

Finance in Montana

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Nov 24 2020



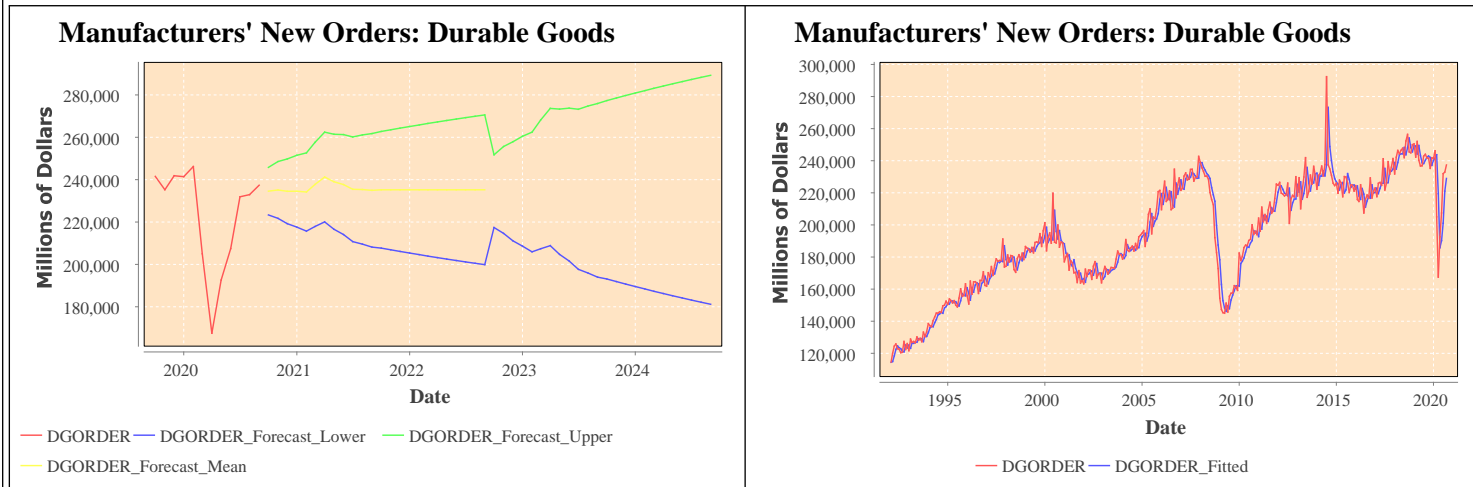
This Thanksgiving week we experiment with the R package '[Forecast](#)'. For this week's data releases, we allow the 'Forecast' tool to search for the best Arima model fitting the following time series:

- i. DGORDER Manufacturers' New Orders: Durable Goods
- ii. UMCSENT University of Michigan: Consumer Sentiment
- iii. CSUSHPISA S&P/Case-Shiller U.S. National Home Price Index
- iv. CP Corporate Profits After Tax (without IVA and CCAAdj)
- v. GDP Gross Domestic Product
- vi. PCE Personal Consumption Expenditures
- vii. MICH University of Michigan: Inflation Expectation
- viii. UNRATE Unemployment Rate

The 'Forecast' results are displayed on the following pages. Stay healthy!

Manufacturers' New Orders: Durable Goods

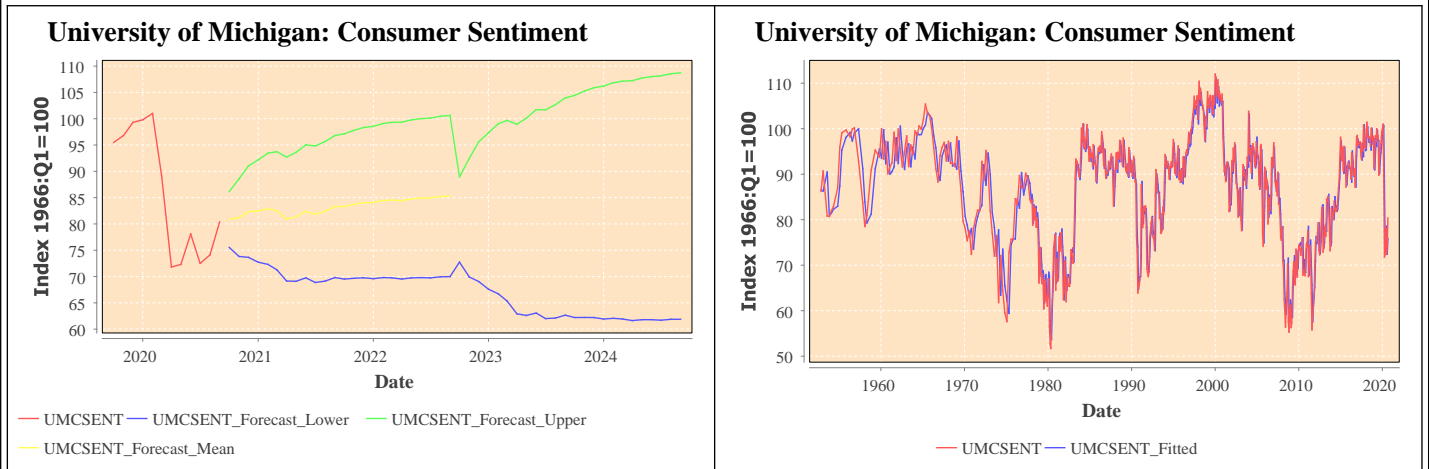
Using the forecast algorithm we can expect **Manufacturers' New Orders: Durable Goods** to be 234,577 on Oct-20. That value compares with a value of 237,380 on Sep-20. We can expect a range of outcomes between 223,357 and 245,797.



Item	Value	2020-10-01	2020-11-01	2020-12-01	2021-01-01	2021-02-01	2021-03-01
Std Error	8,709.747						
R2	0.937						
Method	ARIMA(0,1,1)(0,0,1)[12]						
Manufacturers' New Orders: Durable Goods_Forecast_Upper		245,797	248,551	249,789	251,500	252,651	257,660
Manufacturers' New Orders: Durable Goods_Forecast_Mean		234,577	235,145	234,508	234,550	234,181	237,786
Manufacturers' New Orders: Durable Goods_Forecast_Lower		223,357	221,740	219,226	217,599	215,710	217,913

University of Michigan: Consumer Sentiment

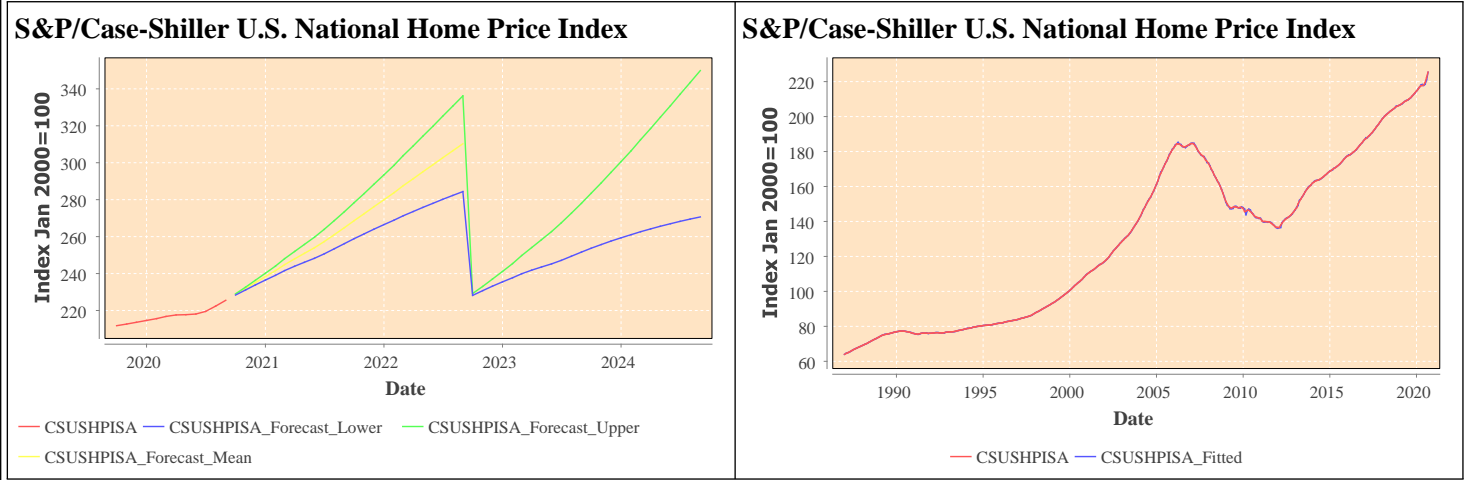
Using the forecast algorithm we can expect [University of Michigan: Consumer Sentiment](#) to be 80.847 on Oct-20. That value compares with a value of 80.4 on Sep-20. We can expect a range of outcomes between 75.547 and 86.147.



Item	Value	2020-10-01	2020-11-01	2020-12-01	2021-01-01	2021-02-01	2021-03-01
Std Error	4.115						
R2	0.888						
Method	ARIMA(3,0,2)(1,0,0)[12] with non-zero mean						
University of Michigan: Consumer Sentiment_Forecast_Upper		86.147	88.545	91.027	92.175	93.458	93.735
University of Michigan: Consumer Sentiment_Forecast_Mean		80.847	81.187	82.337	82.455	82.883	82.512
University of Michigan: Consumer Sentiment_Forecast_Lower		75.547	73.829	73.647	72.735	72.309	71.289

S&P/Case-Shiller U.S. National Home Price Index

Using the forecast algorithm we can expect [S&P/Case-Shiller U.S. National Home Price Index](#) to be 228.687 on Oct-20. That value compares with a value of 225.515 on Sep-20. We can expect a range of outcomes between 228.356 and 229.018.

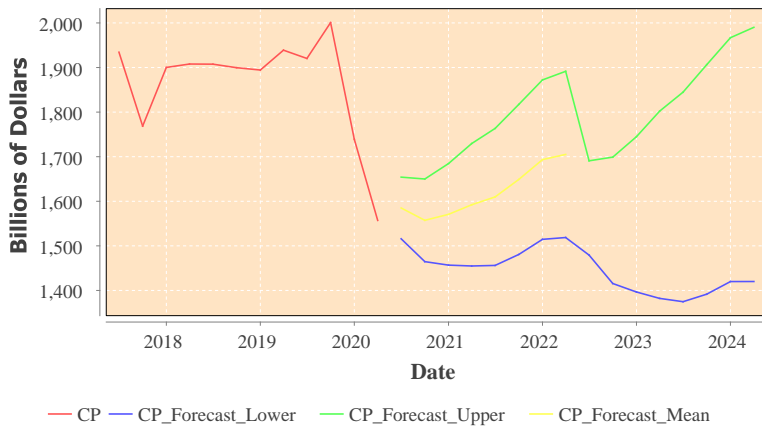


Item	Value	2020-10-01	2020-11-01	2020-12-01	2021-01-01	2021-02-01	2021-03-01
Std Error	0.257						
R2	1						
Method	ARIMA(0,2,1)(0,0,1)[12]						
S&P/Case-Shiller U.S. National Home Price Index_Forecast_Upper		229.018	232.628	236.351	240.167	244.047	248.028
S&P/Case-Shiller U.S. National Home Price Index_Forecast_Mean		228.687	231.881	235.094	238.322	241.546	244.807
S&P/Case-Shiller U.S. National Home Price Index_Forecast_Lower		228.356	231.133	233.837	236.478	239.044	241.587

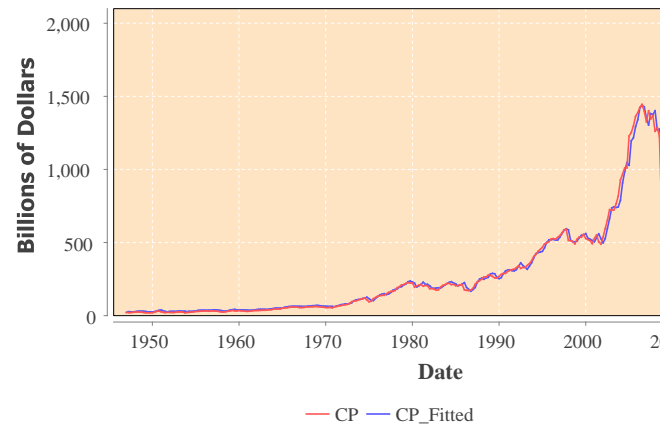
Corporate Profits After Tax (without IVA and CCAdj)

Using the forecast algorithm we can expect **Corporate Profits After Tax (without IVA and CCAdj)** to be 1,515.875 on Jul-20. That value compares with a value of 1,557.064 on Apr-20. We can expect a range of outcomes 1,515.875 and 1,654.152.

Corporate Profits After Tax (without IVA and) Tj ET C



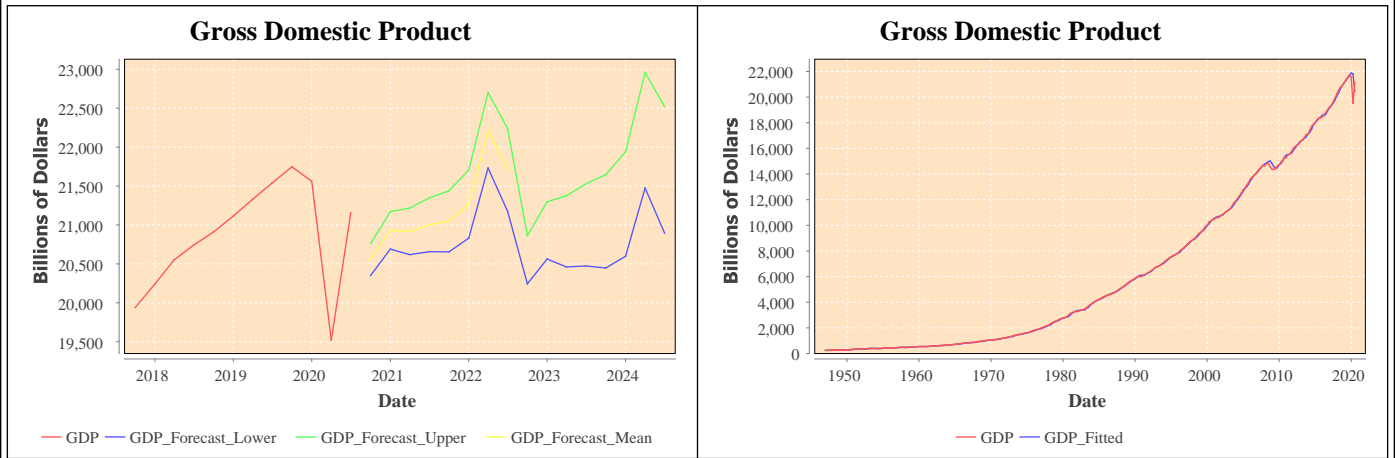
Corporate Profits After Tax (without IVA and



Item	Value	2020-07-01	2020-10-01	2021-01-01	2021-04-01	2021-07-01	2021-10-01
Std Error	53.299						
R2	0.993						
Method	ARIMA(2,1,2)(1,0,1)[4] with drift						
Corporate Profits After Tax (without IVA and CCAdj)_Forecast_Upper		1,654.152	1,649.952	1,684.59	1,729.466	1,763.432	1,797.398
Corporate Profits After Tax (without IVA and CCAdj)_Forecast_Mean		1,585.013	1,557.282	1,570.691	1,592.156	1,609.772	1,627.888
Corporate Profits After Tax (without IVA and CCAdj)_Forecast_Lower		1,515.875	1,464.613	1,456.793	1,454.846	1,456.113	1,458.178

Gross Domestic Product

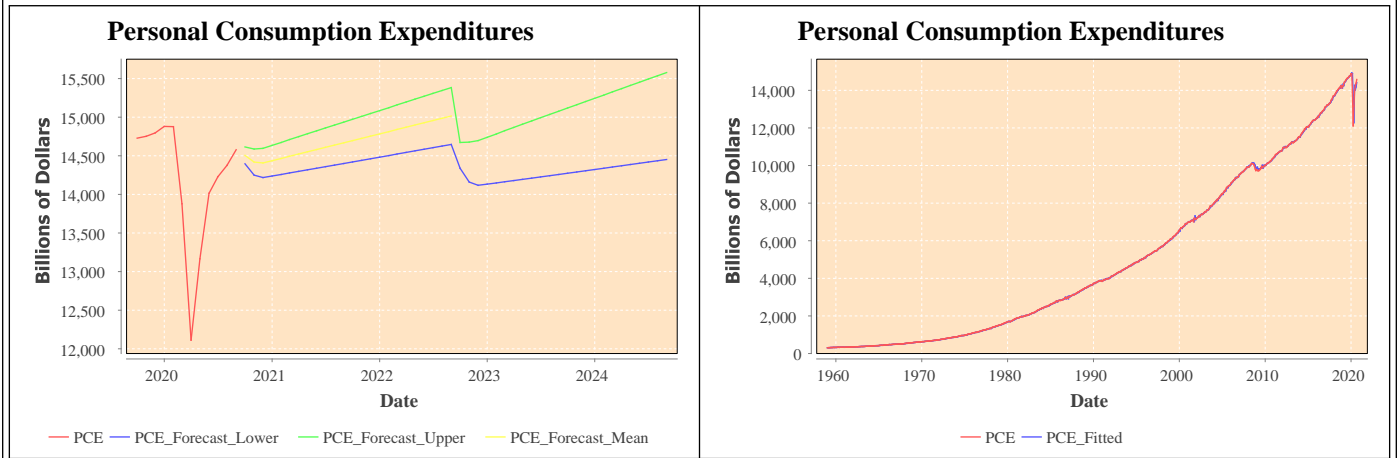
Using the forecast algorithm we can expect **Gross Domestic Product** to be 20,553 on Oct-20. That value compares with a value of 21,158 on Jul-20. We can expect a range of outcomes between 20,351 and 20,756.



Item	Value	2020-10-01	2021-01-01	2021-04-01	2021-07-01	2021-10-01	2022-01-01
Std Error	156.246						
R2	0.999						
Method	ARIMA(1,2,1)(0,0,2)[4]						
Gross Domestic Product_Forecast_Upper		20,756	21,171	21,217	21,347	21,439	21,707
Gross Domestic Product_Forecast_Mean		20,553	20,931	20,918	21,001	21,047	21,268
Gross Domestic Product_Forecast_Lower		20,351	20,690	20,619	20,656	20,655	20,830

Personal Consumption Expenditures

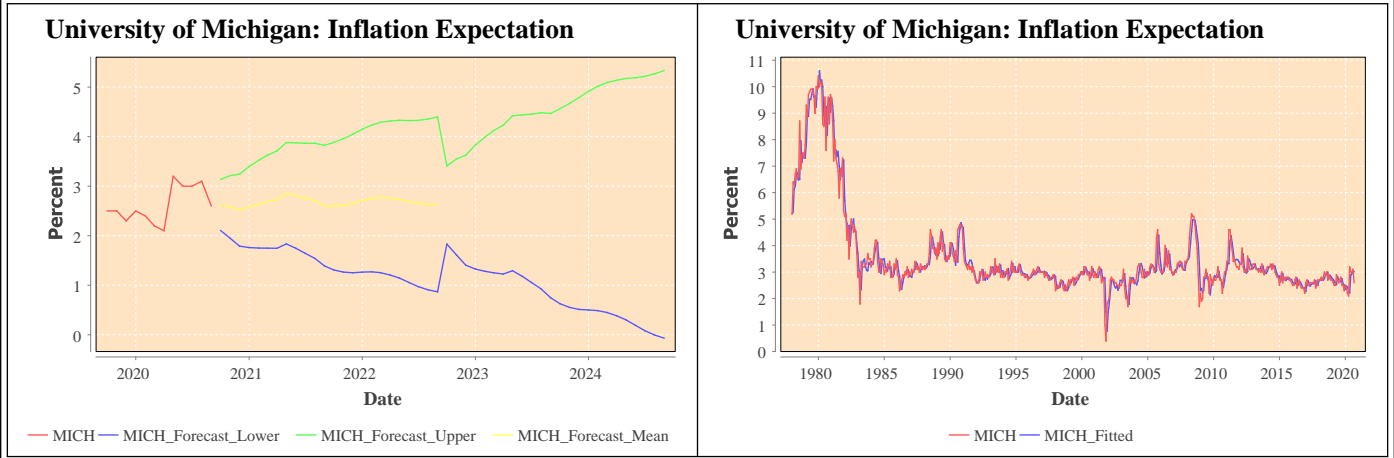
Using the forecast algorithm we can expect **Personal Consumption Expenditures** to be 14,505 on Oct-20. That value compares with a value of 14,578 on Sep-20. We can expect a range of outcomes between 14,396 and 14,615.



Item	Value	2020-10-01	2020-11-01	2020-12-01	2021-01-01	2021-02-01	2021-03-01
Std Error	84.858						
R2	1						
Method	ARIMA(0,2,4)						
Personal Consumption Expenditures_Forecast_Upper		14,615	14,588	14,596	14,635	14,672	14,710
Personal Consumption Expenditures_Forecast_Mean		14,505	14,418	14,407	14,436	14,465	14,494
Personal Consumption Expenditures_Forecast_Lower		14,396	14,249	14,218	14,238	14,258	14,278

University of Michigan: Inflation Expectation

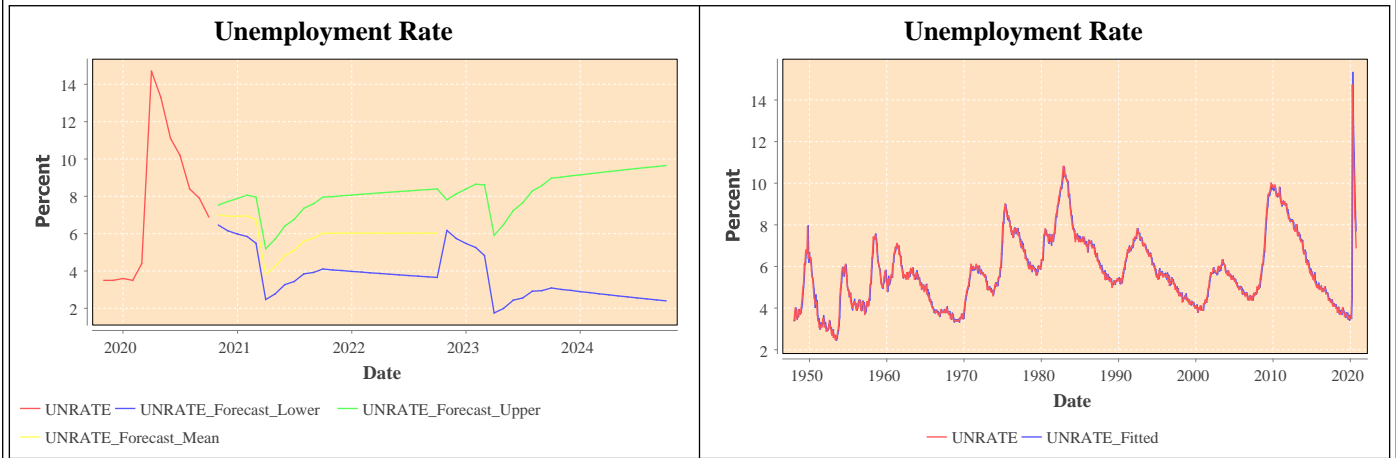
Using the forecast algorithm we can expect [University of Michigan: Inflation Expectation](#) to be 2.62 on Oct-20. That value compares with a value of 2.6 on Sep-20. We can expect a range of outcomes between 2.104 and 3.136.



Item	Value	2020-10-01	2020-11-01	2020-12-01	2021-01-01	2021-02-01	2021-03-01
Std Error	0.4						
R2	0.943						
Method	ARIMA(4,1,2)(1,0,0)[12]						
University of Michigan: Inflation Expectation_Forecast_Upper		3.136	3.213	3.242	3.397	3.523	3.625
University of Michigan: Inflation Expectation_Forecast_Mean		2.62	2.58	2.516	2.579	2.637	2.687
University of Michigan: Inflation Expectation_Forecast_Lower		2.104	1.947	1.789	1.76	1.751	1.748

Unemployment Rate

Using the forecast algorithm we can expect **Unemployment Rate** to be 6.994 on Nov-20. That value compares with a value of 6.9 on Oct-20. We can expect a range of outcomes between 6.458 and 7.531.



Item	Value	2020-11-01	2020-12-01	2021-01-01	2021-02-01	2021-03-01	2021-04-01
Std Error	0.418						
R2	0.94						
Method	ARIMA(1,1,1)(0,0,1)[12]						
Unemployment Rate_Forecast_Upper		7.531	7.72	7.888	8.063	7.96	5.189
Unemployment Rate_Forecast_Mean		6.994	6.937	6.934	6.954	6.723	3.831
Unemployment Rate_Forecast_Lower		6.458	6.154	5.979	5.846	5.485	2.472

Code	Name	Last	Last Date	Forecast	Forecast Date	Lower	Upper	R-square
DGORDER	Manufacturers' New Orders: Durable Goods	237,380	20-09-01	234,577	20-10-01	223,357	245,797	0.937
UMCSENT	University of Michigan: Consumer Sentiment	80.4	20-09-01	80.847	20-10-01	75.547	86.147	0.888
CSUSHPISA	S&P/Case-Shiller U.S. National Home Price Index	225.515	20-09-01	228.687	20-10-01	228.356	229.018	1
CP	Corporate Profits After Tax (without IVA and CCAAdj)	1,557.064	20-04-01	1,585.013	20-07-01	1,515.875	1,654.152	0.993
GDP	Gross Domestic Product	21,158	20-07-01	20,553	20-10-01	20,351	20,756	0.999
PCE	Personal Consumption Expenditures	14,578	20-09-01	14,505	20-10-01	14,396	14,615	1
MICH	University of Michigan: Inflation Expectation	2.6	20-09-01	2.62	20-10-01	2.104	3.136	0.943
UNRATE	Unemployment Rate	6.9	20-10-01	6.994	20-11-01	6.458	7.531	0.94