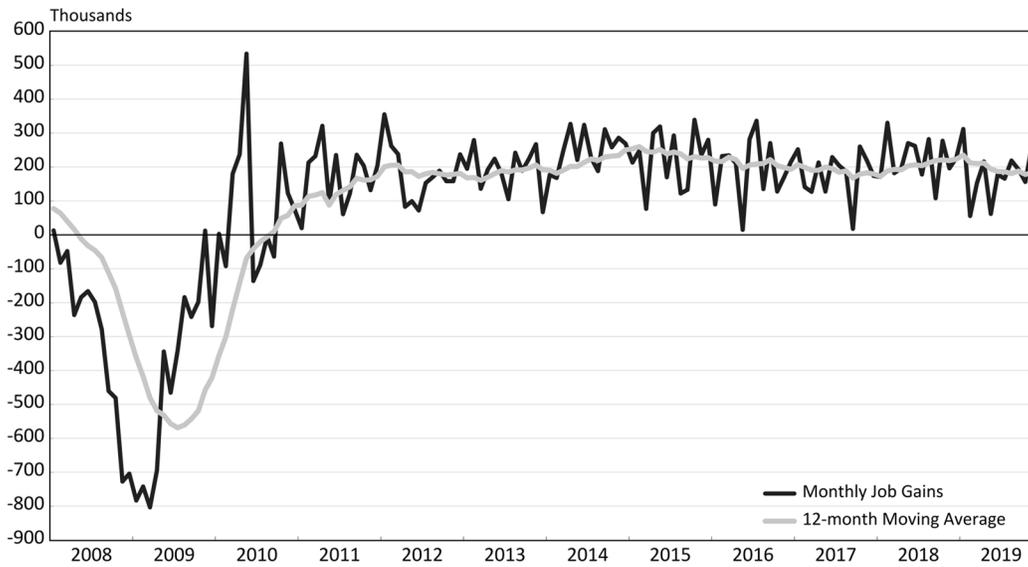
RSQE: January 2020

Unemployment Rates: Likely Still Trending Down



RSQE: January 2020

Solid Monthly Payroll Job Gains



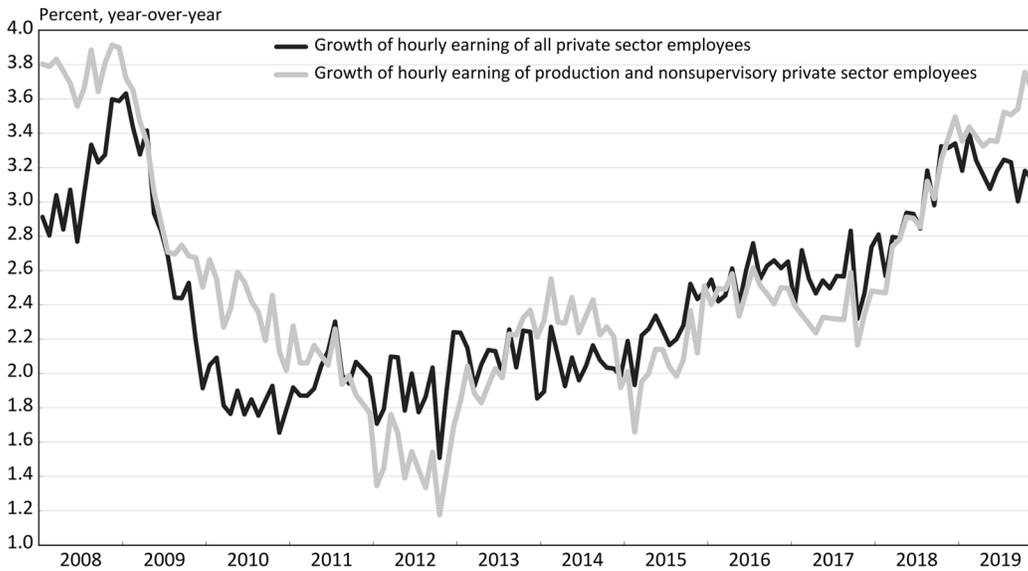
RSQE: January 2020

Job Openings Remain above Unemployed Persons



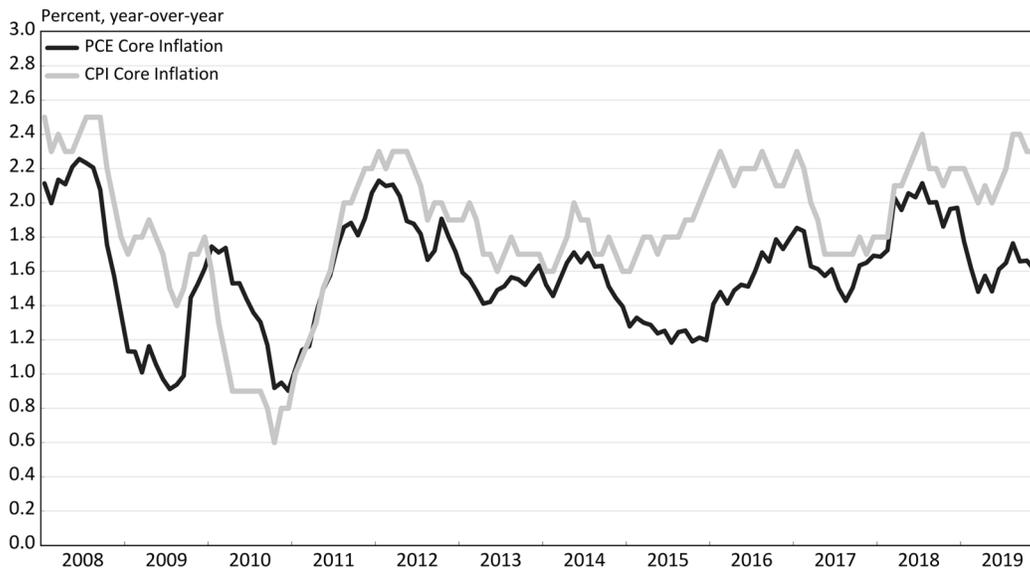
RSQE: January 2020

Wage Growth Mixed



RSQE: January 2020

Core Inflation: Hanging Low



RSQE: January 2020

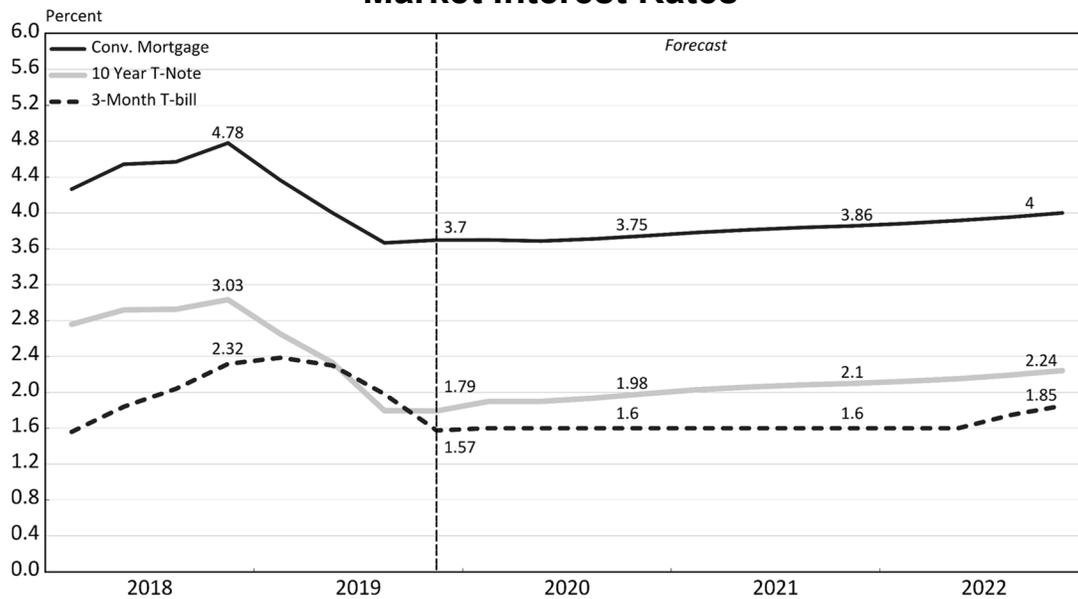
Key Inputs to the Forecast

Monetary Policy: Holding Steady

- China trade tensions set to ease—few reasons for further rate cuts
- Not quite Quantitative Easing (QE)
 - Turmoil in repo market in September '19
 - Fed's balance sheet up \$400 billion since early September '19
 - Focus on Treasury bills and short-term repurchase agreements
- Federal funds rate path consistent with our outlook:
 - Expect fed funds rate to hold at current level of 1.5 – 1.75% until late 2022
- Still two open seats at the Board of Governors

RSQE: January 2020

Market Interest Rates



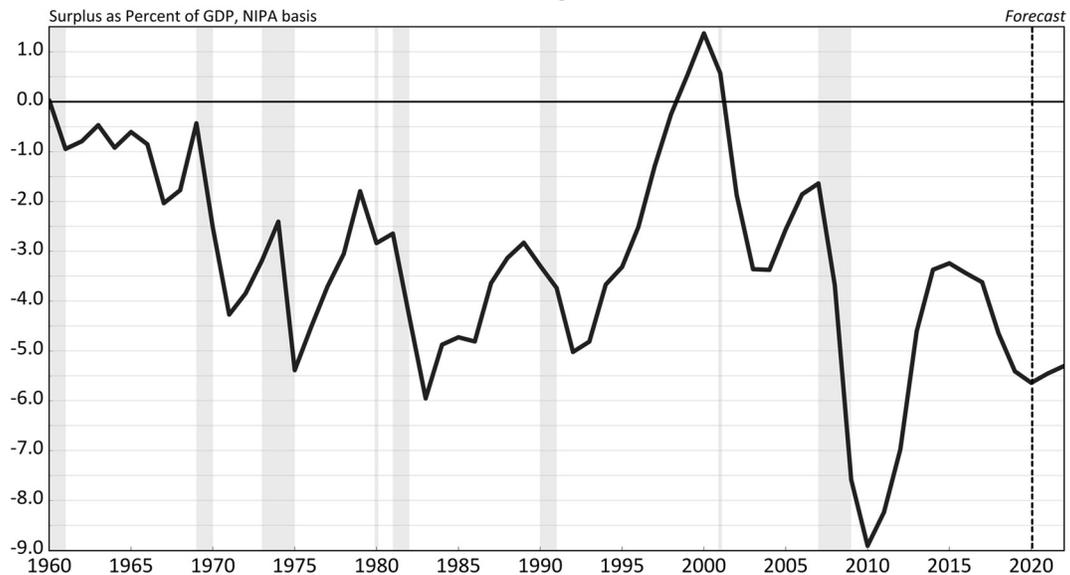
RSQE: January 2020

Fiscal Policy – Stable Trajectory

- Expect divided government and gridlock to continue through 2022
 - No major legislative action expected
- USMCA passed the House
 - Senate passage could take a few weeks
- December 2020 budget deal
 - Appropriations in line with the Bipartisan Budget Act of 2019 passed in August
 - Small boost to fiscal 2020 spending relative to fiscal 2019
 - Authorized large package of expired and expiring “tax extenders” and repealed several ACA-related taxes, jointly worth over \$400 billion over 10 years

RSQE: January 2020

Federal Budget Balance



RSQE: January 2020

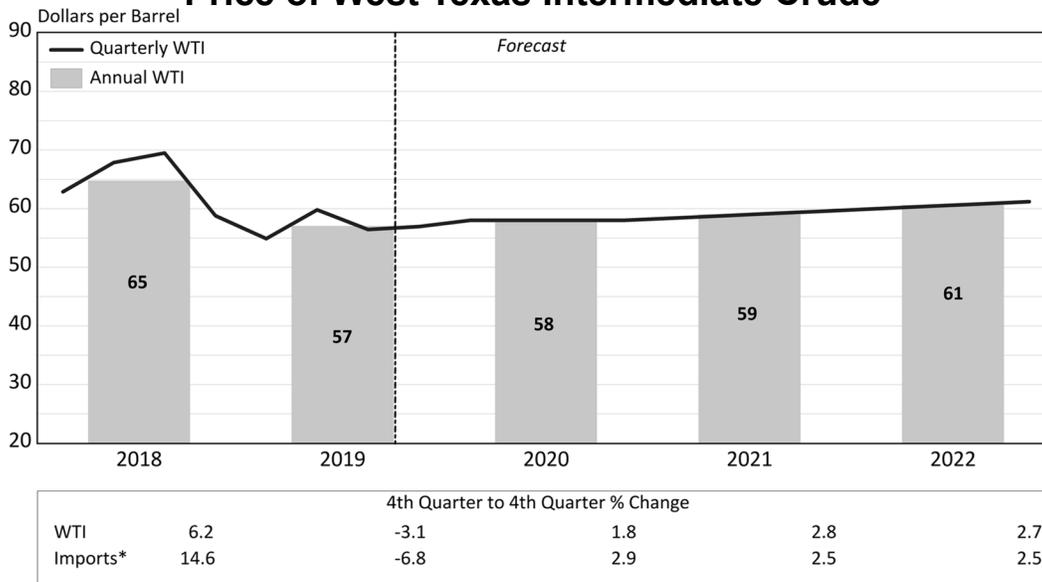
Federal Budget, NIPA Basis

(Billions of Dollars)

	2018	2019	FY Forecast		
			2020	2021	2022
Current receipts	3500.8	3583.5	3705.1	3899.4	4107.5
% change	-0.4	2.4	3.4	5.2	5.3
Current expenditures	4445.5	4731.0	4947.6	5146.0	5363.3
% change	5.6	6.4	4.6	4.0	4.2
Consumption	1041.6	1099.1	1146.0	1177.7	1209.7
% change	5.8	5.5	4.3	2.8	2.7
Transfer payments	2816.9	2984.3	3123.8	3253.6	3393.8
% change	4.2	5.9	4.7	4.2	4.3
Surplus (+) or deficit (-)	-944.8	-1147.5	-1242.5	-1246.6	-1255.8
Percent of GDP	-4.6	-5.4	-5.6	-5.5	-5.3

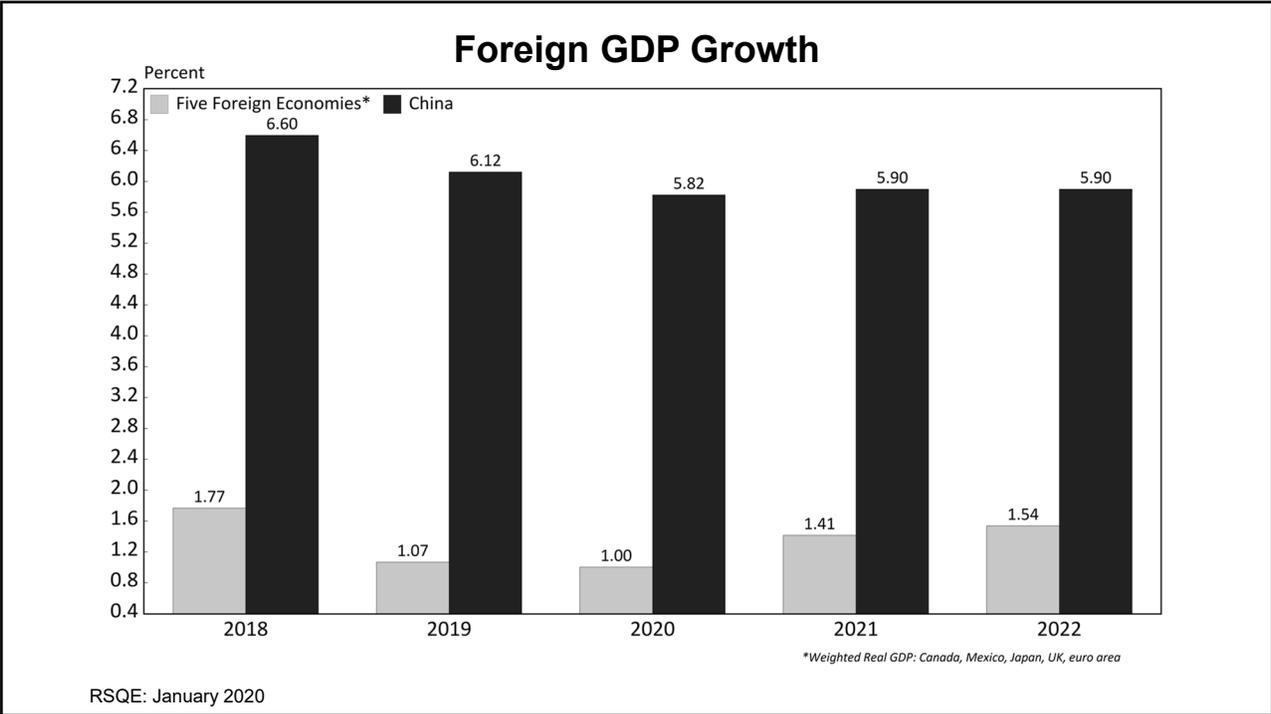
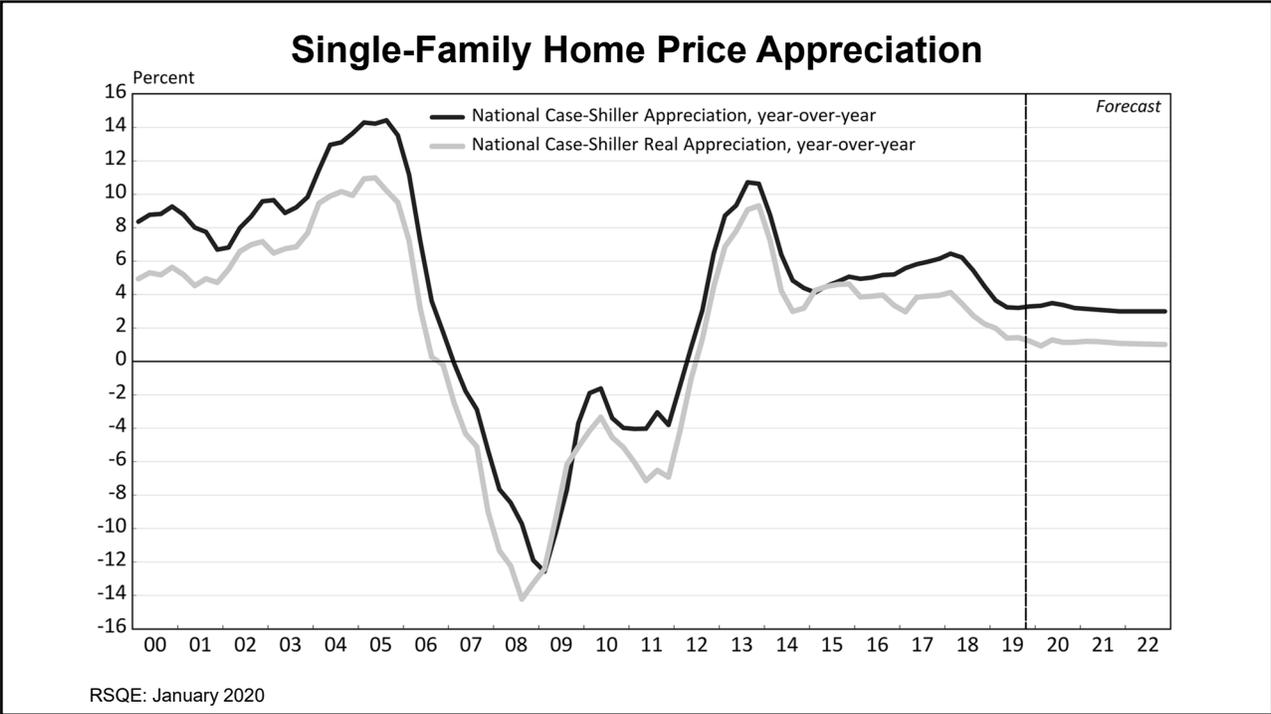
RSQE: January 2020

Price of West Texas Intermediate Crude

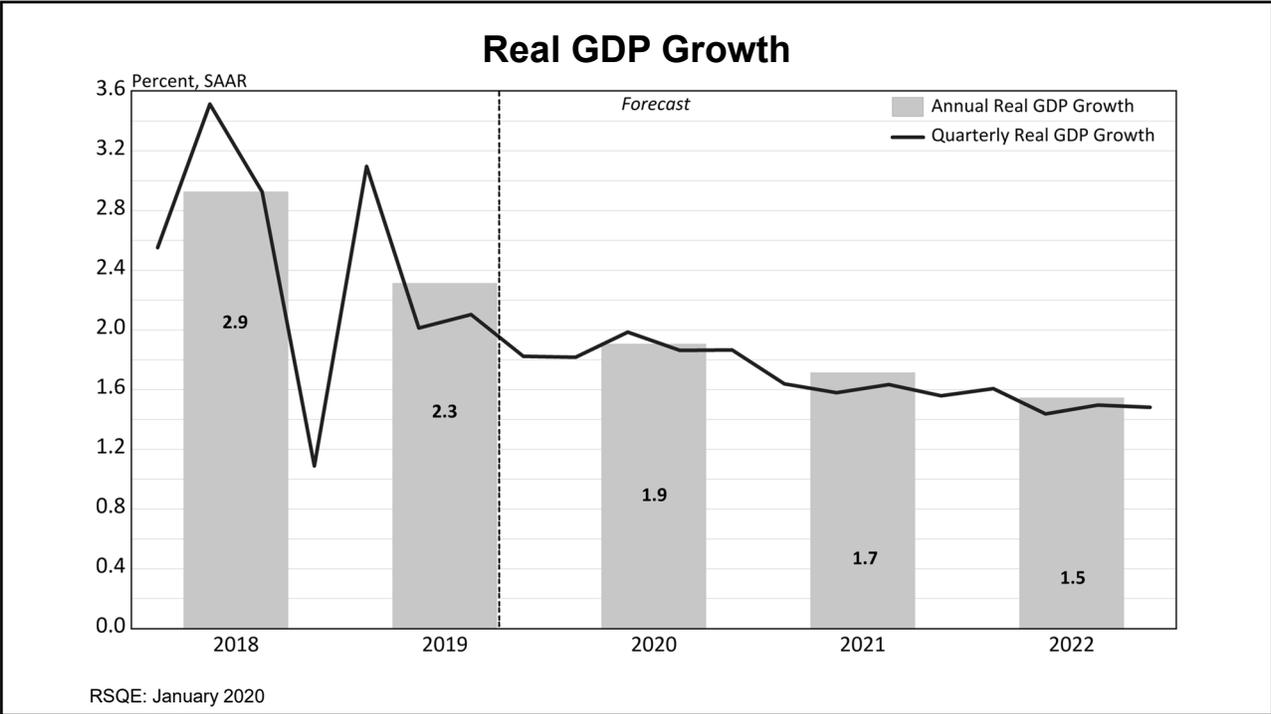


*Implicit deflator for petroleum & products

RSQE: January 2020



U.S. Forecast for 2020–2022



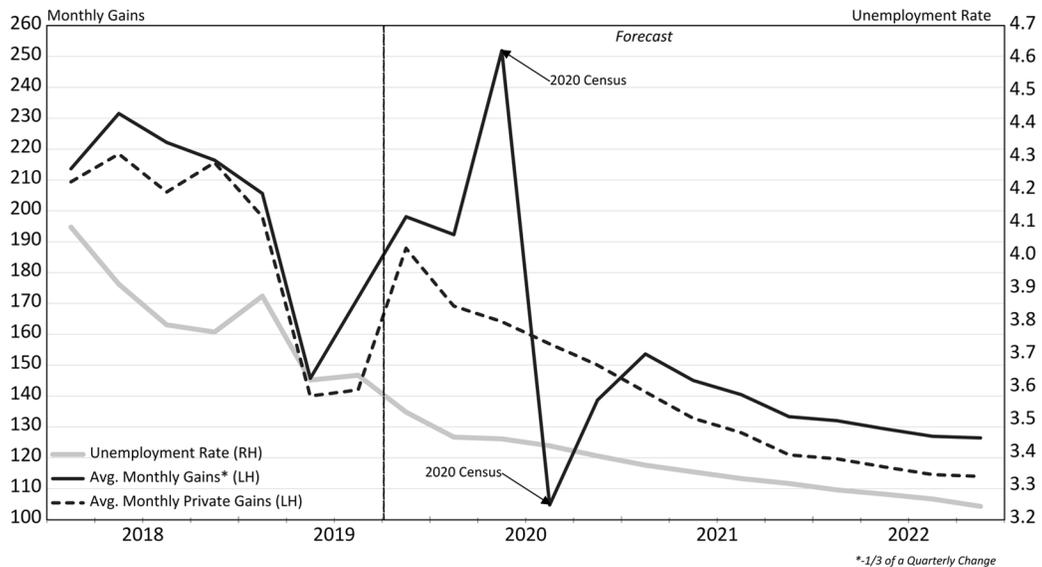
Contributions to the Growth of Real GDP

(Annual contributions, percentage points)

	2018	2019	2020	2021	2022
Real GDP (% change, AR)	2.9	2.3	1.9	1.7	1.5
Contributions to real GDP growth					
Final sales to domestic purchasers	3.1	2.4	2.2	2.2	2.1
Consumption	2.0	1.8	1.7	1.5	1.5
Nonresidential fixed investment	0.8	0.3	0.1	0.5	0.4
Residential investment	-0.1	-0.1	0.1	0.0	0.0
Government purchases	0.3	0.4	0.3	0.1	0.1
Net exports	-0.3	-0.2	-0.1	-0.4	-0.5
Inventory investment	0.1	0.1	-0.1	-0.0	-0.0

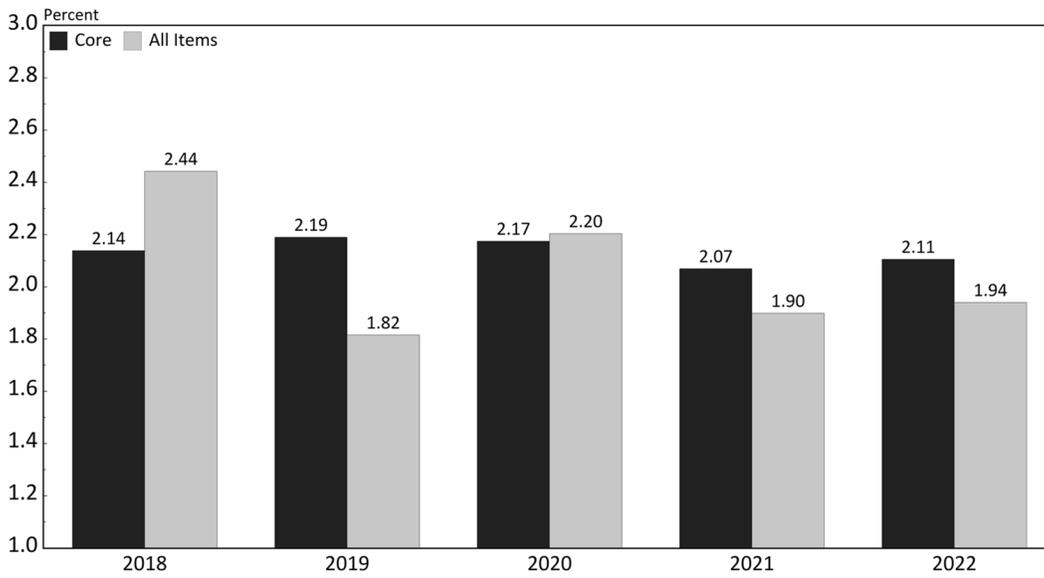
RSQE: January 2020

Nonfarm Payroll Employment Gains and Unemployment Rate



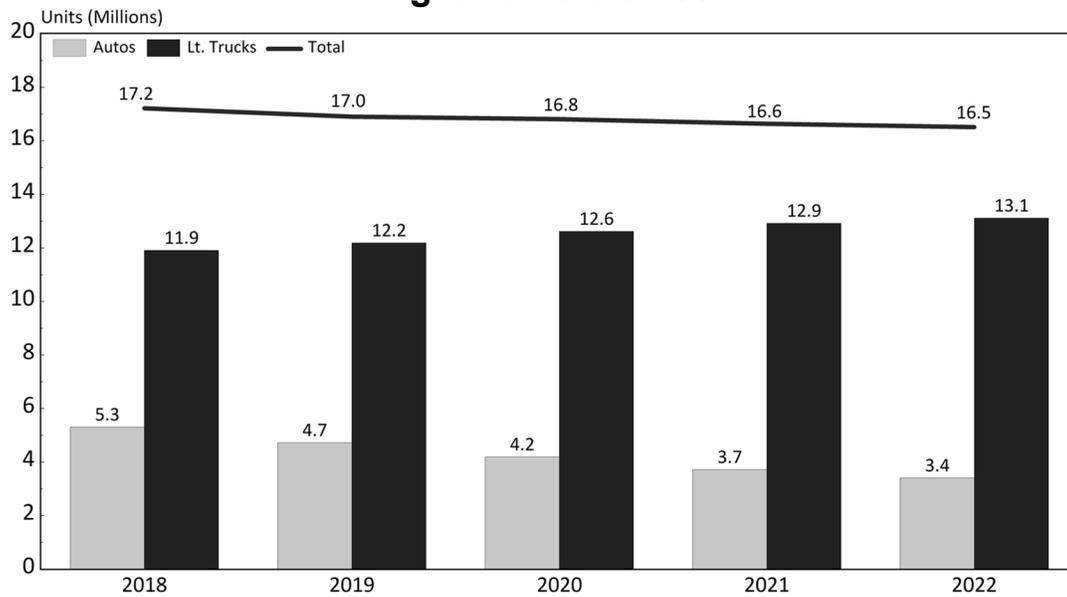
RSQE: January 2020

Consumer Price Inflation (CPI-U)



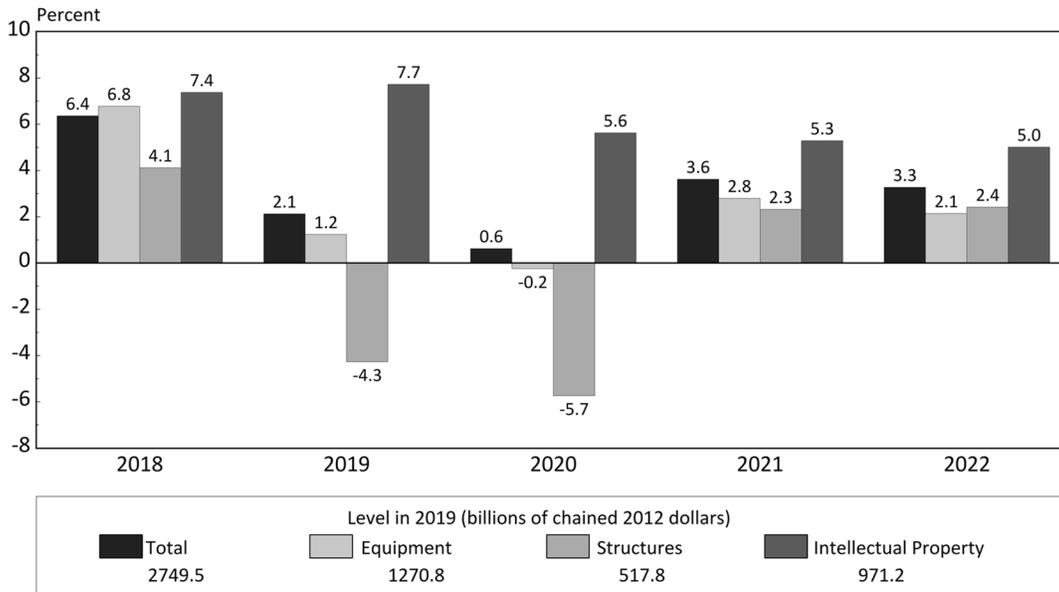
RSQE: January 2020

Light Vehicle Sales



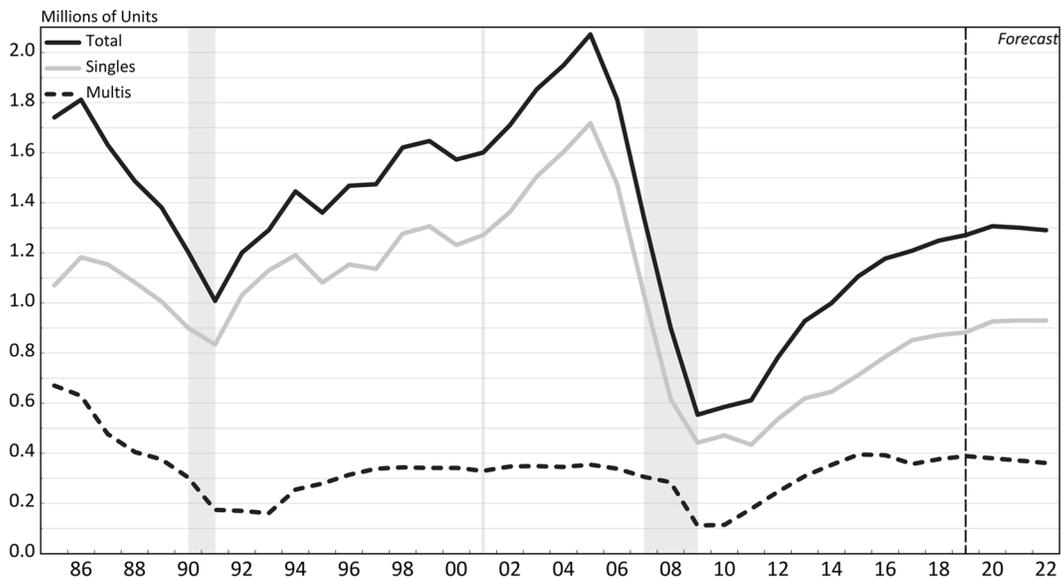
RSQE: January 2020

Growth of Nonresidential Fixed Investment



RSQE: January 2020

Housing Market



RSQE: January 2020

Risks to Our Outlook

- Oil Prices and Geopolitical Risks
- Fiscal Policy
- Monetary Policy
- Trade Policy and Foreign Growth
- Abnormal weather

RSQE: January 2020

The Michigan Economic Outlook For 2020–2022

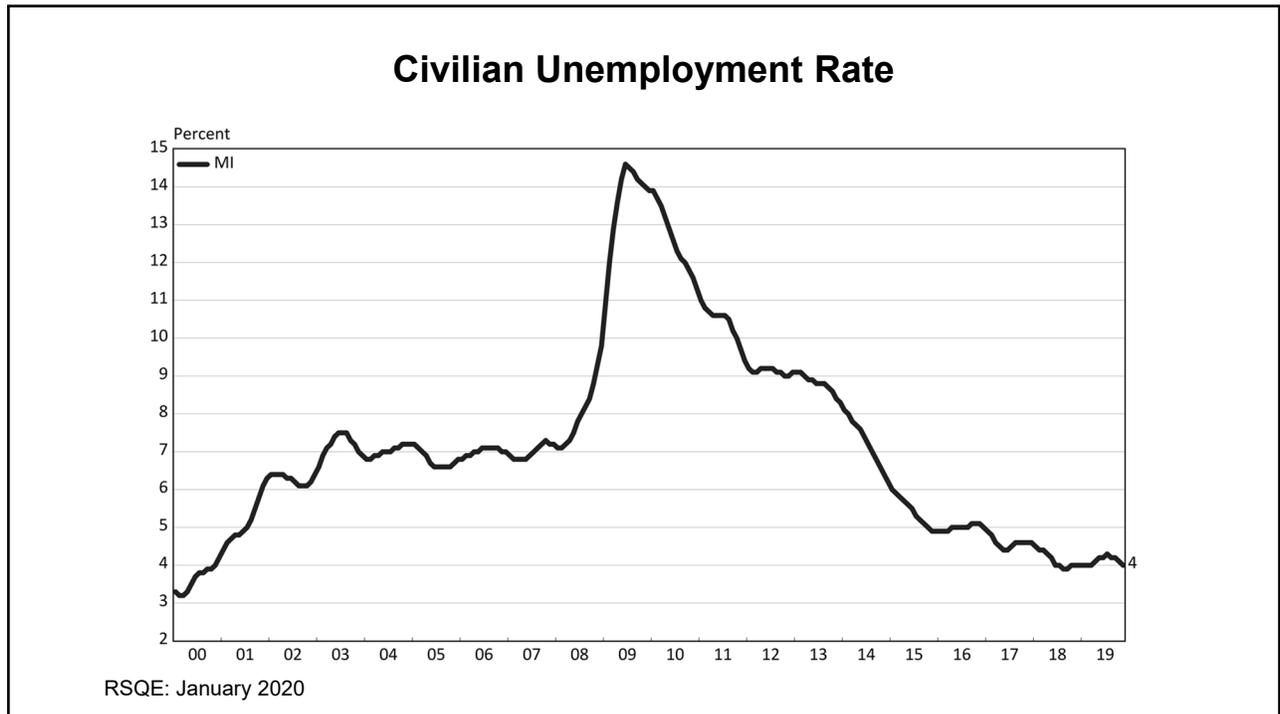


Consensus Revenue Estimating Conference
January 10, 2020

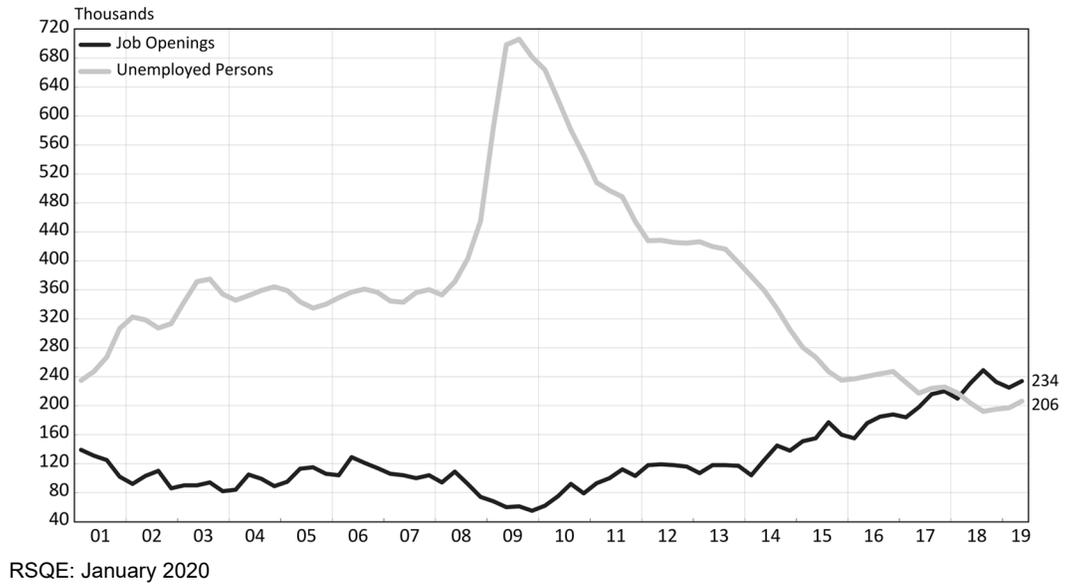
Research Seminar in Quantitative Economics



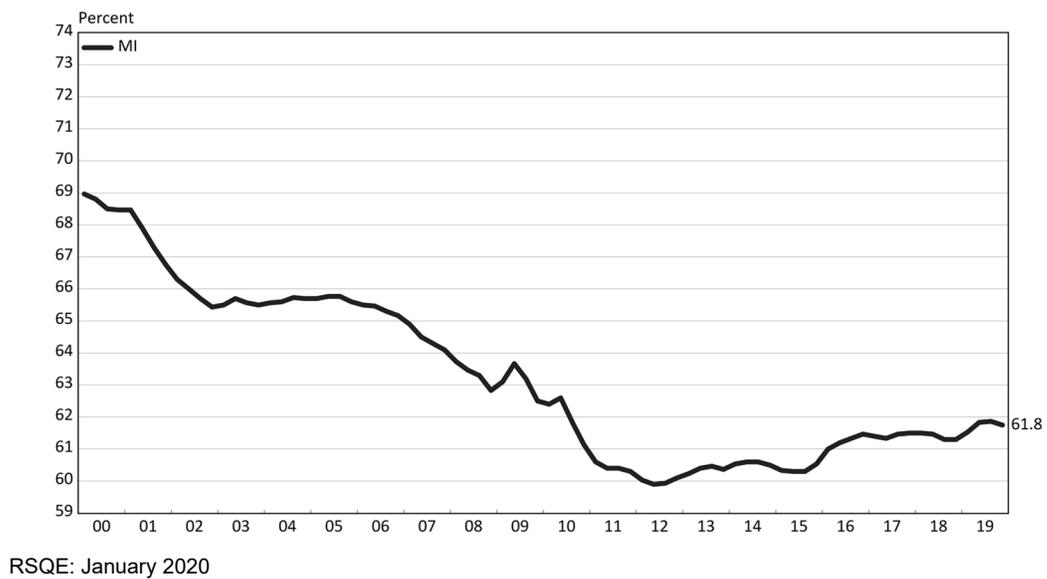
Current State of the Michigan Economy



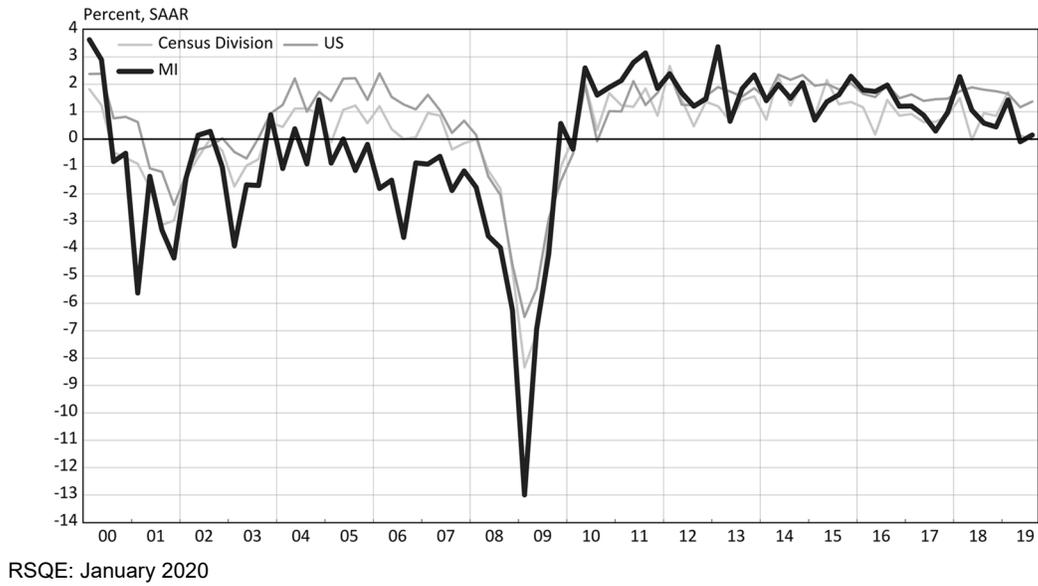
Michigan Job Openings vs. Unemployed Persons



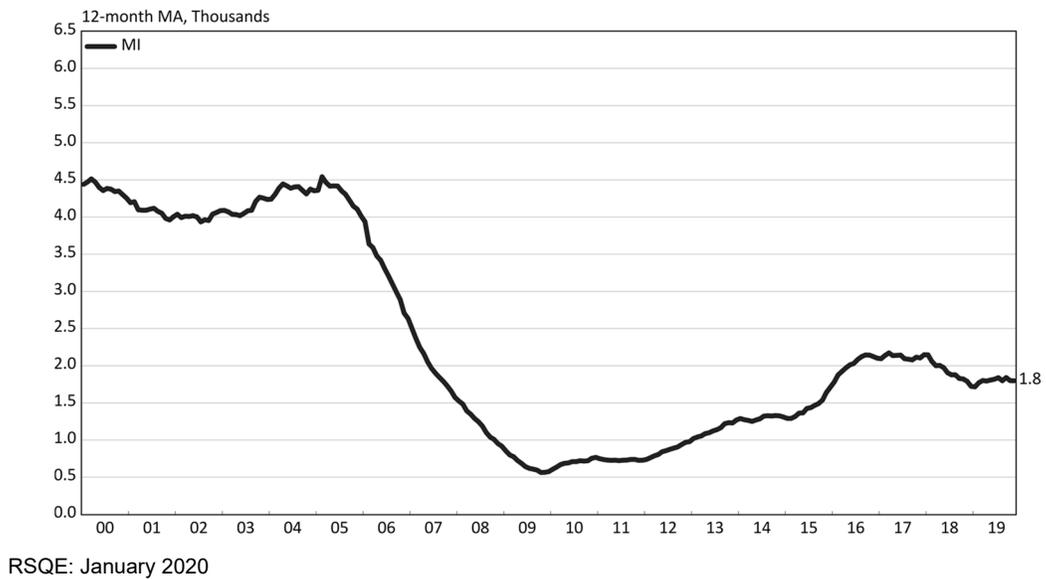
Labor Force Participation Rate



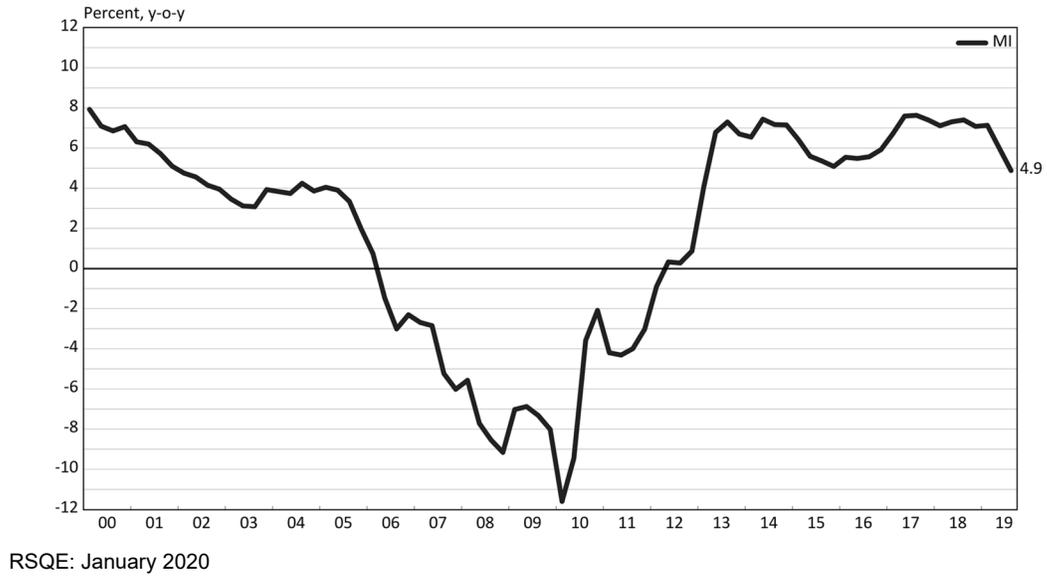
Payroll Employment



Building Permits

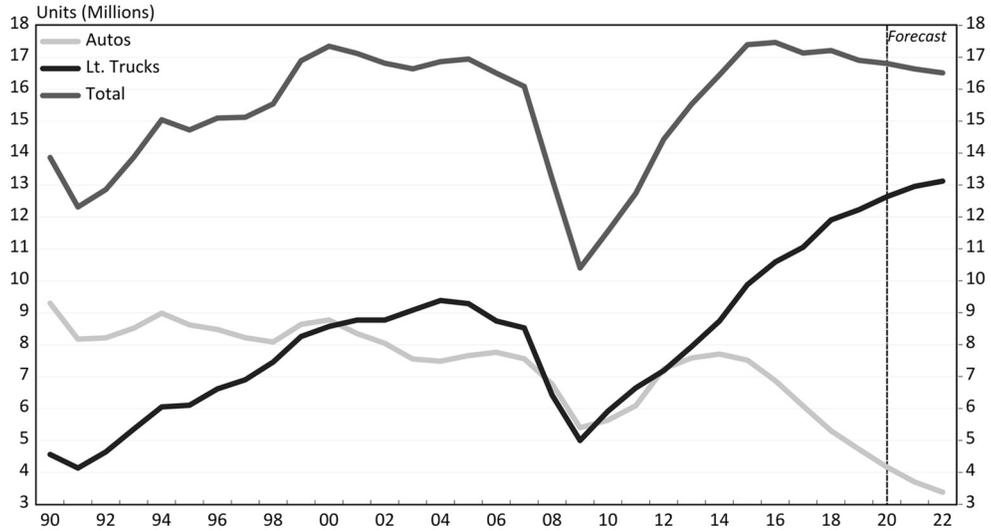


Home Price Appreciation (FHFA All-Transactions)



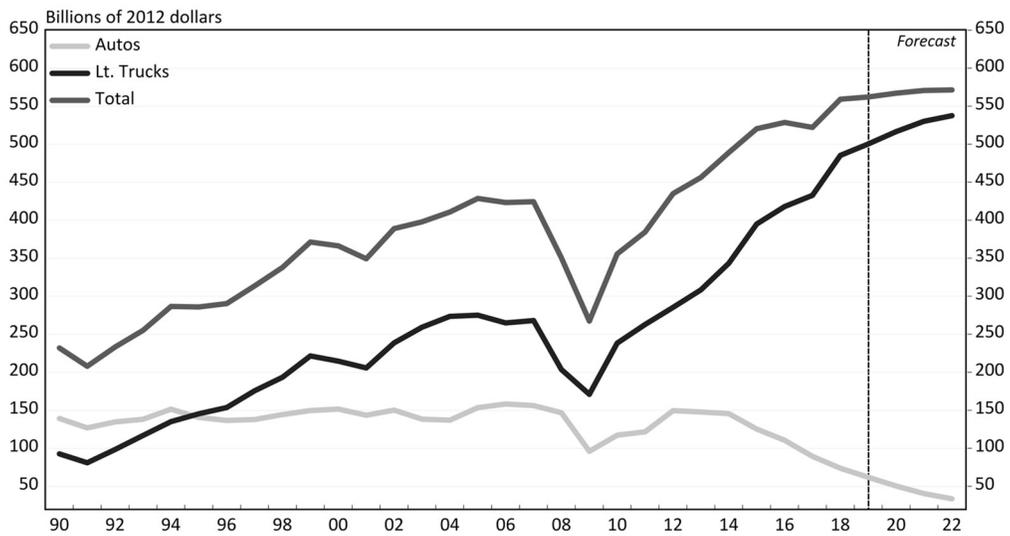
Michigan Economic Outlook

U.S. Light Vehicle Sales, 1990–2022



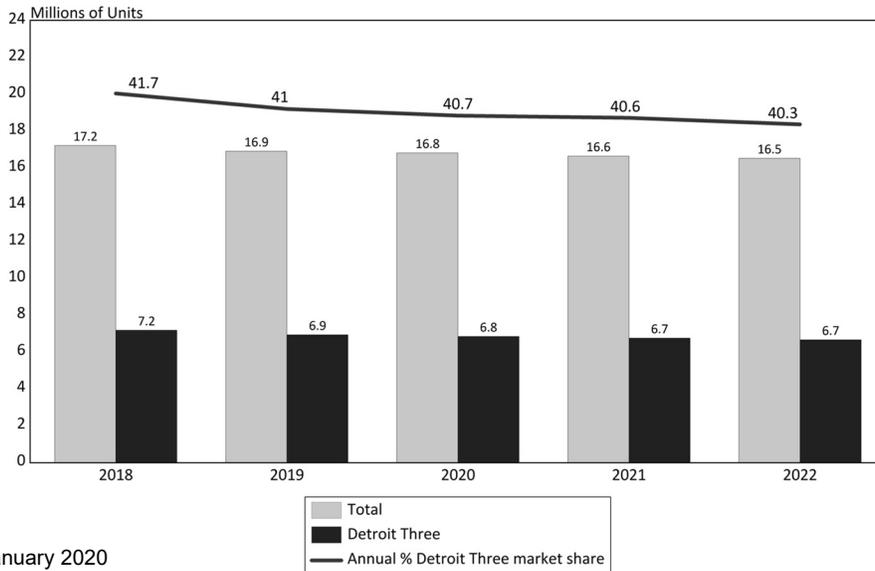
RSQE: January 2020

Real U.S. Light Vehicle Output, 1990–2022



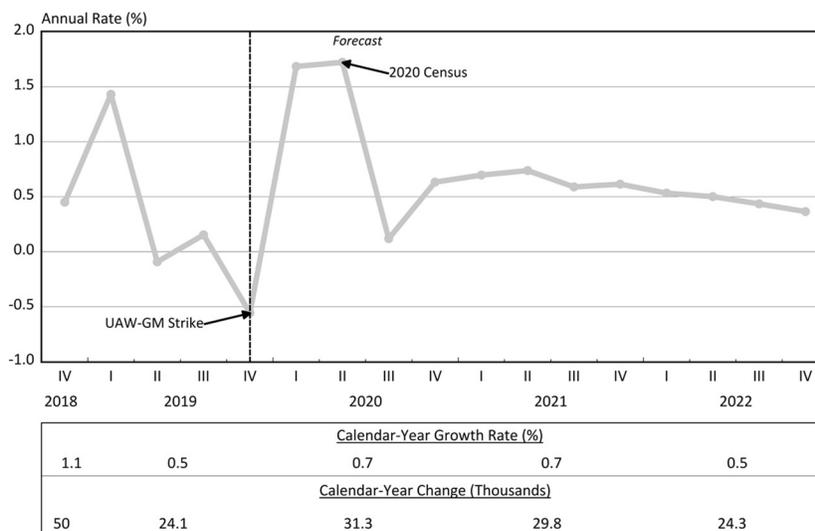
RSQE: January 2020

U.S. Light Vehicle Sales Total vs. Detroit Three, 2018–2022



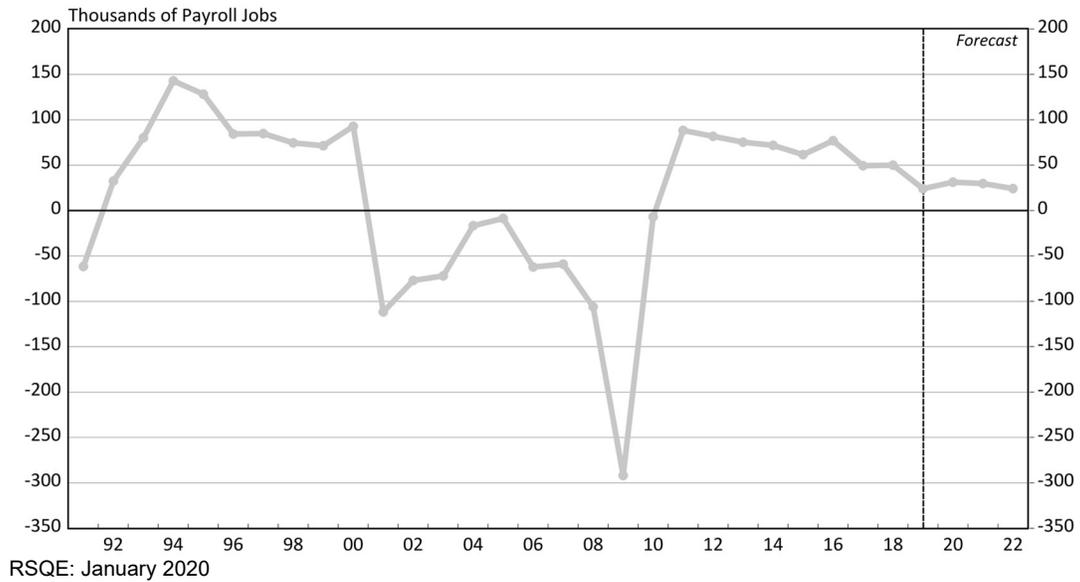
RSQE: January 2020

Michigan Wage and Salary Employment Growth, 2018q4–2022q4



RSQE: January 2020

Annual Job Growth in Michigan, 1991–2022

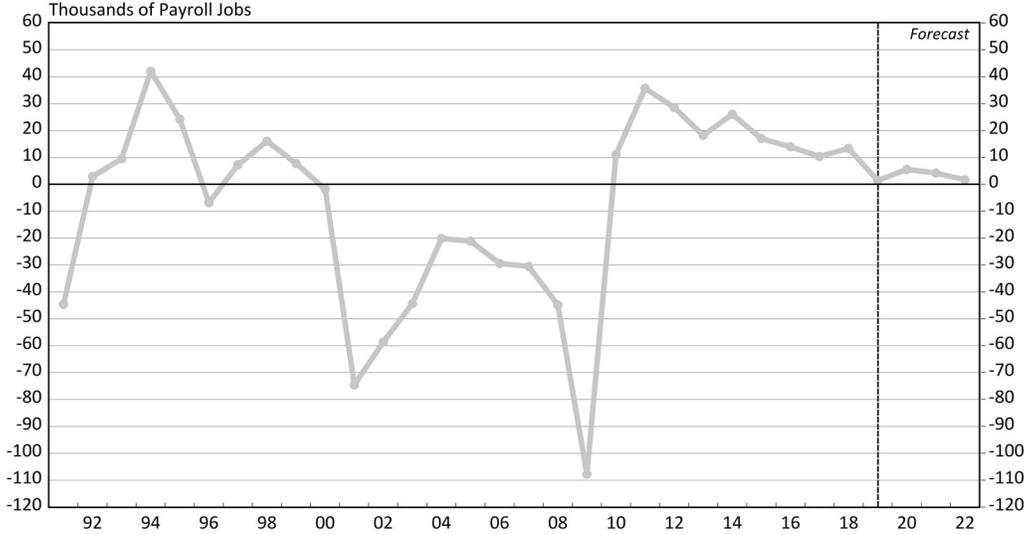


Forecast of Payroll Jobs in Michigan by Major Industry Division, 2018–2022 (Thousands of Jobs)

	2018	Forecast Employment Change				
		'18-'19	'19-'20	'20-'21	'21-'22	'18-'22
TOTAL JOBS (Number of persons)	4419.4	24.1	31.3	29.8	24.3	109.4
TOTAL GOVERNMENT	606.6	3.5	5.5	-0.7	0.1	8.4
TOTAL PRIVATE	3812.9	20.6	25.8	30.5	24.1	101.1
Natural resources and mining	7.2	0.0	0.0	0.0	0.0	0.0
Construction	169.3	3.7	1.3	3.0	2.4	10.4
Manufacturing	629.5	1.4	5.5	4.2	1.7	12.9
Trade, transportation and utilities	792.1	1.3	0.1	1.6	2.0	5.1
Information	55.9	1.4	-0.1	-0.2	-0.3	0.7
Financial activities	218.9	4.3	2.8	1.5	1.0	9.6
Professional and business services	660.2	2.3	5.9	6.8	4.6	19.6
Private education and health services	678.8	-5.3	4.3	8.2	8.0	15.3
Leisure and hospitality	434.4	8.4	4.5	5.0	4.4	22.3
Other services	166.6	3.1	1.5	0.5	0.3	5.3
Addendum: Percent Change in Total Jobs	1.1	0.5	0.7	0.7	0.5	2.5

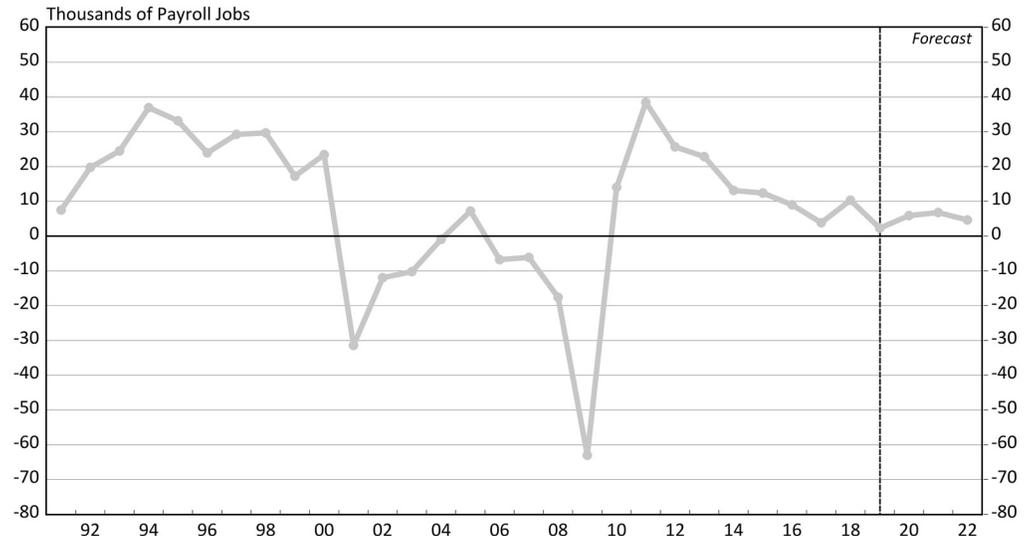
RSQE: January 2020

Annual Job Growth in Michigan, 1991–2022 Manufacturing Sector



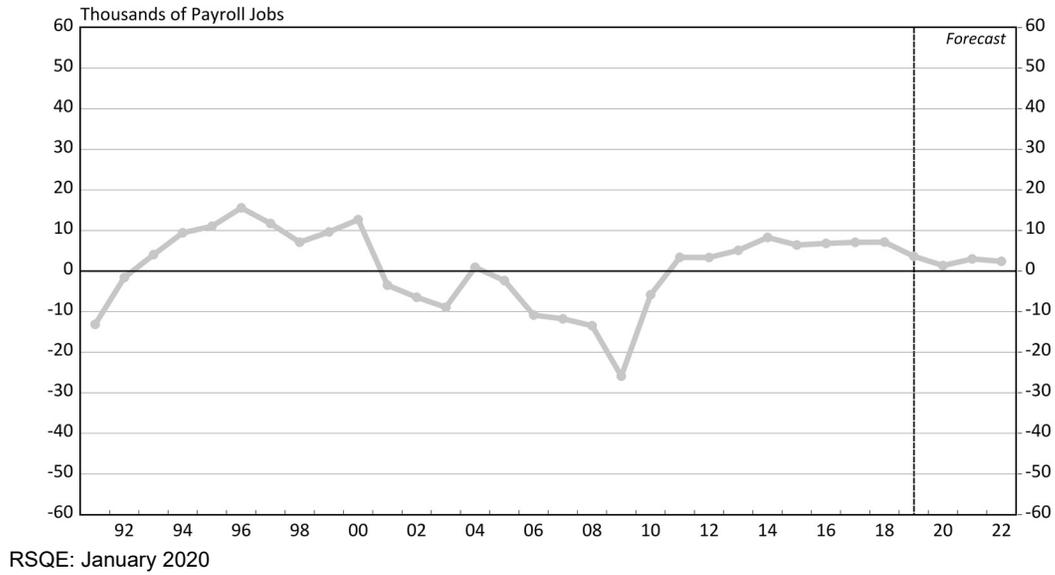
RSQE: January 2020

Annual Job Growth in Michigan, 1991–2022 Professional and Business Services Sector

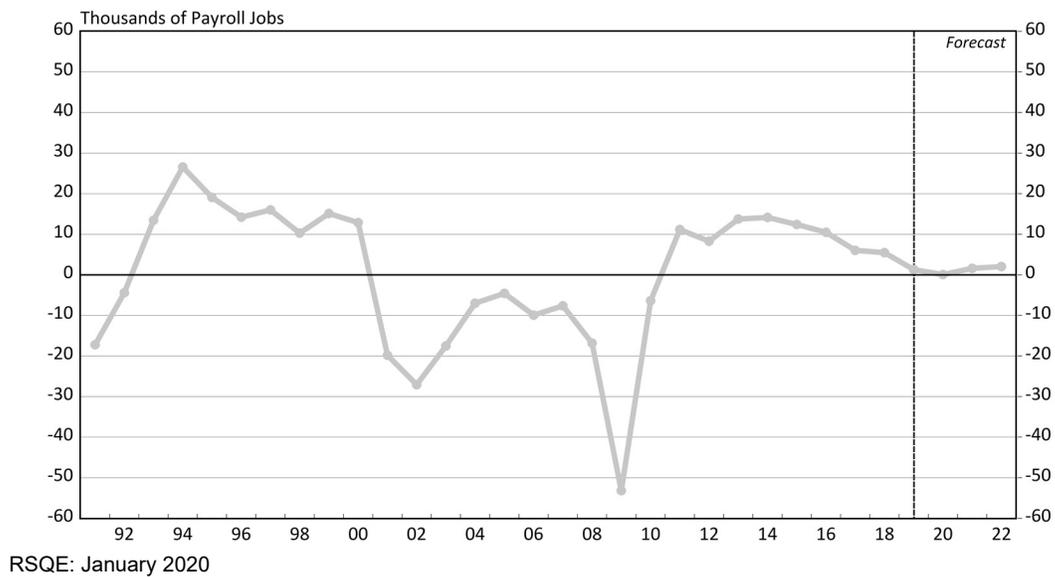


RSQE: January 2020

Annual Job Growth in Michigan, 1991–2022 Construction Sector



Annual Job Growth in Michigan, 1991–2022 Trade, Transportation, and Utilities Sector

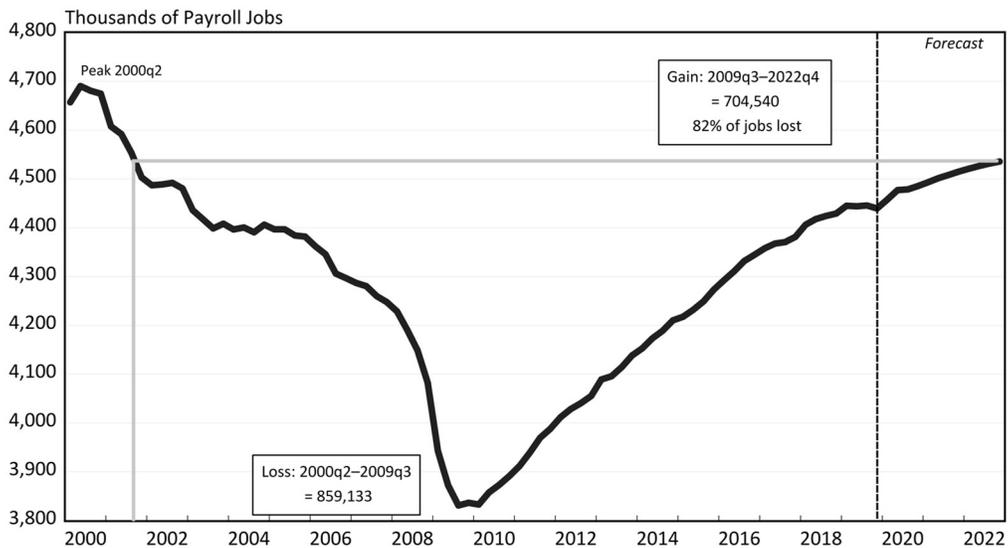


Annual Job Growth in Michigan, 1991–2022 Cyclical vs. Non-cyclical Industries



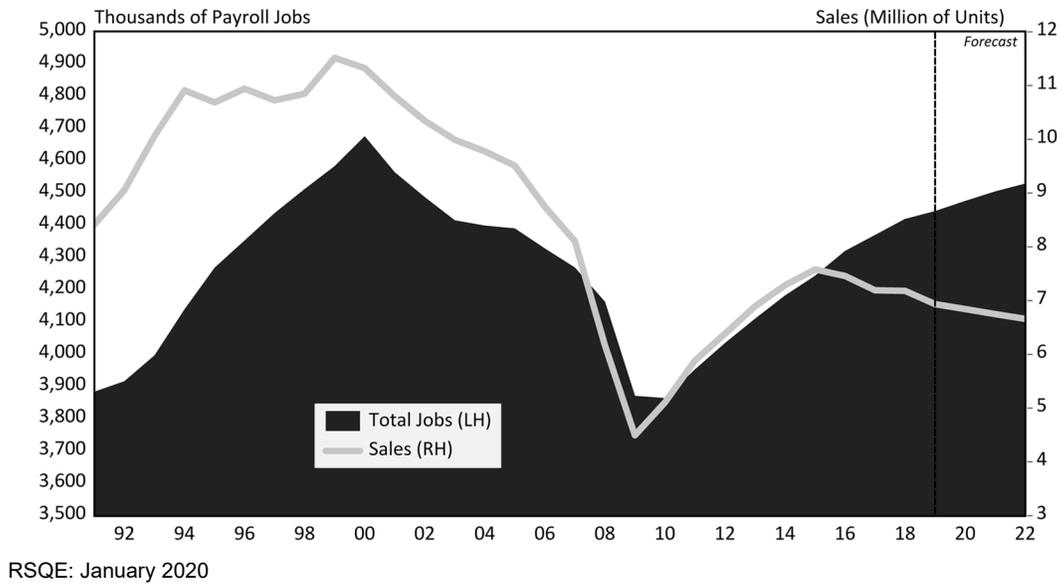
RSQE: January 2020

Michigan Wage and Salary Employment First Quarter of 2000 to Fourth Quarter of 2022

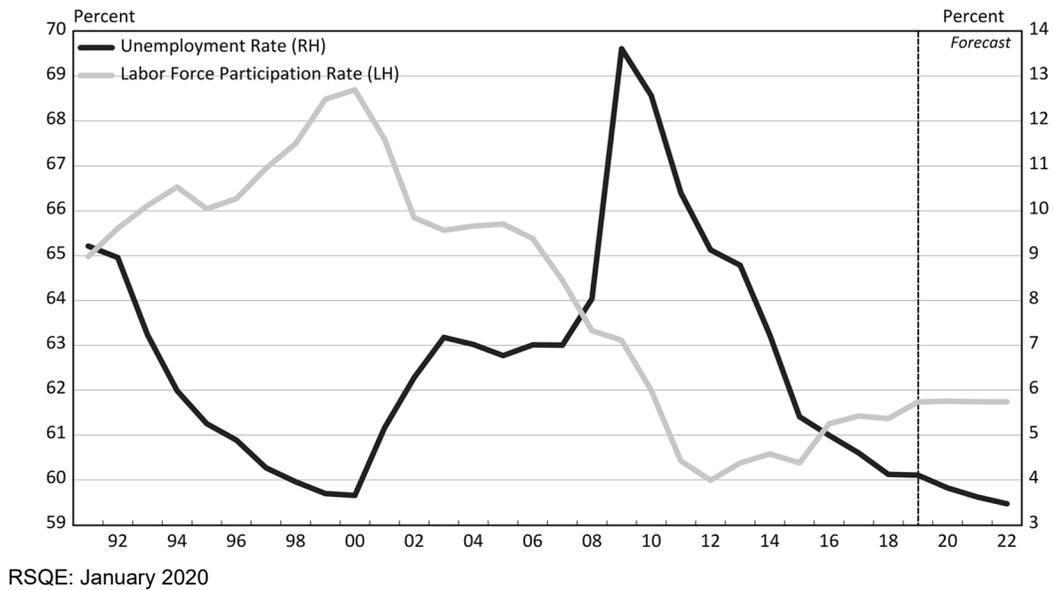


RSQE: January 2020

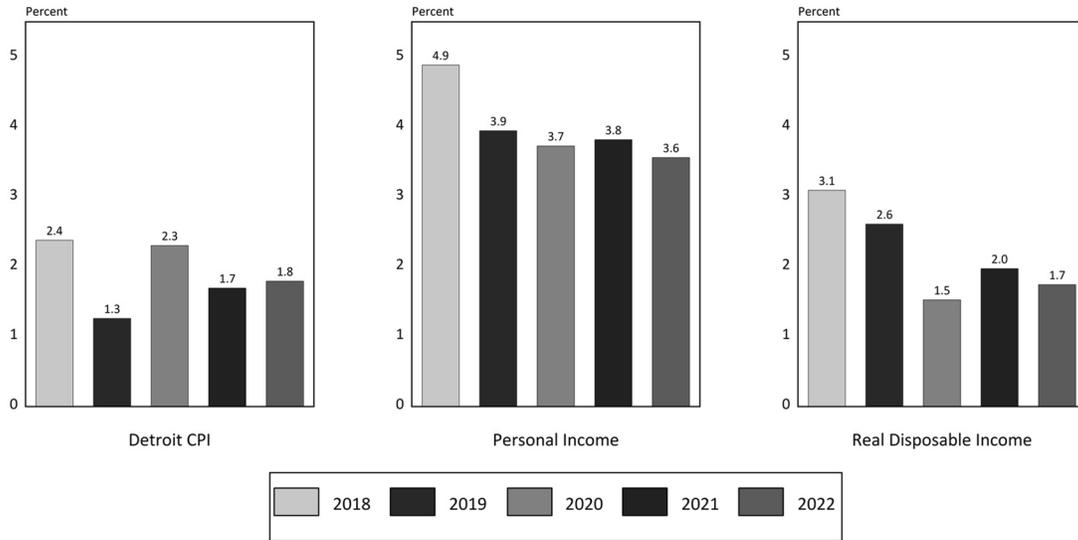
Michigan Total Jobs and Detroit Three Sales of Light Vehicles, 1991–2022



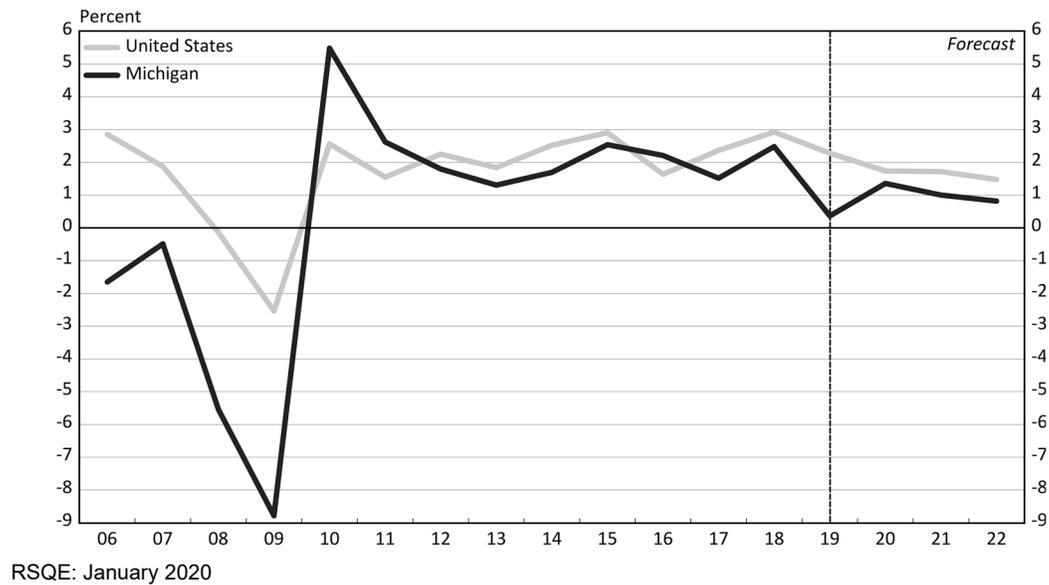
Michigan's Labor Market, 1991–2022



Michigan Inflation and Income Growth, 2018–2022



U.S. vs. Michigan Real GDP Growth, 2006–2022



**RSQE Forecast – State Revenues by Fiscal Year
(Millions of Dollars)**

	<u>Actual</u>	<u>Forecast</u>		
	2019 ^P	2020	2021	2022
GFGP revenue	10,950	11,000	11,272	11,714
(% change)	(0.0)	(0.5)	(2.5)	(3.9)
Earmarked state SAF revenue	13,495	14,004	14,440	14,809
(% change)	(1.2)	(3.8)	(3.1)	(2.6)

^PPreliminary

RSQE: January 2020

State Revenues by Fiscal Year
(Millions of dollars, except as noted)

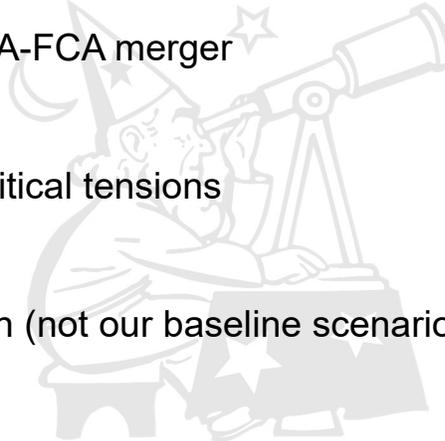
	Actual	RSQE Forecast		
	2019 ^P	2020	2021	2022
<u>General Fund General Purpose</u>				
Personal income tax	7,256	7,190	7,376	7,737
(% change)	(-0.3)	(-0.9)	(2.6)	(4.9)
Consumption taxes	2,346	2,411	2,489	2,528
(% change)	(0.8)	(2.8)	(3.2)	(1.6)
Sales	1,349	1,395	1,457	1,496
Use	715	735	749	750
Other consumption	281	281	283	282
Business taxes	864	893	891	919
(% change)	(5.8)	(3.3)	(-0.2)	(3.2)
MBT/SBT/Corporate income	522	489	479	498
Other business	343	404	411	421
Other GFGP taxes	130	141	145	150
GFGP tax revenue	10,595	10,635	10,900	11,334
(% change)	(0.2)	(0.4)	(2.5)	(4.0)
Nontax revenue	354	365	373	380
GFGP revenue	10,950	11,000	11,272	11,714
(% change)	(0.0)	(0.5)	(2.5)	(3.9)
<u>School Aid Fund</u>				
SAF taxes	12,426	12,974	13,405	13,769
(% change)	(0.5)	(4.4)	(3.3)	(2.7)
Lottery transfer	1,069	1,030	1,035	1,040
(% change)	(9.1)	(-3.6)	(0.5)	(0.5)
Earmarked state SAF revenue	13,495	14,004	14,440	14,809
(% change)	(1.2)	(3.8)	(3.1)	(2.6)
<u>Addendum</u>				
Gross sales and use taxes	10,016	10,600	10,982	11,270
(% change)	(1.0)	(5.8)	(3.6)	(2.6)

^P Preliminary

RSQE: January 2020

Risks to Our Forecast

- Auto industry: PSA-FCA merger
- Trade and geopolitical tensions
- National recession (not our baseline scenario)



RSQE: January 2020

M | **LSA** RESEARCH SEMINAR IN
QUANTITATIVE ECONOMICS
UNIVERSITY OF MICHIGAN

lsa.umich.edu/econ/rsqe