STATE OF INDIANA
INDIANA UTILITY REGULATORY COMMISSION

PETITION OF INDIANA MICHIGAN POWER COMPANY, AN INDIANA CORPORATION, FOR AUTHORITY TO INCREASE ITS RATES AND CHARGES FOR ELECTRIC UTILITY SERVICE THROUGH A PHASE IN RATE ADJUSTMENT; AND FOR APPROVAL OF RELATED RELIEF INCLUDING: (1) REVISED DEPRECATION RATES; (2) ACCOUNTING RELIEF; (3) INCLUSION IN RATE BASE OF QUALIFIED POLLUTION CONTROL PROPERTY AND CLEAN ENERGY PROJECT; (4) ENHANCEMENTS TO THE DRY SORBENT INJECTION SYSTEM; (5) ADVANCED METERING INFRASTRUCTURE; (6) RATE ADJUSTMENT MECHANISM PROPOSALS; AND (7) NEW SCHEDULES OF RATES, RULES AND REGULATIONS.	**CAUSE NO.: 45235**

PRE-FILED VERIFIED DIRECT TESTIMONY OFJOSEPH A. MANCINELLI

AND ATTACHMENTS JAM-1 THROUGH JAM-8

PUBLIC REDACTED VERSION

SUBMITTED ON BEHALF OF:
CITY OF FORT WAYNE
THE CITY OF MARION
MARION MUNICIPAL UTILITIES

AUGUST 20, 2019

SECOND SET OF CORRECTIONS FILED OCTOBER 21, 2019

JOINT MUNICIPAL EXHIBIT 1

DIRECT TESTIMONY OF
JOSEPH A. MANCINELLI

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ATTACHMENTS

I. INTRODUCTION AND QUALIFICATIONS

Q1. PLEASE STATE YOUR NAME, BUSINESS ADDRESS, AND PROVIDE A BRIEF DESCRIPTION OF YOUR BUSINESS.

A. My name is Joseph A. Mancinelli. I am the President and Chief Executive Officer ("CEO") of NewGen Strategies and Solutions, LLC ("NewGen"). My business address is 225 Union Boulevard, Suite 305, Lakewood, Colorado, 80228. NewGen is a consulting firm that specializes in utility rates, engineering economics, financial accounting, asset valuation, appraisals, and business strategy for electric, natural gas, water, and wastewater utilities.

Q2. PLEASE STATE YOUR EDUCATIONAL BACKGROUND.

A. I have a Master of Business Administration degree from University of Colorado, where my emphasis was in Finance. Prior to this, I earned a Bachelor of Science degree from Colorado School of Mines in Geophysical Engineering.

Q3. PLEASE DESCRIBE YOUR PROFESSIONAL EXPERIENCE.

A. I am the President and CEO of NewGen. I have more than 30 years of experience in the areas of cost of service ("COS") and rate design for electric, natural gas, water, and wastewater utilities. I have worked closely with public utility commissions, senior management teams, utility boards, city councils, attorneys, and end-users with respect to the strategy and technical fundamentals of COS and rate design. I have taught numerous classes on COS and rate design methodology based on industry methodologies approved by the National Association of Regulatory Utility Commissioners ("NARUC"). I have been extensively involved in the development of

unbundled COS and pricing models during my career. A summary of my qualifications is provided within Attachment JAM-1 to this testimony.

Q4. HAVE YOU PREVIOUSLY TESTIFIED BEFORE THIS COMMISSION?

A. Yes. I testified before the Indiana Utility Regulatory Commission ("IURC" or "Commission") in Cause No. 44688, Cause No. 44733, and in Cause No. 43354. As shown in my testimony experience provided within Attachment JAM-1, I have sponsored testimony before public utilities commissions in Alaska, Guam, Indiana, Michigan, Nevada, North Carolina, and Texas. Also, I have testified in arbitration and civil court proceedings.

II. PURPOSE OF TESTIMONY

Q5. ON WHOSE BEHALF ARE YOU SUBMITTING THIS TESTIMONY?

A. I am testifying on behalf of the City of Fort Wayne, the City of Marion, and Marion Municipal Utilities.

Q6. BASED ON YOUR REVIEW, WHAT ARE YOUR RECOMMENDATIONS?

A. Based on my review of Indiana Michigan Power's ("I&M" or the "Company") direct testimony, I recommend the following:

1. Fixed costs associated with abrupt and significant load loss on the I&M system should be recovered within the jurisdiction that the load loss occurs or borne by the Company. I&M allocates costs to three jurisdictions: Indiana retail, Michigan retail, and Federal Energy Regulatory Commission ("FERC").
2. I&M's allocation of Off-System Sales ("OSS") margins, in accordance with the jurisdictional split, should be allocated 100% to firm retail customers in

recognition that firm customers within a jurisdiction bear the responsibility of fixed cost recovery for all I&M generation assets.

3. I&M should be required to remove the recession assumptions from the "Test Year" (January 1, 2020 through December 31, 2020) as the company failed to meet the burden of proof and the "Fixed, Known, and Measurable" ratemaking standard.[1]
4. I&M should be required to reduce their aggressive Demand Side Management and Energy Efficiency ("DSM/EE") assumptions based on historical observed savings associated with these programs.
5. Consistent with allocating production and transmission demand related costs in consideration of peak demand responsibility, I&M should use a summer coincident peak ("CP") allocator.
6. Lighting Service ("SL") provides an important public service to the various communities served by I&M and, therefore, this customer class should not pay more than COS.
7. I&M's rate design proposals for the WSS and MS rate classes should be rejected because the Company's proposal to introduce significant demand charges are overly aggressive and punitive.

[1] Expenses can be adjusted based on changes that are "fixed, known, and measurable" and cannot be based on a "hypothetical expense." *Ind. Gas Co. v. Office of Util. Consumer Counselor*, 675 N.E.2d 739, 745 (Ind. Ct. App. 1997), citing *Public Service Commission v. City of Indianapolis*, 235 Ind. 70, 131 N.E.2d 308, 317 (1956); *Office of Util. Consumer Counselor v. Indiana Cities Water Corp.*, 440 N.E.2d 14, 18 (Ind. Ct. App. 1982); *City of Muncie v. Public Service Commission*, 177 Ind. App. 155, 378 N.E.2d 896 at 896-98 (1978). *Ind. Gas Co. v. Office of Util. Consumer Counselor*, 675 N.E.2d 739, 745 (Ind. Ct. App. 1997).

8. Alternative WSS rate structures should include caps for low load factor customers, while retaining incentives for high load factor customers, and tempered demand charges.

9. Alternative MS rate structures should, temper demand charges by including 10 kilowatts ("kW") with no demand charge. Also, the applicable OSS/PJM Rider should be recovered on an energy basis rather than a demand basis for this class. The class should have a single flat energy charge.

10. I&M should continue to fully support Economic Impact Grant ("EIG") programs. I&M should fund these programs solely from its earnings. At a minimum total grant funding should be $450,000 annually on a going forward basis. In addition to this annual amount, I&M should be required to contribute $364,000 of unspent funds associated with the Settlement Agreement.

Q7. ARE YOU SPONSORING ANY ATTACHMENTS TO YOUR TESTIMONY?

A. Yes. In addition to Attachment JAM-1, I am sponsoring Attachments JAM-2 through JAM-8, all of which were prepared by me or under my direction and supervision.

III. COST SHIFTING DUE TO LOSS OF FIRM LOAD

Q8. FROM WHICH JURISDICTIONS IS I&M ANTICIPATING A LOSS IN FIRM LOAD?

A. I&M's Jurisdictional Separation Study categorizes its firm load into three jurisdictions: Indiana retail customers ("Indiana"), Michigan retail customers ("Michigan"), and wholesale customers categorized as FERC customers. I&M's Jurisdictional Separation Study anticipates a significant loss of firm load from its FERC wholesale customers and an additional loss of firm load from its Michigan retail customers.

Q9. WHICH WHOLESALE CUSTOMERS ARE CATEGORIZED BY I&M AS FERC CUSTOMERS?

A. The wholesale customers categorized in the Jurisdictional Separation Study as FERC customers include:

- Auburn, Indiana
- Indiana Municipal Power Agency
- Wabash Valley Power Association
- Indiana Michigan Municipal Distributors Association ("IMMDA"):
  - IMMDA Indiana includes Mishawaka, Bluffton, Garrett, Avilla, New Carlisle, and Warren; and
  - IMMDA Michigan includes Niles, South Haven, Dowagiac, Sturgis, and Paw Paw.

Q10. WHY DOES I&M'S JURISDICTIONAL SEPARATION STUDY ANTICIPATE A SIGNIFICANT LOSS OF FIRM LOAD?

A. Compared to I&M's Jurisdictional Separation Study filed in Cause No. 44967 for a 2018 Test Year, the current Company filing assumes that approximately 247 megawatts ("MW")[2] of firm load will be lost as a result of the May 31, 2020 termination of the full-requirements wholesale service contracts with several members of IMMDA.[3] I note that this number differs from the testimony of Witness Thomas who references a 300 MW load loss (as described later in my testimony). The members of IMMDA that cancelled their wholesale contracts with I&M are the Michigan and

[2] I&M Witness Duncan Direct Testimony, WP JCD1 JCOS Master Workpaper: Sheet - Proj D&E Study.

[3] I&M Witness Thomas Direct Testimony, p. 6, ln. 8.

Indiana municipalities of Avilla, Bluffton, Mishawaka, New Carlisle, Niles, Paw Paw, South Haven, and Sturgis. The remaining IMMDA contracts for Garrett, Indiana, and Dowagiac, Michigan have end dates of 2025 and beyond.[4] Also, I&M includes approximately 40 MWs of load loss associated with Michigan retail customers opting into retail choice in that state and thus being served by I&M competitors. The termination of IMMDA wholesale contracts in 2020 has the most significant impact on I&M's jurisdictional allocation study.

Q11. PLEASE DESCRIBE THE IMMDA LOAD.

A. Each of the Indiana members of IMMDA own and operate municipally-owned electric utilities in Indiana pursuant to IC 8-1-8.5 et seq., and as such, have separate and distinct retail service territories established by the Commission pursuant to IC 8-1-2.3 *et seq.* that are outside of I&M's retail service territory in Indiana.[5] As municipal utilities, the IMMDA members are free to buy and sell power in the wholesale electric market or enter into wholesale power agreements as they see fit, in order to meet the electric needs of their respective communities.

IMMDA's wholesale customer relationship with I&M goes back many decades. In 1978, IMMDA and other Indiana cities filed complaints at FERC, alleging that I&M was inflicting a "price-squeeze" against them and as a result, FERC began an

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4 I&M Witness Williamson Direct Testimony p. 19, fn. 3.

5 While the service territories of these IMMDA members in Indiana are subject to IURC jurisdiction, these municipal electric utilities have opted-out of Commission jurisdiction for their retail rate structures. See list of withdrawn utilities at:

https://www.in.gov/iurc/files/Withdrawn_Municipal_Electric_Utilities_Alpha.pdf

investigation pursuant to 18 CFR §2.17.[6] FERC adopted these procedures to expedite the consideration of allegations of price discrimination and anticompetitive effects of wholesale rates in order to comply with a 1975 U.S. Supreme Court decision.[7]

For a number of years thereafter, I&M and IMMDA (and others) were engaged in litigation, both in the Federal courts and before FERC. On September 30, 1981, I&M and IMMDA entered into a Settlement Agreement under which all matters involved in the then-pending litigation were resolved. The Settlement Agreement provided recovery of damages related to the complainants' antitrust-related claims, in addition to a recovery of COS refunds, to the individual municipal utilities pursuant to FERC Docket ER78-382.[8]

Since then, IMMDA members and I&M have entered into long-term wholesale power contracts, which include formula rates based upon I&M's FERC Form 1. The terms of the current set of IMMDA contracts were set to expire in 2026, but included an option to terminate early upon providing four years' written notice to I&M. Certain IMMDA members exercised their early termination option under the existing wholesale power contracts by providing notice on or before May 31, 2016, which will be effective on May 31, 2020. The cancelled contracts represent approximately

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6 *Indiana & Michigan Elec. Co.*, 4 FERC ¶61,063, 61133, Docket Nos. ER78-379, ER78-380, ER78-381, ER78-382 and ER78-383 (July 20, 1978).

7 *F.P.C. v. Con-Way Corp.*,426 U.S. 271 (1976), aff'g 510 F. 2d 1264 (D.C. Cir. 1975).

8 18 FERC ¶ 62,133, 63257, Docket Nos. E-9548, E-9549, ER76-716, ER78-382 and ER81-105-000 (January 19, 1982); see also *City of Mishawaka, Indiana, et al. v. American Electric Power Company, Inc., et al.*, Civil Docket Nos. S74-72, S75-210, and S77-0209; and *City of Mishawaka, Indiana, et al. v. American Electric Power Company, Inc., et al.*, Civil Docket No. S78-0149 (N. D. Ind., South Bend Division).

300 MW[9] of load and 977 gigawatt-hours ("GWh")[10] of energy usage annually in Indiana. During 2018, these same customers paid total revenues of $104.2 million, with $62.7[11] million collected through demand charges. The cancellation of the IMMDA contracts represents a loss of 96% of IMMDA load which represents 34%[12] of I&M wholesale firm load as measured in kilowatt-hours ("kWh")).

Q12. HOW DOES I&M ADDRESS THE LOSS OF IMMDA WHOLESALE LOAD IN ITS JURISDICTIONAL SEPARATION STUDY?

A. I&M shifts the fixed cost recovery associated with this wholesale load loss to Indiana and Michigan customers in its Jurisdictional Separation Study. In other words, the fixed costs attributable to the lost IMMDA load that have traditionally been assigned as FERC jurisdictional wholesale costs, are now being recovered through I&M's captive state-regulated retail customer base. Embedding these wholesale IMMDA costs into retail rates significantly increases the cost burden to retail customers.[13]

Q13. WHAT IS THE FINANCIAL IMPACT OF THE LOSS OF MOST OF THE IMMDA WHOLESALE LOAD?

A. The total revenue loss associated with the cancelled IMMDA contracts is estimated to be $89 million for the Test Year. Witness Heimberger states that FERC wholesale revenues were $291 million in 2018 and have been lowered to $202 million for the Test

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[9] I&M Witness Thomas Direct Testimony p. 6, ln. 8. The Jurisdictional Study shows 247 MW; however, the I&M testimony states 300 MW.

[10] I&M Witness Burnett Direct Testimony p. 15, ln. 2.

[11] I&M Witness Nollenberger Direct Testimony, WP MWN OR2 - 2018 Historic Data., WP JAM-9 at Worksheet 2018 Historic Data.

[12] *Id.* at Worksheet Percent Wholesale Leaving.

[13] I&M Witness Hevert Direct Testimony p. 48, ln. 1.

Year.[14] The estimated fixed costs recovered by the cancelled IMMDA contracts were estimated by I&M to be $46.4 million from January 1, 2020 through May 31, 2020.

Q14. PLEASE EXPLAIN COST SHIFTING AND ITS IMPACT ON RETAIL RATES.

A. A significant portion of utility costs are fixed in nature, meaning that a utility similar to I&M has a fiscal obligation to pay these costs regardless of energy sales to customers. Fixed costs typically vary with changes in system capacity or demand-related costs. For example, when a utility adds a new generation resource to its generation portfolio, fixed cost will increase. Conversely, when a utility retires a power plant, fixed costs associated with the unit no longer exist or are removed from rate base. Fixed costs are paid by I&M firm service customers (either retail or wholesale) or by I&M investors if fixed costs are disallowed or otherwise removed from rate base.

As load is added to a utility system, fixed costs can be recovered or spread over a greater number of energy and demand sales (billing determinants), thus lowering the incremental cost recovery per unit. For a given amount of system fixed costs, as load grows, the cost per kWh decreases resulting in rate relief. Conversely, for a given amount of system fixed costs, as load declines, the cost per kWh increases resulting in the need to raise rates. As a normal course of business, a utility will lose and simultaneously gain small increments of load. As a result, overall system load is stable and generally growing, which has been the case on the I&M system.[15] In such an environment, load and supporting rates are relatively stable over time.

[14] I&M Witness Heimberger Direct Testimony p. 12, ln. 9.

[15] I&M Integrated Resource Plan dated July 1, 2019, Exhibit A Load Forecast Tables, p. 1-3 of 18.

However, a sudden large load loss will motivate a utility to raise the rates of remaining customers in order to recapture revenue that was once attributable to fixed costs previously paid by the departing load. In fact, this is what I&M has done in its Jurisdictional Separation Study. Significant loss of firm load attributable to certain wholesale customers has resulted in the reallocation of I&M total system fixed costs. This reallocation has shifted fixed costs from the FERC jurisdiction to the Indiana and Michigan retail jurisdictions as I will demonstrate below.

Q15. PLEASE QUANTIFY THE DEGREE IN WHICH COST SHIFTING IS REFLECTED IN THE I&M JURISDICTIONAL SEPARATION STUDY.

A. As initially noted, I&M's Jurisdictional Separation Study recognizes three jurisdictions: Indiana, Michigan, and FERC (which includes wholesale sales in both Michigan and Indiana). In the short two-year period between the previous I&M rate case (Cause No. 44967) and this rate case (Cause No. 45235), there has been a significant increase in the Indiana retail jurisdictional costs, *which is almost entirely due to the lost wholesale IMMDA load.* This fact can be demonstrated by a comparison of I&M's jurisdictional models filed in the prior and current rate cases.

The following table compares certain jurisdictional allocators used by I&M in the previous and current Jurisdictional Separation Studies for Indiana retail and Other (Michigan retail and FERC).

Table 1[1]
Comparison of I&M Jurisdictional Allocation Factors
Cause No. 45235 Compared to Cause No. 44967

Line No.		2020 Test Year (I&M Rate Case)	2018 Test Year (I&M Rate Case)	Difference (2020 – 2018)
1	Number of Customers [2], [3]			
2	Indiana	78.26%	78.25%	0.0013%
3	Other	21.74%	21.75%	(0.0013%)
4=2+3	**Total**	**100.00%**	**100.00%**	**0.0000%**
5	Energy [2], [4]			
6	Indiana	68.37%	63.77%	4.60%
7	Other	31.63%	36.23%	(4.60%)
8=6+7	**Total**	**100.00%**	**100.00%**	**0.00%**
9	Demand [2], [4]			
10	Indiana	70.65%	65.21%	5.44%
11	Other	29.35%	34.79%	(5.44%)
12=10+11	**Total**	**100.00%**	**100.00%**	**0.00%**

(1) WP JAM-1.
(2) I&M Witness Duncan Direct Testimony, WP JCD1 (45235_IndMich_WP JCD1 JCOS Master Workpaper File 051419.xls).
(3) Number of customers in 2018 is historic.
(4) 2018 Data: Cause 44967: WP JMS-1, p. 36-37.

Table 1 demonstrates the significant change in jurisdictional demand allocation factor (or 12CP demand allocator) in just two years. For example, the allocation of total I&M generation fixed costs to the Indiana jurisdiction has increased by 5.4% (from 65.2% to 70.7%). This large increase to Indiana's allocation of fixed costs is largely attributable to the loss of firm sales in the FERC jurisdiction.

Q16. WHAT IMPACT DO THE SIGNIFICANT CHANGES IN I&M'S 12CP DEMAND JURISDICTIONAL ALLOCATION FACTOR HAVE ON THE ALLOCATION OF TOTAL COMPANY COSTS TO THE INDIANA RETAIL JURISDICTION?

A. The impact of the proposed 12CP demand I&M jurisdictional allocator results in a disproportional shifting of total Company costs to Indiana retail customers. To

highlight this cost shifting, I have compared the as-filed results of the of the Jurisdictional Separation Studies in Cause Nos. 44967 (Test Year 2018) and 45235 (Test Year 2020). Table 2 compares four important components of the I&M revenue requirement that are allocated between jurisdictions using the 12CP demand allocation factor. Additional information is provided in Attachment JAM-2.

Table 2[1]
Jurisdictional Allocation of 12CP Demand-Related Costs
Impact of Loss of Firm Load
Cause No. 45235 compared to Cause No. 44967

Line No.	Type of Cost in Jurisdictional Allocation Studies	Total Company Requested $ Increase (2018 to 2020) (A)	$ Increase to Indiana Retail Jurisdiction Allocation (2018 to 2020) (B)	Resulting Percentage of the Total Increase in Fixed Costs Allocated to Indiana Customers (B/A)
1	Production-Demand O&M Costs [2]	$6.5 million (1.2%)	$33.5 million (9.7%)	519%
2	Transmission-Demand O&M Costs [3]	$7.4 million (38.2%)	$6.4 million (50.2%)	86%
3	Production and Transmission Depreciation and Amortization Costs [4]	$71.3 million (32.4%)	$61.5 million (43.0%)	86%
4	Allocation of Rate Base-Production [5]	$459.1 million (10.1%)	$572.3 million (19.3%)	125%
5	Allocation of Rate Base-Transmission[6]	$69.4 million (4.1%)	$141.0 million (12.8%)	203%

(1) WP JAM-2.
(2) Attachment JAM-2 Line 2.
(3) Attachment JAM-2 Line 5.
(4) Attachment JAM-2 Line 14.
(5) Attachment JAM-2 Line 20.
(6) Attachment JAM-2 Line 21.

Table 2 demonstrates the disproportional shifting of costs into the Indiana retail jurisdiction due to change in the 12CP demand allocation factor.

I&M's proposal is asking Indiana retail customers to pay:

- over five times (519%) of the Company's total production fixed cost increase request.

- 86% of the Company's total transmission demand fixed cost increase.
- 86% of the Company's production and transmission depreciation and amortization cost increase
- 125% of the Company's production rate base; and
- 203% of the Company's transmission rate base

In total, the combined effect represents a burdensome shift of cost responsibility to I&M Indiana retail customers. These five examples clearly demonstrate that the Company's proposed jurisdictional allocation in this case is flawed; yielding a burdensome, unjust and unreasonable shifting of fixed costs to Indiana retail customers. Indiana retail customers are being asked to pay for the entire cost increase proposal of the Company, plus an additional amount almost solely due to the loss of FERC load.

Q17. ARE FIXED COSTS ASSOCIATED WITH FERC LOAD LOSS STRANDED?

A. Yes, for these reasons:

- I&M has a long history of serving IMMDA customers. As previously mentioned in my testimony, I&M has served IMMDA members, at least, from the 1970's. Fixed cost associated with these loads have long been recovered and imbedded in I&M's various rate structures within each jurisdiction. A sudden large loss of IMMDA load leaves stranded a large amount of fixed costs never borne by current customers.
- Current retail customers use the I&M system after losing the IMMDA load similarly to the way they had before the loss of IMMDA load. Retail COS results have not materially changed due to load loss.

- The contracts' termination provisions and four year notification requirements have provided I&M ample time to adjust for the load loss. Since 2006, I&M has known that IMMDA customer contracts would expire as early as 2019 and no later than the end of the contract term in 2026. I&M should have planned for load loss and begun to mitigate impacts well before, or at the very least upon receipt of the four-year early termination notices received in 2016. The fact that I&M has not replaced, or mitigated load loss is not the concern or responsibility of retail customers.

Therefore, it is reasonable to regard fixed costs once, but no longer, paid by certain IMMDA members as stranded.

Q18. PLEASE DEMONSTRATE HOW I&M'S WHOLESALE FIRM LOAD LOSS HAS CREATED THESE RESULTS.

A. Table 3 compares I&M's firm load and jurisdictional allocation factors for the 2020 and 2018 Test Years.

Table 3[1]
Jurisdictional 12CP Demand Allocator: Comparison of 2020 and 2018 Test Years

Line No.	Jurisdiction (A)	2020 Test Year MW[2] (B)	2018 Test Year MW[3],[4] (C)	Difference MW (D) = (B) - (C)	Percent Difference (E) = (B)/(C) - 1
1	**Firm Load By Jurisdiction**				
2	FERC	414	661	(247)	(37.39%)
3	IN Retail	2,167	2,115	53	2.49%
4	MI Retail [5]	487	468	19	4.05%
5=3+4	**Total IN & MI Retail**	**2,654**	**2,582**	**72**	**2.77%**
6=2+3+4	**Total Company Firm**	**3,067**	**3,243**	**(175)**	**(5.41%)**
7	**Allocation by Jurisdiction**				
8=2/6	FERC Allocation	13.48%	20.37%	(6.89%)	(33.81%)
9=3/6	IN Allocation	70.65%	65.21%	5.44%	8.35%
10=4/6	MI Allocation	15.86%	14.42%	1.44%	10.00%
11=8+9+10	**Total**	**100.00%**	**100.00%**	**0.00%**	**(15.46%)**

(1) WP JAM-3.
(2) I&M witness Duncan direct testimony workpaper: File – WP JCD1 JCOS Master Workpaper: Sheet – Proj D&E Study Cause 44967 – WP JMS-1 – Proj D&E Study.
(3) 2018 Data: Cause 44967: WP JMS-1 page 36-37.
(4) 2018 Data: Cause 44967: PRA True Up Exhibits_01119.
(5) MI Retail includes 'shopping' load

Table 3 demonstrates that compared to the 2018 Test Year, retail firm load in Indiana and Michigan is projected to increase compared to 2018 by 2.5% and 4.1%, respectively. However, loss of FERC load attributable to IMMDA results in an increase in Indiana's allocation of demand-related costs by 5.44% or an increase in the allocation factor of 8.35% compared to the 2018 allocator.

Q19. DO INTERRUPTIBLE LOADS FACTOR INTO THE DEVELOPMENT OF JURISDICTIONAL 12CP DEMAND ALLOCATION FACTOR?

A. Interruptible loads are not firm and therefore are excluded from the jurisdiction allocation of demand related costs. I&M has experienced an increase in interruptible loads since 2018, but this load is not directly assigned to the Indiana and Michigan

jurisdictions. Further, since the last rate case, retail load has grown in Indiana and excluding "shopping" customers, in Michigan. Therefore, it appears that changes in interruptible load have had little impact on retail firm load.

Q20. WHAT PORTION OF THE 5.44% INCREASE IN THE INDIANA 12CP DEMAND ALLOCATOR IS ASSOCIATED WITH THE LOSS OF FERC LOAD?

A. Table 4 Column C, line 10 shows that holding retail loads constant, only changing FERC load, results in a 5.38% cost shift to Indiana. In other words, when comparing the 5.38% cost shift associated with FERC load loss, to the total cost shift of 5.44%, the loss of IMMDA load is almost entirely responsible for the significant increase in Indiana's jurisdictional allocation of the Company's total revenue requirement.

Table 4[1]
Jurisdictional Separation Study: Effects of Firm Load Loss

Line No.	Jurisdiction (A)	2018 Test Year As Filed Cause: 44967 [2] MW (B)	2018 Test Year with FERC Adjusted MW (C)	2018 TY FERC and Retail Adjusted (Equivalent to 2020 TY)[3] MW (D)
1	**Firm Load By Jurisdiction**			
2	FERC	661	414	414
3	IN Retail	2,115	2,115	2,167
4	MI Retail [4]	468	468	487
5=4+3	**Total IN & MI Retail**	**2,582**	**2,582**	**2,654**
6=2+3+4	**Total Company Firm**	**3,243**	**2,996**	**3,067**
7	**Allocation by Jurisdiction**			
8=2/6	FERC Allocation	20.37%	13.80%	13.48%
9=3/6	MI Allocation	14.42%	15.61%	15.86%
10=4/6	IN Allocation	65.21%	70.59%	70.65%
11=8+9+10	**Total**	**100.00%**	**100.00%**	**100.00%**
12=(C) - (B); (D) - (B)	Change to IN Allocation:	N/A	5.38%	5.44%
13=(C) - (B)	Due To FERC Load Loss		5.38%	
14=(D) - (C)	Due To Retail Load Growth			0.07%

(1) WP JAM-4
(2) 2018 Data: Cause 44967: WP JMS-1 page 36-37.
(3) For FERC 414 MW, IN Retail 2167 and MI Retail 487: I&M witness Duncan direct testimony workpaper: File – WP JCD1 JCOS Master Workpaper: Sheet – Proj D&E Study Cause 44967 – WP JMSJ-1 – Proj D&E Study.
(4) MI Retail includes Retail Shopping Customers.

Q21. WHAT IS THE IMPACT ON THE INDIANA RETAIL REVENUE REQUIREMENT ASSOCIATED WITH THE LOSS OF FERC LOAD?

A. As shown in Attachment JAM-3, changing this allocator has a significant impact on the allocation of total Company costs to Indiana retail customers. First, cost shifting associated with the loss of FERC load adds $245 million to Indiana retail rate base and a net revenue requirement impact of approximately $56 million. I estimate the rate impact associated with the loss of FERC load to increase Indiana system revenue requirement by approximately 3.1% (8.08% - 4.93%).

Q22. WHAT IS YOUR RECOMMENDATION REGARDING HOW THE LOSS OF IMMDA LOAD SHOULD BE TREATED IN RATE MAKING?

A. Of utmost concern is the shift of fixed costs from I&M's wholesale business to its retail business. It is not fair to ask Indiana retail customers to pay for loss of wholesale load. I&M is using retail customers as a hedge against lost load attributable to the wholesale business. This practice should not be allowed, as I&M bears no risk and therefore has little motivation to replace lost load, as demonstrated by I&M's inability to replace the lost load after receiving the early termination notices from IMMDA customers prior to May 31, 2016.

There has always been a "bright line" in utility ratemaking between state regulated retail customer costs and federally regulated wholesale customer costs.[16] In order to reflect appropriate cost-causation principles, it is critical to ensure the appropriate allocation of wholesale and retail customer costs. IMMDA customers went to FERC many years ago to complain about their rates from I&M, because their rates are wholesale rates under federal jurisdiction. As such, costs associated with the loss of IMMDA load should be excluded from the calculation of Indiana's retail rate structure.

Abrupt and significant load loss should remain in the jurisdiction in which the load loss occurs. Specifically, load loss attributable to I&M's FERC jurisdictional customers should be borne by other wholesale customers or the Company. I recognize that redistributing fixed costs to other wholesale customers with existing long-term

[16] Under the Federal Power Act § 201(a) and (b), FERC regulates wholesale energy sales, the transmission of electric service in interstate commerce and those matters which are otherwise not subject to state regulation (which generally speaking, includes traditional bundled retail electric service). 16 U.S.C. § 824(a) and (b) (1994).

contracts may be problematic due to contractual restrictions on price escalations, but such a reality should motivate I&M to sell more power to other wholesale entities. It should also incentivize I&M to negotiate wholesale contracts with appropriate provisions to make the Company whole for any stranded investment that results from a wholesale customer terminating its contract early.

The IMMDA members gave I&M notice of contract termination at least four years in advance, and yet no portion of the load has been replaced.[17] I&M has provided no evidence to show how it has tried to enter into other wholesale power sales agreements to replace the load lost from IMMDA. It also appears that there was no financial consequence to the IMMDA members for simply walking away from the decades of investment that I&M made in order to serve their communities. Allowing I&M to simply "dump" the costs associated with its FERC jurisdictional load loss into Indiana retail rates absolves the Company of any responsibility to prudently manage its costs, to negotiate wholesale contracts with appropriate make-whole provisions, and to make meaningful attempts to replace lost load with new transactions in the wholesale market.

[17] I&M Witness Hevert Direct Testimony p. 47, ln. 17.

IV. FERC'S TREATMENT OF STRANDED COSTS

Q23. HOW HAS FEDERAL REGULATION OF WHOLESALE SERVICE CHANGED SINCE IMMDA MEMBERS FIRST BEGAN RECEIVING SERVICE FROM I&M?

A. When I&M first began providing wholesale full requirements service to IMMDA members, those communities had no choice in utility providers. As municipal electric utilities, they either had to make significant (and likely cost prohibitive) investments in their own generation and transmission, or they purchased what they needed from I&M. On April 24, 1996, FERC issued Order No. 888,[18] which required public utilities to file open access non-discriminatory transmission tariffs that contain minimum terms and conditions of non-discriminatory service, and permits public utilities and transmitting utilities to seek recovery of legitimate, prudent, and verifiable stranded costs associated with providing open access and transmission services. FERC's goal was to remove impediments to competition in the wholesale bulk power marketplace.

Q24. HOW DID FERC ORDER 888 IMPACT IMMDA'S RELATIONSHIP WITH I&M?

A. FERC claimed exclusive authority over the regulation of facilities that sell and transmit electricity at wholesale (in this case, I&M) to customers who will resell the electricity to end users (in this case, IMMDA). FERC Order 888 commenced a new era in which IMMDA members now had the ability to obtain power from wholesale service

[18] *Promoting Wholesale Competition Through Open Access Non-discriminatory Transmission Services by Public Utilities; Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, 75 FERC ¶ 61,080 (April 24, 1996) ("Order No. 888").

providers other than I&M.[19] While IMMDA did not exercise that right for another two decades, the provisions of Order 888 are relevant here. In upholding Order 888, the U.S. Court of Appeals for the D.C. Circuit explained:

> "Order 888 fundamentally undermines utilities' expectation of continued service and cost recovery. A utility's requirements customers may now use the utility's open access transmission service to purchase power from other suppliers at the end of their contract terms. If customers leave before paying their share of costs the historic utility incurred on their behalf, the utility will be left with stranded costs, which it will either absorb or shift to remaining customers.
>
> Unless utilities are able to recover stranded costs, FERC reasoned, their ability to compete and attract investor capital in a deregulated market may be seriously impaired. FERC, therefore, decided that it had to 'address recovery of the transition costs of moving from a monopoly-regulated regime to one in which all sellers can compete on a fair basis and in which electricity is more competitively priced.'"[20]

Q25. GIVEN THIS BACKGROUND, HOW DOES FERC TREAT STRANDED COST RECOVERY ASSOCIATED WITH WHOLESALE REQUIREMENTS CONTRACTS?

A. FERC describes varying requirements associated with the recovery of stranded costs depending upon the circumstance of the utility and the contracts. There is a procedure

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[19] *Transmission Access Policy Study Grp. v. FERC*, 225 F.3d 667, 695 (D.C. Cir. 2000).

[20] Id. at p. 700.

for a utility to follow to show that recovery of stranded costs is justified, but such recovery is not automatic. Two important considerations are whether the wholesale contracts are defined as "new" or "existing" contracts and whether the contract includes an "exit fee."

Q26. HOW DOES FERC DEFINE WHOLESALE STRANDED COSTS?

A. FERC defines wholesale stranded costs as follows:

> "Wholesale stranded cost means any legitimate, prudent, and verifiable cost incurred by a public utility or a transmitting utility to provide service to:
>
> (i) A wholesale requirements customer that subsequently becomes, in whole or in part, an unbundled wholesale transmission services customer of such public utility or transmitting utility; or
>
> (ii) A retail customer that subsequently becomes, either directly or through another wholesale transmission purchaser, an unbundled wholesale transmission services customer of such public utility or transmitting utility."[21]

Thus, stranded costs are costs related to providing wholesale service to wholesale requirements customers that no longer receive such service from the incumbent utility provider. In the case of IMMDA, I&M fixed costs once recovered through the IMMDA formula rate, are now stranded.

[21] 18 CFR § 35.26(b)(1).

Q27. HOW DOES FERC DEFINE A NEW VERSUS AN EXISTING WHOLESALE REQUIREMENTS CONTRACT?

A. FERC distinguishes between new and existing wholesale requirements contracts as follows:

> "(7) New wholesale requirements contract means any wholesale requirements contract executed after July 11, 1994, or extended or renegotiated to be effective after July 11, 1994.
>
> (8) Existing wholesale requirements contract means any wholesale requirements contract executed on or before July 11, 1994."[22]

Presumably, FERC created this distinction because prior to Order 888, a utility like I&M would have no reason to provide for an exit fee in a then-existing full requirements contract, because there was no other place for those customers to go. Like with IMMDA members, the full requirements contracts were simply routinely renewed. When Order 888 was issued, full requirements customers then had a choice of service providers, and thus is would be expected that any "new" contracts would contain appropriate provisions for cost recovery upon termination. As previously mentioned on my testimony, the IMMDA contracts were last extended in 2006; therefore, these contracts should be reasonably viewed as new wholesale contracts by FERC.

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[22] *Id.* at § 35.26(b)(7) and (8). While the regulations approved in Order 888 were not finalized until 1996, those rules back-dated the definition of existing contracts to the date the Notice of Proposed Rulemaking was published in the Federal Register, which was July 11, 1994. *See Recovery of Stranded Costs by Public Utilities and Transmitting Utilities*, Notice of Proposed Rulemaking, 59 FR 35274 (July 11, 1994), FERC Stats. & Regs., Proposed Regulations 32,507 at 32,866 (Stranded Cost NOPR); *American Electric Power Service Corporation*, 67 FERC ¶ 61,168, clarified, 67 FERC ¶ 61,317 (1994).

Q28. WHAT IS FERC'S POSITION ON STRANDED COST RECOVERY ASSOCIATED WITH "NEW" WHOLESALE REQUIREMENTS CONTRACTS?

A. FERC rules provide that:

> "No public utility or transmitting utility may seek recovery of stranded costs associated with a new wholesale requirement contract if such contract does not contain an exit fee or other explicit stranded cost provision."[23]

Q29. WHAT IS AN EXIT FEE?

A. An exit fee is a fee due the utility from the wholesale customer. The fee is to compensate the utility for fixed or stranded costs left behind once the wholesale customer leaves the utility's system.

Q30. DO THE IMMDA CONTRACTS HAVE AN EXIT FEE?

A. No, there are no meaningful exit fee provisions in the current IMMDA contracts.[24] Therefore, the Company is proposing to recover stranded fixed costs associated with this load loss through retail customers.

Q31. GIVEN FERC'S TREATMENT OF STRANDED COSTS, WHAT DO YOU CONCLUDE?

A. I&M is responsible for all stranded costs associated with the loss of IMMDA customers. At a minimum, the Commission should not allow I&M to transfer these costs into the Indiana retail jurisdiction. I&M can petition FERC on proper cost recovery, but any cost recovery, however unlikely given FERC's position as stated

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[23] *Id.* at § 35.26(c)(2).

[24] *See* Attachment JAM-4.

above, must come from other FERC jurisdictional customers. It appears that I&M knows that cost recovery for the loss of IMMDA load at FERC is unlikely, and instead the Company is trying to justify shifting federal costs that are otherwise unrecoverable to Indiana retail customers.

V. COST SHIFTING DUE TO MICHIGAN'S RETAIL CHOICE PROGRAM

Q32. PLEASE DESCRIBE THE MICHIGAN ELECTRIC CUSTOMER CHOICE PROGRAM.

A. Through a series of legislative acts and orders in Michigan Public Service Commission Case No. U-15801, Michigan utilities are required to give retail customers a choice in electric service providers (the "Michigan Electric Customer Choice Program"). This program limits the number of customers who switch electric suppliers to 10% of the previous year's weather adjusted sales (kWh). In February 2019, approximately 10% of I&M's Michigan customers elected to participate in the Michigan Electric Customer Choice Program. These customers, referred to as "shopping customers" by I&M, pay a competitive supplier for non-capacity generation and transmission services, rather than paying I&M. Thus, I&M has experienced some load loss and stranded costs in Michigan as a result.

Q33. HOW DID I&M TREAT STRANDED COSTS IN MICHIGAN ASSOCIATED WITH RETAIL CHOICE PROGRAM?

A. Unlike its proposed treatment of the loss of wholesale load, I&M did not shift fixed costs associated with Michigan firm load loss to other jurisdictions. These fixed costs appropriately remain in Michigan. Unfortunately, I&M was inconsistent and did not

take this same approach f with respect to FERC firm load loss which was shifted to the retail jurisdictions.

Q34. PLEASE EXPLAIN HOW I&M ALLOCATED COSTS IN THE JURISDICTIONAL SEPARATION STUDY CONSIDERING THE LOSS OF MICHIGAN RETAIL LOAD.

A. I&M recognized that fixed costs caused by the Michigan jurisdiction load loss should stay in the Michigan jurisdiction. As shown in the Jurisdictional Separation Study, I&M's 12CP demand allocation factor includes the Michigan "shopping" customers[25]. As a result, the fixed costs associated with shopping customers who switched suppliers remains in the Michigan jurisdiction, presumably to be recovered from Michigan customers, as they should be. I&M did develop a 12 CP demand allocator that excludes Michigan "shopping customers" who switched to new electric service providers,[26] but only applied this 12CP Demand "shopping" allocator to certain transmission costs associated with PJM. These are transmission costs that should be properly assigned to the Load Serving Entity ("LSE"). Therefore, I believe that I&M's use of the 12CP Demand "shopping" allocator as applied to PJM transmission costs is appropriate.

Q35. IN CONCLUSION, DO YOU AGREE WITH I&M'S TREATMENT OF MICHIGAN LOAD LOSS IN THE ALLOCATION OF FIXED COSTS IN THE JURISDICTIONAL SEPARATION STUDY?

A. Yes. I&M has left stranded costs associated with Michigan retail load in Michigan. Proposed recovery of these fixed costs will be up to the Michigan Public Service

[25] I&M Witness Duncan Direct Testimony p. 10, ln. 14 and WP-JCD-1.

[26] I&M witness Duncan direct testimony page 10, line 11.

Commission. These costs should not be recovered from Indiana customers. This treatment is consistent with my earlier recommendations pertaining to the loss of firm wholesale load, which should be borne by wholesale customers.

Q36. COMPARED TO FERC LOAD LOSS OF APPROXIMATELY 247 MWS, LOAD LOSS IN MICHIGAN OF 40 MWS IS LOWER. WOULD SUBSTANTIALLY GREATER LOAD LOSS IN MICHIGAN CHANGE YOUR POSITION ON FIXED COST RECOVERY ASSOCIATED WITH LOST RETAIL LOAD?

A. No. The proper recovery of fixed costs associated with abrupt load loss must be considered and recovered within the affected jurisdiction amount. Therefore, I recommend that the Commission require I&M conduct current and future jurisdictional separation studies with fixed cost allocators that exclude the impact of firm load loss attributable to retail choice in Michigan and the loss of firm long term wholesale contracts regulated by FERC.

VI. OFF SYSTEM SALES

Q37. PLEASE DESCRIBE I&M'S OFF SYSTEM SALES IN THE 2020 TEST YEAR.

A. OSS are made in PJM when I&M has excess energy and capacity that is not needed to serve its retail and wholesale firm customers. Compared to OSS sales in 2018 of $196 million, Test Year 2020 OSS are estimated at $215 million based on an increase of 7,430,521 MWh in sales.[27] I&M assumed that additional capacity and energy would

[27] I&M Witness Heimberger Direct Testimony, Att. NAH-8 and NAH-2.

be available for OSS beginning in June 1, 2020, due to the lost IMMDA wholesale load. OSS do not include FERC jurisdictional sales.

Q38. PLEASE DESCRIBE THE TREATMENT OF OSS MARGINS.

A. The OSS margins are returned to customers via the OSS/PJM Rider.[28] Based on the Order and Settlement in Cause No. 44967, 95% of the margins associated with these sales are returned to the rate payers and 5% of the margins are retained by I&M.[29]

Q39. DO YOU AGREE WITH I&M'S PROPOSAL TO CONTINUE THIS 95%/5% SPLIT OF OSS REVENUES?

A. No. I&M's customers should receive 100% of the OSS margins for three reasons.

First, cost responsibility of the generation function is fully borne by retail customers. Retail customers are responsible for 100% of the fixed costs associated with the generation assets making the OSS. Retail customers are responsible for the generation costs regardless of the level of OSS and related margins. Because I&M bears no risk of fixed cost recovery, margin sharing associated with OSS rewards I&M disproportionally to I&M's risk exposure.

Second, I&M is already earning a rate of return on their generation investment, as allowed by law. Retail customers contribute to the return based on the jurisdictional allocation of I&M total company rate base. Therefore, I&M is fairly compensated through allowed return on rate base.

Third, OSS provides many benefits to the company such as a) efficient use of generation assets over the course of the year, thus improving unit heat rates and lower

[28] I&M Witness Williamson Direct Testimony p. 25, ln. 17.

[29] *Id.* at p. 48, ln. 21.

operating cost; b) margins that offset costs which result in lower, more competitive rates; and c) with lower rates, an improved attraction of new loads into the service area and improved support of EIG programs.

VII. LOAD FORECAST

Q40. PLEASE DESCRIBE THE LOAD FORECAST PRESENTED BY I&M WITNESS BURNETT.

A. Based on the testimony of Witness Burnett, for Test Year 2020, I&M has relied upon a long-term load forecast. The load forecast relies on actual data through December 2017[30] and has been updated by the Company in 2018. The load forecast is the basis for 2020 billing determinants.[31]

Q41. DESCRIBE THE ADJUSTMENTS MADE BY I&M TO THE LOAD FORECAST.

A. The historical data was adjusted to normalize the weather and reflect a typical weather year.[32] Other major adjustments to the load forecast include:

- A decrease in wholesale contract sales.
- Adjusting load growth based on an assumed recession occurring in 2020.
- A reduction in system demand and energy requirements as a result of DSM/EE programs.

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[30] I&M Witness Burnett Direct Testimony at p. 6, ln. 5.

[31] *Id.* at p. 2, ln. 14.

[32] *Id.* at p. 8 ln 23 through p. 9, ln. 1.

Q42. DO YOU AGREE WITH THESE ADJUSTMENTS?

A. I have previously discussed the impact of wholesale contract load loss in my testimony. I agree that the I&M forecast should properly consider load loss associated with IMMDA customers. However, as I have previously discussed, cost responsibility associated with this load loss should remain in the FERC jurisdiction. I do not agree with I&M's recession and DSM/EE adjustments to the load forecast. I recommend that the Company remove recession assumptions from the 2020 Test Year and adjust the DSM/EE assumptions to agree with observed historical demand and energy savings associated with these programs.

Q43. TO UNDERSTAND YOUR RECOMMENDATION PERTAINING TO I&M'S RECESSION ADJUSTMENT, WHAT IMPACT DOES I&M'S RECESSION ASSUMPTION HAVE ON THE 2020 TEST YEAR?

A. I&M's recession assumption does not meet the "fixed, known, and measurable" standard. In discovery, I&M was unable, or unwilling, to quantify the impact of the recession assumption on the Test Year. South Bend's Data Request No. 05-01 asked I&M to provide forecasted Test Year revenue by class without the projected 2020 recession. The company's response was, in part:

> "…The Company subscribes to an outside provider, Moody's Analytics, for its macro-economic forecast. The forecast from Moody's Analytics was used for the load forecast. The Company only subscribes to the baseline (most probable) forecast from Moody's Analytics. Thus, the Company does not have a forecast that reflects the scenario assumed in the question and the

Company has not performed a forecasted Test Year revenue by rate class based on the scenario reflected in the question."[33]

The response indicates that the Company is not able to quantify the sensitivity or importance of the recession assumption on Test Year results. Without understanding the impact of the recession assumption on the Test Year 2020 revenue requirement, as an intervenor in this proceeding, it is impossible to determine the reasonableness of this assumption. I&M has the burden of proof to show its Test Year assumptions are reasonable. Further, because the impact of the recession assumption is not quantifiable, it is not measurable. .

Q44. WHAT INFORMATION HAS I&M PROVIDED THAT SUPPORTS THE TIMING OF THE RECESSION?

A. I&M has provided no definitive information as to the timing of the recession. Witness Burnett testifies as follows:

"Yes, the number of economists that are predicting the next recession will start in the next couple of years is increasing. In fact, a recent survey of business economists completed in December 2018 indicated that 80% of respondents have lowered their outlook from 2019 and a growing number of economists are now predicting the U.S. economy will be in recession by 2020 or 2021."[34]

Witness Burnett's testimony suggests that the timing of a recession in 2021 would miss the Test Year entirely. Further, when asked in discovery to provide the

[33] Attachment JAM-5.

[34] I&M Witness Burnett Direct Testimony p. 14, ln. 3.

percentage of the respondents who are predicting not just an economic downturn but a recession in 2020, the Company's response was: "The NABE survey did not ask the survey respondents to distinguish between an 'economic downturn' or a 'recession' although both terms would describe a slowing economy."[35]

The Company implies that an industry consensus of economists supports a coming recession but provides no evidence as to the severity, much less the timing, of such an event. Again, there is no transparent information available associated with industry consensus supporting the recession assumption or the underlying assumptions in the Moody's Analytics forecast.

Q45. DO OTHER REPUTABLE ECONOMIC PROJECTIONS AGREE WITH I&M'S ECONOMIC FORECAST?

A. No. In fact, the U.S. Economic Outlook Baseline Forecast dated April 2019 by Macroeconomics Advisory by HIS Markit for the State of Indiana does not indicate a recession. The report quotes multiple companies that have invested or plan to invest heavily in Indiana, including Infosys, U.S. Steel, Eli Lily, Solinftech, and Toyota. In addition, the employers in the state are more diverse than in the past. Housing starts are up and are expected to stay high as there is a steady demand for new housing. Please refer to Attachment JAM-7.

Q46. DO YOU AGREE WITH I&M'S RECESSION ASSUMPTION IN DEVELOPING THE 2020 TEST YEAR?

A. I do not agree with I&M assumptions related to a 2020 recession as this assumption is not "fixed, known, or measurable". Given the expected impact of recession

[35] Attachment JAM-6.

assumptions on lowering forecasted load, combined with an increased revenue requirement and severe cost shifting to Indiana retail customers due to the loss of FERC firm load, such an assumption will likely aggravate an already burdensome situation. I&M's recession adjustment should be quantifiable, certain and reasonably vetted. I&M's recession assumptions fall far short of this mark.

Q47. WHAT DO YOU RECOMMEND REGARDING THE RECESSION ASSUMPTION?

A. I recommend that the IURC direct I&M to remove the recession assumption from the load forecast and that associated financial impacts be reflected in the I&M total revenue requirement, the Jurisdictional Separation Study, the COS study, and rate design.

Q48. NOW WITH RESPECT TO I&M'S LOAD FORECAST ADJUSTMENTS PERTAINING TO DSM/EE, WHY DO YOU DISAGREE WITH I&M'S DSM/EE ASSUMPTIONS?

A. As shown in Table 5, I&M's load forecast assumes overly aggressive incremental savings associated with DSM/EE programs compared to what has been achieved historically.

Table 5[1]
Historical and Projected DSM/EE for Indiana

Line No.	Year (A)	DSM/EE kW (B)	% Change (C)
1	**Historic** [2]		
2	2008	262	
3	2009	187	(29%)
4	2010	4,542	2329%
5	2011	16,845	271%
6	2012	20,724	23%
7	2013	57,877	179%

Table 5[1]
Historical and Projected DSM/EE for Indiana

Line No.	Year (A)	DSM/EE kW (B)	% Change (C)
8	2014	17,987	(69%)
9	2015	29,581	64%
10	2016	27,637	(7%)
11	2017	33,627	22%
12	5 year average (2013-2017)	33,342	
13	10 year average (2008-2017)	20,927	
14			
15	**Projected [2]**		
16	2020	51,493	
17=16/12	2020 compared to 5 year average		154%
18=16/13	2020 compared to 10 year average		246%

(1) WP JAM-5
(2) I&M witness Burnett direct testimony workpaper CMB WP-1 page 863 of 1018.

For Indiana, the historical incremental DSM/EE savings for years 2013-2017 has averaged 33 MWs per year and 21 MWs for years 2008-2017. However, I&M is proposing an incremental 51 MW savings for year 2020. The projected savings for year 2020 is aggressive and is 1.5 times higher than the five-year average and 2.5 times higher than the 10-year average. The higher the DSM/EE savings, the lower the load forecast, which in turn, lowers the billing determinants used in rate design as previously explained.

Q49. WHAT DSM ASSUMPTIONS ARE USED IN THE 2019 INTEGRATED RESOURCE PLAN ("IRP")?

A. Depending upon the reference source, the 2020 incremental DSM/EE assumptions in the IRP vary from 19 MW,[36] approximately 36.7 MW ((33.4 MW + 40.0 MW)/2)[37] and approximately 40.4 MW ((37.0 MW + 43.8 MW)/2).[38] Witness Burnett's assumed savings of 51.5 MW is between 1.3 (51.5 MW/40.4 MW) to 2.7 (51.5 MW/19 MW) times greater than DSM/EE assumptions in the IRP.

Q50. WHAT DO YOU RECOMMEND REGARDING THE DSM/EE ASSUMPTIONS?

A. I recommend that the load forecast be rerun using reasonable DSM/EE projections based on historical results.

VIII. ALLOCATION OF CP DEMAND

Q51. PLEASE SUMMARIZE THE DEMAND ALLOCATION FACTORS USED BY I&M.

A. For I&M, jurisdictional production and transmission demand-related costs are allocated to the various rate classes using the 6CP method. The CP method is commonly used to allocate fixed production and transmission capacity costs among customer classes as it recognizes that system's peak demand drives utility investment in system

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[36] I&M's 2018-19 Integrated Resource Plan, p. ES-6, Table ES-2: Preferred Plan Cumulative Additions for 2019 to 20138 (MW).

[37] *Id.* at Exhibit A-12: Indiana Michigan and Indiana and Michigan Jurisdictions DSM/Energy Efficiency Including in Load Forecast Energy (GWh) and Coincident Peak Demand (MW).

[38] *Id.* at Exhibit A Load Forecast Tables p. 18, Indiana Michigan Power Company Forecasted DSM, Adjusted for IRP Modeling.

infrastructure. The 6CP is based on months December, January, February, June, July, and August.[39] The current 6CP method includes three summer and three winter months. CP's are calculated at various points in the system and applied to production, transmission, and higher voltage distribution components of the system.

Q52. ARE THERE OTHER CP METHODS THAT IMPROVE COST ALLOCATION BASED ON CLASS CONTRIBUTION TO SYSTEM PEAK DEMANDS?

A. Yes. An improvement to the 6CP method would be the use of a 4CP (June – September) or a 5CP (PJM) method, which is a better representation of system summer peaks that drive for the need for system capacity and reliability planning.

The 5CP method referenced above is the same method used by PJM in determining peak demand. PJM uses the five highest daily regional transmission organization ("RTO") peak loads for each summer (June 1 through September 30) in its evaluation of peak demand. The 5CP method differs from the 4CP and 6CP methods. The 4CP and 6CP methods measure the class contribution to the system peak hour in each month. For example, the 4CP method determines class peak demand responsibility associated with the peak hour in June, July, August, and September.

Q53. WHY WOULD A 4CP OR 5CP METHOD IMPROVE THE EQUITY OF COST ALLOCATION?

A. As I mentioned earlier in my testimony, allocating demand costs on CPs is a recognition that system peak demand drives utility infrastructure investment on the system. The utility is concerned about meeting the system peak, and therefore, peak demands are

[39] I&M Witness High Workpaper WP DEH-6.

the primary cost causation driver. As a result, I&M's Integrated Resource Plan ("IRP") is a good indicator of the primary load characteristics that drive utility investment.

Q54. DID YOU REVIEW I&M'S IRP?

A. Yes, at a high level. As expected, the IRP includes an analysis of historical system peak demand and forecasts system peak demand and energy requirements. On Exhibit A-6 of the IRP, historical monthly peaks for 2008, 2013, 2018, and projections for 2028 and 2038 are graphically depicted.[40] Of particular interest are the projected monthly peaks in 2028 and 2038. I&M is forecasting relatively lower winter peaks and distinct summer peaks during the months of July, August, and September. If this forecast can be relied upon, the Company foresees a strong summer peaking system and the Company's concern for meeting the summer peak is an important driver of production, transmission, and distribution investment. Given the Company's historical and forecasted peak demands, allocating costs exclusively based on summer peaks makes sense and represents an improvement to the current 6CP methodology.

Q55. WHEN CONDUCTING RESOURCE PLANNING, IS I&M CONCERNED WITH THE SYSTEM PEAK?

A. Yes, in reviewing the IRP, the Company makes several references to production and transmission planning criteria associated with the PJM system peak, which occurs during the summer months. Four specific findings from the IRP that support this conclusion are as follows:

- On page 52 of the IRP, the Company states:

[40] See Attachment JAM-8.

"However, as a member of PJM, the Company's summer peak demand coincident with the RTO is a criterion for determining the Company's capacity obligation"

- And on page 141 of the IRP:

"…I&M's assumed "going-in" capacity position (i.e. before resource additions) over the planning period, which uses the PJM summer peak to determine resource requirements.

- And on page 147 of the IRP:

"The Preferred Plan includes incremental resources that will provide – in addition to the needed PJM installed capacity to achieve mandatory PJM (summer) peak demand requirements-modest amounts of additional energy to reduce the long-term exposure of the Company's customer to PJM energy markets."

- And finally, on page 60 of the IRP:

"AEP and PJM coordinate the planning and transmission facilities in the AEP Eastern Zone through a "bottom up/top down" approach. AEP will continue to develop transmission expansion plans to meet the applicable reliability criteria in support of PJM's transmission planning process."

Q56. WHAT IS YOUR RECOMMENDATION WITH RESPECT TO THE ALLOCATION OF PRODUCTION AND TRANSMISSION DEMAND?

A. Based on my review, I recommend a demand allocation factor based on only the summer peak periods. Therefore, both the 4CP and 5CP methods are reasonable methods and either one would be an improvement over the current 6CP method.

IX. I&M PROPOSED REVENUE ALLOCATION

Q57. DID YOU REVIEW CLASS REVENUE ALLOCATION PROPOSED BY I&M WITNESS NOLLENBERGER?

A. Yes. I&M has proposed rate adjustments to each customer class based on a "smoothing" methodology with justifies variations from COS results and proposed rate changes.

Q58. WHAT WERE I&M'S STATED RATE MAKING OBJECTIVES IN DEVELOPING THERE "SMOOTHING" RECOMMENDATIONS?

A. Witness Nollenberger lists his objectives as follows:

1. Align revenue recovery with cost causation;
2. Apply gradualism to minimize rate shock;
3. Allocate revenue increase to move all classes closer to the class average rate of return;
4. Reduce subsidization among customer classes; and
5. No customer class receives a rate decrease.

Witness Nollenberger refers to his revenue allocation approach as equal subsidy reduction method.[41]

[41] I&M Witness Nollenberger Direct Testimony, p. 6, row 22.

Q59. WHAT ARE THE RESULTING RATE INCREASES?

A. Witness Nollenberger's approach does not allow for any rate decreases, even when the COS study indicates that Irrigation Service, Outdoor Lighting and Street Lighting classes should receive 26%, 16% and 29% rate decreases, respectively. Many classes receive rate increases that are below the amount indicated by the COS. As shown in Table 6, Residential, Large General Service, Industrial Power, Municipal Service, and Water and Sewer Service customer would pay rates below COS under the I&M proposal. General Service, Irrigation Service, Electric Heating General, Outdoor Lighting and Street Lighting would pay rates above the COS under the I&M proposal.

Table 6
Comparison of Cost of Service Results,
Proposed Rate Changes and Resulting Return

Line No.	Description	Rate Change based on COS Results (1)	Rate Change Proposed by I&M (2)	Rate of Return Proposed by I&M (3)
1	Residential	16.9%	13.9%	5.7%
2	General Service	8.3%	9.9%	6.6%
3	Large General Service	13.5%	12.1%	5.9%
4	Industrial Power	15.5%	11.6%	5.5%
5	Municipal Service	13.4%	10.4%	6.0%
6	Water & Sewage Service	9.9%	8.9%	6.3%
7	Irrigation Service	(25.5%)	0.00%	13.9%
8	Electric Heating General	2.6%	6.3%	7.3%
9	Outdoor Lighting	(16.2%)	2.5%	9.7%
10	Street Lighting	(29.2%)	0.0%	12.8%
12	**Total**	**14.3%**	**12.4%**	

(1) I&M witness Nollenberger Attachment MWN-2, page 3, column 6.
(2) I&M witness Nollenberger Attachment MWN-2, page 1, column 11.
(3) I&M witness Nollenberger Attachment MWN-2, page 4, column 13.

Q60. DO YOU AGREE WITH WITNESS NOLLENBERGER'S RATE "SMOOTHING" METHODOLOGY?

A. In general, I believe the Company's method is a reasonable and cognizant of the benefits of gradualism in ratemaking. However, I do not agree with Witness Nollenberger's fifth objective that prevents all classes deserving of a rate decrease from receiving one. This is particularly true for the Street Lighting class, as this customer class is unique among all classes and provides an important public safety and community benefit to the various communities that I&M serves. Due to this benefit, I recommend that Street Lighting rates be lowered to COS. Further, the class is small compared to other I&M customer classes and moving the Street Lighting class to COS has minimal impacts on other classes and therefore not violate the gradualism principle.

Q61. PLEASE ELABORATE ON THE PUBLIC BENEFIT ASSOCIATED WITH STREET LIGHTING.

A. Adequate street lighting is a requirement of local and state government and provides many benefits to citizens. Lighting improves safety, reduces crime, and enhances the attractiveness and economic vitality of the area. These are clear community benefits associated with streetlighting that are shared by all and not specific to a particular customer or class. Public lighting is enjoyed by residential, commercial, and industrial customers alike; it is not a luxury, but rather a basic community need.

Q62. WHAT IS YOUR RECOMMENDATION?

A. I recommend that Street Lighting rates be brought to COS. Under I&M's current rate proposal, such an adjustment would result in reallocating approximately $1.6 million of revenues, which streetlight customers are paying above the COS, to all other rate classes. I propose that this shortfall be prorated across all other rate classes based on rate base excluding Irrigation Service. The following Table 7 demonstrates the effect of my proposal on I&M's rate changes contained in the Petition. As shown below, my proposal to bring the Street Lighting class to COS has minimal impact on other classes' rate adjustments.

Table 7[1]
Adjusted Rate Changes with Streetlighting at Cost of Service

Line No.		I&M Petition Rate Changes [2] (A)	Proposed Rate Changes (B)	Difference (C)
1	Residential	13.9%	14.0%	0.1%
2	General Service	9.9%	10.0%	0.1%
3	Large General Service	12.1%	12.2%	0.1%
4	Industrial Power	11.6%	11.7%	0.1%
5	Municipal & School Service	10.4%	10.5%	0.1%
6	Water and Sewerage Service	8.9%	9.0%	0.1%
7	Irrigation Service	0.0%	0.0%	0.0%
8	Electric Heating General	6.3%	6.4%	0.1%
9	Outdoor Lighting	2.5%	2.6%	0.1%
10	Street Lighting	0.0%	(27.6%)	(27.6%)
11	**Total**	**12.4%**	**12.4%**	**0.0%**

(1) WP JAM-7
(2) I&M Witness Nollenberger Direct Testimony, Attachment MWN-2, p. 1 of 4, column 11.

X. PROPOSED RATE DESIGN

Q63. HAVE YOU REVIEWED PROPOSED CHANGES TO I&M'S RATE STRUCTURE?

A. Yes. I have reviewed I&M's rate design proposals for the Water and Sewage Service ("WSS") and Municipal and School Service ("MS") rate classes as described by Witness Nollenberger.

Q64. PLEASE DESCRIBE SIGNIFICANT RATE STRUCTURE CHANGES ASSOCIATED WITH THE WSS AND MS RATE CLASSES?

A. I&M is proposing a significant departure from prior rate design for these two classes. Historically, I&M has recovered costs from customers in these classes through a monthly service charge, energy charges, and various energy bases riders. Under the current proposal, I&M is seeking to add demand charges to these rate structures.

Adding these demand charge creates a significant adverse rate impact on lower load factor customers.

Q65. HOW SIGNIFICANT IS THIS IMPACT?

A. In Witness Nollenberger's Attachment MWN-4[42] he shows typical bill comparisons associated with WSS-Secondary, Primary, and Substation customers and MS customers. The bill impacts shown in the table do not provide a complete or current representation of total customers bill impacts because current rates are now lower thus resulting in larger bill impacts than those shown in MWN-4. Based on recent information provided by I&M, current riders effective August 2019 result in lower current rates. Also, Attachment MWN-4 does not disclose the full impact of the propose rate structure across a full range of monthly load factors, particularly customers with monthly load factors below 46%.

Q66. YOU HAVE INDICATED THAT PROPOSED RATE IMPACTS ARE GREATER THAN THIS SHOWN IN MWN-4, PLEASE EXPLAIN THIS FURTHER?

A. I&M has provided billing impacts associated with proposed rates for certain City of Ft. Wayne and City of Marion accounts.[43] These billing comparisons include current rate information as of August 2019. Current I&M rates are lower than those included in I&M's Attachment MWN-4. As an example, the following Table 8 shows bill impacts associated with WSS-Primary customers:

[42] *Id.* at Attachment MWN-4, p. 3, lns. 107-115

[43] Supplemental Confidential and Competitively Sensitive Response to Ft. Wayne & Marion's Joint Data Request 01-11.

Table 8[1]
WSS-Primary Bill Impact Comparison
Attachment MWN-4 Compared to Current I&M Rates Effective August 2019

Demand (kW)	Energy (kWh)	Current Bill ($)	Proposed Bill ($)	Difference ($)	Difference (%)
(A) – As Filed MWN-4					
750	250,000	$18,409.75	$21,222.00	$2,812.25	15.3%
750	300,000	$22,075.75	$24,062.00	$1,986.25	9.0%
750	400,000	$29,407.75	$29,742.00	$334.25	1.1%
(B) – As Filed MWN-4, Adjusted for August 2019 Rates					
750	250,000	$17,742.25	$21,222.00	$3,479.75	19.6%
750	300,000	$21,274.75	$24,062.00	$2,787.25	13.1%
750	400,000	$28,339.75	$29,742.00	$1,402.25	4.9%
Difference = (B) – (A)					
0	0	($667.50)	$0.00	$667.50	4.3%
0	0	($801.00)	$0.00	$801.00	4.1%
0	0	($1,068.00)	$0.00	$1,068.00	3.8%

(1) WP JAM-8.

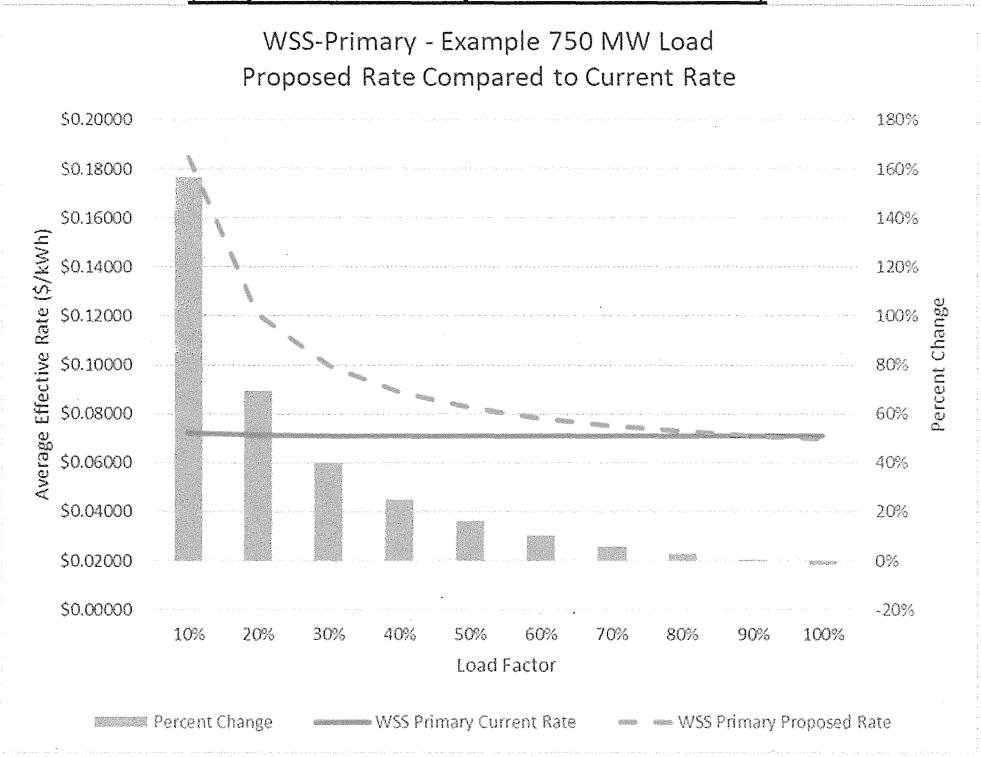
As a result, proposed rate increases to WSS-Primary customers are approximately 4% higher than indicated in Attachment MWN-4.

Q67. YOU HAVE INDICATED THAT PROPOSED RATE IMPACTS SHOWN IN MWN-4 DO NOT PROVIDE INFORMATION ASSOCIATED WITH LOW LOAD FACTOR CUSTOMERS. PLEASE EXPLAIN THIS FURTHER.

A. Information contained in MWN-4, only shows bill impact information for customers with monthly load factors varying from approximately 46% (250,000 kWh/(750 kW*30 hrs)) to 73% (400,000 kWh/(750 kW*30 hrs)). However, I&M proposed WSS cost structure has a significant impact on low load factor customers. To demonstrate this point, I have developed the following graph that shows the average effective rate ($/kWh (left x-axis)) over a wider range of monthly load

factors (y-Axis) of WSS customers under current and proposed rates.[44] The dotted line in the graph below shows the impact on the average effective WSS-Primary rate under I&M WSS-Primary rate proposal. The solid line in the graph below shows the impact on the average effective under the current I&M rate. As you can see, the average rate for low load factor customers, (monthly load factors less than 40%) is significantly higher than the current rate. This difference is due to an overall increase to the class revenue requirement and the addition of a demand charge to the rate structure.

Fig. JAM-1. WSS-Primacy Example 750 MW Load (Proposed Rate Compared to Current Rate)(1)



(1) WP JAM-8.

A comparison of the shaded bars to the right x-axis indicate that customers with load factors below 40% will see rate increases from approximately 25% to 157%.

[44] *Id.*

Q68. I&M IS PROPOSING TO RAISE DEMAND CHARGES ACROSS ALL RATE CLASSES, WHY IS ADDING A DEMAND CHARGE TO THE WSS CLASS DIFFERENT?

A. The magnitude of the demand increase sets I&M WSS proposal apart from all proposed changes in demand charges as demonstrated in Table 9. Column D shows proposed increases in demand charges associated with various I&M rate classes.

Table 9[1]
Indiana Michigan Power Cause No. 45235
Current and Proposed Demand Rates

Line No.	Rate Class (A)	Current Demand Charge (B)	Proposed Demand Rate (C)	Difference (D=C-D)	% Difference (E=C/B)
1	**General Service**				
2	GS Secondary	$6.105	$6.711	$0.606	9.9%
3	GS Primary	$4.063	$4.547	$0.484	11.9%
4	GS Subtransmission	$1.151	$1.312	$0.161	14.0%
5	GS Transmission	$1.140	$1.296	$0.156	13.7%
6	**Large General Service** [2]				
7	LGS Secondary	$11.663	$12.038	$0.375	3.2%
8	LGS Primary	$9.621	$9.874	$0.253	2.6%
9	LGS Subtransmission	$6.709	$6.639	($0.070)	(1.0%)
10	LGS Transmission	$6.698	$6.623	($0.075)	(1.1%)
11	**Industrial** [2]				
12	IP Secondary	$17.479	$19.336	$1.857	10.6%
13	IP Primary	$15.762	$17.026	$1.264	8.0%
14	IP Subtransmission	$12.950	$13.714	$0.764	5.9%
15	IP Transmission	$12.887	$13.636	$0.749	5.8%
16	**Water and Sewage Service** [2]				
17	WSS Secondary	$ -	$11.369	$11.369	∞
18	WSS Primary	$ -	$9.204	$9.204	∞
19	WSS Subtransmission	$ -	$5.970	$5.970	∞
20	**Municipal** [2]	$ -	$11.556	$11.556	∞

Source: I&M witness Cooper direct testimony Attachment KCC-2.
(1) WP JAM-9.
(2) Total demand charge includes OSS/PJM rider.

While I&M has increased demand charges for several rate classes, the magnitude of change is less than $1.90 per kW. However, WSS customers are asked to go from no demand charges to as high as $11.369 per kW in a single step. Please note that the $11.369 per kW increase in demand consists of a base rate demand charge of $6.711 per kW plus an OSS/PJM rider of $4.658 per kW. I&M's proposal not only adds a significant demand charge to the base rates but also changes the collection of

OSS/PJM costs from an energy basis to a demand basis. In combination, I&M's proposal represents a significant and aggressive increase in demand charges for WSS customers compared with other classes excluding the MS class. I will discuss the MS class later in my testimony, but with respect to demand charges, MS customers are similarly treated as WSS customers in I&M proposal. The proposed increase in the MS class demand charge is $11.556 per kW.

Such a significant change in rate structure in addition to a large overall increase in the class revenue requirement results in very large bill impacts to lower load factor customers.

Q69. DO YOU AGREE WITH I&M'S DESIRE TO ADD A DEMAND CHARGE TO THE WSS RATE STRUCTURE?

A. I do agree that larger commercial and industrial loads should be incentivized to improve load factor through the rate structure. WSS loads are similar to larger commercial and industrial ("C&I") loads. A demand charge provides such an incentive; however, I&M's proposal is overly aggressive and unduly burdens lower load factor customers in the WSS class.

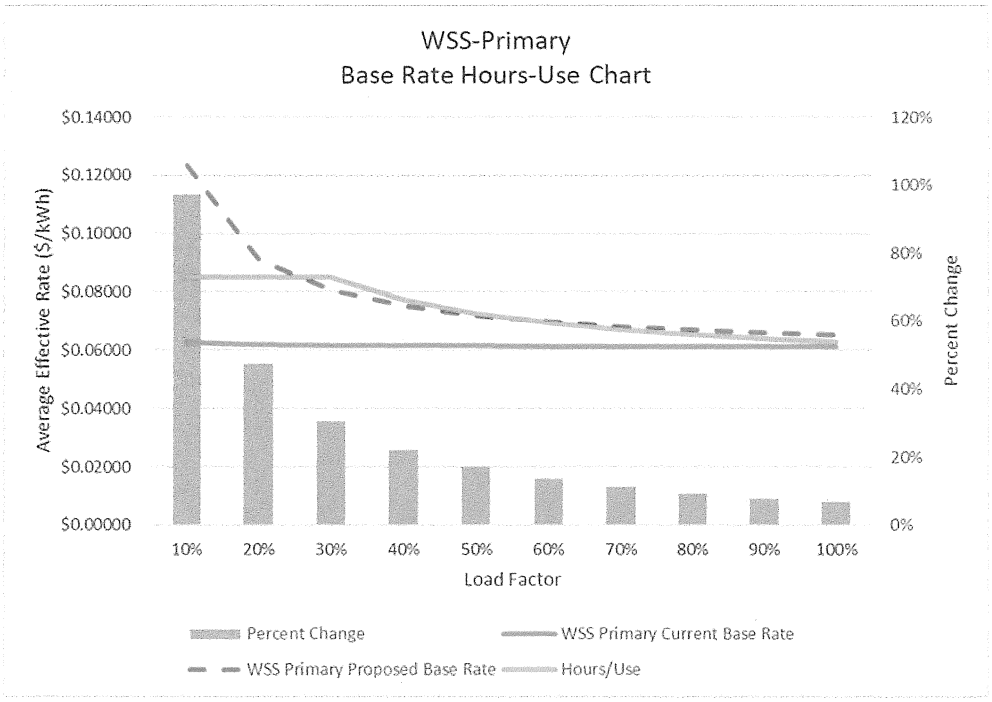
Q70. WHAT IS YOUR RECOMMENDATION?

A. I recommend that I&M retain the load factor incentive in the rate but mitigate the rate impacts of low load factor customers. The proposed WSS rate structure should be modified to cap the rate impacts on low load factor customers. As an alternative, I am recommending an Hours/Use rate structure instead of the proposed demand/energy rate structure. An Hour/Use rate structure is a rate structure that incentives customers based on load factor, and in this regard is similar to a demand/energy rate structure. However,

an Hours/Use rate structure differs from a demand/energy rate structure in that it caps the rate for low load factor customers, which protects these customers from very high effective rates. Overall, the Hours/Use rate structure represents a win-win for WSS customers as high load factor customer receive a lower rate and low load factor customers are protected from significant rate increases.

As an example, an estimated two tier Hour/Use base rate structure for WSS-primary customers could be graphically depicted as follows[45]:

Fig. JAM-2. WSS-Primacy Base Rate Hours-Use Chart(1)



(1) JAM WP-10.

The solid yellow line above demonstrates the value of an Hours/Use rate. In this case, the rate has been designed so that no customer pays an effective average base

[45] JAM WP-10.

rate higher than $0.085 per kWh. Given this protection, the rate structure provides a strong price signal for WSS customer to improve load factor.

Q71. DOES THE HOURS/USE RATE HAVE A DEMAND CHARGE?

A. No, my recommended Hours/Use rate does not include traditional demand charges associated with base rates riders; however, demand is implicitly collected within the tiered rate structure. An Hours/Use rate does measure demand to determine the size of each tier, but the tiers and rates are energy only. In my example, there are two tiers. The first tier is set at 220 hours per kW of billing demand, or approximately a 30% monthly load factor (220 hours/730 hours). The first tier is designed to recover costs associated with low monthly load factor customers defined as 30% or less. The second tier includes all additional energy, or the incremental energy associated with higher monthly load factors. In the example shown in the above graph, the tier 1 rate is $0.085 per kWh and the tier 2 rate is $0.0537 per kWh. Although not shown in the graph, all relevant riders would be applied on an energy basis would be added to the base rate. Again, this rate is for illustrative purposed only as only I&M would have the required information to accurately design such a rate.

Q72. WHY IS THE HOURS/USE RATE A GOOD FIT FOR WSS CUSTOMERS?

A. The Hours/Use rate structure is a good fit for WSS customer for these reasons:

- I&M is seeking to dramatically change the rate structure and introduce a load factor incentive; an Hours/Use rate structure meets this objective.
- The current rate is essentially an energy only rates, the proposed Hours/Use rate is an energy rate.

- I&M's introduction of a demand charge unduly harms low load factor customers, an Hours/Use rate structure sends a demand signal and yet protects low load factor customer form rate shock.
- WSS customers are sophisticated and can understand the pricing signal embedded in the Hours/Use rate structure.
- The Hours/Use rate structure represents an excellent transition rate structure between an energy only rate and a demand/energy rate structure.

Q73. AS AN ALTERNATIVE TO THE HOURS/USE RATE, CAN YOU ACCOMPLISH A SIMILAR RESULT USING A DIFFERENT METHODOLOGY?

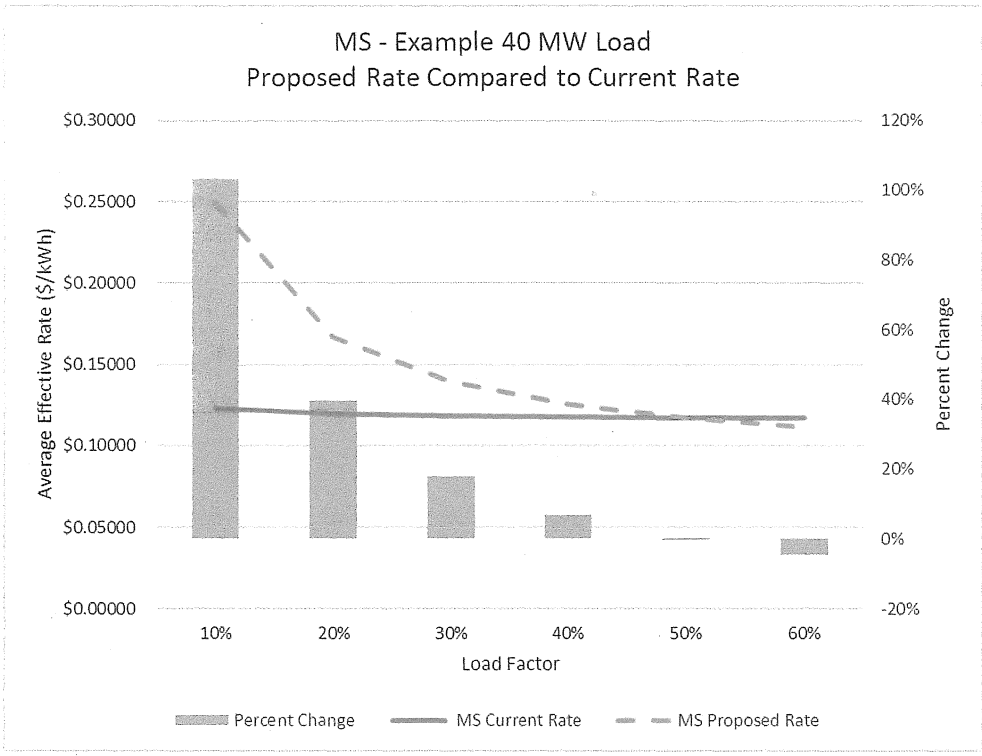
A. Yes, a similar result can be obtained by simply capping the customer's average effective base rate under the Company's proposal. In this case, the proposed WSS rate would include a provision that the customer would pay the lesser of the calculated rate or in this example $0.085 per kWh.

Q74. WHAT IS YOUR OPINION OF I&M PROPOSED CHANGES TO THE MS RATE?

A. Similar to WSS customers, and as shown in Table 9 above, MS customers are receiving significant rate increases due to I&M introduction of a $11.556 per kW demand charge. The demand charge represents a combined base rate and OSS/PJM rider. These rate impacts are summarized in the following graph[46].

Fig. JAM-3. MS – Example 40 MW Load
(Proposed Rate Compared to Current Rate)(1)

[46] JAM WP-11.



(1) WP JAM-11.

Under the proposed I&M rate structure, MS customers with load factors less than 30% will experience increases to monthly bills on the order of 18% to 103%.

Q75. WHAT ARE YOUR RECOMMENDED CHANGES TO THE MS RATE?

A. The MS rate class appears to be similar to the General Service Rate Class ("GS"). Compared to the WSS class, MS loads are smaller, as measure in kW, with overall lower monthly load factors compared to WSS customers. Additionally, the MS class is closed to new customers, therefore, these loads will naturally migrate into other I&M retail rate classes. In consideration of these factors, I believe that I&M rate structure proposal for MS customer should be changed to incorporate elements of the GS rate structure, specifically no charge for the first 10 kW, and recovery of the OSS/PJM rider on an energy basis rather than a demand basis. Also, I recommend a flat energy rate similar to the current rate structure. These changes will introduce the concept of

demand to MS customers, yet do so in a measured and reasonable manner. The current I&M rate proposal is too aggressive and punitive yielding increases to customer bills that are too high.

Q76. IS THERE AN ACCEPTABLE ALTERNATIVE TO YOUR MS RATE DESIGN PROPOSAL?

A. Yes, similar to my discussion regarding WSS rate design, an Hours/Use rate would be an acceptable alternative.

XI. ECONOMIC DEVELOPMENT

Q77. IN THE SETTLEMENT AGREEMENT ASSOCIATED WITH CAUSE 44967, DID I&M AGREE TO FUND VARIOUS EIG PROGRAMS?

A. Yes. I&M agreed to fund $700,000 of an EIG program. The program had three components as follows:

- Grants awarded to the Joint Municipal Group and the 39th Conservancy District
- Grants to support qualifying projects from the Joint Municipal Group
- Grants to support eligible customer qualifying projects

As per Witness Lucas (Page 20 lines 19-23):

"I&M will continue to administer the EIG program as described in the settlement agreement. The programs will continue until the earliest of the following: allocation of the $700,000 fund, which is the sum of all programs; December 31, 2021; or the date rates go into effect in I&M next base rate case. The unallocated funds identified above are not included in the revenue requirement present in this case."

Table 10 shows that I&M has spent less than 50% of the agreed upon economic development funds.

Table 10
Comparison of Cost of Service Results,
Summary of EIG Programs[1]

Line No.	Economic Development (A)	Allocated[2] (B)	Spent as of April 2019[3] (C)	Remaining (D)=(B)-(C)	Percent Spent E=C/B-1
1	Joint Muni Group	$185,000	$185,000	$0	100%
2	North Conservancy District	$35,000	$35,000	$0	100%
3	Joint Muni Group Qualifying Project	$240,000	$32,000	$208,000	13%
4	Joint Muni Group & Conservancy QPs	$240,000	$84,000	$156,000	35%
5	**Total Economic Development**	**$700,000**	**$336,000**	**$364,000**	**48%**

(1) WP JAM-12
(2) Cause No. 44967 Order including Settlement, Settlement Section 17.7 page 16.
(3) I&M witness Lucas Direct Testimony Page 20.

Q78. WHAT IS I&M'S ECONOMIC DEVELOPMENT FUNDING PROPOSAL IN CAUSE 45235?

A. For the general economic development associated with the third component of the current program, I&M included $137,500 in the Test Year revenue requirement to continue programs. These funds allow I&M to provide 'grants' to eligible customers. I&M then proposed two new programs: for the Apprenticeship and Training Program, I&M included $350,000 per year for two years and for Building Development Program, I&M included $150,000 per year for two years. In total I&M proposes $637,500 to be included in the revenue requirement associated with these three economic development programs.

Q79. DO YOU AGREE WITH I&M'S FUNDING PROPOSAL?

A. No. I&M's funding proposal is lacking in three ways:

1. If the funds were truly grants, then they would not be included in the revenue requirement and funded by rate payers. I believe that I&M should fund these programs from its earnings.
2. Given the short duration between Cause Nos. 45235 and 44967, I&M has not fulfilled its commitment per the Settlement Agreement to allow an adequate opportunity for communities to apply for funding. The Company has only invested a fraction of its commitment to economic development. Therefore, going forward, I&M should be required to add $364,000 of unspent funds associated with the Settlement Agreement into the current economic development proposal in the form of grants.
3. All new programs whether skills training or building development are well intentioned, but as Witness Fasick testifies programs like the existing EIG program are critical to help municipalities, as I&M customers, alleviate the impact of increased rates on their communities by deploying these funds in close coordination with local governmental authorities like Ft. Wayne and the Marion to foster economic development. I&M should be required to jointly coordinate and administer these programs in a collaborative and cooperative manner with local governments. A better use of EIG funds would be a permanent expansion of the existing grant programs in close coordination with local governmental authorities.

Q80. SHOULD ECONOMIC DEVELOPMENT BE IMPORTANT TO I&M?

A. Yes. Given the magnitude of load loss on the I&M system, EIG programs are more important than ever. And according to Witness Lucas, I&M's economic development efforts have been effective:

> "I&M's economic development efforts, in collaboration with our local economic development partner, have contributed to the creation of over 4,500 jobs and nearly $900 million of capital investment in I&M's Indiana area over the last five years."[47]

Associated load growth represents a win-win for I&M and Indiana retail customers. I&M can begin to recover lost revenue associated with wholesale load loss by growing its retail customer base. In this way, I&M's profitability improves without placing burdensome rate increases on existing customers

Q81. WHAT IS YOUR RECOMMENDATION IN THIS AREA?

A. I recommend the following:

1. I&M should fund these programs solely from its earnings. At a minimum total grant funding for the existing EIG program should be $450,000 annually on a going forward basis. This funding is over and above any funding for job training or speculative building that I&M may wish to undertake.
2. In addition to ongoing grant funded programs, I&M should be required to contribute $364,000 of unspent funds it previously committed under the Settlement Agreement.

[47] I&M witness Lucas direct testimony page 19, lines 1–4.

3. The orientation of the economic develop programs should lean heavily towards local grants that support programs designed to be effective within the served local communities. These programs should be developed and administered in close coordination with local governmental authorities.

XII. RECOMMENDATIONS

Q82. MR. MANCINELLI, PLEASE SUMMARIZE YOUR RECOMMENDATIONS TO THE COMMISSION.

A. Based on my review of I&M's direct testimony, I recommend the following:

1. Fixed costs associated with abrupt and significant load loss on the I&M system should be recovered within the jurisdiction that the load loss occurs or borne by the Company. I&M allocates costs to three jurisdictions: Indiana retail, Michigan retail and FERC.
2. I&M's allocation of OSS margins, in accordance with the jurisdictional split, should be allocated 100% to firm retail customers in recognition that firm customers within a jurisdiction bear the responsibility of fixed cost recovery for all I&M generation assets.
3. I&M should be required to remove the recession assumptions from Test Year 2020 as the Company failed to meet the "Fixed, Known, and Measurable" ratemaking standard.
4. I&M should be required to reduce their aggressive DSM/EE assumptions used in this proceeding based on historical observed savings associated with these programs.

5. Consistent with allocating production and transmission demand related costs in consideration of peak demand responsibility, I&M should use a summer CP allocator.
6. Streetlighting provides an important public service to the various communities served by I&M and, therefore, this customer class should not pay more than COS.
7. I&M's rate design proposals for the WSS and MS rate classes should be rejected.
8. WSS rate design should cap the monthly effective rates for low load factor customers. Such a cap can be achieved with an Hours/Use rate structure or a with a specified maximum bill.
9. Aggressive demand charges associated with the MS class should be tempered by including the first 10 kW with no demand charge. Also, applicable OSS/PJM riders should be recovered on an energy basis rather than a demand basis for this class. The class should have a single flat energy charge.
10. I&M should continue to fully support EIG programs committed to in the Stipulation and Settlement Agreement approved by the Commission in Cause No. 44967 (the "Settlement Agreement"). I&M should fund these programs solely from its earnings. At a minimum total grant funding should be $450,000 annually on a going forward basis. I&M should be required to contribute $364,000 of unspent funds associated with the Settlement Agreement.

Q83. DOES THIS CONCLUDE YOUR TESTIMONY?

A. Yes, it does.

VERIFICATION

I, JOSEPH A. MANCINELLI, affirm under penalties for perjury that the foregoing representations are true and correct to the best of my knowledge, information and belief as of the date filed herein.

Date: August 20, 2019

JOSEPH A. MANCINELLI

NewGen Strategies & Solutions

Joseph Mancinelli
President & CEO
jmancinelli@newgenstrategies.net

Joseph Mancinelli has over 30 years of experience as a utility consultant to the public utility industry and serves as President & CEO of NewGen Strategies and Solutions, LLC. NewGen offers a wide range of management, planning, and engineering economic services to public power clients. His direct experience includes strategic and business planning, cost of service and rate design analyses, performance management, economic analyses, asset valuation, revenue bond financing in the roles of project manager, lead analyst, and expert witness. He regularly advises senior management teams, utility boards, city councils, attorneys, and end-users. Additionally, he has taught cost of service and rate design concepts through numerous presentations, seminars and classes in association with Electric Utility Consultants, Inc., American Public Power Association, and various cooperative organizations.

EDUCATION

- Master of Business Administration in Finance, University of Colorado
- Bachelor of Science in Geophysical Engineering, Colorado School of Mines

KEY EXPERTISE

- Expert Witness and Litigation Support
- Cost of Service and Rate Design
- Economic Analysis
- Revenue Bond Financing
- Performance Management

RELEVANT EXPERIENCE

Electric Cost of Service and Rate Design

Mr. Mancinelli leads project teams in the review and establishment of utility revenue requirements, development of cost of service analyses and the and the development of retail and wholesale rates for numerous electric utilities. He works with clients and stakeholders in the understanding of cost of service and rate design principles and assists clients in the development of the underlying policies and principals important in the rate setting process. He has designed numerous rate structures including functionally unbundled, residential and small commercial demand, time of use rates, hours/use, conservation incentive, renewable energy, distributed generation/standby, distribution wheeling and various pass-through mechanisms. Often, these rate structures are phased in over a period to meet client policy objectives.

A sample of Mr. Mancinelli's electric cost of service and rate design clients include the following:

- Austin Energy, Texas
- Bose McKinney & Evans, LLP
- Bryan Texas Utilities, Texas
- Cleveland Public Power, Ohio
- Continental Divide, New Mexico
- CPS Energy, Texas
- Deseret Power Cooperative, Utah
- Estes Park Power & Light, Colorado
- Fort Collins Utilities, Colorado
- Farmington Electric Utility System
- Lafayette Utilities System, Louisiana
- Lloyd Gosselink Rochelle & Townsend, P.C.
- Lubbock Power and Light, Texas
- Nebraska Public Power District
- New Braunfels Utilities, Texas
- Plains Electric Generation and Transmission Cooperative, Inc., New Mexico (now Tri-State)
- Platte River Power Authority, Colorado
- Richmond Power & Light, Indiana
- Tri-State Generation & Transmission Association, Inc., Colorado

Joseph Mancinelli
President & CEO

- City of Garland Power and Light, Texas
- GEUS, Texas
- HNTB Corporation
- Keys Energy Services, Florida
- U.S. Army, Huntsville, Alabama
- United Power Electric Cooperative, Colorado
- Navajo Tribal Utility Authority
- Weatherford Municipal Utilities, Texas

Expert Witness and Litigation Support

Mr. Mancinelli offers expert testimony regarding cost of service, rate design, and ratemaking issues before state and local regulatory bodies and courts. He has national experience providing litigation support regarding ratemaking matters at wholesale and retail levels in Alaska, Colorado, Guam, Michigan, New Mexico, Nevada, Texas, and Utah.

Mr. Mancinelli has provided comprehensive expert testimony related to system revenue requirements, cost of service and rate design as well as expert testimony discussing the proper allocation of generation costs given a systems unique characteristics and quantification of damages incurred by customers associated with wholesale rate practices. Mr. Mancinelli's expert witness and litigation support includes:

- Joint Community Choice Aggregators, Public Utility Commission of the State of California, Application No. 18-12-009.
- Farmington Electric Utility System, New Mexico; Federal Energy Regulatory Commission, Docket Nos. QF19-1082-001, QF19-1083-001, QF19-1084-001
- Southern Indiana Gas and Electric Company D/B/A Vectren Energy Delivery of Indiana, Inc., Cause No. 43554 MCRA 21
- U.S. Department of Defense, North Carolina Utilities Commission, Docket No. E-2, Sub 1142
- Nebraska Public Power District, Nebraska; Section 70, Article 13 Arbitration Panel
- Northern Indiana Public Service Company, Indiana; Cause Nos. 44688 and 44733-TDSIC-1
- Bryan Texas Utilities, Texas; Docket Nos. 48123, 44467 and 41920
- Lower Colorado River Authority, Texas; Cause Nos. 121-001-B and D-1GN-12-002156
- Austin Energy, Texas; Docket No. 40627
- Guam Power Authority, Guam; Docket No. 11-09
- Brownsville Public Utilities Board, Texas; Docket Nos. 32905 and 38556
- Brownsville Public Utilities Board, Texas; Texas Water Commission; Docket No. 9013-M.
- Xcel Energy, Colorado; Docket Number 02S – 315 EG.
- Rocky Mountain Power, Utah; Docket No. 09-035-23
- GEUS, Texas; Texas Public Utilities Commission; Dockets No. 42581 and 37180
- GEUS, Texas; Case Number 25591
- Application of Sierra Pacific Power Company, Nevada; with respect to retail rates; Docket No. 05-10003
- Lamar Light and Power versus Colorado Aquature, Colorado
- AEP Texas Central Company, Texas; application of AEP Texas Central Company for authority to change rates; PUC Docket No. 28840
- The City and County of Denver, Colorado; United States District Court for the District of Colorado; Civil Action No. 96-D-2968
- Chugach Electric and Homer Electric Association, Alaska; Regulatory Commission of Alaska; Docket No. U-06-134
- Traverse City Light and Power and Michigan Public Service Commission; Case Numbers U-13716, U-12844 and U-13071
- Plains Electric Generation and Transmission Cooperative, Inc., New Mexico; New Mexico Public Utilities Commission; Docket No. 2797

WORKSHOPS AND PRESENTATIONS

Mr. Mancinelli has given numerous presentations and participated in training and workshops in several states. These activities have focused on cost of service, ratemaking, and competitive issues. Host organizations and the topics Mr. Mancinelli presented are displayed below.

American Public Power Association

- *Costs and Benefits of Generation Resources*
- *Innovative Rates and Rate Riders for Key Accounts*
- *Including Risk Management in the Key Account Function*
- *Advanced Rate Making Concepts for Publicly Owned Electric Systems*
- *Retail Rate Design for Publicly Owned Electric Systems*

Electric Utility Consultants, Inc.

- *Rate Case Expert Witness Preparation*
- *Introduction to Cost of Service Concepts and Techniques for Electric Utilities*
- *Introduction to Rate Design for Electric Utilities*

Texas Public Power Association

- *Establishing Effective Financial Policies for Your Utility*
- *Contracting with Retail Customers*
- *Developing Rate Design Strategies and Financial Policies for Your Utility*

New Mexico Rural Electric Association

- *Unbundling for Competition*

Utah Association of Municipal Power and Utah Rural Electric Association

- *Electric Rate Unbundling*

New Hampshire Electric Cooperative

- *Rate design and cost of service strategy and training program*

Colorado Rural Electric Association

- *Net Metering Overview*

Utah Municipal Power Agency

- *Cost of Service, Rates and Net Metering*

High West Energy – Irrigation Members

- *Introduction to Cost of Service and Rate Design Concepts*

Record of Testimony Submitted by Joseph A. Mancinelli

Utility	Proceeding	Subject	Before	Client	Date
1. Pacific Gas & Electric Company	Application No. 18-12-009	Application of Pacific Gas & Electric Company (U 39-M) for Authority, Among Other Things, To Increase Rates for Electric and Gas Service Effective on January 1, 2020	Public Utility Commission of the State of California	Joint Community Choice Aggregators	2019
2. Farmington Electric Utility System	Docket Nos. QF19-1082-001, QF19-1083-001, QF19-1084-001	Response to April 19, 2019 Petition for Enforcement under the Public Utility Regulatory Policies Act of 1978	Federal Energy Regulatory Commission	City of Farmington, New Mexico	2019
3. Bryan Texas Utilities	Docket No. 48123	Application of Bryan Texas Utilities for Interim Update of Wholesale Transmission Rates Pursuant to Substantive Rule 25.192(g)(1)	Public Utility Commission of Texas	Bryan Texas Utilities	2018
4. Southern Indiana Gas and Electric Company D/B/A Vectren Energy Delivery of Indiana, Inc.	Cause No. 43354 MCRA 21	Verified Petition of Southern Indiana Gas and Electric Company D/B/A Vectren Energy Delivery of Indiana, Inc. ("Company") For: (1) Approval of a MISO Cost and Revenue Adjustment for Electric Service in Accordance with the Order of the Commission in Cause No. 43111 Effective August 15, 2007 and Cause No. 43839 Dated April 27, 2011 Pursuant to J.C. § 8-1-2-42(A); and (2) Authority to File for MISO Cost Revenue Adjustments on an Annual Basis as Opposed to Semi-Annually	Indiana Utility Regulatory Commission	SABIC Innovative Plastics Mount Vernon, LLC	2017
5. Duke Energy Progress, LLC	Docket No. E-2, Sub 1142	Application of Duke Energy Progress, LLC for Adjustment of Rates and Charges Applicable to Electric Service in North Carolina	North Carolina Utilities Commission	U.S. Department of Defense and all other Federal Executive Agencies	2017
6. Nebraska Public Power District	Section 70, Article 13 Arbitration Panel	Proper Recovery of Post Retirement Benefits in Wholesale Rates	Nebraska Cities vs. Nebraska Public Power District	Nebraska Public Power District	2017
7. Northern Indiana Public Service Company	Cause No. 44733-TDSIC-1	Transmission, Distribution, and Storage System Improvement Charge	Indiana Utility Regulatory Commission	United States Steel	2016

Record of Testimony Submitted by Joseph A. Mancinelli

Utility	Proceeding	Subject	Before	Client	Date
8. Austin Energy	N/A	Austin Energy's Tariff Package: 2015 Cost of Service Study and Proposal to Change Base Electric Rate	City of Austin Impartial Hearing Examiner	Austin Energy	2016
9. Northern Indiana Public Service Company	Cause No. 44688	Interruptible Demand Credits and Cost of Service	Indiana Utility Regulatory Commission	United States Steel	2016
10. Bryan Texas Utilities	Docket No. 44467	Application of Bryan Texas Utilities for Interim Update of Wholesale Transmission Rates Pursuant to Substantive Rule 25.192(g)(1)	Public Utility Commission of Texas	Bryan Texas Utilities	2015
11. Lower Colorado River Authority	Cause No. 121-001-B	Damages Associated with Wholesale Pricing Practices	District Court of Kerr County, Texas (198th Judicial District)	City of Kerrville, acting by and through Kerrville Public Utility Board	2014-2015
12. GEUS	Docket No. 42581	Application to Change Rates for Wholesale Transmission Service	Public Utility Commission of Texas	GEUS	2014
13. Bryan Texas Utilities	Docket No. 41920	Application of Bryan Texas Utilities for Interim Update of Wholesale Transmission Rates Pursuant to Substantive Rule 25.192(g)(1)	Public Utility Commission of Texas	Bryan Texas Utilities	2013
14. Lower Colorado River Authority	Cause No. D-1GN-12-002156	Damages Associated with Wholesale Pricing Practices	District Court of Travis County, Texas (261st Judicial District)	Central Texas Electric Cooperative, Inc., Fayette Electric Cooperative, Inc., and San Bernard Electric Cooperative, Inc.	2013-2014
15. Austin Energy	SOAH Docket No. 473-13-0935 PUC Docket No. 40627	Petition by Homeowners United for Rate Fairness to Review Austin Rate Ordinance No. 20120607-055	Public Utility Commission of Texas	On behalf of the City of Austin D/B/A Austin Energy	2013
16. Guam Power Authority	Docket No. 11-09	Support of Comprehensive Rate Case	Guam Public Utilities Commission	Guam Power Authority	2012
17. Brownsville Public Utilities Board	Docket No. 38556	Application to Change Rates for Wholesale Transmission Service	Public Utility Commission of Texas	Brownsville Public Utilities Board	2010
18. Rocky Mountain Power	Docket No. 09-035-23	Testified regarding Rocky Mountain Power's Cost of Service Analysis	Utah Public Utilities Commission	Utah Division of Public Utilities	2009

Record of Testimony Submitted by Joseph A. Mancinelli

Utility	Proceeding	Subject	Before	Client	Date
19. GEUS	Docket No. 37180	Support Application to Change Rates for Wholesale Transmission Service	Public Utility Commission of Texas	GEUS	2009
20. Chugach Electric	Docket No. U-06-134	Revenue Requirement, Cost of Service Allocation, Class, and TIER Issues	Regulatory Commission of Alaska	Alaska Electric & Energy Coop/Homer Electric Association	2007
21. Sierra Pacific Power Company	Docket No. 05-10003	In Support of Reductions to Sierra Pacific Revenue Requirement and Modification to the Sierra Pacific Marginal Cost of Service Study	Public Utilities Commission of Nevada	Nevada Resort Association	2006
22. Brownsville Public Utilities Board	Docket No. 32905	Testified in Support of Transmission Costs	Texas Public Utilities Commission	Brownsville Public Utilities Board	2006
23. Cherryland Electric Cooperative vs. Traverse City Light & Power	Case No. U-13716	Evaluating Cost Basis for Proposed Large Resort Service Tax	Michigan Public Service Commission	Traverse City Light & Power	2004
24. Cherryland Electric Cooperative vs. Traverse City Light & Power	Case Nos. U-12844 and U-13071	Testified Against Damages Associated with Loss of Large Retail Load to Competing Utility	Michigan Public Service Commission	Traverse City Light & Power	2002
25. Plains Electric Generation & Transmission Cooperative	Docket No. 2797	Electric System Cost of Service and Rate Study	New Mexico Public Utilities Commission	Plains Electric Generation and Transmission Cooperative	1998
26. Environmental Protection Agency	Civil Action 96-D-2698	Radium Storage Fees	United States District Court of the District of Colorado	City and County of Denver	1997
27. Greenville Electric Utility System	Docket No. 15812	Unbundled Transmission Cost of Service/Transmission Rate Filing Compliance with Substantive Rule 23.67	Public Utility Commission of Texas	Greenville Electric Utility System	1996
28. El Jardin Water Supply Corporation	Docket No. 9013-M	Water System Revenue Requirement and Allocated Cost of Service Study	Texas Natural Resources Commission	Public Utilities Board of Brownsville, Texas	1992-1993

AEP Indiana Michagan Cause No. 45235
Impact of Loss of Firm Load
Cause No. 45235 Compared to Cause No. 44967 [3]

		A	B	C = A - B	D = A / B - 1	E	F	G = E - F	H = E / F - 1	I = A - E	J = B - F	K = I - J	L = I / J - 1
	Category Items	As Filed 2020 Total Company [1]	As Filed by 2018 Total Company [2]	Difference $	% Difference	As Filed 2020 IN Only [1]	As filed 2018 IN Only [2]	Difference $	% Difference	2020 Other	2018 Other	Difference $	Difference %
1	**Operation and Maintenance Expenses**												
2	Production - Demand	538,145,869	531,694,690	6,451,179	1.2%	380,223,466	346,719,649	33,503,817	9.7%	157,922,403	184,975,041	(27,052,637)	-14.6%
3	Production - Energy	504,814,726	523,228,844	(18,414,118)	-3.5%	350,604,024	333,654,243	16,949,781	5.1%	154,210,702	189,574,600	(35,363,899)	-18.7%
4	Production - Other	10,773,138	1,967,442	8,805,696	447.6%	11,932,084	5,967,442	5,964,642	100.0%	(1,158,946)	(4,000,000)	2,841,054	-71.0%
5	Transmission - Demand	26,895,365	19,454,240	7,441,125	38.2%	19,050,942	12,686,166	6,364,776	50.2%	7,844,423	6,768,074	1,076,350	15.9%
6	Transmission - Other	28,957,293	(2,659,532)	31,616,825	-1188.8%	24,966,880	0	24,966,880	0.0%	3,990,413	(2,659,532)	6,649,945	-250.0%
7	Distribution	73,961,966	78,407,270	(4,445,304)	-5.7%	49,507,970	58,034,721	(8,526,751)	-14.7%	24,453,996	20,372,549	4,081,447	20.0%
8	Other	149,514,252	180,197,400	(30,683,148)	-17.0%	105,135,258	118,045,201	(12,909,943)	-10.9%	44,378,994	62,152,199	(17,773,205)	-28.6%
9	**Total Operation and Maintenance Expenses**	1,333,062,610	1,332,290,354	772,256	0.1%	941,420,625	875,107,423	66,313,202	7.6%	391,641,985	457,182,931	(65,540,946)	-14.3%
10	**Total Operation and Maintenance Expenses -excl Energy Related**	828,247,884	809,061,510	19,186,374	2.4%	590,816,600	541,453,179	49,363,421	9.1%	237,431,284	267,608,331	(30,177,047)	-11.3%
11	**Depreciation Amortization**												
12	Production	247,834,614	188,601,619	59,232,995	31.4%	174,037,049	122,721,898	51,315,151	41.8%	73,797,565	65,879,721	7,917,844	12.0%
13	Transmission	43,383,790	31,359,589	12,024,201	38.3%	30,652,535	20,449,679	10,202,856	49.9%	12,731,255	10,909,910	1,821,345	16.7%
14	Subtotal Prod. & Trans.	291,218,404	219,961,209	71,257,196	32.4%	204,689,584	143,171,578	61,518,007	43.0%	86,528,820	76,789,631	9,739,189	12.7%
15	Distribution	95,297,182	87,137,935	8,159,246	9.4%	76,154,419	74,404,032	1,750,387	2.4%	19,142,762	12,733,903	6,408,859	50.3%
16	Other	5,511,519	4,276,673	1,234,846	28.9%	3,963,171	2,893,519	1,069,652	37.0%	1,548,348	1,383,154	165,194	11.9%
17	Amortization	53,448,468	30,356,919	23,091,549	76.1%	37,675,730	20,342,223	17,333,508	85.2%	15,772,738	10,014,696	5,758,041	57.5%
18	**Total Depreciation & Amortization**	445,475,573	341,732,736	103,742,837	30.4%	322,482,905	240,811,351	81,671,554	33.9%	122,992,668	100,921,385	22,071,284	21.9%
19	**Rate Base**												
20	Electric Plant in Service - Production	5,013,975,774	4,554,884,372	459,091,403	10.1%	3,542,591,993	2,970,253,308	572,338,685	19.3%	1,471,383,782	1,584,631,064	(113,247,282)	-7.1%
21	Electric Plant in Service - Transmission	1,758,112,903	1,688,697,072	69,415,831	4.1%	1,242,183,244	1,101,204,258	140,978,986	12.8%	515,929,659	587,492,814	(71,563,155)	-12.2%
22	Electric Plant in Service - Other	3,149,729,123	2,602,693,916	547,035,207	21.0%	2,462,345,205	2,052,642,587	409,702,619	20.0%	687,383,918	550,051,329	137,332,588	25.0%
23	Electric Plant in Service - Total	9,921,817,800	8,846,275,360	1,075,542,441	12.2%	7,247,120,442	6,124,100,153	1,123,020,289	18.3%	2,674,697,359	2,722,175,207	(47,477,849)	-1.7%
24	Accumulated Provision for Depreciation & Amortization	(3,481,975,526)	(3,176,675,277)	(305,300,249)	9.6%	(2,525,787,876)	(2,178,476,411)	(347,311,465)	15.9%	(956,187,650)	(998,198,866)	42,011,216	-4.2%
25	Other Rate Base Items	221,716,893	141,482,969	80,233,925	56.7%	157,001,138	101,032,222	55,968,916	55.4%	64,715,755	40,450,747	24,265,009	60.0%
26	Regulatory Liabilities and Assets	94,684,093	0	94,684,093	0.0%	68,628,497	0	68,628,497	0.0%	26,055,596	0	26,055,596	0.0%
27	Working Capital Requirements	0	211,443,329	(211,443,329)	-100.0%	0	138,400,942	(138,400,942)	-100.0%	0	73,042,388	(73,042,388)	-100.0%
28	**Total Rate Base**	6,756,243,261	6,022,526,381	733,716,880	12.2%	4,946,962,201	4,185,056,905	761,905,296	18.2%	1,809,281,060	1,837,469,476	(28,188,416)	-1.5%

[1] Cause 45235: I&M witness Duncan direct testimony Attachment JCD -1

[2] Cause 44967:I&M wtiness Stegall direct testimony Attachment JMS-1

[3] WP JAM-2

Indiana Michigan Power Cause No. 45235
Modified 12 CP Demand Allocator Analysis

	A	B	C	D	E = D - C	F = D/C - 1
Line No.	Description	As Filed Total Company After Adjustments [1]	As Filed Indiana Retail [1]	Modified 12 CP Indiana Retail [2]	Difference ($)	% Difference
1	**Revenue Requirement**					
2	O&M Expense					
3	Demand	580,203,398	409,938,940	379,390,380	(30,548,560)	-7.45%
4	Other	752,859,212	531,481,685	527,750,878	(3,730,807)	-0.70%
5	Total O&M	1,333,062,610	941,420,625	907,141,257	(34,279,367)	-3.64%
6	Depreciation and Amortization					
7	Demand	341,539,484	241,312,502	223,329,947	(17,982,555)	-7.45%
8	Other	103,936,089	81,170,403	81,421,793	251,390	0.31%
9	Total Depreciation and Amortization	445,475,573	322,482,905	304,751,740	(17,731,165)	-5.50%
10	Other Expenses					
11	Demand	0	0	0	0	0.00%
12	Other	108,514,092	85,299,524	82,256,900	(3,042,624)	-3.57%
13	Total Other Expenses	108,514,092	85,299,524	82,256,900	(3,042,624)	-3.57%
14	State Income Tax					
15	Demand	0	0	0	0	0.00%
16	Other	149,686	(1,295,865)	1,709,204	3,005,069	-231.90%
17	Total State Income Tax	149,686	(1,295,865)	1,709,204	3,005,069	-231.90%
18	Federal Income Tax					
19	Demand	0	0	0	0	0.00%
20	Other	(18,505,663)	(19,081,043)	(8,980,204)	10,100,839	-52.94%
21	Total Federal Income Tax	(18,505,663)	(19,081,043)	(8,980,204)	10,100,839	-52.94%
22	Subtotal Revenue Requirement					
23	Demand	921,742,882	651,251,442	602,720,327	(48,531,115)	-7.45%
24	Other	946,953,417	677,574,704	684,158,571	6,583,867	0.97%
25	Subtotal Revenue Requirement	1,868,696,299	1,328,826,146	1,286,878,898	(41,947,248)	-3.16%
26	Return on Rate Base at 5.86%					
27	Demand	327,774,491	231,586,936	214,329,129	(17,257,808)	-7.45%
28	Other	68,141,364	58,305,049	61,221,715	2,916,666	5.00%
29	Total Return on Rate Base at 5.86%	395,915,855	289,891,985	275,550,844	(14,341,141)	-4.95%
30	Revenue Requirement					
31	Demand	1,249,517,373	882,838,378	817,049,456	(65,788,923)	-7.45%
32	Other	1,015,094,780	735,879,752	745,380,286	9,500,534	1.29%
33	Total Revenue Requirement	2,264,612,154	1,618,718,131	1,562,429,741	(56,288,389)	-3.48%
34						
35	**Operating Revenues**					
36	Sales and Other Revenue	1,960,270,319	1,382,486,794	1,382,296,648	(190,146)	-0.01%
37	456-Other Electric Rev. Production	194,641	137,522	127,274	(10,248)	-7.45%
38	456-Other Electric Rev. Transmission	162,930,971	115,117,819	106,539,264	(8,578,555)	-7.45%
39	Total Operating Revenues	2,123,395,931	1,497,742,135	1,488,963,186	(8,778,949)	-0.59%
40						
41	Rev Req less Oper. Revenues	141,216,222	120,975,996	73,466,555	(47,509,440)	-39.27%
42	Revenue Increase (Decrease)	6.65%	8.08%	4.93%	3.14%	
43						
44	**Rate Base**					
45	Demand	5,593,421,356	3,951,995,502	3,657,493,662	(294,501,840)	-7.45%
46	Other	1,162,821,905	994,966,699	1,044,739,162	49,772,464	5.00%
47	Total Rate Base	6,756,243,261	4,946,962,201	4,702,232,825	(244,729,376)	-4.95%
48	Return on Rate Base [3]	0.0586	0.0586	0.0586	0.0586	
49	Demand	327,774,491	231,586,936	214,329,129	(17,257,808)	-7.45%
50	Other	68,141,364	58,305,049	61,221,715	2,916,666	5.00%
51	Return on Rate Base	395,915,855	289,891,985	275,550,844	(14,341,141)	-4.95%

[1] Attachment JCD-1
[2] WP JAM-6
[3] Attachment MWN-2, page 3 of 4, column 10

ATTACHMENT JAM-4

[REDACTED]

TO THE DIRECT TESTIMONY OF JOSEPH A. MANCINELLI

CAUSE NO. 45235

[IMMDA AGREEMENTS FOR FULL REQUIREMENTS SERVICE]

WILL BE FILED PENDING

A MOTION FOR CONFIDENTIAL TREATMENT BY I&M

INDIANA MICHIGAN POWER COMPANY
CITY OF SOUTH BEND
DATA REQUEST SET NO. SB DR 5
IURC CAUSE NO. 45235

DATA REQUEST NO SB 5-01

REQUEST

Referring to I&M Witness Burnett's Direct Testimony at page 13, lines 20-21, and page 17, line 1, please provide a forecasted test year revenue by rate class without the projected 2020 recession.

RESPONSE

I&M objects to the request on the grounds and to the extent the request seeks an analysis, compilation, study or calculation that I&M has not performed and to which I&M objects to performing. Subject to and without waiver of the foregoing objection, I&M provides the following response. The Company subscribes to an outside provider, Moody's Analytics, for its macro-economic forecast. The forecast from Moody's Analytics was used for the load forecast. The Company only subscribes to the baseline (most probable) forecast from Moody's Analytics. Thus the Company does not have a forecast that reflects the scenario assumed in the question and the Company has not performed a forecasted test year revenue by rate class based on the scenario reflected in the question.

INDIANA MICHIGAN POWER COMPANY
CITY OF SOUTH BEND
DATA REQUEST SET NO. SB DR 5
IURC CAUSE NO. 45235

DATA REQUEST NO SB 5-03

REQUEST

On page 14 of Mr. Burnett's Direct Testimony, the witness states that "80% of respondents [economists surveyed] have lowered their outlook for 2019 and a growing number of economists are now predicting the US economy will be in recession by 2020 or 2021." Please provide the percentage of the respondents who are predicting not just an economic downturn but a recession in 2020.

RESPONSE

The NABE survey did not ask the survey respondents to distinguish between an 'economic downturn' or a 'recession' although both terms would describe a slowing economy.

Revenue Forecast Technical Committee Meeting Update

April 2019 Revenue Forecast

Table of Contents:

Total General Fund Revenue Forecast
Fiscal Years 2019, 2020 & 2021
April 17, 2019 (in millions $)

	Actual 2018	Dec. 2018 Forecast 2019	Updated Forecast 2019	Diff. From Prior Forecast	Percent Growth Over 2018	Dec. 2018 Forecast 2020	Updated Forecast 2020	Diff. From Prior Forecast	Percent Growth Over 2019	Dec. 2018 Forecast 2021	Updated Forecast 2021	Diff. From Prior Forecast	Percent Growth Over 2020
Major Taxes													
Sales & Use	7,662.6	7,921.8	7,864.0	-57.7	2.6%	8,115.7	8,075.8	-39.9	2.7%	8,252.7	8,277.2	24.4	2.5%
Individual Income	5,816.1	6,037.0	5,957.9	-79.1	2.4%	6,249.0	6,174.1	-74.9	3.6%	6,468.1	6,379.9	-88.2	3.3%
Corporate - AGI, URT, USUT, FIT	660.4	773.4	871.1	97.6	31.9%	790.4	850.9	60.6	-2.3%	792.7	834.3	41.6	-1.9%
Riverboat Wagering	317.3	299.5	300.9	1.4	-5.2%	304.1	306.0	1.9	1.7%	305.8	308.4	2.6	0.8%
Racino Wagering	114.8	112.0	113.3	1.3	-1.4%	111.3	111.9	0.5	-1.2%	111.8	112.5	0.7	0.6%
Subtotal Major Taxes	**14,571.2**	**15,143.7**	**15,107.2**	**-36.5**	**3.7%**	**15,570.4**	**15,518.6**	**-51.8**	**2.7%**	**15,931.2**	**15,912.3**	**-18.9**	**2.5%**
Other Revenue													
Cigarette	240.7	236.0	233.7	-2.3	-2.9%	230.0	228.0	-2.0	-2.4%	222.1	220.3	-1.8	-3.4%
Insurance	231.5	237.1	237.1	0.0	2.4%	242.8	242.8	0.0	2.4%	248.6	248.6	0.0	2.4%
Inheritance	0.3	0.0	0.0	0.0	N/A	0.0	0.0	0.0	N/A	0.0	0.0	0.0	N/A
Alcoholic Beverages	19.2	20.2	20.0	-0.2	3.9%	20.8	20.4	-0.4	2.0%	21.2	20.9	-0.3	2.5%
Riverboat Admissions*	10.0	9.4	9.4	0.0	-5.9%	9.3	9.3	0.0	-1.4%	9.3	9.3	0.0	0.4%
Interest	57.1	62.0	100.0	38.0	75.1%	80.0	103.0	23.0	3.0%	88.0	108.0	20.0	4.9%
Motor & Commercial Vehicle Excise	266.1	274.8	274.8	0.0	3.3%	283.8	283.8	0.0	3.3%	293.1	293.1	0.0	3.3%
Miscellaneous Revenue	175.2	157.2	157.2	0.0	-10.3%	146.1	146.1	0.0	-7.1%	155.6	155.6	0.0	6.5%
Subtotal Other Revenue	**1,000.2**	**996.7**	**1,032.2**	**35.5**	**3.2%**	**1,012.8**	**1,033.4**	**20.6**	**0.1%**	**1,038.0**	**1,055.9**	**17.9**	**2.2%**
Total General Fund	**15,571.34**	**16,140.4**	**16,139.4**	**-1.0**	**3.6%**	**16,583.2**	**16,552.0**	**-31.2**	**2.6%**	**16,969.2**	**16,968.2**	**-1.0**	**2.5%**

*Riverboat Supplemental Wagering tax in FY 2019 and thereafter

Indiana State Budget Agency

FY 2019 Report of Monthly General Fund Revenue Collections

For the month ending
March 31, 2019

All amounts in millions of dollars
Estimates per December 17, 2018 State Revenue Forecast

	General Fund Actual Revenue Y-T-D	Comparison to Monthly Estimates			Comparison to Prior Year-to-Date		
		Estimated Revenue Y-T-D	Difference		Actual Revenue Prior Y-T-D	Change	
			Amount	Percent		Amount	Percent
Major Taxes							
Sales & Use[1]	$5,896.2	$5,896.1	$0.1	0.0%	$5,684.2	$212.0	3.7%
Individual AGI	$3,846.4	$3,914.2	-$67.8	-1.7%	$3,945.8	-$99.3	-2.5%
Corporate - AGI, URT, USUT, FIT	$414.1	$373.2	$40.8	10.9%	$210.4	$203.7	96.8%
Riverboat Wagering	$195.4	$193.0	$2.4	1.2%	$162.4	$33.0	20.3%
Racino Wagering	$83.1	$79.7	$3.4	4.2%	$74.3	$8.8	11.9%
Subtotal Major Taxes	**$10,435.2**	**$10,456.3**	**-$21.1**	**-0.2%**	**$10,076.9**	**$358.2**	**3.6%**
Other Revenue							
Cigarette	$174.1	$176.0	-$1.9	-1.1%	$179.0	-$4.9	-2.7%
Insurance	$148.2	$142.5	$5.6	4.0%	$139.4	$8.8	6.3%
Inheritance	$0.1	$0.0	$0.1	N/A	$0.2	$0.0	-20.6%
Alcoholic Beverages	$14.1	$15.5	-$1.4	-8.8%	$14.3	-$0.2	-1.3%
Riverboat Admissions	$8.5	$9.4	-$0.9	-10.0%	$7.6	$0.9	11.4%
Interest	$82.3	$56.4	$25.9	45.9%	$38.3	$44.0	114.9%
Motor Vehicle and Commercial Vehicle Excise[2]	$0.0	$0.0	$0.0	N/A	$0.0	$0.0	N/A
Miscellaneous Revenue[3]	$85.1	$84.9	$0.3	0.3%	$95.2	-$10.1	-10.6%
Subtotal Other Revenue	**$512.4**	**$484.6**	**$27.7**	**5.7%**	**$473.9**	**$38.5**	**8.1%**
Total General Fund	**$10,947.5**	**$10,940.9**	**$6.6**	**0.1%**	**$10,550.9**	**$396.7**	**3.8%**

* The totals, changes, and percent changes in this report are based on unrounded amounts.

FY 2019 Report of Monthly General Fund Revenue Collections
For the month ending
March 31, 2019

All amounts in millions of dollars
Estimates per December 17, 2018 State Revenue Forecast

		July	August	September	October	November	December	January	February	March	April	May	June	Y-T-D
Sales & Use[1]	Actual	$679.6	$661.2	$657.9	$675.4	$618.5	$673.0	$756.0	$582.8	$591.9	-	-	-	$5,896.2
	Estimate	$676.3	$658.5	$660.8	$665.1	$624.1	$651.1	$757.1	$598.6	$604.5	$680.8	$660.8	$684.0	$5,896.1
	Difference	$3.2	$2.6	($3.0)	$10.3	($5.6)	$21.9	($1.0)	($15.9)	($12.5)	-	-	-	$0.1
	% Difference	0.5%	0.4%	-0.4%	1.6%	-0.9%	3.4%	-0.1%	-2.7%	-2.1%	-	-	-	0.0%
Individual AGI	Actual	$440.7	$358.5	$628.6	$401.9	$349.1	$488.5	$657.3	$129.1	$392.9	-	-	-	$3,846.4
	Estimate	$442.5	$367.8	$627.9	$388.9	$350.4	$508.1	$698.8	$147.7	$382.1	$1,087.7	$440.1	$594.9	$3,914.2
	Difference	($1.9)	($9.3)	$0.7	$13.0	($1.3)	($19.6)	($41.6)	($18.6)	$10.7	-	-	-	($67.8)
	% Difference	-0.4%	-2.5%	0.1%	3.3%	-0.4%	-3.9%	-5.9%	-12.6%	2.8%	-	-	-	-1.7%
Corporate - AGI, URT, USUT, FIT	Actual	($3.5)	($18.8)	$204.0	$12.0	$11.8	$174.0	($5.9)	($13.9)	$54.4	-	-	-	$414.1
	Estimate	($4.9)	($19.6)	$189.7	$26.4	$5.1	$164.5	($0.7)	($15.3)	$28.1	$166.6	($6.6)	$240.2	$373.2
	Difference	$1.4	$0.8	$14.3	($14.3)	$6.7	$9.5	($5.3)	$1.4	$26.3	-	-	-	$40.8
	% Difference	28.9%	4.3%	7.5%	-54.3%	130.3%	5.8%	-788.1%	9.2%	93.7%	-	-	-	10.9%
Riverboat Wagering	Actual	$1.4	$10.7	$20.0	$21.2	$23.1	$24.4	$28.3	$30.1	$36.0	-	-	-	$195.4
	Estimate	$1.1	$11.6	$18.4	$20.9	$19.4	$25.8	$27.7	$30.3	$37.8	$35.4	$37.2	$33.9	$193.0
	Difference	$0.3	($0.9)	$1.6	$0.3	$3.7	($1.4)	$0.6	($0.2)	($1.8)	-	-	-	$2.4
	% Difference	31.1%	-7.5%	8.4%	1.6%	19.3%	-5.2%	2.3%	-0.6%	-4.7%	-	-	-	1.2%
Racino Wagering	Actual	$8.6	$8.5	$9.1	$7.9	$8.6	$8.6	$9.7	$10.7	$11.5	-	-	-	$83.1
	Estimate	$9.5	$8.2	$8.1	$8.5	$6.6	$8.4	$8.9	$9.8	$11.7	$10.7	$10.5	$11.1	$79.7
	Difference	($0.9)	$0.3	$1.0	($0.6)	$2.0	$0.2	$0.8	$0.9	($0.2)	-	-	-	$3.4
	% Difference	-9.7%	3.1%	12.5%	-7.3%	30.3%	2.9%	8.5%	8.7%	-1.7%	-	-	-	4.2%
Other[2]	Actual	$45.3	$39.7	$88.4	$40.1	$36.9	$105.2	$46.4	$47.7	$62.6	-	-	-	$512.4
	Estimate	$55.7	$39.9	$88.1	$40.9	$37.6	$101.3	$43.8	$34.1	$43.3	$73.5	$27.4	$411.1	$484.6
	Difference	($10.4)	($0.2)	$0.3	($0.8)	($0.6)	$3.9	$2.6	$13.7	$19.3	-	-	-	$27.7
	% Difference	-18.7%	-0.4%	0.3%	-1.9%	-1.7%	3.8%	5.9%	40.1%	44.6%	-	-	-	5.7%
Total General Fund	**Actual**	**$1,172.1**	**$1,059.8**	**$1,607.8**	**$1,158.5**	**$1,048.1**	**$1,473.7**	**$1,491.8**	**$786.4**	**$1,149.3**	-	-	-	**$10,947.5**
	Estimate	**$1,180.3**	**$1,066.4**	**$1,592.9**	**$1,150.6**	**$1,043.2**	**$1,459.2**	**$1,535.7**	**$805.2**	**$1,107.5**	**$2,054.8**	**$1,169.4**	**$1,975.3**	**$10,940.9**
	Difference	**($8.2)**	**($6.6)**	**$14.9**	**$7.9**	**$4.9**	**$14.5**	**($43.8)**	**($18.8)**	**$41.8**	-	-	-	**$6.6**
	% Difference	**-0.7%**	**-0.6%**	**0.9%**	**0.7%**	**0.5%**	**1.0%**	**-2.9%**	**-2.3%**	**3.8%**	-	-	-	**0.1%**

Comparison of Monthly Revenues to Estimates Based on the Budget Plan[4]

		July	August	September	October	November	December	January	February	March	April	May	June	Y-T-D
Total General Fund	Actual	$1,172.1	$1,059.8	$1,607.8	$1,158.5	$1,048.1	$1,473.7	$1,491.8	$786.4	$1,149.3	-	-	-	$10,947.5
	Adj. Estimate	$1,167.2	$1,090.5	$1,496.5	$1,209.5	$1,059.1	$1,401.2	$1,511.2	$811.5	$1,134.7	$2,131.1	$1,192.7	$1,957.1	$10,881.4
	Difference	$4.9	($30.7)	$111.3	($51.0)	($11.0)	$72.4	($19.4)	($25.1)	$14.6	-	-	-	$66.1
	% Difference	0.4%	-2.8%	7.4%	-4.2%	-1.0%	5.2%	-1.3%	-3.1%	1.3%	-	-	-	0.6%

FY 2019 Monthly Revenue Year-Over-Year Comparison
For the month ending
March 31, 2019

All amounts in millions of dollars

		July	August	September	October	November	December	January	February	March	April	May	June	Y-T-D
Sales & Use[1]	FY 2018	$654.3	$629.4	$636.7	$635.9	$617.5	$615.0	$742.7	$579.4	$573.2	$668.6	$629.9	$679.9	$5,684.2
	FY 2019	$679.6	$661.2	$657.9	$675.4	$618.5	$673.0	$756.0	$582.8	$591.9	-	-	-	$5,896.2
	Change	$25.2	$31.8	$21.1	$39.5	$1.0	$57.9	$13.3	$3.4	$18.7	-	-	-	$212.0
	% Change	3.9%	5.0%	3.3%	6.2%	0.2%	9.4%	1.8%	0.6%	3.3%	-	-	-	3.7%
Individual AGI	FY 2018	$427.9	$363.0	$551.7	$472.5	$363.9	$462.0	$808.7	$143.2	$352.8	$1,017.9	$371.8	$480.6	$3,945.8
	FY 2019	$440.7	$358.5	$628.6	$401.9	$349.1	$488.5	$657.3	$129.1	$392.9	-	-	-	$3,846.4
	Change	$12.7	($4.5)	$76.9	($70.7)	($14.8)	$26.4	($151.4)	($14.1)	$40.1	-	-	-	($99.3)
	% Change	3.0%	-1.2%	13.9%	-15.0%	-4.1%	5.7%	-18.7%	-9.9%	11.4%	-	-	-	-2.5%
Corporate - AGI, URT, USUT, FIT	FY 2018	$18.0	($26.5)	$131.7	($10.5)	($33.8)	$120.3	($21.1)	($7.0)	$39.3	$220.5	($16.1)	$245.6	$210.4
	FY 2019	($3.5)	($18.8)	$204.0	$12.0	$11.8	$174.0	($5.9)	($13.9)	$54.4	-	-	-	$414.1
	Change	($21.5)	$7.7	$72.2	$22.5	$45.6	$53.7	$15.2	($6.9)	$15.1	-	-	-	$203.7
	% Change	-119.2%	29.2%	54.8%	214.6%	135.1%	44.6%	71.9%	-97.9%	38.3%	-	-	-	96.8%
Riverboat Wagering	FY 2018	$0.9	$0.7	$8.7	$18.7	$24.4	$24.7	$23.2	$32.1	$29.0	$36.9	$45.0	$73.1	$162.4
	FY 2019	$1.4	$10.7	$20.0	$21.2	$23.1	$24.4	$28.3	$30.1	$36.0	-	-	-	$195.4
	Change	$0.6	$10.0	$11.2	$2.5	($1.3)	($0.2)	$5.2	($2.0)	$7.0	-	-	-	$33.0
	% Change	67.7%	1452.8%	128.1%	13.4%	-5.3%	-0.9%	22.3%	-6.2%	24.3%	-	-	-	20.3%
Racino Wagering	FY 2018	$0.3	$11.5	$8.2	$7.1	$9.7	$8.5	$2.9	$17.7	$8.5	$10.6	$4.1	$25.9	$74.3
	FY 2019	$8.6	$8.5	$9.1	$7.9	$8.6	$8.6	$9.7	$10.7	$11.5	-	-	-	$83.1
	Change	$8.3	($3.0)	$0.9	$0.8	($1.1)	$0.1	$6.8	($7.0)	$3.0	-	-	-	$8.8
	% Change	2759.0%	-26.4%	10.9%	11.6%	-10.9%	1.8%	237.7%	-39.7%	35.2%	-	-	-	11.9%
Cigarette	FY 2018	$20.3	$23.3	$22.1	$21.9	$17.6	$19.8	$20.5	$16.7	$16.7	$21.1	$19.3	$21.3	$179.0
	FY 2019	$20.7	$22.1	$19.9	$20.6	$18.9	$19.9	$17.9	$16.5	$17.6	-	-	-	$174.1
	Change	$0.4	($1.3)	($2.2)	($1.3)	$1.3	$0.1	($2.6)	($0.2)	$0.9	-	-	-	($4.9)
	% Change	2.1%	-5.5%	-9.8%	-5.8%	7.5%	0.5%	-12.9%	-1.3%	5.1%	-	-	-	-2.7%
Insurance	FY 2018	$5.5	$6.8	$45.3	$0.5	$4.8	$45.7	$8.3	$14.5	$8.0	$46.9	($1.7)	$47.0	$139.4
	FY 2019	$0.3	$1.7	$49.4	$0.3	$2.5	$49.6	$9.2	$15.8	$19.5	-	-	-	$148.2
	Change	($5.2)	($5.1)	$4.1	($0.2)	($2.4)	$3.9	$0.9	$1.3	$11.5	-	-	-	$8.8
	% Change	-94.5%	-75.6%	9.0%	-42.8%	-48.8%	8.6%	10.7%	8.7%	144.0%	-	-	-	6.3%
Inheritance	FY 2018	($0.0)	$0.0	$0.0	$0.0	$0.0	$0.1	($0.0)	$0.0	$0.0	$0.0	$0.1	$0.1	$0.2
	FY 2019	($0.0)	$0.0	$0.0	$0.0	$0.0	$0.0	($0.0)	$0.2	$0.0	-	-	-	$0.1
	Change	($0.0)	($0.0)	($0.0)	($0.0)	$0.0	($0.1)	($0.0)	$0.2	($0.0)	-	-	-	($0.0)
	% Change	-355.6%	-87.8%	-45.5%	-89.7%	600.0%	-83.7%	-500.0%	16198.1%	-36.0%	-	-	-	-20.6%
Alcoholic Beverages	FY 2018	$2.0	$1.3	$1.9	$1.5	$1.2	$2.3	$1.2	$1.7	$1.2	$1.7	$1.4	$1.9	$14.3
	FY 2019	$1.7	$1.6	$1.2	$2.3	$1.4	$1.8	$1.6	$1.3	$1.3	-	-	-	$14.1
	Change	($0.3)	$0.2	($0.7)	$0.8	$0.2	($0.5)	$0.4	($0.5)	$0.0	-	-	-	($0.2)
	% Change	-13.0%	16.5%	-36.6%	56.6%	19.1%	-22.3%	37.6%	-26.9%	2.0%	-	-	-	-1.3%
Riverboat Admissions	FY 2018	$2.3	$0.0	$0.0	$2.9	$0.0	$0.0	$2.4	$0.0	$0.0	$2.4	$0.0	$0.0	$7.6
	FY 2019	$2.4	-	$2.5	-	-	$2.3	-	-	$1.3	-	-	-	$8.5
	Change	$0.1	$0.0	$2.5	-	-	$2.3	-	-	$1.3	-	-	-	$6.2
	% Change	5.4%	-	-	-	-	-	-	-	N/A	-	-	-	11.4%
Interest	FY 2018	$9.5	$2.1	$1.8	$3.5	$4.4	$3.0	$2.8	$8.3	$3.0	$5.1	$5.2	$8.5	$38.3
	FY 2019	$11.5	$7.4	$6.6	$8.6	$9.9	$6.6	$6.2	$8.6	$16.9	-	-	-	$82.3
	Change	$2.0	$5.3	$4.8	$5.2	$5.5	$3.6	$3.4	$0.3	$13.9	-	-	-	$44.0
	% Change	21.3%	252.1%	261.8%	149.1%	125.7%	119.2%	124.3%	3.0%	472.2%	-	-	-	114.9%
Motor Vehicle and Commercial Vehicle Excise[2]	FY 2018	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$266.1	$0.0
	FY 2019	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	$0.0	-	$0.0
	Change	-	-	-	-	-	-	-	-	-	-	-	-	N/A
	% Change	-	-	-	-	-	-	-	-	-	-	-	-	N/A
Miscellaneous Revenue[3]	FY 2018	$11.6	$9.1	$8.5	$10.8	$5.3	$25.7	$13.6	$5.0	$5.6	$7.0	$6.3	$66.8	$95.2
	FY 2019	$8.7	$7.0	$8.8	$8.2	$4.3	$24.9	$11.6	$5.5	$6.0	-	-	-	$85.1
	Change	($2.9)	($2.1)	$0.3	($2.6)	($0.9)	($0.9)	($2.0)	$0.5	$0.4	-	-	-	($10.1)
	% Change	-24.7%	-22.6%	3.3%	-23.8%	-18.0%	-3.4%	-14.8%	10.0%	8.0%	-	-	-	-10.6%
Total General Fund	**FY 2018**	**$1,152.5**	**$1,020.8**	**$1,416.7**	**$1,164.7**	**$1,015.0**	**$1,327.3**	**$1,605.0**	**$811.6**	**$1,037.29**	**$2,038.6**	**$1,065.2**	**$1,916.7**	**$10,550.9**
	FY 2019	**$1,172.1**	**$1,059.8**	**$1,607.8**	**$1,158.5**	**$1,048.1**	**$1,473.7**	**$1,491.8**	**$786.4**	**$1,149.3**	**-**	**-**	**-**	**$10,947.5**
	Change	**$19.6**	**$39.0**	**$191.1**	**($6.2)**	**$33.2**	**$146.4**	**($113.2)**	**($25.1)**	**$112.0**	**-**	**-**	**-**	**$396.7**
	% Change	**1.7%**	**3.8%**	**13.5%**	**-0.6%**	**3.3%**	**11.0%**	**-7.1%**	**-3.1%**	**10.8%**	**-**	**-**	**-**	**3.8%**

FY 2019 Report of Quarterly General Fund Revenue Collections
For the month ending
March 31, 2019

All amounts in millions of dollars
Estimates per December 17, 2018 State Revenue Forecast

		FY 2019:Q1	FY 2019:Q2	FY 2019:Q3	FY 2019:Q4	Y-T-D
Sales & Use[1]	Actual	$1,998.6	$1,966.9	$1,930.7	-	$5,896.2
	Estimate	$1,995.7	$1,940.3	$1,960.2	-	$5,896.1
	Difference	$2.9	$26.6	($29.4)		$0.1
	% Difference	0.1%	1.4%	-1.5%		0.0%
Individual AGI	Actual	$1,427.7	$1,239.4	$1,179.3	-	$3,846.4
	Estimate	$1,438.2	$1,247.3	$1,228.7	-	$3,914.2
	Difference	($10.5)	($7.9)	($49.4)		($67.8)
	% Difference	-0.7%	-0.6%	-4.0%		-1.7%
Corporate - AGI, URT, USUT, FIT	Actual	$181.7	$197.8	$34.5	-	$414.1
	Estimate	$165.2	$196.0	$12.1	-	$373.2
	Difference	$16.5	$1.9	$22.4		$40.8
	% Difference	10.0%	1.0%	186.0%		10.9%
Riverboat Wagering	Actual	$32.1	$68.8	$94.5	-	$195.4
	Estimate	$31.1	$66.1	$95.8	-	$193.0
	Difference	$1.0	$2.7	($1.3)		$2.4
	% Difference	3.3%	4.1%	-1.4%		1.2%
Racino Wagering	Actual	$26.1	$25.1	$31.8	-	$83.1
	Estimate	$25.8	$23.5	$30.4	-	$79.7
	Difference	$0.3	$1.6	$1.4		$3.4
	% Difference	1.3%	6.9%	4.6%		4.2%
Other[2]	Actual	$173.4	$182.2	$156.8	-	$512.4
	Estimate	$183.7	$179.8	$121.2	-	$484.6
	Difference	($10.3)	$2.4	$35.6		$27.7
	% Difference	-5.6%	1.4%	29.4%		5.7%
Total General Fund	**Actual**	**$3,839.7**	**$3,680.3**	**$3,427.5**	**-**	**$10,947.5**
	Estimate	**$3,839.7**	**$3,653.0**	**$3,448.3**	**-**	**$10,940.9**
	Difference	**$0.1**	**$27.3**	**($20.8)**		**$6.6**
	% Difference	**0.0%**	**0.7%**	**-0.6%**		**0.1%**

	Q1	Q2	Q3	Q4	Y-T-D
FY 2018	$1,920.4	$1,868.4	$1,895.3	-	$5,684.2
FY 2019	$1,998.6	$1,966.9	$1,930.7	-	$5,896.2
Change	$78.1	$98.5	$35.4		$212.0
% Change	4.1%	5.3%	1.9%		3.7%
FY 2018	$1,342.6	$1,298.5	$1,304.6	-	$3,945.8
FY 2019	$1,427.7	$1,239.4	$1,179.3	-	$3,846.4
Change	$85.1	($59.1)	($125.4)		($99.3)
% Change	6.3%	-4.5%	-9.6%		-2.5%
FY 2018	$123.2	$76.0	$11.1	-	$210.4
FY 2019	$181.7	$197.8	$34.5	-	$414.1
Change	$58.5	$121.8	$23.4		$203.7
% Change	47.4%	160.2%	210.1%	-	96.8%
FY 2018	$10.3	$67.8	$84.2	-	$162.4
FY 2019	$32.1	$68.8	$94.5	-	$195.4
Change	$21.8	$1.0	$10.2		$33.0
% Change	212.0%	1.5%	12.1%		20.3%
FY 2018	$20.0	$25.2	$29.0	-	$74.3
FY 2019	$26.1	$25.1	$31.8	-	$83.1
Change	$6.1	($0.1)	$2.8		$8.8
% Change	30.7%	-0.3%	9.5%		11.9%
FY 2018	$173.4	$171.0	$129.5	-	$473.9
FY 2019	$173.4	$182.2	$156.8	-	$512.4
Change	$0.0	$11.2	$27.2		$38.5
% Change	0.0%	6.6%	21.0%		8.1%
FY 2018	**$3,590.0**	**$3,507.0**	**$3,453.9**	**-**	**$10,550.9**
FY 2019	**$3,839.7**	**$3,680.3**	**$3,427.5**	**-**	**$10,947.5**
Change	**$249.7**	**$173.3**	**($26.3)**		**$396.7**
% Change	**7.0%**	**4.9%**	**-0.8%**		**3.8%**

FY 2019 Report of Monthly General Fund Revenue Collections
Notes to the Report
For the month ending
March 31, 2019

All amounts in millions of dollars

1. HEA 1001-2016 changed the allocation of sales tax revenue. Sales tax net of Gasoline Use Tax is allocated to the General Fund at 99.838%, Industrial Rail at 0.031%, and Commuter Rail at 0.131%. Gasoline use tax is allocated to the General Fund at 64.285%, the Motor Vehicle Highway Fund at 14.286% and the Local Road and Bridge Matching Grant Fund at 21.429%.

   Year-to-date Sales and Use Tax comprises the following.

Sales Tax - General Fund	$	5,896.2
Sales Tax - Motor Vehicle Highway Account	$	48.5
Sales Tax - Industrial Rail	$	1.8
Sales Tax - Commuter Rail	$	7.5
Sales Tax - Local Road and Bridge Matching	$	72.8
Total	$	6,026.7

2. Year-to-date revenues of motor vehicle excise taxes and commercial vehicle excise taxes under HEA 1001-2008 totaled $142.3M. Due to the difficulty of determining the timing of these revenues, they are deposited in a separate fund and will be reported as revenue in June 2019.

3. HEA 1545-2013 authorized the collection of an income tax check-off to be used in funding public education for kindergarten through grade 12. The k-12 check-off became effective for the tax year beginning January 1, 2015. Year-to-date collections for the k-12 check-off total $72,953.63 and are included in Miscellaneous Revenue.

4. The monthly revenue estimates for the budget plan are based on the April 12, 2017 revenue forecast adjusted for the impact of legislative actions taken by the General Assembly in 2017.

SUMMARY OF REVENUE FORECAST BY MODEL: SALES TAX, INDIVIDUAL INCOME TAX AND CORPORATE TAXES

STAX - Dec 2018 Model

As of:	Since Dec. 2018, includes updated remote sales adjustments to reflect 9/12 months collected in FY19 and higher starting compliance than originally estimated in Dec. 2018
2018	

Model Starts	1997
Model Ends	2018
Time	Fiscal Year
LOG?	Yes

Include Adjustment?
Yes

								PROPOSED FORECAST				ACTUALS*		GF Forecast Error		LAST PASSED FORECAST				
Fiscal Year	Sales Net of GUT Base	% to GF	% Tax	Sales Tax	Adjustments	Sales Net of GUT Tax (excl. Remote Sales)	Remote Sales (Wayfair)	Adjusted Sales Net of GUT Tax	GUT	Sales & Use Taxes	YoY Growth	Sales Net of GUT Tax Actuals	Sales Tax Actuals	Sales Net of GUT $ vs Actuals	Sales Net of GUT % of Actuals	Sales Net of GUT Tax (excl. Remote Sales)	Remote Sales (Wayfair)	GUT	Sales & Use Taxes	$ vs Actuals
2017	102,337.82	99.84%	7.00%	7,152.04	(83.38)	7,235.42		7,235.42	333.09	7,568.51		7,170.07	7,503.16	65.35	0.91%	7,201.55		333.90	7,535.46	
2018	104,539.01	99.84%	7.00%	7,305.88	(94.10)	7,399.98		7,399.98	304.93	7,704.91	1.80%	7,371.76	7,674.49	28.22	0.38%	7,349.31		305.94	7,655.25	(22.45)
2019	105,711.31	99.84%	7.00%	7,387.80	(100.28)	7,488.08	54.23	7,542.31	304.02	7,846.34	1.84%					7,562.58	34.21	324.97	7,921.76	
2020	108,798.48	99.84%	7.00%	7,603.56	(108.73)	7,712.28	84.38	7,796.67	263.76	8,060.43	2.73%					7,774.74	73.51	267.41	8,115.66	
2021	112,351.27	99.84%	7.00%	7,851.85	(117.83)	7,969.68	87.76	8,057.44	203.77	8,261.20	2.49%					7,965.87	76.45	210.40	8,252.72	
2022	115,255.11	99.84%	7.00%	8,054.79	(127.63)	8,182.42	91.27	8,273.69	160.27	8,433.96	2.09%					8,189.10	79.50	156.23	8,424.83	
2023	118,218.19	99.84%	7.00%	8,261.87	(137.41)	8,399.27	94.92	8,494.19	109.94	8,604.13	2.02%					8,425.52	82.68	111.75	8,619.96	

GUT - Dec 2018 Model

As of:	Since Dec. 2018, Use tax rates have come in lower than expected during Q4 2018 and Q1 2019 (lower gasoline prices)
2018	

Model Starts	1998
Model Ends	2018
Time	FY
LOG?	Yes

Include Adjustment?
Yes

						PROPOSED FORECAST				ACTUALS*		GF Forecast Error		LAST PASSED FORECAST			
Fiscal Year	GUT Base	% to GF	Tax Rate	GUT	Adjustments	Adjusted Sales Net of GUT Tax	GUT	Sales & Use Taxes	YoY Growth	GUT Actuals	Sales & Use Tax Actuals	$ vs Actuals	% of Actuals	Adjusted Sales Net of GUT Tax	GUT	Sales & Use Taxes	$ vs Actuals
2017	3,151.06	85.714%	12.33%	333.09	-	7,235.42	333.09	7,568.51		331.08	7,501.15	2.01	0.61%	7,201.55	333.90	7,535.46	
2018	3,153.72	71.428%	13.54%	304.93	-	7,399.98	304.93	7,704.91	1.80%	302.72	7,662.55	2.21	0.73%	7,349.31	305.94	7,655.25	3.21
2019	3,152.88	64.285%	15.00%	304.02	-	7,542.31	304.02	7,846.34	1.84%					7,596.79	324.97	7,921.76	
2020	3,154.46	53.575%	15.61%	263.76	-	7,796.67	263.76	8,060.43	2.73%					7,848.25	267.41	8,115.66	
2021	3,152.25	42.865%	15.08%	203.77	-	8,057.44	203.77	8,261.20	2.49%					8,042.32	210.40	8,252.72	
2022	3,129.95	32.155%	15.92%	160.27	-	8,273.69	160.27	8,433.96	2.09%					8,268.60	156.23	8,424.83	
2023	3,122.51	21.445%	16.42%	109.94	-	8,494.19	109.94	8,604.13	2.02%					8,508.20	111.75	8,619.96	

Corp AGI - Dec 2018 Model

As of:	Since Dec. 2018 Forecast, includes adjustments to IT-6WTH forecast for shift from 90/10 rule to 65/35 rule effective April 2019
2018	

** Refunds Forecast is based on historical average as % (25.72%) of Payments.

* IT-6WTH Forecast is based on estimate for FY2019 based on December FYYTD Transfers. The same number is used in Withholding Forecast

Model Starts	2006
Model Ends	2018
Time	Fiscal Year
Form	LOG

Include Adjustment?
Yes

								PROPOSED FORECAST							ACTUALS*		GF Forecast Error			
Fiscal Year	COR Before IT-6WTH and Refunds Base ("Payments" Base)	% to GF	% Tax (Blended Tax Rate)	FY18 Legislative Acts	Adjustments (Incl Credits)	COR Before IT-6WTH and Refunds ("Payments")	IT-6WTH from COR to WH* (65/35 Rule)*	Corporate Refunds **	Net COR Tax	Net COR YoY Growth	COR Before IT-6WTH and Refunds YoY Growth	URT	USUT	FIT	Total Corporate Taxes	YoY Growth	Net COR Tax	Total Corporate Taxes	Net COR tax $ vs Actuals	Total Corporate $ vs Actuals	Total Corporate $ vs Actuals
2017	16,638.35	100%	6.1190%		11.88	1,029.97	(119.39)	(191.19)	719.40			185.09	8.53	54.20	967.21		730.92	978.73	-1.58%	-1.18%	(11.52)	(11.52)	(12.24)
2018	16,950.00	100%	5.8945%	(5.21)	11.88	1,005.78	(306.93)	(299.51)	399.34	-44.49%		195.20	6.94	67.60	669.08	-30.82%	390.63	660.37	2.23%	1.32%	8.70	8.70	(1.72)
2019	18,742.96	100%	5.6493%	8.88	(25.12)	1,042.61	(191.84)	(268.13)	582.63	45.90%	3.66%	214.70	10.12	63.61	871.07	30.19%	-						
2020	19,827.73	100%	5.3980%	30.75	(55.12)	1,045.93	(192.31)	(268.99)	584.63	0.34%	0.32%	194.70	10.12	61.47	850.93	-2.31%	-						
2021	20,662.92	100%	5.1185%	30.75	(65.12)	1,023.26	(188.02)	(263.16)	572.08	-2.15%	-2.17%	194.23	10.12	57.91	834.35	-1.95%	-						
2022	21,136.38	100%	4.8952%	31.75	(65.12)	1,001.29	(184.03)	(257.51)	559.75	-2.15%	-2.15%	194.23	10.12	57.91	822.02	-1.48%	-						
2023	24,674.74	100%	4.8952%	32.75	(65.12)	1,175.50	(215.21)	(302.31)	657.98	17.55%	17.40%	194.23	10.12	57.91	920.25	11.95%	-						

Withholding - Dec 2018 Model

As of:	Since Dec. 2018 Forecast, adjustments include: Impact of Federal TCJA allocated to 'Individual AGI' instead of Withholding, updated IT-6WTH forecast based on 65/35 rule effective April 2019, and updated LIT rate
2018	

* IT-6WTH Forecast is based on % of CTAX Payments in 2018, adjusted based on December FY YTD data. The same number is used in CTAX Forecast

* LIT Forecast for Following Year based on Latest Ratio of LIT Rate and State Income Rate

Model Starts	1998
Model Ends	2018
Time	Fiscal Year
Form	LN

Include Adjustment?
Yes

								PROPOSED FORECAST								ACTUALS*		GF Forecast Error				LAST PASSED FORECAST			
Fiscal Year	WH Base Before IT-6WTH and LIT Transfer	% to GF	% Tax	FY18 Legislative Acts	WH Tax Before IT-6WTH and LIT Transfer	IT-6WTH	WH Base Before LIT Transfer	Gross WH Tax Before LIT Transfer	Gross Individual AGI Tax Before LIT Transfer	Individual Income Taxes Before LIT Transfer	YoY Growth	State LIT Rate	LIT Transfer	Net Individual Income Taxes	Net ITAX Base	WH Tax Actuals	Net Individual Income Tax Actuals	WH $ vs Actuals	WH % vs Actuals	NET Individual Income Taxes $ vs Actuals	NET Individual Income Taxes % vs Actuals	Gross WH Tax Before LIT Transfer	Gross Individual AGI Tax Before LIT Transfer	Net Individual Income Taxes	WH $ vs Actuals
2017	144,897.72	100%	4.7142%		6,830.80	119.39	147,430.17	6,950.19	941.35	7,891.54		1.44%	2,372.48	5,519.06	168,735.62	6,916.68	5,435.29	33.51	0.48%	83.77	1.54%	6,945.62	942.46	5,515.60	28.94
2018	152,420.12	100%	4.7329%		7,213.84	306.93	158,905.23	7,520.77	997.12	8,517.89	7.94%	1.50%	2,637.02	5,880.87	182,070.29	7,497.55	5,816.07	23.22	0.31%	64.80	1.11%	7,509.99	970.64	5,843.61	12.44
2019	158,688.11	100%	4.7714%		7,571.68	191.84	162,708.82	7,763.52	1,037.66	8,801.19	3.33%	1.54%	2,843.25	5,957.94	184,456.28							7,802.34	1,012.26	6,036.99	
2020	164,360.58	100%	4.7821%		7,859.83	192.31	168,382.08	8,052.14	1,088.65	9,140.79	3.86%	1.55%	2,966.73	6,174.06	191,147.37							8,098.15	1,040.93	6,248.96	
2021	169,798.01	100%	4.7821%		8,119.85	188.02	173,729.80	8,307.87	1,137.70	9,445.57	3.33%	1.55%	3,065.65	6,379.92	197,520.71							8,386.58	1,073.02	6,468.12	
2022	175,953.87	100%	4.7821%		8,414.23	184.03	179,802.20	8,598.26	1,176.44	9,774.69	3.48%	1.55%	3,172.47	6,602.22	204,403.21							8,688.81	1,113.60	6,702.52	
2023	182,641.11	100%	4.7821%		8,734.01	215.21	187,141.41	8,949.22	1,193.35	10,142.57	3.76%	1.55%	3,291.87	6,850.70	212,096.04							9,057.91	1,149.79	6,979.64	

Individual AGI (Estimated Payments & Others) - Dec 2018 Model

As of:	From Dec. 2018 Forecast, adjustments include: Impact of Federal TCJA allocated to 'Individual AGI' instead of Withholding, updated IT-6WTH forecast based on 65/35 rule effective April 2019, and updated LIT rate
2018	

*Refunds as % of WH and Individual AGI (Before Refunds and LIT Transfer)

* LIT Forecast for Following Year based on Latest Ratio of LIT Rate and State Income Rate

Model Starts	1998
Model Ends	2018
Time	Fiscal Year
Form	LN

Include Adjustment?
Yes

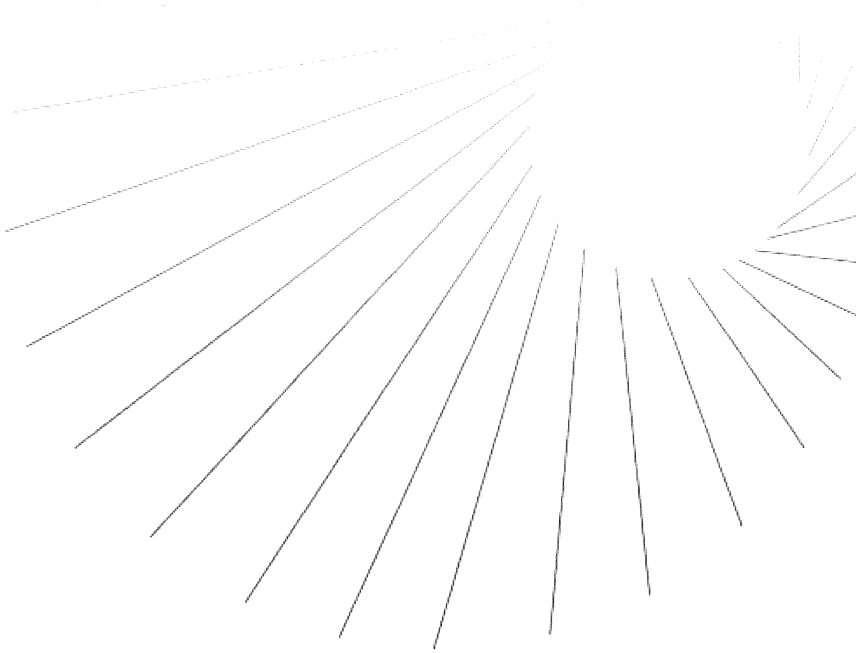
							PROPOSED FORECAST									ACTUALS*		GF Forecast Error					
Fiscal Year	Base Individual AGI Before Refunds & LIT Transfer	% to GF	% Tax	FY 18 Legislative Acts	Individual AGI Tax Before Refunds & LIT Transfer ("Payments")	Refunds (as % of Payments)	Gross Individual AGI Tax Before LIT Transfer	Gross WH Tax Before LIT Transfer	Individual Income Taxes Before LIT Transfer	YoY Growth	State LIT Rate	LIT Transfer	Net Individual Income Taxes	Net ITAX Base	Net Individual AGI Tax (After LIT Transfer)	Individual AGI Tax Actuals	Net Individual Income Tax Actuals	Individual AGI $ vs Actuals	Individual AGI % of Actuals	NET Individual Income Taxes $ vs Actuals	NET Individual Income Taxes % vs Actuals	Gross WH Tax Before LIT Transfer	Individual Income Taxes Before LIT Transfer	$ vs Actuals
2017	53,819.78	100%	3.2708%		1,760.36	(819.00)	941.35	6,950.19	7,891.54		1.44%	2,372.48	5,519.06	168,735.62	(1,431.13)	(1,456.07)	5,435.29	24.95	-1.71%	83.77	1.54%	6,876.13	7,807.78	
2018	56,995.78	100%	3.2300%	28.89	1,869.86	(872.74)	997.12	7,520.77	8,517.89	7.94%	1.50%	2,637.02	5,880.87	182,070.29	(1,639.90)	(1,659.65)	5,816.07	19.75	-1.19%	64.80	1.11%	7,315.92	8,324.08		
2019	58,560.92	100%	3.2300%	46.51	1,938.03	(900.37)	1,037.66	7,763.52	8,801.19	3.33%	1.54%	2,843.25	5,957.94	184,456.28	(1,805.58)							7,665.42	8,693.58		
2020	61,037.27	100%	3.2300%	52.26	2,023.76	(935.11)	1,088.65	8,052.14	9,140.79	3.86%	1.55%	2,966.73	6,174.06	191,147.37	(1,878.08)							7,988.37	9,030.08		
2021	63,620.97	100%	3.2300%	49.03	2,103.99	(966.29)	1,137.70	8,307.87	9,445.57	3.33%	1.55%	3,065.65	6,379.92	197,520.71	(1,927.95)							8,342.50	9,408.37		
2022	65,916.67	100%	3.2300%	47.29	2,176.39	(999.96)	1,176.44	8,598.26	9,774.69	3.48%	1.55%	3,172.47	6,602.22	204,403.21	(1,996.03)							8,696.17	9,790.62		
2023	67,605.37	100%	3.2300%	47.29	2,230.94	(1,037.59)	1,193.35	8,949.22	10,142.57	3.76%	1.55%	3,291.87	6,850.70	212,096.04	(2,098.52)										

MACROECONOMIC ADVISERS
By IHS Markit

IHS Markit

Executive Summary: US Economic Outlook

April 2019



MACROECONOMIC ADVISERS
By IHS Markit

Forecast Overview

April 2019
US Executive Summary

US growth slowing to "trend"

- US economic growth is slowing to trend, roughly 2%. As underlying demand growth flags, lower rates are needed to support even this pace. The Fed's signaling of a pause helped the recovery in equities and lowered term yields.[1]
- Investor concerns over rising risks of a downturn after 2019, stoked by developments abroad, resulted in sharply worsening financial conditions in late 2018, despite prospects for solid trend-like growth in the US in 2019. Helped by a more dovish-sounding Fed, a recovery in financial conditions is now supporting GDP growth near trend.
- The domestic economy ended 2018 on a solid note, with expenditures by private domestic purchasers (excluding inventory building) rising at a downwardly revised, but still solid 2.6% annualized pace in the fourth quarter. Consistent with the expected slowing in the overall economy, this spending growth is expected to fall to 2.1% in 2019.
- The unemployment rate is expected to reach a cycle low of 3.5% this summer, where it will linger before starting a gradual rise once GDP growth drops below trend. Globally slowing growth, soft commodity prices, and steady inflation expectations are keeping inflation in check.
- Risks of a downturn rise as the US transitions from above-trend growth in 2018-19 to below-trend growth in 2020.

US GDP growth slowed at the end of 2018 and in the first quarter of 2019 to near trend of about 2%.

- Growth slipped in the fourth quarter of 2018 to 2.2%, from a robust 3.8% growth averaged over the middle two quarters of the year. The government shutdown pulled growth lower by 0.1 percentage point.
- Consumer spending growth was solid at 2.5%, but that masked an unexpectedly weak December.
- Non-residential investment, which had slowed sharply in the third quarter following a strong first half in 2018, rebounded to grow at a respectable 5.4% pace.
- Net exports, which had declined sharply in the third quarter as impending tariffs seemed to boost imports and stall exports, declined much less in the fourth quarter than had been expected. Import growth fell back to a 2.0% pace and exports, which declined in the third quarter, turned up to rise at a 1.8% rate.

US growth to slow in 2019 to trend-like 2%.

- Contributing to a material slowing in GDP growth are slowing global growth, slightly higher interest rates and less boost from rising stock prices, the effects of recent tariffs, a turn from inventory building to shedding, and the approach to capacity constraints.
- Of note, a rising pace of inventory accumulation contributed 0.4 percentage point to growth last year and is expected to subtract 0.1 point this year, accounting for 1/2 percentage point of the one-point slowing in growth we now project.
- The slowing is expected to be broad-based, with softening growth also seen across consumer spending and business investment. Housing remains flat.
- The unemployment rate is projected to decline to 3.5% this summer before starting to drift up in 2020.

Inflation to remain in check near 2% thanks to slowing global growth, soft commodity prices and steady inflation expectations.

- Falling oil prices late last year, and a slowing in import price inflation, as the dollar rose sharply over the year, helped to hold inflation in check in 2018.
- Those same developments will help to subdue headline inflation early in 2019, although we expect core inflation (PCE basis) to move up materially over the year, to 2.2% by the fourth quarter.[2]
- If trade talks falter and the US goes ahead with the proposed jump in tariff rates, inflation could temporarily prove a few tenths stronger than forecast here.
- Inflation fundamentals are still expected to push consumer price inflation to 2.2% on a sustained basis by 2022.

Fed policy: One and done!

- We now expect the Fed to implement one more fed funds rate hike and wind down balance sheet run-off.
- This would bring the top of the fed funds range to 2.75%, near the longer-run nominal neutral rate.
- The 10-yr T-note yield averaged 3.03% in Q4 2018, before plunging to 2.57% by March. We expect it to reach 2.78% by Q4 2019 and 3.03% by Q4 2020.

Equities to push to record highs this year.

- We view the recent drop in broad equity markets as only partly related to fundamentals.
- We look for an 18.5% gain in the S&P 500 over 2019.

[1] This forecast was completed and issued on 3 April 2019. Unless otherwise noted, all quarterly growth rates are expressed as compound annual rates, all expenditure components of GDP are chained 2012 dollars, and all annual growth rates are stated as Q4 over Q4 percent changes, unless noted.
[2] PCE is the acronym for personal consumption expenditures.

IHS Markit

Two alternative outcomes for the US economy

Broad-based loss of confidence and risk aversion result in a three-quarter recession (30% probability)

In the pessimistic scenario, a broad loss in confidence and growing aversion to risk leads to drops in a wide range of investment and consumer spending categories to end the expansion in its 128th month, a new record. In this simulation, total factor productivity and business fixed investment are weaker than in the baseline. Potential growth as a result is also lower. With demand weak, inflation, as measured by the core consumer price index, is lower from 2020 through the third quarter of 2022.

The economy starts out growing only modestly slower than in the baseline. Yet rising prices have left the real estate market vulnerable, and this market's growth has been slowing. The slowdown turns into a decline, as real -estate prices correct and confidence plunges. The financial sector shows initial strength, with equity values moving in line with the baseline through 2019. However, a growing sense of unease marked by declines in consumer confidence and an inverted yield curve spooks capital markets, resulting in sharp declines in asset values and broad-based declines in business fixed investment. The S&P 500 plummets 9.0% in 2020, not recovering to the baseline levels until 2024.

Negative wealth effects and employment declines lead households to sharply curtail their spending early in 2020. Foreign growth also slows. The result is a three-quarter recession starting in the first quarter of 2020.

Housing starts bottom out in late 2020 some 30% below the baseline before starting to recover, but remain well below the baseline over the rest of the forecast due to a lower household formation rate. Consumer spending growth turns positive in Q3 2020, catching up to baseline growth in early 2023 before outpacing it, while business fixed investment catches up with baseline growth in Q4 2020 before moving above it.

The peak-to-trough decline in real GDP over the course of three quarters is a modest 1.6%. The unemployment rate climbs through 2019 and 2020, peaking at 5.9% in the second quarter of 2021, before declining over the remainder of the forecast. The Fed responds to the recession by lowering interest rates from Q3 2019 through Q3 2020. With interest rates initially so low, it finds its recession-fighting arsenal lacking. With no capacity to use fiscal policy, the end result is a weak recovery and an economy that fails to get fully back on track.

Strong growth of productivity and a less inflation prone economy (10% probability)

Three key assumptions underpin this optimistic scenario: faster productivity growth, a lower nonaccelerating inflation rate of unemployment (4.0% rather than 4.6%), and a higher equilibrium real federal funds rate (1.30% rather than 0.75%). GDP growth is about one percentage point higher than its baseline level over 2019–29, while the unemployment rate declines to 3.4% before beginning a gradual rise to between 4.0% and 4.2% over the long run. Core personal consumption expenditure (PCE) inflation averages 2.1% over the next ten years, and the federal funds rate target range settles at 3.25–3.50%.

Even though the unemployment rate dips to as low as 3.4% in 2020, the lower natural rate of unemployment keeps core PCE inflation marginally below the baseline rate over the next several years. Despite tame inflation, the higher equilibrium federal funds rate assumed in this alternative scenario requires the Fed to raise rates at a faster pace than in the baseline starting in the third quarter of 2019. The federal funds rate settles at 3.25%-3.50%, remaining above its baseline level for the rest of the forecast interval.

Productivity rises at an annual average rate of 2.7% from 2019 to 2029, 1.0 percentage point faster than the baseline, and rebounding from a lackluster post-recession pace that averaged just 0.6% over 2011–16. Wages grow more quickly as a result. With more real income to spend and brighter job prospects in a low-inflation environment, consumers pick up their spending, driving the growth of real personal consumption expenditures to an average annual rate of 3.4% during 2019–21, nearly a full percentage point higher than in the baseline. Thanks to improved finances and higher employment, household formation accelerates. This spurs a sharp rise in housing starts, which peak at 1.45 million, above the 1.35-million high in the baseline.

The rest of the world also experiences stronger economic growth due to faster productivity gains, although to a lesser extent than enjoyed in the United States. Due to stronger global demand, the price of Brent crude oil averages $83/barrel over the forecast horizon, about $8/barrel higher than the baseline. After hovering slightly above its baseline values through 2020, the broad, real trade-weighted dollar depreciates more rapidly relative to the baseline on average over the next few years due to a wider US current account deficit.

MACROECONOMIC ADVISERS
By IHS Markit

US Macro Forecast Snapshot*

	Baseline (60%)	Pessimistic (30%)	Optimistic (10%)
GDP growth	Robust growth of 3.0% in 2018, before slowing to 2.0% in 2019 amid slowing global growth, fading fiscal stimulus, tightening monetary policy, and weaker stock prices	GDP growth is a solid 3.0% in 2018, but slips below baseline in 2019; GDP contracts 1.4% in 2020, with a recession running from the first quarter of 2020 to the third quarter of 2020	Growth hits 3.0% in 2018 and 2.5% in 2019 as productivity picks up; growth remains roughly 1.0 percentage point higher than baseline over forecast interval
Consumer spending	Up a solid 2.6% in 2018 before cooling to 2.0% growth in 2019 thanks in part to falling gas prices and a lower interest rate path	Rises 2.6% in 2018 and 1.4% in 2019, before slowing to 0.2% growth in 2020 amid a broad-based loss of confidence	Expands 2.6% in 2018 and then increases to 2.7% in 2019 thanks to faster real income growth
Business investment	Growth likely peaked at 7.0% in 2018, and is projected to cool to 3.4% in 2019 as nonfarm business sector output slows	Expands 7.0% in 2018, slows to 2.1% growth in 2019, and then drops 5.0% in 2020 as businesses trim capex in the face of falling demand	Climbs 7.0% in 2018, before cooling to 3.9% growth in 2019
Housing	Gradual improvement, with over 1.3-million starts by late 2021 as mortgage rates begin to stabilize	Housing starts drop below their baseline levels in 2019 and never surpass 1.2 million units thereafter	Young adults form households in greater numbers due to a strengthening economy, resulting in 1.45-million starts by mid-2026
Exports	Rise 4.8% in 2019 and 5.1% in 2020	Increase 2.3% in 2018, then rise 4.8% in 2019 (helped by lower dollar), before slowing to 2.4% growth in 2020	Rise 4.8% in 2019 and 2020
Fiscal policy	Personal tax cuts extended, while entitlement spending will follow current program guidelines	Same assumptions as in baseline	Same assumptions as in baseline
Monetary policy	Federal Reserve hikes the federal funds rate once in 2019, bringing the upper end of the target range to 2.75%	Fed lowers the federal funds rate from third-quarter 2019 to the third quarter of 2020	The federal funds rate eventually settles to 3.25-3.50%, 0.50-0.75 percentage point higher than the baseline
Credit conditions	Gradually easing	Lending standards remain high	Rapidly easing
Productivity growth	Averages 1.4% from 2019 through 2022	Averages 0.4% during 2019–22, 1.0 percentage point below the baseline	Averages 2.2% during 2019–22, 0.8 percentage point above the baseline
Consumer confidence	Drops in the first quarter of 2019 due to the partial government shutdown, bounces back to a peak in the second quarter of 2020	Drops from second quarter 2019 to a low in fourth quarter 2020; recovers steadily thereafter but remains below baseline throughout forecast interval	Outperforms baseline over the entire forecast interval
Oil prices (Dollars/barrel)	Brent crude oil averages $71 in 2019 and $66 in 2020	Modestly lower than the baseline over the forecast interval starting in the fourth quarter of 2019	Modestly higher than the baseline over the forecast interval
Stock markets	The S&P 500 recovers some of its recent losses, gaining 18.5% over 2019 (Dec. over Dec.)	The S&P 500 increases by 15.8% in 2019 before declining 9.0% in 2020 (Dec. over Dec.)	The S&P 500 climbs 18.9% in 2019 and 6.0% in 2020 (Dec. over Dec.)
Inflation (PCE)	Core personal consumption price (PCE) inflation rises 2.0% in 2019, then grows at 2.2% in 2020 and 2021	Core PCE inflation falls below baseline levels and remain there throughout the forecast	Core PCE inflation is lower than the baseline from early 2019 to 2027 due to the lower natural rate of unemployment
Foreign growth	In 2019, Eurozone growth cools to 1.2%, while China's growth eases to 6.2%	Foreign growth slows during US recession period	Foreign growth improves thanks to a rebound in productivity growth
US dollar	The real dollar holds steady until 2022 before slowly depreciating through the end of the forecast	Depreciates quickly over recession period due to falling US rates	Eventually depreciates further than baseline due to wider comparative current account deficit

*Annual percent changes are fourth-quarter over fourth-quarter

IHS Markit

State Analysis - Indiana

10 Apr 2019 - US Regional | Profile

Automotive, tech sectors remain bright spots for Indiana

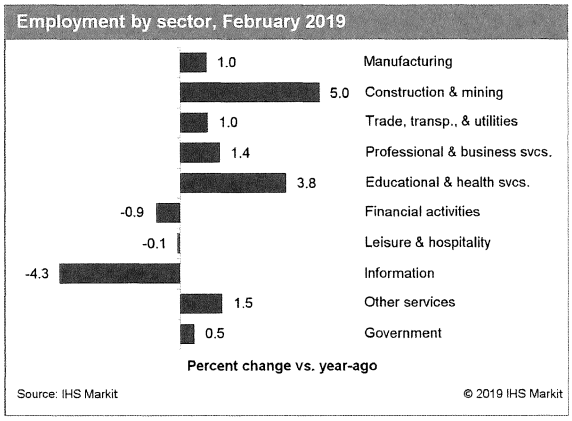
Analysis

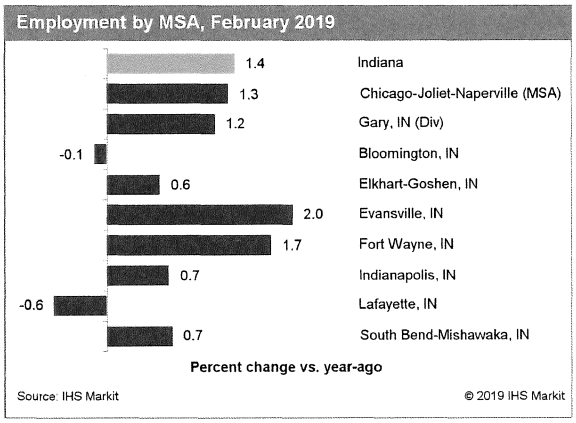
At a glance

Indiana's payroll growth has been rather sluggish for most of 2018, leaving total employment 1.2% above the year-earlier level as of October. The construction sector emerged as the big job-provider this year, after years of falling short of expectations. Gains are coming from residential, commercial, and infrastructure projects. The retail sector also is gradually recovering from a couple of years of no gains, as the industry continues to adapt to new technology and shopping patterns. The transportation and warehousing sector also is posting solid gains, as shipping demand remains hot due to the strong economy. the information sector is leveling off after three years of steady losses. Many of the sector's job declines have occurred in publishing and telecommunications.

Total payrolls are virtually unchanged in the state's manufacturing sector over the past year after several years of robust growth, especially in the vehicle sector. In Indiana, the vehicle sector includes a large presence of pickup trucks and SUVs, along with a large share of the recreational vehicle market. The state's lack of recent gains likely reflects the fact that many auto companies are contemplating their next moves at a time of flattening demand for vehicles after a multi-year winning streak. Automakers are shifting production capacity away from cars toward more pickup trucks and SUVs, and spending ever more on new technologies related to connectivity and autonomous driving. Automakers have not made major investments in the state in this area. Gasoline prices have been decreasing after a period of gains, reflecting a Trump administration priority of keeping oil and fuel prices low.

Indiana's unemployment rate has settled in the 3.5% range after dropping into the low-3% range in the spring. A jobless rate this low can be viewed as a sign of a vibrant economy, but also may portend a difficult environment for further growth if employers have too much trouble adding staff. Rates of labor-force participation remain relatively low, which means that there are still plenty of people in the state not working, but it is less clear how many are able and willing to fill available positions.

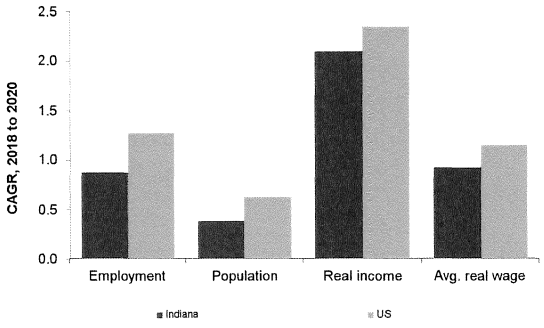




Issues to watch

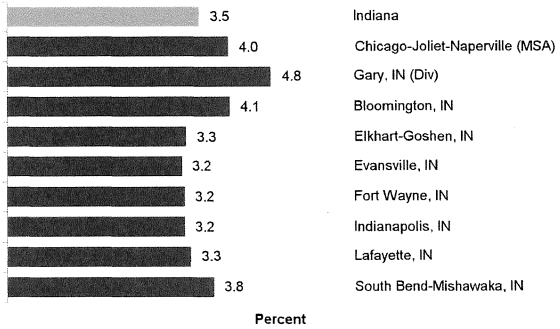
- Infosys plans to locate a technology hub in Indianapolis. The company has reportedly reached an agreement to build its US education center at the site of the old airport, which is near the current Indianapolis International Airport. That site would certainly prove for the potential travel needs for the facility. The center could provide up to 3,000 jobs upon completion, up from earlier estimates of 2,000 jobs when it appeared that the company would locate closer to downtown. The state and city reportedly offered up to $100 million in incentives for the project.
- U.S. Steel plans to invest $750 million to upgrade its steel plant in Gary. The facility, which has been in operation for 110 years, is the company's largest plant and currently employs 3,800. The investment, which was announced in August, was in response to the Trump administration's imposition of 25% tariffs on steel imports. No new hires are expected as a result of this decision.
- Eli Lilly and Co. is remodeling more than 350,000 square feet of space at its Technology Center North Campus in Indianapolis. The project will provide labs and offices as part of the company's research and development efforts. The company has more than 10,000 employees in the city, accounting for more than one-fourth of its global workforce.
- Solinftech, a Brazilian company that makes digital platforms to aid farm management decisions, is establishing a US headquarters at the Purdue Research Park in West Lafayette. The location provides to Purdue University's resources. The company plans to create up to 334 jobs by 2022.
- Toyota will invest $600 million to expand and modernize its plant in Princeton, which produces the Highlander SUV, Sequoia SUV, and Sienna minivan models. The project, which will begin in the fall of 2019, will add 400 jobs to the plant's payrolls, and increase production capacity for the Highlander by 40,000 vehicles per year.

Relative growth in key indicators



Source: IHS Markit © 2019 IHS Markit

Unemployment rate by MSA, January 2019



Source: IHS Markit © 2019 IHS Markit

Near-term developments

Indiana's payrolls will grow by 0.9% in 2018, down slightly from the 1.0% pace seen in 2017. Gains will ramp up to 1.3% in 2019, as the full stimulative effects of federal tax cuts and government spending become evident. Construction will also post another year of solid gains thanks to increasing activity in homebuilding and commercial activity, while the service sectors continue to post modest gains.

Indiana outlook over the next four quarters

	Baseline scenario			Pessimistic			Optimistic		
	Level	Percent	Rank	Level	Percent	Rank	Level	Percent	Rank
Year-over-year change (2020Q1)									
Employment	+29,812	+0.9	34	-4,432	-0.1	43	+21,164	+0.7	37
Personal income (mil.$)	+13,045	+4.1	33	+9,242	+2.9	39	+15,053	+4.7	35
Real gross state product (mil. 2012$)	+6,229	+1.9	28	+689	+0.2	41	+8,463	+2.5	32
Level (2020Q1)									
Unemployment rate (%)	3.2		34	4.1		31	3.1		34

Indiana outlook over the next four quarters

	Baseline scenario			Pessimistic			Optimistic		
	Level	Percent	Rank	Level	Percent	Rank	Level	Percent	Rank
Housing starts	20,753		21	19,029		21	21,060		21

Source: IHS Markit

Outlook

Changes to the forecast (short term)

Real GSP	Lower
Employment	Unchanged
Personal income	Lower
Unemployment rate	Unchanged
Housing starts	Lower

Source: IHS Markit

Manufacturing job gains slowing, but tech sector doing well

Indiana has benefitted from the resurgence of the US automotive sector, but growth has slowed as sales level off. The state is expected to maintain a prominent place in the manufacturing sector, but the state's economic success depends on continued success in other sectors. The Indianapolis region, in particular, is proving to be attractive to high-tech employers, with Salesforce taking over the Chase Tower on Monument Circle downtown and Infosys planning a large presence near the airport.

The state's payrolls will grow by an average 0.7% annually over the next five years, 0.4 percentage point below the national average for the same period. As with many midwestern states, relatively low population growth limits potential economic growth on both the supply and demand sides. The state's position at the "Crossroads of America" remains a strength in sectors such as transportation and warehousing, which remain critical, even as retail sales methods evolve.

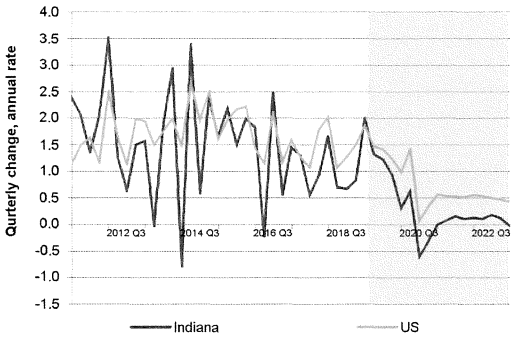
Strengths

- Indianapolis is establishing itself as a magnet for the high-tech sector, with major employers establishing or expanding operations in the city. Job and income growth in that sector should help to support employment in other sectors, as well.
- Indiana's relatively low cost of living and business-friendly legislation and regulatory practices make it an attractive target for firms looking to expand and relocate.

Weaknesses

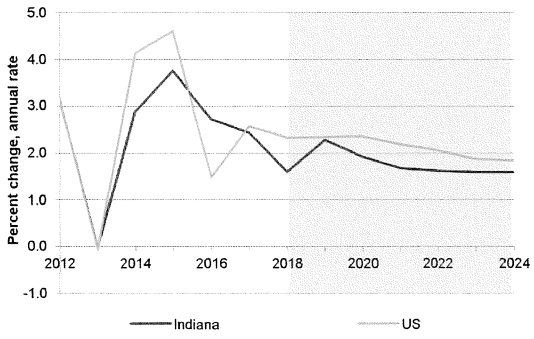
- Indiana's above-average reliance on manufacturing jobs will pose problems in the future, as the long-term forecast for that sector remains muted.

Total employment



Source: IHS Markit Economics & BLS

Real personal income



Source: IHS Markit Economics & BEA

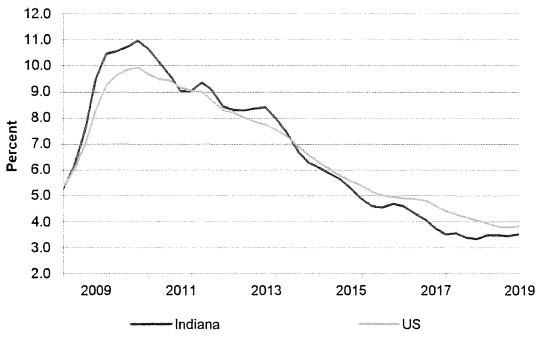
Economic key indicators

	Historical data edge	2015	2016	2017	2018	2019	2020	2021	2022
Real gross state product (mil. 2012 $)	2017	310,158	315,578	321,138	329,741	336,764	341,910	346,385	351,031
Real gross state product (% change)	2017	-0.9	1.7	1.8	2.7	2.1	1.5	1.3	1.3
Total employment (thous.)	2018	3,034	3,078	3,113	3,144	3,183	3,199	3,197	3,201
Total employment (% change)	2018	1.9	1.4	1.1	1.0	1.2	0.5	-0.1	0.1
Manufacturing employment (thous.)	2018	518	523	532	542	548	542	528	520
Nonmanufacturing employment (thous.)	2018	2,517	2,555	2,581	2,602	2,635	2,658	2,669	2,681
Population (thous.)	2018	6,612	6,637	6,664	6,696	6,723	6,747	6,769	6,792
Population (% change)	2018	0.3	0.4	0.4	0.5	0.4	0.3	0.3	0.3
Unemployment rate (%)	2018	4.8	4.4	3.5	3.4	3.2	3.2	3.4	3.6
Personal income (% change)	2017	3.8	3.4	4.1	3.6	4.2	4.0	3.9	3.9
Real gross domestic product (% change)		2.9	1.6	2.2	2.9	2.4	2.1	1.8	1.7
Employment (% change)		2.1	1.8	1.6	1.7	1.7	1.0	0.5	0.5

Source: IHS Markit

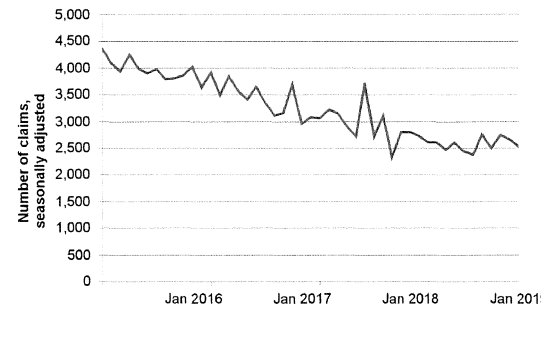
Business climate

Unemployment rate



Source: IHS Markit Economics & BLS

Initial claims for unemployment insurance



Source: IHS Markit Economics & BLS

Jobs Report

Reported	Location	Company	Industry	+/-	Date	Reason
Aug-18	Indianapolis	Charter Communications	Telecommunications	-84	2018Q3	Call center closing
Jul-18	Elkhart	CTS Corp.	Electronics mfg.	-103	2018Q4	Closure
	Mishawaka	Kindred Hospital Northern Indiana	Healthcare svcs.	-117	2018Q4	Closure
	South Bend	Koontz-Wagner Custom Controls	Metal fabrication	-104	2018Q3	Closure
	Crawfordsville	Walmart Optical Lab	Ophthalmic Mfg.	-108	2018Q3	Layoff
May-18	Ripley	Deufol Sunman	Packaging svcs.	-148	2018Q3	Layoff
Mar-18	Various	Bon Ton Stores	Retail	-443	2018Q3	Closure
Feb-18	Indianapolis	Indianapolis Power & Light	Utilities	-100	2018Q2	Layoff
	Indianapolis	Readerlink Distribution Svcs.	Book distribution	-147	2018Q3	Closure
	Greenfield	DHL Supply Chain	Transportation	-511	2018Q2	Layoff
	Jeffersonville	Jeffboat	Ship mfg./repair	-226	2018Q2	Closure
Jan-18	Terre Haute	Sony US	Publishing	-375	2018Q1	Layoff
	Indianapolis	Infosys	Information svcs.	2000		New tech hub
	Indianapolis	Sam's Club	Retail	-309	2018Q1	Layoff
Nov-17	Jeffersonville	Jeffboat	Ship mfg./repair	-278	2017Q4	Layoff
	Mishawaka	SF Motors	Auto mfg.	430		Reopening AM General plant
Jul-17	Mishawaka	AM General	Auto mfg.	-435	2017Q4	Layoff
	Lebanon	XPO Logistics	Transp./warehouse	1160	2018	New facility
	Sunman	Deufol Sunman	Packaging svcs.	-243	2017Q3	Layoff
Jun-17	Plainfield	UPS	Transportation	578	2019	New facility
May-17	Huntington	Continental Structural Plastics	Plastics mfg.	-164	2017Q3	Temp. layoff
	Indianapolis	Carrier	Electrical mfg.	-632	2017Q4	Layoff
	Statewide	Marsh Supermarket	Food retail	-1535	2017Q3	Closure
Apr-17	Tell City	StarTek	Business svcs.	-207	2017Q2	Layoff
	Indianapolis	hhgregg	Corporate office	-268	2017Q2	Closure
Feb-17	Statewide	Corizon Health	Healthcare svcs.	-699	2017Q1	Layoff
	Rensselaer	Saint Joseph's College	Private education	-395	2017Q2	Closure
Jan-17	Huntington	United Technologies Elec. Controls	Electrical mfg.	-738	2017Q1	Layoff
Feb-16	Evansville MSA	Alcoa	Metal mfg.	-600	2016Q2	Layoff
Nov-15	Evansville MSA	Gibson County Coal	Mining	-130	2016Q1	Layoff
Oct-15	Dubois County	United Minerals Company	Mining	-138	2015Q4	Layoff
	New Albany	General Mills	Food mfg.	-343	2016Q3	Closure
	Rockport	CB&I and Webster Construction	Construction	-160	2015Q4	Layoff
	Winchester	Indiana Marujun	Auto parts mfg.	-734	2016Q4	Closure
Sep-15	Fort Wayne	Exelis	Information svcs.	-356	2016Q2	Closure
	Fort Wayne	Triple Crown Services	Transportation	-193	2015Q4	Layoff
Jul-15	Fort Wayne MSA	Parker Hannifin	Electrical mfg.	-150	2016Q2	Closure
Apr-15	Indianapolis	Pure Power Technologies	Vehicle parts mfg.	-192	2015Q4	Closure
Mar-15	Gary	U.S. Steel	Metal mfg.	-323	2015-16	Closure
Feb-15	Bloomington	ModusLink Global Solutions	Electronics mfg.	-320	2015Q2	Layoff
Jan-15	Gary	ArcelorMittal	Metal mfg.	-304	2015Q2	Closure
Jan-15	Gary	U.S. Steel	Metal mfg.	-397	2015Q1	Layoff
May-14	South Bend	Nello Corp	Mfg	639	2023	New facilities
May-14	Tipton (Kokomo MSA)	Chrysler	Mfg	204	2014	Expansion
May-14	Indianapolis	Hc1.com	Health services	175	2019	Expansion
Apr-14	Jasper	Jasper Engine and Transmission Exchange	Mfg	235	2017	Expansion

Jobs Report

Reported	Location	Company	Industry	+/-	Date	Reason
Apr-14	Mooresville (Indianapolis MSA)	TOA	Mfg	220	2015	Expansion

Real estate and construction

Real estate key indicators

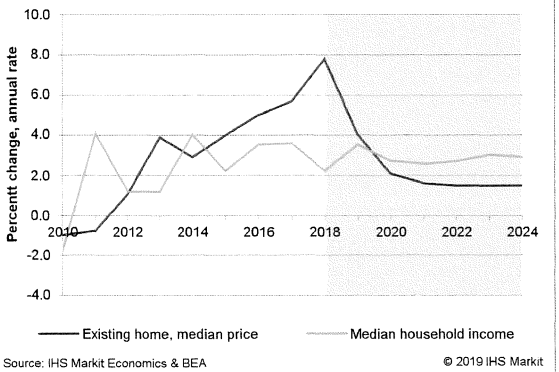
	Historical data edge	2015	2016	2017	2018	2019	2020	2021	2022
Construction activity									
Housing starts, total private	2018	16,405	19,601	20,759	20,431	20,631	20,997	21,509	21,868
Housing starts, total private (% change)	2018	-5.4	19.5	5.9	-1.6	1.0	1.8	2.4	1.7
Single-family units	2018	12,693	15,397	17,232	16,752	17,226	17,701	18,027	18,311
Multifamily units	2018	3,712	4,205	3,527	3,678	3,405	3,296	3,482	3,556
Prices and sales									
Home price, existing average ($)	2018	155,663	160,393	167,525	177,504	183,212	186,897	189,990	192,927
Home price, existing average (% change)	2018	1.4	3.0	4.4	6.0	3.2	2.0	1.7	1.5
Home sales, existing single-family units (thous.)	2018	96.7	101.6	104.2	101.3	102.7	107.5	109.8	110.7
Home sales, existing single-family units (% change)	2018	4.9	5.1	2.5	-2.8	1.4	4.6	2.2	0.8

Source: IHS Markit

Indiana's housing market remains solid, but the pace of housing starts has been unimpressive in the wake of the recession. That is largely due the fact that the state got through the housing bust relatively unscathed, and so had less ground to make up as markets recovered. Housing starts have topped the 20,000 annual rate in assorted months, but have yet to achieve that level for an entire year. Starts are expected to top 20,000 in 2019 and remain above that rate for a few years, as a solid overall economy and increasing household formation among the younger demographic provides steady demand for new housing.

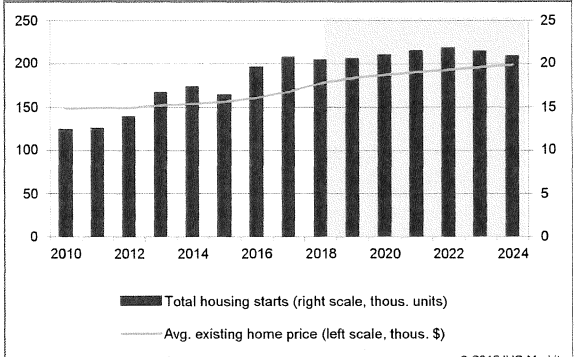
Home prices have been increasing steadily since 2011, but below the national average rate. Again, this is largely thanks to the modest prices declines following the housing bust. The median price of an existing single-family home regained its pre-slump high by 2014, and since then has increased around 5% per year.

Home prices vs. median household income



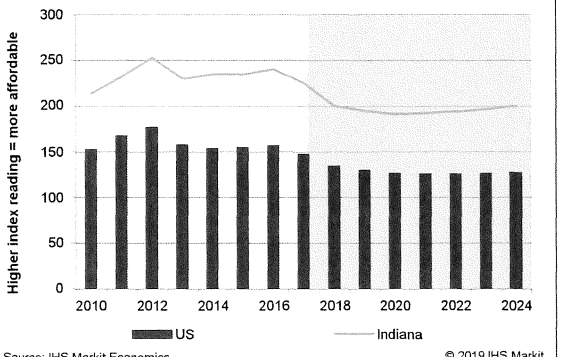
Source: IHS Markit Economics & BEA

Home prices vs. housing starts



Source: IHS Markit Economics & Census Bureau

Housing affordability



Source: IHS Markit Economics

Key mortgage foreclosure statistics for Indiana

	Share of Total Loans	U.S. Average	U.S. Rank
Total loans in foreclosure, end of 2018Q4	1.2%	1.0%	17
Loans in foreclosure, begun during 2018Q4	0.4%	0.3%	8
Conventional loans in foreclosure, end of 2018Q4	1.0%	0.8%	18
FHA loans in foreclosure, end of 2018Q4	1.9%	1.6%	16

Source: Mortgage Bankers Association

Profile

Economic structure

The private services-providing sector, bolstered by gains in professional and business services, transportation and utilities, and education and health services, has become the largest nonfarm employer in Indiana (64.1%), beating out manufacturing (16.6%), which has traditionally dominated the state's economy. Nevertheless, services are still underrepresented, and manufacturing is overrepresented in the state, compared with the country as a whole. The private services-providing sector employs 69.7% nationwide, while the manufacturing share has fallen to 8.9%. Transportation equipment is a huge manufacturing sector, with Subaru, GM, Chrysler, Toyota, and numerous parts suppliers basing significant operations within the state. Indiana also leads the nation in steel production, and its chemical industry includes the pharmaceutical giant Eli Lilly in Indianapolis. Because of the dominance of durable goods production, the state's economy is sensitive to business-cycle fluctuations. In addition to its strong industrial ties, Indiana is among the region's leading finance and insurance centers, appealing to companies seeking refuge from high-cost cities such as Chicago. The state has also attracted a large number of back-office business-service providers. With several major transportation routes, as well as advanced air, shipping, and rail networks, Indiana has become a major trade and distribution center for both industrial and consumer goods. Agriculture is the economic driver in rural Indiana, led by corn and pork production.

Indiana - Employment structure

	2009		2019		2029	
	Share of total	Location quotient (US avg = 100)	Share of total	Location quotient (US avg = 100)	Share of total	Location quotient (US avg = 100)
Construction	4.3%	94	4.7%	96	5.4%	91
Natural Resources and Mining	0.2%	45	0.2%	40	0.2%	39
Manufacturing	15.8%	175	17.1%	202	15.6%	200

Indiana - Employment structure

	2009		2019		2029	
	Share of total	Location quotient (US avg = 100)	Share of total	Location quotient (US avg = 100)	Share of total	Location quotient (US avg = 100)
Durables	10.9%	197	12.5%	234	11.2%	229
Nondurables	4.9%	140	4.6%	146	4.5%	152
Trade, Transportation, and Utilities	**19.6%**	**104**	**19.3%**	**104**	**17.8%**	**105**
Wholesale Trade	4.1%	97	3.8%	96	3.6%	96
Retail Trade	11.0%	99	10.7%	102	9.8%	103
Transportation and Warehousing	3.9%	123	4.3%	118	4.0%	118
Utilities	0.5%	128	0.4%	120	0.3%	121
Information	**1.3%**	**63**	**0.9%**	**49**	**0.9%**	**54**
Financial Activities	**4.7%**	**80**	**4.5%**	**78**	**4.4%**	**80**
Finance and Insurance	3.5%	80	3.3%	79	3.2%	81
Real Estate and Rental and Leasing	1.2%	78	1.2%	77	1.1%	78
Professional and Business Services	**9.4%**	**75**	**11.1%**	**78**	**13.4%**	**82**
Prof., Scientific, and Technical Svcs	3.4%	60	3.8%	61	4.3%	63
Management of Companies	1.0%	71	1.1%	71	1.0%	75
Admin/Support and Waste Mgt	5.0%	91	6.1%	97	8.0%	99
Education and Health	**14.8%**	**99**	**15.2%**	**96**	**15.4%**	**98**
Educational Services	2.4%	104	2.0%	82	1.5%	82
Healthcare and Social Services	12.4%	98	13.2%	98	13.8%	100
Leisure and Hospitality	**9.9%**	**100**	**9.6%**	**87**	**9.5%**	**88**
Arts, Entertainment, and Recreation	1.5%	105	1.3%	85	1.3%	86
Accommodation and Food Services	8.4%	99	8.2%	88	8.2%	88
Other Services	**4.1%**	**102**	**3.9%**	**101**	**3.6%**	**103**
Government	**15.7%**	**91**	**13.6%**	**90**	**13.9%**	**91**
Federal Government	1.4%	65	1.2%	65	1.2%	67
State and Local Government	14.3%	94	12.4%	93	12.7%	94

Source: IHS Markit Economics & BLS

Key employers

The 20 Largest Employers

Indiana

#	Employer	City	Number of Employees
1	Indiana University Indianapolis	Indianapolis	79,260
2	Purdue University W Lafayette	West Lafayette	15,304
3	Delphi Electronics & Safety	Kokomo	8,000
4	Indiana University Bloomington	Bloomington	7,701
5	Peyton Manning Children's Hospital	Indianapolis	7,000
6	St. Vincent Hospital & Health	Indianapolis	7,000
7	Indiana University Purdue University	Indianapolis	6,800
8	Clarian Health Partners Inc	Indianapolis	6,500
9	Eli Lilly & Co	Indianapolis	6,000

Indiana

#	Employer	City	Number of Employees
10	Deaconess Hospital Inc	Evansville	5,000
11	Methodist Hospital	Evansville	5,000
12	US Naval Weapons Support Ctr	Crane	5,000
13	St Francis Hosp & Health Center	Beech Grove	4,700
14	Toyota Motor Mfg Indiana Inc	Princeton	4,494
15	Allison Advanced Dev Co Inc	Indianapolis	4,300
16	Rolls-Royce Corp	Indianapolis	4,200
17	Conseco Life Insurance Co	Carmel	4,001
18	Anthem Blue Cross Blue Shield	Indianapolis	4,000
19	Parkview Health	Fort Wayne	4,000
20	Parkview Hospital-Rehab	Fort Wayne	4,000

Labor force and demographics

According to recently released population estimates from the Census Bureau, Indiana is now the 17th-largest state by population, after being overtaken by Tennessee. The state's population grew by 0.3% from mid-2015 to mid-2016, around half the average growth rate for the nation. Compared with neighboring states, though, Indiana's population growth remains robust. Illinois in particular has actually been losing population in recent years. As is the case with most neighboring states, out-migration from Indiana to other states more than offset in-migration from other countries. Indiana's age distribution is in line with the national average.

Population growth, and its implications for a state's labor supply, is an important factor in long-term economic growth potential. Employers will be reluctant to commit to areas where they are likely to face shortages of labor. From that standpoint, Indiana is doing well relative to its neighbors in the northern and eastern regions of the country, but gradually losing ground to the south and far west.

Age distribution

	Percent of population, 2017		Average annual percent change	
	Indiana	United States	2012-17	2017-22
0-24	33.5	32.0	-0.2	-0.1
25-34	13.0	13.9	0.8	0.1
35-44	12.3	12.5	-0.2	0.4
45-54	12.8	13.0	-1.4	-0.7
55-64	13.1	12.9	1.3	-0.0
65+	15.4	15.6	2.8	2.8

Source: IHS Markit Economics

Population characteristics
(percent of total population, 2017)

	Indiana	United States
High school diploma *	88.6	88.0
Higher education **	35.7	40.5
Foreign-born	5.3	13.7
Non-US citizen	3.2	6.9

Population characteristics (percent of total population, 2017)

	Indiana	United States
Median household income	54,181	60,336

*Population over 25 years of age
** Associate's, Bachelor's, or Advanced Degree
Source: American Community Survey

Indiana's Top-Five Counties By Per Capita Income (2018)

	Income ($)	Encompassing MSA
Hamilton (IN)	72,759	Indianapolis, IN
Boone (IN)	70,535	Indianapolis, IN
Warrick (IN)	54,739	IN Part of Evansville, IN-KY
Floyd (IN)	54,439	IN Part of Louisville, KY-IN
Dubois (IN)	53,555	-

Source: U.S. Bureau of Economic Analysis and IHS Markit Economics

Personal income indicators

	Historical data edge	2015	2016	2017	2018	2019	2020	2021	2022
Per capita personal income (thous. $)	2017	42.3	43.6	45.2	46.6	48.3	50.1	51.9	53.7
Per capita personal income (% change)	2017	3.5	3.0	3.7	3.2	3.7	3.6	3.5	3.5
Average annual wage (thous. $)	2017	45.4	46.0	47.7	48.8	50.1	51.7	53.5	55.5
Average annual wage (% change)	2017	3.0	1.3	3.6	2.4	2.6	3.2	3.5	3.8
Total personal income (mil. $)	2017	279,705	289,164	301,008	311,974	324,949	337,935	351,083	364,769
Total personal income (% change)	2017	3.8	3.4	4.1	3.6	4.2	4.0	3.9	3.9
Wage disbursements (mil. $)	2017	138,693	142,623	149,369	154,523	160,438	166,376	172,164	178,899
Wage disbursements (% change)	2017	4.9	2.8	4.7	3.5	3.8	3.7	3.5	3.9
Other labor income (mil. $)	2017	31,968	34,691	36,182	36,984	38,032	39,519	40,951	42,443
Other labor income (% change)	2017	-2.8	8.5	4.3	2.2	2.8	3.9	3.6	3.6
Dividends, interest & rent (mil. $)	2017	43,863	45,033	47,283	49,253	50,492	53,102	55,763	58,245
Dividends, interest & rent (% change)	2017	6.6	2.7	5.0	4.2	2.5	5.2	5.0	4.5
Transfer payments (mil. $)	2017	54,688	56,027	57,689	60,200	64,045	67,373	70,786	74,314
Transfer payments (% change)	2017	4.6	2.4	3.0	4.4	6.4	5.2	5.1	5.0
Other income (mil. $)	2017	10,493	10,790	10,484	11,014	11,942	11,565	11,420	10,867

Source: IHS Markit

Tax and revenue picture

Indiana revenues exceeded $3.8 billion in the fourth quarter of 2012, an increase of 4.7% from the fourth quarter of 2011. As the economy continues to heal, payrolls expand, and consumer spending increases at accelerated rates, tax collections will continue to climb and the state's budget and capabilities will grow.

State Tax Revenues

Indiana tax revenue

	Latest quarter		Total of latest four quarters			
	Qtr ended September 2018 (thous. $)	Year/year change (percent)	Year ended September 2018 (thous. $)	Year/year change (percent)	Five-year avg. change (percent)	Share of total revenue (percent)
Total Tax Collections (Thousands)	5,494,063	5.3	28,512,509	12.0	11.2	-
General Sales and Gross Receipts	2,048,294	4.8	7,889,831	3.3	2.8	27.7
Individual Income	2,099,372	7.5	8,621,227	7.3	11.9	30.2
Corporate Net Income	207,502	40.1	758,132	-21.8	-0.3	2.7
Motor Fuel Sales	371,711	6.3	1,438,060	49.2	12.3	5.0
Motor Vehicle and Driver's License	135,358	12.2	575,425	5.9	2.1	2.0
Alcoholic Beverage Sales	12,005	-13.8	49,648	1.5	2.1	0.2
Tobacco Product Sales	109,279	-4.5	413,228	-3.2	-2.3	1.4
Other Taxes	510,542	-9.7	8,766,958	28.9	29.5	30.7

Sources: US Census Bureau, IHS Markit Economics

Agriculture

Farming, which has deep roots in Indiana, uses nearly two-thirds of the state's 23 million acres, and is dominated by corn, soybeans, and hog production. The profile of the state's farming community consists of numerous small family farms that are slowly being consolidated into a growing number of larger corporate operations. It is estimated that one-third of Indiana farmland is dedicated to exports.

Indiana Agriculture Snapshot

Top-Five Commodities (2009)	Level (Thous.)	Share
1. Corn	$3,288,401	37.6%
2. Soybeans	$2,515,683	28.7%
3. Hogs	$834,021	9.5%
4. Dairy Products	$449,972	5.1%
5. Chicken Eggs	$353,020	4.0%
Total Commodities	**$8,757,045**	**84.9%**
Top-Five Exports (FY2009 estimates)		
1. Soybeans and Products	$1,405,300	44.8%
2. Feed Grains and Products	$795,100	25.3%
3. Live Animals and Meat	$366,600	11.7%
4. Poultry and Products	$218,800	7.0%
5. Other	$73,600	2.3%
Total Exports	**$3,139,600**	**91.1%**
Top-Five Counties by Sales (2007)		
1. Jasper County	$293,544	3.5%
2. White County	$231,957	2.8%
3. Elkhart County	$205,755	2.5%
4. Dubois County	$200,724	2.4%
5. Jackson County	$196,943	2.4%
Total Sales	**$8,271,291**	**13.6%**

Source: United States Department of Agriculture, June 2011

Energy

Energy Prices

Indiana average electricity prices for quarter ended September 2018

	Price (cents/kWh)	Relative price (US avg. = 1)	State price rank (highest = 1)	Year/year change	Five-year avg. change
Residential	12.1	0.9	25	-1.2	1.7
Industrial	7.2	1.0	22	-4.4	1.2
Commercial	10.4	1.0	18	-1.2	1.6

Source: IHS Markit Economics, EIA

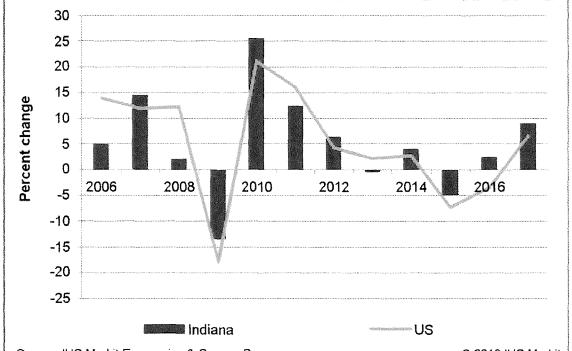
Indiana average natural gas prices for quarter ended September 2018

	Price (dollars/million btu)	Relative price (US avg. = 1)	State price rank (Highest = 1)	Year/year change	Five-year avg. change
Residential	11.0	0.9	36	-4.8	1.2
Industrial	6.3	1.7	15	-5.0	0.2
Commercial	7.9	1.0	33	-5.5	-0.7

Source: IHS Markit Economics, EIA

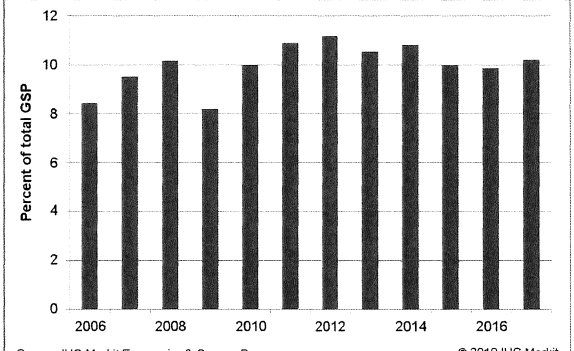
Export performance

Total exports



Source: IHS Markit Economics & Census Bureau

Merchandise exports



Source: IHS Markit Economics & Census Bureau

Indiana's export merchandise value increased by 9.1% in 2015, reaching a total of $37.8 billion, making the state the 12th-largest exporter in the country. Transportation equipment is once again the state's leading export product, followed by chemicals, with machinery a distant third. Indiana's exports are not as diversified by product as those in many other states, with the top three sectors accounting for 66.2% of all exports. This can lead to greater variability in year-to-year

exports than in other states.

Canada and Mexico remained the state's largest export markets, accounting for a combined total of 48.1% of Indiana's exports. China is in third, but posted 19% growth in purchases from Indiana in 2017. Indiana's exports as a percentage of gross state product (GSP) were 10.5% in 2017, compared with 8.0% for the nation.

Indiana's top export product categories in 2018

	Share of total (%)	Value (mil. $)	Change y/y (%)
Transportation equipment	31.5	12,379	7.6
Chemicals	23.0	9,038	-2.8
Machinery	11.5	4,505	9.6
Miscellaneous manufactured commodities	6.6	2,603	6.0
Computer & electronic products	4.5	1,783	-1.2
Electrical equipment	3.4	1,340	6.4
Food manufactures	3.4	1,326	6.7
Primary metal manufacturing	3.0	1,197	-4.9
Fabricated metal products	2.6	1,041	8.9
Plastics & rubber products	2.6	1,033	3.9
Other	7.9	3,094	8.6

Source: Census Bureau

Indiana's largest export destinations in 2018

	Share of total (%)	Value (mil. $)	Change y/y (%)
Canada	33.9	13,338	1.3
Mexico	13.8	5,416	7.0
Japan	5.3	2,066	22.0
China	5.1	2,002	-3.2
Germany	3.9	1,532	-0.9
France	3.6	1,429	-8.2
Italy	3.5	1,381	1.7
United Kingdom	3.1	1,200	3.6
Netherlands	2.6	1,009	-3.5
Australia	2.5	989	3.9
Other	22.8	8,977	4.2

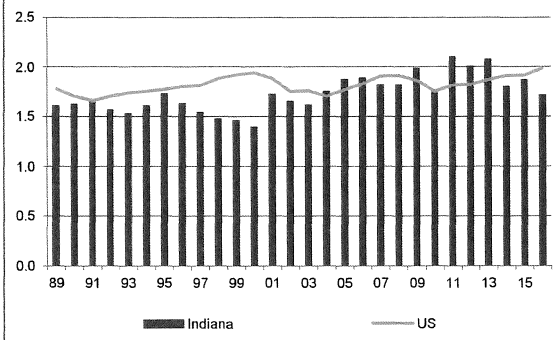
Source: Census Bureau

High tech

R&D spending

Source: IHS Markit, National Science Foundation, BEA

R&D spending as a percentage of GSP



Source: IHS Markit, National Science Foundation, BEA

Indiana: High-tech employment

	Employment level (Total jobs)			Average annual Percent change	
NAICS	2008	2018	2028	2008-18	2018-28
3254 Pharmaceutical & medicine mfg.	19,180	13,403	10,029	-3.5	-2.9
3336 Turbine & power transmission Eq.	11,432	11,305	12,710	-0.1	1.2
3341 Computer & peripheral eq. mfg.	1,149	1,980	1,947	5.6	-0.2
3342 Communications eq. mfg.	2,757	1,209	1,171	-7.9	-0.3
3343 Audio & video eq. mfg.	1,288	246	216	-15.3	-1.3
3344 Semiconductor & comp. mfg.	3,331	3,424	3,554	0.3	0.4
3345 Electronic instrument mfg.	7,626	6,702	6,818	-1.3	0.2
3346 Magnetic media mfg.	2,628	214	127	-22.2	-5.1
3353 Electrical equipment	3,266	4,653	4,353	3.6	-0.7
3363 Motor vehicle parts mfg.	26,673	29,650	26,450	1.1	-1.1
3364 Aerospace product & parts mfg.	8,887	7,502	5,016	-1.7	-3.9
3391 Medical eq. & supplies mfg.	21,993	22,023	20,850	0.0	-0.5
5112 Software publishers	2,138	2,320	3,487	0.8	4.2
5121 Motion picture & video industries	2,802	1,857	2,356	-4.0	2.4
5122 Sound recording industries	192	150	293	-2.4	6.9
5182 Data processing and hosting	3,298	4,123	4,172	2.3	0.1
5413 Architectural, engin. & related svcs.	20,893	21,810	27,559	0.4	2.4
5414 Specialized design services	1,553	2,026	2,579	2.7	2.4
5415 Computer systems design & svcs.	10,973	20,541	24,813	6.5	1.9
5416 Management consulting services	10,601	16,999	18,676	4.8	0.9
5417 Scientific research & dev. svcs.	5,771	7,898	12,671	3.2	4.8
8112 Elec. & precision eq. repair & maint.	2,297	2,832	2,647	2.1	-0.7
State total	**170,728**	**182,867**	**192,494**	**0.7**	**0.5**
US total	**8,692,862**	**9,885,728**	**11,299,254**	**1.3**	**1.3**

Note: 50% of motor vehicle parts is used in the analysis.

Source: US Business Markets Insights, IHS Markit Economics

Manufacturing

Manufacturing detail

	Historical data edge	2015	2016	2017	2018	2019	2020	2021	2022
Manufacturing employment (thous.)	2018	517.7	523.0	531.5	541.9	548.4	541.5	527.8	520.0
Manufacturing employment (% change)	2018	2.3	1.0	1.6	2.0	1.2	-1.2	-2.5	-1.5
Durables manufacturing employment (thous.)	2018	373.1	375.5	381.9	391.8	397.4	390.9	378.2	370.6
Durables manufacturing employment (% change)	2018	2.6	0.6	1.7	2.6	1.4	-1.6	-3.2	-2.0
Nondurables manufacturing employment (thous.)	2018	144.6	147.5	149.6	150.1	151.0	150.6	149.6	149.4
Nondurables manufacturing employment (% change)	2018	1.4	2.0	1.4	0.3	0.6	-0.2	-0.7	-0.1

Source: IHS Markit

Although Indiana's manufacturing employment is down significantly from its peak of more than 670,000 jobs in early 2000, the sector still plays a dominant role in the state's economy. Today, Indiana has nearly 500,000 manufacturing jobs; in other words, factories account for about 16.5% of the state's total nonfarm employment, the highest share in the country. Indiana's cheap and abundant land, low operating costs, central location in the country, business-friendly tax policies, and skilled workforce help attract manufacturers to the state.

Top manufacturing sectors in Indiana

Sector	Number of jobs	Share of total manufacturing
Transportation equipment	115,700	23.6%
Fabricated metals	55,600	11.3%
Primary metals	41,700	8.5%
Machinery	40,400	8.2%
Food	34,400	7.0%

Transportation equipment dominates the manufacturing scene; this sector has been booming in recent years and has helped lead Indiana's manufacturing out of its recessionary slump. Indeed, transportation equipment grew faster than any other manufacturing sector over the past few years and now accounts for the lion's share (nearly 24%) of the state's factory jobs. Within Indiana's transportation equipment sector, its most dynamic subsector is automotive. Indiana enjoys the presence of industry giants such as Delphi, Toyota, Allison Advanced Dev, Rolls Royce, Subaru, and Cummins; each of these plants employs upwards of 3,000 people in Indiana. Additionally, numerous parts suppliers are basing significant operations within the state.

Indiana also leads the nation in steel production, with ArcelorMittal providing 6,000 jobs in the state. Indeed, northwest Indiana, where the ArcelorMittal plant is located, is one of the nation's largest steelmaking areas. Additionally, the state's large chemical industry includes pharmaceutical giants Eli Lilly and Roche Diagnostics in Indianapolis. Indiana is home to the international headquarters of Eli Lilly, the largest manufacturing employer in the state.

Because of the dominance of durable goods production, the state's economy is sensitive to business-cycle fluctuations. During the recession, the manufacturing-heavy metros of northern Indiana were plagued with unemployment rates upwards of 20%. In recent years, the state has been successfully diversifying its economic base with increased presence in back-office business services, finance, and insurance, appealing to companies seeking refuge from high-cost cities such as Chicago.

Analyst Contact Details: Tom Jackson

Variable Changes From December 2018 Forecast

Sales & Use

Sales Net of GUT

		Adjusted Personal Income (Personal Income Less Transfer Pmts Less Proprietors Income) Per Household*					Household financial obligations ratio, FRB					PCE Goods / PCE Services					Rate on existing-home mortgages (ARM and Fixed), percent per annum, Federal Housing Finance Board (FHFB)				
	Fiscal Year	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate
	2019	86.61	3.42%	85.98	2.29%	-1.12%	15.60	1.27%	15.42	0.14%	-1.14%	0.48	-0.90%	0.48	-1.35%	-0.45%	4.37	8.39%	4.37	8.39%	0.00%
	2020	89.87	3.77%	88.89	3.38%	-0.38%	15.92	2.06%	15.69	1.72%	-0.34%	0.47	-1.33%	0.47	-1.51%	-0.18%	4.98	13.88%	4.80	9.81%	-4.07%
	2021	92.78	3.24%	91.67	3.13%	-0.11%	16.00	0.49%	15.77	0.50%	0.02%	0.47	-1.55%	0.46	-1.88%	-0.34%	5.26	5.71%	4.95	3.23%	-2.49%
	2022	95.76	3.21%	94.67	3.27%	0.06%	16.00	0.00%	15.77	0.00%	0.00%	0.46	-1.46%	0.46	-1.21%	0.24%	5.34	1.43%	5.08	2.47%	1.05%
	2023	98.79	3.17%	97.63	3.12%	-0.05%	16.00	-0.01%	15.76	-0.01%	0.00%	0.45	-1.54%	0.45	-1.34%	0.19%	5.32	-0.19%	5.13	1.13%	1.32%

Sales GUT

		Real GSP, Retail Trade (Millions 2012$)*					Demand for petroleum as % of Total demand for all fuels					Summer Gas Price x Fuel Efficiency					Average retail price of motor gasoline, all types, including tax, cents per gallon, BLS**				
	Fiscal Year	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate
	2019	20,375.51	0.92%	20,675.59	2.41%	1.49%	0.37	0.05%	0.37	0.76%	0.71%	6,644.07	19.66%	6,644.07	19.66%	0.00%	285.41	7.94%	274.62	3.86%	-4.08%
	2020	20,409.46	0.17%	20,802.50	0.61%	0.45%	0.37	-0.06%	0.37	-0.44%	-0.37%	7,028.70	5.79%	6,848.98	3.08%	-2.70%	300.33	5.23%	285.22	3.86%	-1.37%
	2021	20,488.41	0.39%	20,952.01	0.72%	0.33%	0.36	-1.16%	0.36	-1.18%	-0.02%	7,347.12	4.53%	6,769.04	-1.17%	-5.70%	297.66	-0.89%	270.12	-5.29%	-4.40%
	2022	20,631.23	0.70%	20,970.36	0.09%	-0.61%	0.36	-1.33%	0.36	-1.36%	-0.04%	7,597.56	3.41%	7,120.79	5.20%	1.79%	306.17	2.86%	282.52	4.59%	1.73%
	2023	20,841.94	1.02%	21,133.79	0.78%	-0.24%	0.36	-0.56%	0.36	-0.58%	-0.02%	7,847.12	3.28%	7,465.91	4.85%	1.56%	309.01	0.93%	290.37	2.78%	1.85%

Individual

Individual Withholding

		Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment*					AR (1)*					Prior Year Births (Thousands)*					Dummy for 2 Five Fridays FY Q4				
	Fiscal Year	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate
	2019	140,328.40	4.33%	138,888.67	3.61%	-0.72%	152,768.05	5.93%	152,768.05	5.93%	0.00%	20.84	0.41%	20.26	-0.58%	-0.99%	1.00	0.00%	1.00	0.00%	0.00%
	2020	146,229.31	4.21%	144,755.19	4.22%	0.02%	159,550.38	4.44%	158,860.54	3.99%	-0.45%	20.94	0.48%	20.37	0.54%	0.06%	-	-100.00%	-	-100.00%	0.00%
	2021	151,612.45	3.68%	149,434.16	3.23%	-0.45%	165,220.13	3.55%	164,387.54	3.48%	-0.07%	21.04	0.48%	20.48	0.56%	0.09%	-	NA	-	NA	NA
	2022	157,336.23	3.78%	154,894.42	3.65%	-0.12%	171,325.22	3.70%	169,788.21	3.29%	-0.41%	21.14	0.46%	20.59	0.51%	0.05%	-	NA	-	NA	NA
	2023	163,379.37	3.84%	160,734.51	3.77%	-0.07%	177,840.35	3.80%	175,931.35	3.62%	-0.18%	21.21	0.35%	20.67	0.40%	0.05%	-	NA	-	NA	NA

Individual AGI

		Dividend payments to Individuals + Personal Interest Income*					Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit Economics*				
	Fiscal Year	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate
	2019	2,808.26	4.25%	2,787.82	3.49%	-0.76%	27,910.00	6.95%	27,034.33	4.11%	-2.83%
	2020	2,957.89	5.33%	2,893.28	3.78%	-1.55%	28,634.25	2.59%	29,587.47	9.44%	6.85%
	2021	3,160.10	6.84%	3,079.82	6.45%	-0.39%	28,662.42	0.10%	30,889.20	4.40%	4.30%
	2022	3,366.46	6.53%	3,265.81	6.04%	-0.49%	29,302.98	2.23%	31,736.74	2.74%	0.51%
	2023	3,561.99	5.81%	3,423.17	4.82%	-0.99%	30,298.47	3.40%	32,042.12	0.96%	-2.44%

Corporate

Corporate AGI

		Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA*					Industrial production index--Transportation equipment, 2012=100, FRB*					Net U.S. international investment position, billions of dollars, end of period, BEA annual data					Tax Rate Change (Prior FY Rate Less Current FY Rate)				
	Fiscal Year	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate	December 2018 Data	December 2018 Growth Rate	Apr 2019 Data	April 2019 Growth Rate	Difference Between April 2019 and December 2018 Growth Rate
	2019	2,257.54	6.59%	2,243.84	5.94%	-0.65%	113.51	1.26%	114.47	1.40%	0.14%	(8,974.70)	-13.12%	(9,309.63)	-16.58%	-3.46%	(0.0025)	0.00%	(0.0025)	0.00%	0.00%
	2020	2,386.29	5.70%	2,332.46	3.95%	-1.75%	117.62	3.62%	116.15	1.47%	-2.15%	(9,557.43)	-6.49%	(9,733.09)	-4.55%	1.94%	(0.0025)	0.00%	(0.0025)	0.00%	0.00%
	2021	2,454.21	2.85%	2,380.47	2.06%	-0.79%	121.58	3.37%	117.48	1.14%	-2.22%	(10,199.84)	-6.72%	(10,380.60)	-6.65%	0.07%	(0.0025)	0.00%	(0.0025)	0.00%	0.00%
	2022	2,518.60	2.62%	2,446.34	2.77%	0.14%	124.33	2.26%	119.63	1.83%	-0.43%	(10,889.05)	-6.76%	(11,090.18)	-6.84%	-0.08%	(0.0035)	-40.00%	(0.0035)	-40.00%	0.00%
	2023	2,589.81	2.83%	2,497.06	2.07%	-0.75%	124.86	0.42%	120.55	0.77%	0.35%	(11,602.32)	-6.55%	(11,884.45)	-7.16%	-0.61%	-	100.00%	-	100.00%	0.00%

* Predictors undergo a natural log transformation in the model
** Not a predictor in the model but important to converting forecasted gallons of gasoline to revenue.

ERROR ANALYSIS

This error analysis is presented to determine how the revenue forecast may change given one predictor data changes while keeping the other predictors constant. Forecasts are calculated using the December 2018 model's coefficients, tax rates and other adjustments.

Sales Net of GUT Variable Error Analysis

Fiscal Year	Adjusted Personal Income (Personal Income Less Transfer Pmts Less Proprietors Income) Per Household	Forecast Difference	Household financial obligations ratio, FRB	Forecast Difference	PCE Goods / PCE Services	Forecast Difference	Prior fiscal year rate on existing home mortages, Federal Housing Finance Board (FHFB)	Forecast Difference	**December 2018 Forecast**
2017	7,234.38	32.83	7,202.59	1.04	7,201.53	(0.02)	7,201.55	(0.00)	**7,201.55**
2018	7,375.47	26.16	7,350.91	1.60	7,349.31	(0.00)	7,349.31	(0.00)	**7,349.31**
2019	7,509.76	(52.81)	7,524.67	(37.91)	7,555.34	(7.24)	7,562.57	(0.00)	**7,562.58**
2020	7,692.93	(81.81)	7,725.54	(49.20)	7,764.42	(10.32)	7,828.63	53.89	**7,774.74**
2021	7,874.30	(91.57)	7,911.65	(54.22)	7,950.49	(15.38)	8,105.78	139.91	**7,965.87**
2022	8,099.79	(89.31)	8,133.86	(55.23)	8,176.50	(12.60)	8,312.45	123.36	**8,189.10**
2023	8,329.56	(95.96)	8,369.04	(56.48)	8,415.29	(10.23)	8,524.62	99.10	**8,425.52**

Gasoline Use Tax Variable Error Analysis

Fiscal Year	Real GSP, Retail Trade (Millions 2012$)	Forecast Difference	Demand for petroleum as % of Total demand for all fuels	Forecast Difference	Summer Gas Price x Fuel Efficiency	Forecast Difference	**December 2018 Forecast**
2017	333.90	-	333.34	(0.57)	333.90	-	**333.90**
2018	305.94	-	305.42	(0.51)	305.94	-	**305.94**
2019	326.11	1.13	324.68	(0.30)	324.97	-	**324.97**
2020	268.63	1.21	267.33	(0.09)	267.72	0.30	**267.41**
2021	211.53	1.12	210.32	(0.09)	211.52	1.12	**210.40**
2022	156.84	0.61	156.14	(0.09)	156.97	0.74	**156.23**
2023	112.12	0.37	111.69	(0.07)	112.23	0.48	**111.75**

Individual Income Withholding Variable Error Analysis

Fiscal Year	Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment	Forecast Difference	Prior Year Births (Thous.)	Forecast Difference	AR (1)	Forecast Difference	**December 2018 Forecast Before LIT Transfer**
2017	6,945.62	-	6,950.19	4.57	6,945.62	-	**6,945.62**
2018	7,489.29	(20.69)	7,530.60	20.62	7,509.99	-	**7,509.99**
2019	7,736.31	(66.03)	7,835.12	32.78	7,794.73	(7.60)	**7,802.34**
2020	8,030.85	(67.30)	8,131.26	33.10	8,090.62	(7.54)	**8,098.15**
2021	8,287.08	(99.50)	8,420.25	33.67	8,378.88	(7.69)	**8,386.58**
2022	8,577.22	(111.58)	8,723.07	34.27	8,675.23	(13.57)	**8,688.81**
2023	8,936.98	(120.94)	9,092.82	34.91	9,041.12	(16.79)	**9,057.91**

Individual Income AGI Variable Error Analysis

Fiscal Year	Dividend payments to Individuals + Personal Interest Income	Forecast Difference	Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit Economics	Forecast Difference	**December 2018 Forecast**
2017	942.46	-	941.35	(1.10)	**942.46**
2018	970.64	-	968.23	(2.41)	**970.64**
2019	1,005.49	(6.77)	996.49	(15.77)	**1,012.26**
2020	1,019.89	(21.04)	1,057.79	16.86	**1,040.93**
2021	1,047.72	(25.30)	1,113.03	40.01	**1,073.02**
2022	1,082.69	(30.91)	1,157.87	44.28	**1,113.60**
2023	1,107.92	(41.87)	1,181.88	32.09	**1,149.79**

Corporate Tax Variable Error Analysis

Fiscal Year	Industrial Production Index, Transportation Equipment (2012 = 100)	Forecast Difference	Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA	Forecast Difference	Net U.S. international investment position, billions of dollars, end of period, BEA annual data	Forecast Difference	**December 2018 Forecast**
2017	719.40	0.72	718.68	-	718.68	-	**718.68**
2018	398.06	9.15	388.91	-	390.18	1.26	**388.91**
2019	516.30	11.31	501.75	(3.24)	533.80	28.81	**504.99**
2020	507.02	(17.51)	511.88	(12.65)	557.45	32.92	**524.53**
2021	482.81	(48.09)	513.67	(17.23)	564.33	33.43	**530.90**
2022	468.90	(52.89)	505.62	(16.16)	554.95	33.17	**521.79**
2023	555.98	(56.16)	588.61	(23.53)	653.13	40.99	**612.14**

Sales Tax Model **April 2019 Forecast**
Summary IHSMarkit = April 2019

Revenue to General Fund ONLY	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Sales Tax Revenue						
Sales Net of GUT Revenue	$ 7,371.76	$ 7,488.08	$ 7,712.28	$ 7,969.68	$ 8,182.42	$ 8,399.27
Sales Net of GUT Remote Sales Revenue	$ -	$ 71.91	$ 99.72	$ 103.71	$ 107.86	$ 112.17
GUT Revenue	$ 302.72	$ 304.02	$ 263.76	$ 203.77	$ 160.27	$ 109.94
Updated Revenue Forecast	$ 7,674.48	$ 7,864.02	$ 8,075.77	$ 8,277.15	$ 8,450.55	$ 8,621.38
Apr 2019 - Dec 2018 $ Change	$ -	$ (57.74)	$ (39.89)	$ 24.43	$ 25.71	$ 1.42
Apr 2019 - Dec 2018 % Change	0.00%	-0.73%	-0.49%	0.30%	0.31%	0.02%
Change in Revenue vs Prior Year						
Sales Net of GUT - % Change	2.81%	1.19%	2.99%	3.34%	2.67%	2.65%
GUT - % Change	-7.90%	0.43%	-13.24%	-22.75%	-21.35%	-31.40%
Total - % Change	2.28%	2.47%	2.69%	2.49%	2.09%	2.02%
December 2018 Forecast						
Sales Net of GUT Revenue	$ 7,371.76	$ 7,562.58	$ 7,774.74	$ 7,965.87	$ 8,189.10	$ 8,425.52
Sales Net of GUT Remote Sales Revenue	$ -	$ 34.21	$ 73.51	$ 76.45	$ 79.50	$ 82.68
GUT Revenue	$ 302.72	$ 324.97	$ 267.41	$ 210.40	$ 156.23	$ 111.75
Dec. 2018 Revenue Forecast	$ 7,674.48	$ 7,921.76	$ 8,115.66	$ 8,252.72	$ 8,424.83	$ 8,619.96
Alternative Remote Sales Adjustments						
Dec. 2018 Wayfair Remote Sales	$ -	$ 34.21	$ 73.51	$ 76.45	$ 79.50	$ 82.68
Updated Wayfair Remote Sales	$ -	$ 71.91	$ 99.72	$ 103.71	$ 107.86	$ 112.17
Alternative 1 Wayfair Remote Sales	$ -	$ 71.91	$ 99.72	$ 115.23	$ 131.83	$ 149.56

STAX - Dec 2018 Model — Ran from FY18

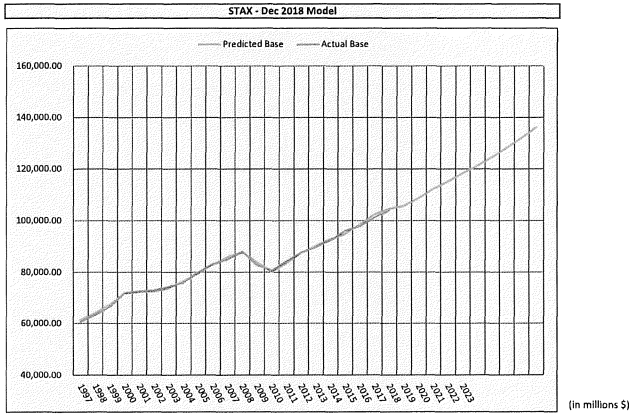
As of:	Includes updated remote sales adjustments to reflect 9/12 months collected in FY19 and higher starting compliance than originally estimated in Dec. 2018
2018	

Model Starts	1997
Model Ends	2018
Time	Fiscal Year
LOG?	Yes

Include Adjustment?
Yes

Fiscal Year	Sales Net of GUT Base	% to GF	% Tax	Sales Tax	Adjustments	Sales Net of GUT Tax (excl. Remote Sales)	Remote Sales (Wayfair)	PROPOSED FORECAST: Adjusted Sales Net of GUT Tax	PROPOSED FORECAST: GUT	PROPOSED FORECAST: Sales & Use Taxes	PROPOSED FORECAST: YoY Growth	ACTUALS*: Sales Net of GUT Tax Actuals	ACTUALS*: Sales Tax Actuals	GF Forecast Error: Sales Net of GUT $ vs Actuals	GF Forecast Error: Sales Net of GUT % of Actuals	LAST PASSED FORECAST: Sales Net of GUT Tax (excl. Remote Sales)	LAST PASSED FORECAST: Remote Sales (Wayfair)	LAST PASSED FORECAST: GUT	LAST PASSED FORECAST: Sales & Use Taxes	$ vs Actuals
2017	102,337.82	99.84%	7.00%	7,152.04	(83.38)	7,235.42		7,235.42	333.09	7,568.51		7,170.07	7,503.16	65.35	0.91%	7,201.55		333.90	7,535.46	
2018	104,539.01	99.84%	7.00%	7,305.88	(94.10)	7,399.98		7,399.98	304.93	7,704.91	1.80%	7,371.76	7,674.49	28.22	0.38%	7,349.31		305.94	7,655.25	(22.45)
2019	105,711.31	99.84%	7.00%	7,387.80	(100.28)	7,488.08	71.91	7,560.00	304.02	7,864.02	2.07%					7,562.58	34.21	324.97	7,921.76	
2020	108,798.48	99.84%	7.00%	7,603.56	(108.73)	7,712.28	99.72	7,812.00	263.76	8,075.77	2.69%					7,774.74	73.51	267.41	8,115.66	
2021	112,351.27	99.84%	7.00%	7,851.85	(117.83)	7,969.68	103.71	8,073.39	203.77	8,277.15	2.49%					7,965.87	76.45	210.40	8,252.72	
2022	115,255.11	99.84%	7.00%	8,054.79	(127.63)	8,182.42	107.86	8,290.28	160.27	8,450.55	2.09%					8,189.10	79.50	156.23	8,424.83	
2023	118,218.19	99.84%	7.00%	8,261.87	(137.41)	8,399.27	112.17	8,511.44	109.94	8,621.38	2.02%					8,425.52	82.68	111.75	8,619.96	

	DEPENDENT VARIABLE	INDEPENDENT VARIABLES				
		LN	LN			
$ Predicted vs Actual Revenue	Predicted Base	Actual Base	Fiscal Year	Sales Net of GUT Base	Sales Net of GUT Base	Adjusted Personal Income (Less Transfer Pmts Less Proprietors Income) Per Household	Household financial obligations ratio, FRB	PCE Goods / PCE Services	Prior fiscal year rate on existing home mortages, Federal Housing Finance Board (FHFB)
28.72	61,346.48	60,771.99	1997	60,771.99	11.01488	3.902976891	16.6375	0.655185491	7.615
27.03	63,894.53	63,353.95	1998	63,353.95	11.05649	3.959598355	16.46	0.641113753	7.819166667
30.58	67,410.21	66,798.53	1999	66,798.53	11.10944	4.003278523	16.4125	0.642403359	7.385
(7.47)	71,836.77	71,986.11	2000	71,986.11	11.18423	4.048321073	16.645	0.651582159	7.01
(6.96)	72,439.06	72,578.36	2001	72,578.36	11.19242	4.072418112	17.11	0.631684998	7.863333333
(29.12)	72,399.13	72,981.59	2002	72,981.59	11.19796	4.058352472	17.4225	0.616183837	7.565833333
(32.60)	73,764.53	74,358.01	2003	74,358.01	11.21665	4.067721936	17.1925	0.604751236	6.8625
20.02	76,404.77	76,071.03	2004	76,071.03	11.23942	4.089720622	16.845	0.605026479	5.9975
(28.66)	79,431.26	79,908.94	2005	79,908.94	11.28864	4.118110988	17.065	0.593713427	5.7175
(11.43)	82,917.46	83,107.97	2006	83,107.97	11.32790	4.15799684	17.3	0.589672845	5.783333333
42.36	85,769.59	85,063.54	2007	85,063.54	11.35115	4.197994846	17.6775	0.578340549	6.265833333
(11.35)	87,714.81	87,898.89	2008	87,898.89	11.38394	4.221858212	17.9425	0.57428963	6.540833333
54.34	83,708.24	82,931.98	2009	82,931.98	11.32578	4.185566433	17.7825	0.528617149	6.335
(34.30)	80,218.41	80,708.41	2010	80,708.41	11.29860	4.147277613	16.9575	0.529920953	5.656666667
(59.81)	83,409.73	84,264.09	2011	84,264.09	11.34171	4.198013367	16	0.541543197	5.1325
(3.52)	87,571.73	87,622.04	2012	87,622.04	11.38079	4.253436301	15.4825	0.542469927	4.7875
16.25	89,924.70	89,692.52	2013	89,692.52	11.40414	4.273531476	15.26	0.537865544	4.255
38.04	92,908.61	92,365.19	2014	92,365.19	11.43351	4.289595951	15.29	0.531295034	3.606666667
(89.70)	94,830.65	96,112.08	2015	96,112.08	11.47327	4.336905292	15.315	0.513194251	4.391666667
47.12	98,504.63	97,831.48	2016	97,831.48	11.49100	4.365357161	15.5425	0.495340557	4.088333333
76.95	102,337.82	101,238.47	2017	101,238.47	11.52523	4.403306819	15.61	0.485021097	4.019166667
40.07	104,539.01	103,966.57	2018	103,966.57	11.55182	4.431457228	15.41	0.484925107	4.030833333
	105,711.31		2019			4.454129271	15.4253825	0.476984195	4.369166667
	108,798.48		2020			4.48739718	15.701255	0.469186264	4.72196325
	112,351.27		2021			4.518249494	15.76198	0.459566857	4.6200015
	115,255.11		2022			4.55042872	15.7638875	0.454252971	4.78499825
	118,218.19		2023			4.581140452	15.7633675	0.448409241	4.89500025
	121,191.85		2024			4.609999642	15.759355	0.44280214	4.95749675
	124,544.39		2025			4.639896934	15.7563325	0.437291823	4.97000175
	128,290.18		2026			4.671451954	15.7499475	0.432289357	4.9574985
	132,136.36		2027			4.702743249	15.742575	0.428008315	4.945
	136,158.16		2028			4.734425771	15.735065	0.42371254	4.92999875



(in millions $)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.998979411
R Square	0.997959864
Adjusted R Squ	0.99759984
Standard Error	0.00736212
Observations	21

ANOVA

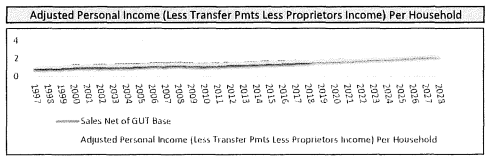
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.450722051	0.150240684	2771.926503	4.64847E-23
Residual	17	0.000921414	5.42008E-05		
Total	20	0.451643465			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	6.757528219	0.214932794	31.44019152	1.66826E-16
Adjusted Person	0.97671873	0.039712154	24.59495751	9.95018E-15
Household finan	0.029335975	0.00310304	9.453946829	3.50344E-08
PCE Goods / PCE	0.26879025	0.099986737	2.688259027	0.015551365
Prior fiscal year	-0.027515507	0.004005753	-6.868997331	2.72254E-06

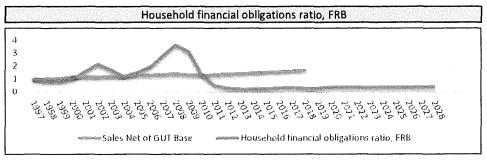
OUT OF SAMPLE

	2017		2016	
	Forecast	$ Error	Forecast	$ Error
2017	7,230.90	60.83	7,256.44	86.37
2018	7,393.99	22.23	7,424.68	52.92
2019	7,551.41		7,589.26	
2020	7,803.61		7,849.10	
2021	8,065.96		8,115.94	

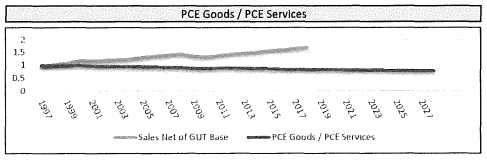
Adjusted Personal Income (Less Transfer Pmts Less Proprietors Income) Per Household



Household financial obligations ratio, FRB



PCE Goods / PCE Services



STAX - Dec 2018 Model w/ Alternative Remote Sales Adjustment

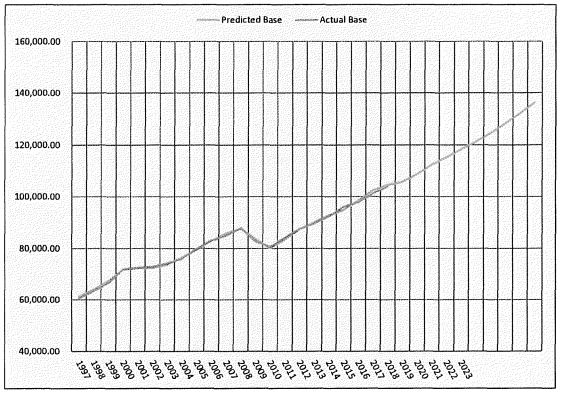
As of:	Includes updated remote sales adjustments based on updated data on market facilitators. Also, reflects 9/12 months collected in FY19 and higher starting compliance than originally estimated in Dec. 2018
2018	

Model Starts	1997
Model Ends	2018
Time	Fiscal Year
LOG?	Yes

Include Adjustment?
Yes

								PROPOSED FORECAST				ACTUALS*		GF Forecast Error		LAST PASSED FORECAST				
Fiscal Year	Sales Net of GUT Base	% to GF	% Tax	Sales Tax	Adjustments	Sales Net of GUT Tax (excl. Remote Sales)	Remote Sales (Wayfair)	Adjusted Sales Net of GUT Tax	GUT	Sales & Use Taxes	YoY Growth	Sales Net of GUT Tax Actuals	Sales Tax Actuals	Sales Net of GUT $ vs Actuals	Sales Net of GUT % of Actuals	Sales Net of GUT Tax (excl. Remote Sales)	Remote Sales (Wayfair)	GUT	Sales & Use Taxes	$ vs Actuals
2017	102,337.82	99.84%	7.00%	7,152.04	(83.38)	7,235.42		7,235.42	333.09	7,568.51		7,170.07	7,503.16	65.35	0.91%	7,201.55		333.90	7,535.46	
2018	104,539.01	99.84%	7.00%	7,305.88	(94.10)	7,399.98		7,399.98	304.93	7,704.91	1.80%	7,371.76	7,674.49	28.22	0.38%	7,349.31		305.94	7,655.25	(22.45)
2019	105,711.31	99.84%	7.00%	7,387.80	(100.28)	7,488.08	71.91	7,559.99	304.02	7,864.02	2.07%					7,562.58	34.21	324.97	7,921.76	
2020	108,798.48	99.84%	7.00%	7,603.56	(108.73)	7,712.28	99.72	7,812.00	263.76	8,075.77	2.69%					7,774.74	73.51	267.41	8,115.66	
2021	112,351.27	99.84%	7.00%	7,851.85	(117.83)	7,969.68	115.23	8,084.91	203.77	8,288.67	2.64%					7,965.87	76.45	210.40	8,252.72	
2022	115,255.11	99.84%	7.00%	8,054.79	(127.63)	8,182.42	131.83	8,314.25	160.27	8,474.52	2.24%					8,189.10	79.50	156.23	8,424.83	
2023	118,218.19	99.84%	7.00%	8,261.87	(137.41)	8,399.27	149.56	8,548.83	109.94	8,658.77	2.17%					8,425.52	82.68	111.75	8,619.96	

				DEPENDENT VARIABLE		INDEPENDENT VARIABLES			
					LN	LN			
$ Predicted vs Actual Revenue	Predicted Base	Actual Base	Fiscal Year	Sales Net of GUT Base	Sales Net of GUT Base	Adjusted Personal Income (Less Transfer Pmts Less Proprietors Income) Per Household	Household financial obligations ratio, FRB	PCE Goods / PCE Services	Prior fiscal year rate on existing home mortages, Federal Housing Finance Board (FHFB)
28.72	61,346.48	60,771.99	1997	60,771.99	11.01488	3.902976891	16.6375	0.655185491	7.615
27.03	63,894.53	63,353.95	1998	63,353.95	11.05649	3.959598355	16.46	0.641113753	7.819166667
30.58	67,410.21	66,798.53	1999	66,798.53	11.10944	4.003278523	16.4125	0.642403359	7.385
(7.47)	71,836.77	71,986.11	2000	71,986.11	11.18423	4.048321073	16.645	0.651582159	7.01
(6.96)	72,439.06	72,578.36	2001	72,578.36	11.19242	4.072418112	17.11	0.631684998	7.863333333
(29.12)	72,399.13	72,981.59	2002	72,981.59	11.19796	4.058352472	17.4225	0.616183837	7.565833333
(32.60)	73,764.53	74,358.01	2003	74,358.01	11.21665	4.067721936	17.1925	0.604751236	6.8625
20.02	76,404.77	76,071.03	2004	76,071.03	11.23942	4.089720622	16.845	0.605026479	5.9975
(28.66)	79,431.26	79,908.94	2005	79,908.94	11.28864	4.118110988	17.065	0.593713427	5.7175
(11.43)	82,917.46	83,107.97	2006	83,107.97	11.32790	4.15799684	17.3	0.589672845	5.783333333
42.36	85,769.59	85,063.54	2007	85,063.54	11.35115	4.197994846	17.6775	0.578340549	6.265833333
(11.35)	87,714.81	87,898.89	2008	87,898.89	11.38394	4.221858212	17.9425	0.57428963	6.540833333
54.34	83,708.24	82,931.98	2009	82,931.98	11.32578	4.185566433	17.7825	0.528617149	6.335
(34.30)	80,218.41	80,708.41	2010	80,708.41	11.29860	4.147277613	16.9575	0.529920953	5.656666667
(59.81)	83,409.73	84,264.09	2011	84,264.09	11.34171	4.198013367	16	0.541543197	5.1325
(3.52)	87,571.73	87,622.04	2012	87,622.04	11.38079	4.253436301	15.4825	0.542469927	4.7875
16.25	89,924.70	89,692.52	2013	89,692.52	11.40414	4.273531476	15.26	0.537865544	4.255
38.04	92,908.61	92,365.19	2014	92,365.19	11.43351	4.289595951	15.29	0.531295034	3.606666667
(89.70)	94,830.65	96,112.08	2015	96,112.08	11.47327	4.336905292	15.315	0.513194251	4.391666667
47.12	98,504.63	97,831.48	2016	97,831.48	11.49100	4.365357161	15.5425	0.495340557	4.088333333
76.95	102,337.82	101,238.47	2017	101,238.47	11.52523	4.403306819	15.61	0.485021097	4.019166667
40.07	104,539.01	103,966.57	2018	103,966.57	11.55182	4.431457228	15.41	0.484925107	4.030833333
	105,711.31		2019			4.454129271	15.4253825	0.476984195	4.369166667
	108,798.48		2020			4.487399718	15.701255	0.469186264	4.72196325
	112,351.27		2021			4.518249494	15.76198	0.459566857	4.6200015
	115,255.11		2022			4.55042872	15.7638875	0.454252971	4.78499825
	118,218.19		2023			4.581140452	15.7633675	0.448409241	4.89500025
	121,191.85		2024			4.609999642	15.759355	0.44280214	4.95749675
	124,544.39		2025			4.639896934	15.7563325	0.437291823	4.97000175
	128,290.18		2026			4.671451954	15.7499475	0.432289357	4.9574985
	132,136.36		2027			4.702743249	15.742575	0.428008315	4.945
	136,158.16		2028			4.734425771	15.735065	0.42371254	4.92999875



(In millions $)

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.998759467
R Square	0.997520474
Adjusted R Squ	0.99708291
Standard Error	0.008102465
Observations	21

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.448989666	0.149663222	2279.716101	2.43925E-22
Residual	17	0.001116049	6.56499E-05		
Total	20	0.450105715			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	6.757528219	0.214932794	31.44019152	1.66826E-16
Adjusted Person	0.97671873	0.039712154	24.59495751	9.95018E-15
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Prior fiscal year	-0.027515507	0.004005753	-6.868997331	2.72254E-06
-				
-				

OUT OF SAMPLE

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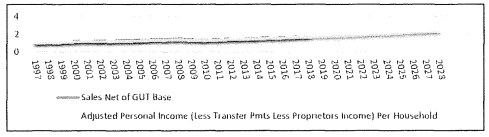
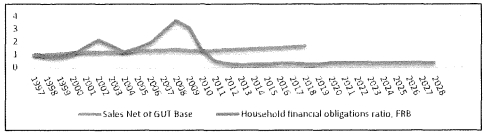
2021	8,077.48		8,127.46	

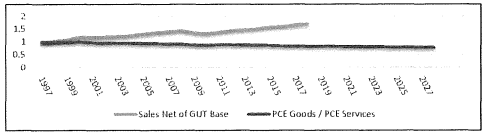
Adjusted Personal Income (Less Transfer Pmts Less Proprietors Income) Per Household



Household financial obligations ratio, FRB



PCE Goods / PCE Services



INDIANA REMOTE SALES OVERVIEW

Additional Sales Tax to GF ($ millions) (See GF Impact Details @ bottom)

GAO (US Government Accountability Office) (Nov 2017)

	FY19	FY20	FY21	FY22	FY23
LOW SCENARIO	$ 63.00	$ 100.25	$ 118.66	$ 139.48	$ 162.98
HIGH SCENARIO	$ 107.66	$ 169.91	$ 199.72	$ 233.36	$ 271.28
AVERAGE OF SCENARIOS	$ 85.33	$ 135.08	$ 159.19	$ 186.42	$ 217.13
FORECAST	$ 54.23	$ 84.38	$ 87.76	$ 91.27	$ 94.92
AVERAGE ALL STUDIES	$ 76.19	$ 117.81	$ 136.26	$ 157.19	$ 180.89
AVERAGE ALL STUDIES (LOW)	$ 54.23	$ 84.38	$ 98.16	$ 113.82	$ 131.61
AVERAGE ALL STUDIES (HIGH)	$ 98.15	$ 151.24	$ 174.36	$ 200.56	$ 230.18

Half of FY19 impact is assumed as implementation starts after October 2018

DOR (2018)

	FY19	FY20	FY21	FY22	FY23
LOW SCENARIO	$ 67.50	$ 90.00	$ 90.00	$ 90.00	$ 90.00
HIGH SCENARIO	$ 96.00	$ 128.00	$ 128.00	$ 128.00	$ 128.00
AVERAGE OF SCENARIOS	$ 81.75	$ 109.00	$ 109.00	$ 109.00	$ 109.00
FORECAST	$ 54.23	$ 84.38	$ 87.76	$ 91.27	$ 94.92
AVERAGE ALL STUDIES	$ 76.19	$ 117.81	$ 136.26	$ 157.19	$ 180.89
AVERAGE ALL STUDIES (LOW	$ 54.23	$ 84.38	$ 98.16	$ 113.82	$ 131.61
AVERAGE ALL STUDIES (HIGH	$ 98.15	$ 151.24	$ 174.36	$ 200.56	$ 230.18

Half of FY19 impact is assumed as implementation starts after October 2018

Fox et all 2009 (April 2009)

	FY19	FY20	FY21	FY22	FY23
LOW SCENARIO	$ 30.26	$ 57.91	$ 78.18	$ 101.47	$ 128.16
HIGH SCENARIO	$ 70.67	$ 120.41	$ 150.37	$ 184.54	$ 223.44
AVERAGE OF SCENARIOS	$ 50.46	$ 89.16	$ 114.27	$ 143.01	$ 175.80
FORECAST	$ 54.23	$ 84.38	$ 87.76	$ 91.27	$ 94.92
AVERAGE ALL STUDIES	$ 76.19	$ 117.81	$ 136.26	$ 157.19	$ 180.89
AVERAGE ALL STUDIES (LOW)	$ 54.23	$ 84.38	$ 98.16	$ 113.82	$ 131.61
AVERAGE ALL STUDIES (HIGH)	$ 98.15	$ 151.24	$ 174.36	$ 200.56	$ 230.18

Half of FY19 impact is assumed as implementation starts after October 2018

Fox and Bruce

	FY19	FY20	FY21	FY22	FY23
LOW SCENARIO	$ 56.16	$ 89.37	$ 105.78	$ 124.34	$ 145.29
HIGH SCENARIO	$ 118.26	$ 186.64	$ 219.37	$ 256.33	$ 297.98
AVERAGE OF SCENARIOS	$ 87.21	$ 138.00	$ 162.58	$ 190.33	$ 221.63
FORECAST	$ 54.23	$ 84.38	$ 87.76	$ 91.27	$ 94.92
AVERAGE ALL STUDIES	$ 76.19	$ 117.81	$ 136.26	$ 157.19	$ 180.89
AVERAGE ALL STUDIES (LOW)	$ 54.23	$ 84.38	$ 98.16	$ 113.82	$ 131.61
AVERAGE ALL STUDIES (HIGH)	$ 98.15	$ 151.24	$ 174.36	$ 200.56	$ 230.18

Half of FY19 impact is assumed as implementation starts after October 2018

Methodology

GAO

Steps Involved in Estimating Potential Revenue Gains

Total e-commerce or other remote sales (from Internet retailers, e-marketplace sellers, other remote sellers such as mail order catalogs, and merchant e-commerce wholesalers)
– Sales of exempt products
= Taxable sales (regardless of nexus)
x Tax rate
= Potential tax revenues
– Taxes paid by sellers (due to nexus)
– Taxes paid by purchasers
= Potential revenue gains

Source: GAO methodology. | GAO-19-114

DOR

US sales, NAICS 4541
X Indiana percentage
= Total IN sales, NAICS 4541
X Exempt sales
= Taxable sales
X 7%
= Sales tax
- Compliance 2005-2012 (75%)
= Base tax loss
- Estimated collections not factored
= Net loss

Fox et all 2009

Step1 : Forecast ecommerce activity for years 2007 to 2012
Step 2 : Distribute e-commerce sales to the states to yield the potential amount of taxable transactions in each state.
Step 3 : Determine the degree to which ecommerce is taxable in each state
Step 4: Estimates sales tax revenues that are due using state specific estimates of e-commerce transactions and taxability alongside current state and local tax rate
Step 5: Determine the expected sales and use tax compliance on e-commerce transactions and therefore the expected tax collections on these transactions

Step 6: Subtract the taxes collected from the those that actually due to yield uncollected taxes.

Fox and Bruce

Calculating state level estimates of the trend decrease in sales tax base as a percent of personal income.
*Dividing each state's sales tax revenues by it's sales tax rate.
*Then sales tax base equation was fit for all 45 sales taxing states plus the DC, using the panel data for 1979 to 1996.

ln Tax base = 1.94 + .85 (ln personal income)
(7.96) (61.62)
+ .097 GDP growth
(0.41)
$R^2 = 0.92$

*Above equation used to forecast the state specific sales tax base for for each year based on a forecast of personal income for each state.
*PI forecasts were developed using a time series equation for each state, relating state PI to national PI and the growth rate in real GDP.
Revenue losses from e-commerce.
*Estimating the reductions in the sales tax base X lost tax base by the state specific effective state and local sales tax rate.

Particular factors considered

GAO

(Starting page 35)
Business to Consumer (B2C)
Business to Business (B2B)
E-Marketplace Retailers
Other Remote Retailers
Wholesalers
Collection Rates (Which businesses actually charge sales tax)
Compliance Rates (Who actually pays their tax liability)

(Starting page 47)
Consumer behavior response
Digital downloads of products
Small seller exemptions
Sales to Tax Exempt Entities

DOR

GAO Study
Exempt Sales
Compliance 2005-2012 (75%)

Fox et all 2009

Ecommerce Business to Business activity (Greater proportion)
Ecommerce Business to Consumers activity (Lesser proportion)
Ability of the state to collect sales taxes on remote commerce
Change in practices of business to avoid creating collection responsibility in state.
Change in consumer behaviour regarding the purchases of items
Distributional consequences (especially if low income taxpayers land up purchashing at the local store vs. online
State Sales tax on tangible good
Ecommerce and Average taxability for each NAICS category
Did not take into account agreements/compliance since 2009

Fox and Bruce

Business to Consumer (B2C)
Business to Business (B2B)
Policy Implications
Growth Rate in Real GDP
Sold in Digitized Form
Tangible Personal Property

Did not take into account agreements/compliance since 2003

Calculations

GAO

Total E-commerce and other remote sales
(Page 36)

Table 3: GAO Low and High Scenario Estimates of 2017 E-commerce and Other Remote Sales

Dollars in billions

	Low scenario estimate	High scenario estimate
Business-to-consumer (B2C)		
Internet retailers	330	318
E-marketplace sellers	85	106
Other remote retailers[a]	58	61
Business-to-business (B2B)		
Merchant wholesale e-commerce[b]	714	729
(less exempt intermediate goods)	(420)	(364)
Adjusted B2B sales	285	364

Source: GAO analysis of Forrester Research, Internet Retailer, U.S. Census Bureau, and company financial data. | GAO-19-114
[a]Includes catalog, mail-order, call center, and television shopping channel retail companies
[b]Merchant wholesale e-commerce sales includes manufacturers' sales branches and offices, but excludes agents and brokers, and excludes sales made via electronic data interchange networks

Collection rates and actual sales tax collectible
(Page 40)

Table 4: GAO High and Low Scenario Estimates of the Percent of Taxes State and Local Governments Can Collect from Remote Sellers under Current Law

	Percent of sales taxes collectible: Low scenario estimate	High scenario estimate
Business-to-consumer (B2C)		
Internet retailers	86	78
E-marketplace sellers	33	14
Other remote retailers[a]	64	58
Business-to-business (B2B)		
Merchant wholesale e-commerce[b]	94	85

Source: GAO analysis of Forrester Research, Internet Retailer, U.S. Census Bureau, and company financial data. | GAO-19-114
(Page 40)

Estimated Collection Rate 85 to 94%

Compliance rate (Already Collected)
(Page 46)
B2C 0 to 10%
B2B 70 to 90%

Potential revenue gains from expanded tax collection authority on remote sales
(Page 50)

	Low scenario	High scenario	
Indiana	**168**	**261**	($ millions)

DOR

Line	Assuming no exempt sales / IN sales	Low-end compliance	Notes
1	US sales, NAICS 4541	616,203,066,284.82	US Census data, extrapolated
2	Indiana percentage	1.80%	BEA Indiana Personal Income to US personal income
3	Total IN sales, NAICS 4541	11,091,655,553.13	Line 1 times Line 2
4	Exempt sales	0%	Not used
5	Taxable sales	11,091,655,553.13	Line 3 times (1-Line 4)
6	Sales tax	776,415,888.72	Line 5 times 7%
7	less: compliance 2005-2012	75.00%	Bruce, Fox & Luna study (2009)
8	Base tax loss	194,103,972.18	Line 6 times (1-Line 7)
9	less estimated collections not factored into Line 7	66,000,000.00	
10	Net loss	128,103,972.18	Line 8 minus Line 9

All Registrations (Includes RST and OOS)

CY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2018	1779	1562	1780	1717	1595	1573	1493	1908	1769				15096
2017	1725	1490	1755	1498	1799	1636	1502	1760	1583	1596	1247	1359	19050
2016	1758	1696	1824	1906	1558	1626	1487	1546	1315	1309	1205	1199	18429

Non Indiana Only (Includes RST and OOS)

CY	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sept	Oct	Nov	Dec	Total
2018	358	311	341	359	302	357	353	489	639				3509
2017	307	233	315	308	336	381	384	364	329	317	297	295	3861
2016	392	328	379	427	379	345	385	337	272	262	225	239	3970

Total registrations is not a great indicator of changes due to HEA 1129 (2017). The above filters for just out of state registrations for a better picture of what has been happening. The references to RST and OOS indicate that we are counting both regular sales tax registrations and those for collection of out-of-state use tax. Taxpayers frequently register for RST even when they are out of state. There have been 809 total registrations and with 449 of those being out of state registrations so far in October

Fox et all 2009

Table 1: Total State and Local Sales and Use Taxes Due on E-commerce ($millions)
(Page 9)

	2007	2008	2009	2010	2011	2012	Total
Indiana	497.2	530.2	477	591.5	695.5	781.8	3,573.2
		6.64%	-10.03%	24.00%	17.58%	12.41%	10.12%

Table 2: Total State and Local Sales and Use Tax Collections on E-commerce Sales ($millions)
(Page 10)

	2007	2008	2009	2010	2011	2012	Total
Indiana	373	397.7	357.8	443.8	521.8	586.5	2680.6

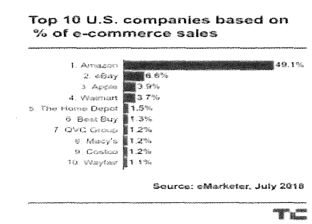
Table 3: Total State and Local Sales and Use Tax Revenue Losses from E-Commerce Sales ($millions)
(Page 11)

	2007	2008	2009	2010	2011	2012	Total
Indiana	124.2	132.5	119.2	147.8	173.8	195.3	892.8

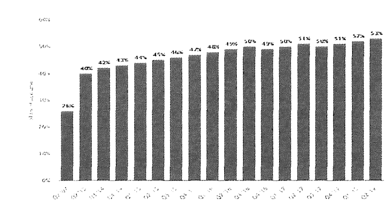
Table 4: Total State and Local Sales and Use Tax Revenue Losses from E-Commerce Sales as a Percentage of 2007 Sales and Use Tax Collections
(Page 11)

	2007	2008	2009	2010	2011	2012
Indiana	2.29%	2.44%	2.20%	2.73%	3.20%	3.60%

Since 2009, Indiana has reached agreement to collect sales tax with Amazon. This agreement, however, does not include third party sellers



Percentage of paid units sold by third-party sellers on Amazon platform as of 2nd quarter 2018



CY	%
2007	26%
2013	40%
2014	42%
2015	44%
2016	48%
2017	50%
2018	53%

Fox and Bruce

Estimated Sales Tax Revenue Losses From E-Commerce
(Pg.1382)

TABLE 2
ESTIMATED SALES TAX REVENUE LOSSES FROM E-COMMERCE (BILLIONS)

	1999	2000	2001	2002	2003
Total Business-to-Business[1]	106.59	244.87	486.63	821.80	1,297.80
Less Exempt Sales	-47.54	-103.05	-208.76	-369.81	-616.45
Less B2B on which sales/use tax collected	-34.07	-80.96	-164.77	-281.59	-444.24
Equals B2B Base Loss	24.98	58.87	113.09	170.40	237.11
Less substitution for other remote sales	-12.49	-29.43	-56.53	-85.20	-118.55
Equals Incremental B2B Base Loss	12.49	29.43	56.55	85.20	118.55
Approximate Revenue Loss from B2B	0.80	1.88	3.61	5.44	7.57
Total Business-to-Consumer	19.75	37.79	62.59	98.62	140.19
Less Exempt B2C	-8.32	-15.34	-23.53	-32.74	-41.78
Less B2C on which sales/use tax collected	-1.14	-2.60	-5.51	-10.54	-20.57
Equals B2C Base Loss	10.29	19.85	33.55	55.34	77.85
Less substitution for other remote sales	-3.60	-6.95	-11.74	-19.37	-27.25
Equals Incremental B2C Base Loss	6.69	12.90	21.81	35.97	50.60
Approximate Revenue Loss from B2C	0.43	0.82	1.39	2.30	3.23
Approximate Incremental Revenue Loss	1.23	2.70	5.00	7.74	10.80

[1]Sales taxing states only.
Source: Authors' calculations based on e-commerce forecasts provided by Forrester Research, Inc.

Combined State and Local Revenue Losses In 2003 (IN summary)
(Pg.1383)

	Mil ($)
(1) Trend Revenue Loss (w/o E-commerce)	$202.10
(2) Total Revenue Loss Due to E-commerce	$324.60
(3) Incremental Revenue Loss Due to E-commerce	$174.30
(4) Total Combined Revenue Loss = (1) + (3)	$376.50

General Fund Impact (potential full year impact by fiscal year)

GAO

Potential additional sales tax revenue to General Fund
Assumption on:
Gradual compliance/payment of tax (registration etc.) by tax payers
Growth of market FY 19 onward 8.5%

LOW SCENARIO	FY 19	FY 20	FY 21	FY 22	FY 23
Total potential additional sales tax	168	182.28	197.7738	214.5846	232.8243
New Compliance (gradual)	50%	55%	60%	65%	70%
Additional Sales Tax to GF	$ 84.00	$ 100.25	$ 118.66	$ 139.48	$ 162.98

HIGH SCENARIO	FY 19	FY 20	FY 21	FY 22	FY 23
Total potential additional sales tax	261	283.185	307.2557	333.3725	361.7091
New Compliance (gradual)	55%	60%	65%	70%	75%
Additional Sales Tax to GF	$ 143.55	$ 169.91	$ 199.72	$ 233.36	$ 271.28

Gradual compliance among remote sellers to the updated sales tax authority is assumed as remote sellers (incl. out of state etc.) will gradually register, collect and remit taxes and some level of non-compliance is expected (75% compliance historically for e-ecommerce taxes)

DOR

According to DOR, "$90M-$100M/year potential revenue gain is a reasonable estimate"

Fox et all 2009

Potential additional sales tax revenue to General Fund

Assumptions: High Scenario
CAGR(2007- 2012: Taxes due to E-commerce) 8%
Estimate of total tax due on E-commerce 2019 $ 1,339.87
Collections on tax due E-Commerce 2019 (75%- based on table 2 assumption) $ 1,004.90
Total tax revenue losses $ 334.97
Growth of market FY 19 onward 8.5%

Assumptions: Low Scenario
Growth rate e-commerce industry (based (4.20%
Estimate of total tax due on E-commerce : $ 1,042.72
Collections on tax due E-Commerce 2019 (75%- based on table 2 assumption) $ 782.04
Total tax revenue losses $ 260.68
Growth of market

LOW SCENARIO	FY 19	FY 20	FY 21	FY 22	FY 23
Total potential additional sales tax	$ 260.68	282.839099	306.880423	332.965259	361.267306
less: Compliance since 2009 (e.g Amazon Agreement)	(90.00)	(97.65)	(105.95)	(114.96)	(124.73)
New Compliance (gradual)	50%	55%	60%	65%	70%
Additional Sales Tax to GF	$ 40.34	$ 57.91	$ 78.18	$ 101.47	$ 128.16

*https://www.bea.gov/data/gdp/gross-domestic-product#gdp

HIGH SCENARIO	FY 19	FY 20	FY 21	FY 22	FY 23
Total potential additional sales tax	$ 334.97	363.439144	394.331472	427.849647	464.216867
less: Compliance since 2009 (e.g Amazon Agreement)	(90.00)	(97.65)	(105.95)	(114.96)	(124.73)
New Compliance (gradual)	55%	60%	65%	70%	75%
Additional Sales Tax to GF	$ 94.23	$ 120.41	$ 150.37	$ 184.54	$ 223.44

Fox and Bruce

Potential additional sales tax revenue to General Fund
Assumption on:
Gradual compliance/payment of tax (registration etc.) by tax payers
Growth of market 2003-2018 (CAGR) 13.7%

Growth of market FY 19 onward 8.5%

LOW SCENARIO	FY 19	FY 20	FY 21	FY 22	FY 23
Total potential additional sales tax	$427.90	$464.27	$503.73	$546.55	$593.00
less: Compliance since 2009 (e.g Amazon Agreement)	65%	65%	65%	65%	65%
Total potential additional sales tax	$ 149.76	$ 162.49	$ 176.31	$ 191.29	$ 207.55
New Compliance (gradual)	50%	55%	60%	65%	70%
Additional Sales Tax to GF	$ 74.88	$ 89.37	$ 105.78	$ 124.34	$ 145.29

HIGH SCENARIO	FY 19	FY 20	FY 21	FY 22	FY 23
Total potential additional sales tax	$427.90	$464.27	$503.73	$546.55	$593.00
less: Compliance since 2009 (e.g Amazon Agreement)	33%	33%	33%	33%	33%
Total potential additional sales tax	$ 286.69	$ 311.06	$ 337.50	$ 366.19	$ 397.31
New Compliance (gradual)	55%	60%	65%	70%	75%
Additional Sales Tax to GF	$ 157.68	$ 186.64	$ 219.37	$ 256.33	$ 297.98

Sales Net of GUT: e-Commerce Analysis

Recent legislation enables the State of Indiana to collect and remit sales tax for online sales. All of e-commerce sales can be broken down into five groups: Amazon Marketplace, Amazon Retail, Non-Amazon Marketplace, e-Commerce Sales Not From a Marketplace (Economic Nexus), and e-Commerce Sales Not From a Marketplace (Physical Nexus). Before the legislation, Indiana was already collecting sales tax from Amazon Retail and e-Commerce Sales Not From a Marketplace (Physical Nexus). The remaining portion is what we call Remote Sales. Data on the total potential sales tax from e-commerce is scarce. For this reason, we have to make assumptions about the percent allocation each of the five groups account for of the total e-commerce. Using our assumptions and sales tax collections data from Amazon Retail, we can imply what the remote sales impact will be for both current and upcoming legislation.

The current remote sales forecast was calculated by using data from various studies along with marketplace assumptions.

Alternative 1 consists of percentages specifically calculated for each component of e-commerce. These percentages were calculated given one assumption: Amazon Marketplace sales are greater than Non-Amazon Marketplace sales. Using this assumptions, over 600,000 combinations of possible percent allocations were found. The most likely outcome for the percent allocation for each source of e-commerce was calculated for Model 1's percent allocations

Alternative 2 consists of percentages specifically calculated for each component of e-commerce. These percentages were calculated given several assumptions: Amazon Marketplace sales are greater than Non-Amazon Marketplace sales, e-commerce sales from a physical nexus is greater than or equal to 3.5 times the e-commerce sales from a economic nexus**, and all percentages must be greater than or equal to 5%. Using these assumptions, roughly 70,000 combinations of possible percent allocations were found. The most likely outcome for the percent allocation for each source of e-commerce was calculated for Model 2's percent allocations

Alternative 3 consists of a much simpler methodology. First, we assume that Amazon Marketplace and Amazon Retail each account for 25% of all e-commerce sales. From there, we assume the Non-Amazon Marketplace accounts for 10% of e-commerce while sales from an economic nexus and a physical nexus account for 15% and 25% accordingly.

e-Commerce Sales Tax Revenue Forecasts

Forecast Method		Fiscal Year 2019	2020	2021	2022	2023
	Assumed New Compliance Rate	45.0%	45.0%	50.0%	55.0%	60.0%
GAO (US Government Accountability Office) Study on e-Commerce (Nov 2017)	GAO High Estimate of Total Potential Remote Sales*	$ 276.87	$ 287.94	$ 299.46	$ 311.44	$ 323.90
	GAO Average of Total Potential Remote Sales	$ 227.54	$ 236.64	$ 246.11	$ 255.95	$ 266.19
	GAO Low Estimate of Total Potential Remote Sales*	$ 178.21	$ 185.34	$ 192.76	$ 200.47	$ 208.49
Dec 2018 Forecast & Proposed Legislation Estimates	Estimated Additional Sales Tax to be Collected From Marketplace Facilitators	$ -	$ 54.40	$ 66.60	$ 65.80	$ 64.80
	Monthly Estimate	$ -	$ 4.95	$ 5.55	$ 5.48	$ 5.40
	Estimated Tax Currently Being Collected from Remote Sales	$ 34.21	$ 73.51	$ 76.45	$ 79.50	$ 82.68
	Monthly Estimate	$ 3.80	$ 6.13	$ 6.37	$ 6.63	$ 6.89
	Estimated Total Potential Collections	**$ 34.21**	**$ 127.91**	**$ 143.05**	**$ 145.30**	**$ 147.48**
	Monthly Estimate	**$ 3.80**	**$ 10.66**	**$ 11.92**	**$ 12.11**	**$ 12.29**
	Total Potential Remote Sales	$ 196.22	$ 210.23	$ 225.31	$ 241.57	$ 259.10
Updated Dec 2018 Forecast & Proposed Legislation Estimates	Estimated Additional Sales Tax to be Collected From Marketplace Facilitators	$ -	$ 54.40	$ 66.60	$ 65.80	$ 64.80
	Monthly Estimate	$ -	$ 4.95	$ 5.55	$ 5.48	$ 5.40
	Estimated Tax Currently Being Collected from Remote Sales	$ 54.23	$ 84.38	$ 87.76	$ 91.27	$ 94.92
	Monthly Estimate	$ 6.03	$ 7.03	$ 7.31	$ 7.61	$ 7.91
	Estimated Total Potential Collections	**$ 54.23**	**$ 138.78**	**$ 154.36**	**$ 157.07**	**$ 159.72**
	Monthly Estimate	**$ 6.03**	**$ 11.57**	**$ 12.86**	**$ 13.09**	**$ 13.31**
	Total Potential Remote Sales	$ 196.22	$ 210.23	$ 225.31	$ 241.57	$ 259.10

Forecast Method		Fiscal Year 2019	2020	2021	2022	2023
	Assumed New Compliance Rate	45.0%	45.0%	50.0%	55.0%	60.0%
Alternative 1: Amazon Marketplace > Non-Amazon Marketplace Amazon Marketplace: 27.2% Amazon Retail: 19.9% e-Commerce (Economic Nexus): 19.8% e-Commerce (Physical Nexus): 20.0% Non-Amazon Marketplace: 13.1%	Estimated Additional Sales Tax to be Collected From Marketplace Facilitators	$ -	$ 78.26	$ 77.27	$ 68.38	$ 58.65
	Monthly Estimate	$ -	$ 7.11	$ 6.44	$ 5.70	$ 4.89
	Estimated Tax Currently Being Collected from Remote Sales	$ 71.91	$ 99.72	$ 115.23	$ 131.83	$ 149.56
	Monthly Estimate	$ 7.99	$ 8.31	$ 9.60	$ 10.99	$ 12.46
	Estimated Total Potential Collections	**$ 71.91**	**$ 177.98**	**$ 192.50**	**$ 200.20**	**$ 208.21**
	Monthly Estimate	**$ 7.99**	**$ 14.83**	**$ 16.04**	**$ 16.68**	**$ 17.35**
	Total Potential Remote Sales	$ 159.81	$ 221.60	$ 230.46	$ 239.68	$ 249.27
Alternative 2: Amazon Marketplace > Non-Amazon Marketplace (Physical Nexus) > 3.5 * (Economic Nexus) Amazon Marketplace: 29.1% Amazon Retail: 13.4% e-Commerce (Economic Nexus): 7.4% e-Commerce (Physical Nexus): 36.5% Non-Amazon Marketplace: 13.5%	Estimated Additional Sales Tax to be Collected From Marketplace Facilitators	$ -	$ 118.78	$ 120.61	$ 110.73	$ 99.85
	Monthly Estimate	$ -	$ 10.80	$ 10.05	$ 9.23	$ 8.32
	Estimated Tax Currently Being Collected from Remote Sales	$ 88.28	$ 122.42	$ 141.46	$ 161.84	$ 183.61
	Monthly Estimate	$ 9.81	$ 10.20	$ 11.79	$ 13.49	$ 15.30
	Estimated Total Potential Collections	**$ 88.28**	**$ 241.20**	**$ 262.08**	**$ 272.56**	**$ 283.46**
	Monthly Estimate	**$ 9.81**	**$ 20.10**	**$ 21.84**	**$ 22.71**	**$ 23.62**
	Total Potential Remote Sales	$ 196.19	$ 272.05	$ 282.93	$ 294.25	$ 306.02
Alternative 3: Amazon Marketplace: 25.0% Amazon Retail: 25.0% e-Commerce (Economic Nexus): 15.0% e-Commerce (Physical Nexus): 25.0% Non-Amazon Marketplace: 10.0%	Estimated Additional Sales Tax to be Collected From Marketplace Facilitators	$ -	$ 53.60	$ 53.21	$ 47.43	$ 41.11
	Monthly Estimate	$ -	$ 4.87	$ 4.43	$ 3.95	$ 3.43
	Estimated Tax Currently Being Collected from Remote Sales	$ 47.44	$ 65.78	$ 76.01	$ 86.96	$ 98.66
	Monthly Estimate	$ 5.27	$ 5.48	$ 6.33	$ 7.25	$ 8.22
	Estimated Total Potential Collections	**$ 47.44**	**$ 119.38**	**$ 129.22**	**$ 134.39**	**$ 139.77**
	Monthly Estimate	**$ 5.27**	**$ 9.95**	**$ 10.77**	**$ 11.20**	**$ 11.65**
	Total Potential Remote Sales	$ 105.42	$ 146.18	$ 152.03	$ 158.11	$ 164.43

* Grown by 4% from Calendar Year 2017
** The 2017 GOA study estimated that 80% of all internet retail is currently taxable by law and may already be collected due to the source having a physical nexus.

Estimation of e-Commerce Sales Tax Revenue from Marketplace Facilitators: Alternative 1

The estimation of e-commerce Sales Tax Revenue from marketplace facilitators is calculated by two scenarios given an assumed compliance rate for remote sales. Scenario 1 can be implied as the high estimate whereas Scenario 2 is implied to be the low estimate. In 2018, nationwide retail sales grew by 4%.

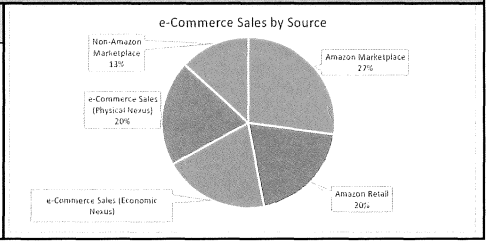
The following pie chart breaks down e-commerce sales by revenue source. Various resources have found that Amazon sales account for anywhere between 40% and 50% of all e-commerce sales. Amazon retail accounts for 25% to 50% of all sales made through Amazon (retail or third-party). For the December 2018 forecast, it was assumed that 25% of e-commerce is from Amazon Marketplace and 25% of e-commerce is from Amazon Retail. Alternative 1 uses mathematical analysis given certain assumptions to produce the percent estimates for each source of e-commerce.

Summary of Scenarios

	Fiscal Year				
Source	2019	2020	2021	2022	2023
Scenario 1 (High)	$ 87,894,039	$ 121,879,734	$ 115,231,749	$ 107,856,917	$ 99,707,728
Average of Scenarios	$ -	$ 78,263,054	$ 77,269,817	$ 68,376,508	$ 58,648,102
Scenario 2 (Low)	$ 35,247,129	$ 48,876,019	$ 39,307,885	$ 28,896,099	$ 17,588,477
Range Between Scenarios	$ 52,646,910	$ 73,003,715	$ 75,923,864	$ 78,960,818	$ 82,119,251

e-Commerce Sales Tax Revenue Breakdown

Assumptions	Percent of total e-Commerce
Amazon Marketplace	27.2%
Amazon Retail	19.8%
e-Commerce Sales Not From a Marketplace (Economic Nexus)	19.8%
e-Commerce Sales Not From a Marketplace (Physical Nexus)	19.98%
Non-Amazon Marketplace	13.1%



Scenario 1 assumes that the majority of remote sellers who are complying come from e-commerce sales without the aid of a marketplace facilitator. Any excess revenue from compliance will come from third party sellers. The estimated revenue to be collected is the remainder of total estimated third-party sales tax revenue and estimated sales tax revenue with the assumed compliance.

Scenario 1 assumes that the majority of remote sellers who are complying come from e-commerce sales with the aid of a marketplace facilitator. Any excess revenue from compliance will come from e-commerce sales without the aid of a marketplace facilitator. The estimated revenue to be collected is the remainder of total estimated third-party sales tax revenue and estimated sales tax revenue with the assumed compliance.

Scenario 1: Assumed New Compliance Rate Taken from e-Commerce Sales Without the Aid of a Marketplace Facilitator

	Fiscal Year				
Estimated Sales Tax Revenue Due by Source	2019	2020	2021	2022	2023
Total e-Commerce from Remote Sales	$ 159,807,344	$ 221,599,517	$ 230,463,498	$ 239,682,038	$ 249,269,319
Assumed Compliance Rate	45%	45%	50%	55%	60%
Estimated Tax Collected from Remote Sales	$ 71,913,305	$ 99,719,783	$ 115,231,749	$ 131,825,121	$ 149,561,591
Estimated Tax Collected from Third Party Sellers	$ 19,266,395	$ 26,716,068	$ 39,307,885	$ 52,864,303	$ 67,442,341
Estimated Tax to be Collected from Marketplace Facilitators	$ 87,894,039	$ 121,879,734	$ 115,231,749	$ 107,856,917	$ 99,707,728

Scenario 2: Assumed New Compliance Rate Taken from e-Commerce Sales With the Aid of a Marketplace Facilitator

	Fiscal Year				
Estimated Sales Tax Revenue Due by Source	2019	2020	2021	2022	2023
Total e-Commerce from Remote Sales	$ 159,807,344	$ 221,599,517	$ 230,463,498	$ 239,682,038	$ 249,269,319
Assumed Compliance Rate	45%	45%	50%	55%	60%
Estimated Tax Collected from Remote Sales	$ 71,913,305	$ 99,719,783	$ 115,231,749	$ 131,825,121	$ 149,561,591
Estimated Tax Collected from e-Commerce sales without a marketplace facilitator	$ -	$ -	$ -	$ -	$ -
Estimated Tax to be Collected from Marketplace Facilitators	$ 35,247,129	$ 48,876,019	$ 39,307,885	$ 28,896,099	$ 17,588,477

Estimation of e-Commerce Sales Tax Revenue from Marketplace Facilitators: Alternative 2

The estimation of e-commerce Sales Tax Revenue from marketplace facilitators is calculated by two scenarios given an assumed compliance rate for remote sales. Scenario 1 can be implied as the high estimate whereas Scenario 2 is implied to be the low estimate. In 2018, nationwide retail sales grew by 4%.

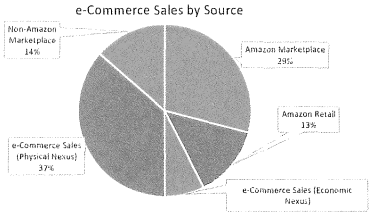
The following pie chart breaks down e-commerce sales by revenue source. Various resources have found that Amazon sales account for anywhere between 40% and 50% of all e-commerce sales. Amazon retail accounts for 25% to 50% of all sales made through Amazon (retail or third-party). For the December 2018 forecast, it was assumed that 25% of e-commerce is from Amazon Marketplace and 25% of e-commerce is from Amazon Retail. Alternative 2 uses mathematical analysis given certain assumptions to produce the percent estimates for each source of e-commerce.

Summary of Scenarios

	Fiscal Year				
Source	2019	2020	2021	2022	2023
Scenario 1 (High)	$ 107,903,441	$ 149,626,105	$ 141,464,681	$ 132,410,942	$ 122,406,559
Average of Scenarios	$ -	$ 118,778,903	$ 120,613,596	$ 110,725,813	$ 99,854,026
Scenario 2 (Low)	$ 78,986,441	$ 109,527,865	$ 99,762,512	$ 89,040,685	$ 77,301,493
Range Between Scenarios	$ 28,917,000	$ 40,098,240	$ 41,702,170	$ 43,370,256	$ 45,105,067

e-Commerce Sales Tax Revenue Breakdown

Assumptions	Percent of total e-Commerce
Amazon Marketplace	29.1%
Amazon Retail	13.4%
e-Commerce Sales Not From a Marketplace (Economic Nexus)	7.4%
e-Commerce Sales Not From a Marketplace (Physical Nexus)	36.5%
Non-Amazon Marketplace	13.5%



Scenario 1 assumes that the majority of remote sellers who are complying come from e-commerce sales without the aid of a marketplace facilitator. Any excess revenue from compliance will come from third party sellers. The estimated revenue to be collected is the remainder of total estimated third-party sales tax revenue and estimated sales tax revenue with the assumed compliance.

Scenario 1 assumes that the majority of remote sellers who are complying come from e-commerce sales with the aid of a marketplace facilitator. Any excess revenue from compliance will come from e-commerce sales without the aid of a marketplace facilitator. The estimated revenue to be collected is the remainder of total estimated third-party sales tax revenue and estimated sales tax revenue with the assumed compliance.

Scenario 1: Assumed New Compliance Rate Taken from e-Commerce Sales Without the Aid of a Marketplace Facilitator

	Fiscal Year				
Estimated Sales Tax Revenue Due by Source	2019	2020	2021	2022	2023
Total e-Commerce from Remote Sales	$ 196,188,075	$ 272,047,464	$ 282,929,363	$ 294,246,537	$ 306,016,399
Assumed Compliance Rate	45%	45%	50%	55%	60%
Estimated Tax Collected from Remote Sales	$ 88,284,634	$ 122,421,359	$ 141,464,681	$ 161,835,595	$ 183,609,839
Estimated Tax Collected from Third Party Sellers	$ 59,367,634	$ 82,323,119	$ 99,762,512	$ 118,465,339	$ 138,504,772
Estimated Tax to be Collected from Marketplace Facilitators	$ 107,903,441	$ 149,626,105	$ 141,464,681	$ 132,410,942	$ 122,406,559

Scenario 2: Assumed New Compliance Rate Taken from e-Commerce Sales With the Aid of a Marketplace Facilitator

	Fiscal Year				
Estimated Sales Tax Revenue Due by Source	2019	2020	2021	2022	2023
Total e-Commerce from Remote Sales	$ 196,188,075	$ 272,047,464	$ 282,929,363	$ 294,246,537	$ 306,016,399
Assumed Compliance Rate	45%	45%	50%	55%	60%
Estimated Tax Collected from Remote Sales	$ 88,284,634	$ 122,421,359	$ 141,464,681	$ 161,835,595	$ 183,609,839
Estimated Tax Collected from e-Commerce sales without a marketplace facilitator	$ -	$ -	$ -	$ -	$ -
Estimated Tax to be Collected from Marketplace Facilitators	$ 78,986,441	$ 109,527,865	$ 99,762,512	$ 89,040,685	$ 77,301,493

Estimation of e-Commerce Sales Tax Revenue from Marketplace Facilitators: Alternative 3

The estimation of e-commerce Sales Tax Revenue from marketplace facilitators is calculated by two scenarios given an assumed compliance rate for remote sales. Scenario 1 can be implied as the high estimate whereas Scenario 2 is implied to be the low estimate. In 2018, nationwide retail sales grew by 4%.

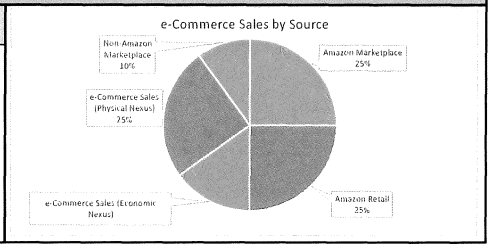
The following pie chart breaks down e-commerce sales by revenue source. Various resources have found that Amazon sales account for anywhere between 40% and 50% of all e-commerce sales. Amazon retail accounts for 25% to 50% of all sales made through Amazon (retail or third-party). For the December 2018 forecast, it was assumed that 25% of e-commerce is from Amazon Marketplace and 25% of e-commerce is from Amazon Retail. Alternative 3 keeps these assumptions. It also assumes e-commerce from a physical nexus makes up 25% of all e-commerce.

Summary of Scenarios

	Fiscal Year				
Source	2019	2020	2021	2022	2023
Scenario 1 (High)	$ 57,979,350	$ 80,398,032	$ 76,012,685	$ 71,147,873	$ 65,772,256
Average of Scenarios	$ -	$ 53,598,688	$ 53,208,879	$ 47,431,915	$ 41,107,660
Scenario 2 (Low)	$ 26,354,250	$ 36,544,560	$ 30,405,074	$ 23,715,958	$ 16,443,064
Range Between Scenarios	$ 31,625,100	$ 43,853,472	$ 45,607,611	$ 47,431,915	$ 49,329,192

e-Commerce Sales Tax Revenue Breakdown

Assumptions	Percent of total e-Commerce
Amazon Marketplace	25.0%
Amazon Retail	25.0%
e-Commerce Sales Not From a Marketplace (Economic Nexus)	15.0%
e-Commerce Sales Not From a Marketplace (Physical Nexus)	25.0%
Non-Amazon Marketplace	10.0%



Scenario 1 assumes that the majority of remote sellers who are complying come from e-commerce sales without the aid of a marketplace facilitator. Any excess revenue from compliance will come from third party sellers. The estimated revenue to be collected is the remainder of total estimated third-party sales tax revenue and estimated sales tax revenue with the assumed compliance.

Scenario 1 assumes that the majority of remote sellers who are complying come from e-commerce sales with the aid of a marketplace facilitator. Any excess revenue from compliance will come from e-commerce sales without the aid of a marketplace facilitator. The estimated revenue to be collected is the remainder of total estimated third-party sales tax revenue and estimated sales tax revenue with the assumed compliance.

Scenario 1: Assumed New Compliance Rate Taken from e-Commerce Sales Without the Aid of a Marketplace Facilitator

	Fiscal Year				
Estimated Sales Tax Revenue Due by Source	2019	2020	2021	2022	2023
Total e-Commerce from Remote Sales	$ 105,417,000	$ 146,178,240	$ 152,025,370	$ 158,106,384	$ 164,430,640
Assumed Compliance Rate	45%	45%	50%	55%	60%
Estimated Tax Collected from Remote Sales	$ 47,437,650	$ 65,780,208	$ 76,012,685	$ 86,958,511	$ 98,658,384
Estimated Tax Collected from Third Party Sellers	$ 15,812,550	$ 21,926,736	$ 30,405,074	$ 39,526,596	$ 49,329,192
Estimated Tax to be Collected from Marketplace Facilitators	$ 57,979,350	$ 80,398,032	$ 76,012,685	$ 71,147,873	$ 65,772,256

Scenario 2: Assumed New Compliance Rate Taken from e-Commerce Sales With the Aid of a Marketplace Facilitator

	Fiscal Year				
Estimated Sales Tax Revenue Due by Source	2019	2020	2021	2022	2023
Total e-Commerce from Remote Sales	$ 105,417,000	$ 146,178,240	$ 152,025,370	$ 158,106,384	$ 164,430,640
Assumed Compliance Rate	45%	45%	50%	55%	60%
Estimated Tax Collected from Remote Sales	$ 47,437,650	$ 65,780,208	$ 76,012,685	$ 86,958,511	$ 98,658,384
Estimated Tax Collected from e-Commerce sales without a marketplace facilitator	$ -	$ -	$ -	$ -	$ -
Estimated Tax to be Collected from Marketplace Facilitators	$ 26,354,250	$ 36,544,560	$ 30,405,074	$ 23,715,958	$ 16,443,064

PRIVILEGED & CONFIDENTIAL
DELIBERATIVE MATERIAL

EXECUTIVE SUMMARY

The Department began implementation of the economic nexus registration threshold effective October 1, 2018. Even though enforcement of HEA 1129 (2017) was being held in abeyance, the law was statutorily in effect as of July 1, 2017. Registrations after July 1, 2018 and the resulting tax returns were reviewed for this report. There has been an approximate increase of 3,250 registrations over the average number of registrations from July 2018 through March 2019 as compared to the corresponding rolling period year over year.

The estimate of additional sales and use tax due from remote sellers was based on a manual, and necessarily subjective, review of out-of-state sales and use tax registrations starting on July 1, 2018 to determine those that likely registered only due to HEA 1129. (The number identified as likely remote sellers exceeds the increase in registrations discussed above.) The estimate of sales tax due from remote sellers in February is $5,524,860. Note that the registrations are reviewed on an ongoing basis as new information becomes available. This review may impact the tax due numbers from previous periods as well as the current period.

Out-of-State Sales & Use Tax Registrations through 3/31/19

Year	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	2,546	941	811	794									
2018	5,812	351	308	308	395	303	335	359	514	636	890	709	704
2017	3,874	304	189	360	310	333	381	379	377	325	314	304	298

All Sales and Use Tax Due for CY19 (CY17 and CY18 Year-to-Date Comparison)

Year	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	$1,068,345,665	$527,300,688	$541,044,978										
2018	$7,244,652,370	$525,557,480	$528,185,105	$621,133,891	$574,719,830	$626,205,261	$625,994,314	$602,735,697	$616,475,436	$586,887,785	$596,633,441	$620,903,701	$719,220,427
2017	$6,979,478,546	$507,773,266	$516,391,578	$589,938,023	$561,298,914	$591,910,289	$609,133,567	$576,489,748	$594,066,100	$579,171,717	$561,756,799	$585,857,838	$705,690,707

Out-of-State Sales and Use Tax Due for CY19 (CY17 and CY19 Year-to-Date Comparisons)

Year	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	$480,739,767	$239,189,935	$241,549,832										
2018	$3,311,185,929	$237,261,308	$232,447,529	$277,860,622	$251,813,182	$276,894,078	$280,985,245	$265,898,161	$269,712,996	$270,750,700	$271,842,731	$307,161,420	$368,557,957
2017	$3,170,393,645	$225,478,095	$226,055,013	$268,281,037	$249,319,390	$259,721,991	$271,184,688	$253,806,555	$258,033,607	$261,127,858	$254,777,212	$283,679,530	$358,928,669

Estimated Sales and Use Tax Due from Remote Sellers (Estimate based on manual review of registrations)

Year	Total	Jan	Feb	Mar	Apr	May	Jun	Jul	Aug	Sep	Oct	Nov	Dec
2019	$11,291,779	$5,766,919	$5,524,860										
2018	$25,382,885	$3,783	$7,392	$8,270	$7,532	$12,196	$24,640	$214,093	$1,174,104	$1,258,507	$5,156,215	$6,710,125	$10,806,027

Sensitivity Analysis: Sales Net of GUT

The analysis of the Sales Net of GUT December 2018 model consists of two data tables. Table 1 displays the forecasts for the December 2018 Sales Net of GUT model if data were used from different months over three fiscal years. Table 2 displays the change in predictors over different monthly datasets. In each graph, the change in revenue forecast by specific fiscal year is shown. Although the model loses statistical integrity by holding the coefficients constant, this is a valuable tool for determining how the revenue forecasts may change given predictor data changes.

The regression coefficients are held constant as they were in the December 2018 model whereas the underlying predictor data changes to the corresponding month when calculating revenue forecasts. The tax rates and outside adjustments are based on April 2019 data.

Two predictors are likely the drivers of a lower forecast: Adjusted Personal Income and Household Financial Obligations Ratio. Both variables attained their maximums within the data during the same months where the forecast was at its maximum. Both have steadily declined since December 2018.The forecast was the highest using data from between October 2017 and June 2018. The data revisions have steadily decreased the forecast from June 2018 to March 2019. April 2019 data shows an increase in the forecast.

Table 1: Revenue Forecasts

Global Insights Data Date		Fiscal Year Forecast ($thousands)				
Calendar Year	Month	2019	2020	2021	2022	2023
2016	July	$ 7,758.64	$ 7,960.26	$ 8,105.03	$ 8,369.10	$ 8,643.84
	August	$ 7,769.61	$ 7,969.38	$ 8,110.60	$ 8,370.34	$ 8,639.31
	September	$ 7,755.46	$ 7,955.28	$ 8,086.88	$ 8,343.81	$ 8,613.52
	October	$ 7,670.99	$ 7,864.32	$ 7,994.29	$ 8,250.64	$ 8,531.65
	November	$ 7,670.36	$ 7,867.83	$ 8,009.25	$ 8,274.47	$ 8,550.89
	December	$ 7,679.05	$ 7,884.76	$ 8,031.20	$ 8,302.47	$ 8,585.63
2017	January	$ 7,729.63	$ 7,936.91	$ 8,082.94	$ 8,349.68	$ 8,628.61
	February	$ 7,713.04	$ 7,917.79	$ 8,070.36	$ 8,330.43	$ 8,604.40
	March	$ 7,725.57	$ 7,939.00	$ 8,092.66	$ 8,357.30	$ 8,633.10
	April	$ 7,715.21	$ 7,951.75	$ 8,113.15	$ 8,386.74	$ 8,669.34
	May	$ 7,680.85	$ 7,888.87	$ 8,045.30	$ 8,306.63	$ 8,571.91
	June	$ 7,642.82	$ 7,866.66	$ 8,033.51	$ 8,304.76	$ 8,578.54
	July	$ 7,658.23	$ 7,842.44	$ 8,003.20	$ 8,268.55	$ 8,536.43
	August	$ 7,664.57	$ 7,853.61	$ 7,986.14	$ 8,246.66	$ 8,502.31
	September	$ 7,667.50	$ 7,838.63	$ 7,966.49	$ 8,219.54	$ 8,469.90
	October	$ 7,631.61	$ 7,791.61	$ 7,925.78	$ 8,189.51	$ 8,449.37
	November	$ 7,661.94	$ 7,904.85	$ 8,089.09	$ 8,330.20	$ 8,580.76
	December	$ 7,672.39	$ 7,905.65	$ 8,143.28	$ 8,395.58	$ 8,661.81
2018	January	$ 7,585.00	$ 7,853.60	$ 8,079.96	$ 8,309.40	$ 8,573.99
	February	$ 7,713.66	$ 7,983.67	$ 8,222.76	$ 8,478.23	$ 8,757.21
	March	$ 7,693.34	$ 7,985.57	$ 8,244.52	$ 8,503.81	$ 8,777.22
	April	$ 7,712.91	$ 7,991.26	$ 8,228.46	$ 8,471.88	$ 8,755.55
	May	$ 7,656.79	$ 7,885.78	$ 8,139.22	$ 8,391.98	$ 8,660.24
	June	$ 7,674.36	$ 7,908.83	$ 8,114.64	$ 8,344.68	$ 8,605.18
	July	$ 7,703.41	$ 7,947.61	$ 8,147.31	$ 8,368.27	$ 8,625.36
	August	$ 7,659.40	$ 7,885.03	$ 8,099.74	$ 8,328.68	$ 8,576.78
	September	$ 7,637.73	$ 7,882.60	$ 8,079.25	$ 8,304.57	$ 8,545.66
	October	$ 7,667.76	$ 7,906.77	$ 8,112.73	$ 8,340.57	$ 8,573.41
	November	$ 7,665.14	$ 7,902.17	$ 8,102.96	$ 8,331.76	$ 8,574.04
	December	$ 7,657.59	$ 7,899.69	$ 8,096.59	$ 8,325.59	$ 8,576.10
2019	January	$ 7,596.42	$ 7,843.38	$ 8,061.62	$ 8,279.24	$ 8,511.04
	February	$ 7,568.01	$ 7,824.41	$ 8,013.59	$ 8,236.43	$ 8,474.66
	March	$ 7,557.67	$ 7,786.90	$ 7,990.30	$ 8,209.66	$ 8,444.62
	April	$ 7,559.99	$ 7,812.00	$ 8,073.38	$ 8,290.28	$ 8,511.44
April 2019 Data Difference from Maximum Forecast		$ (209.62)	$ (179.26)	$ (171.13)	$ (213.53)	$ (265.77)

Legend: Minimum; 25th Percentile; 25th to 50th Percentile; 50th to 75th Percentile; 75th Percentile; Maximum

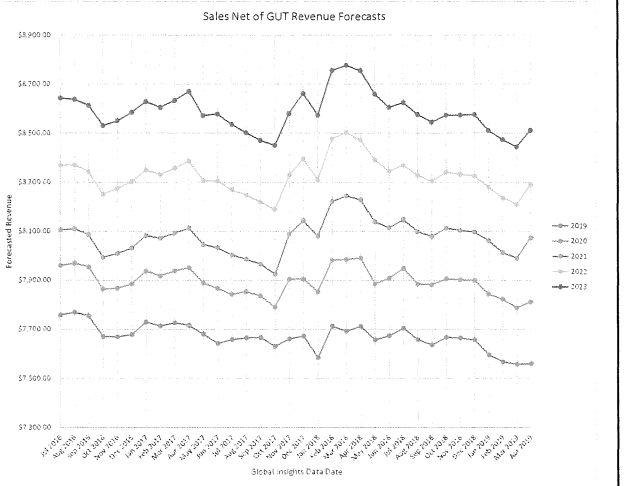
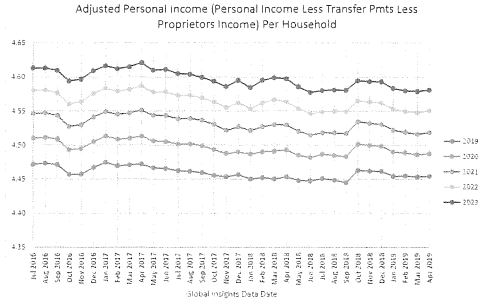
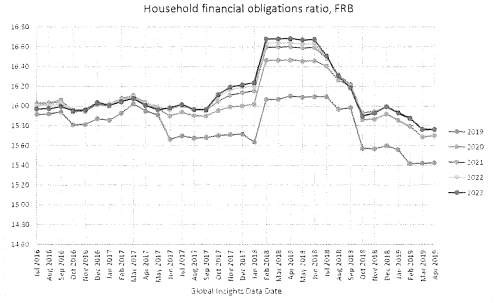
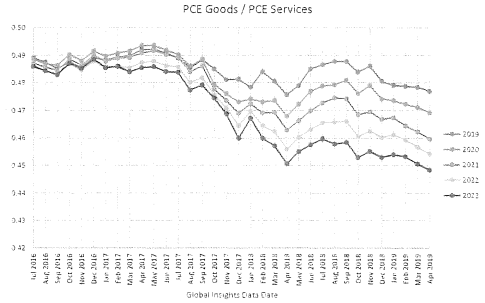


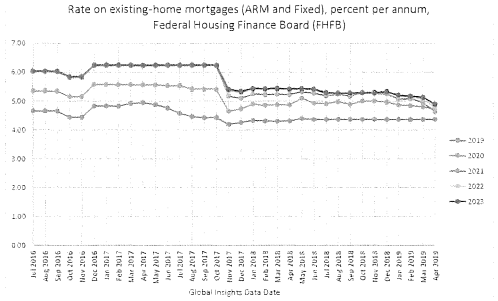
Table 2: Predictors

Model Predictors	Coefficients
Constant	6.758
Adjusted Personal Income (Personal Income Less Transfer Pmts Less Proprietors Income) Per Household	0.977
Household financial obligations ratio, FRB	0.029
PCE Goods / PCE Services	0.269
Rate on existing-home mortgages (ARM and Fixed), percent per annum, Federal Housing Finance Board (FHFB)	-0.028









VARIABLES GLOBAL INSIGHT ERROR	SALES & USE TAXES	2019

This error analysis is presented to determine the difference of percentage error between December 2018, December 2016 and December 2014 data versus April 2019 data.

Dec-18

INDIANA DATA								US DATA					
FY	Indiana PCE total	Indiana PCE Services	Personal Income (Millions)	Transfer Payments (Millions $)	Income, Proprietors' (Millions)	Households, Family and Non-Family (Thous.)	Real GSP, Retail Trade (Millions 2012$)	FY	Household financial obligations ratio, FRB	Prior FY rate on existing-home mortgages (ARM and Fixed), percent per annum, Federal Housing Finance Board (FHFB)	Total demand for petroleum, quadrillion Btus, SAAR, DOE	Demand for all fuels, quadrillion btus, DOE	Average miles per gallon of the light vehicle stock, DOE
FY 2008	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2008	-0.1%		0.0%	0.0%	0.0%
FY 2009	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2009	-0.1%	0.0%	-0.1%	0.0%	0.0%
FY 2010	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2010	-0.1%	0.0%	-0.2%	0.0%	0.0%
FY 2011	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2011	0.0%	0.0%	-0.1%	0.0%	0.0%
FY 2012	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2012	0.0%	0.0%	-0.3%	-0.1%	0.0%
FY 2013	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2013	0.0%	0.0%	-0.2%	-0.1%	0.0%
FY 2014	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2014	0.0%	0.0%	-0.3%	-0.1%	0.0%
FY 2015	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2015	0.0%	0.0%	-0.3%	-0.1%	0.0%
FY 2016	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	0.0%	FY 2016	0.0%	0.0%	-0.4%	0.0%	0.0%
FY 2017	0.0%	0.0%	0.0%	0.0%	0.0%	-0.5%	0.0%	FY 2017	0.0%	0.0%	-0.5%	-0.1%	0.0%
FY 2018	0.0%	0.0%	-0.1%	0.0%	0.5%	-0.6%	0.0%	FY 2018	0.0%	0.0%	-0.5%	0.0%	0.0%

Dec-16

INDIANA DATA								US DATA					
FY	Indiana PCE total	Indiana PCE Services	Personal Income (Millions)	Transfer Payments (Millions $)	Income, Proprietors' (Millions)	Households, Family and Non-Family (Thous.)	Real GSP, Retail Trade (Millions 2012$)	FY	Household financial obligations ratio, FRB	Rate on existing-home mortgages (ARM and Fixed), percent per annum, Federal Housing Finance Board (FHFB)	Total demand for petroleum, quadrillion Btus, SAAR, DOE	Demand for all fuels, quadrillion btus, DOE	Average miles per gallon of the light vehicle stock, DOE
FY 2008	-2.4%	-2.9%	0.4%	0.1%	-1.5%	0.0%	4.3%	FY 2008	0.3%		-	-0.1%	0.0%
FY 2009	-2.3%	-2.3%	-0.3%	-0.4%	-5.2%	0.0%	4.0%	FY 2009	0.5%	0.0%	-	-0.1%	0.0%
FY 2010	-1.9%	-1.8%	0.4%	0.2%	3.4%	0.0%	3.3%	FY 2010	0.0%	0.0%	-	0.1%	0.0%
FY 2011	-1.8%	-1.3%	1.0%	0.0%	8.2%	0.0%	0.9%	FY 2011	-0.3%	0.0%	-	0.2%	0.0%
FY 2012	-1.5%	-0.8%	0.8%	-0.2%	6.7%	0.0%	0.3%	FY 2012	-0.5%	0.0%	-	0.1%	0.0%
FY 2013	-1.5%	-0.8%	0.8%	-0.2%	6.7%	0.0%	0.3%	FY 2013	-0.3%	0.0%	-	0.2%	0.0%
FY 2014	-1.6%	-1.0%	0.9%	0.3%	6.4%	0.0%	0.3%	FY 2014	-0.4%	0.0%	-	0.1%	0.0%
FY 2015	-1.2%	-0.8%	1.0%	0.9%	4.4%	0.0%	-1.3%	FY 2015	0.2%	0.0%	-	0.0%	0.0%
FY 2016	-1.0%	-0.8%	0.5%	-0.3%	2.1%	0.1%	-2.2%	FY 2016	0.9%	0.0%	-	-0.4%	0.0%
FY 2017	-1.2%	-0.7%	0.9%	-1.4%	0.0%	0.3%	3.5%	FY 2017	0.7%	0.0%	-	-3.1%	0.0%
FY 2018	-1.0%	-0.7%	0.1%	-2.0%	-2.7%	0.6%	6.2%	FY 2018	-1.7%	-2.3%	-	-1.7%	0.0%

Dec-14

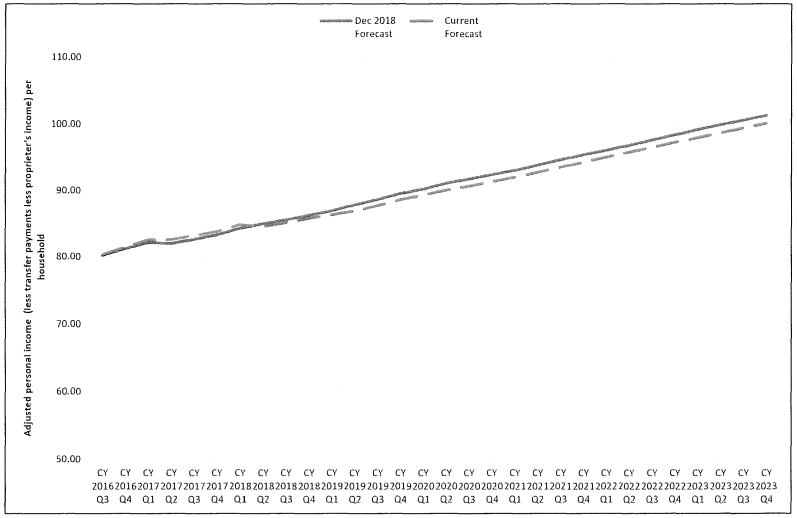
INDIANA DATA								US DATA					
FY	Indiana PCE total	Indiana PCE Services	Personal Income (Millions)	Transfer Payments (Millions $)	Income, Proprietors' (Millions)	Households, Family and Non-Family (Thous.)	Real GSP, Retail Trade (Millions 2012$)	FY	Household financial obligations ratio, FRB	Rate on existing-home mortgages (ARM and Fixed), percent per annum, Federal Housing Finance Board (FHFB)	Total demand for petroleum, quadrillion Btus, SAAR, DOE	Demand for all fuels, quadrillion btus, DOE	Average miles per gallon of the light vehicle stock, DOE
FY 2009	-1.1%	-0.1%	0.4%	3.7%	-5.2%	0.0%	2.1%	FY 2009	0.5%		-	1.7%	0.0%
FY 2010	-0.9%	0.6%	0.4%	1.0%	2.8%	0.0%	2.6%	FY 2010	0.7%	0.0%	-	1.7%	0.0%
FY 2011	-0.9%	0.7%	1.9%	1.4%	19.0%	0.0%	2.9%	FY 2011	0.3%	0.0%	-	1.9%	0.0%
FY 2012	-2.3%	-0.9%	3.1%	1.0%	26.6%	0.0%	0.8%	FY 2012	0.0%	0.0%	-	2.1%	0.0%
FY 2013	-3.2%	-1.8%	2.4%	0.0%	24.5%	0.0%	-0.1%	FY 2013	-0.4%	0.0%	-	1.7%	0.0%
FY 2014	-3.2%	-1.8%	2.4%	0.0%	24.5%	0.0%	-0.1%	FY 2014	-0.6%	0.0%	-	2.0%	0.0%
FY 2015	-4.6%	-3.3%	3.0%	2.4%	22.1%	-0.2%	-0.4%	FY 2015	-0.4%	0.0%	-	1.8%	0.0%
FY 2016	-4.2%	-2.5%	4.0%	6.0%	18.9%	-0.1%	0.7%	FY 2016	-1.8%	0.0%	-	1.5%	0.0%
FY 2017	-5.2%	-2.8%	3.1%	4.4%	15.2%	0.1%	4.3%	FY 2017	-2.7%	-11.5%	-	-2.7%	0.0%
FY 2018	-5.2%	-2.2%	2.4%	2.8%	13.6%	0.2%	9.5%	FY 2018	-3.2%	-37.1%	-	-2.5%	0.0%

Adjusted Personal Income (Less Transfer Pmts Less Proprietors Income) Per Household

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Com Comparison of Global Insight Forecast for Dec 2018 and February 2019

Date Date Prepared: March 3, 2019 Statistic Compiled by BEA



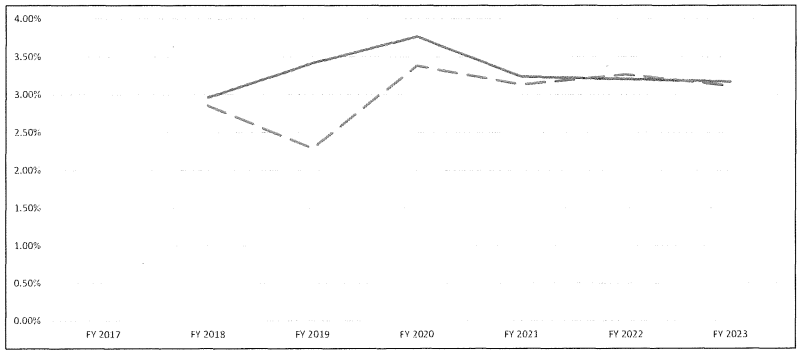
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	80.17	0.9%	80.32	1.1%	0.2%
2016	4	81.16	1.2%	81.47	1.4%	0.4%
2017	1	82.08	1.1%	82.54	1.3%	0.6%
2017	2	81.94	-0.2%	82.55	0.0%	0.8%
2017	3	82.58	0.8%	83.13	0.7%	0.7%
2017	4	83.22	0.8%	83.77	0.8%	0.7%
2018	1	84.26	1.3%	84.80	1.2%	0.6%
2018	2	84.93	0.8%	84.52	-0.3%	-0.5%
2018	**3**	**85.54**	0.7%	**85.07**	0.7%	**-0.6%**
2018	**4**	**86.20**	0.8%	**85.75**	0.8%	**-0.5%**
2019	**1**	**86.87**	0.8%	**86.28**	0.6%	**-0.7%**
2019	**2**	**87.81**	1.1%	**86.83**	0.6%	**-1.1%**
2019	**3**	**88.61**	0.9%	**87.67**	1.0%	**-1.1%**
2019	**4**	**89.51**	1.0%	**88.57**	1.0%	**-1.1%**
2020	**1**	**90.25**	0.8%	**89.29**	0.8%	**-1.1%**
2020	**2**	**91.10**	0.9%	**90.03**	0.8%	**-1.2%**
2020	**3**	**91.76**	0.7%	**90.65**	0.7%	**-1.2%**
2020	**4**	**92.40**	0.7%	**91.30**	0.7%	**-1.2%**
2021	**1**	**93.09**	0.7%	**91.99**	0.8%	**-1.2%**
2021	**2**	**93.86**	0.8%	**92.76**	0.8%	**-1.2%**
2021	3	94.65	0.8%	93.55	0.9%	-1.2%
2021	4	95.42	0.8%	94.31	0.8%	-1.2%
2022	1	96.09	0.7%	95.04	0.8%	-1.1%
2022	2	96.85	0.8%	95.79	0.8%	-1.1%
2022	3	97.65	0.8%	96.54	0.8%	-1.1%
2022	4	98.42	0.8%	97.28	0.8%	-1.2%
2023	1	99.18	0.8%	98.00	0.7%	-1.2%
2023	2	99.91	0.7%	98.68	0.7%	-1.2%
2023	3	100.63	0.7%	99.40	0.7%	-1.2%
2023	4	101.33	0.7%	100.12	0.7%	-1.2%

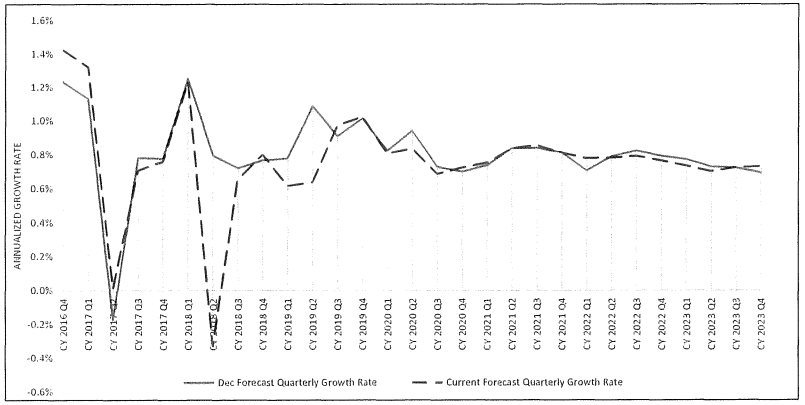
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	81.34		81.72		
FY 2018	83.75	3.0%	84.05	2.9%	0.4%
FY 2019	86.61	3.4%	85.98	2.3%	-0.7%
FY 2020	89.87	3.8%	88.89	3.4%	-1.1%
FY 2021	92.78	3.2%	91.67	3.1%	-1.2%
FY 2022	95.76	3.2%	94.67	3.3%	-1.1%
FY 2023	98.79	3.2%	97.63	3.1%	-1.2%

Annualized growth rate



Quarterly growth rate

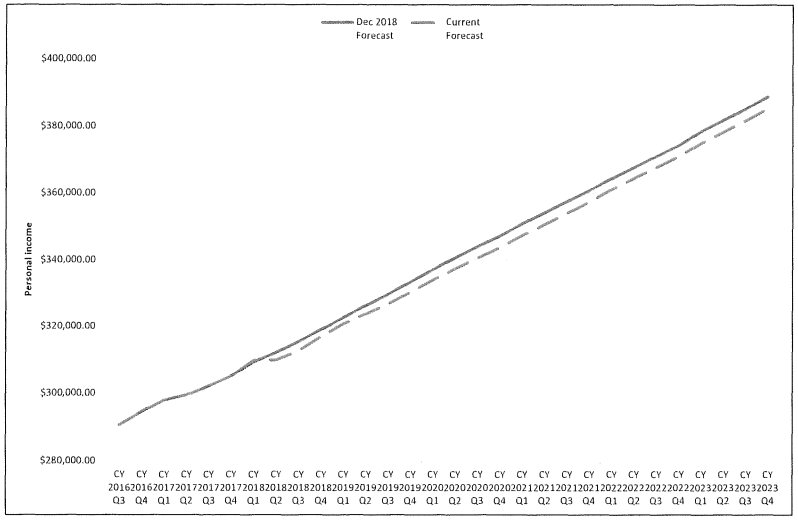


Personal Income (Millions $)

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



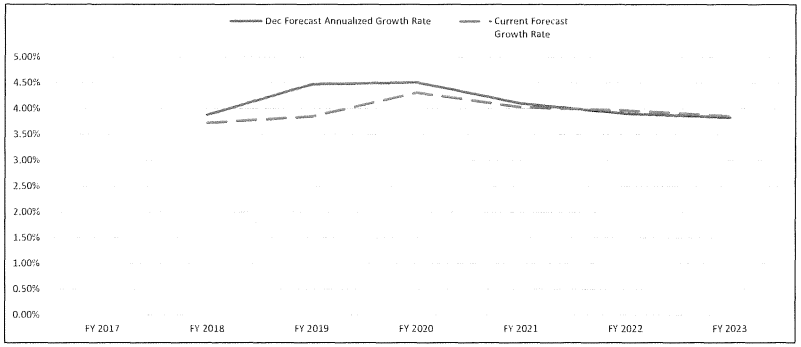
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 290,629.12	1.2%	$ 290,629.12	1.2%	0.0%
2016	4	$ 294,480.13	1.3%	$ 294,480.13	1.3%	0.0%
2017	1	$ 297,831.78	1.1%	$ 297,831.78	1.1%	0.0%
2017	2	$ 299,318.34	0.5%	$ 299,318.34	0.5%	0.0%
2017	3	$ 301,995.27	0.9%	$ 301,995.27	0.9%	0.0%
2017	4	$ 304,887.27	1.0%	$ 304,887.27	1.0%	0.0%
2018	1	$ 309,182.77	1.4%	$ 309,655.41	1.6%	0.2%
2018	2	$ 312,054.73	0.9%	$ 309,759.89	0.0%	-0.7%
2018	**3**	**$ 315,332.50**	1.1%	**$ 312,471.91**	0.9%	**-0.9%**
2018	**4**	**$ 318,899.50**	1.1%	**$ 316,715.25**	1.4%	**-0.7%**
2019	**1**	**$ 322,509.22**	1.1%	**$ 320,655.48**	1.2%	**-0.6%**
2019	**2**	**$ 326,246.07**	1.2%	**$ 323,651.35**	0.9%	**-0.8%**
2019	**3**	**$ 329,658.99**	1.0%	**$ 326,775.94**	1.0%	**-0.9%**
2019	**4**	**$ 333,390.30**	1.1%	**$ 330,231.77**	1.1%	**-0.9%**
2020	**1**	**$ 337,045.74**	1.1%	**$ 333,947.41**	1.1%	**-0.9%**
2020	**2**	**$ 340,673.89**	1.1%	**$ 337,314.87**	1.0%	**-1.0%**
2020	**3**	**$ 343,904.90**	0.9%	**$ 340,425.62**	0.9%	**-1.0%**
2020	**4**	**$ 347,036.02**	0.9%	**$ 343,601.60**	0.9%	**-1.0%**
2021	**1**	**$ 350,705.07**	1.1%	**$ 347,182.13**	1.0%	**-1.0%**
2021	**2**	**$ 354,067.53**	1.0%	**$ 350,512.92**	1.0%	**-1.0%**
2021	3	$ 357,447.13	1.0%	$ 353,911.39	1.0%	-1.0%
2021	4	$ 360,788.32	0.9%	$ 357,256.71	0.9%	-1.0%
2022	1	$ 364,331.92	1.0%	$ 361,009.21	1.1%	-0.9%
2022	2	$ 367,609.95	0.9%	$ 364,287.06	0.9%	-0.9%
2022	3	$ 371,056.36	0.9%	$ 367,665.18	0.9%	-0.9%
2022	4	$ 374,388.21	0.9%	$ 370,957.81	0.9%	-0.9%
2023	1	$ 378,404.01	1.1%	$ 374,903.26	1.1%	-0.9%
2023	2	$ 381,814.09	0.9%	$ 378,240.17	0.9%	-0.9%
2023	3	$ 385,296.53	0.9%	$ 381,736.73	0.9%	-0.9%
2023	4	$ 388,785.14	0.9%	$ 385,318.55	0.9%	-0.9%

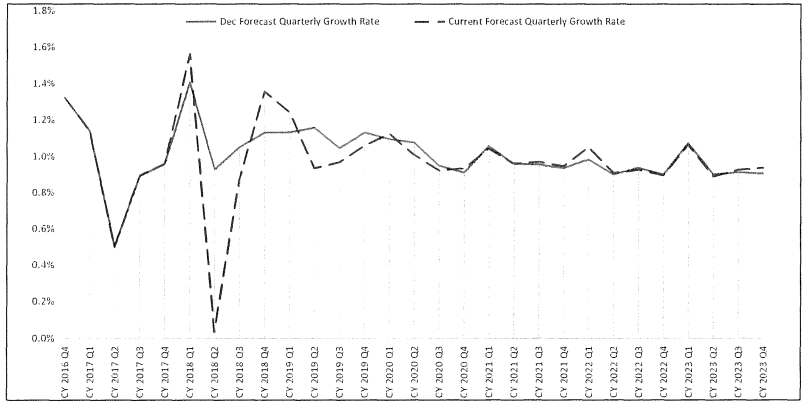
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 295,564.84		$ 295,564.84		
FY 2018	$ 307,030.01	3.9%	$ 306,574.46	3.7%	-0.1%
FY 2019	$ 320,746.82	4.5%	$ 318,373.50	3.8%	-0.7%
FY 2020	$ 335,192.23	4.5%	$ 332,067.50	4.3%	-0.9%
FY 2021	$ 348,928.38	4.1%	$ 345,430.57	4.0%	-1.0%
FY 2022	$ 362,544.33	3.9%	$ 359,116.09	4.0%	-0.9%
FY 2023	$ 376,415.67	3.8%	$ 372,941.60	3.8%	-0.9%

Annualized growth rate

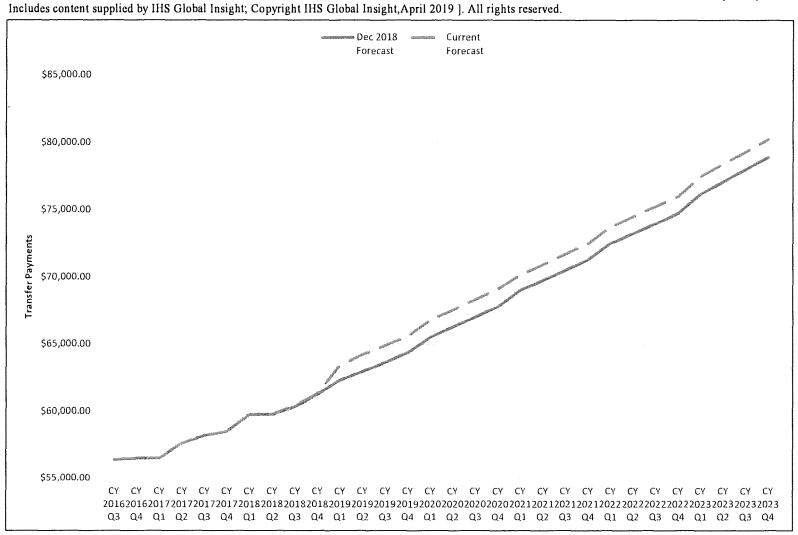


Quarterly growth rate



Transfer Payments (Millions $)

This variable is included in the following December 2018 Forecast Model(s): Sales Tax
Comparison of Global Insight Forecast for Dec 2018 and April 2019
Date Prepared:April 12, 2019 Statistic Compiled by BEA



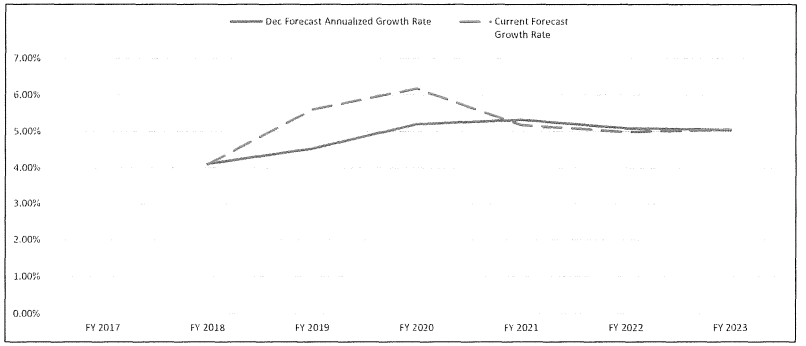
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 56,357.27	0.7%	$ 56,357.27	0.7%	0.0%
2016	4	$ 56,469.92	0.2%	$ 56,469.92	0.2%	0.0%
2017	1	$ 56,474.31	0.0%	$ 56,474.31	0.0%	0.0%
2017	2	$ 57,598.80	2.0%	$ 57,598.80	2.0%	0.0%
2017	3	$ 58,197.71	1.0%	$ 58,197.71	1.0%	0.0%
2017	4	$ 58,484.82	0.5%	$ 58,484.82	0.5%	0.0%
2018	1	$ 59,775.42	2.2%	$ 59,734.26	2.1%	-0.1%
2018	2	$ 59,758.84	0.0%	$ 59,764.72	0.1%	0.0%
2018	**3**	**$ 60,351.30**	1.0%	**$ 60,428.35**	1.1%	0.1%
2018	**4**	**$ 61,260.83**	1.5%	**$ 61,329.65**	1.5%	0.1%
2019	**1**	**$ 62,318.32**	1.7%	**$ 63,428.48**	3.4%	1.8%
2019	**2**	**$ 62,963.59**	1.0%	**$ 64,219.74**	1.2%	2.0%
2019	**3**	**$ 63,642.03**	1.1%	**$ 64,888.18**	1.0%	2.0%
2019	**4**	**$ 64,347.05**	1.1%	**$ 65,583.59**	1.1%	1.9%
2020	**1**	**$ 65,485.36**	1.8%	**$ 66,777.69**	1.8%	2.0%
2020	**2**	**$ 66,249.64**	1.2%	**$ 67,544.97**	1.1%	2.0%
2020	**3**	**$ 67,015.37**	1.2%	**$ 68,310.00**	1.1%	1.9%
2020	**4**	**$ 67,783.35**	1.1%	**$ 69,082.12**	1.1%	1.9%
2021	**1**	**$ 68,998.47**	1.8%	**$ 70,170.47**	1.6%	1.7%
2021	**2**	**$ 69,735.55**	1.1%	**$ 70,917.64**	1.1%	1.7%
2021	3	$ 70,496.03	1.1%	$ 71,689.00	1.1%	1.7%
2021	4	$ 71,257.51	1.1%	$ 72,464.12	1.1%	1.7%
2022	1	$ 72,485.09	1.7%	$ 73,727.77	1.7%	1.7%
2022	2	$ 73,213.01	1.0%	$ 74,472.13	1.0%	1.7%
2022	3	$ 73,960.07	1.0%	$ 75,235.20	1.0%	1.7%
2022	4	$ 74,710.55	1.0%	$ 76,001.32	1.0%	1.7%
2023	1	$ 76,175.82	2.0%	$ 77,485.47	2.0%	1.7%
2023	2	$ 77,078.62	1.2%	$ 78,390.82	1.2%	1.7%
2023	3	$ 77,989.91	1.2%	$ 79,311.74	1.2%	1.7%
2023	4	$ 78,917.92	1.2%	$ 80,248.58	1.2%	1.7%

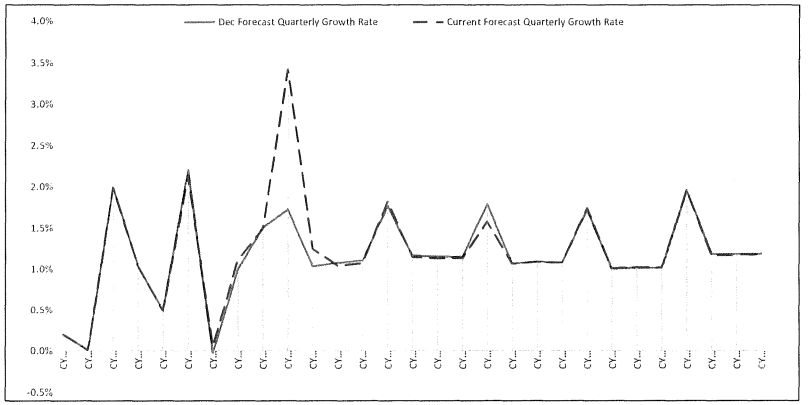
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 56,725.07		$ 56,725.07		
FY 2018	$ 59,054.20	4.1%	$ 59,045.38	4.1%	0.0%
FY 2019	$ 61,723.51	4.5%	$ 62,351.55	5.6%	1.0%
FY 2020	$ 64,931.02	5.2%	$ 66,198.61	6.2%	2.0%
FY 2021	$ 68,383.18	5.3%	$ 69,620.06	5.2%	1.8%
FY 2022	$ 71,862.91	5.1%	$ 73,088.25	5.0%	1.7%
FY 2023	$ 75,481.26	5.0%	$ 76,778.20	5.0%	1.7%

Annualized growth rate



Quarterly growth rate

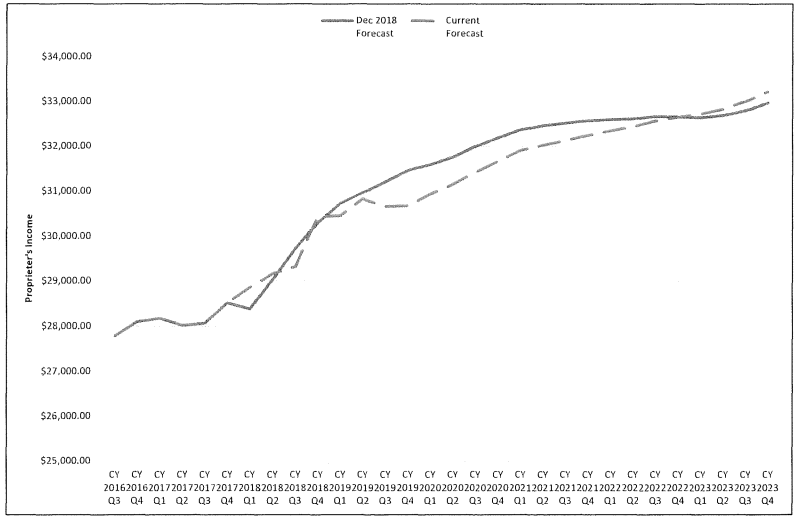


Income, Proprietors' (Millions $)

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



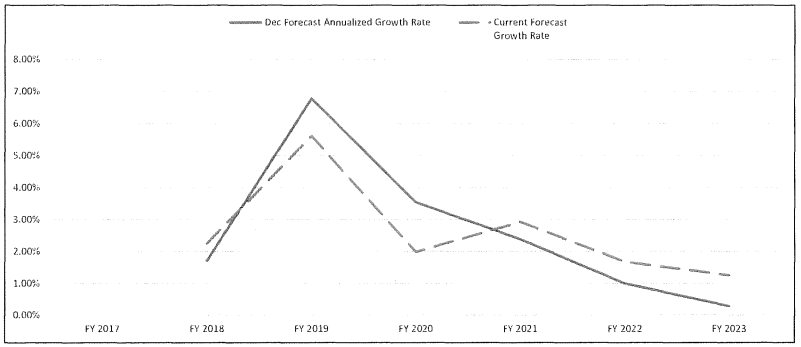
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 27,785.97	0.7%	$ 27,785.97	0.7%	0.0%
2016	4	$ 28,094.84	1.1%	$ 28,094.84	1.1%	0.0%
2017	1	$ 28,173.18	0.3%	$ 28,173.18	0.3%	0.0%
2017	2	$ 28,015.20	-0.6%	$ 28,015.20	-0.6%	0.0%
2017	3	$ 28,059.31	0.2%	$ 28,059.31	0.2%	0.0%
2017	4	$ 28,517.23	1.6%	$ 28,517.23	1.6%	0.0%
2018	1	$ 28,381.46	-0.5%	$ 28,849.78	1.2%	1.7%
2018	2	$ 29,029.01	2.3%	$ 29,168.07	1.1%	0.5%
2018	**3**	**$ 29,716.52**	2.4%	**$ 29,315.81**	0.5%	**-1.3%**
2018	**4**	**$ 30,299.09**	2.0%	**$ 30,430.27**	3.8%	0.4%
2019	**1**	**$ 30,725.94**	1.4%	**$ 30,453.21**	0.1%	**-0.9%**
2019	**2**	**$ 30,963.65**	0.8%	**$ 30,820.47**	1.2%	**-0.5%**
2019	**3**	**$ 31,205.78**	0.8%	**$ 30,659.54**	-0.5%	**-1.8%**
2019	**4**	**$ 31,455.60**	0.8%	**$ 30,673.64**	0.0%	**-2.5%**
2020	**1**	**$ 31,599.39**	0.5%	**$ 30,937.27**	0.9%	**-2.1%**
2020	**2**	**$ 31,755.66**	0.5%	**$ 31,146.91**	0.7%	**-1.9%**
2020	**3**	**$ 31,997.89**	0.8%	**$ 31,428.87**	0.9%	**-1.8%**
2020	**4**	**$ 32,188.64**	0.6%	**$ 31,662.29**	0.7%	**-1.6%**
2021	**1**	**$ 32,366.31**	0.6%	**$ 31,902.63**	0.8%	**-1.4%**
2021	**2**	**$ 32,460.01**	0.3%	**$ 32,028.83**	0.4%	**-1.3%**
2021	3	$ 32,515.32	0.2%	$ 32,123.34	0.3%	-1.2%
2021	4	$ 32,570.98	0.2%	$ 32,247.50	0.4%	-1.0%
2022	1	$ 32,601.67	0.1%	$ 32,341.77	0.3%	-0.8%
2022	2	$ 32,615.99	0.0%	$ 32,438.94	0.3%	-0.5%
2022	3	$ 32,668.36	0.2%	$ 32,567.11	0.4%	-0.3%
2022	4	$ 32,655.97	0.0%	$ 32,649.13	0.3%	0.0%
2023	1	$ 32,645.38	0.0%	$ 32,724.00	0.2%	0.2%
2023	2	$ 32,690.14	0.1%	$ 32,832.80	0.3%	0.4%
2023	3	$ 32,801.18	0.3%	$ 33,008.34	0.5%	0.6%
2023	4	$ 32,969.57	0.5%	$ 33,217.38	0.6%	0.8%

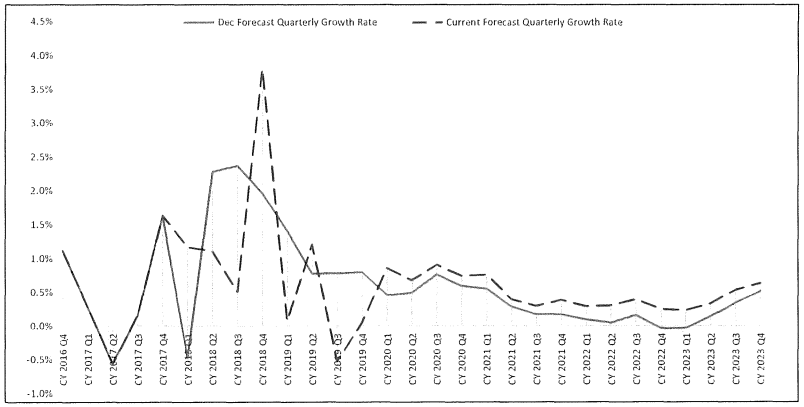
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 28,017.30		$ 28,017.30		
FY 2018	$ 28,496.75	1.7%	$ 28,648.60	2.3%	0.5%
FY 2019	$ 30,426.30	6.8%	$ 30,254.94	5.6%	-0.6%
FY 2020	$ 31,504.11	3.5%	$ 30,854.34	2.0%	-2.1%
FY 2021	$ 32,253.21	2.4%	$ 31,755.65	2.9%	-1.5%
FY 2022	$ 32,575.99	1.0%	$ 32,287.89	1.7%	-0.9%
FY 2023	$ 32,664.96	0.3%	$ 32,693.26	1.3%	0.1%

Annualized growth rate



Quarterly growth rate

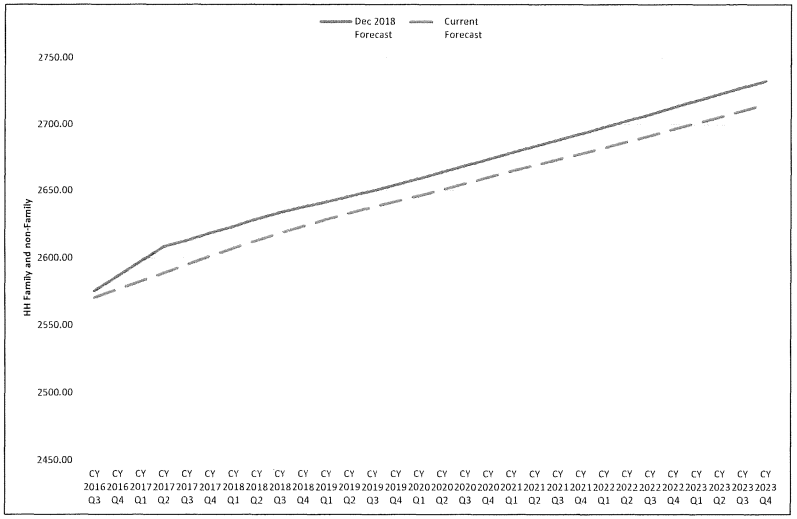


Households, Family and Non-Family (Thous.)

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



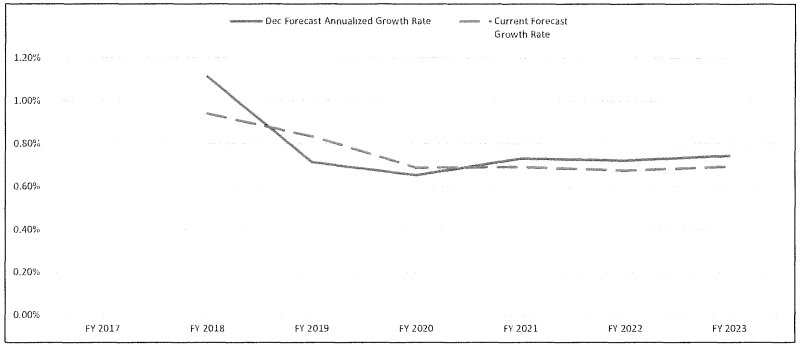
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	2575.57	0.4%	2570.71	0.2%	-0.2%
2016	4	2586.44	0.4%	2576.72	0.2%	-0.4%
2017	1	2597.31	0.4%	2582.73	0.2%	-0.6%
2017	2	2608.18	0.4%	2588.73	0.2%	-0.7%
2017	3	2612.61	0.2%	2595.04	0.2%	-0.7%
2017	4	2618.30	0.2%	2601.15	0.2%	-0.7%
2018	1	2623.15	0.2%	2607.06	0.2%	-0.6%
2018	2	2628.81	0.2%	2612.78	0.2%	-0.6%
2018	**3**	**2633.34**	0.2%	**2618.16**	0.2%	**-0.6%**
2018	**4**	**2637.39**	0.2%	**2623.40**	0.2%	**-0.5%**
2019	**1**	**2641.46**	0.2%	**2628.42**	0.2%	**-0.5%**
2019	**2**	**2645.56**	0.2%	**2632.93**	0.2%	**-0.5%**
2019	**3**	**2649.82**	0.2%	**2637.39**	0.2%	**-0.5%**
2019	**4**	**2654.25**	0.2%	**2641.66**	0.2%	**-0.5%**
2020	**1**	**2658.89**	0.2%	**2645.82**	0.2%	**-0.5%**
2020	**2**	**2663.78**	0.2%	**2650.47**	0.2%	**-0.5%**
2020	**3**	**2668.74**	0.2%	**2655.17**	0.2%	**-0.5%**
2020	**4**	**2673.71**	0.2%	**2659.89**	0.2%	**-0.5%**
2021	**1**	**2678.62**	0.2%	**2664.54**	0.2%	**-0.5%**
2021	**2**	**2683.36**	0.2%	**2668.93**	0.2%	**-0.5%**
2021	3	2688.12	0.2%	2673.35	0.2%	-0.5%
2021	4	2692.91	0.2%	2677.80	0.2%	-0.6%
2022	1	2697.83	0.2%	2682.35	0.2%	-0.6%
2022	2	2702.86	0.2%	2687.01	0.2%	-0.6%
2022	3	2707.92	0.2%	2691.69	0.2%	-0.6%
2022	4	2712.98	0.2%	2696.39	0.2%	-0.6%
2023	1	2718.01	0.2%	2701.09	0.2%	-0.6%
2023	2	2722.98	0.2%	2705.78	0.2%	-0.6%
2023	3	2727.89	0.2%	2710.48	0.2%	-0.6%
2023	4	2732.72	0.2%	2715.16	0.2%	-0.6%

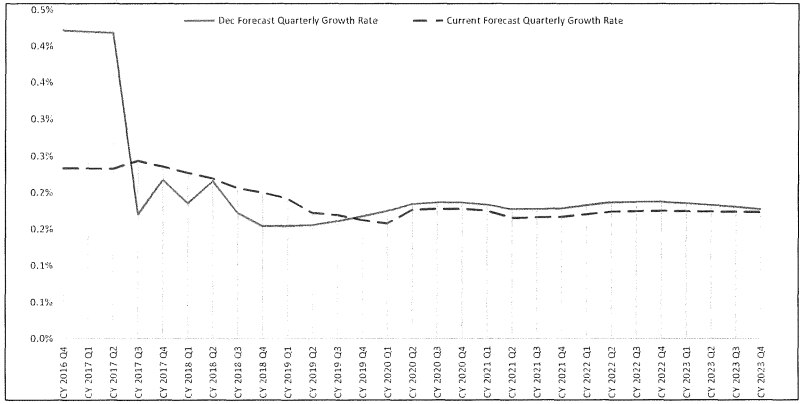
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	2591.87		2579.72		
FY 2018	2620.72	1.1%	2604.01	0.9%	-0.6%
FY 2019	2639.44	0.7%	2625.73	0.8%	-0.5%
FY 2020	2656.68	0.7%	2643.83	0.7%	-0.5%
FY 2021	2676.11	0.7%	2662.13	0.7%	-0.5%
FY 2022	2695.43	0.7%	2680.13	0.7%	-0.6%
FY 2023	2715.47	0.7%	2698.74	0.7%	-0.6%

Annualized growth rate



Quarterly growth rate

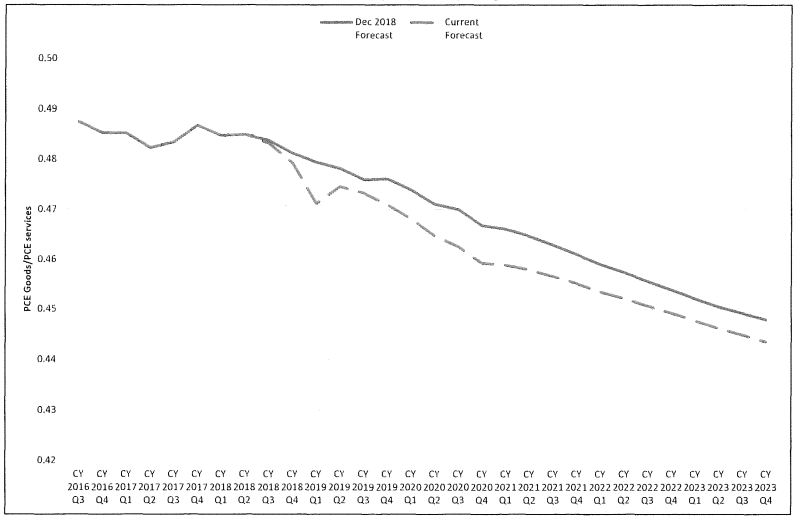


PCE Goods / PCE Services

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



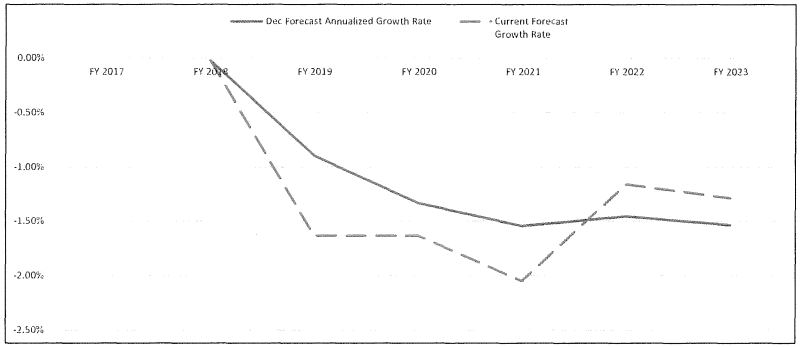
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	0.49	-0.7%	0.49	-0.7%	0.0%
2016	4	0.49	-0.5%	0.49	-0.5%	0.0%
2017	1	0.49	0.0%	0.49	0.0%	0.0%
2017	2	0.48	-0.6%	0.48	-0.6%	0.0%
2017	3	0.48	0.2%	0.48	0.2%	0.0%
2017	4	0.49	0.7%	0.49	0.7%	0.0%
2018	1	0.48	-0.4%	0.48	-0.4%	0.0%
2018	2	0.48	0.1%	0.48	0.1%	0.0%
2018	**3**	**0.48**	**-0.2%**	**0.48**	**-0.4%**	**-0.1%**
2018	**4**	**0.48**	**-0.5%**	**0.48**	**-0.8%**	**-0.4%**
2019	**1**	**0.48**	**-0.4%**	**0.47**	**-1.7%**	**-1.7%**
2019	**2**	**0.48**	**-0.3%**	**0.47**	**0.7%**	**-0.8%**
2019	**3**	**0.48**	**-0.5%**	**0.47**	**-0.3%**	**-0.6%**
2019	**4**	**0.48**	**0.0%**	**0.47**	**-0.5%**	**-1.1%**
2020	**1**	**0.47**	**-0.5%**	**0.47**	**-0.6%**	**-1.2%**
2020	**2**	**0.47**	**-0.6%**	**0.46**	**-0.7%**	**-1.3%**
2020	**3**	**0.47**	**-0.2%**	**0.46**	**-0.3%**	**-1.6%**
2020	**4**	**0.47**	**-0.7%**	**0.46**	**-0.7%**	**-1.6%**
2021	**1**	**0.47**	**-0.1%**	**0.46**	**-0.1%**	**-1.6%**
2021	**2**	**0.46**	**-0.3%**	**0.46**	**-0.2%**	**-1.5%**
2021	3	0.46	-0.4%	0.46	-0.3%	-1.4%
2021	4	0.46	-0.4%	0.46	-0.3%	-1.3%
2022	1	0.46	-0.4%	0.45	-0.4%	-1.2%
2022	2	0.46	-0.4%	0.45	-0.3%	-1.1%
2022	3	0.46	-0.4%	0.45	-0.3%	-1.1%
2022	4	0.45	-0.4%	0.45	-0.3%	-1.0%
2023	1	0.45	-0.4%	0.45	-0.3%	-1.0%
2023	2	0.45	-0.4%	0.45	-0.3%	-1.0%
2023	3	0.45	-0.3%	0.44	-0.3%	-1.0%
2023	4	0.45	-0.3%	0.44	-0.3%	-1.0%

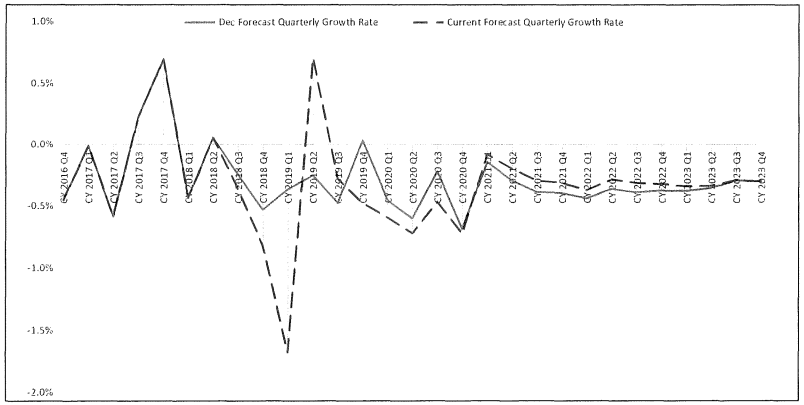
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	0.49		0.49		
FY 2018	0.48	0.0%	0.48	0.0%	0.0%
FY 2019	0.48	-0.9%	0.48	-1.6%	-0.7%
FY 2020	0.47	-1.3%	0.47	-1.6%	-1.1%
FY 2021	0.47	-1.5%	0.46	-2.1%	-1.6%
FY 2022	0.46	-1.5%	0.45	-1.2%	-1.3%
FY 2023	0.45	-1.5%	0.45	-1.3%	-1.0%

Annualized growth rate



Quarterly growth rate

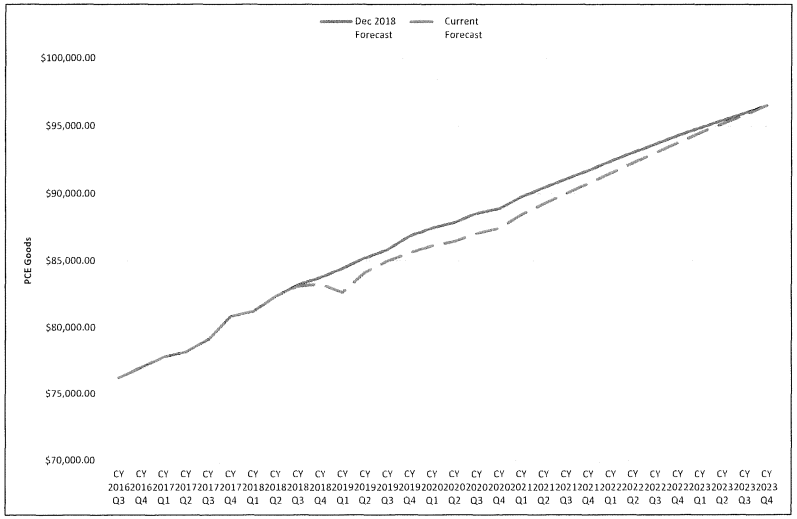


PCE Goods

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



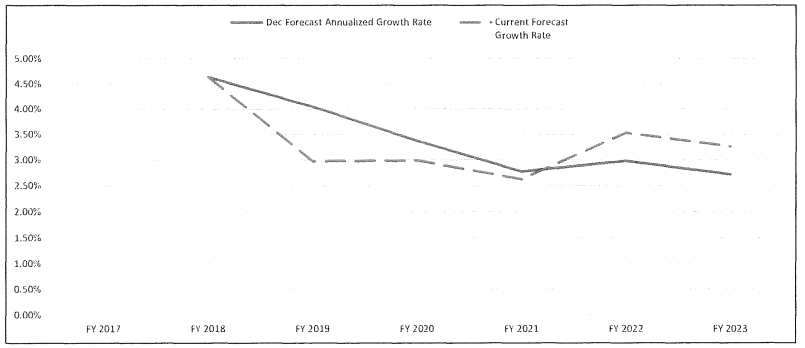
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 76,230.47	0.6%	$ 76,228.37	0.6%	0.0%
2016	4	$ 76,978.20	1.0%	$ 76,976.48	1.0%	0.0%
2017	1	$ 77,801.32	1.1%	$ 77,800.38	1.1%	0.0%
2017	2	$ 78,181.04	0.5%	$ 78,180.75	0.5%	0.0%
2017	3	$ 79,123.96	1.2%	$ 79,124.07	1.2%	0.0%
2017	4	$ 80,837.68	2.2%	$ 80,838.01	2.2%	0.0%
2018	1	$ 81,209.85	0.5%	$ 81,210.04	0.5%	0.0%
2018	2	$ 82,348.09	1.4%	$ 82,348.02	1.4%	0.0%
2018	**3**	**$ 83,207.73**	**1.0%**	**$ 83,096.51**	**0.9%**	**-0.1%**
2018	**4**	**$ 83,768.39**	**0.7%**	**$ 83,277.29**	**0.2%**	**-0.6%**
2019	**1**	**$ 84,414.42**	**0.8%**	**$ 82,617.83**	**-0.8%**	**-2.1%**
2019	**2**	**$ 85,201.82**	**0.9%**	**$ 84,143.51**	**1.8%**	**-1.2%**
2019	**3**	**$ 85,816.53**	**0.7%**	**$ 84,972.44**	**1.0%**	**-1.0%**
2019	**4**	**$ 86,839.21**	**1.2%**	**$ 85,581.75**	**0.7%**	**-1.4%**
2020	**1**	**$ 87,453.51**	**0.7%**	**$ 86,099.61**	**0.6%**	**-1.5%**
2020	**2**	**$ 87,839.39**	**0.4%**	**$ 86,438.37**	**0.4%**	**-1.6%**
2020	**3**	**$ 88,540.75**	**0.8%**	**$ 87,021.09**	**0.7%**	**-1.7%**
2020	**4**	**$ 88,883.77**	**0.4%**	**$ 87,427.96**	**0.5%**	**-1.6%**
2021	**1**	**$ 89,737.78**	**1.0%**	**$ 88,407.68**	**1.1%**	**-1.5%**
2021	**2**	**$ 90,447.43**	**0.8%**	**$ 89,246.09**	**0.9%**	**-1.3%**
2021	3	$ 91,093.00	0.7%	$ 90,007.54	0.9%	-1.2%
2021	4	$ 91,723.03	0.7%	$ 90,751.32	0.8%	-1.1%
2022	1	$ 92,394.74	0.7%	$ 91,506.20	0.8%	-1.0%
2022	2	$ 93,042.28	0.7%	$ 92,265.68	0.8%	-0.8%
2022	3	$ 93,686.39	0.7%	$ 93,022.88	0.8%	-0.7%
2022	4	$ 94,295.18	0.6%	$ 93,763.36	0.8%	-0.6%
2023	1	$ 94,863.87	0.6%	$ 94,471.05	0.8%	-0.4%
2023	2	$ 95,415.36	0.6%	$ 95,150.69	0.7%	-0.3%
2023	3	$ 95,972.66	0.6%	$ 95,838.19	0.7%	-0.1%
2023	4	$ 96,533.45	0.6%	$ 96,533.18	0.7%	0.0%

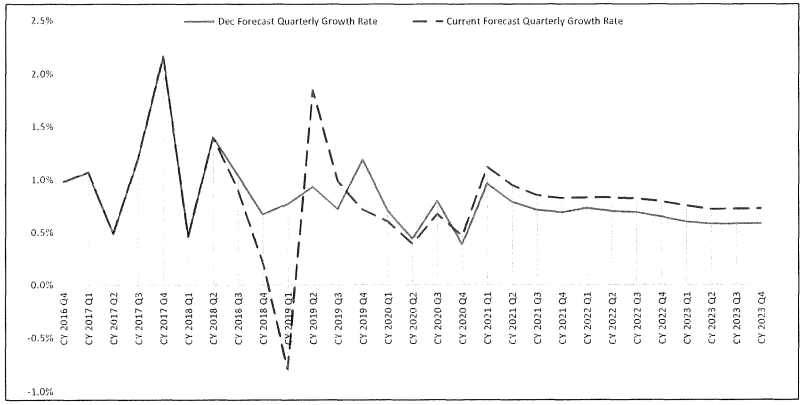
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 77,297.76		$ 77,296.49		
FY 2018	$ 80,879.89	4.6%	$ 80,880.03	4.6%	0.0%
FY 2019	$ 84,148.09	4.0%	$ 83,283.79	3.0%	-1.0%
FY 2020	$ 86,987.16	3.4%	$ 85,773.04	3.0%	-1.4%
FY 2021	$ 89,402.43	2.8%	$ 88,025.70	2.6%	-1.5%
FY 2022	$ 92,063.26	3.0%	$ 91,132.68	3.5%	-1.0%
FY 2023	$ 94,565.20	2.7%	$ 94,101.99	3.3%	-0.5%

Annualized growth rate



Quarterly growth rate

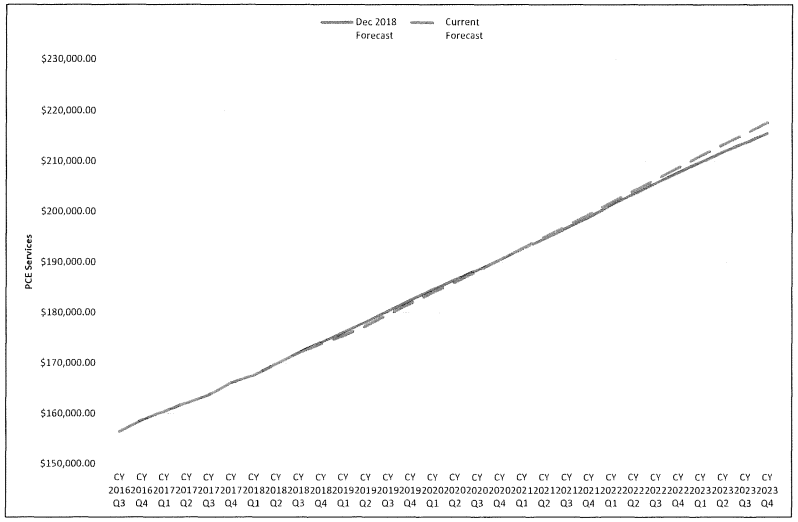


PCE Services

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



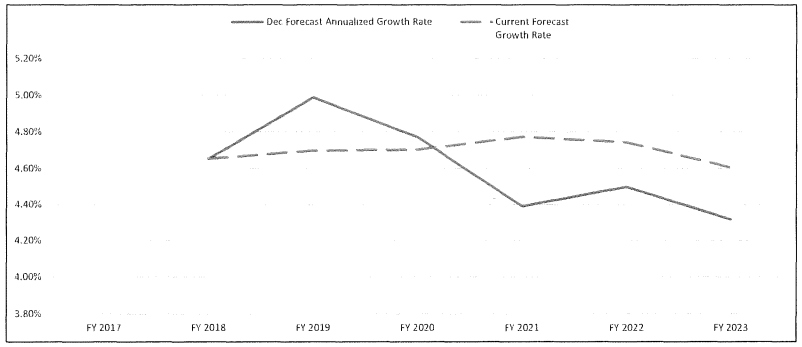
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 156,390.36	1.3%	$ 156,390.00	1.3%	0.0%
2016	4	$ 158,645.39	1.4%	$ 158,645.04	1.4%	0.0%
2017	1	$ 160,364.43	1.1%	$ 160,364.16	1.1%	0.0%
2017	2	$ 162,100.22	1.1%	$ 162,100.02	1.1%	0.0%
2017	3	$ 163,682.77	1.0%	$ 163,682.61	1.0%	0.0%
2017	4	$ 166,072.58	1.5%	$ 166,072.41	1.5%	0.0%
2018	1	$ 167,568.16	0.9%	$ 167,568.62	0.9%	0.0%
2018	2	$ 169,823.29	1.3%	$ 169,824.78	1.3%	0.0%
2018	**3**	**$ 172,021.70**	**1.3%**	**$ 171,991.85**	**1.3%**	**0.0%**
2018	**4**	**$ 174,109.95**	**1.2%**	**$ 173,791.44**	**1.0%**	**-0.2%**
2019	**1**	**$ 176,100.47**	**1.1%**	**$ 175,355.53**	**0.9%**	**-0.4%**
2019	**2**	**$ 178,192.73**	**1.2%**	**$ 177,341.94**	**1.1%**	**-0.5%**
2019	**3**	**$ 180,340.47**	**1.2%**	**$ 179,596.71**	**1.3%**	**-0.4%**
2019	**4**	**$ 182,428.37**	**1.2%**	**$ 181,754.20**	**1.2%**	**-0.4%**
2020	**1**	**$ 184,563.29**	**1.2%**	**$ 183,948.22**	**1.2%**	**-0.3%**
2020	**2**	**$ 186,499.60**	**1.0%**	**$ 186,014.51**	**1.1%**	**-0.3%**
2020	**3**	**$ 188,406.13**	**1.0%**	**$ 188,153.71**	**1.2%**	**-0.1%**
2020	**4**	**$ 190,443.77**	**1.1%**	**$ 190,414.44**	**1.2%**	**0.0%**
2021	**1**	**$ 192,553.88**	**1.1%**	**$ 192,707.91**	**1.2%**	**0.1%**
2021	**2**	**$ 194,651.67**	**1.1%**	**$ 194,921.47**	**1.1%**	**0.1%**
2021	3	$ 196,804.78	1.1%	$ 197,167.57	1.2%	0.2%
2021	4	$ 198,954.30	1.1%	$ 199,422.89	1.1%	0.2%
2022	1	$ 201,300.91	1.2%	$ 201,838.78	1.2%	0.3%
2022	2	$ 203,449.25	1.1%	$ 204,093.03	1.1%	0.3%
2022	3	$ 205,661.32	1.1%	$ 206,417.41	1.1%	0.4%
2022	4	$ 207,780.26	1.0%	$ 208,739.03	1.1%	0.5%
2023	1	$ 209,830.90	1.0%	$ 211,036.46	1.1%	0.6%
2023	2	$ 211,805.67	0.9%	$ 213,275.12	1.1%	0.7%
2023	3	$ 213,666.83	0.9%	$ 215,439.93	1.0%	0.8%
2023	4	$ 215,562.09	0.9%	$ 217,655.43	1.0%	1.0%

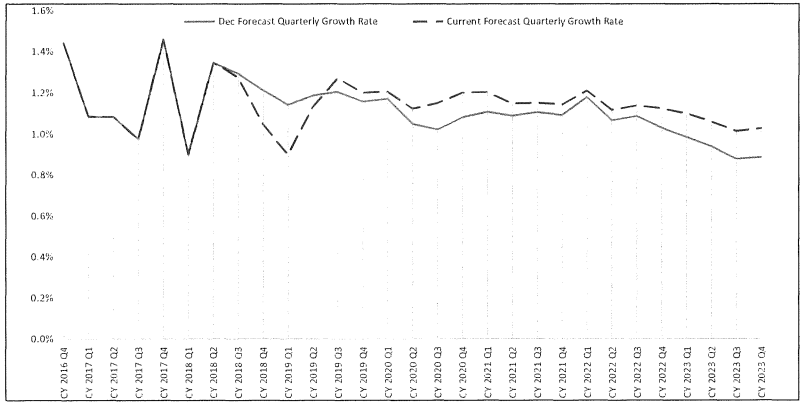
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 159,375.10		$ 159,374.81		
FY 2018	$ 166,786.70	4.7%	$ 166,787.10	4.7%	0.0%
FY 2019	$ 175,106.21	5.0%	$ 174,620.19	4.7%	-0.3%
FY 2020	$ 183,457.93	4.8%	$ 182,828.41	4.7%	-0.3%
FY 2021	$ 191,513.86	4.4%	$ 191,549.38	4.8%	0.0%
FY 2022	$ 200,127.31	4.5%	$ 200,630.57	4.7%	0.3%
FY 2023	$ 208,769.53	4.3%	$ 209,867.00	4.6%	0.5%

Annualized growth rate



Quarterly growth rate

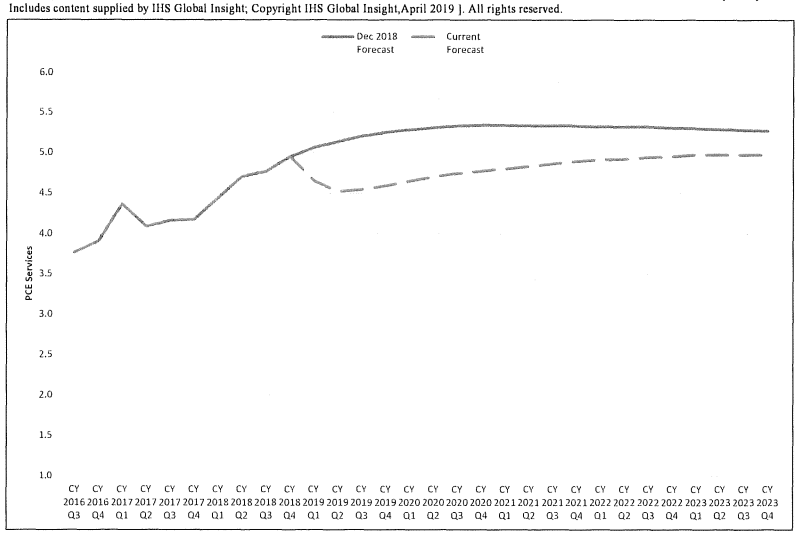


Rate on existing-home mortgages (ARM and Fixed), percent per annum, Federal Housing Finance Board (FHFB)

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



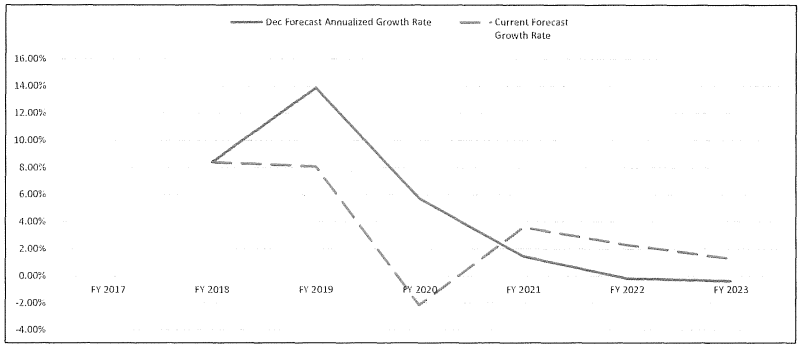
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	3.8	-2.3%	3.8	-2.3%	0.0%
2016	4	3.9	3.9%	3.9	3.9%	0.0%
2017	1	4.4	11.6%	4.4	11.6%	0.0%
2017	2	4.1	-6.3%	4.1	-6.3%	0.0%
2017	3	4.2	1.8%	4.2	1.8%	0.0%
2017	4	4.2	0.3%	4.2	0.3%	0.0%
2018	1	4.4	6.4%	4.4	6.4%	0.0%
2018	2	4.7	5.9%	4.7	5.9%	0.0%
2018	**3**	4.8	**1.3%**	4.8	*1.3%*	**0.0%**
2018	**4**	4.9	**3.8%**	5.0	*3.9%*	**0.1%**
2019	**1**	5.1	**2.3%**	4.6	*-6.2%*	**-8.1%**
2019	**2**	5.1	1.4%	4.5	*-2.8%*	-11.9%
2019	**3**	5.2	1.4%	4.5	*0.4%*	-12.7%
2019	**4**	5.3	1.0%	4.6	*1.1%*	-12.6%
2020	**1**	5.3	0.6%	4.7	*1.3%*	-11.9%
2020	**2**	5.3	0.6%	4.7	*1.1%*	-11.5%
2020	**3**	5.3	0.4%	4.7	*0.9%*	-11.1%
2020	**4**	5.3	0.2%	4.8	*0.6%*	-10.7%
2021	**1**	5.3	**0.0%**	4.8	*0.6%*	-10.1%
2021	**2**	5.3	-0.2%	4.8	*0.6%*	-9.4%
2021	3	5.3	0.0%	4.9	0.6%	-8.8%
2021	4	5.3	0.0%	4.9	0.6%	-8.3%
2022	1	5.3	-0.2%	4.9	0.4%	-7.7%
2022	2	5.3	0.0%	4.9	0.2%	-7.5%
2022	3	5.3	0.0%	4.9	0.4%	-7.1%
2022	4	5.3	-0.2%	4.9	0.2%	-6.8%
2023	1	5.3	-0.2%	5.0	0.4%	-6.2%
2023	2	5.3	-0.2%	5.0	0.0%	-6.0%
2023	3	5.3	-0.2%	5.0	0.0%	-5.9%
2023	4	5.3	-0.2%	5.0	**0.0%**	-5.7%

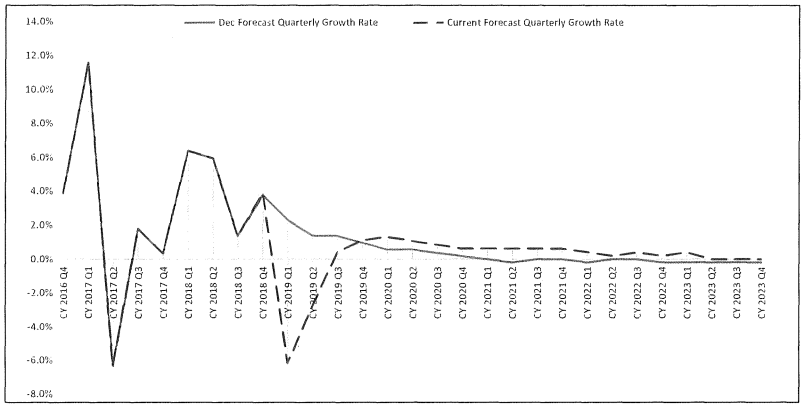
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	4.0		4.0		
FY 2018	4.4	8.4%	4.4	8.4%	0.0%
FY 2019	5.0	13.9%	4.7	8.1%	-5.1%
FY 2020	5.3	5.7%	4.6	-2.2%	-12.2%
FY 2021	5.3	1.4%	4.8	3.6%	-10.3%
FY 2022	5.3	-0.2%	4.9	2.3%	-8.1%
FY 2023	5.3	-0.4%	5.0	1.3%	-6.6%

Annualized growth rate

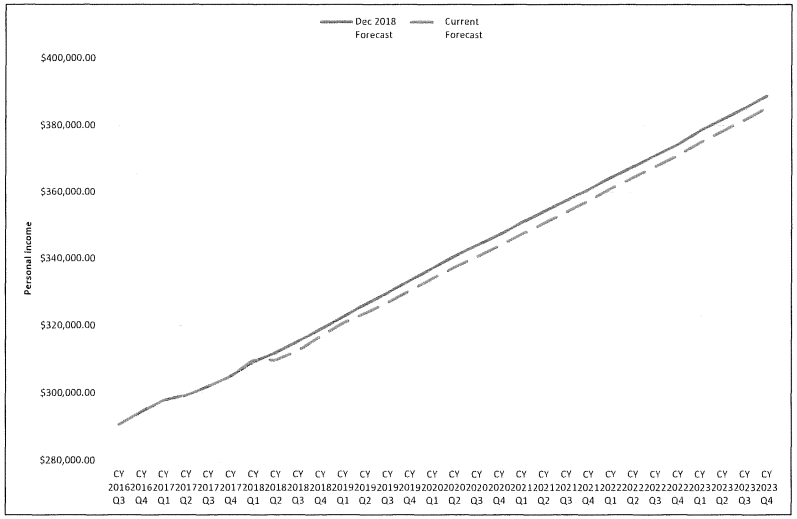


Quarterly growth rate



Personal Income

This variable is included in the following December 2018 Forecast Model(s): Sales Tax
Comparison of Global Insight Forecast for Dec 2018 and March 2019
Date Prepared:April 12, 2019 Statistic Compiled by BEA



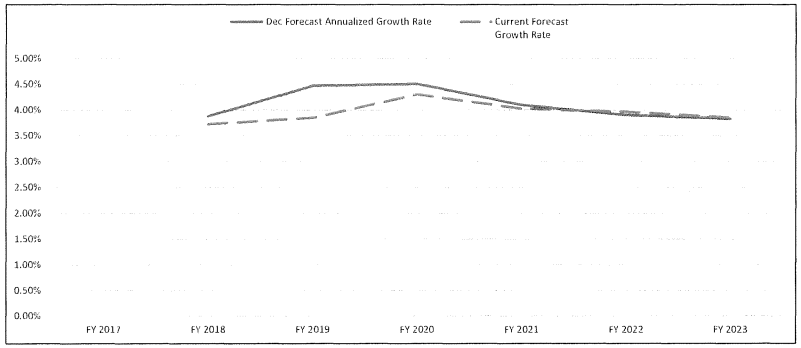
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 290,629.12	1.2%	$ 290,629.12	1.2%	0.0%
2016	4	$ 294,480.13	1.3%	$ 294,480.13	1.3%	0.0%
2017	1	$ 297,831.78	1.1%	$ 297,831.78	1.1%	0.0%
2017	2	$ 299,318.34	0.5%	$ 299,318.34	0.5%	0.0%
2017	3	$ 301,995.27	0.9%	$ 301,995.27	0.9%	0.0%
2017	4	$ 304,887.27	1.0%	$ 304,887.27	1.0%	0.0%
2018	1	$ 309,182.77	1.4%	$ 309,655.41	1.6%	0.2%
2018	2	$ 312,054.73	0.9%	$ 309,759.89	0.0%	-0.7%
2018	**3**	**$ 315,332.50**	1.1%	**$ 312,471.91**	0.9%	**-0.9%**
2018	**4**	**$ 318,899.50**	1.1%	**$ 316,715.25**	1.4%	**-0.7%**
2019	**1**	**$ 322,509.22**	1.1%	**$ 320,655.48**	1.2%	**-0.6%**
2019	**2**	**$ 326,246.07**	1.2%	**$ 323,651.35**	0.9%	**-0.8%**
2019	**3**	**$ 329,658.99**	1.0%	**$ 326,775.94**	1.0%	**-0.9%**
2019	**4**	**$ 333,390.30**	1.1%	**$ 330,231.77**	1.1%	**-0.9%**
2020	**1**	**$ 337,045.74**	1.1%	**$ 333,947.41**	1.1%	**-0.9%**
2020	**2**	**$ 340,673.89**	1.1%	**$ 337,314.87**	1.0%	**-1.0%**
2020	**3**	**$ 343,904.90**	0.9%	**$ 340,425.62**	0.9%	**-1.0%**
2020	**4**	**$ 347,036.02**	0.9%	**$ 343,601.60**	0.9%	**-1.0%**
2021	**1**	**$ 350,705.07**	1.1%	**$ 347,182.13**	1.0%	**-1.0%**
2021	**2**	**$ 354,067.53**	1.0%	**$ 350,512.92**	1.0%	**-1.0%**
2021	3	$ 357,447.13	1.0%	$ 353,911.39	1.0%	-1.0%
2021	4	$ 360,788.32	0.9%	$ 357,256.71	0.9%	-1.0%
2022	1	$ 364,331.92	1.0%	$ 361,009.21	1.1%	-0.9%
2022	2	$ 367,609.95	0.9%	$ 364,287.06	0.9%	-0.9%
2022	3	$ 371,056.36	0.9%	$ 367,665.18	0.9%	-0.9%
2022	4	$ 374,388.21	0.9%	$ 370,957.81	0.9%	-0.9%
2023	1	$ 378,404.01	1.1%	$ 374,903.26	1.1%	-0.9%
2023	2	$ 381,814.09	0.9%	$ 378,240.17	0.9%	-0.9%
2023	3	$ 385,296.53	0.9%	$ 381,736.73	0.9%	-0.9%
2023	4	$ 388,785.14	0.9%	$ 385,318.55	0.9%	-0.9%

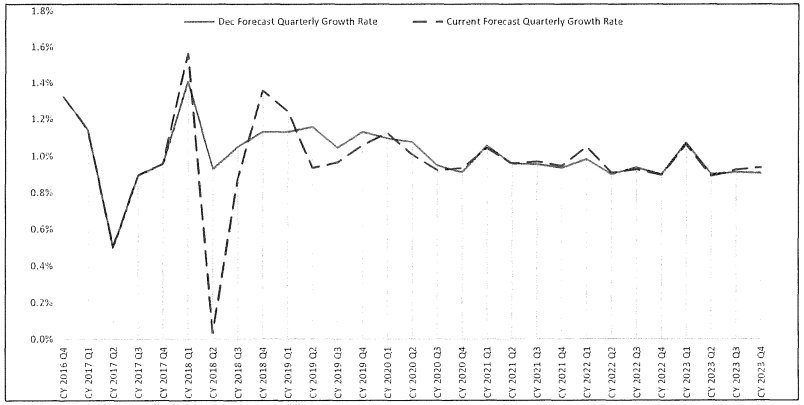
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 295,564.84		$ 295,564.84		
FY 2018	$ 307,030.01	3.9%	$ 306,574.46	3.7%	-0.1%
FY 2019	$ 320,746.82	4.5%	$ 318,373.50	3.8%	-0.7%
FY 2020	$ 335,192.23	4.5%	$ 332,067.50	4.3%	-0.9%
FY 2021	$ 348,928.38	4.1%	$ 345,430.57	4.0%	-1.0%
FY 2022	$ 362,544.33	3.9%	$ 359,116.09	4.0%	-0.9%
FY 2023	$ 376,415.67	3.8%	$ 372,941.60	3.8%	-0.9%

Annualized growth rate



Quarterly growth rate

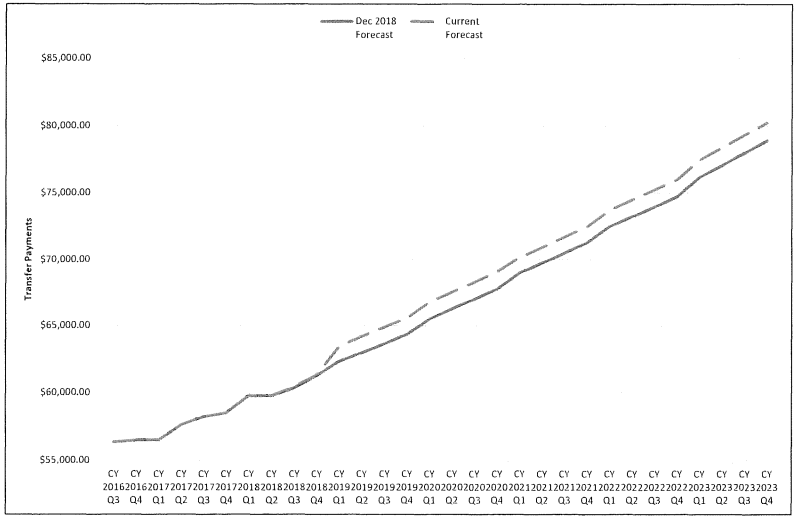


Transfer Payments

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared: April 12, 2019 Statistic Compiled by BEA



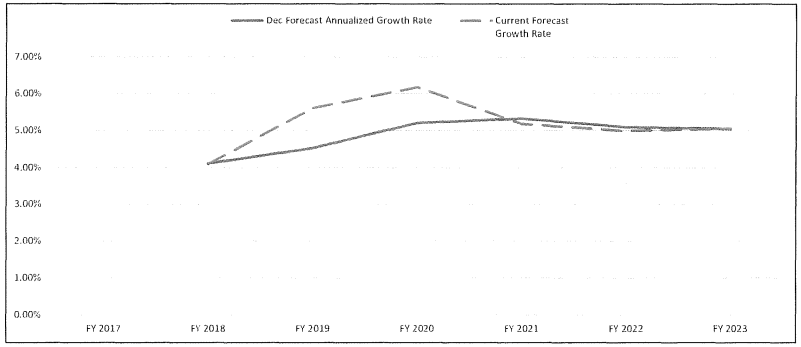
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 56,357.27	0.7%	$ 56,357.27	0.7%	0.0%
2016	4	$ 56,469.92	0.2%	$ 56,469.92	0.2%	0.0%
2017	1	$ 56,474.31	0.0%	$ 56,474.31	0.0%	0.0%
2017	2	$ 57,598.80	2.0%	$ 57,598.80	2.0%	0.0%
2017	3	$ 58,197.71	1.0%	$ 58,197.71	1.0%	0.0%
2017	4	$ 58,484.82	0.5%	$ 58,484.82	0.5%	0.0%
2018	1	$ 59,775.42	2.2%	$ 59,734.26	2.1%	-0.1%
2018	2	$ 59,758.84	0.0%	$ 59,764.72	0.1%	0.0%
2018	**3**	**$ 60,351.30**	1.0%	**$ 60,428.35**	1.1%	0.1%
2018	**4**	**$ 61,260.83**	1.5%	**$ 61,329.65**	1.5%	0.1%
2019	**1**	**$ 62,318.32**	1.7%	**$ 63,428.48**	3.4%	1.8%
2019	**2**	**$ 62,963.59**	1.0%	**$ 64,219.74**	1.2%	2.0%
2019	**3**	**$ 63,642.03**	1.1%	**$ 64,888.18**	1.0%	2.0%
2019	**4**	**$ 64,347.05**	1.1%	**$ 65,583.59**	1.1%	1.9%
2020	**1**	**$ 65,485.36**	1.8%	**$ 66,777.69**	1.8%	2.0%
2020	**2**	**$ 66,249.64**	1.2%	**$ 67,544.97**	1.1%	2.0%
2020	**3**	**$ 67,015.37**	1.2%	**$ 68,310.00**	1.1%	1.9%
2020	**4**	**$ 67,783.35**	1.1%	**$ 69,082.12**	1.1%	1.9%
2021	**1**	**$ 68,998.47**	1.8%	**$ 70,170.47**	1.6%	1.7%
2021	**2**	**$ 69,735.55**	1.1%	**$ 70,917.64**	1.1%	1.7%
2021	3	$ 70,496.03	1.1%	$ 71,689.00	1.1%	1.7%
2021	4	$ 71,257.51	1.1%	$ 72,464.12	1.1%	1.7%
2022	1	$ 72,485.09	1.7%	$ 73,727.77	1.7%	1.7%
2022	2	$ 73,213.01	1.0%	$ 74,472.13	1.0%	1.7%
2022	3	$ 73,960.07	1.0%	$ 75,235.20	1.0%	1.7%
2022	4	$ 74,710.55	1.0%	$ 76,001.32	1.0%	1.7%
2023	1	$ 76,175.82	2.0%	$ 77,485.47	2.0%	1.7%
2023	2	$ 77,078.62	1.2%	$ 78,390.82	1.2%	1.7%
2023	3	$ 77,989.91	1.2%	$ 79,311.74	1.2%	1.7%
2023	4	$ 78,917.92	1.2%	$ 80,248.58	1.2%	1.7%

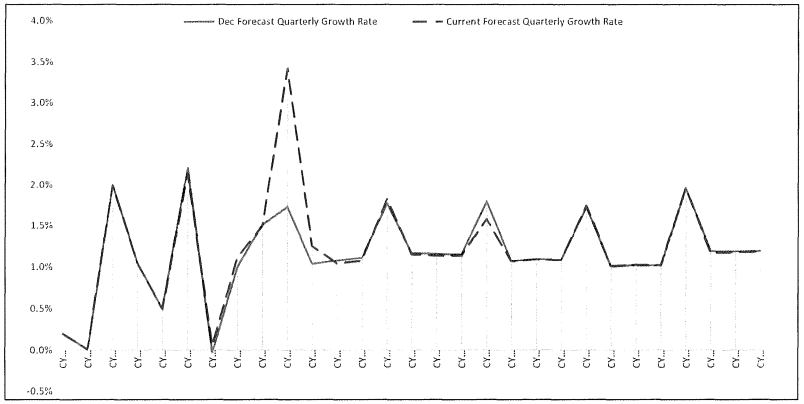
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 56,725.07		$ 56,725.07		
FY 2018	$ 59,054.20	4.1%	$ 59,045.38	4.1%	0.0%
FY 2019	$ 61,723.51	4.5%	$ 62,351.55	5.6%	1.0%
FY 2020	$ 64,931.02	5.2%	$ 66,198.61	6.2%	2.0%
FY 2021	$ 68,383.18	5.3%	$ 69,620.06	5.2%	1.8%
FY 2022	$ 71,862.91	5.1%	$ 73,088.25	5.0%	1.7%
FY 2023	$ 75,481.26	5.0%	$ 76,778.20	5.0%	1.7%

Annualized growth rate



Quarterly growth rate

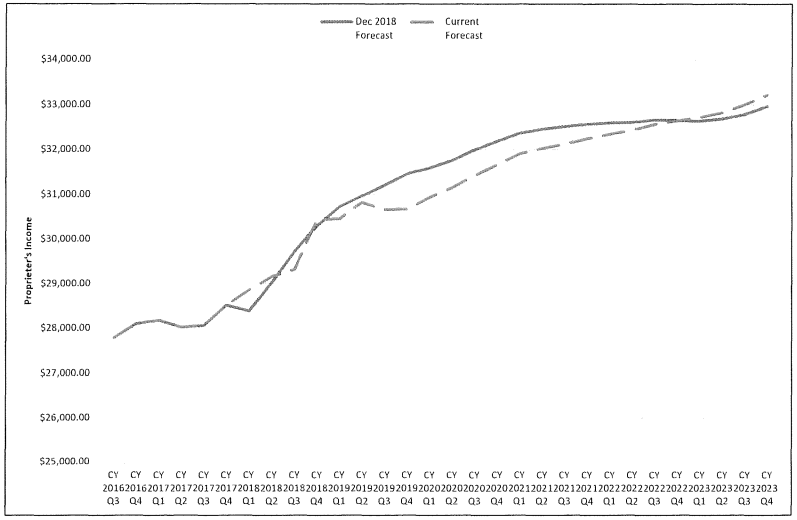


Proprietor's Income

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



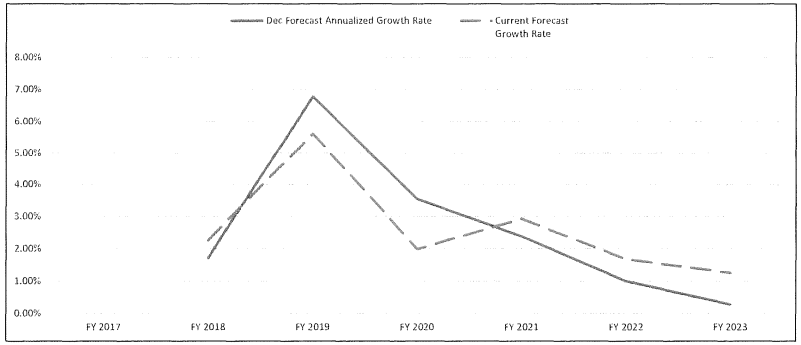
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 27,785.97	0.7%	$ 27,785.97	0.7%	0.0%
2016	4	$ 28,094.84	1.1%	$ 28,094.84	1.1%	0.0%
2017	1	$ 28,173.18	0.3%	$ 28,173.18	0.3%	0.0%
2017	2	$ 28,015.20	-0.6%	$ 28,015.20	-0.6%	0.0%
2017	3	$ 28,059.31	0.2%	$ 28,059.31	0.2%	0.0%
2017	4	$ 28,517.23	1.6%	$ 28,517.23	1.6%	0.0%
2018	1	$ 28,381.46	-0.5%	$ 28,849.78	1.2%	1.7%
2018	2	$ 29,029.01	2.3%	$ 29,168.07	1.1%	0.5%
2018	**3**	**$ 29,716.52**	2.4%	**$ 29,315.81**	0.5%	**-1.3%**
2018	**4**	**$ 30,299.09**	2.0%	**$ 30,430.27**	3.8%	0.4%
2019	**1**	**$ 30,725.94**	1.4%	**$ 30,453.21**	0.1%	**-0.9%**
2019	**2**	**$ 30,963.65**	0.8%	**$ 30,820.47**	1.2%	**-0.5%**
2019	**3**	**$ 31,205.78**	0.8%	**$ 30,659.54**	-0.5%	**-1.8%**
2019	**4**	**$ 31,455.60**	0.8%	**$ 30,673.64**	0.0%	**-2.5%**
2020	**1**	**$ 31,599.39**	0.5%	**$ 30,937.27**	0.9%	**-2.1%**
2020	**2**	**$ 31,755.66**	0.5%	**$ 31,146.91**	0.7%	**-1.9%**
2020	**3**	**$ 31,997.89**	0.8%	**$ 31,428.87**	0.9%	**-1.8%**
2020	**4**	**$ 32,188.64**	0.6%	**$ 31,662.29**	0.7%	**-1.6%**
2021	**1**	**$ 32,366.31**	0.6%	**$ 31,902.63**	0.8%	**-1.4%**
2021	**2**	**$ 32,460.01**	0.3%	**$ 32,028.83**	0.4%	**-1.3%**
2021	3	$ 32,515.32	0.2%	$ 32,123.34	0.3%	-1.2%
2021	4	$ 32,570.98	0.2%	$ 32,247.50	0.4%	-1.0%
2022	1	$ 32,601.67	0.1%	$ 32,341.77	0.3%	-0.8%
2022	2	$ 32,615.99	0.0%	$ 32,438.94	0.3%	-0.5%
2022	3	$ 32,668.36	0.2%	$ 32,567.11	0.4%	-0.3%
2022	4	$ 32,655.97	0.0%	$ 32,649.13	0.3%	0.0%
2023	1	$ 32,645.38	0.0%	$ 32,724.00	0.2%	0.2%
2023	2	$ 32,690.14	0.1%	$ 32,832.80	0.3%	0.4%
2023	3	$ 32,801.18	0.3%	$ 33,008.34	0.5%	0.6%
2023	4	$ 32,969.57	0.5%	$ 33,217.38	0.6%	0.8%

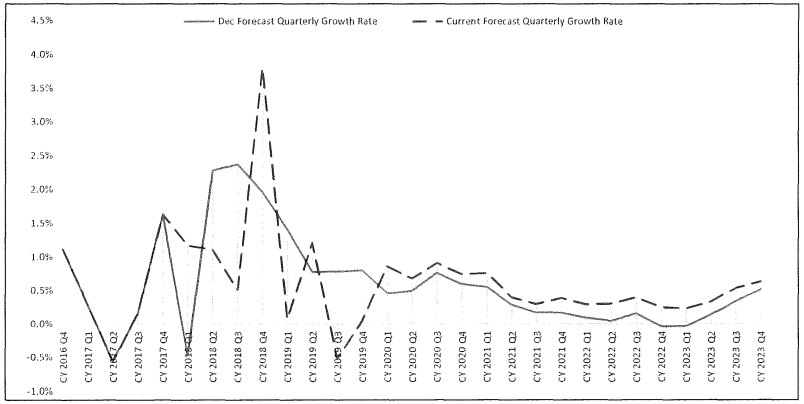
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 28,017.30		$ 28,017.30		
FY 2018	$ 28,496.75	1.7%	$ 28,648.60	2.3%	0.5%
FY 2019	$ 30,426.30	6.8%	$ 30,254.94	5.6%	-0.6%
FY 2020	$ 31,504.11	3.5%	$ 30,854.34	2.0%	-2.1%
FY 2021	$ 32,253.21	2.4%	$ 31,755.65	2.9%	-1.5%
FY 2022	$ 32,575.99	1.0%	$ 32,287.89	1.7%	-0.9%
FY 2023	$ 32,664.96	0.3%	$ 32,693.26	1.3%	0.1%

Annualized growth rate



Quarterly growth rate

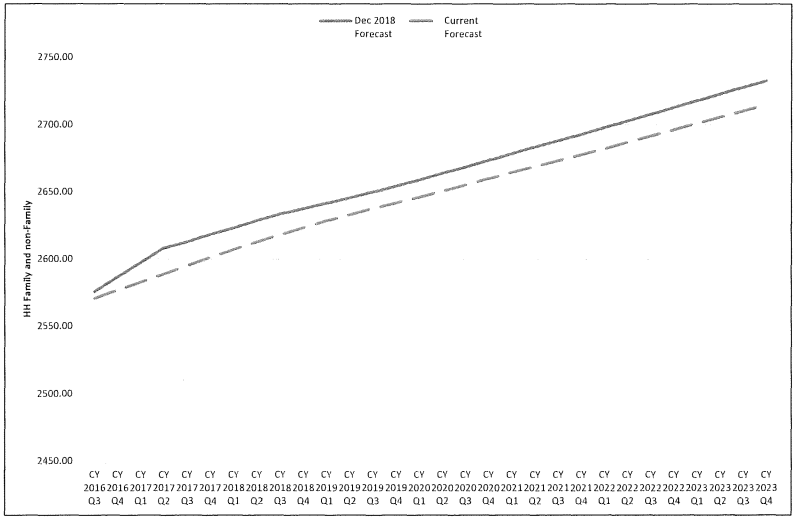


Household Family and Non-family

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



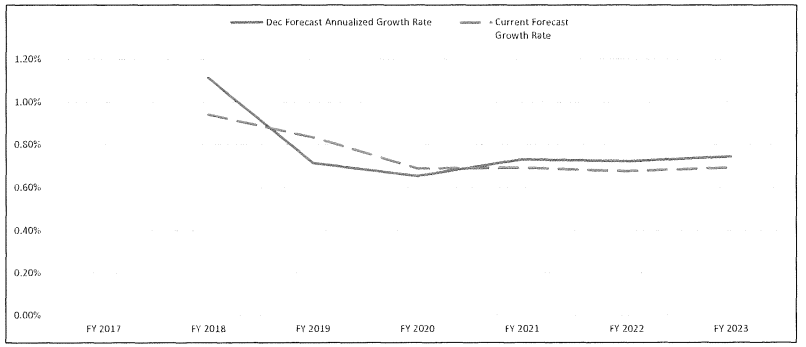
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	2575.57	0.4%	2570.71	0.2%	-0.2%
2016	4	2586.44	0.4%	2576.72	0.2%	-0.4%
2017	1	2597.31	0.4%	2582.73	0.2%	-0.6%
2017	2	2608.18	0.4%	2588.73	0.2%	-0.7%
2017	3	2612.61	0.2%	2595.04	0.2%	-0.7%
2017	4	2618.30	0.2%	2601.15	0.2%	-0.7%
2018	1	2623.15	0.2%	2607.06	0.2%	-0.6%
2018	2	2628.81	0.2%	2612.78	0.2%	-0.6%
2018	**3**	**2633.34**	0.2%	**2618.16**	0.2%	**-0.6%**
2018	**4**	**2637.39**	0.2%	**2623.40**	0.2%	**-0.5%**
2019	**1**	**2641.46**	0.2%	**2628.42**	0.2%	**-0.5%**
2019	**2**	**2645.56**	0.2%	**2632.93**	0.2%	-0.5%
2019	**3**	**2649.82**	0.2%	**2637.39**	0.2%	-0.5%
2019	**4**	**2654.25**	0.2%	**2641.66**	0.2%	-0.5%
2020	**1**	**2658.89**	0.2%	**2645.82**	0.2%	-0.5%
2020	**2**	**2663.78**	0.2%	**2650.47**	0.2%	-0.5%
2020	**3**	**2668.74**	0.2%	**2655.17**	0.2%	-0.5%
2020	**4**	**2673.71**	0.2%	**2659.89**	0.2%	-0.5%
2021	**1**	**2678.62**	0.2%	**2664.54**	0.2%	-0.5%
2021	**2**	**2683.36**	0.2%	**2668.93**	0.2%	-0.5%
2021	3	2688.12	0.2%	2673.35	0.2%	-0.5%
2021	4	2692.91	0.2%	2677.80	0.2%	-0.6%
2022	1	2697.83	0.2%	2682.35	0.2%	-0.6%
2022	2	2702.86	0.2%	2687.01	0.2%	-0.6%
2022	3	2707.92	0.2%	2691.69	0.2%	-0.6%
2022	4	2712.98	0.2%	2696.39	0.2%	-0.6%
2023	1	2718.01	0.2%	2701.09	0.2%	-0.6%
2023	2	2722.98	0.2%	2705.78	0.2%	-0.6%
2023	3	2727.89	0.2%	2710.48	0.2%	-0.6%
2023	4	2732.72	0.2%	2715.16	0.2%	-0.6%

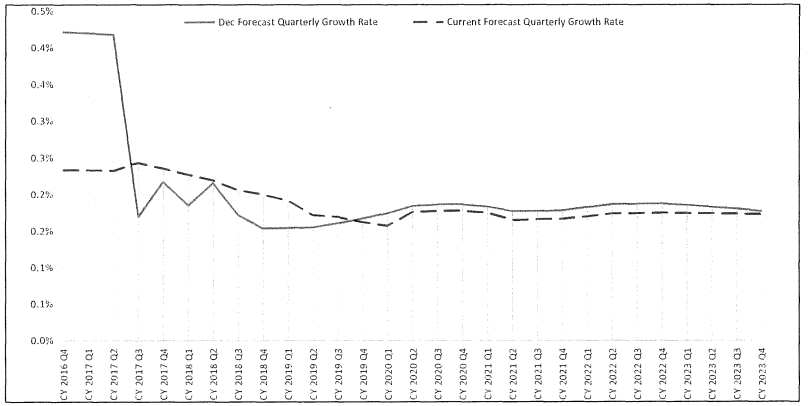
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	2591.87		2579.72		
FY 2018	2620.72	1.1%	2604.01	0.9%	-0.6%
FY 2019	2639.44	0.7%	2625.73	0.8%	-0.5%
FY 2020	2656.68	0.7%	2643.83	0.7%	-0.5%
FY 2021	2676.11	0.7%	2662.13	0.7%	-0.5%
FY 2022	2695.43	0.7%	2680.13	0.7%	-0.6%
FY 2023	2715.47	0.7%	2698.74	0.7%	-0.6%

Annualized growth rate



Quarterly growth rate

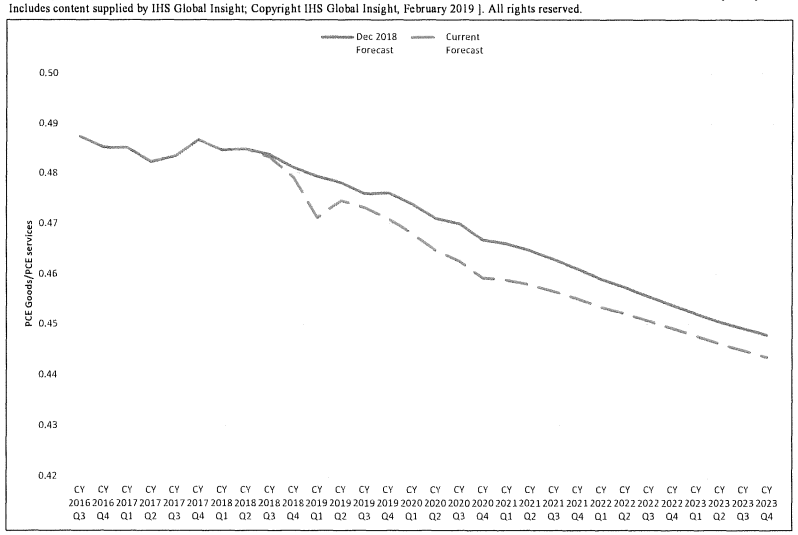


PCE Goods / PCE Services

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



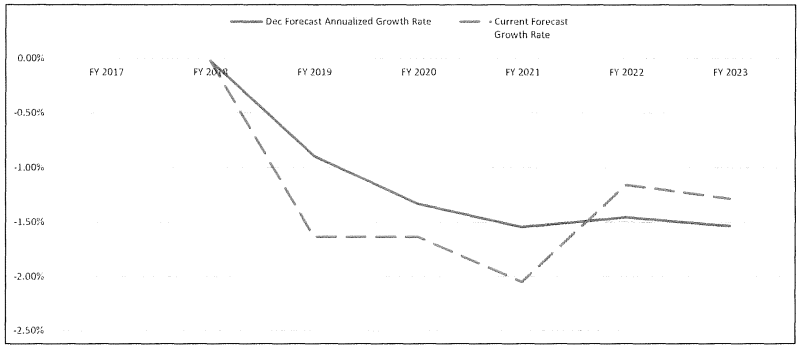
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	0.49	-0.7%	0.49	-0.7%	0.0%
2016	4	0.49	-0.5%	0.49	-0.5%	0.0%
2017	1	0.49	0.0%	0.49	0.0%	0.0%
2017	2	0.48	-0.6%	0.48	-0.6%	0.0%
2017	3	0.48	0.2%	0.48	0.2%	0.0%
2017	4	0.49	0.7%	0.49	0.7%	0.0%
2018	1	0.48	-0.4%	0.48	-0.4%	0.0%
2018	2	0.48	0.1%	0.48	0.1%	0.0%
2018	**3**	**0.48**	**-0.2%**	**0.48**	**-0.4%**	**-0.1%**
2018	**4**	**0.48**	**-0.5%**	**0.48**	**-0.8%**	**-0.4%**
2019	**1**	**0.48**	**-0.4%**	**0.47**	**-1.7%**	**-1.7%**
2019	**2**	**0.48**	**-0.3%**	**0.47**	**0.7%**	**-0.8%**
2019	**3**	**0.48**	**-0.5%**	**0.47**	**-0.3%**	**-0.6%**
2019	**4**	**0.48**	**0.0%**	**0.47**	**-0.3%**	**-1.1%**
2020	**1**	**0.47**	**-0.5%**	**0.47**	**-0.6%**	**-1.2%**
2020	**2**	**0.47**	**-0.6%**	**0.46**	**-0.7%**	**-1.3%**
2020	**3**	**0.47**	**-0.2%**	**0.46**	**-0.5%**	**-1.6%**
2020	**4**	**0.47**	**-0.7%**	**0.46**	**-0.7%**	**-1.6%**
2021	**1**	**0.47**	**-0.1%**	**0.46**	**-0.1%**	**-1.6%**
2021	**2**	**0.46**	**-0.3%**	**0.46**	**-0.2%**	**-1.5%**
2021	3	0.46	-0.4%	0.46	-0.3%	-1.4%
2021	4	0.46	-0.4%	0.46	-0.3%	-1.3%
2022	1	0.46	-0.4%	0.45	-0.4%	-1.2%
2022	2	0.46	-0.4%	0.45	-0.3%	-1.1%
2022	3	0.46	-0.4%	0.45	-0.3%	-1.1%
2022	4	0.45	-0.4%	0.45	-0.3%	-1.0%
2023	1	0.45	-0.4%	0.45	-0.3%	-1.0%
2023	2	0.45	-0.4%	0.45	-0.3%	-1.0%
2023	3	0.45	-0.3%	0.44	-0.3%	-1.0%
2023	4	0.45	-0.3%	0.44	-0.3%	-1.0%

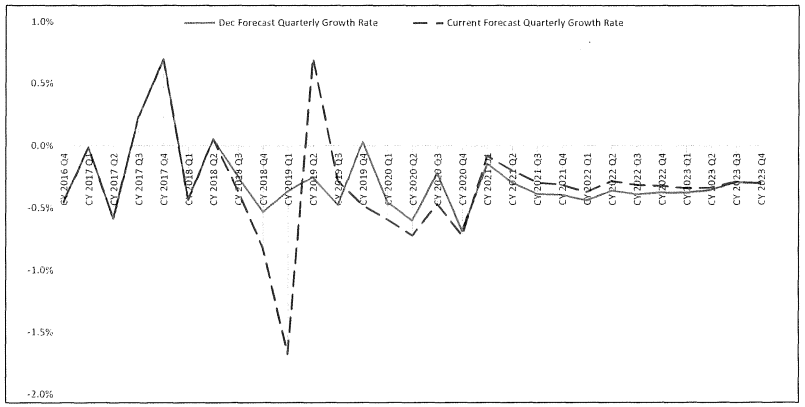
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	0.49		0.49		
FY 2018	0.48	0.0%	0.48	0.0%	0.0%
FY 2019	0.48	-0.9%	0.48	-1.6%	-0.7%
FY 2020	0.47	-1.3%	0.47	-1.6%	-1.1%
FY 2021	0.47	-1.5%	0.46	-2.1%	-1.6%
FY 2022	0.46	-1.5%	0.45	-1.2%	-1.3%
FY 2023	0.45	-1.5%	0.45	-1.3%	-1.0%

Annualized growth rate



Quarterly growth rate

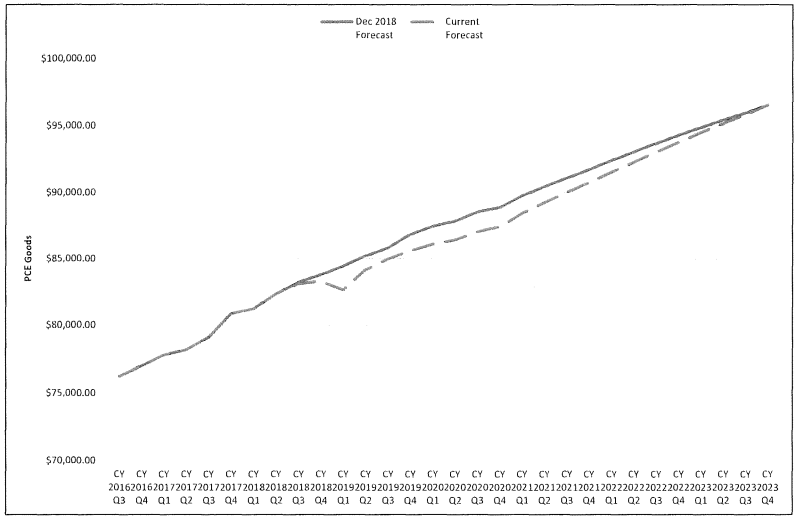


PCE Goods

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



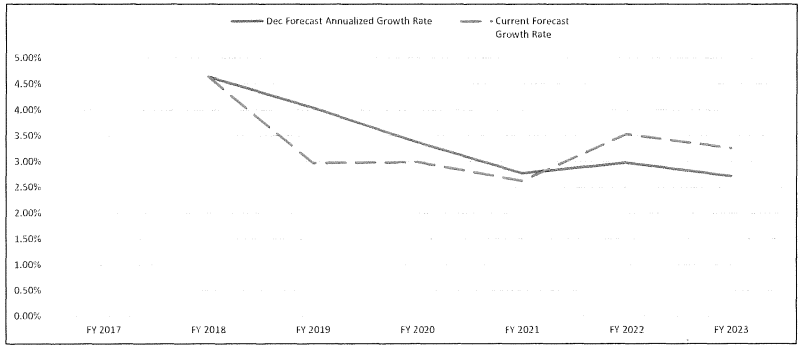
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 76,230.47	0.6%	$ 76,228.37	0.6%	0.0%
2016	4	$ 76,978.20	1.0%	$ 76,976.48	1.0%	0.0%
2017	1	$ 77,801.32	1.1%	$ 77,800.38	1.1%	0.0%
2017	2	$ 78,181.04	0.5%	$ 78,180.75	0.5%	0.0%
2017	3	$ 79,123.96	1.2%	$ 79,124.07	1.2%	0.0%
2017	4	$ 80,837.68	2.2%	$ 80,838.01	2.2%	0.0%
2018	1	$ 81,209.85	0.5%	$ 81,210.04	0.5%	0.0%
2018	2	$ 82,348.09	1.4%	$ 82,348.02	1.4%	0.0%
2018	**3**	**$ 83,207.73**	**1.0%**	**$ 83,096.51**	**0.9%**	**-0.1%**
2018	**4**	**$ 83,768.39**	**0.7%**	**$ 83,277.29**	**0.2%**	**-0.6%**
2019	**1**	**$ 84,414.42**	**0.8%**	**$ 82,617.83**	**-0.8%**	**-2.1%**
2019	**2**	**$ 85,201.82**	**0.9%**	**$ 84,143.51**	**1.8%**	**-1.2%**
2019	**3**	**$ 85,816.53**	**0.7%**	**$ 84,972.44**	**1.0%**	**-1.0%**
2019	**4**	**$ 86,839.21**	**1.2%**	**$ 85,581.75**	**0.7%**	**-1.4%**
2020	**1**	**$ 87,453.51**	**0.7%**	**$ 86,099.61**	**0.6%**	**-1.5%**
2020	**2**	**$ 87,839.39**	**0.4%**	**$ 86,438.37**	**0.4%**	**-1.6%**
2020	**3**	**$ 88,540.75**	**0.8%**	**$ 87,021.09**	**0.7%**	**-1.7%**
2020	**4**	**$ 88,883.77**	**0.4%**	**$ 87,427.96**	**0.5%**	**-1.6%**
2021	**1**	**$ 89,737.78**	**1.0%**	**$ 88,407.68**	**1.1%**	**-1.5%**
2021	**2**	**$ 90,447.43**	**0.8%**	**$ 89,246.09**	**0.9%**	**-1.3%**
2021	3	$ 91,093.00	0.7%	$ 90,007.54	0.9%	-1.2%
2021	4	$ 91,723.03	0.7%	$ 90,751.32	0.8%	-1.1%
2022	1	$ 92,394.74	0.7%	$ 91,506.20	0.8%	-1.0%
2022	2	$ 93,042.28	0.7%	$ 92,265.68	0.8%	-0.8%
2022	3	$ 93,686.39	0.7%	$ 93,022.88	0.8%	-0.7%
2022	4	$ 94,295.18	0.6%	$ 93,763.36	0.8%	-0.6%
2023	1	$ 94,863.87	0.6%	$ 94,471.05	0.8%	-0.4%
2023	2	$ 95,415.36	0.6%	$ 95,150.69	0.7%	-0.3%
2023	3	$ 95,972.66	0.6%	$ 95,838.19	0.7%	-0.1%
2023	4	$ 96,533.45	0.6%	$ 96,533.18	0.7%	0.0%

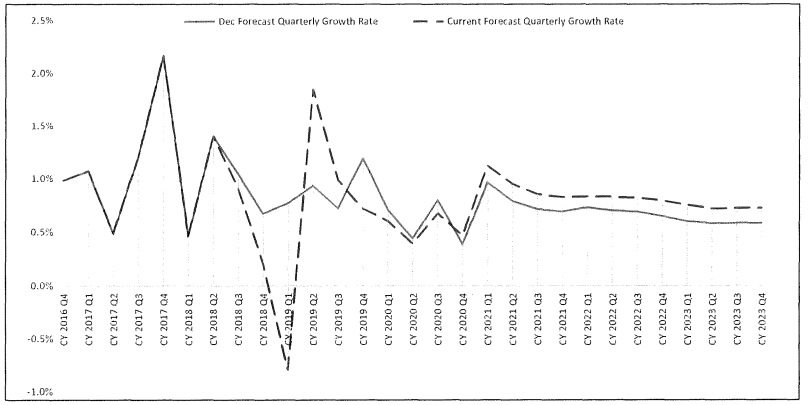
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 77,297.76		$ 77,296.49		
FY 2018	$ 80,879.89	4.6%	$ 80,880.03	4.6%	0.0%
FY 2019	$ 84,148.09	4.0%	$ 83,283.79	3.0%	-1.0%
FY 2020	$ 86,987.16	3.4%	$ 85,773.04	3.0%	-1.4%
FY 2021	$ 89,402.43	2.8%	$ 88,025.70	2.6%	-1.5%
FY 2022	$ 92,063.26	3.0%	$ 91,132.68	3.5%	-1.0%
FY 2023	$ 94,565.20	2.7%	$ 94,101.99	3.3%	-0.5%

Annualized growth rate



Quarterly growth rate

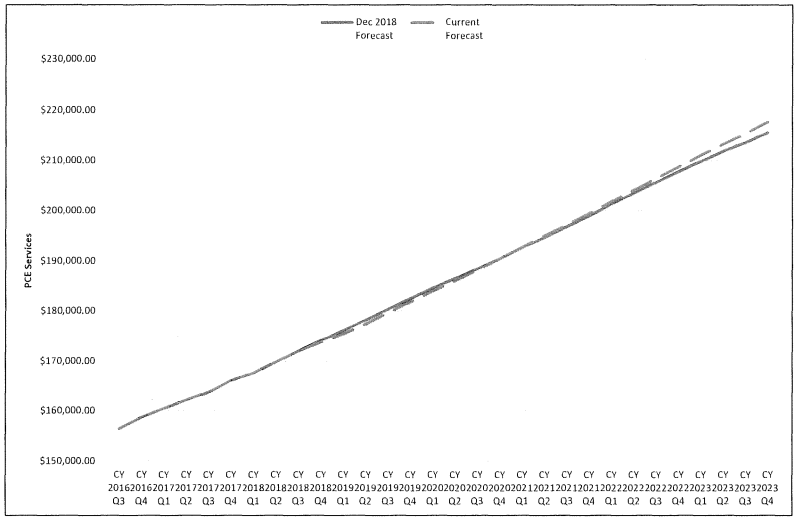


PCE Services

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



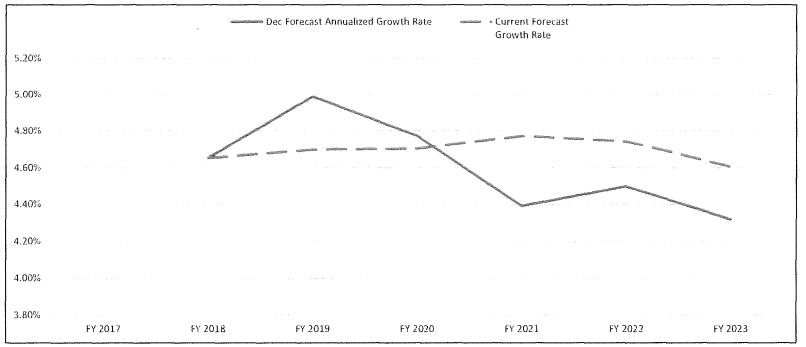
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 156,390.36	1.3%	$ 156,390.00	1.3%	0.0%
2016	4	$ 158,645.39	1.4%	$ 158,645.04	1.4%	0.0%
2017	1	$ 160,364.43	1.1%	$ 160,364.16	1.1%	0.0%
2017	2	$ 162,100.22	1.1%	$ 162,100.02	1.1%	0.0%
2017	3	$ 163,682.77	1.0%	$ 163,682.61	1.0%	0.0%
2017	4	$ 166,072.58	1.5%	$ 166,072.41	1.5%	0.0%
2018	1	$ 167,568.16	0.9%	$ 167,568.62	0.9%	0.0%
2018	2	$ 169,823.29	1.3%	$ 169,824.78	1.3%	0.0%
2018	**3**	**$ 172,021.70**	**1.3%**	**$ 171,991.85**	**1.3%**	**0.0%**
2018	**4**	**$ 174,109.95**	**1.2%**	**$ 173,791.44**	**1.0%**	**-0.2%**
2019	**1**	**$ 176,100.47**	**1.1%**	**$ 175,355.53**	**0.9%**	**-0.4%**
2019	**2**	**$ 178,192.73**	**1.2%**	**$ 177,341.94**	**1.1%**	**-0.5%**
2019	**3**	**$ 180,340.47**	**1.2%**	**$ 179,596.71**	**1.3%**	**-0.4%**
2019	**4**	**$ 182,428.37**	**1.2%**	**$ 181,754.20**	**1.2%**	**-0.4%**
2020	**1**	**$ 184,563.29**	**1.2%**	**$ 183,948.22**	**1.2%**	**-0.3%**
2020	**2**	**$ 186,499.60**	**1.0%**	**$ 186,014.51**	**1.1%**	**-0.3%**
2020	**3**	**$ 188,406.13**	**1.0%**	**$ 188,153.71**	**1.2%**	**-0.1%**
2020	**4**	**$ 190,443.77**	**1.1%**	**$ 190,414.44**	**1.2%**	**0.0%**
2021	**1**	**$ 192,553.88**	**1.1%**	**$ 192,707.91**	**1.2%**	**0.1%**
2021	**2**	**$ 194,651.67**	**1.1%**	**$ 194,921.47**	**1.1%**	**0.1%**
2021	3	$ 196,804.78	1.1%	$ 197,167.57	1.2%	0.2%
2021	4	$ 198,954.30	1.1%	$ 199,422.89	1.1%	0.2%
2022	1	$ 201,300.91	1.2%	$ 201,838.78	1.2%	0.3%
2022	2	$ 203,449.25	1.1%	$ 204,093.03	1.1%	0.3%
2022	3	$ 205,661.32	1.1%	$ 206,417.41	1.1%	0.4%
2022	4	$ 207,780.26	1.0%	$ 208,739.03	1.1%	0.5%
2023	1	$ 209,830.90	1.0%	$ 211,036.46	1.1%	0.6%
2023	2	$ 211,805.67	0.9%	$ 213,275.12	1.1%	0.7%
2023	3	$ 213,666.83	0.9%	$ 215,439.93	1.0%	0.8%
2023	4	$ 215,562.09	0.9%	$ 217,655.43	1.0%	1.0%

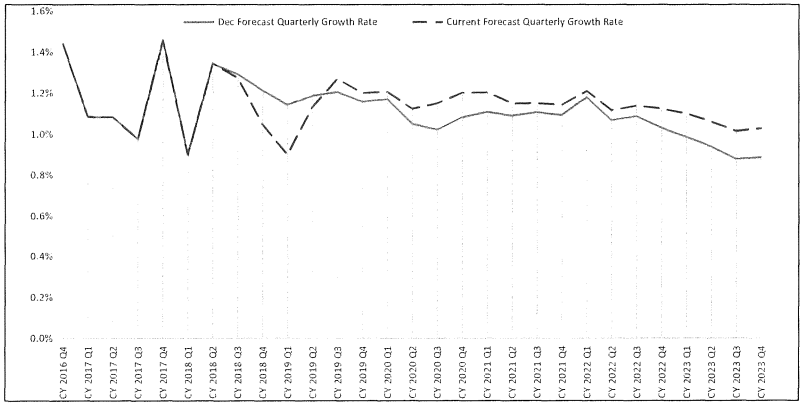
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 159,375.10		$ 159,374.81		
FY 2018	$ 166,786.70	4.7%	$ 166,787.10	4.7%	0.0%
FY 2019	$ 175,106.21	5.0%	$ 174,620.19	4.7%	-0.3%
FY 2020	$ 183,457.93	4.8%	$ 182,828.41	4.7%	-0.3%
FY 2021	$ 191,513.86	4.4%	$ 191,549.38	4.8%	0.0%
FY 2022	$ 200,127.31	4.5%	$ 200,630.57	4.7%	0.3%
FY 2023	$ 208,769.53	4.3%	$ 209,867.00	4.6%	0.5%

Annualized growth rate



Quarterly growth rate

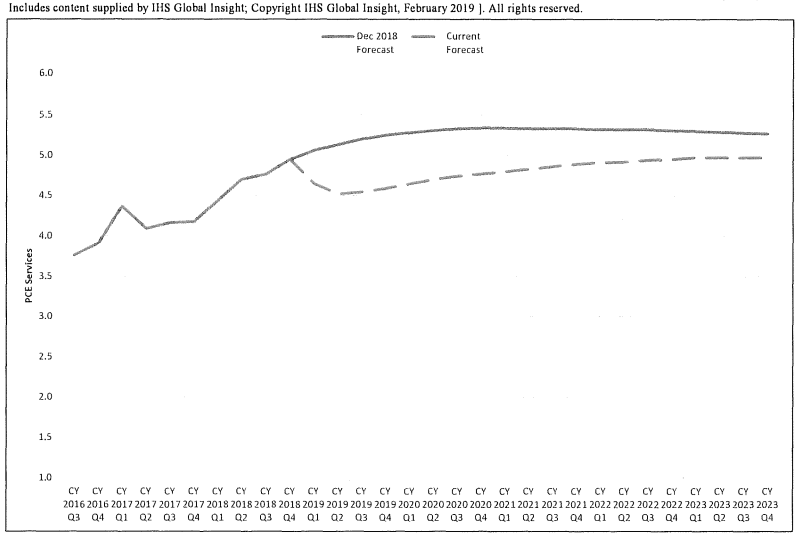


Rate on existing-home mortgages (ARM and fixed) Percent per annum, Federal Housing Finance Board

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and March 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



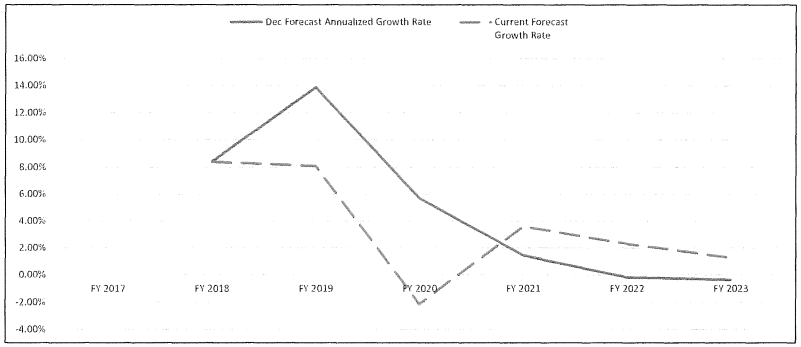
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	3.8	-2.3%	3.8	-2.3%	0.0%
2016	4	3.9	3.9%	3.9	3.9%	0.0%
2017	1	4.4	11.6%	4.4	11.6%	0.0%
2017	2	4.1	-6.3%	4.1	-6.3%	0.0%
2017	3	4.2	1.8%	4.2	1.8%	0.0%
2017	4	4.2	0.3%	4.2	0.3%	0.0%
2018	1	4.4	6.4%	4.4	6.4%	0.0%
2018	2	4.7	5.9%	4.7	5.9%	0.0%
2018	**3**	4.8	**1.3%**	4.8	*1.3%*	**0.0%**
2018	**4**	4.9	**3.8%**	5.0	*3.9%*	**0.1%**
2019	**1**	5.1	**2.3%**	4.6	*-6.2%*	**-8.1%**
2019	**2**	5.1	1.4%	4.5	*-2.8%*	-11.9%
2019	**3**	5.2	1.4%	4.5	*0.4%*	-12.7%
2019	**4**	5.3	1.0%	4.6	*1.1%*	-12.6%
2020	**1**	5.3	0.6%	4.7	*1.3%*	-11.9%
2020	**2**	5.3	0.6%	4.7	*1.1%*	-11.5%
2020	**3**	5.3	0.4%	4.7	*0.9%*	-11.1%
2020	**4**	5.3	0.2%	4.8	*0.6%*	-10.7%
2021	**1**	5.3	**0.0%**	4.8	*0.6%*	-10.1%
2021	**2**	5.3	**-0.2%**	4.8	*0.6%*	-9.4%
2021	3	5.3	0.0%	4.9	0.6%	-8.8%
2021	4	5.3	0.0%	4.9	0.6%	-8.3%
2022	1	5.3	-0.2%	4.9	0.4%	-7.7%
2022	2	5.3	0.0%	4.9	0.2%	-7.5%
2022	3	5.3	0.0%	4.9	0.4%	-7.1%
2022	4	5.3	-0.2%	4.9	0.2%	-6.8%
2023	1	5.3	-0.2%	5.0	0.4%	-6.2%
2023	2	5.3	-0.2%	5.0	0.0%	-6.0%
2023	3	5.3	-0.2%	5.0	0.0%	-5.9%
2023	4	5.3	-0.2%	5.0	**0.0%**	-5.7%

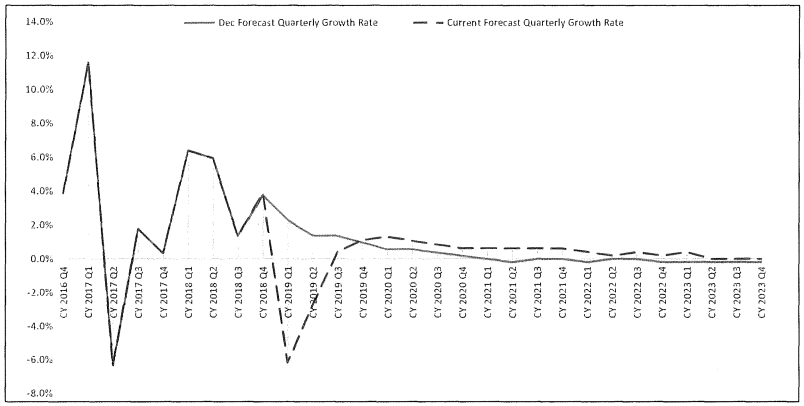
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	4.0		4.0		
FY 2018	4.4	8.4%	4.4	8.4%	0.0%
FY 2019	5.0	13.9%	4.7	8.1%	-5.1%
FY 2020	5.3	5.7%	4.6	-2.2%	-12.2%
FY 2021	5.3	1.4%	4.8	3.6%	-10.3%
FY 2022	5.3	-0.2%	4.9	2.3%	-8.1%
FY 2023	5.3	-0.4%	5.0	1.3%	-6.6%

Annualized growth rate



Quarterly growth rate



GUT - Dec 2018 Model — **Ran from FY18**

As of:	
2018	

Model Starts	1998
Model Ends	2018
Time	FY
LOG?	Yes

Include Adjustment?
Yes

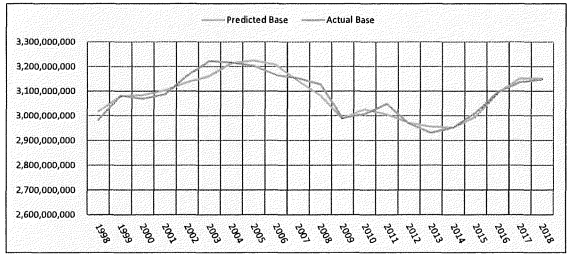
Fiscal Year	GUT Base	% to GF	Tax Rate	GUT	Adjustments	PROPOSED FORECAST Adjusted Sales Net of GUT Tax	PROPOSED FORECAST GUT	PROPOSED FORECAST Sales & Use Taxes	PROPOSED FORECAST YoY Growth	ACTUALS* GUT Actuals	ACTUALS* Sales & Use Tax Actuals	GF Forecast Error $ vs Actuals	GF Forecast Error % of Actuals	LAST PASSED FORECAST Adjusted Sales Net of GUT Tax	LAST PASSED FORECAST GUT	LAST PASSED FORECAST Sales & Use Taxes	LAST PASSED FORECAST $ vs Actuals
2017	3,151.06	85.714%	12.33%	333.09	-	7,235.42	333.09	7,568.51		331.08	7,501.15	2.01	0.61%	7,201.55	333.90	7,535.46	
2018	3,153.72	71.428%	13.54%	304.93	-	7,399.98	304.93	7,704.91	1.80%	302.72	7,662.55	2.21	0.73%	7,349.31	305.94	7,655.25	3.21
2019	3,152.88	64.285%	15.00%	304.02	-	7,560.00	304.02	7,864.02	2.07%					7,596.79	324.97	7,921.76	
2020	3,154.46	53.575%	15.61%	263.76	-	7,812.00	263.76	8,075.77	2.69%					7,848.25	267.41	8,115.66	
2021	3,152.25	42.865%	15.08%	203.77	-	8,073.39	203.77	8,277.15	2.49%					8,042.32	210.40	8,252.72	
2022	3,129.95	32.155%	15.92%	160.27	-	8,290.28	160.27	8,450.55	2.09%					8,268.60	156.23	8,424.83	
2023	3,122.51	21.445%	16.42%	109.94	-	8,511.44	109.94	8,621.38	2.02%					8,508.20	111.75	8,619.96	

				DEPENDENT VARIABLE		INDEPENDENT VARIABLES		
				LN	LN	LN		
$ Predicted vs Actual Revenue	Predicted Base	Actual Base	Fiscal Year	GUT Base	GUT Base Gallons	Real GSP, Retail Trade (Millions 2012$)	Demand for petroleum as % of Total demand for all fuels	Summer Gas Price x Fuel Efficiency
1.39	3,017,145,236	2,981,931,865	1998	2,981.93	21.82	9.57	0.38	2,580.12
(0.09)	3,079,759,743	3,082,964,211	1999	3,082.96	21.85	9.62	0.39	2,187.68
0.41	3,083,496,270	3,069,846,296	2000	3,069.85	21.84	9.64	0.39	2,566.07
0.75	3,103,766,892	3,087,973,217	2001	3,087.97	21.85	9.66	0.39	3,254.71
(1.37)	3,136,525,059	3,164,464,445	2002	3,164.46	21.88	9.70	0.40	3,149.99
(2.56)	3,162,062,834	3,222,303,380	2003	3,222.30	21.89	9.74	0.39	3,017.05
(0.21)	3,213,340,430	3,216,524,077	2004	3,216.52	21.89	9.79	0.40	3,388.12
1.52	3,224,285,416	3,202,859,070	2005	3,202.86	21.89	9.80	0.40	3,957.36
3.81	3,206,635,531	3,166,556,723	2006	3,166.56	21.88	9.82	0.40	5,295.95
(1.19)	3,142,597,242	3,153,700,857	2007	3,153.70	21.87	9.78	0.40	5,900.44
(5.29)	3,081,077,918	3,128,562,656	2008	3,128.56	21.86	9.75	0.38	5,873.00
(0.57)	2,987,493,822	2,991,732,798	2009	2,991.73	21.82	9.72	0.37	7,807.24
1.85	3,026,011,227	3,007,541,853	2010	3,007.54	21.82	9.73	0.37	5,211.11
(5.29)	3,005,106,296	3,049,012,335	2011	3,049.01	21.84	9.73	0.36	5,577.33
0.44	2,970,936,686	2,968,187,295	2012	2,968.19	21.81	9.73	0.36	7,477.69
4.45	2,955,921,808	2,930,173,497	2013	2,930.17	21.80	9.75	0.35	7,637.93
(0.15)	2,952,450,000	2,953,315,124	2014	2,953.32	21.81	9.75	0.35	7,594.21
(2.92)	2,994,480,669	3,012,039,044	2015	3,012.04	21.83	9.77	0.36	7,523.56
(0.33)	3,093,542,604	3,096,291,150	2016	3,096.29	21.85	9.82	0.37	5,803.39
1.66	3,151,056,576	3,137,601,054	2017	3,137.60	21.87	9.88	0.37	4,945.34
0.70	3,153,718,112	3,148,549,637	2018	3,148.55	21.87	9.91	0.37	5,552.44
	3,152,880,037		2019			9.94	0.37	6,644.07
	3,154,461,853		2020			9.94	0.37	6,848.98
	3,152,254,917		2021			9.95	0.36	6,507.83
	3,129,952,152		2022			9.95	0.36	6,844.52
	3,122,511,677		2023			9.96	0.36	7,171.63
	3,113,559,483		2024			9.97	0.35	7,515.77
	3,102,915,082		2025			9.98	0.35	7,890.01
	3,092,028,811		2026			9.99	0.35	8,244.77

OUT OF SAMPLE

	2017 Forecast	2017 $ Error	2016 Forecast	2016 $ Error
2017	334.13	3.05	336.55	5.47
2018	305.98	3.26	308.39	5.66
2019	305.00		307.12	
2020	264.60		266.41	
2021	204.52		206.18	

GUT - Dec 2018 Model



(in millions $)

SUMMARY OUTPUT

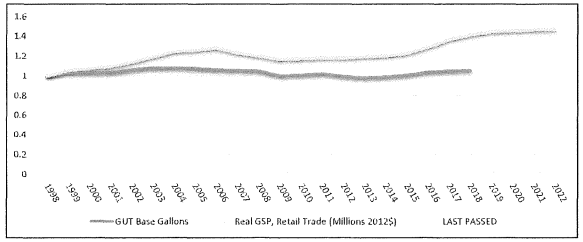
Regression Statistics	
Multiple R	0.957338507
R Square	0.916497017
Adjusted R Squa	0.901761196
Standard Error	0.009214383
Observations	21

ANOVA

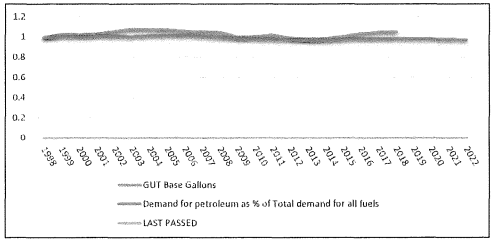
	df	*SS*	*MS*	*F*	*Significance F*
Regression	3	0.015842019	0.005280673	62.19518018	2.25531E-09
Residual	17	0.001443383	8.49049E-05		
Total	20	0.017285401			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	19.16795851	0.273773127	70.01402478	2.28505E-22
Real GSP, Retail	0.237600872	0.029113225	8.161269337	2.77849E-07
Demand for pet	1.049337399	0.188126717	5.577822306	3.33331E-05
Summer Gas Pri	-6.30931E-06	1.79776E-06	-3.50954195	0.002687857
-				
-				
-				

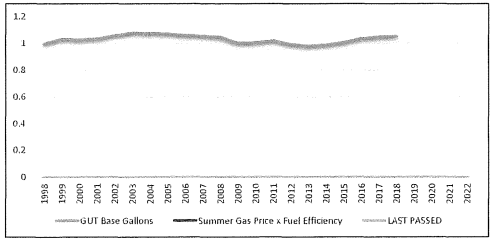
Real GSP, Retail Trade (Millions 2012$)



Demand for petroleum as % of Total demand for all fuels



Summer Gas Price x Fuel Efficiency



Sensitivity Analysis: Sales GUT

The analysis of the Sales GUT December 2018 model consists of two data tables. Table 1 displays the forecasts for the December 2018 Sales GUT model if data were used from different months over three fiscal years. Table 2 displays the change in predictors over different monthly datasets. In each graph, the change in revenue forecast by specific fiscal year is graphed. Although the model loses statistical integrity by holding the coefficients constant, this is a valuable tool for determining how the revenue forecasts may change given predictor data changes. Gaps in the data series represent missing data.

The regression coefficients are held constant as they were in the December 2018 model whereas the underlying predictor data changes to the corresponding month when calculating revenue forecasts. The tax rates and outside adjustments are based on April 2019 data.

The predictor, Real GSP Retail Trade (Millions 2012$), was recently changed from centered on 2009$ to 2012$. This makes it impossible to analyze the current GUT model for more than five months of data.

Table 1: Revenue Forecasts

Global Insights Data Date		Fiscal Year Forecast ($thousands)				
Calendar Year	Month	2019	2020	2021	2022	2023
2016	July					
	August					
	September					
	October					
	November					
	December					
2017	January					
	February					
	March					
	April					
	May					
	June					
	July					
	August					
	September					
	October					
	November					
	December					
2018	January					
	February					
	March					
	April					
	May					
	June					
	July					
	August					
	September					
	October					
	November	$ 303.55	$ 260.94	$ 201.19	$ 158.58	$ 108.83
	December	$ 303.25	$ 262.36	$ 201.70	$ 158.98	$ 109.18
2019	January	$ 303.17	$ 262.68	$ 201.54	$ 158.51	$ 108.84
	February	$ 303.43	$ 262.61	$ 202.52	$ 159.48	$ 109.42
	March	$ 304.63	$ 263.61	$ 203.29	$ 159.97	$ 109.76
	April	$ 304.02	$ 263.76	$ 203.77	$ 160.27	$ 109.94

April 2019 Data Difference from Maximum Forecast	$ (0.61)	$ -	$ -	$ -	$ -	

Legend

- Minimum
- 25th Percentile
- 25th to 50th Percentile
- 50th to 75th Percentile
- 75th Percentile
- Maximum

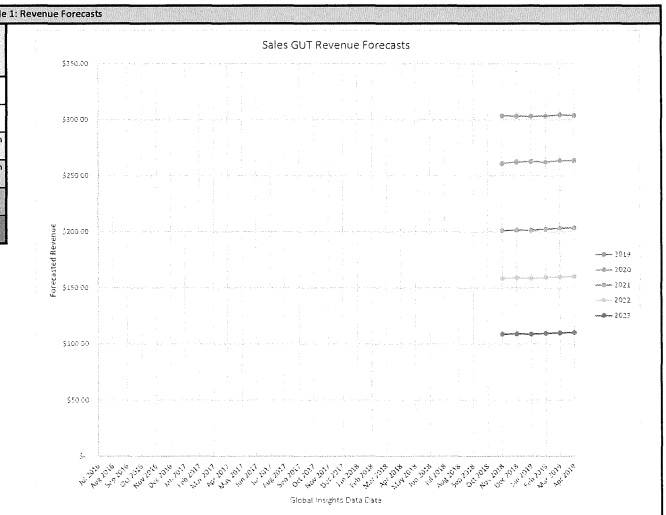
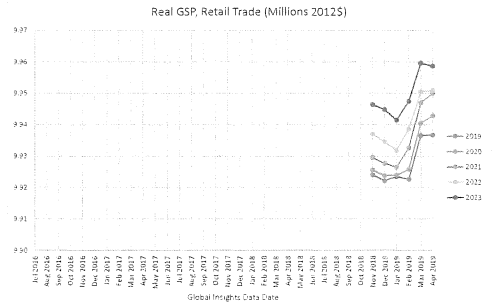
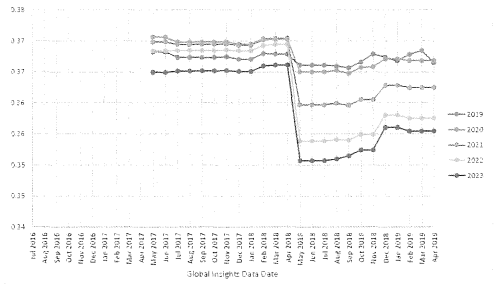
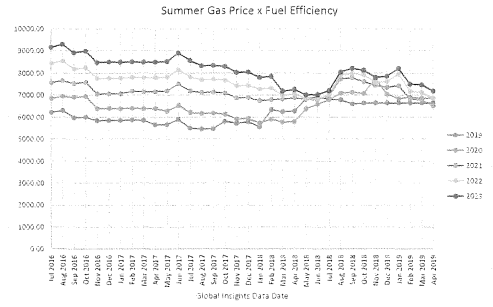


Table 2: Predictors

Model Predictors	Coefficients
Constant	19.168
Real GSP, Retail Trade (Millions 2012$)	0.238
Demand for petroleum as % of Total demand for all fuels	1.049
Summer Gas Price x Fuel Efficiency	0.000





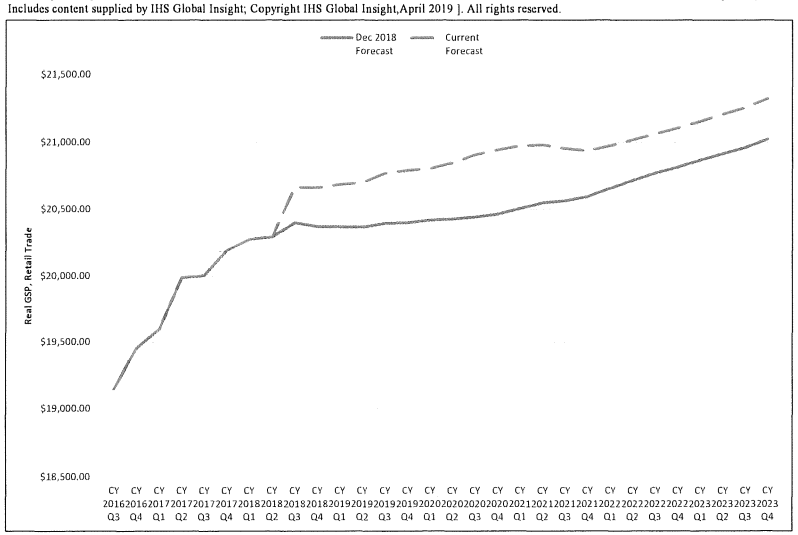


Real GSP, Retail Trade (Millions 2012$)

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



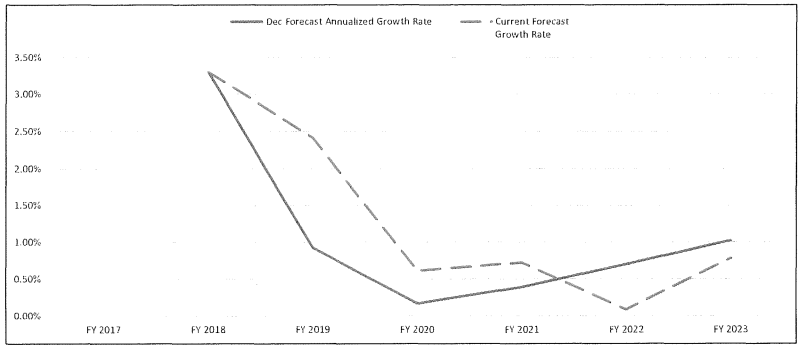
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 19,144.70	1.4%	$ 19,144.70	1.4%	0.0%
2016	4	$ 19,450.10	1.6%	$ 19,450.10	1.6%	0.0%
2017	1	$ 19,596.00	0.8%	$ 19,596.00	0.8%	0.0%
2017	2	$ 19,986.10	2.0%	$ 19,986.10	2.0%	0.0%
2017	3	$ 20,001.40	0.1%	$ 20,001.40	0.1%	0.0%
2017	4	$ 20,190.00	0.9%	$ 20,190.00	0.9%	0.0%
2018	1	$ 20,274.00	0.4%	$ 20,274.00	0.4%	0.0%
2018	2	$ 20,291.90	0.1%	$ 20,291.90	0.1%	0.0%
2018	**3**	**$ 20,398.09**	**0.5%**	**$ 20,661.50**	**1.8%**	**1.3%**
2018	**4**	**$ 20,370.17**	**-0.1%**	**$ 20,659.51**	**0.0%**	**1.4%**
2019	**1**	**$ 20,368.75**	**0.0%**	**$ 20,683.03**	**0.1%**	**1.5%**
2019	**2**	**$ 20,365.01**	**0.0%**	**$ 20,698.32**	**0.1%**	**1.6%**
2019	**3**	**$ 20,394.39**	**0.1%**	**$ 20,770.11**	**0.3%**	**1.8%**
2019	**4**	**$ 20,398.43**	**0.0%**	**$ 20,790.22**	**0.1%**	**1.9%**
2020	**1**	**$ 20,418.23**	**0.1%**	**$ 20,804.22**	**0.1%**	**1.9%**
2020	**2**	**$ 20,426.77**	**0.0%**	**$ 20,845.43**	**0.2%**	**2.0%**
2020	**3**	**$ 20,441.72**	**0.1%**	**$ 20,909.21**	**0.3%**	**2.3%**
2020	**4**	**$ 20,461.62**	**0.1%**	**$ 20,943.62**	**0.2%**	**2.4%**
2021	**1**	**$ 20,503.44**	**0.2%**	**$ 20,973.66**	**0.1%**	**2.3%**
2021	**2**	**$ 20,546.84**	**0.2%**	**$ 20,981.53**	**0.0%**	**2.1%**
2021	3	$ 20,562.51	0.1%	$ 20,953.27	-0.1%	1.9%
2021	4	$ 20,592.74	0.1%	$ 20,936.17	-0.1%	1.7%
2022	1	$ 20,654.95	0.3%	$ 20,973.88	0.2%	1.5%
2022	2	$ 20,714.71	0.3%	$ 21,018.11	0.2%	1.5%
2022	3	$ 20,770.44	0.3%	$ 21,064.70	0.2%	1.4%
2022	4	$ 20,815.31	0.2%	$ 21,106.55	0.2%	1.4%
2023	1	$ 20,867.75	0.3%	$ 21,156.82	0.2%	1.4%
2023	2	$ 20,914.24	0.2%	$ 21,207.10	0.2%	1.4%
2023	3	$ 20,959.52	0.2%	$ 21,255.91	0.2%	1.4%
2023	4	$ 21,024.00	0.3%	$ 21,324.08	0.3%	1.4%

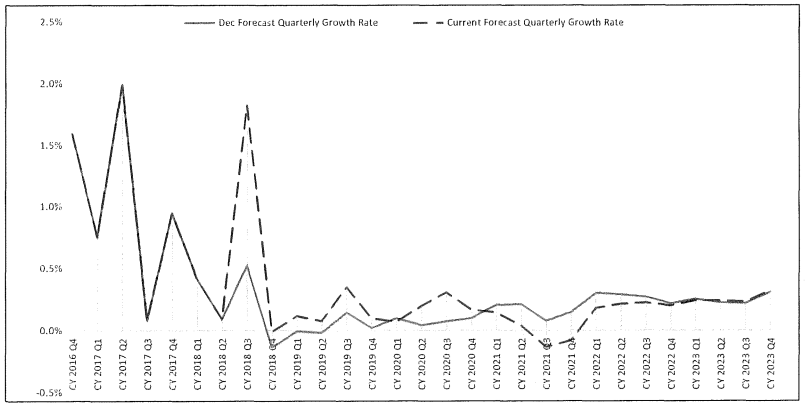
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 19,544.23		$ 19,544.23		
FY 2018	$ 20,189.33	3.3%	$ 20,189.33	3.3%	0.0%
FY 2019	$ 20,375.51	0.9%	$ 20,675.59	2.4%	1.5%
FY 2020	$ 20,409.46	0.2%	$ 20,802.49	0.6%	1.9%
FY 2021	$ 20,488.40	0.4%	$ 20,952.01	0.7%	2.3%
FY 2022	$ 20,631.23	0.7%	$ 20,970.36	0.1%	1.6%
FY 2023	$ 20,841.93	1.0%	$ 21,133.79	0.8%	1.4%

Annualized growth rate



Quarterly growth rate

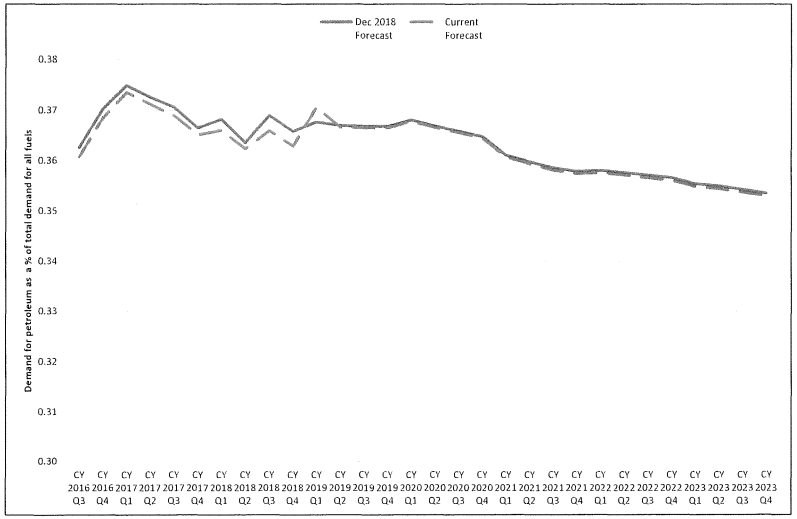


Demand for petroleum as a percentage of Total demand for all fuels

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



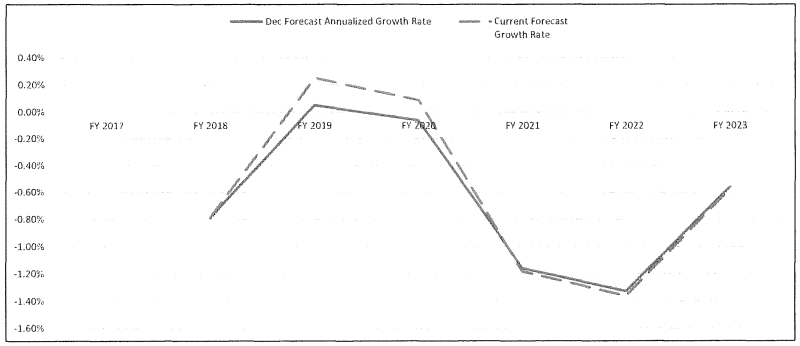
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	0.36	-1.0%	0.36	-1.2%	-0.5%
2016	4	0.37	2.1%	0.37	2.1%	-0.5%
2017	1	0.37	1.3%	0.37	1.4%	-0.4%
2017	2	0.37	-0.6%	0.37	-0.6%	-0.4%
2017	3	0.37	-0.5%	0.37	-0.6%	-0.4%
2017	4	0.37	-1.1%	0.37	-1.0%	-0.4%
2018	1	0.37	0.5%	0.37	0.2%	-0.6%
2018	2	0.36	-1.3%	0.36	-1.0%	-0.3%
2018	**3**	0.37	**1.5%**	0.37	**1.0%**	**-0.8%**
2018	**4**	0.37	**-0.9%**	0.36	**-0.8%**	**-0.8%**
2019	**1**	0.37	**0.5%**	0.37	**2.1%**	**0.8%**
2019	**2**	0.37	**-0.2%**	0.37	**-1.1%**	**-0.1%**
2019	**3**	0.37	**0.0%**	0.37	**0.0%**	**-0.1%**
2019	**4**	0.37	**0.0%**	0.37	**0.0%**	**-0.1%**
2020	**1**	0.37	**0.4%**	0.37	**0.4%**	**-0.1%**
2020	**2**	0.37	**-0.3%**	0.37	**-0.3%**	**-0.1%**
2020	**3**	0.37	**-0.3%**	0.37	**-0.3%**	**-0.1%**
2020	**4**	0.36	**-0.3%**	0.36	**-0.3%**	**-0.1%**
2021	**1**	0.36	**-1.0%**	0.36	**-1.0%**	**-0.1%**
2021	**2**	0.36	**-0.4%**	0.36	**-0.4%**	**-0.1%**
2021	3	0.36	-0.3%	0.36	-0.3%	-0.1%
2021	4	0.36	-0.2%	0.36	-0.2%	-0.1%
2022	1	0.36	0.1%	0.36	0.1%	-0.1%
2022	2	0.36	-0.1%	0.36	-0.1%	-0.2%
2022	3	0.36	-0.1%	0.36	-0.1%	-0.2%
2022	4	0.36	-0.1%	0.36	-0.1%	-0.2%
2023	1	0.36	-0.3%	0.35	-0.3%	-0.2%
2023	2	0.35	-0.1%	0.35	-0.1%	-0.2%
2023	3	0.35	-0.2%	0.35	-0.2%	-0.2%
2023	4	0.35	-0.2%	0.35	-0.2%	-0.2%

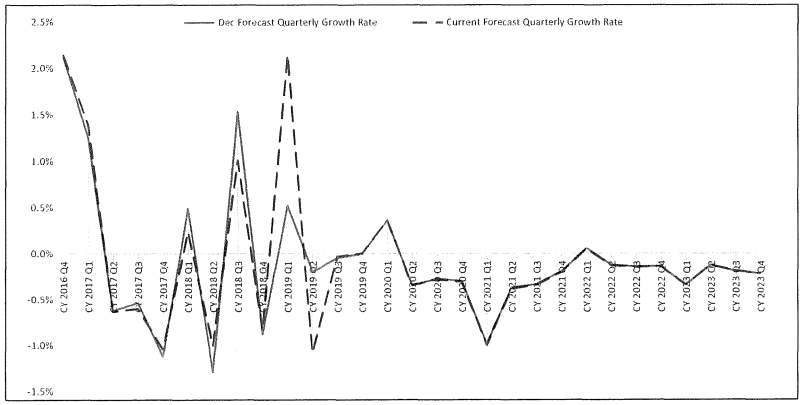
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 0.37		$ 0.37		
FY 2018	$ 0.37	-0.8%	$ 0.37	-0.8%	-0.4%
FY 2019	$ 0.37	0.1%	$ 0.37	0.3%	-0.2%
FY 2020	$ 0.37	-0.1%	$ 0.37	0.1%	-0.1%
FY 2021	$ 0.36	-1.2%	$ 0.36	-1.2%	-0.1%
FY 2022	$ 0.36	-1.3%	$ 0.36	-1.4%	-0.1%
FY 2023	$ 0.36	-0.6%	$ 0.36	-0.6%	-0.2%

Annualized growth rate

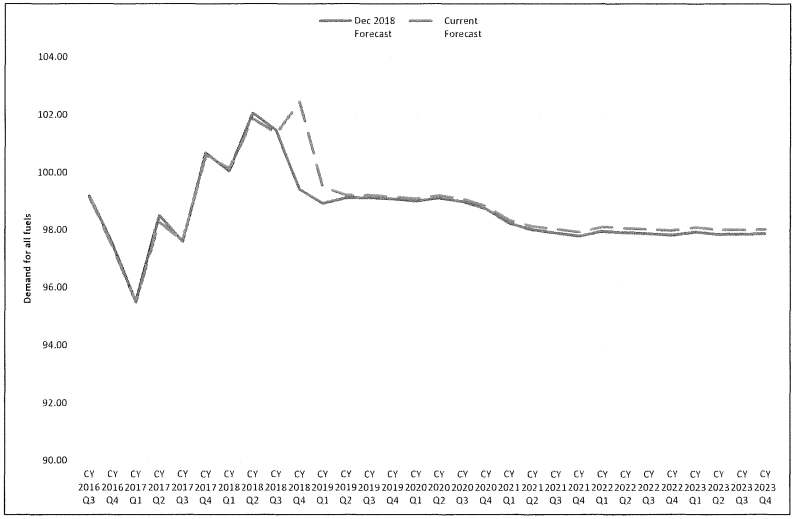


Quarterly growth rate



Demand for all fuels, quadrillion btus, DOE

This variable is included in the following December 2018 Forecast Model(s): Sales Tax
Comparison of Global Insight Forecast for Dec 2018 and April 2019
Date Prepared:April 12, 2019 Statistic Compiled by BEA



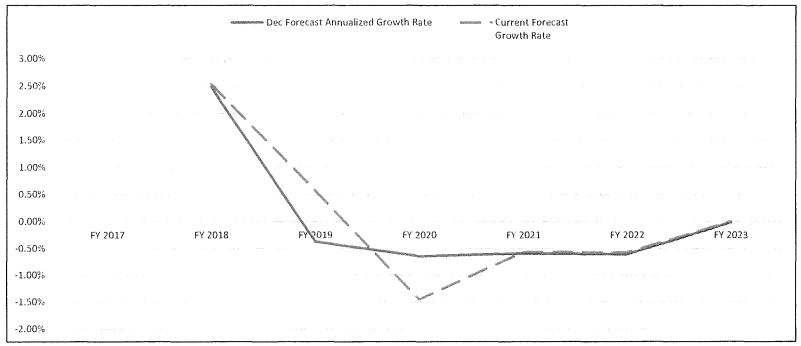
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	99.18	1.6%	99.15	1.8%	0.0%
2016	4	97.50	-1.7%	97.42	-1.7%	-0.1%
2017	1	95.51	-2.0%	95.49	-2.0%	0.0%
2017	2	98.51	3.1%	98.27	2.9%	-0.2%
2017	3	97.60	-0.9%	97.63	-0.7%	0.0%
2017	4	100.68	3.2%	100.60	3.0%	-0.1%
2018	1	100.06	-0.6%	100.15	-0.4%	0.1%
2018	2	102.08	2.0%	101.87	1.7%	-0.2%
2018	**3**	**101.46**	**-0.6%**	**101.36**	**-0.5%**	**-0.1%**
2018	**4**	**99.41**	**-2.0%**	**102.46**	**1.1%**	**3.1%**
2019	**1**	**98.93**	**-0.5%**	**99.50**	**-2.9%**	**0.6%**
2019	**2**	**99.12**	**0.2%**	**99.22**	**-0.3%**	**0.1%**
2019	**3**	**99.13**	**0.0%**	**99.22**	**0.0%**	**0.1%**
2019	**4**	**99.08**	**-0.1%**	**99.16**	**-0.1%**	**0.1%**
2020	**1**	**99.01**	**-0.1%**	**99.09**	**-0.1%**	**0.1%**
2020	**2**	**99.12**	**0.1%**	**99.20**	**0.1%**	**0.1%**
2020	**3**	**98.99**	**-0.1%**	**99.09**	**-0.1%**	**0.1%**
2020	**4**	**98.73**	**-0.3%**	**98.84**	**-0.3%**	**0.1%**
2021	**1**	**98.23**	**-0.5%**	**98.35**	**-0.5%**	**0.1%**
2021	**2**	**98.01**	**-0.2%**	**98.14**	**-0.2%**	**0.1%**
2021	3	97.90	-0.1%	98.03	-0.1%	0.1%
2021	4	97.79	-0.1%	97.93	-0.1%	0.1%
2022	1	97.96	0.2%	98.11	0.2%	0.2%
2022	2	97.91	0.0%	98.07	0.0%	0.2%
2022	3	97.88	0.0%	98.04	0.0%	0.2%
2022	4	97.83	-0.1%	97.99	0.0%	0.2%
2023	1	97.93	0.1%	98.10	0.1%	0.2%
2023	2	97.86	-0.1%	98.03	-0.1%	0.2%
2023	3	97.85	0.0%	98.02	0.0%	0.2%
2023	4	97.87	0.0%	98.04	0.0%	0.2%

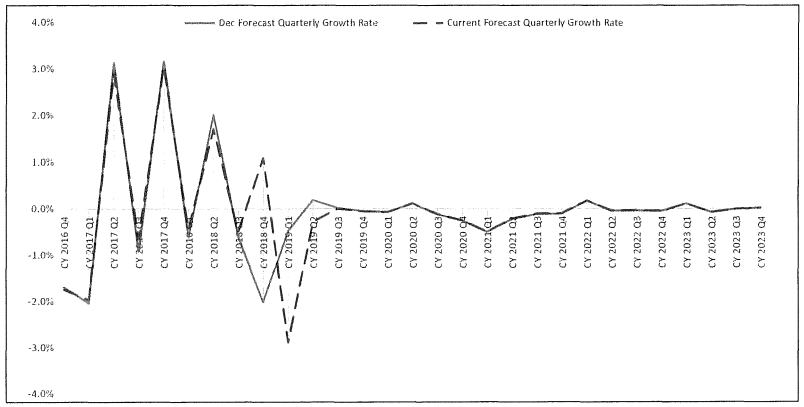
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	97.68		97.58		
FY 2018	100.10	2.5%	100.06	2.5%	0.0%
FY 2019	99.73	-0.4%	100.63	0.6%	0.9%
FY 2020	99.08	-0.6%	99.17	-1.5%	0.1%
FY 2021	98.49	-0.6%	98.60	-0.6%	0.1%
FY 2022	97.89	-0.6%	98.03	-0.6%	0.1%
FY 2023	97.87	0.0%	98.04	0.0%	0.2%

Annualized growth rate

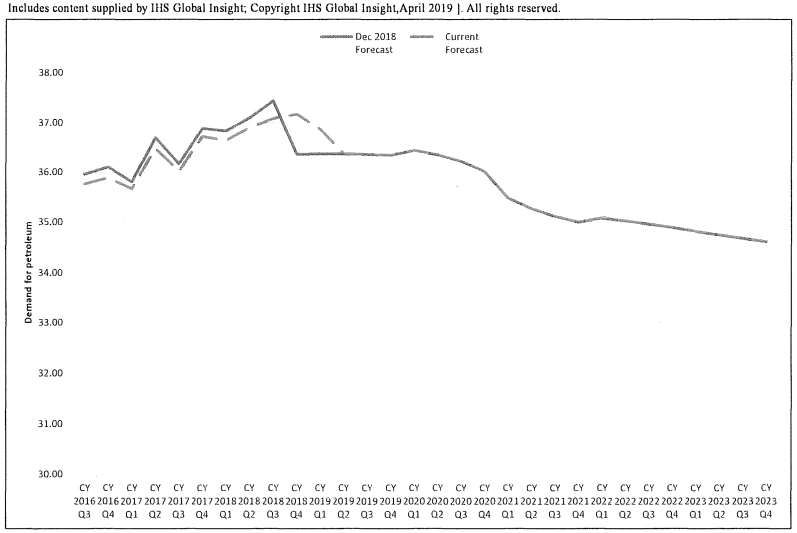


Quarterly growth rate



Total demand for petroleum, quadrillion Btus, SAAR, DOE

This variable is included in the following December 2018 Forecast Model(s): Sales Tax
Comparison of Global Insight Forecast for Dec 2018 and April 2019
Date Prepared:April 12, 2019 Statistic Compiled by BEA



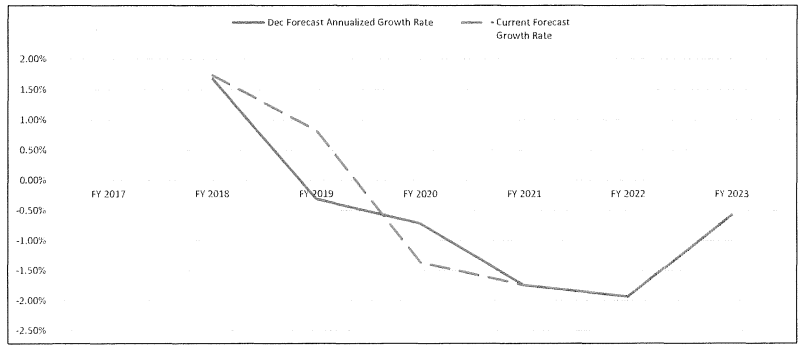
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	35.96	0.6%	35.76	0.6%	-0.5%
2016	4	36.10	0.4%	35.89	0.4%	-0.6%
2017	1	35.81	-0.8%	35.67	-0.6%	-0.4%
2017	2	36.70	2.5%	36.48	2.3%	-0.6%
2017	3	36.17	-1.5%	36.02	-1.2%	-0.4%
2017	4	36.89	2.0%	36.73	2.0%	-0.4%
2018	1	36.84	-0.1%	36.65	-0.2%	-0.5%
2018	2	37.10	0.7%	36.90	0.7%	-0.5%
2018	**3**	**37.44**	**0.9%**	**37.09**	**0.5%**	**-0.9%**
2018	**4**	**36.36**	**-2.9%**	**37.18**	**0.2%**	**2.2%**
2019	**1**	**36.37**	**0.0%**	**36.88**	**-0.8%**	**1.4%**
2019	**2**	**36.37**	**0.0%**	**36.37**	**-1.4%**	**0.0%**
2019	**3**	**36.36**	**0.0%**	**36.36**	**0.0%**	**0.0%**
2019	**4**	**36.34**	**-0.1%**	**36.34**	**-0.1%**	**0.0%**
2020	**1**	**36.44**	**0.3%**	**36.44**	**0.3%**	**0.0%**
2020	**2**	**36.36**	**-0.2%**	**36.36**	**-0.2%**	**0.0%**
2020	**3**	**36.22**	**-0.4%**	**36.22**	**-0.4%**	**0.0%**
2020	**4**	**36.01**	**-0.6%**	**36.01**	**-0.6%**	**0.0%**
2021	**1**	**35.48**	**-1.5%**	**35.48**	**-1.5%**	**0.0%**
2021	**2**	**35.26**	**-0.6%**	**35.27**	**-0.6%**	**0.0%**
2021	3	35.11	-0.5%	35.11	-0.5%	0.0%
2021	4	35.00	-0.3%	35.00	-0.3%	0.0%
2022	1	35.08	0.2%	35.08	0.2%	0.0%
2022	2	35.02	-0.2%	35.02	-0.2%	0.0%
2022	3	34.96	-0.2%	34.96	-0.2%	0.0%
2022	4	34.89	-0.2%	34.89	-0.2%	0.0%
2023	1	34.81	-0.2%	34.81	-0.2%	0.0%
2023	2	34.74	-0.2%	34.74	-0.2%	0.0%
2023	3	34.67	-0.2%	34.67	-0.2%	0.0%
2023	4	34.60	-0.2%	34.60	-0.2%	0.0%

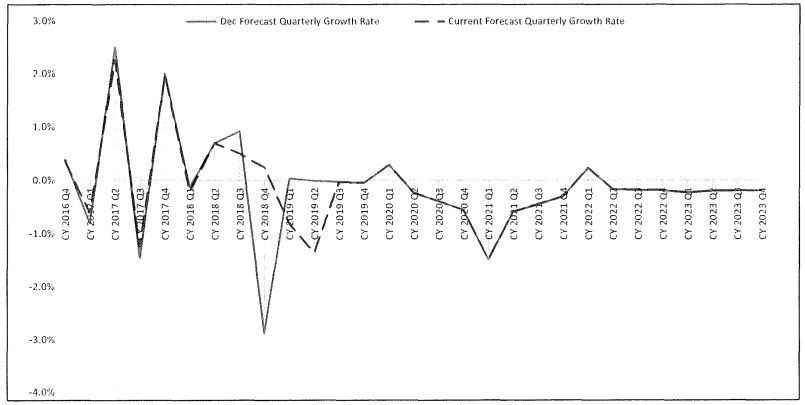
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	36.14		35.95		
FY 2018	36.75	1.7%	36.58	1.7%	-0.5%
FY 2019	36.64	-0.3%	36.88	0.8%	0.7%
FY 2020	36.38	-0.7%	36.38	-1.4%	0.0%
FY 2021	35.74	-1.7%	35.74	-1.7%	0.0%
FY 2022	35.05	-1.9%	35.05	-1.9%	0.0%
FY 2023	34.85	-0.6%	34.85	-0.6%	0.0%

Annualized growth rate

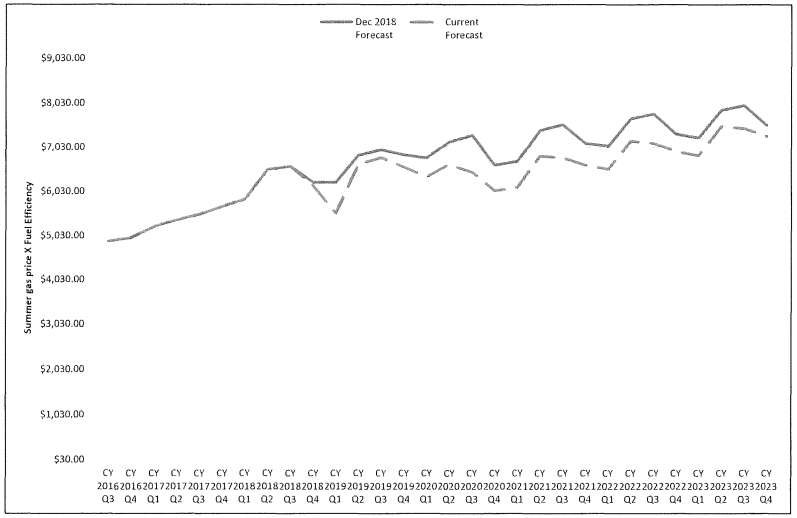


Quarterly growth rate



Summer Gas Price x Fuel Efficiency

This variable is included in the following December 2018 Forecast Model(s): Sales Tax
Comparison of Global Insight Forecast for Dec 2018 and April 2019
Date Prepared:April 12, 2019 Statistic Compiled by BEA



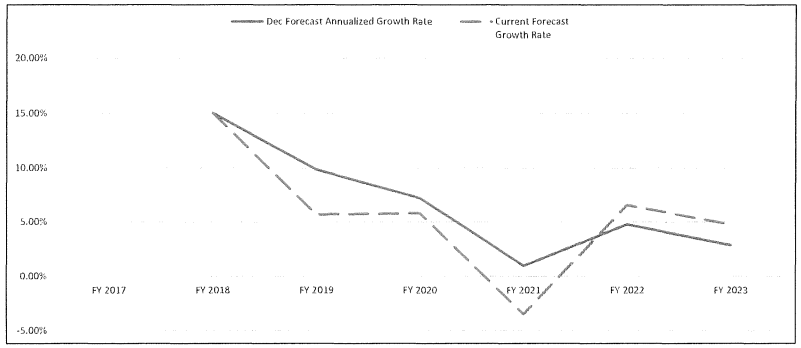
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 4,910.86	-2.0%	$ 4,910.86	-2.0%	0.0%
2016	4	$ 4,981.14	1.4%	$ 4,981.14	1.4%	0.0%
2017	1	$ 5,235.71	5.1%	$ 5,235.71	5.1%	0.0%
2017	2	$ 5,386.30	2.9%	$ 5,386.30	2.9%	0.0%
2017	3	$ 5,515.08	2.4%	$ 5,515.08	2.4%	0.0%
2017	4	$ 5,692.94	3.2%	$ 5,692.94	3.2%	0.0%
2018	1	$ 5,856.13	2.9%	$ 5,856.13	2.9%	0.0%
2018	2	$ 6,532.87	11.6%	$ 6,532.87	11.6%	0.0%
2018	**3**	**$ 6,600.47**	**1.0%**	**$ 6,600.47**	**1.0%**	**0.0%**
2018	**4**	**$ 6,235.78**	**-5.5%**	**$ 6,160.20**	**-6.7%**	**-1.2%**
2019	**1**	**$ 6,228.59**	**-0.1%**	**$ 5,532.42**	**-10.2%**	**-11.2%**
2019	**2**	**$ 6,856.30**	**10.1%**	**$ 6,645.72**	**20.1%**	**-3.1%**
2019	**3**	**$ 6,977.84**	**1.8%**	**$ 6,799.42**	**2.3%**	**-2.6%**
2019	**4**	**$ 6,862.12**	**-1.7%**	**$ 6,582.97**	**-3.2%**	**-4.1%**
2020	**1**	**$ 6,789.19**	**-1.1%**	**$ 6,355.60**	**-3.5%**	**-6.4%**
2020	**2**	**$ 7,154.83**	**5.4%**	**$ 6,645.15**	**4.6%**	**-7.1%**
2020	**3**	**$ 7,297.15**	**2.0%**	**$ 6,463.56**	**-2.7%**	**-11.4%**
2020	**4**	**$ 6,632.08**	**-9.1%**	**$ 6,044.11**	**-6.5%**	**-8.9%**
2021	**1**	**$ 6,713.00**	**1.2%**	**$ 6,121.29**	**1.3%**	**-8.8%**
2021	**2**	**$ 7,415.72**	**10.5%**	**$ 6,835.00**	**11.7%**	**-7.8%**
2021	3	$ 7,544.18	1.7%	$ 6,796.43	-0.6%	-9.9%
2021	4	$ 7,115.46	-5.7%	$ 6,628.13	-2.5%	-6.8%
2022	1	$ 7,056.53	-0.8%	$ 6,534.14	-1.4%	-7.4%
2022	2	$ 7,682.03	8.9%	$ 7,170.10	9.7%	-6.7%
2022	3	$ 7,790.04	1.4%	$ 7,119.46	-0.7%	-8.6%
2022	4	$ 7,328.62	-5.9%	$ 6,944.51	-2.5%	-5.2%
2023	1	$ 7,249.48	-1.1%	$ 6,848.45	-1.4%	-5.5%
2023	2	$ 7,876.01	8.6%	$ 7,509.30	9.6%	-4.7%
2023	3	$ 7,982.79	1.4%	$ 7,459.67	-0.7%	-6.6%
2023	4	$ 7,527.30	-5.7%	$ 7,282.14	-2.4%	-3.3%

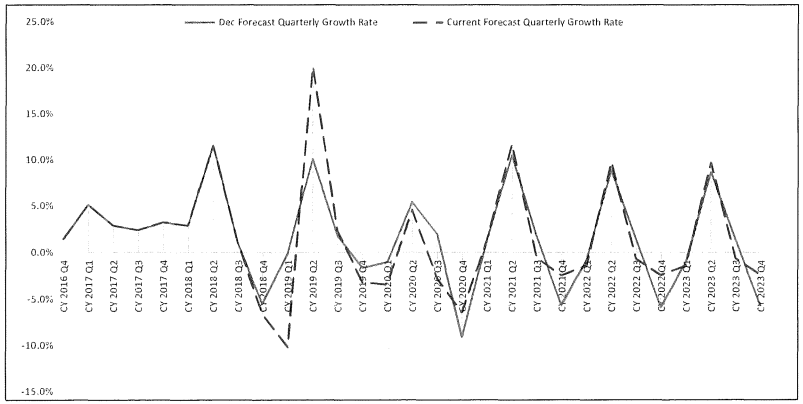
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 5,128.50		$ 5,128.50		
FY 2018	$ 5,899.26	15.0%	$ 5,899.26	15.0%	0.0%
FY 2019	$ 6,480.29	9.8%	$ 6,234.70	5.7%	-3.8%
FY 2020	$ 6,945.99	7.2%	$ 6,595.79	5.8%	-5.0%
FY 2021	$ 7,014.48	1.0%	$ 6,365.99	-3.5%	-9.2%
FY 2022	$ 7,349.55	4.8%	$ 6,782.20	6.5%	-7.7%
FY 2023	$ 7,561.04	2.9%	$ 7,105.43	4.8%	-6.0%

Annualized growth rate



Quarterly growth rate

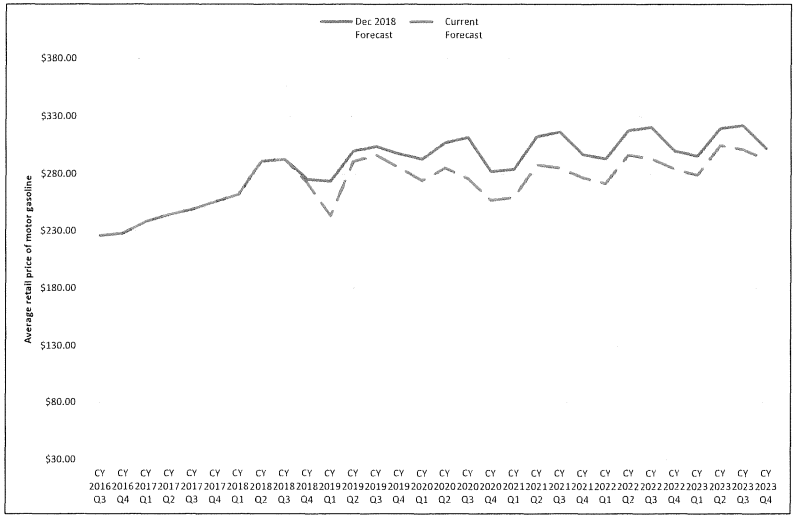


Average retail price of motor gasoline, all types, including tax, cents per gallon, BLS

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



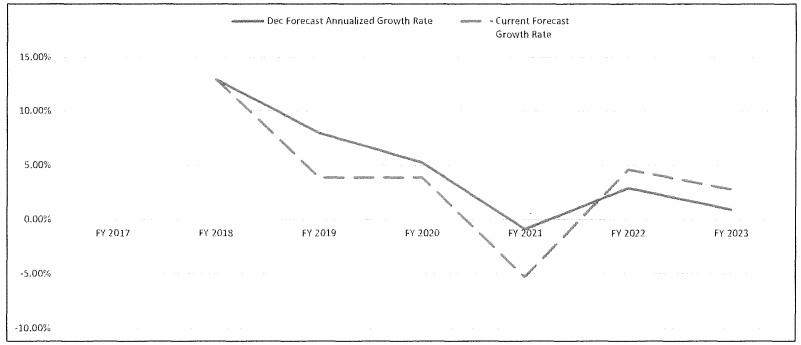
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 225.80	-2.4%	$ 225.80	-95.5%	0.0%
2016	4	$ 227.97	1.0%	$ 227.97	1.0%	0.0%
2017	1	$ 238.50	4.6%	$ 238.50	4.6%	0.0%
2017	2	$ 244.23	2.4%	$ 244.23	2.4%	0.0%
2017	3	$ 248.93	1.9%	$ 248.93	1.9%	0.0%
2017	4	$ 255.80	2.8%	$ 255.80	2.8%	0.0%
2018	1	$ 261.97	2.4%	$ 261.97	2.4%	0.0%
2018	2	$ 290.93	11.1%	$ 290.93	11.1%	0.0%
2018	**3**	**$ 292.63**	0.6%	**$ 292.63**	0.6%	**0.0%**
2018	**4**	**$ 275.24**	**-5.9%**	**$ 271.90**	**-7.1%**	**-1.2%**
2019	**1**	**$ 273.77**	**-0.5%**	**$ 243.17**	**-10.6%**	**-11.2%**
2019	**2**	**$ 300.00**	9.6%	**$ 290.78**	19.6%	**-3.1%**
2019	**3**	**$ 303.91**	1.3%	**$ 296.14**	1.8%	**-2.6%**
2019	**4**	**$ 297.47**	**-2.1%**	**$ 285.37**	**-3.6%**	**-4.1%**
2020	**1**	**$ 292.81**	**-1.6%**	**$ 274.11**	**-3.9%**	**-6.4%**
2020	**2**	**$ 307.13**	4.9%	**$ 285.25**	4.1%	**-7.1%**
2020	**3**	**$ 311.78**	1.5%	**$ 276.16**	-3.2%	**-11.4%**
2020	**4**	**$ 282.05**	**-9.5%**	**$ 257.05**	**-6.9%**	**-8.9%**
2021	**1**	**$ 284.25**	0.8%	**$ 259.19**	0.8%	**-8.8%**
2021	**2**	**$ 312.56**	10.0%	**$ 288.08**	11.1%	**-7.8%**
2021	3	$ 316.50	1.3%	$ 285.13	-1.0%	-9.9%
2021	4	$ 297.12	-6.1%	$ 276.77	-2.9%	-6.8%
2022	1	$ 293.28	-1.3%	$ 271.57	-1.9%	-7.4%
2022	2	$ 317.77	8.3%	$ 296.59	9.2%	-6.7%
2022	3	$ 320.70	0.9%	$ 293.09	-1.2%	-8.6%
2022	4	$ 300.25	-6.4%	$ 284.51	-2.9%	-5.2%
2023	1	$ 295.56	-1.6%	$ 279.21	-1.9%	-5.5%
2023	2	$ 319.53	8.1%	$ 304.65	9.1%	-4.7%
2023	3	$ 322.27	0.9%	$ 301.15	-1.1%	-6.6%
2023	4	$ 302.38	-6.2%	$ 292.53	-2.9%	-3.3%

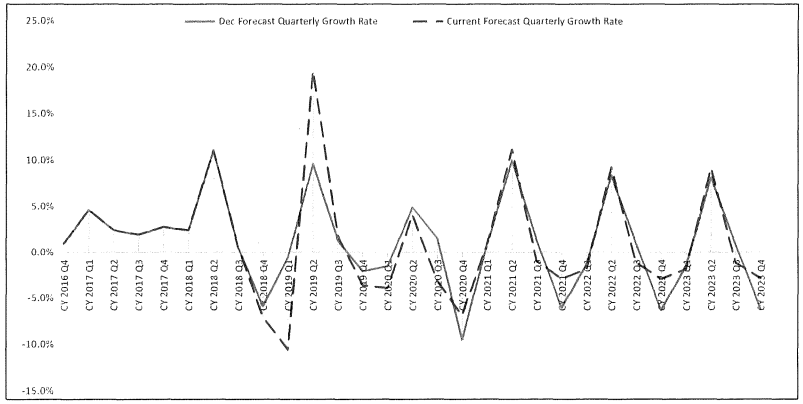
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 234.13		$ 234.13		
FY 2018	$ 264.41	12.9%	$ 264.41	12.9%	0.0%
FY 2019	$ 285.41	7.9%	$ 274.62	3.9%	-3.8%
FY 2020	$ 300.33	5.2%	$ 285.22	3.9%	-5.0%
FY 2021	$ 297.66	-0.9%	$ 270.12	-5.3%	-9.3%
FY 2022	$ 306.17	2.9%	$ 282.52	4.6%	-7.7%
FY 2023	$ 309.01	0.9%	$ 290.37	2.8%	-6.0%

Annualized growth rate



Quarterly growth rate

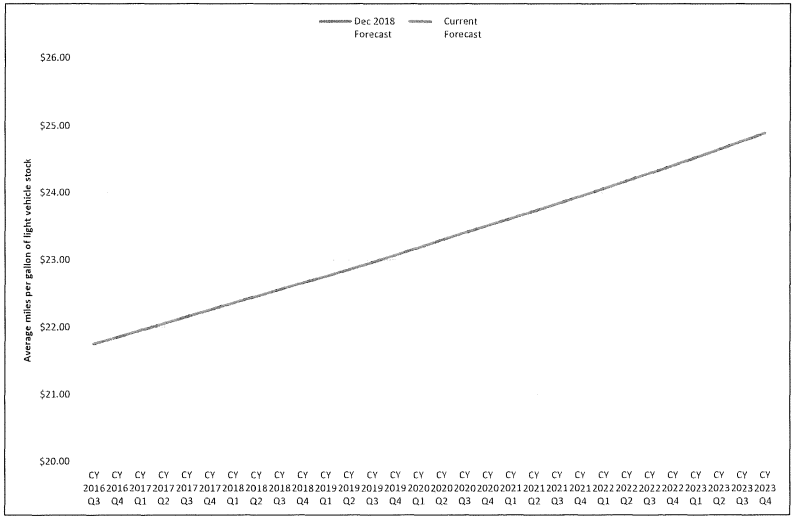


Average miles per gallon of the light vehicle stock, DOE

This variable is included in the following December 2018 Forecast Model(s): Sales Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



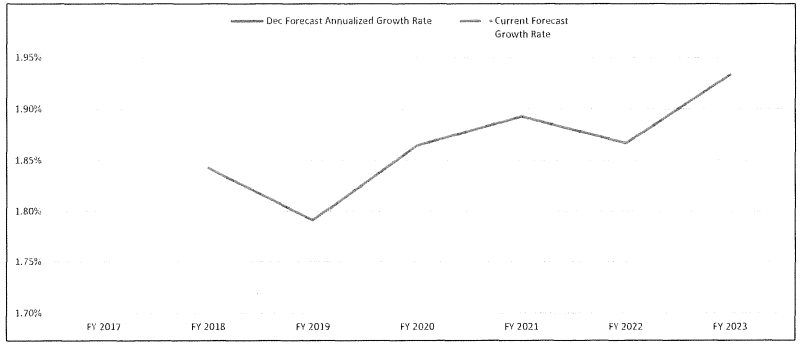
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 21.75	0.5%	$ 21.75	0.5%	0.0%
2016	4	$ 21.85	0.5%	$ 21.85	0.5%	0.0%
2017	1	$ 21.95	0.5%	$ 21.95	0.5%	0.0%
2017	2	$ 22.05	0.5%	$ 22.05	0.5%	0.0%
2017	3	$ 22.15	0.5%	$ 22.15	0.5%	0.0%
2017	4	$ 22.26	0.5%	$ 22.26	0.5%	0.0%
2018	1	$ 22.35	0.4%	$ 22.35	0.4%	0.0%
2018	2	$ 22.45	0.4%	$ 22.45	0.4%	0.0%
2018	**3**	**$ 22.56**	**0.4%**	**$ 22.56**	**0.4%**	**0.0%**
2018	**4**	**$ 22.66**	**0.4%**	**$ 22.66**	**0.4%**	**0.0%**
2019	**1**	**$ 22.75**	**0.4%**	**$ 22.75**	**0.4%**	**0.0%**
2019	**2**	**$ 22.85**	**0.5%**	**$ 22.85**	**0.5%**	**0.0%**
2019	**3**	**$ 22.96**	**0.5%**	**$ 22.96**	**0.5%**	**0.0%**
2019	**4**	**$ 23.07**	**0.5%**	**$ 23.07**	**0.5%**	**0.0%**
2020	**1**	**$ 23.19**	**0.5%**	**$ 23.19**	**0.5%**	**0.0%**
2020	**2**	**$ 23.30**	**0.5%**	**$ 23.30**	**0.5%**	**0.0%**
2020	**3**	**$ 23.40**	**0.5%**	**$ 23.40**	**0.5%**	**0.0%**
2020	**4**	**$ 23.51**	**0.5%**	**$ 23.51**	**0.5%**	**0.0%**
2021	**1**	**$ 23.62**	**0.4%**	**$ 23.62**	**0.4%**	**0.0%**
2021	**2**	**$ 23.73**	**0.5%**	**$ 23.73**	**0.5%**	**0.0%**
2021	3	$ 23.84	0.5%	$ 23.84	0.5%	0.0%
2021	4	$ 23.95	0.5%	$ 23.95	0.5%	0.0%
2022	1	$ 24.06	0.5%	$ 24.06	0.5%	0.0%
2022	2	$ 24.18	0.5%	$ 24.18	0.5%	0.0%
2022	3	$ 24.29	0.5%	$ 24.29	0.5%	0.0%
2022	4	$ 24.41	0.5%	$ 24.41	0.5%	0.0%
2023	1	$ 24.53	0.5%	$ 24.53	0.5%	0.0%
2023	2	$ 24.65	0.5%	$ 24.65	0.5%	0.0%
2023	3	$ 24.77	0.5%	$ 24.77	0.5%	0.0%
2023	4	$ 24.89	0.5%	$ 24.89	0.5%	0.0%

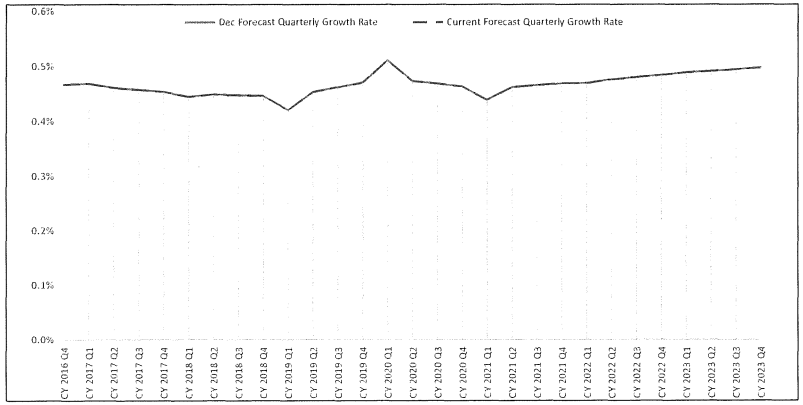
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 21.90		$ 21.90		
FY 2018	$ 22.30	1.8%	$ 22.30	1.8%	0.0%
FY 2019	$ 22.70	1.8%	$ 22.70	1.8%	0.0%
FY 2020	$ 23.13	1.9%	$ 23.13	1.9%	0.0%
FY 2021	$ 23.57	1.9%	$ 23.57	1.9%	0.0%
FY 2022	$ 24.01	1.9%	$ 24.01	1.9%	0.0%
FY 2023	$ 24.47	1.9%	$ 24.47	1.9%	0.0%

Annualized growth rate



Quarterly growth rate



BREAKDOWN OF MARCH 2019 INDIVIDUAL INCOME TAX REVENUE

	March 2018	March 2019	Change	% Chg.	Contribution to % Change
Estimated Payments	$14,071,532	$12,608,230	-$1,463,302	-10.4%	-0.4%
IT40 and IT 41 Remits	$87,455,503	$103,421,422	$15,965,918	18.3%	4.5%
Withholding	$637,024,728	$662,594,147	$25,569,420	4.0%	7.2%
Other Transactions	-$4,356,411	$154,617	$4,511,029	103.5%	1.3%
AR Payments	$19,314,754	$14,330,560	-$4,984,193	-25.8%	-1.4%
Less Refunds	$172,879,154	$166,200,372	-$6,678,782	-3.9%	1.9%
Total Net Collections	$580,630,951	$626,908,605	$46,277,654	8.0%	
LIT Transfers	-$203,705,239	-$218,810,372	-$15,105,133	7.4%	-4.3%
LIT Reserve	-$24,162,293	-$15,241,287	$8,921,006	-36.9%	2.5%
Net Revenue	$352,763,420	$392,856,946	$40,093,527	11.4%	11.4%

BREAKDOWN OF FY 2019 YEAR-TO-DATE INDIVIDUAL INCOME TAX REVENUE

	FY2018	FY2019	Change	% Chg.	Contribution to % Change
Estimated Payments	$627,391,804	$524,007,369	-$103,384,435	-16.5%	-2.6%
IT40 and IT 41 Remits	$181,489,848	$202,926,750	$21,436,903	11.8%	0.5%
Withholding	$5,535,033,351	$5,653,166,721	$118,133,370	2.1%	3.0%
Other Transactions	-$23,627,959	-$15,194,187	$8,433,772	35.7%	0.2%
AR Payments	$137,985,669	$125,558,350	-$12,427,320	-9.0%	-0.3%
Less Refunds	$601,820,352	$596,317,012	-$5,503,340	-0.9%	0.1%
Total Net Collections	$5,856,452,361	$5,894,147,991	$37,695,630	0.6%	
LIT Transfers	-$1,750,737,787	-$1,878,662,547	-$127,924,760	7.3%	-3.2%
LIT Reserve	-$159,962,722	-$169,068,133	-$9,105,411	5.7%	-0.2%
Net Revenue	$3,945,751,852	$3,846,417,311	-$99,334,541	-2.5%	-2.5%

Notes: • Other transactions include returned payments, returned refunds, refund offsets, correcting entries , and other payments that could not be identified.
• IT-6WTH transfer to WTH is $46,109,603 for March 2019 compared to $43,086,911 for March 2018; $85,170,248 FY19 YTD compared to $196,569,333 FY18 YTD.

BREAKDOWN OF MARCH 2019 WITHHOLDING REVENUE

	March 2018	March 2019	Difference	% Chg.	Contribution to % Change
State Gov Withholding	$5,312,670	$5,625,500	$312,830	5.9%	0.0%
Non-State Gov Withholding	$597,789,941	$611,997,343	$14,207,402	2.4%	2.2%
Voucher Commit - IT6WTH	$43,086,922	$46,109,603	$3,022,681	7.0%	0.5%
Voucher Commit - other	-$8,012,103	$427,100	$8,439,202	105.3%	1.3%
Returned Payments	-$582,662	-$337,518	$245,144	42.1%	0.0%
PSDA/CRED/CTP	-$625,199	-$1,227,324	-$602,125	-96.3%	-0.1%
Adjustments	$55,158	-$556	-$55,714	-101.0%	0.0%
Total Collections	$637,024,728	$662,594,147	$25,569,420	4.0%	4.0%

BREAKDOWN OF FY 2019 YEAR-TO-DATE WITHHOLDING REVENUE

	FY 2018	FY 2019	Difference	% Chg.	Contribution to % Change
State Gov Withholding	$50,033,483	$52,847,726	$2,814,243	5.6%	0.1%
Non-State Gov Withholding	$5,359,892,346	$5,524,391,455	$164,499,109	3.1%	3.0%
Voucher Commit - IT6WTH	$196,569,333	$85,170,248	-$111,399,084	-56.7%	-2.0%
Voucher Commit - other	-$11,975,603	$14,698,500	$26,674,103	222.7%	0.5%
Returned Payments	-$45,420,158	-$5,467,452	$39,952,706	88.0%	0.7%
PSDA/CRED/CTP	-$14,376,842	-$14,977,255	-$600,413	-4.2%	0.0%
Adjustments	$310,792	-$3,496,502	-$3,807,294	-1225.0%	-0.1%
Total Collections	$5,535,033,351	$5,653,166,721	$118,133,370	2.1%	2.1%

• IT-6WTH transfer to WTH is $46,109,603 for March 2019 compared to $43,086,911 for March 2018; $85,170,248 FY19 YTD compared to $196,569,333 FY18 YTD. FY 2018 Year-to-date Voucher Commit -IT6WTH includes a January 2018 transfer of $41.3 million which is a result of implementing new business rules in RPS.

Individual Income Tax Model **April 2019 Forecast**

Summary IHSMarkit = April 2019

Revenue to General Fund ONLY	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Individual Income Tax Revenue						
Withholding Revenue	$ 7,497.55	$ 7,763.52	$ 8,052.14	$ 8,307.87	$ 8,598.26	$ 8,949.22
Other Individual Income Tax Revenue	$ 977.37	$ 1,037.66	$ 1,088.65	$ 1,137.70	$ 1,176.44	$ 1,193.35
Less: LIT Forecast	$ 2,637.02	$ 2,843.25	$ 2,966.73	$ 3,065.65	$ 3,172.47	$ 3,291.87
Updated Revenue Forecast	$ 5,837.90	$ 5,957.94	$ 6,174.06	$ 6,379.92	$ 6,602.22	$ 6,850.70
Apr 2019 - Dec 2018 $ Change	$ -	$ (79.06)	$ (74.90)	$ (88.20)	$ (100.29)	$ (128.94)
Apr 2019 - Dec 2018 % Change	0.00%	-1.31%	-1.20%	-1.36%	-1.50%	$ (0.02)
Change in Revenue vs Prior Year						
Withholding - % Change	8.40%	3.55%	3.72%	3.18%	3.50%	4.08%
Other Individual Income Tax - % Change	6.65%	6.17%	4.91%	4.51%	3.41%	1.44%
Total - % Change	0.38%	2.06%	3.63%	3.33%	3.48%	3.76%
December 2018 Forecast						
Withholding Revenue	$ 7,497.55	$ 7,802.34	$ 8,098.15	$ 8,386.58	$ 8,688.81	$ 9,057.91
Other Individual Income Tax Revenue	$ 977.37	$ 1,012.26	$ 1,040.93	$ 1,073.02	$ 1,113.60	$ 1,149.79
Less: LIT Forecast	$ 2,637.02	$ 2,777.60	$ 2,890.12	$ 2,991.48	$ 3,099.89	$ 3,228.06
Last Revenue Forecast	$ 5,837.90	$ 6,036.99	$ 6,248.96	$ 6,468.12	$ 6,702.52	$ 6,979.64

Withholding - Dec 2018 Model **Ran from FY18**

As of:	From Dec. 2018 Forecast, adjustments include: Impact of Federal TCJA allocated to 'Individual AGI' instead of
2018	Withholding, updated IT-6WTH forecast based on 65/35 rule effective April 2019, and updated LIT rate

* IT-6WTH Forecast is based on % of CTAX Payments in 2018, adjusted based on December FY YTD data. The same number is used in CTAX Forecast

* LIT Forecast for Following Year based on Latest Ratio of LIT Rate and State Income Rate

Model Starts	1998
Model Ends	2018
Time	Fiscal Year
Form	LN

Include Adjustment? Yes

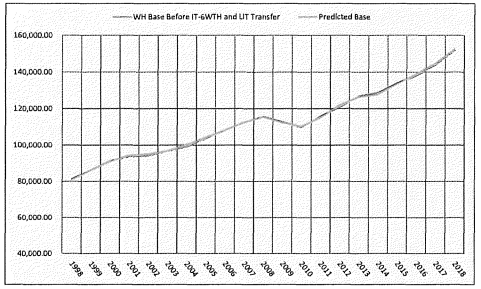
									PROPOSED FORECAST								ACTUALS*		GF Forecast Error				LAST PASSED FORECAST			
Fiscal Year	WH Base Before IT-6WTH and LIT Transfer	% to GF	% Tax	FY18 Legislative Acts	WH Tax Before IT-6WTH and LIT Transfer	IT-6WTH	WH Base Before LIT Transfer	Gross WH Tax Before LIT Transfer	Gross Individual AGI Tax Before LIT Transfer	Individual Income Taxes Before LIT Transfer	YoY Growth	State LIT Rate	LIT Transfer	Net Individual Income Taxes	Net ITAX Base	WH Tax Actuals	Net Individual Income Tax Actuals	WH $ vs Actuals	WH % vs Actuals	NET Individual Income Taxes $ vs Actuals	NET Individual Income Taxes % vs Actuals	Gross WH Tax Before LIT Transfer	Gross Individual AGI Tax Before LIT Transfer	Net Individual Income Taxes	WH $ vs Actuals
2017	144,897.72	100%	4.7142%		6,830.80	119.39	147,430.17	6,950.19	941.35	7,891.54		1.44%	2,372.48	5,519.06	168,735.62	6,916.68	5,435.29	33.51	0.48%	83.77	1.54%	6,945.62	942.46	5,515.60	28.94
2018	152,420.12	100%	4.7329%		7,213.84	306.93	158,905.23	7,520.77	997.12	8,517.89	7.94%	1.50%	2,637.02	5,880.87	182,070.29	7,497.55	5,816.07	23.22	0.31%	64.80	1.11%	7,509.99	970.64	5,843.61	12.44
2019	158,688.11	100%	4.7714%		7,571.68	191.84	162,708.82	7,763.52	1,037.66	8,801.19	3.33%	1.54%	2,843.25	5,957.94	184,456.28							7,802.34	1,012.26	6,036.99	
2020	164,360.58	100%	4.7821%		7,859.83	192.31	168,382.08	8,052.14	1,088.65	9,140.79	3.86%	1.55%	2,966.73	6,174.06	191,147.37							8,098.15	1,040.93	6,248.96	
2021	169,798.01	100%	4.7821%		8,119.85	188.02	173,729.80	8,307.87	1,137.70	9,445.57	3.33%	1.55%	3,065.65	6,379.92	197,520.71							8,386.58	1,073.02	6,468.12	
2022	175,953.87	100%	4.7821%		8,414.23	184.03	179,802.20	8,598.26	1,176.44	9,774.69	3.48%	1.55%	3,172.47	6,602.22	204,403.21							8,688.81	1,113.60	6,702.52	
2023	182,641.11	100%	4.7821%		8,734.01	215.21	187,141.41	8,949.22	1,193.35	10,142.57	3.76%	1.55%	3,291.87	6,850.70	212,096.04							9,057.91	1,149.79	6,979.64	

				DEPENDENT VARIABLE		INDEPENDENT VARIABLES			
					LN	LN	LN	LN	
$ Predicted vs Actual Revenue	Predicted Revenue	Predicted Base	Fiscal Year	WH Base Before IT-6WTH and LIT Transfer	WH Base Before IT-6WTH and LIT Transfer	Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment	AR (1)	Prior Year Births (Thous.)	Dummy for Extra Five Fridays FY
(16.85)	3,365.28	80,974.63	1998	81,379.96	11.31	11.21	11.25	3.04	0
(4.37)	3,587.46	86,105.74	1999	86,210.56	11.36	11.27	11.31	3.06	0
(12.45)	3,798.08	91,050.30	2000	91,348.71	11.42	11.33	11.36	3.07	0
20.97	3,947.20	94,213.79	2001	93,713.25	11.45	11.35	11.42	3.09	1
34.91	3,996.45	95,135.86	2002	94,304.87	11.45	11.35	11.45	3.07	1
2.69	4,066.42	96,722.84	2003	96,658.88	11.48	11.38	11.45	3.05	0
41.95	4,284.60	100,110.51	2004	99,130.28	11.50	11.42	11.48	3.08	0
12.67	4,482.84	104,117.54	2005	103,823.33	11.55	11.46	11.50	3.08	0
0.97	4,694.38	108,081.33	2006	108,058.94	11.59	11.49	11.55	3.08	0
10.26	4,930.10	112,649.10	2007	112,414.68	11.63	11.53	11.59	3.10	1
(14.04)	5,202.13	115,542.38	2008	115,854.16	11.66	11.55	11.63	3.11	1
(18.50)	5,120.58	112,461.09	2009	112,867.37	11.63	11.52	11.66	3.11	0
18.58	5,082.45	110,296.88	2010	109,893.61	11.61	11.50	11.63	3.09	0
(24.41)	5,351.51	115,408.55	2011	115,935.03	11.66	11.55	11.61	3.05	0
45.54	5,664.41	121,981.22	2012	121,000.53	11.70	11.60	11.66	3.03	0
(22.43)	5,870.04	126,428.34	2013	126,911.41	11.75	11.63	11.70	3.04	1
(46.62)	6,015.62	127,885.61	2014	128,876.72	11.77	11.64	11.75	3.04	0
(18.88)	6,343.46	133,612.64	2015	134,010.27	11.81	11.69	11.77	3.04	0
35.91	6,558.79	138,872.01	2016	138,111.67	11.84	11.73	11.81	3.05	0
32.36	6,830.80	144,897.72	2017	144,211.31	11.88	11.77	11.84	3.03	0
24.86	7,213.84	152,420.12	2018	151,894.95	11.93	11.81	11.88	3.01	1
		158,688.11	2019			11.84	11.93	3.01	1
		164,360.58	2020			11.88	11.97	3.01	0
		169,798.01	2021			11.91	12.01	3.02	0
		175,953.87	2022			11.95	12.04	3.02	0
		182,641.11	2023			11.99	12.08	3.03	0

OUT OF SAMPLE

	2017		2016	
	Forecast	$ Error	Forecast	$ Error
2017	6,946.70	30.02	6,957.21	40.54
2018	7,513.63	16.08	7,525.29	27.74
2019	7,758.97		7,771.60	
2020	8,052.88		8,067.87	
2021	8,307.07		8,323.02	

Withholding - Dec 2018 Model



SUMMARY OUTPUT (in millions $)

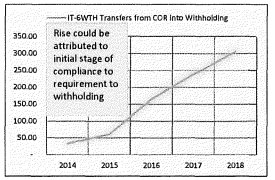
Regression Statistics	
Multiple R	0.999595154
R Square	0.999190473
Adjusted R Squ	0.998988091
Standard Error	0.005475664
Observations	21

ANOVA

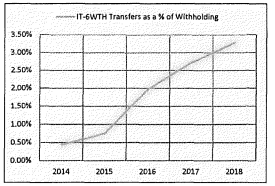
	df	SS	MS	F	Significance F
Regression	4	0.592120978	0.148030244	4937.155498	1.65875E-24
Residual	16	0.000479726	2.99829E-05		
Total	20	0.592600704			

	Coefficients	Standard Error	t Stat	P-value
Intercept	0.204169459	0.239982159	0.850769325	0.407449916
Wage Disbursen	0.854629759	0.056049464	15.24777752	5.97484E-11
AR (1)	0.176332234	0.051503337	3.423705047	0.003481562
Prior Year Births	-0.153046808	0.05628993	-2.718902098	0.015172659
Dummy for 2 Fiv	0.007100312	0.00320247	2.217136212	0.041444256

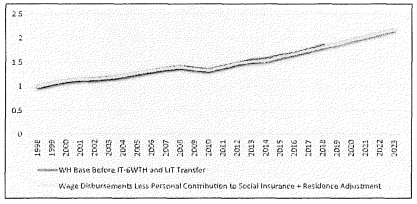
IT-6WTH Transfers from COR Into Withholding



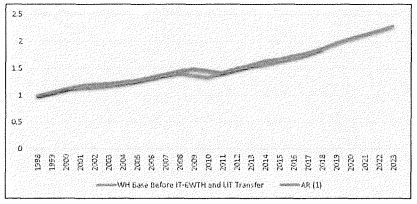
IT-6WTH Transfers as a % of Withholding



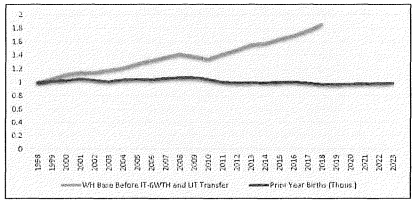
Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment



AR (1)



Prior Year Births (Thous.)



Sensitivity Analysis: Individual Withholding

The analysis of the Individual Withholding December 2018 model consists of two data tables. Table 1 displays the forecasts for the December 2018 Individual Withholding model if data were used from different months over three fiscal years. Table 2 displays the change in predictors over different monthly datasets. In each graph, the change in revenue forecast by specific fiscal year is graphed. Although the model loses statistical integrity by holding the coefficients constant, this is a valuable tool for determining how the revenue forecasts may change given predictor data changes.

The regression coefficients are held constant as they were in the December 2018 model whereas the underlying predictor data changes to the corresponding month when calculating revenue forecasts. The tax rates and outside adjustments are based on April 2019 data.

Individual Withholding was at its maximum forecast with April 2017 data and has been decreasing with more current data revisions. October 2018 data revision gave the forecast a slight boost. As for predictors, Wage Disbursements less Personal Contribution to Social Insurance plus Residence Adjustment is likely the largest driver in forecast changes.

Table 1: Revenue Forecasts

Global Insights Data Date		Fiscal Year Forecast ($thousands)				
Calendar Year	Month	2019	2020	2021	2022	2023
2016	July	$ 7,831.42	$ 8,169.70	$ 8,532.91	$ 8,908.51	$ 9,337.89
	August	$ 7,797.14	$ 8,125.60	$ 8,483.02	$ 8,853.01	$ 9,274.95
	September	$ 7,800.20	$ 8,127.32	$ 8,479.44	$ 8,848.07	$ 9,268.16
	October	$ 7,735.13	$ 8,053.58	$ 8,398.77	$ 8,759.23	$ 9,175.22
	November	$ 7,734.08	$ 8,051.23	$ 8,399.03	$ 8,759.54	$ 9,168.69
	December	$ 7,774.22	$ 8,114.57	$ 8,479.30	$ 8,858.03	$ 9,287.55
2017	January	$ 7,850.12	$ 8,196.85	$ 8,561.42	$ 8,940.38	$ 9,370.60
	February	$ 7,804.15	$ 8,140.93	$ 8,509.95	$ 8,885.71	$ 9,312.19
	March	$ 7,821.36	$ 8,157.24	$ 8,529.37	$ 8,909.70	$ 9,343.62
	April	$ 7,918.58	$ 8,291.27	$ 8,676.75	$ 9,066.97	$ 9,510.69
	May	$ 7,874.76	$ 8,226.35	$ 8,594.02	$ 8,964.47	$ 9,386.26
	June	$ 7,876.53	$ 8,224.23	$ 8,591.08	$ 8,967.72	$ 9,397.24
	July	$ 7,814.96	$ 8,144.87	$ 8,498.69	$ 8,863.64	$ 9,282.42
	August	$ 7,793.01	$ 8,121.05	$ 8,470.51	$ 8,829.59	$ 9,238.99
	September	$ 7,795.56	$ 8,115.94	$ 8,455.85	$ 8,803.88	$ 9,204.96
	October	$ 7,714.35	$ 8,012.01	$ 8,344.96	$ 8,683.46	$ 9,079.58
	November	$ 7,700.56	$ 7,991.42	$ 8,309.88	$ 8,640.73	$ 9,028.76
	December	$ 7,703.91	$ 7,968.96	$ 8,290.21	$ 8,621.02	$ 8,986.38
2018	January	$ 7,655.66	$ 7,950.31	$ 8,259.59	$ 8,563.91	$ 8,924.39
	February	$ 7,668.65	$ 7,963.47	$ 8,289.19	$ 8,620.83	$ 8,986.35
	March	$ 7,651.62	$ 7,944.06	$ 8,278.94	$ 8,618.45	$ 8,994.32
	April	$ 7,691.99	$ 7,992.73	$ 8,310.96	$ 8,629.06	$ 9,003.89
	May	$ 7,648.68	$ 7,930.47	$ 8,236.96	$ 8,546.79	$ 8,901.80
	June	$ 7,660.35	$ 7,940.23	$ 8,241.67	$ 8,538.06	$ 8,885.70
	July	$ 7,662.89	$ 7,949.56	$ 8,249.33	$ 8,542.13	$ 8,892.26
	August	$ 7,651.12	$ 7,918.04	$ 8,219.85	$ 8,525.80	$ 8,888.72
	September	$ 7,608.63	$ 7,856.95	$ 8,141.36	$ 8,440.89	$ 8,795.53
	October	$ 7,814.03	$ 8,112.11	$ 8,415.65	$ 8,720.53	$ 9,073.60
	November	$ 7,809.80	$ 8,110.32	$ 8,399.00	$ 8,699.47	$ 9,061.69
	December	$ 7,802.21	$ 8,097.96	$ 8,386.40	$ 8,688.64	$ 9,057.57
2019	January	$ 7,745.48	$ 8,024.46	$ 8,310.97	$ 8,608.74	$ 8,966.68
	February	$ 7,758.20	$ 8,055.49	$ 8,334.94	$ 8,631.81	$ 8,997.57
	March	$ 7,750.35	$ 8,025.22	$ 8,280.61	$ 8,565.19	$ 8,928.25
	April	$ 7,763.52	$ 8,052.14	$ 8,307.87	$ 8,598.26	$ 8,949.22

April 2019 Data Difference from Maximum Forecast	$ (155.06)	$ (239.13)	$ (368.88)	$ (468.71)	$ (561.47)

Legend: Minimum; 25th Percentile; 25th to 50th Percentile; 50th to 75th Percentile; 75th Percentile; Maximum

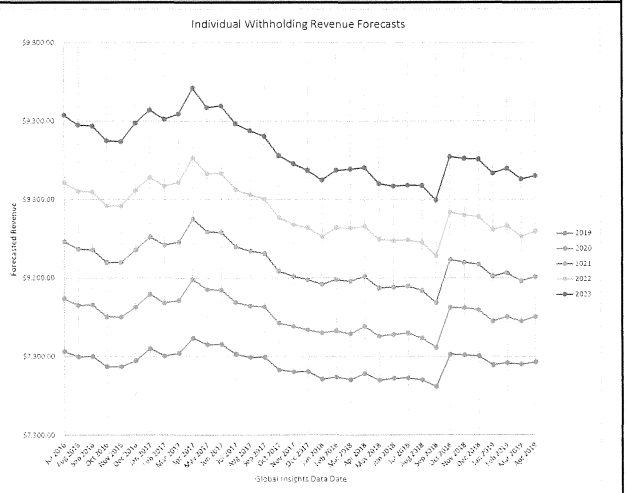
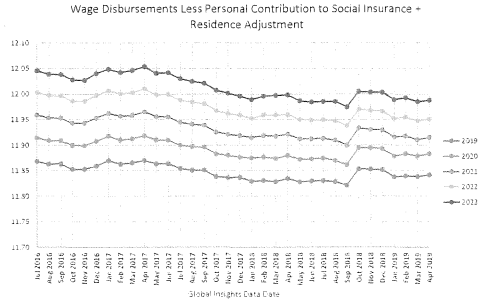
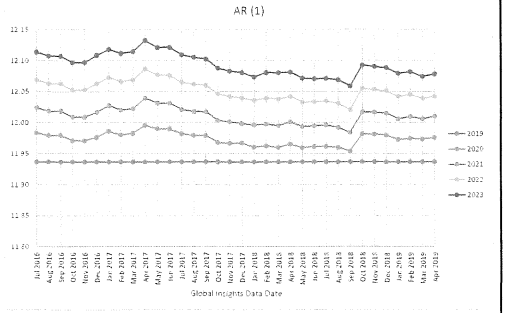
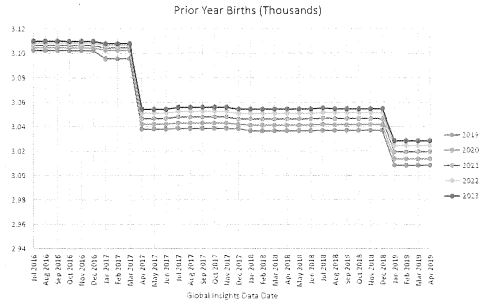


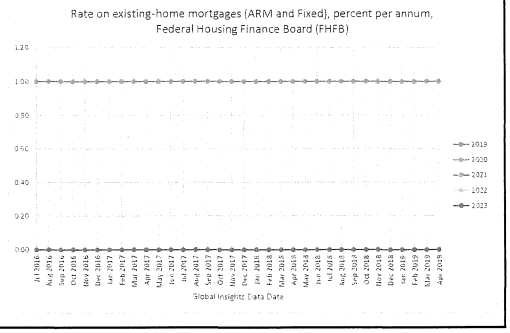
Table 2: Predictors

Model Predictors	Coefficients
Constant	0.204
Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment	0.855
AR (1)	0.176
Prior Year Births (Thousands)	-0.153
Dummy for 2 Five Fridays FY Q4	0.007







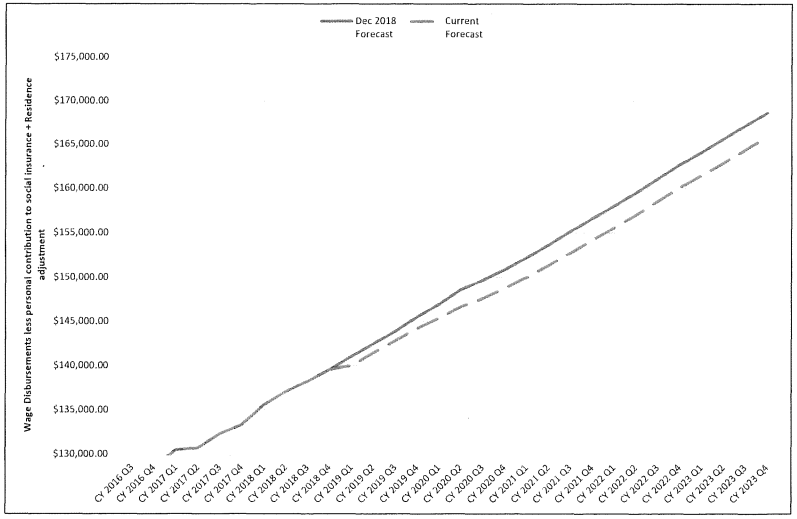


Wage Disbursements Less Personal Contribution to Social Insurance + Residence Adjustment (Compound

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



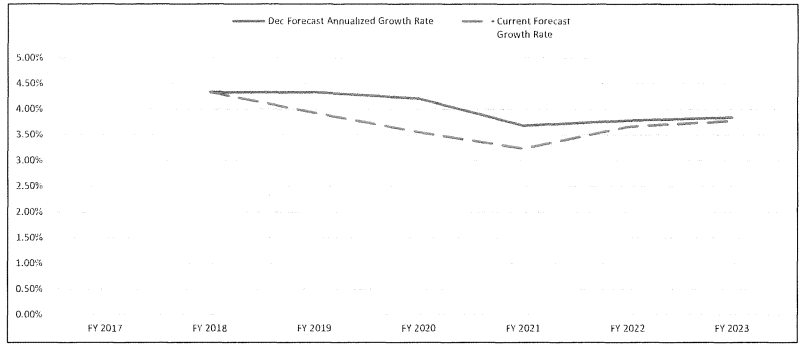
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 126,137.58	1.3%	$ 126,137.58	1.3%	0.0%
2016	4	$ 128,433.29	1.8%	$ 128,433.29	1.8%	0.0%
2017	1	$ 130,460.97	1.6%	$ 130,460.97	1.6%	0.0%
2017	2	$ 130,669.50	0.2%	$ 130,669.50	0.2%	0.0%
2017	3	$ 132,274.10	1.2%	$ 132,274.10	1.2%	0.0%
2017	4	$ 133,245.30	0.7%	$ 133,245.30	0.7%	0.0%
2018	1	$ 135,498.93	1.7%	$ 135,498.93	1.7%	0.0%
2018	2	$ 137,012.61	1.1%	$ 137,012.61	1.1%	0.0%
2018	**3**	**$ 138,216.88**	0.9%	**$ 138,216.88**	0.9%	**0.0%**
2018	**4**	**$ 139,542.01**	1.0%	**$ 139,542.01**	1.0%	**0.0%**
2019	**1**	**$ 141,046.65**	1.1%	**$ 139,992.61**	**0.3%**	**-0.7%**
2019	**2**	**$ 142,508.05**	1.0%	**$ 141,424.68**	1.0%	**-0.8%**
2019	**3**	**$ 143,886.19**	1.0%	**$ 142,799.86**	1.0%	**-0.8%**
2019	**4**	**$ 145,508.17**	1.1%	**$ 144,211.87**	1.0%	**-0.9%**
2020	**1**	**$ 146,943.12**	1.0%	**$ 145,365.70**	0.8%	**-1.1%**
2020	**2**	**$ 148,579.76**	1.1%	**$ 146,643.32**	0.9%	**-1.3%**
2020	**3**	**$ 149,696.74**	0.8%	**$ 147,630.26**	0.7%	**-1.4%**
2020	**4**	**$ 150,871.83**	0.8%	**$ 148,772.65**	0.8%	**-1.4%**
2021	**1**	**$ 152,217.26**	0.9%	**$ 149,994.94**	0.8%	**-1.5%**
2021	**2**	**$ 153,663.95**	1.0%	**$ 151,338.78**	0.9%	**-1.5%**
2021	3	$ 155,171.15	1.0%	$ 152,768.62	0.9%	-1.5%
2021	4	$ 156,644.63	0.9%	$ 154,202.76	0.9%	-1.6%
2022	1	$ 158,015.44	0.9%	$ 155,572.08	0.9%	-1.5%
2022	2	$ 159,513.69	0.9%	$ 157,034.22	0.9%	-1.6%
2022	3	$ 161,099.50	1.0%	$ 158,565.26	1.0%	-1.6%
2022	4	$ 162,686.67	1.0%	$ 160,071.42	0.9%	-1.6%
2023	1	$ 164,104.97	0.9%	$ 161,417.26	0.8%	-1.6%
2023	2	$ 165,626.37	0.9%	$ 162,884.11	0.9%	-1.7%
2023	3	$ 167,180.70	0.9%	$ 164,392.58	0.9%	-1.7%
2023	4	$ 168,701.55	0.9%	$ 165,927.18	0.9%	-1.6%

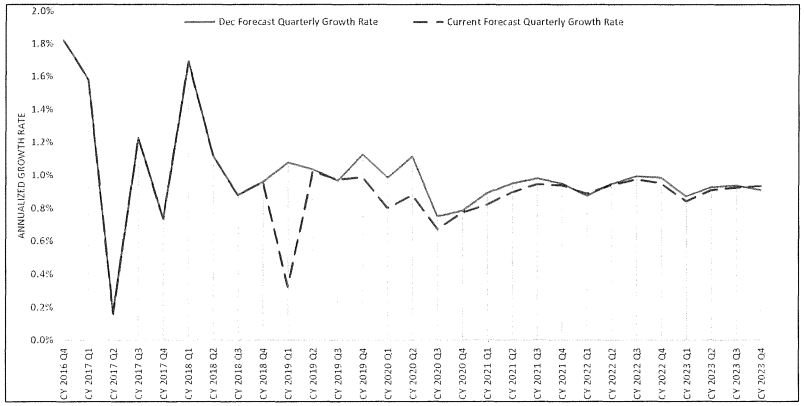
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 128,925.34		$ 128,925.34		
FY 2018	$ 134,507.73	4.3%	$ 134,507.73	4.3%	0.0%
FY 2019	$ 140,328.40	4.3%	$ 139,794.05	3.9%	-0.4%
FY 2020	$ 146,229.31	4.2%	$ 144,755.19	3.5%	-1.0%
FY 2021	$ 151,612.45	3.7%	$ 149,434.16	3.2%	-1.4%
FY 2022	$ 157,336.23	3.8%	$ 154,894.42	3.7%	-1.6%
FY 2023	$ 163,379.38	3.8%	$ 160,734.51	3.8%	-1.6%

Annualized growth rate



Quarterly growth rate

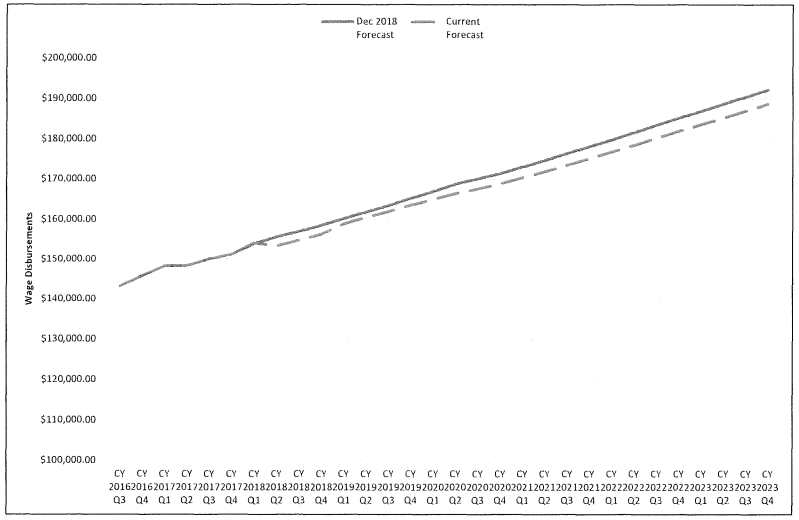


Wage Disbursements (NAICS), Total (Millions 2012$)

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



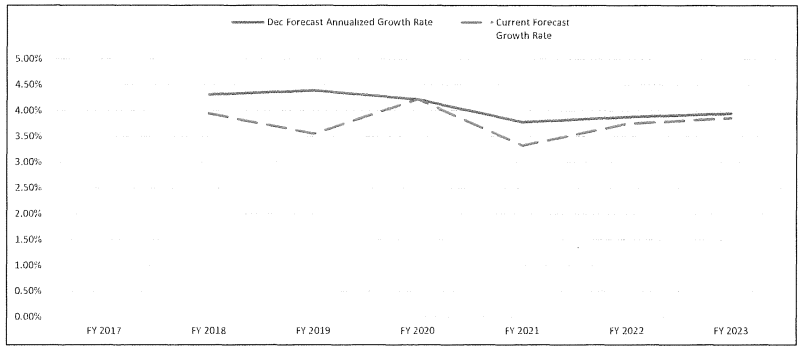
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 143,170.77	1.3%	$ 143,170.77	1.3%	0.0%
2016	4	$ 145,726.48	1.8%	$ 145,726.48	1.8%	0.0%
2017	1	$ 148,159.05	1.7%	$ 148,159.05	1.7%	0.0%
2017	2	$ 148,235.19	0.1%	$ 148,235.19	0.1%	0.0%
2017	3	$ 149,971.80	1.2%	$ 149,971.80	1.2%	0.0%
2017	4	$ 151,110.82	0.8%	$ 151,110.82	0.8%	0.0%
2018	1	$ 153,854.20	1.8%	$ 153,986.16	1.9%	0.1%
2018	2	$ 155,556.59	1.1%	$ 153,301.94	-0.4%	-1.4%
2018	**3**	**$ 156,945.47**	**0.9%**	**$ 154,683.86**	0.9%	**-1.4%**
2018	**4**	**$ 158,448.56**	**1.0%**	**$ 156,224.91**	1.0%	**-1.4%**
2019	**1**	**$ 160,133.51**	**1.1%**	**$ 158,752.17**	1.6%	**-0.9%**
2019	**2**	**$ 161,756.58**	**1.0%**	**$ 160,352.29**	1.0%	**-0.9%**
2019	**3**	**$ 163,320.70**	**1.0%**	**$ 161,899.43**	1.0%	-0.9%
2019	**4**	**$ 165,153.37**	**1.1%**	**$ 163,479.24**	1.0%	-1.0%
2020	**1**	**$ 166,903.23**	**1.1%**	**$ 164,901.94**	0.9%	-1.2%
2020	**2**	**$ 168,756.65**	**1.1%**	**$ 166,349.48**	0.9%	-1.4%
2020	**3**	**$ 170,044.82**	**0.8%**	**$ 167,485.82**	0.7%	-1.5%
2020	**4**	**$ 171,416.65**	**0.8%**	**$ 168,803.49**	0.8%	-1.5%
2021	**1**	**$ 173,065.61**	**1.0%**	**$ 170,318.10**	0.9%	-1.6%
2021	**2**	**$ 174,717.27**	**1.0%**	**$ 171,855.74**	0.9%	-1.6%
2021	3	$ 176,436.55	1.0%	$ 173,482.33	0.9%	-1.7%
2021	4	$ 178,125.72	1.0%	$ 175,116.62	0.9%	-1.7%
2022	1	$ 179,840.26	1.0%	$ 176,809.45	1.0%	-1.7%
2022	2	$ 181,569.64	1.0%	$ 178,481.57	0.9%	-1.7%
2022	3	$ 183,394.47	1.0%	$ 180,230.59	1.0%	-1.7%
2022	4	$ 185,210.22	1.0%	$ 181,948.58	1.0%	-1.8%
2023	1	$ 186,956.82	0.9%	$ 183,610.36	0.9%	-1.8%
2023	2	$ 188,671.22	0.9%	$ 185,262.46	0.9%	-1.8%
2023	3	$ 190,438.45	0.9%	$ 186,980.88	0.9%	-1.8%
2023	4	$ 192,170.00	0.9%	$ 188,729.43	0.9%	-1.8%

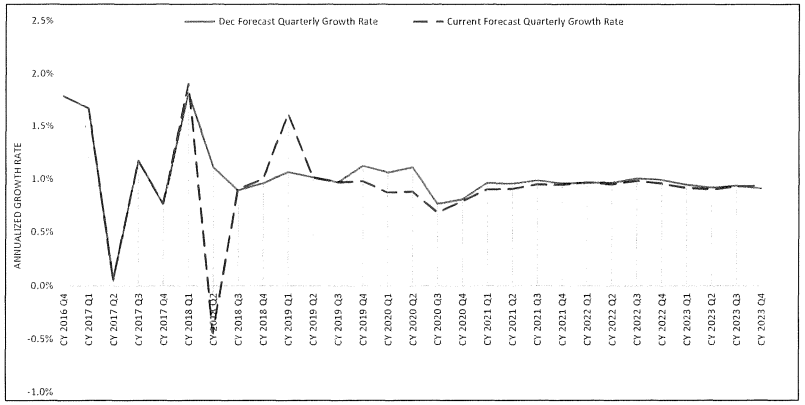
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 146,322.87		$ 146,322.87		
FY 2018	$ 152,623.35	4.3%	$ 152,092.68	3.9%	-0.3%
FY 2019	$ 159,321.03	4.4%	$ 157,503.31	3.6%	-1.1%
FY 2020	$ 166,033.48	4.2%	$ 164,157.52	4.2%	-1.1%
FY 2021	$ 172,311.09	3.8%	$ 169,615.79	3.3%	-1.6%
FY 2022	$ 178,993.04	3.9%	$ 175,972.49	3.7%	-1.7%
FY 2023	$ 186,058.19	3.9%	$ 182,763.00	3.9%	-1.8%

Annualized growth rate



Quarterly growth rate

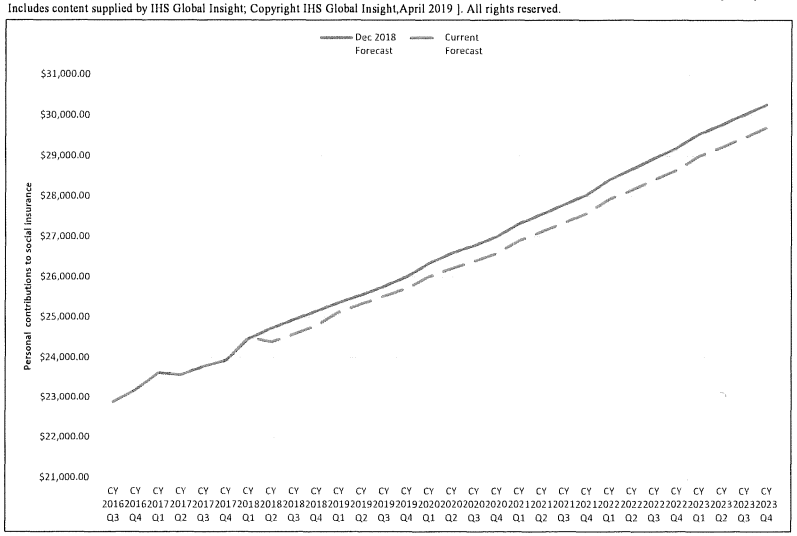


Personal contributions to social insurance

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



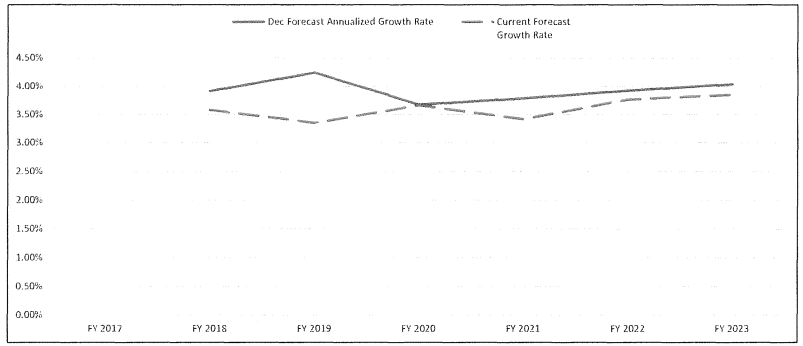
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 22,871.70	1.0%	$ 22,871.70	1.0%	0.0%
2016	4	$ 23,182.83	1.4%	$ 23,182.83	1.4%	0.0%
2017	1	$ 23,612.63	1.9%	$ 23,612.63	1.9%	0.0%
2017	2	$ 23,556.07	-0.2%	$ 23,556.07	-0.2%	0.0%
2017	3	$ 23,767.25	0.9%	$ 23,767.25	0.9%	0.0%
2017	4	$ 23,915.42	0.6%	$ 23,915.42	0.6%	0.0%
2018	1	$ 24,469.22	2.3%	$ 24,490.71	2.4%	0.1%
2018	2	$ 24,718.20	1.0%	$ 24,385.29	-0.4%	-1.3%
2018	**3**	**$ 24,932.15**	0.9%	**$ 24,567.45**	0.7%	**-1.5%**
2018	**4**	**$ 25,143.58**	0.8%	**$ 24,786.75**	0.9%	**-1.4%**
2019	**1**	**$ 25,356.77**	0.8%	**$ 25,121.77**	1.4%	**-0.9%**
2019	**2**	**$ 25,548.92**	0.8%	**$ 25,318.85**	0.8%	-0.9%
2019	**3**	**$ 25,764.84**	0.8%	**$ 25,518.65**	0.8%	-1.0%
2019	**4**	**$ 26,002.57**	0.9%	**$ 25,714.16**	0.8%	-1.1%
2020	**1**	**$ 26,340.92**	1.3%	**$ 26,008.05**	1.1%	-1.3%
2020	**2**	**$ 26,580.27**	0.9%	**$ 26,205.09**	0.8%	-1.4%
2020	**3**	**$ 26,775.53**	0.7%	**$ 26,381.96**	0.7%	-1.5%
2020	**4**	**$ 26,996.17**	0.8%	**$ 26,582.95**	0.8%	-1.5%
2021	**1**	**$ 27,322.94**	1.2%	**$ 26,899.23**	1.2%	-1.6%
2021	**2**	**$ 27,553.52**	0.8%	**$ 27,118.52**	0.8%	-1.6%
2021	3	$ 27,791.91	0.9%	$ 27,342.96	0.8%	-1.6%
2021	4	$ 28,036.23	0.9%	$ 27,572.32	0.8%	-1.7%
2022	1	$ 28,408.76	1.3%	$ 27,924.71	1.3%	-1.7%
2022	2	$ 28,668.70	0.9%	$ 28,163.93	0.9%	-1.8%
2022	3	$ 28,936.15	0.9%	$ 28,410.06	0.9%	-1.8%
2022	4	$ 29,194.99	0.9%	$ 28,651.48	0.8%	-1.9%
2023	1	$ 29,554.35	1.2%	$ 28,997.75	1.2%	-1.9%
2023	2	$ 29,779.31	0.8%	$ 29,214.26	0.7%	-1.9%
2023	3	$ 30,023.99	0.8%	$ 29,456.18	0.8%	-1.9%
2023	4	$ 30,266.90	0.8%	$ 29,702.98	0.8%	-1.9%

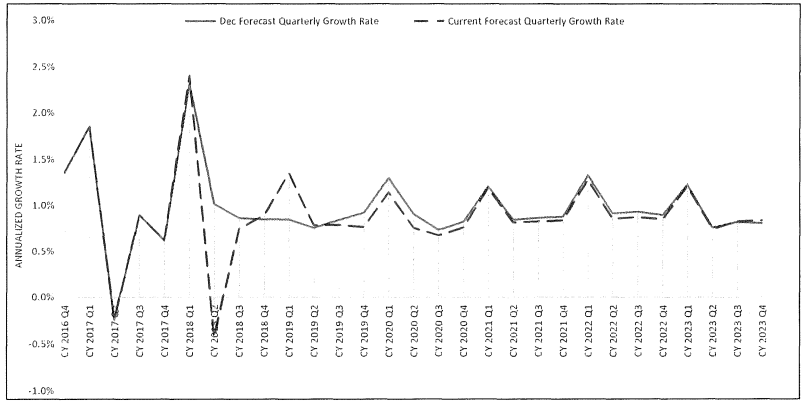
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 23,305.81		$ 23,305.81		
FY 2018	$ 24,217.53	3.9%	$ 24,139.67	3.6%	-0.3%
FY 2019	$ 25,245.36	4.2%	$ 24,948.71	3.4%	-1.2%
FY 2020	$ 26,172.15	3.7%	$ 25,861.49	3.7%	-1.2%
FY 2021	$ 27,162.04	3.8%	$ 26,745.66	3.4%	-1.5%
FY 2022	$ 28,226.40	3.9%	$ 27,750.98	3.8%	-1.7%
FY 2023	$ 29,366.20	4.0%	$ 28,818.39	3.8%	-1.9%

Annualized growth rate

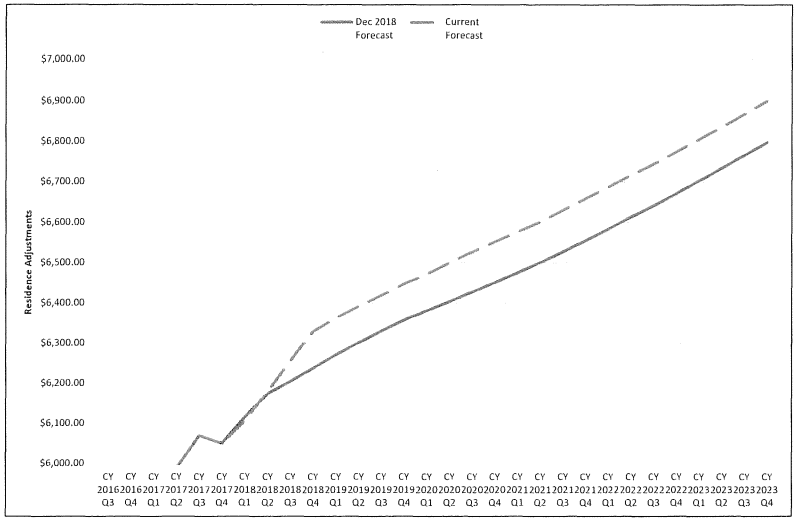


Quarterly growth rate



Residence Adjustment (Millions $)

This variable is included in the following December 2018 Forecast Model(s): Income Tax
Comparison of Global Insight Forecast for Dec 2018 and April 2019
Date Prepared:April 12, 2019 Statistic Compiled by BEA



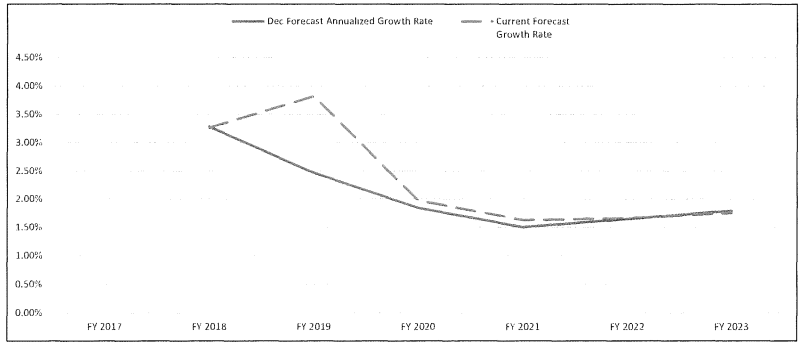
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 5,838.52	0.0%	$ 5,838.52	0.0%	0.0%
2016	4	$ 5,889.65	0.9%	$ 5,889.65	0.9%	0.0%
2017	1	$ 5,914.55	0.4%	$ 5,914.55	0.4%	0.0%
2017	2	$ 5,990.38	1.3%	$ 5,990.38	1.3%	0.0%
2017	3	$ 6,069.54	1.3%	$ 6,069.54	1.3%	0.0%
2017	4	$ 6,049.90	-0.3%	$ 6,049.90	-0.3%	0.0%
2018	1	$ 6,113.96	1.1%	$ 6,104.95	0.9%	-0.1%
2018	2	$ 6,174.22	1.0%	$ 6,179.11	1.2%	0.1%
2018	**3**	**$ 6,203.57**	0.5%	**$ 6,254.29**	1.2%	0.8%
2018	**4**	**$ 6,237.03**	0.5%	**$ 6,328.53**	1.2%	1.5%
2019	**1**	**$ 6,269.91**	0.5%	**$ 6,362.21**	0.5%	1.5%
2019	**2**	**$ 6,300.39**	0.5%	**$ 6,391.24**	0.5%	1.4%
2019	**3**	**$ 6,330.33**	0.5%	**$ 6,419.09**	0.4%	1.4%
2019	**4**	**$ 6,357.38**	0.4%	**$ 6,446.79**	0.4%	1.4%
2020	**1**	**$ 6,380.81**	0.4%	**$ 6,471.80**	0.4%	1.4%
2020	**2**	**$ 6,403.38**	0.4%	**$ 6,498.93**	0.4%	1.5%
2020	**3**	**$ 6,427.45**	0.4%	**$ 6,526.40**	0.4%	1.5%
2020	**4**	**$ 6,451.35**	0.4%	**$ 6,552.10**	0.4%	1.6%
2021	**1**	**$ 6,474.59**	0.4%	**$ 6,576.07**	0.4%	1.6%
2021	**2**	**$ 6,500.20**	0.4%	**$ 6,601.56**	0.4%	1.6%
2021	3	$ 6,526.50	0.4%	$ 6,629.25	0.4%	1.6%
2021	4	$ 6,555.14	0.4%	$ 6,658.46	0.4%	1.6%
2022	1	$ 6,583.94	0.4%	$ 6,687.34	0.4%	1.6%
2022	2	$ 6,612.75	0.4%	$ 6,716.58	0.4%	1.6%
2022	3	$ 6,641.17	0.4%	$ 6,744.73	0.4%	1.6%
2022	4	$ 6,671.43	0.5%	$ 6,774.31	0.4%	1.5%
2023	1	$ 6,702.50	0.5%	$ 6,804.65	0.4%	1.5%
2023	2	$ 6,734.46	0.5%	$ 6,835.91	0.5%	1.5%
2023	3	$ 6,766.23	0.5%	$ 6,867.88	0.5%	1.5%
2023	4	$ 6,798.45	0.5%	$ 6,900.72	0.5%	1.5%

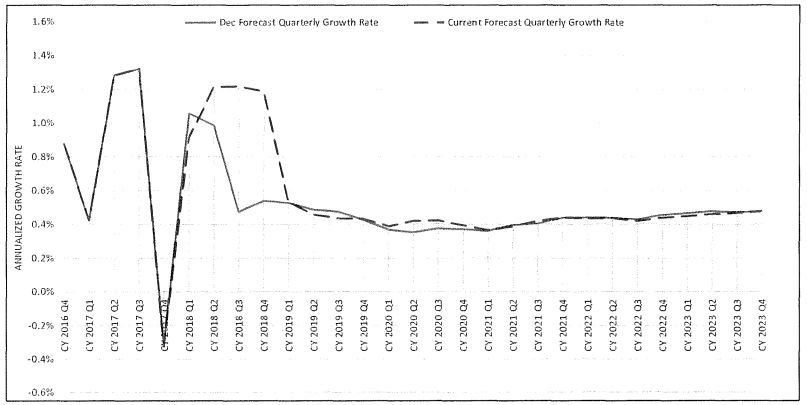
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 5,908.27		$ 5,908.27		
FY 2018	$ 6,101.91	3.3%	$ 6,100.88	3.3%	0.0%
FY 2019	$ 6,252.72	2.5%	$ 6,334.07	3.8%	1.3%
FY 2020	$ 6,367.97	1.8%	$ 6,459.15	2.0%	1.4%
FY 2021	$ 6,463.39	1.5%	$ 6,564.03	1.6%	1.6%
FY 2022	$ 6,569.58	1.6%	$ 6,672.91	1.7%	1.6%
FY 2023	$ 6,687.39	1.8%	$ 6,789.90	1.8%	1.5%

Annualized growth rate



Quarterly growth rate

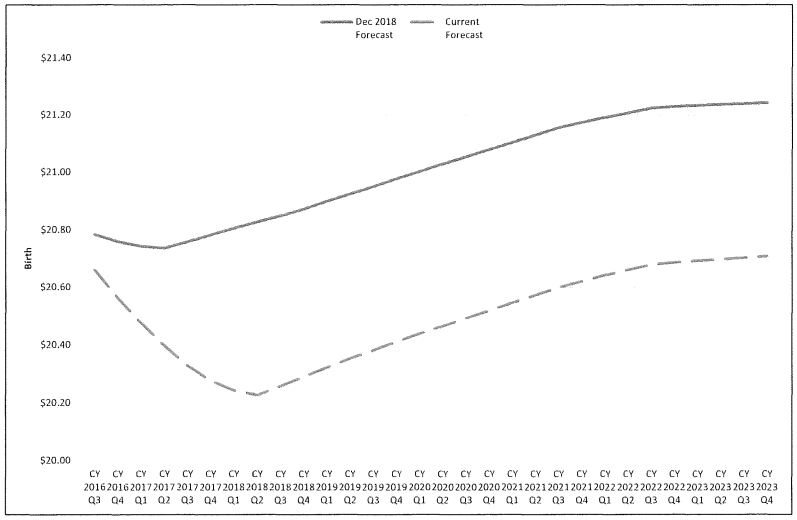


Birth (Thousands)

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



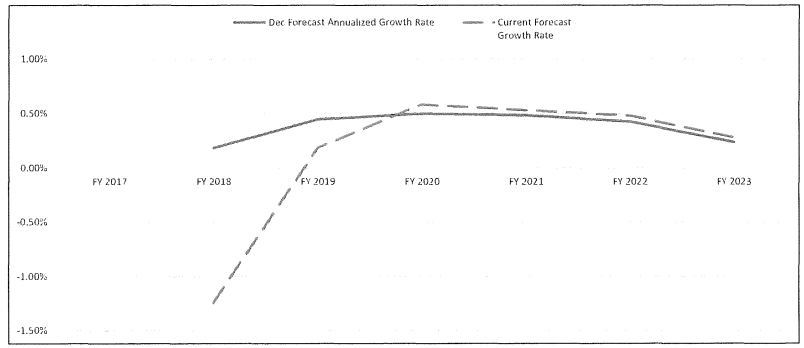
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 20.78	-0.1%	$ 20.66	-0.5%	-0.6%
2016	4	$ 20.76	-0.1%	$ 20.56	-0.5%	-0.9%
2017	1	$ 20.74	-0.1%	$ 20.48	-0.4%	-1.3%
2017	2	$ 20.74	0.0%	$ 20.40	-0.4%	-1.6%
2017	3	$ 20.76	0.1%	$ 20.33	-0.3%	-2.1%
2017	4	$ 20.78	0.1%	$ 20.28	-0.3%	-2.4%
2018	1	$ 20.81	0.1%	$ 20.24	-0.2%	-2.7%
2018	2	$ 20.83	0.1%	$ 20.23	-0.1%	-2.9%
2018	**3**	**$ 20.85**	**0.1%**	**$ 20.26**	**0.2%**	**-2.8%**
2018	**4**	**$ 20.87**	**0.1%**	**$ 20.29**	**0.2%**	**-2.8%**
2019	**1**	**$ 20.90**	**0.1%**	**$ 20.32**	**0.2%**	**-2.8%**
2019	**2**	**$ 20.93**	**0.1%**	**$ 20.35**	**0.2%**	-2.7%
2019	**3**	**$ 20.95**	**0.1%**	**$ 20.38**	**0.1%**	-2.7%
2019	**4**	**$ 20.98**	**0.1%**	**$ 20.41**	**0.1%**	-2.7%
2020	**1**	**$ 21.00**	**0.1%**	**$ 20.44**	**0.1%**	-2.7%
2020	**2**	**$ 21.03**	**0.1%**	**$ 20.47**	**0.1%**	-2.7%
2020	**3**	**$ 21.05**	**0.1%**	**$ 20.49**	**0.1%**	-2.7%
2020	**4**	**$ 21.08**	**0.1%**	**$ 20.52**	**0.1%**	-2.7%
2021	**1**	**$ 21.10**	**0.1%**	**$ 20.55**	**0.1%**	-2.6%
2021	**2**	**$ 21.13**	**0.1%**	**$ 20.57**	**0.1%**	-2.6%
2021	3	$ 21.15	0.1%	$ 20.60	0.1%	-2.6%
2021	4	$ 21.17	0.1%	$ 20.62	0.1%	-2.6%
2022	1	$ 21.19	0.1%	$ 20.64	0.1%	-2.6%
2022	2	$ 21.21	0.1%	$ 20.66	0.1%	-2.6%
2022	3	$ 21.22	0.1%	$ 20.68	0.1%	-2.6%
2022	4	$ 21.23	0.0%	$ 20.69	0.0%	-2.6%
2023	1	$ 21.23	0.0%	$ 20.69	0.0%	-2.5%
2023	2	$ 21.24	0.0%	$ 20.70	0.0%	-2.5%
2023	3	$ 21.24	0.0%	$ 20.70	0.0%	-2.5%
2023	4	$ 21.24	0.0%	$ 20.71	0.0%	-2.5%

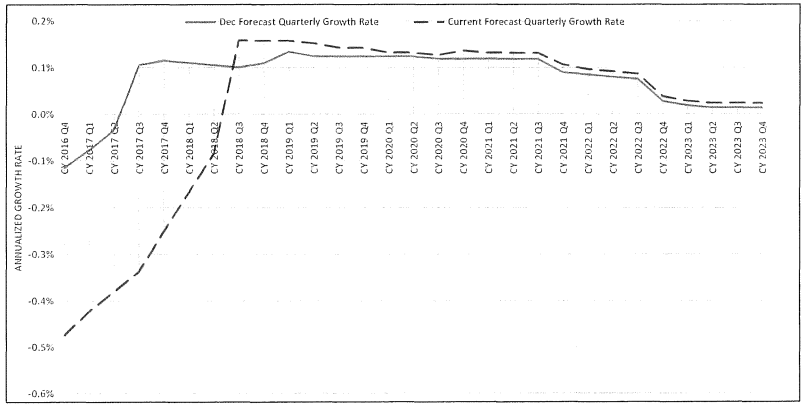
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 20.76		$ 20.52		
FY 2018	$ 20.79	0.2%	$ 20.27	-1.2%	-2.5%
FY 2019	$ 20.89	0.4%	$ 20.31	0.2%	-2.8%
FY 2020	$ 20.99	0.5%	$ 20.42	0.6%	-2.7%
FY 2021	$ 21.09	0.5%	$ 20.53	0.5%	-2.7%
FY 2022	$ 21.18	0.4%	$ 20.63	0.5%	-2.6%
FY 2023	$ 21.23	0.2%	$ 20.69	0.3%	-2.6%

Annualized growth rate



Quarterly growth rate



VARIABLES GLOBAL INSIGHT ERROR	INDIVIDUAL INCOME TAX	2019

This error analysis is presented to determine the difference of percentage error between December 2018, December 2016 and December 2014 data versus April 2019 data.

Dec-18

INDIANA DATA					US DATA			
FY	Wage Disbursements (NAICS), Total (Millions)	Residence Adjustment (Millions $)	Personal Contr for Social Insurance (Millions $)	Prior Year Births (Thous.)	FY	Personal interest income, billions of dollars, annual rate, BEA	Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit Economics	Dividend payments to individuals, billions of dollars, annual rate, BEA
FY 2008	0.0%	0.0%	0.0%		FY 2008	0.0%	0.0%	0.0%
FY 2009	0.0%	0.0%	0.0%	0.0%	FY 2009	0.0%	0.1%	0.0%
FY 2010	0.0%	0.0%	0.0%	0.0%	FY 2010	0.0%	0.1%	0.0%
FY 2011	0.0%	0.0%	0.0%	0.0%	FY 2011	0.0%	0.1%	0.0%
FY 2012	0.0%	0.0%	0.0%	0.0%	FY 2012	0.0%	0.1%	0.0%
FY 2013	0.0%	0.0%	0.0%	0.0%	FY 2013	0.0%	0.1%	0.0%
FY 2014	0.0%	0.0%	0.0%	0.0%	FY 2014	0.0%	0.0%	0.0%
FY 2015	0.0%	0.0%	0.0%	0.0%	FY 2015	0.0%	-0.1%	0.0%
FY 2016	0.0%	0.0%	0.0%	0.0%	FY 2016	0.0%	-0.1%	0.0%
FY 2017	0.0%	0.0%	0.0%	0.0%	FY 2017	0.0%	-0.2%	0.0%
FY 2018	-0.3%	0.0%	-0.3%	-1.1%	FY 2018	0.0%	-0.5%	0.0%

Dec-16

INDIANA DATA					US DATA			
FY	Wage Disbursements (NAICS), Total (Millions)	Residence Adjustment (Millions $)	Personal Contr for Social Insurance (Millions $)	Prior Year Births (Thous.)	FY	Personal interest income, billions of dollars, annual rate, BEA	Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit Economics	Dividend payments to individuals, billions of dollars, annual rate, BEA
FY 2008	0.0%	20.0%	-0.1%		FY 2008	1.4%	-1.5%	-0.1%
FY 2009	0.0%	10.1%	0.0%	0.0%	FY 2009	2.3%	0.3%	-0.1%
FY 2010	-0.1%	3.4%	0.0%	0.0%	FY 2010	3.7%	-0.1%	-0.1%
FY 2011	-0.1%	6.3%	0.0%	0.0%	FY 2011	3.4%	-0.8%	-0.1%
FY 2012	0.1%	8.5%	0.0%	0.0%	FY 2012	4.0%	-1.0%	-0.1%
FY 2013	0.1%	8.5%	0.0%	0.0%	FY 2013	0.6%	-1.5%	-0.2%
FY 2014	0.0%	8.7%	0.1%	0.0%	FY 2014	2.1%	-1.8%	1.0%
FY 2015	0.3%	4.4%	0.3%	0.3%	FY 2015	6.3%	-2.4%	5.5%
FY 2016	-0.6%	-0.4%	-0.5%	0.4%	FY 2016	9.8%	-2.6%	10.1%
FY 2017	0.0%	-2.3%	-0.9%	-1.9%	FY 2017	7.2%	-1.2%	11.9%
FY 2018	-0.8%	-0.5%	-2.6%	-6.1%	FY 2018	6.9%	7.0%	10.2%

Dec-14

INDIANA DATA					US DATA			
FY	Wage Disbursements (NAICS), Total (Millions)	Residence Adjustment (Millions $)	Personal Contr for Social Insurance (Millions $)	Prior Year Births (Thous.)	FY	Personal interest income, billions of dollars, annual rate, BEA	Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit Economics	Dividend payments to individuals, billions of dollars, annual rate, BEA
FY 2008	0.0%	4.0%	-0.1%	0.0%	FY 2008	1.4%	-3.2%	-0.1%
FY 2009	0.0%	2.3%	0.0%	0.0%	FY 2009	2.3%	-5.4%	-0.1%
FY 2010	-0.1%	1.3%	0.1%	0.4%	FY 2010	3.7%	-1.1%	-0.1%
FY 2011	-0.2%	-0.3%	-0.2%	-0.5%	FY 2011	3.4%	-2.4%	-0.1%
FY 2012	-0.1%	1.4%	-0.1%	0.2%	FY 2012	4.9%	-1.8%	0.4%
FY 2013	-0.1%	1.4%	-0.1%	0.2%	FY 2013	2.8%	-3.0%	-2.5%
FY 2014	-0.1%	-1.2%	-0.3%	-0.2%	FY 2014	3.0%	-4.0%	2.7%
FY 2015	0.1%	0.6%	-0.9%	-1.0%	FY 2015	8.8%	-6.2%	12.0%
FY 2016	-0.9%	5.7%	-3.2%	-3.3%	FY 2016	8.2%	-14.9%	8.1%
FY 2017	-1.2%	3.8%	-5.4%	-6.8%	FY 2017	-3.7%	-5.5%	7.4%
FY 2018	-1.7%	5.7%	-7.6%	-9.6%	FY 2018	-14.2%	4.3%	10.0%

Individual AGI - Dec 2018 Model — Ran from FY18

As of:	From Dec. 2018 Forecast, adjustments include: Impact of Federal TCJA allocated to 'Individual AGI' instead of Withholding, updated IT-6WTH forecast based on 65/35 rule effective April 2019, and updated LIT rate
2018	

*Refunds as % of WH and Individual AGI (Before Refunds and LIT Transfer)

* LIT Forecast for Following Year based on Latest Ratio of LIT Rate and State Income Tax

Model Starts	1998
Model Ends	2018
Time	Fiscal Year
Form	LN

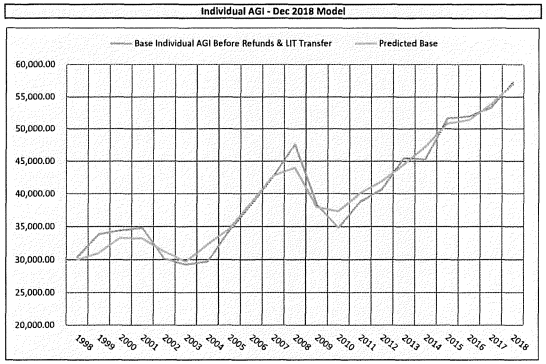
Include Adjustment?
Yes

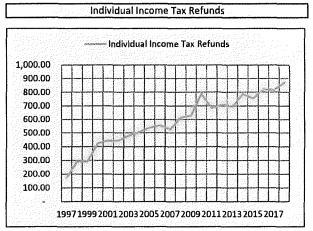
							PROPOSED FORECAST								ACTUALS*		GF Forecast Error			
Fiscal Year	Base Individual AGI Before Refunds & LIT Transfer	% to GF	% Tax	FY 18 Legislative Acts	Individual AGI Tax Before Refunds & LIT Transfer ("Payments")	Refunds (as % of Payments)	**Gross Individual AGI Tax Before LIT Transfer**	Gross WH Tax Before LIT Transfer	Individual Income Taxes Before LIT Transfer	YoY Growth	State LIT Rate	LIT Transfer	**Net Individual Income Taxes**	**Net ITAX Base**	Net Individual AGI Tax (After LIT Transfer)	Individual AGI Tax Actuals	Net Individual Income Tax Actuals	Individual AGI $ vs Actuals	Individual AGI % of Actuals	Net Individual Income Taxes $ vs Actuals	Net Individual Income Taxes % vs Actuals
2017	53,819.78	100%	3.2708%		1,760.36	(819.00)	**941.35**	6,950.19	7,891.54		1.44%	2,372.48	**5,519.06**	**168,735.62**	(1,431.13)	(1,456.07)	5,435.29	24.95	-1.71%	83.77	1.54%
2018	56,995.78	100%	3.2300%	28.89	1,869.86	(872.74)	**997.12**	7,520.77	8,517.89	7.94%	1.50%	2,637.02	**5,880.87**	**182,070.29**	(1,639.90)	(1,659.65)	5,816.07	19.75	-1.19%	64.80	1.11%
2019	58,560.92	100%	3.2300%	46.51	1,938.03	(900.37)	**1,037.66**	7,763.52	8,801.19	3.33%	1.54%	2,843.25	**5,957.94**	**184,456.28**	(1,805.58)						
2020	61,037.27	100%	3.2300%	52.26	2,023.76	(935.11)	**1,088.65**	8,052.14	9,140.79	3.86%	1.55%	2,966.73	**6,174.06**	**191,147.37**	(1,878.08)						
2021	63,620.97	100%	3.2300%	49.03	2,103.99	(966.29)	**1,137.70**	8,307.87	9,445.57	3.33%	1.55%	3,065.65	**6,379.92**	**197,520.71**	(1,927.95)						
2022	65,916.67	100%	3.2300%	47.29	2,176.39	(999.96)	**1,176.44**	8,598.26	9,774.69	3.48%	1.55%	3,172.47	**6,602.22**	**204,403.21**	(1,996.03)						
2023	67,605.37	100%	3.2300%	47.29	2,230.94	(1,037.59)	**1,193.35**	8,949.22	10,142.57	3.76%	1.55%	3,291.87	**6,850.70**	**212,096.04**	(2,098.52)						

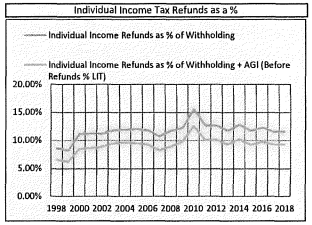
	DEPENDENT VARIABLE	INDEPENDENT VARIABLES				
		LN	LN	LN		
$ Predicted vs Actual Revenue	Predicted Revenue	Predicted Base	Fiscal Year	Base Individual AGI Before Refunds & LIT Transfer	Base Individual AGI Before Refunds & LIT Transfer	Dividend payments to Individuals + Personal Interest Income	Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit
(307.56)	726.08	30,006.04	1998	30,401.16	10.32	7.20	9.00
(96.71)	1,054.03	31,001.01	1999	33,845.45	10.43	7.21	9.10
(39.24)	1,131.74	33,286.48	2000	34,440.72	10.45	7.26	9.29
(56.69)	1,127.90	33,173.63	2001	34,840.95	10.46	7.31	9.17
35.23	1,061.72	31,227.03	2002	30,190.72	10.32	7.27	9.03
14.55	1,010.55	29,722.00	2003	29,294.20	10.29	7.26	8.85
86.64	1,097.36	32,275.41	2004	29,727.11	10.30	7.28	9.13
7.76	1,178.66	34,666.57	2005	34,438.21	10.45	7.37	9.24
7.10	1,312.77	38,610.81	2006	38,401.98	10.56	7.51	9.39
4.85	1,454.25	42,771.93	2007	42,629.23	10.66	7.64	9.55
(123.63)	1,495.82	43,994.66	2008	47,630.73	10.77	7.71	9.52
(15.49)	1,290.37	37,952.15	2009	38,407.60	10.56	7.62	9.11
84.52	1,268.39	37,305.62	2010	34,819.74	10.46	7.48	9.32
43.59	1,362.63	40,077.25	2011	38,795.32	10.57	7.53	9.50
42.08	1,425.40	41,923.59	2012	40,686.00	10.61	7.63	9.49
(34.31)	1,512.92	44,497.67	2013	45,506.66	10.73	7.66	9.66
67.84	1,608.14	47,298.29	2014	45,303.11	10.72	7.68	9.85
(28.15)	1,707.81	50,852.77	2015	51,690.96	10.85	7.78	9.94
(18.84)	1,696.99	51,423.91	2016	51,994.96	10.86	7.82	9.91
15.61	1,760.36	53,819.78	2017	53,342.51	10.88	7.85	10.03
(9.14)	1,840.96	56,995.78	2018	57,278.88	10.96	7.90	10.16
		58,560.92	2019			7.93	10.20
		61,037.27	2020			7.97	10.30
		63,620.97	2021			8.03	10.34
		65,916.67	2022			8.09	10.37
		67,605.37	2023			8.14	10.37

OUT OF SAMPLE

	2017		2016	
	Forecast	$ Error	Forecast	$ Error
2017	939.98	23.57	944.19	27.78
2018	995.41	18.04	1,000.59	23.21
2019	1,035.85		1,041.39	
2020	1,086.58		1,092.89	
2021	1,135.52		1,142.33	







Refunds as->	% of WH	% of WH + AGI
2 Year Avg	11.64%	9.34%
5 Year Avg	12.05%	9.61%
Avg Since '97	11.46%	9.28%

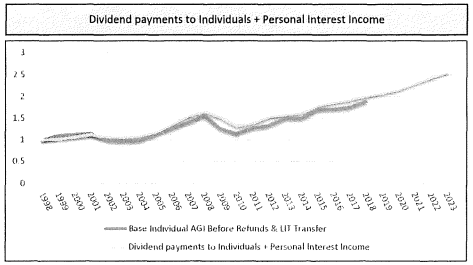
SUMMARY OUTPUT

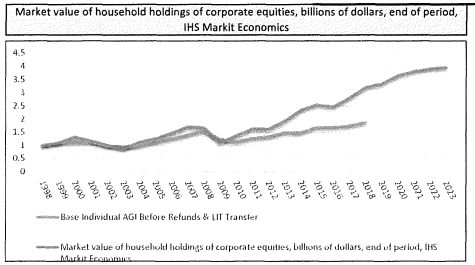
Regression Statistics	
Multiple R	0.979112529
R Square	0.958661345
Adjusted R Squ.	0.954068161
Standard Error	0.044505038
Observations	21

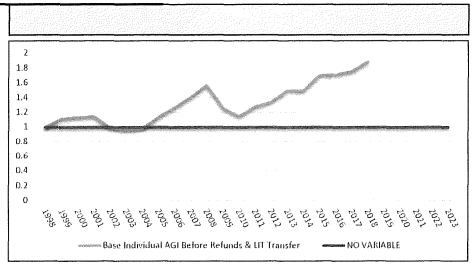
ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	2	0.826798594	0.413399297	208.713903	3.52539E-13
Residual	18	0.035652571	0.001980698		
Total	20	0.862451166			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	4.484274035	0.342060007	13.10961218	1.19996E-10
Dividend payme	0.484729676	0.102990512	4.706546933	0.000175909
Market value of	0.259501882	0.06340308	4.0928908	0.000682939







Sensitivity Analysis: Individual AGI

The analysis of the Individual AGI December 2018 model consists of two data tables. Table 1 displays the forecasts for the December 2018 Individual AGI model if data were used from different months over three fiscal years. Table 2 displays the change in predictors over different monthly datasets. In each graph, the change in revenue forecast by specific fiscal year is graphed. Although the model loses statistical integrity by holding the coefficients constant, this is a valuable tool for determining how the revenue forecasts may change given predictor data changes.

The regression coefficients are held constant as they were in the December 2018 model whereas the underlying predictor data changes to the corresponding month when calculating revenue forecasts. The tax rates and outside adjustments are based on April 2019 data.

Individual AGI acheived its maximum forecast with September 2018 data. The forecast is very sensitive to changes in both of its predictors.

Table 1: Revenue Forecasts

Global Insights Data Date		Fiscal Year Forecast ($thousands)				
Calendar Year	Month	2019	2020	2021	2022	2023
2016	July	$ 889.42	$ 952.01	$ 1,003.78	$ 1,043.89	$ 1,078.83
	August	$ 934.62	$ 999.35	$ 1,052.87	$ 1,094.05	$ 1,129.66
	September	$ 926.80	$ 987.13	$ 1,039.29	$ 1,081.59	$ 1,118.27
	October	$ 916.44	$ 969.47	$ 1,014.97	$ 1,053.17	$ 1,086.86
	November	$ 906.75	$ 953.52	$ 997.51	$ 1,036.40	$ 1,069.82
	December	$ 948.47	$ 994.76	$ 1,038.81	$ 1,078.50	$ 1,112.19
2017	January	$ 949.70	$ 1,001.02	$ 1,045.61	$ 1,082.12	$ 1,112.75
	February	$ 961.75	$ 1,014.00	$ 1,056.13	$ 1,090.49	$ 1,120.37
	March	$ 963.64	$ 1,019.64	$ 1,063.07	$ 1,098.40	$ 1,127.79
	April	$ 957.04	$ 1,014.24	$ 1,057.59	$ 1,093.20	$ 1,123.15
	May	$ 957.36	$ 1,015.97	$ 1,061.94	$ 1,098.35	$ 1,126.95
	June	$ 946.96	$ 1,005.01	$ 1,054.27	$ 1,091.80	$ 1,118.76
	July	$ 941.05	$ 1,000.22	$ 1,048.69	$ 1,085.77	$ 1,111.96
	August	$ 999.15	$ 1,066.20	$ 1,122.39	$ 1,164.84	$ 1,191.70
	September	$ 987.29	$ 1,055.31	$ 1,113.23	$ 1,155.87	$ 1,182.51
	October	$ 971.54	$ 1,034.12	$ 1,089.14	$ 1,131.77	$ 1,159.66
	November	$ 966.12	$ 998.23	$ 1,041.92	$ 1,092.43	$ 1,126.87
	December	$ 963.29	$ 979.66	$ 1,019.65	$ 1,066.41	$ 1,112.06
2018	January	$ 976.79	$ 996.93	$ 1,038.61	$ 1,085.05	$ 1,126.62
	February	$ 987.62	$ 1,007.38	$ 1,043.94	$ 1,088.25	$ 1,136.05
	March	$ 971.58	$ 995.90	$ 1,037.83	$ 1,086.48	$ 1,136.67
	April	$ 962.29	$ 984.59	$ 1,025.59	$ 1,073.97	$ 1,122.98
	May	$ 973.55	$ 988.89	$ 1,027.96	$ 1,075.30	$ 1,124.71
	June	$ 975.65	$ 970.80	$ 990.19	$ 1,028.65	$ 1,075.18
	July	$ 977.63	$ 1,003.99	$ 1,017.95	$ 1,036.67	$ 1,074.94
	August	$ 1,069.75	$ 1,109.86	$ 1,129.63	$ 1,146.51	$ 1,180.07
	September	$ 1,093.07	$ 1,155.88	$ 1,194.71	$ 1,227.42	$ 1,273.70
	October	$ 1,093.96	$ 1,154.56	$ 1,188.79	$ 1,216.74	$ 1,260.85
	November	$ 1,082.75	$ 1,131.80	$ 1,177.53	$ 1,212.34	$ 1,256.88
	December	$ 1,060.14	$ 1,093.01	$ 1,123.48	$ 1,163.72	$ 1,203.74
2019	January	$ 1,002.52	$ 1,056.26	$ 1,088.79	$ 1,124.31	$ 1,167.02
	February	$ 1,024.02	$ 1,083.31	$ 1,101.21	$ 1,120.91	$ 1,146.90
	March	$ 1,039.06	$ 1,098.19	$ 1,120.95	$ 1,145.95	$ 1,161.65
	April	$ 1,037.66	$ 1,088.65	$ 1,137.70	$ 1,176.44	$ 1,193.35
April 2019 Data Difference from Maximum Forecast		$ (56.32)	$ (67.23)	$ (57.01)	$ (50.99)	$ (80.35)

Legend

Minimum
25th Percentile
25th to 50th Percentile
50th to 75th Percentile
75th Percentile
Maximum

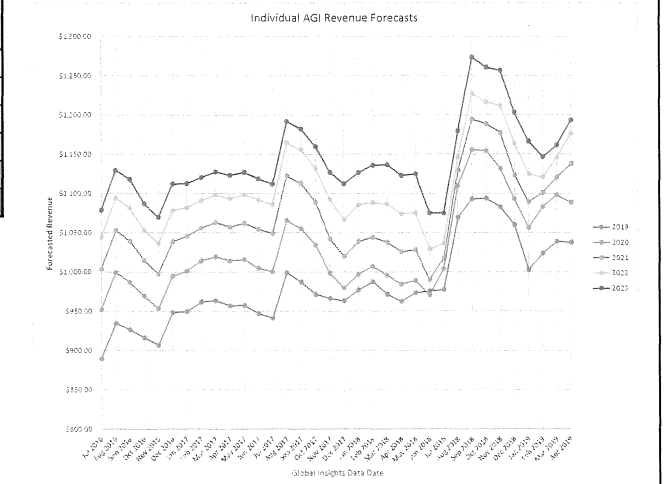
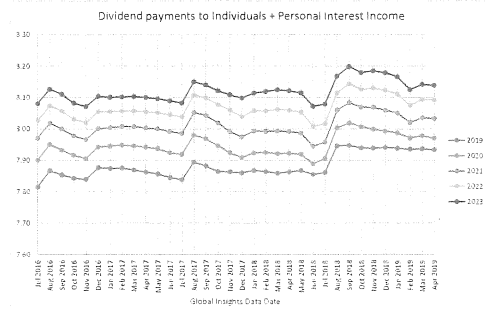
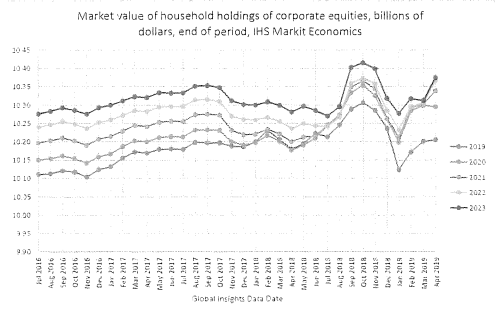


Table 2: Predictors

Model Predictors	Coefficients
Constant	4.484
Dividend payments to Individuals + Personal Interest Income	0.485
Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit Economics	0.260



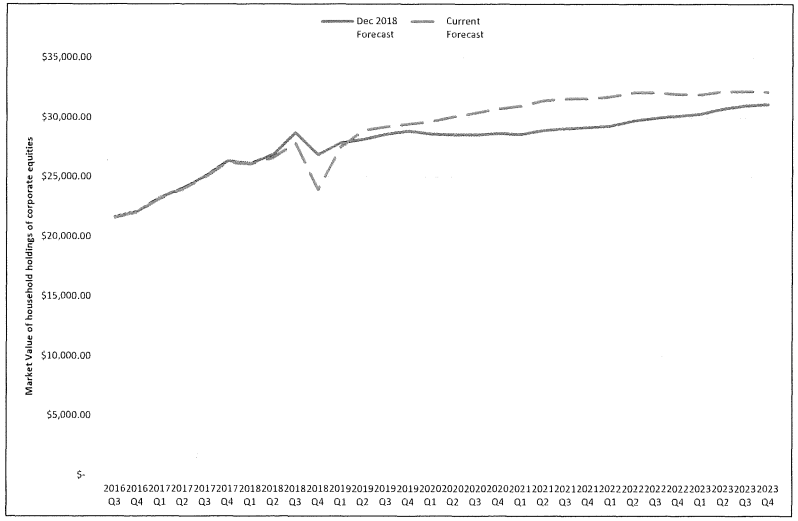


Divi Market value of household holdings of corporate equities, billions of dollars, end of period, IHS Markit

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



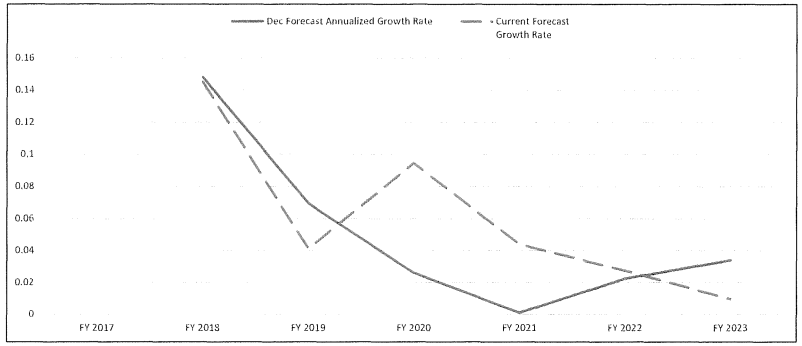
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 21,612.82	4%	$ 21,572.58	4.0%	-0.2%
2016	4	$ 22,069.83	2%	$ 22,025.34	2.1%	-0.2%
2017	1	$ 23,236.73	5%	$ 23,174.63	5.2%	-0.3%
2017	2	$ 24,007.22	3%	$ 23,934.50	3.3%	-0.3%
2017	3	$ 25,030.47	4%	$ 24,945.88	4.2%	-0.3%
2017	4	$ 26,349.00	5%	$ 26,232.48	5.2%	-0.4%
2018	1	$ 26,139.42	-1%	$ 26,088.89	-0.5%	-0.2%
2018	2	$ 26,869.91	3%	$ 26,596.22	1.9%	-1.0%
2018	**3**	**$ 28,724.09**	7%	**$ 27,821.46**	4.6%	**-3.1%**
2018	**4**	**$ 26,880.83**	**-6%**	**$ 23,938.87**	**-14.0%**	**-10.9%**
2019	**1**	**$ 27,869.10**	4%	**$ 27,471.49**	14.8%	**-1.4%**
2019	**2**	**$ 28,165.98**	1%	**$ 28,905.52**	5.2%	2.6%
2019	**3**	**$ 28,567.72**	1%	**$ 29,205.34**	1.0%	2.2%
2019	**4**	**$ 28,838.97**	1%	**$ 29,442.56**	0.8%	2.1%
2020	**1**	**$ 28,598.02**	-1%	**$ 29,648.35**	0.7%	3.7%
2020	**2**	**$ 28,532.28**	0%	**$ 30,053.61**	1.4%	5.3%
2020	**3**	**$ 28,531.57**	0%	**$ 30,403.19**	1.2%	6.6%
2020	**4**	**$ 28,657.08**	0%	**$ 30,764.62**	1.2%	7.4%
2021	**1**	**$ 28,574.99**	0%	**$ 30,971.97**	0.7%	8.4%
2021	**2**	**$ 28,886.02**	1%	**$ 31,417.03**	1.4%	8.8%
2021	3	$ 29,044.54	1%	$ 31,564.27	0.5%	8.7%
2021	4	$ 29,167.71	0%	$ 31,570.62	0.0%	8.2%
2022	1	$ 29,280.20	0%	$ 31,733.78	0.5%	8.4%
2022	2	$ 29,719.48	2%	$ 32,078.29	1.1%	7.9%
2022	3	$ 29,975.03	1%	$ 32,099.93	0.1%	7.1%
2022	4	$ 30,149.00	1%	$ 31,974.95	-0.4%	6.1%
2023	1	$ 30,306.38	1%	$ 31,919.27	-0.2%	5.3%
2023	2	$ 30,763.47	2%	$ 32,174.31	0.8%	4.6%
2023	3	$ 31,015.21	1%	$ 32,220.48	0.1%	3.9%
2023	4	$ 31,126.18	0%	$ 32,117.11	-0.3%	3.2%

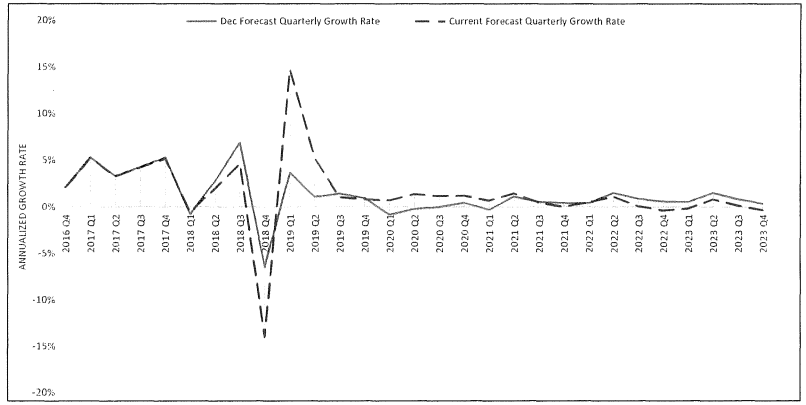
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 22,731.65		$ 22,676.76		
FY 2018	$ 26,097.20	14.8%	$ 25,965.87	14.5%	-0.5%
FY 2019	$ 27,910.00	6.9%	$ 27,034.33	4.1%	-3.1%
FY 2020	$ 28,634.25	2.6%	$ 29,587.47	9.4%	3.3%
FY 2021	$ 28,662.42	0.1%	$ 30,889.20	4.4%	7.8%
FY 2022	$ 29,302.98	2.2%	$ 31,736.74	2.7%	8.3%
FY 2023	$ 30,298.47	3.4%	$ 32,042.12	1.0%	5.8%

Annualized growth rate



Quarterly growth rate

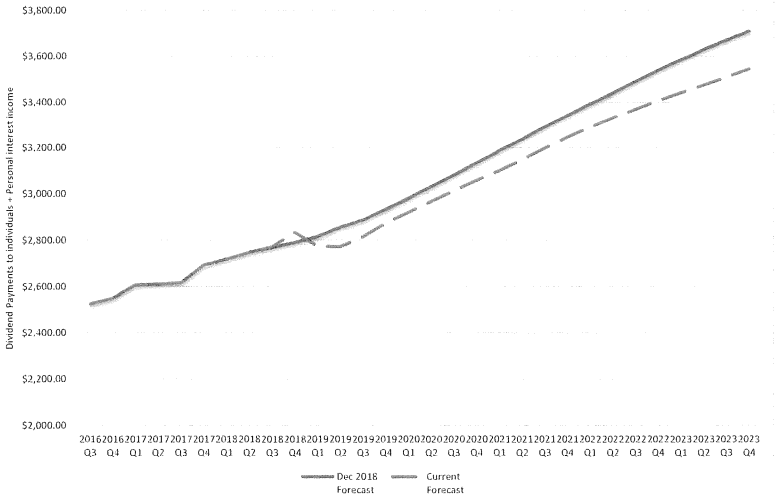


Dividend payments to individuals + Personal interest income

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared Date Prepared:April 12, 2019 Statistic Compiled by BEA



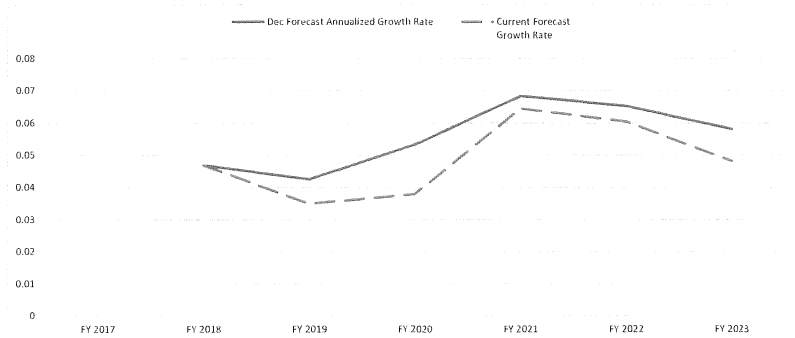
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 2,524.46	0.8%	$ 2,524.46	0.8%	0.0%
2016	4	$ 2,550.39	1.0%	$ 2,550.39	1.0%	0.0%
2017	1	$ 2,607.39	2.2%	$ 2,607.39	2.2%	0.0%
2017	2	$ 2,610.91	0.1%	$ 2,610.91	0.1%	0.0%
2017	3	$ 2,615.14	0.2%	$ 2,615.14	0.2%	0.0%
2017	4	$ 2,692.87	3.0%	$ 2,692.87	3.0%	0.0%
2018	1	$ 2,719.50	1.0%	$ 2,719.50	1.0%	0.0%
2018	2	$ 2,747.76	1.0%	$ 2,747.76	1.0%	0.0%
2018	**3**	**$ 2,769.34**	0.8%	**$ 2,772.15**	0.9%	0.1%
2018	**4**	**$ 2,790.57**	0.8%	**$ 2,833.43**	2.2%	1.5%
2019	**1**	**$ 2,816.82**	0.9%	**$ 2,773.77**	-2.1%	-1.5%
2019	**2**	**$ 2,856.31**	1.4%	**$ 2,771.93**	-0.1%	-3.0%
2019	**3**	**$ 2,886.80**	1.1%	**$ 2,814.65**	1.5%	-2.5%
2019	**4**	**$ 2,932.16**	1.6%	**$ 2,872.02**	2.0%	-2.1%
2020	**1**	**$ 2,981.36**	1.7%	**$ 2,919.37**	1.6%	-2.1%
2020	**2**	**$ 3,031.25**	1.7%	**$ 2,967.09**	1.6%	-2.1%
2020	**3**	**$ 3,082.06**	1.7%	**$ 3,013.95**	1.6%	-2.2%
2020	**4**	**$ 3,132.94**	1.7%	**$ 3,057.40**	1.4%	-2.4%
2021	**1**	**$ 3,185.85**	1.7%	**$ 3,099.25**	1.4%	-2.7%
2021	**2**	**$ 3,239.57**	1.7%	**$ 3,148.67**	1.6%	-2.8%
2021	3	$ 3,291.20	1.6%	$ 3,198.16	1.6%	-2.8%
2021	4	$ 3,342.24	1.6%	$ 3,245.81	1.5%	-2.9%
2022	1	$ 3,391.50	1.5%	$ 3,288.93	1.3%	-3.0%
2022	2	$ 3,440.91	1.5%	$ 3,330.36	1.3%	-3.2%
2022	3	$ 3,490.80	1.4%	$ 3,368.63	1.1%	-3.5%
2022	4	$ 3,539.34	1.4%	$ 3,407.40	1.2%	-3.7%
2023	1	$ 3,586.65	1.3%	$ 3,442.01	1.0%	-4.0%
2023	2	$ 3,631.18	1.2%	$ 3,474.66	0.9%	-4.3%
2023	3	$ 3,671.73	1.1%	$ 3,509.30	1.0%	-4.4%
2023	4	$ 3,709.39	1.0%	$ 3,544.85	1.0%	-4.4%

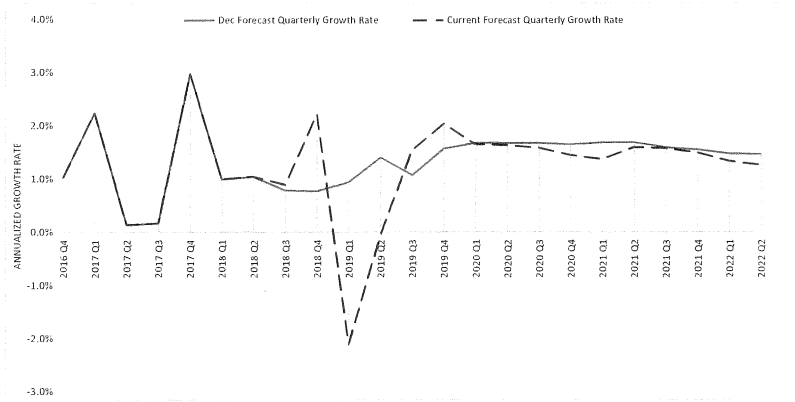
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 2,573.29		$ 2,573.29		
FY 2018	$ 2,693.82	4.7%	$ 2,693.82	4.7%	0.0%
FY 2019	$ 2,808.26	4.2%	$ 2,787.82	3.5%	-0.7%
FY 2020	$ 2,957.89	5.3%	$ 2,893.28	3.8%	-2.2%
FY 2021	$ 3,160.10	6.8%	$ 3,079.82	6.4%	-2.5%
FY 2022	$ 3,366.46	6.5%	$ 3,265.81	6.0%	-3.0%
FY 2023	$ 3,561.99	5.8%	$ 3,423.17	4.8%	-3.9%

Annualized grow Annualized growth rate



Dividend paymer Quarterly growth rate

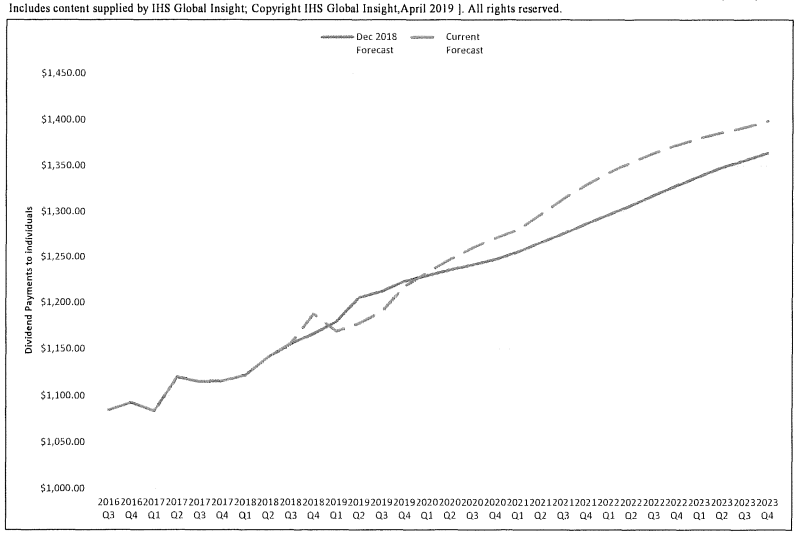


Div **Dividend Payments to individuals, billions of dollars, annual rate, BEA**

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



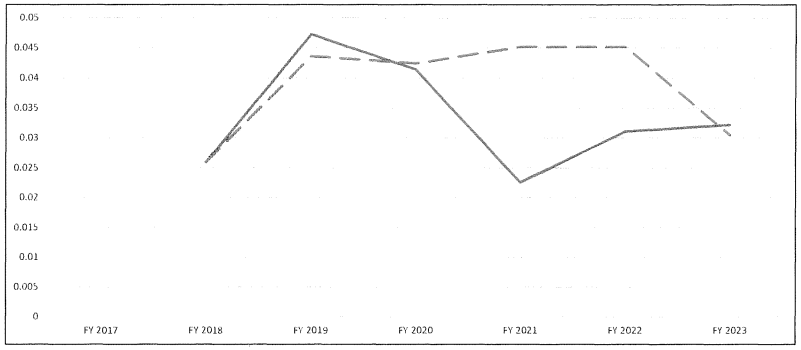
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 1,084.63	1.3%	$ 1,084.63	1.3%	0.0%
2016	4	$ 1,092.30	0.7%	$ 1,092.30	0.7%	0.0%
2017	1	$ 1,083.53	-0.8%	$ 1,083.53	-0.8%	0.0%
2017	2	$ 1,120.00	3.4%	$ 1,120.00	3.4%	0.0%
2017	3	$ 1,115.06	-0.4%	$ 1,115.06	-0.4%	0.0%
2017	4	$ 1,115.67	0.1%	$ 1,115.67	0.1%	0.0%
2018	1	$ 1,121.89	0.6%	$ 1,121.89	0.6%	0.0%
2018	2	$ 1,141.22	1.7%	$ 1,141.22	1.7%	0.0%
2018	**3**	**$ 1,155.25**	**1.2%**	**$ 1,155.96**	**1.3%**	**0.1%**
2018	**4**	**$ 1,166.29**	**1.0%**	**$ 1,187.85**	**2.8%**	**1.8%**
2019	**1**	**$ 1,179.18**	**1.1%**	**$ 1,168.42**	**-1.6%**	**-0.9%**
2019	**2**	**$ 1,205.52**	**2.2%**	**$ 1,177.47**	**0.8%**	**-2.3%**
2019	**3**	**$ 1,212.27**	**0.6%**	**$ 1,190.32**	**1.1%**	**-1.8%**
2019	**4**	**$ 1,223.30**	**0.9%**	**$ 1,217.63**	**2.3%**	**-0.5%**
2020	**1**	**$ 1,229.61**	**0.5%**	**$ 1,233.07**	**1.3%**	**0.3%**
2020	**2**	**$ 1,235.80**	**0.5%**	**$ 1,247.56**	**1.2%**	**1.0%**
2020	**3**	**$ 1,241.59**	**0.5%**	**$ 1,260.69**	**1.1%**	**1.5%**
2020	**4**	**$ 1,247.52**	**0.5%**	**$ 1,271.24**	**0.8%**	**1.9%**
2021	**1**	**$ 1,256.06**	**0.7%**	**$ 1,280.32**	**0.7%**	**1.9%**
2021	**2**	**$ 1,266.28**	**0.8%**	**$ 1,297.16**	**1.3%**	**2.4%**
2021	3	$ 1,276.31	0.8%	$ 1,314.27	1.3%	3.0%
2021	4	$ 1,286.68	0.8%	$ 1,329.51	1.2%	3.3%
2022	1	$ 1,296.90	0.8%	$ 1,342.38	1.0%	3.5%
2022	2	$ 1,307.25	0.8%	$ 1,353.99	0.9%	3.6%
2022	3	$ 1,318.17	0.8%	$ 1,364.06	0.7%	3.5%
2022	4	$ 1,328.51	0.8%	$ 1,372.65	0.6%	3.3%
2023	1	$ 1,338.73	0.8%	$ 1,380.11	0.5%	3.1%
2023	2	$ 1,348.11	0.7%	$ 1,386.16	0.4%	2.8%
2023	3	$ 1,356.27	0.6%	$ 1,392.23	0.4%	2.7%
2023	4	$ 1,364.09	0.6%	$ 1,398.78	0.5%	2.5%

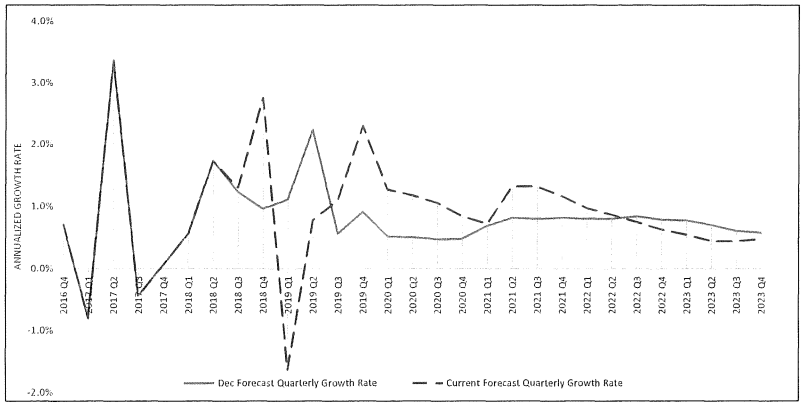
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 1,095.12		$ 1,095.12		
FY 2018	$ 1,123.46	2.6%	$ 1,123.46	2.6%	0.0%
FY 2019	$ 1,176.56	4.7%	$ 1,172.42	4.4%	-0.4%
FY 2020	$ 1,225.25	4.1%	$ 1,222.14	4.2%	-0.3%
FY 2021	$ 1,252.86	2.3%	$ 1,277.35	4.5%	2.0%
FY 2022	$ 1,291.79	3.1%	$ 1,335.04	4.5%	3.3%
FY 2023	$ 1,333.38	3.2%	$ 1,375.75	3.0%	3.2%

Annualized growth rate



Quarterly growth rate



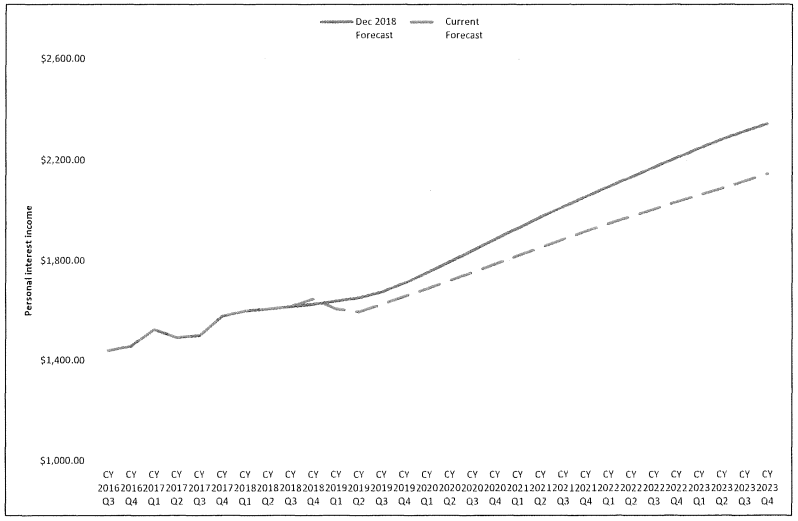
Div

Personal Interest Income

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



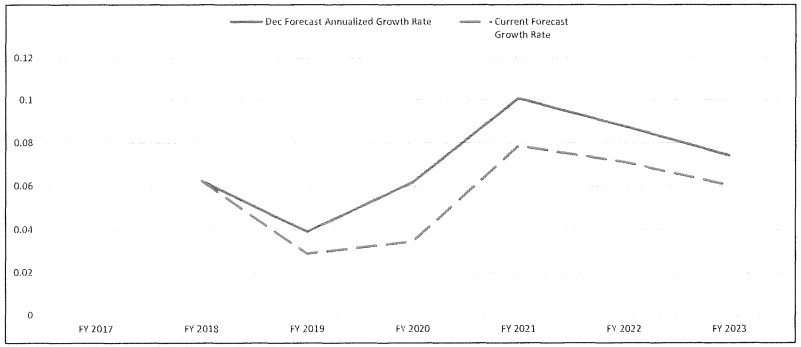
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 1,439.83	0.3%	$ 1,439.83	0.3%	0.0%
2016	4	$ 1,458.09	1.3%	$ 1,458.09	1.3%	0.0%
2017	1	$ 1,523.85	4.5%	$ 1,523.85	4.5%	0.0%
2017	2	$ 1,490.92	-2.2%	$ 1,490.92	-2.2%	0.0%
2017	3	$ 1,500.08	0.6%	$ 1,500.08	0.6%	0.0%
2017	4	$ 1,577.20	5.1%	$ 1,577.20	5.1%	0.0%
2018	1	$ 1,597.62	1.3%	$ 1,597.62	1.3%	0.0%
2018	2	$ 1,606.54	0.6%	$ 1,606.54	0.6%	0.0%
2018	**3**	**$ 1,614.09**	**0.5%**	**$ 1,616.20**	**0.6%**	**0.1%**
2018	**4**	**$ 1,624.28**	**0.6%**	**$ 1,645.58**	**1.8%**	**1.3%**
2019	**1**	**$ 1,637.64**	**0.8%**	**$ 1,605.34**	**-2.4%**	**-2.0%**
2019	**2**	**$ 1,650.79**	**0.8%**	**$ 1,594.46**	**-0.7%**	**-3.4%**
2019	**3**	**$ 1,674.53**	**1.4%**	**$ 1,624.33**	**1.9%**	**-3.0%**
2019	**4**	**$ 1,708.86**	**2.1%**	**$ 1,654.39**	**1.9%**	**-3.2%**
2020	**1**	**$ 1,751.75**	**2.5%**	**$ 1,686.30**	**1.9%**	**-3.7%**
2020	**2**	**$ 1,795.45**	**2.5%**	**$ 1,719.54**	**2.0%**	**-4.2%**
2020	**3**	**$ 1,840.47**	**2.5%**	**$ 1,753.26**	**2.0%**	**-4.7%**
2020	**4**	**$ 1,885.42**	**2.4%**	**$ 1,786.16**	**1.9%**	**-5.3%**
2021	**1**	**$ 1,929.79**	**2.4%**	**$ 1,818.93**	**1.8%**	**-5.7%**
2021	**2**	**$ 1,973.29**	**2.3%**	**$ 1,851.52**	**1.8%**	**-6.2%**
2021	3	$ 2,014.89	2.1%	$ 1,883.90	1.7%	-6.5%
2021	4	$ 2,055.56	2.0%	$ 1,916.30	1.7%	-6.8%
2022	1	$ 2,094.61	1.9%	$ 1,946.55	1.6%	-7.1%
2022	2	$ 2,133.66	1.9%	$ 1,976.37	1.5%	-7.4%
2022	3	$ 2,172.63	1.8%	$ 2,004.57	1.4%	-7.7%
2022	4	$ 2,210.83	1.8%	$ 2,034.75	1.5%	-8.0%
2023	1	$ 2,247.92	1.7%	$ 2,061.90	1.3%	-8.3%
2023	2	$ 2,283.06	1.6%	$ 2,088.50	1.3%	-8.5%
2023	3	$ 2,315.46	1.4%	$ 2,117.07	1.4%	-8.6%
2023	4	$ 2,345.30	1.3%	$ 2,146.07	1.4%	-8.5%

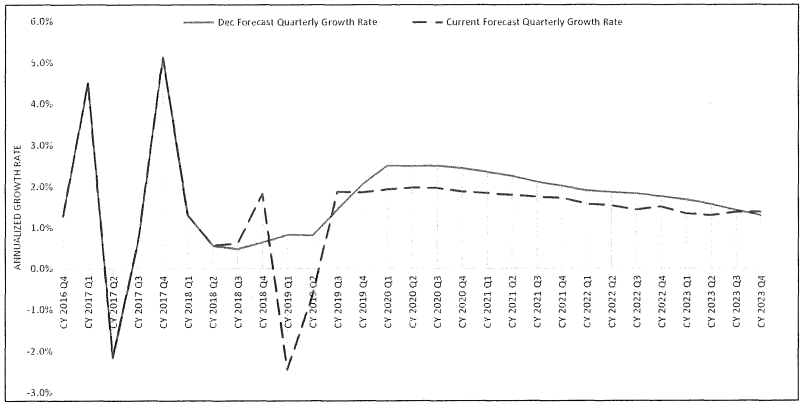
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 1,478.17		$ 1,478.17		
FY 2018	$ 1,570.36	6.2%	$ 1,570.36	6.2%	0.0%
FY 2019	$ 1,631.70	3.9%	$ 1,615.40	2.9%	-1.0%
FY 2020	$ 1,732.65	6.2%	$ 1,671.14	3.5%	-3.5%
FY 2021	$ 1,907.24	10.1%	$ 1,802.47	7.9%	-5.5%
FY 2022	$ 2,074.68	8.8%	$ 1,930.78	7.1%	-6.9%
FY 2023	$ 2,228.61	7.4%	$ 2,047.43	6.0%	-8.1%

Annualized growth rate



Quarterly growth rate



BREAKDOWN OF MARCH 2019 CORPORATE ADJUSTED GROSS INCOME TAX REVENUE

	March 2018	March 2019	Difference	% Chg.	Contribution to % Change
IT-20	$1,864,074	$4,549,180	$2,685,106	144.0%	7.0%
IT-20S	$567,919	$377,868	($190,051)	-33.5%	-0.5%
IT-65	$1,982,770	$1,129,116	($853,654)	-43.1%	-2.2%
IT-6	$44,250,186	$52,248,207	$7,998,021	18.1%	20.9%
IT-6WTH	$36,642,841	$45,480,335	$8,837,494	24.1%	23.1%
PFC and Other Payments	$3,191,636	$3,994,767	$803,132	25.2%	2.1%
Returned Payments	($2,104,170)	($231,954)	$1,872,216	89.0%	4.9%
Total Payments	$86,395,256	$107,547,520	$21,152,264	24.5%	
Returned Refunds	$0	$0	$0	0.0%	0.0%
Voucher Commit - IT6WTH	($43,086,922)	($46,109,603)	($3,022,681)	-7.0%	-7.9%
Voucher Commit - AR	$6,571,896	$2,129,019	($4,442,877)	-67.6%	-11.6%
Voucher Commit - FIT	($358,000)	($52,178)	$305,822	85.4%	0.8%
Voucher Commit - Other	$10,498,883	$1,369,500	($9,129,383)	-87.0%	-23.9%
Refund Offset	($209,962)	($696,115)	($486,153)	-231.5%	-1.3%
Revenue Before Refunds	$59,811,150	$64,188,142	$4,376,992	7.3%	
Refunds	($21,604,314)	($10,428,454)	$11,175,860	-51.7%	29.3%
Net Revenue	$38,206,836	$53,759,688	$15,552,852	40.7%	40.7%

BREAKDOWN OF FY 2019 YEAR-TO-DATE CORPORATE ADJUSTED GROSS INCOME TAX REVENUE

	FY 2018	FY 2019	Difference	% Chg.	Contribution to % Change
IT-20	$17,857,102	$18,419,540	$562,437	3.1%	0.5%
IT-20S	$2,827,435	$2,229,199	($598,236)	-21.2%	-0.5%
IT-65	$9,430,333	$9,290,820	($139,512)	-1.5%	-0.1%
IT-6	$418,084,913	$485,435,972	$67,351,059	16.1%	53.9%
IT-6WTH	$97,472,359	$85,141,683	($12,330,676)	-12.7%	-9.9%
PFC and Other Payments	$14,358,579	$16,842,864	$2,484,285	17.3%	2.0%
Returned Payments	($14,243,315)	($2,631,612)	$11,611,703	81.5%	9.3%
Total Payments	$545,787,406	$614,728,466	$68,941,060	12.6%	
Returned Refunds	$36,932	$0	($36,932)	-100.0%	0.0%
Voucher Commit - IT6WTH	($196,569,333)	($85,170,248)	$111,399,084	56.7%	89.2%
Voucher Commit - AR	$28,794,552	$17,237,598	($11,556,954)	-40.1%	-9.3%
Voucher Commit - FIT	($30,315,314)	($30,307,321)	$7,993	0.0%	0.0%
Voucher Commit - Other	$35,874,381	$14,672,937	($21,201,444)	-59.1%	-17.0%
Refund Offset	($3,834,248)	($3,104,298)	$729,950	19.0%	0.6%
Revenue Before Refunds	$379,774,376	$528,057,133	$148,282,757	39.0%	
Refunds	($254,849,948)	($231,598,119)	$23,251,830	-9.1%	18.6%
Net Revenue	$124,924,428	$296,459,015	$171,534,587	137.3%	137.3%

* FY 2018 Year-to-date Voucher Commit -IT6WTH includes a January 2018 transfer of $41.3 million which is a result of implementing new business rules in RPS.

Corporate Tax Model **April 2019 Forecast**
Summary IHSMarkit = April 2019

Revenue to General Fund ONLY	FY 2018	FY 2019	FY 2020	FY 2021	FY 2022	FY 2023
Corporate Tax Revenue						
Corporate AGI Revenue	$ 390.63	$ 582.63	$ 584.63	$ 572.08	$ 559.75	$ 657.98
URT Tax Revenue	$ 195.20	$ 214.70	$ 194.70	$ 194.23	$ 194.23	$ 194.23
USUT Tax Revenue	$ 6.94	$ 10.12	$ 10.12	$ 10.12	$ 10.12	$ 10.12
FIT Tax Revenue	$ 67.60	$ 63.61	$ 61.47	$ 57.91	$ 57.91	$ 57.91
Updated Revenue Forecast	$ 660.37	$ 871.07	$ 850.93	$ 834.35	$ 822.02	$ 920.25
Apr 2019 - Dec 2018 $ Change	$ -	$ 97.64	$ 60.57	$ 41.65	$ 38.43	$ 46.31
Apr 2019 - Dec 2018 % Change	0.00%	12.62%	7.66%	5.25%	4.90%	$ 0.05
Change in Revenue vs Prior Year						
Corporate AGI - % Change	-46.56%	49.15%	0.34%	-2.15%	-2.15%	17.55%
Other Corporate Taxes - % Change	8.85%	6.93%	-7.67%	-1.51%	0.00%	0.00%
Total - % Change	-32.53%	31.91%	-2.31%	-1.95%	-1.48%	11.95%
December 2018 Forecast						
Corporate AGI Revenue	$ 390.63	$ 504.99	$ 524.53	$ 530.90	$ 521.79	$ 612.14
URT Tax Revenue	$ 195.20	$ 194.70	$ 194.23	$ 193.77	$ 193.77	$ 193.77
USUT Tax Revenue	$ 6.94	$ 10.12	$ 10.12	$ 10.12	$ 10.12	$ 10.12
FIT Tax Revenue	$ 67.60	$ 63.61	$ 61.47	$ 57.91	$ 57.91	$ 57.91
Last Revenue Forecast	$ 660.37	$ 773.43	$ 790.36	$ 792.70	$ 783.59	$ 873.94

Corp AGI - Dec 2018 Model — Ran from FY18

As of:	
2018	From Dec. 2018 Forecast, includes adjustments to IT-6WTH forecast for shift from 90/10 rule to 65/35 rule effective April 2019

** Refunds Forecast is based on historical average as % (25.72%) of Payments.

* IT-6WTH Forecast is based on estimate for FY2019 based on December FYYTD Transfers. The same number is used in Withholding Forecast

Model Starts	2006
Model Ends	2018
Time	Fiscal Year
Form	LOG

Include Adjustment?
Yes

									PROPOSED FORECAST								ACTUALS*		GF Forecast Error			
Fiscal Year	COR Before IT-6WTH and Refunds Base ("Payments" Base)	% to GF	% Tax (Blended Tax Rate)	FY18 Legislative Acts	Adjustments (Incl Credits)	COR Before IT-6WTH and Refunds ("Payments")	IT-6WTH from COR to WH* (65/35 Rule)*	Corporate Refunds **	Net COR Tax	Net COR YoY Growth	COR Before IT-6WTH and Refunds YoY Growth	URT	USUT	FIT	Total Corporate Taxes	YoY Growth	Net COR Tax	Total Corporate Taxes	Net COR Tax	Total Corporate Taxes	Net COR tax $ vs Actuals	Total Corporate $ vs Actuals
2017	16,638.35	100%	6.1190%		11.88	1,029.97	(119.39)	(191.19)	**719.40**			185.09	8.53	54.20	**967.21**		730.92	978.73	-1.58%	-1.18%	(11.52)	(11.52)
2018	16,950.00	100%	5.8945%	(5.21)	11.88	1,005.78	(306.93)	(299.51)	**399.34**	-44.49%		195.20	6.94	67.60	**669.08**	-30.82%	390.63	660.37	2.23%	1.32%	8.70	8.70
2019	18,742.96	100%	5.6493%	8.88	(25.12)	1,042.61	(191.84)	(268.13)	**582.63**	45.90%	3.66%	214.70	10.12	63.61	**871.07**	30.19%	-					
2020	19,827.73	100%	5.3980%	30.75	(55.12)	1,045.93	(192.31)	(268.99)	**584.63**	0.34%	0.32%	194.70	10.12	61.47	**850.93**	-2.31%	-					
2021	20,662.92	100%	5.1185%	30.75	(65.12)	1,023.26	(188.02)	(263.16)	**572.08**	-2.15%	-2.17%	194.23	10.12	57.91	**834.35**	-1.95%	-					
2022	21,136.38	100%	4.8952%	31.75	(65.12)	1,001.29	(184.03)	(257.51)	**559.75**	-2.15%	-2.15%	194.23	10.12	57.91	**822.02**	-1.48%	-					
2023	24,674.74	100%	4.8952%	32.75	(65.12)	1,175.50	(215.21)	(302.31)	**657.98**	17.55%	17.40%	194.23	10.12	57.91	**920.25**	11.95%	-					

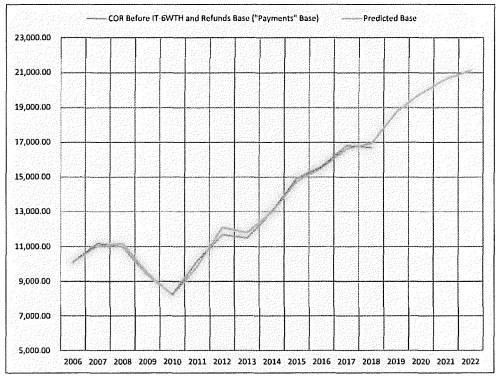
	DEPENDENT VARIABLE		INDEPENDENT VARIABLES			
		LN	LN	LN		
$ Predicted vs Actual Revenue	Predicted Revenue	Predicted Base	Fiscal Year	COR Before IT-6WTH and Refunds Base ("Payments" Base)	COR Before IT-6WTH and Refunds Base ("Payments" Base)	Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA	Industrial Production Index, Transportation Equipment (2012 = 100)	Net U.S. international investment position, billions of dollars, end of period, BEA annual data	Tax Rate Change (Prior FY Rate Less Current FY Rate)
(1.54)	794.58	10,082.89	2006	10,100.98	9.22	7.30	4.54	(833.92)	0.00%
(13.16)	733.24	11,062.62	2007	11,217.41	9.33	7.37	4.57	(1,722.94)	0.00%
14.49	675.71	11,176.72	2008	11,006.24	9.31	7.33	4.60	(1,549.10)	0.00%
8.31	549.61	9,479.06	2009	9,381.34	9.15	7.20	4.49	(3,590.44)	0.00%
(5.10)	364.95	8,204.26	2010	8,264.24	9.02	7.25	4.37	(2,812.21)	0.00%
(27.75)	458.97	9,836.66	2011	10,163.32	9.23	7.42	4.44	(2,670.98)	0.00%
33.28	735.95	12,104.35	2012	11,704.48	9.37	7.53	4.52	(4,589.76)	0.00%
22.16	698.36	11,808.88	2013	11,527.17	9.35	7.59	4.60	(4,994.46)	-0.50%
(2.07)	762.29	12,971.88	2014	13,000.07	9.47	7.61	4.66	(5,284.16)	-0.50%
(12.38)	765.40	14,756.54	2015	14,937.78	9.61	7.65	4.71	(6,682.85)	-0.50%
(5.90)	693.29	15,530.45	2016	15,622.79	9.66	7.64	4.74	(7,714.38)	-0.50%
(11.52)	719.40	16,638.35	2017	16,826.67	9.73	7.62	4.73	(8,017.58)	-0.25%
13.92	404.55	16,950.00	2018	16,713.89	9.72	7.66	4.73	(7,985.58)	-0.25%
		18,742.96	2019			7.72	4.74	(10,101.56)	-0.25%
		19,827.73	2020			7.75	4.75	(10,787.69)	-0.25%
		20,662.92	2021			7.78	4.77	(11,423.54)	-0.25%
		21,136.38	2022			7.80	4.78	(12,124.23)	-0.35%
		24,674.74	2023			7.82	4.79	(12,912.10)	0.00%

Variables	
2 Year Moving Average of	Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA
2 Year Moving Average of	Industrial Production Index, Transportation Equipment (2012 = 100)
Current Year	Net U.S. international investment position, billions of dollars, end of period, BEA annual data
Year over Year	Tax Rate Change (Prior FY Rate Less Current FY Rate)

OUT OF SAMPLE

	2017		2016	
	Forecast	$ Error	Forecast	$ Error
2017	721.02	(9.90)	706.98	(23.94)
2018	401.00	10.37	387.40	(3.24)
2019	585.13		564.90	
2020	587.44		564.81	
2021	575.09		550.78	

Corp AGI - Dec 2018 Model



SUMMARY OUTPUT

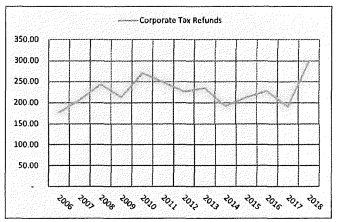
Regression Statistics	
Multiple R	0.996896782
R Square	0.993803194
Adjusted R Squ	0.990704791
Standard Error	0.021897673
Observations	13

ANOVA

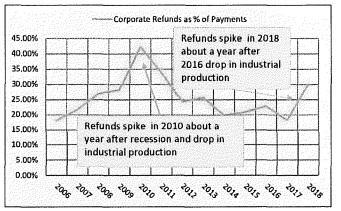
	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	0.615202894	0.153800723	320.7468983	7.33641E-09
Residual	8	0.003836064	0.000479508		
Total	12	0.619038958			

	Coefficients	*Standard Error*	*t Stat*	*P-value*
Intercept	-0.581077644	0.607529259	-0.956460344	0.366846154
Before-tax cor	0.521955578	0.08588557	6.077337274	0.0002968
Industrial Prod	1.31317286	0.093814271	13.99758101	6.57969E-07
Net U.S. Intern	-2.46714E-05	4.61451E-06	-5.346491186	0.000688744
Tax Rate Chan	32.71716362	4.615556016	7.088455542	0.000103163

Corporate Tax Refunds

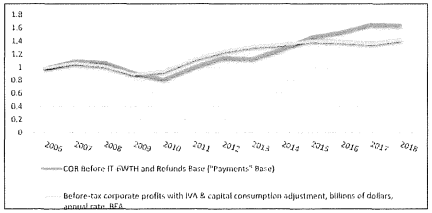


Corporate Refunds as % of Payments

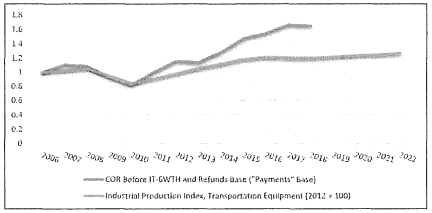


Refunds as->	% of Corporate AGI Payments
2 Year Avg	24.20%
5 Year Avg	22.47%
Avg Since '06	25.72%

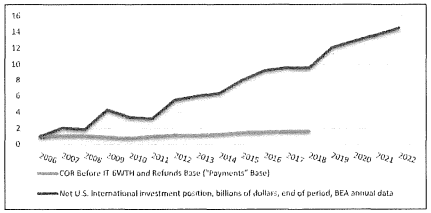
Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA



Industrial Production Index, Transportation Equipment (2012 = 100)



Net U.S. international investment position, billions of dollars, end of period, BEA annual data



Sensitivity Analysis: Corporate AGI

The analysis of the Corporate AGI December 2018 model consists of two data tables. Table 1 displays the forecasts for the December 2018 Corporate AGI model if data were used from different months over three fiscal years. Table 2 displays the change in predictors over different monthly datasets. In each graph, the change in revenue forecast by specific fiscal year is graphed. Although the model loses statistical integrity by holding the coefficients constant, this is a valuable tool for determining how the revenue forecasts may change given predictor data changes.

The regression coefficients are held constant as they were in the December 2018 model whereas the underlying predictor data changes to the corresponding month when calculating revenue forecasts. The tax rates and outside adjustments are based on April 2019 data.

Corporate AGI achieved its maximum with August 2017 data and steadily decreases with each data revision until April 2019. These decreases are likely due to the decrease in Before Tax Corporate Profits.

Table 1: Revenue Forecasts

Global Insights Data Date		Fiscal Year Forecast ($thousands)				
Calendar Year	Month	2019	2020	2021	2022	2023
2016	July	$ 535.81	$ 556.73	$ 581.99	$ 576.24	$ 675.24
	August	$ 587.19	$ 613.71	$ 644.20	$ 639.97	$ 750.91
	September	$ 587.22	$ 609.67	$ 635.95	$ 632.31	$ 743.06
	October	$ 593.19	$ 611.43	$ 628.19	$ 617.17	$ 719.56
	November	$ 593.82	$ 609.10	$ 627.75	$ 621.16	$ 726.92
	December	$ 606.14	$ 625.01	$ 644.98	$ 642.18	$ 760.02
2017	January	$ 633.78	$ 645.77	$ 654.89	$ 643.78	$ 757.64
	February	$ 618.11	$ 631.42	$ 664.24	$ 675.71	$ 806.48
	March	$ 625.92	$ 634.79	$ 663.31	$ 670.92	$ 795.65
	April	$ 638.93	$ 649.19	$ 677.34	$ 684.32	$ 811.16
	May	$ 630.91	$ 648.00	$ 679.59	$ 688.13	$ 816.38
	June	$ 617.03	$ 637.80	$ 666.26	$ 671.63	$ 798.56
	July	$ 614.49	$ 634.66	$ 662.08	$ 667.45	$ 792.27
	August	$ 640.70	$ 668.20	$ 699.12	$ 703.34	$ 833.95
	September	$ 633.16	$ 664.35	$ 695.52	$ 699.31	$ 828.65
	October	$ 606.99	$ 629.26	$ 650.75	$ 642.77	$ 750.54
	November	$ 614.94	$ 651.36	$ 687.18	$ 688.48	$ 819.53
	December	$ 622.43	$ 647.84	$ 667.83	$ 662.67	$ 784.99
2018	January	$ 604.26	$ 623.61	$ 642.83	$ 641.31	$ 766.98
	February	$ 622.73	$ 644.12	$ 659.31	$ 653.82	$ 776.89
	March	$ 627.81	$ 652.30	$ 670.08	$ 663.42	$ 785.23
	April	$ 585.41	$ 620.42	$ 632.14	$ 620.83	$ 731.23
	May	$ 546.10	$ 579.08	$ 603.22	$ 598.63	$ 713.42
	June	$ 557.25	$ 596.06	$ 615.55	$ 607.67	$ 725.46
	July	$ 566.69	$ 611.22	$ 629.11	$ 616.61	$ 731.74
	August	$ 552.69	$ 610.00	$ 643.32	$ 636.19	$ 746.32
	September	$ 526.06	$ 560.51	$ 592.97	$ 594.04	$ 700.28
	October	$ 541.72	$ 576.66	$ 604.47	$ 599.58	$ 702.92
	November	$ 547.41	$ 590.91	$ 622.56	$ 618.78	$ 723.74
	December	$ 545.57	$ 582.58	$ 605.19	$ 596.95	$ 698.21
2019	January	$ 546.29	$ 575.03	$ 591.04	$ 579.68	$ 673.99
	February	$ 544.96	$ 559.12	$ 560.70	$ 553.75	$ 654.87
	March	$ 544.31	$ 545.39	$ 541.00	$ 530.91	$ 626.21
	April	$ 582.63	$ 584.63	$ 572.08	$ 559.75	$ 657.98
April 2019 Data Difference from Maximum Forecast		$ (58.07)	$ (83.58)	$ (127.05)	$ (143.59)	$ (175.97)

Legend: Minimum; 25th Percentile; 25th to 50th Percentile; 50th to 75th Percentile; 75th Percentile; Maximum

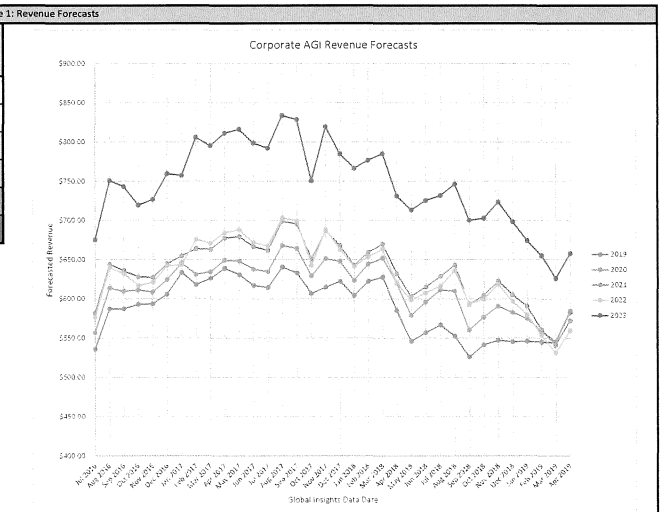
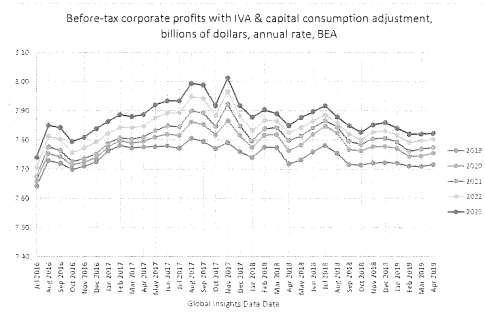
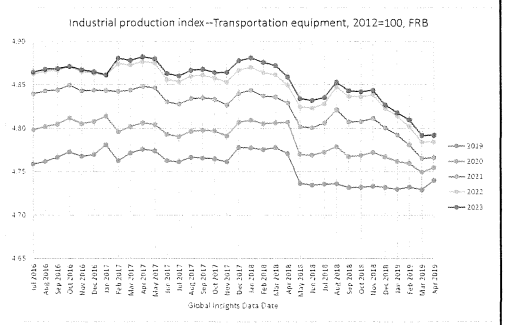
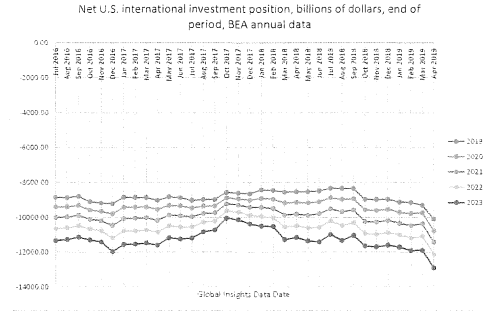


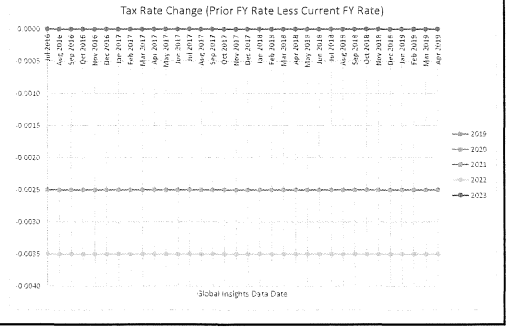
Table 2: Predictors

Model Predictors	Coefficients
Constant	-0.581
Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate	0.522
Industrial production index--Transportation equipment, 2012=100, FRB	1.313
Net U.S. international investment position, billions of dollars, end of period, BEA annual data	0.000
Tax Rate Change (Prior FY Rate Less Current FY Rate)	32.717









VARIABLES GLOBAL INSIGHT ERROR	CORPORATE TAX	2019

This error analysis is presented to determine the difference of percentage error between December 2018, December 2016 and December 2014 data versus April 2019 data.

Dec-18 US DATA			
FY	Industrial Production Index, Transportation Equipment (2012 = 100)	Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA	Net U.S. international investment position, billions of dollars, end of period, BEA annual data
FY 2008	0.0%	0.0%	0.0%
FY 2009	0.0%	0.0%	0.0%
FY 2010	0.0%	0.0%	0.0%
FY 2011	0.0%	0.0%	0.0%
FY 2012	0.0%	0.0%	0.0%
FY 2013	0.0%	0.0%	0.0%
FY 2014	0.0%	0.0%	0.0%
FY 2015	0.0%	0.0%	0.0%
FY 2016	-0.1%	0.0%	0.0%
FY 2017	0.2%	0.0%	0.0%
FY 2018	1.2%	0.0%	0.6%

Dec-16 US DATA			
FY	Industrial Production Index, Transportation Equipment (2012 = 100)	Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA	Net U.S. international investment position, billions of dollars, end of period, BEA annual data
FY 2008	0.5%	0.4%	0.0%
FY 2009	-0.6%	-0.4%	0.0%
FY 2010	0.2%	-1.0%	0.0%
FY 2011	-0.3%	-0.5%	0.0%
FY 2012	0.2%	0.0%	0.0%
FY 2013	0.0%	-0.8%	0.0%
FY 2014	0.2%	-1.6%	-0.8%
FY 2015	1.1%	-1.2%	-0.3%
FY 2016	-2.6%	-1.4%	2.3%
FY 2017	-3.8%	-3.3%	-3.8%
FY 2018	-2.8%	-2.5%	-9.5%

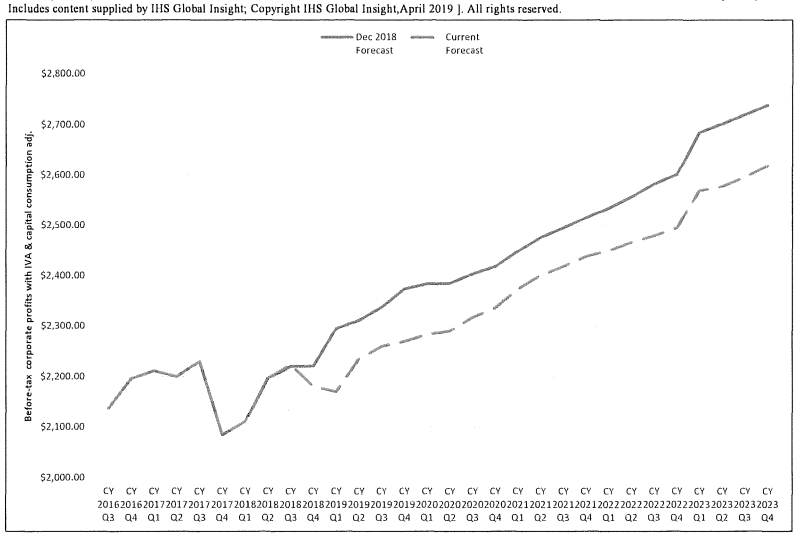
Dec-14 US DATA			
FY	Industrial Production Index, Transportation Equipment (2012 = 100)	Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate, BEA	Net U.S. international investment position, billions of dollars, end of period, BEA annual data
FY 2008	2.0%	0.4%	0.0%
FY 2009	1.0%	-0.4%	0.0%
FY 2010	2.3%	-1.0%	0.0%
FY 2011	1.3%	-0.5%	0.0%
FY 2012	1.5%	0.1%	-0.4%
FY 2013	0.5%	-3.7%	-1.2%
FY 2014	0.6%	-1.9%	-0.9%
FY 2015	1.1%	-5.6%	15.2%
FY 2016	-5.6%	-20.4%	22.7%
FY 2017	-10.1%	-16.6%	21.3%
FY 2018	-13.2%	-8.6%	15.7%

Before-tax corporate profits with IVA & capital consumption adjustment, billions of dollars, annual rate,

This variable is included in the following December 2018 Forecast Model(s): Corporate Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



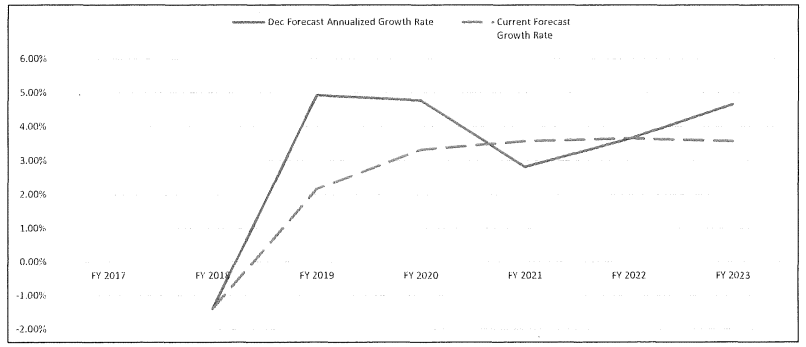
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ 2,137.54	-0.4%	$ 2,137.54	-0.4%	0.0%
2016	4	$ 2,196.72	2.8%	$ 2,196.72	2.8%	0.0%
2017	1	$ 2,211.80	0.7%	$ 2,211.80	0.7%	0.0%
2017	2	$ 2,200.38	-0.5%	$ 2,200.38	-0.5%	0.0%
2017	3	$ 2,230.67	1.4%	$ 2,230.67	1.4%	0.0%
2017	4	$ 2,084.64	-6.5%	$ 2,084.64	-6.5%	0.0%
2018	1	$ 2,111.03	1.3%	$ 2,111.03	1.3%	0.0%
2018	2	$ 2,197.16	4.1%	$ 2,197.16	4.1%	0.0%
2018	**3**	**$ 2,220.54**	1.1%	**$ 2,223.92**	1.2%	0.2%
2018	**4**	**$ 2,221.10**	0.0%	**$ 2,180.68**	-1.9%	-1.8%
2019	**1**	**$ 2,294.83**	3.3%	**$ 2,170.21**	-0.5%	-5.4%
2019	**2**	**$ 2,311.37**	0.7%	**$ 2,234.72**	3.0%	-3.3%
2019	**3**	**$ 2,337.81**	1.1%	**$ 2,259.69**	1.1%	-3.3%
2019	**4**	**$ 2,373.39**	1.5%	**$ 2,269.39**	0.4%	-4.4%
2020	**1**	**$ 2,383.43**	0.4%	**$ 2,282.53**	0.6%	-4.2%
2020	**2**	**$ 2,384.35**	0.0%	**$ 2,290.27**	0.3%	-3.9%
2020	**3**	**$ 2,403.58**	0.8%	**$ 2,317.21**	1.2%	-3.6%
2020	**4**	**$ 2,417.96**	0.6%	**$ 2,336.02**	0.8%	-3.4%
2021	**1**	**$ 2,448.25**	1.3%	**$ 2,373.09**	1.6%	-3.1%
2021	**2**	**$ 2,476.05**	1.1%	**$ 2,400.44**	1.2%	-3.1%
2021	3	$ 2,495.07	0.8%	$ 2,418.10	0.7%	-3.1%
2021	4	$ 2,515.08	0.8%	$ 2,437.82	0.8%	-3.1%
2022	1	$ 2,533.73	0.7%	$ 2,449.95	0.5%	-3.3%
2022	2	$ 2,556.62	0.9%	$ 2,465.79	0.6%	-3.6%
2022	3	$ 2,582.47	1.0%	$ 2,479.11	0.5%	-4.0%
2022	4	$ 2,600.99	0.7%	$ 2,495.02	0.6%	-4.1%
2023	1	$ 2,685.14	3.2%	$ 2,569.19	3.0%	-4.3%
2023	2	$ 2,702.09	0.6%	$ 2,577.62	0.3%	-4.6%
2023	3	$ 2,719.62	0.6%	$ 2,596.12	0.7%	-4.5%
2023	4	$ 2,737.94	0.7%	$ 2,618.48	0.9%	-4.4%

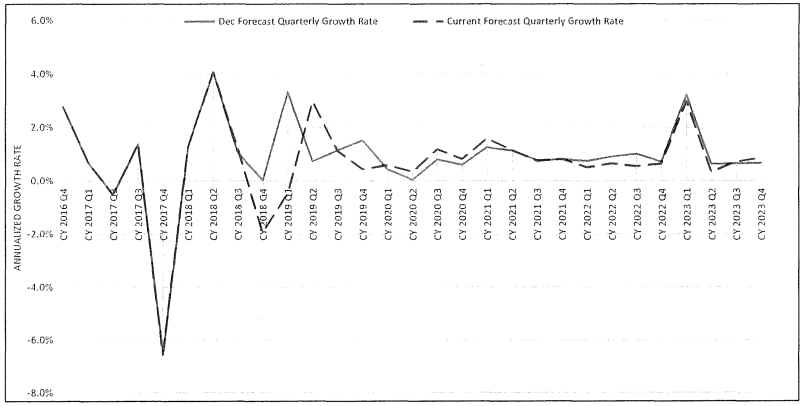
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ 2,186.61		$ 2,186.61		
FY 2018	$ 2,155.87	-1.4%	$ 2,155.87	-1.4%	0.0%
FY 2019	$ 2,261.96	4.9%	$ 2,202.38	2.2%	-2.6%
FY 2020	$ 2,369.75	4.8%	$ 2,275.47	3.3%	-4.0%
FY 2021	$ 2,436.46	2.8%	$ 2,356.69	3.6%	-3.3%
FY 2022	$ 2,525.12	3.6%	$ 2,442.91	3.7%	-3.3%
FY 2023	$ 2,642.67	4.7%	$ 2,530.23	3.6%	-4.3%

Annualized growth rate



Quarterly growth rate

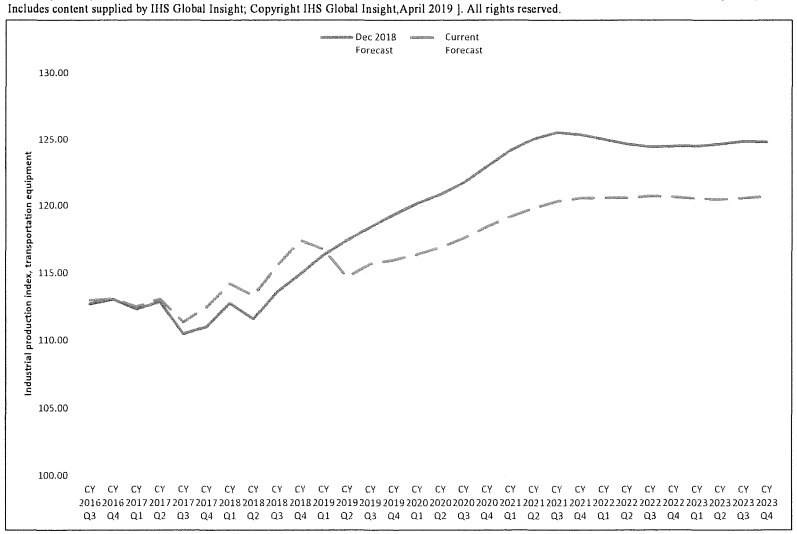


Industrial Production Index, Transportation Equipment (2012 = 100)

This variable is included in the following December 2018 Forecast Model(s): Corporate Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



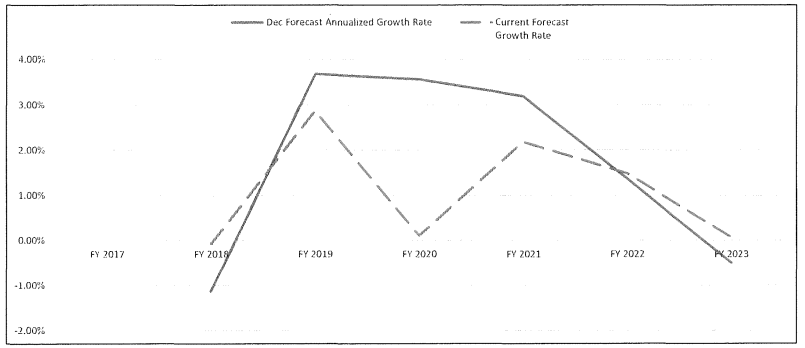
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	112.70	1.7%	113.00	2.1%	0.3%
2016	4	113.05	0.3%	113.11	0.1%	0.1%
2017	1	112.34	-0.6%	112.51	-0.5%	0.2%
2017	2	112.87	0.5%	113.11	0.5%	0.2%
2017	3	110.47	-2.1%	111.36	-1.5%	0.8%
2017	4	111.04	0.5%	112.49	1.0%	1.3%
2018	1	112.77	1.6%	114.20	1.5%	1.3%
2018	2	111.58	-1.1%	113.35	-0.8%	1.6%
2018	**3**	**113.61**	1.8%	**115.52**	1.9%	1.7%
2018	**4**	**114.92**	1.2%	**117.40**	1.6%	2.2%
2019	**1**	**116.32**	1.2%	**116.75**	**-0.5%**	0.4%
2019	**2**	**117.39**	0.9%	**114.68**	**-1.8%**	**-2.3%**
2019	**3**	**118.40**	0.9%	**115.65**	0.9%	**-2.3%**
2019	**4**	**119.32**	0.8%	**115.94**	0.2%	**-2.8%**
2020	**1**	**120.15**	0.7%	**116.36**	0.4%	**-3.2%**
2020	**2**	**120.84**	0.6%	**116.89**	0.5%	**-3.3%**
2020	**3**	**121.75**	0.8%	**117.57**	0.6%	**-3.4%**
2020	**4**	**122.96**	1.0%	**118.42**	0.7%	**-3.7%**
2021	**1**	**124.18**	1.0%	**119.18**	0.6%	**-4.0%**
2021	**2**	**125.06**	0.7%	**119.81**	0.5%	**-4.2%**
2021	3	125.57	0.4%	120.33	0.4%	-4.2%
2021	4	125.41	-0.1%	120.56	0.2%	-3.9%
2022	1	125.04	-0.3%	120.58	0.0%	-3.6%
2022	2	124.67	-0.3%	120.58	0.0%	-3.3%
2022	3	124.45	-0.2%	120.73	0.1%	-3.0%
2022	4	124.51	0.0%	120.67	-0.1%	-3.1%
2023	1	124.52	0.0%	120.51	-0.1%	-3.2%
2023	2	124.67	0.1%	120.48	0.0%	-3.4%
2023	3	124.89	0.2%	120.57	0.1%	-3.5%
2023	4	124.85	0.0%	120.71	0.1%	-3.3%

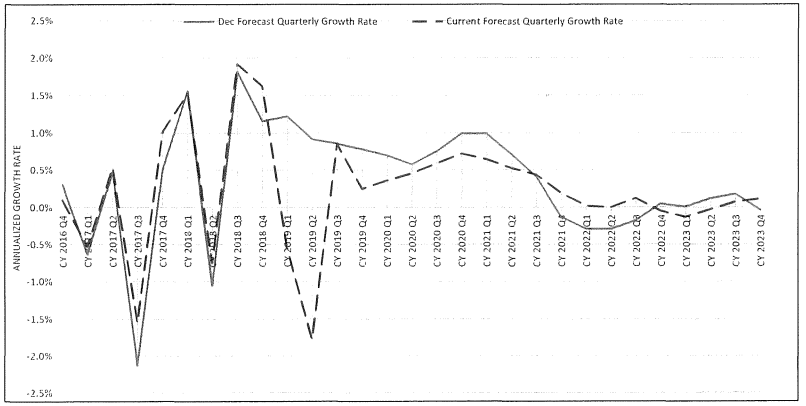
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	112.74		112.93		
FY 2018	111.47	-1.1%	112.85	-0.1%	1.2%
FY 2019	115.56	3.7%	116.09	2.9%	0.5%
FY 2020	119.68	3.6%	116.21	0.1%	-2.9%
FY 2021	123.49	3.2%	118.75	2.2%	-3.8%
FY 2022	125.17	1.4%	120.51	1.5%	-3.7%
FY 2023	124.54	-0.5%	120.60	0.1%	-3.2%

Annualized growth rate



Quarterly growth rate

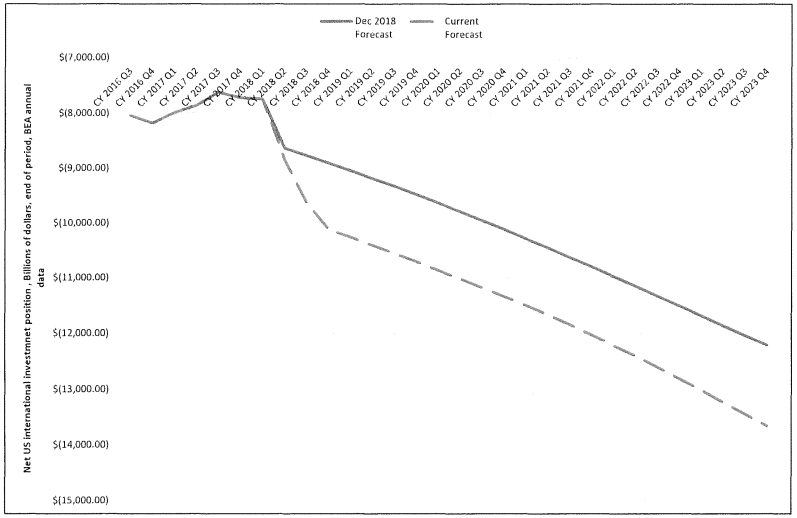


Net U.S. international investment position, billions of dollars, end of period, BEA annual data

This variable is included in the following December 2018 Forecast Model(s): Income Tax

Comparison of Global Insight Forecast for Dec 2018 and April 2019

Date Prepared:April 12, 2019 Statistic Compiled by BEA



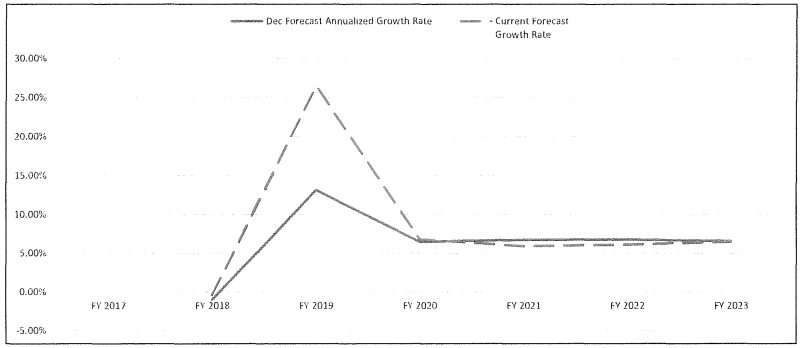
Calendar Year

CY	QTR	Dec 2018 Forecast	Dec Forecast Quarterly Growth Rate	Current Forecast	Current Forecast Quarterly Growth Rate	Percent Change Dec to Current
2016	3	$ (8,044.46)	-2.8%	$ (8,044.46)	-2.8%	0.0%
2016	4	$ (8,181.59)	1.7%	$ (8,181.59)	1.7%	0.0%
2017	1	$ (7,986.05)	-2.4%	$ (7,986.05)	-2.4%	0.0%
2017	2	$ (7,858.21)	-1.6%	$ (7,858.21)	-1.6%	0.0%
2017	3	$ (7,624.88)	-3.0%	$ (7,624.88)	-3.0%	0.0%
2017	4	$ (7,725.00)	1.3%	$ (7,725.00)	1.3%	0.0%
2018	1	$ (7,747.33)	0.3%	$ (7,747.33)	0.3%	0.0%
2018	2	$ (8,638.48)	11.5%	$ (8,845.12)	14.2%	2.4%
2018	**3**	**$ (8,767.92)**	**1.5%**	**$ (9,627.22)**	**8.8%**	**9.8%**
2018	**4**	**$ (8,905.47)**	**1.6%**	**$ (10,119.40)**	**5.1%**	**13.6%**
2019	**1**	**$ (9,042.14)**	**1.5%**	**$ (10,256.66)**	**1.4%**	**13.4%**
2019	**2**	**$ (9,183.26)**	**1.6%**	**$ (10,402.94)**	**1.4%**	**13.3%**
2019	**3**	**$ (9,327.40)**	**1.6%**	**$ (10,554.36)**	**1.5%**	**13.2%**
2019	**4**	**$ (9,477.94)**	**1.6%**	**$ (10,709.36)**	**1.5%**	**13.0%**
2020	**1**	**$ (9,633.86)**	**1.6%**	**$ (10,865.30)**	**1.5%**	**12.8%**
2020	**2**	**$ (9,790.51)**	**1.6%**	**$ (11,021.73)**	**1.4%**	**12.6%**
2020	**3**	**$ (9,952.04)**	**1.6%**	**$ (11,179.36)**	**1.4%**	**12.3%**
2020	**4**	**$ (10,115.08)**	**1.6%**	**$ (11,338.76)**	**1.4%**	**12.1%**
2021	**1**	**$ (10,281.38)**	**1.6%**	**$ (11,503.08)**	**1.4%**	**11.9%**
2021	**2**	**$ (10,450.84)**	**1.6%**	**$ (11,672.94)**	**1.5%**	**11.7%**
2021	3	$ (10,623.74)	1.7%	$ (11,848.04)	1.5%	11.5%
2021	4	$ (10,799.33)	1.7%	$ (12,028.38)	1.5%	11.4%
2022	1	$ (10,977.02)	1.6%	$ (12,214.49)	1.5%	11.3%
2022	2	$ (11,156.12)	1.6%	$ (12,406.00)	1.6%	11.2%
2022	3	$ (11,335.70)	1.6%	$ (12,604.10)	1.6%	11.2%
2022	4	$ (11,515.31)	1.6%	$ (12,806.48)	1.6%	11.2%
2023	1	$ (11,691.86)	1.5%	$ (13,013.12)	1.6%	11.3%
2023	2	$ (11,866.39)	1.5%	$ (13,224.71)	1.6%	11.4%
2023	3	$ (12,038.96)	1.5%	$ (13,438.88)	1.6%	11.6%
2023	4	$ (12,210.94)	1.4%	$ (13,655.95)	1.6%	11.8%

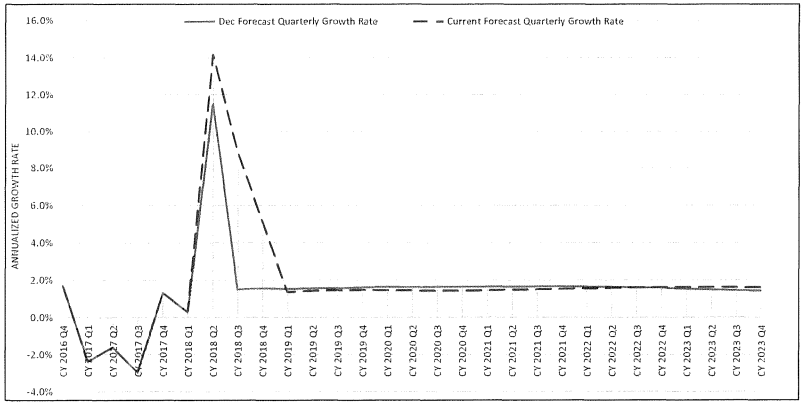
Fiscal Year

FY	Dec 2018 Forecast	Dec Forecast Annualized Growth Rate	Current Forecast	Current Forecast Growth Rate	Percent Change Dec to Current
FY 2017	$ (8,017.58)		$ (8,017.58)		
FY 2018	$ (7,933.92)	-1.0%	$ (7,985.58)	-0.4%	0.7%
FY 2019	$ (8,974.70)	13.1%	$ (10,101.56)	26.5%	12.6%
FY 2020	$ (9,557.43)	6.5%	$ (10,787.69)	6.8%	12.9%
FY 2021	$ (10,199.84)	6.7%	$ (11,423.54)	5.9%	12.0%
FY 2022	$ (10,889.05)	6.8%	$ (12,124.23)	6.1%	11.3%
FY 2023	$ (11,602.32)	6.6%	$ (12,912.10)	6.5%	11.3%

Annualized growth rate



Quarterly growth rate



Utility Receipts Tax (Dec 18 Methodology)

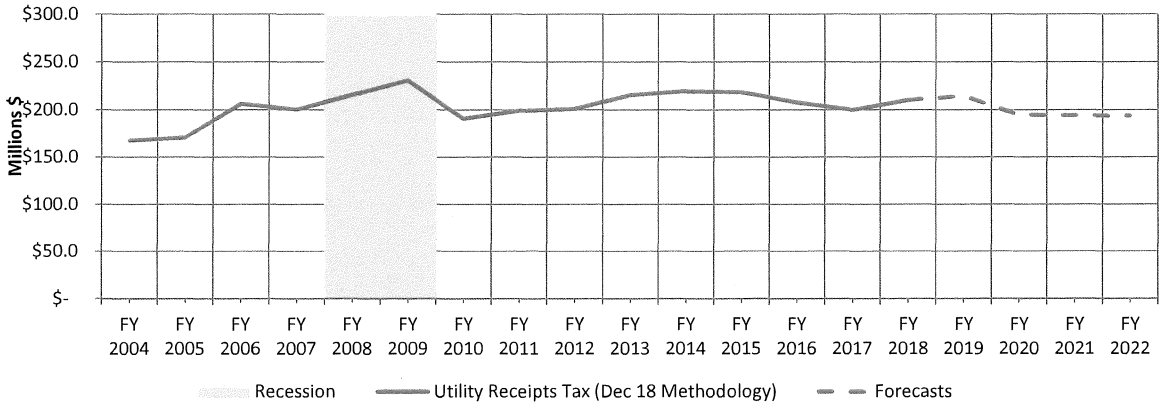
	Historical Revenue	Growth Rate
FY 2004	167,401,147	
FY 2005	170,814,580	2.04%
FY 2006	206,380,068	20.82%
FY 2007	200,304,992	-2.94%
FY 2008	215,332,646	7.50%
FY 2009	230,660,978	7.12%
FY 2010	190,494,706	-17.41%
FY 2011	199,072,349	4.50%
FY 2012	201,016,866	0.98%
FY 2013	215,467,972	7.19%
FY 2014	219,406,900	1.83%
FY 2015	218,597,068	-0.37%
FY 2016	207,762,232	-4.96%
FY 2017*	200,087,040	-3.69%
FY 2018*	210,208,879	5.06%
FY 2019 (December 2018 Forecast)	***194,703,256***	

**FY 2018 and FY 2017 Actual collecctd amount is $195.2M and $185M respectively. The above mentioned amount includes $15M of Duke Energy Coal Gasification Credit and is backed it out of the projected forecast.*

December 2018 Forcast Methodology	
Average Compounded Growth From FY08 to FY18	-0.24%

Forecasts	
FY 2019	214,703,256
FY 2020	194,703,256
FY 2021	194,234,929

March Year to Date	
FY 2018	79,740,694
FY 2019	112,930,619
Diff:	33,189,925
	41.62%



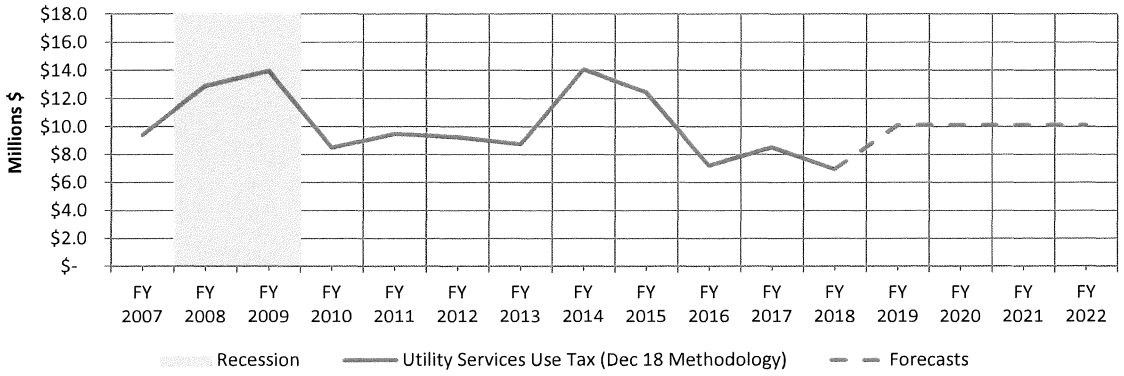
Utility Services Use Tax (Dec 18 Methodology)

	Historical Revenue	Growth Rate
FY 2007	9,405,845	
FY 2008	12,917,656	37.34%
FY 2009	13,944,153	7.95%
FY 2010	8,492,583	-39.10%
FY 2011	9,495,556	11.81%
FY 2012	9,264,867	-2.43%
FY 2013	8,743,620	-5.63%
FY 2014	14,084,704	61.09%
FY 2015	12,453,417	-11.58%
FY 2016	7,213,956	-42.07%
FY 2017	8,526,299	18.19%
FY 2018	6,940,293	-18.60%
FY 2019 (December 2018 Forecast)	***10,123,579***	

December 2018 Forecast Methodology	
Mean for the Entire Series	10,123,579

Forecasts	
FY 2019	10,123,579
FY 2020	10,123,579
FY 2021	10,123,579

March Year to Date	
FY 2018	5,724,824
FY 2019	4,668,053
Diff:	(1,056,771)
	-18.46%



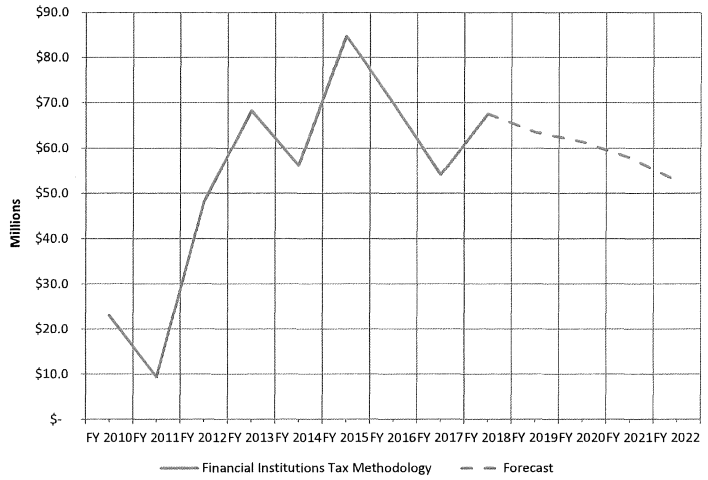
Financial Institutions Tax Methodology

	Total Revenue	Annual Growth Rate	General Fund Revenue	Annual Growth Rate
FY 2010	71,236,404		23,124,872	
FY 2011	55,564,289	-22.0%	9,419,666	-59.3%
FY 2012	94,212,629	69.6%	48,233,472	412.1%
FY 2013	112,806,304	19.7%	68,354,690	41.7%
FY 2014	102,391,596	-9.2%	56,213,312	-17.8%
FY 2015	125,795,369	22.9%	84,838,731	50.9%
FY 2016	120,198,273	-4.4%	69,880,125	-17.6%
FY 2017	100,966,458	-16.0%	54,197,380	-22.4%
FY 2018	105,943,674	4.9%	67,599,315	24.7%
	FY 2019 (December 2018 Forecast)		***63,606,952***	

	Assumed FY Tax Rate	Implied Total Tax Base	Annual Growth Rate
FY 2010	8.50%	838,075,345	
FY 2011	8.50%	653,697,516	-22.0%
FY 2012	8.50%	1,108,383,871	69.6%
FY 2013	8.50%	1,327,132,989	19.7%
FY 2014	8.25%	1,241,110,255	-6.5%
FY 2015	7.75%	1,623,166,051	30.8%
FY 2016	7.25%	1,657,907,209	2.1%
FY 2017	6.75%	1,495,799,378	-9.8%
FY 2018	6.50%	1,629,902,677	9.0%
FY 2019 (December 2018 Forecast)		***$1,662,500,730***	

	Total Revenue Fiscal Year to Date Through March	Assumed Tax Rate	Implied Base Fiscal YTD	Annual Growth Rate
FY 2018	30,315,314	6.50%	466,389,446	
FY 2019	30,307,321	6.38%	475,408,957	1.9%

December 2018 Forecast Methodology	
Assumed Base Growth	2.0%



	Forecast				
	Calculated Base Using FY18 Base and Growth Rate	Assumed Tax Rate	Total Revenue	Local Units (40% of prior year FY collections)	General Fund
FY 2019	1,662,500,730	6.38%	105,984,422	42,377,470	63,606,952
FY 2020	1,695,750,745	6.13%	103,864,733	42,393,769	61,470,964
FY 2021	1,729,665,760	5.75%	99,455,781	41,545,893	57,909,888

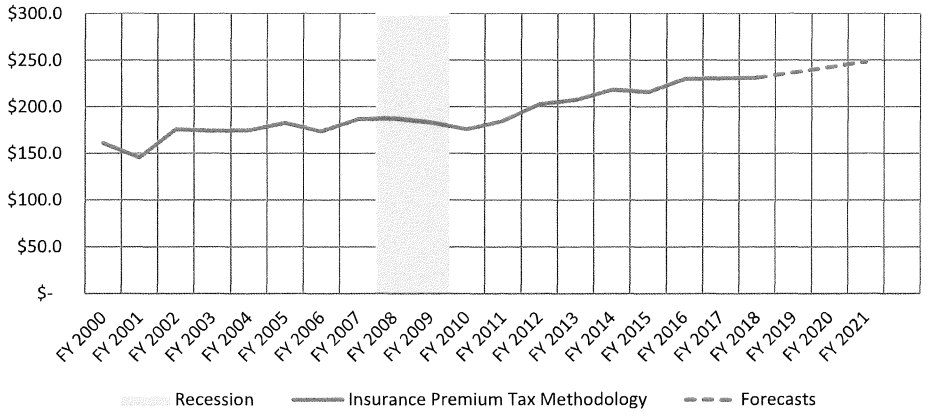
Insurance Premium Tax Methodology

	Historical Revenue	Growth Rate
FY 2000	161,140,173	
FY 2001	145,754,795	-9.55%
FY 2002	176,154,437	20.86%
FY 2003	174,494,076	-0.94%
FY 2004	175,095,400	0.34%
FY 2005	183,064,657	4.55%
FY 2006	174,108,929	-4.89%
FY 2007	187,070,368	7.44%
FY 2008	188,041,675	0.52%
FY 2009	183,654,736	-2.33%
FY 2010	176,468,590	-3.91%
FY 2011	185,438,507	5.08%
FY 2012	203,122,596	9.54%
FY 2013	207,774,580	2.29%
FY 2014	218,484,564	5.15%
FY 2015	216,271,575	-1.01%
FY 2016	230,035,310	6.36%
FY 2017	230,561,451	0.23%
FY 2018	231,532,665	0.42%
FY 2019 (December 2018 Forecast)	***237,098,173***	

December 2018 Forecast Methodology	
Average Compounded Growth From FY06 to FY18	2.40%

March Year to Date	
FY 2018	139,359,231
FY 2019	148,173,476
Diff:	8,814,245
	6.32%

Forecasts	
FY 2019	237,098,173
FY 2020	242,797,462
FY 2021	248,633,749



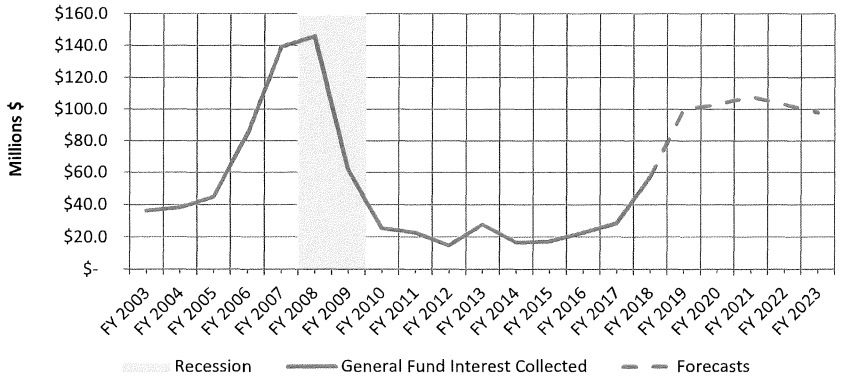
General Fund Interest Collected

	Historical Revenue	10-Yr Treasury Rate
FY 2003	36,175,769	3.95%
FY 2004	38,288,796	4.29%
FY 2005	44,850,701	4.23%
FY 2006	84,547,067	4.59%
FY 2007	139,231,212	4.76%
FY 2008	145,975,071	4.14%
FY 2009	61,897,626	3.29%
FY 2010	25,396,743	3.55%
FY 2011	22,882,494	3.08%
FY 2012	14,725,278	2.08%
FY 2013	27,715,294	1.82%
FY 2014	16,772,997	2.71%
FY 2015	17,236,806	2.23%
FY 2016	22,760,407	2.02%
FY 2017	28,376,239	2.10%
FY 2018	57,107,129	2.57%
FY 2019 (December 2018 Forecast)	***62,000,000***	

Yield on 10-year treasury notes	
FY 2019	2.80%
FY 2020	2.82%
FY 2021	3.05%
FY 2022	3.19%

March Year to Date	
FY 2018	38,277,573
FY 2019	82,255,079
Diff	43,977,506
	114.89%

Forecasts	
FY 2019	100,000,000
FY 2020	103,000,000
FY 2021	108,000,000
FY 2022	103,000,000
FY 2023	98,000,000



MVET & CVET
UPDATED: 04/11/2019

DEC 2017 METHODOLOGY

ACTUALS

MVET					CVET				MVET & CVET TOTAL				
	Current Year	Spillover Prior FY $	Prior Year (LaPorte)	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	Prior Year (LaPorte)	TOTAL
FY 2012	179,517,719	24,169,024	-	203,686,743	FY 2012	18,208,371	-	18,208,371	FY 2012	197,726,090	24,169,024	-	221,895,114
FY 2013	193,433,372	23,721,395	7,144,043	224,298,810	FY 2013	18,251,532	-	18,251,532	FY 2013	211,684,904	23,721,395	7,144,043	242,550,342
FY 2014	208,193,844	17,338,005	7,075,110	232,606,958	FY 2014	17,688,826	-	17,688,826	FY 2014	225,882,670	17,338,005	7,334,689	250,555,363
FY 2015	211,768,308	6,334,917	-	218,103,225	FY 2015	18,162,171	-	18,162,171	FY 2015	229,930,479	6,334,917	-	236,265,396
FY 2016	220,459,985	9,053,998	-	229,513,983	FY 2016	18,162,171	-	18,162,171	FY 2016	238,622,156	9,053,998	-	247,676,154
FY 2017	228,744,087	665,442	-	229,409,529	FY 2017	16,856,475	-	16,856,475	FY 2017	245,600,562	665,442	-	246,266,004
FY 2018	249,713,191	-	-	249,713,191	FY 2018	16,346,934	-	16,346,934	FY 2018	266,060,125	-	-	266,060,125

FY19 - FY21 FORECAST

MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	249,713,191	-	249,713,191	FY 2019	16,346,934	-	16,346,934	FY 2019	266,060,125	-	266,060,125
FY 2020	249,713,191	-	249,713,191	FY 2020	16,346,934	-	16,346,934	FY 2020	266,060,125	-	266,060,125
FY 2021	249,713,191	-	249,713,191	FY 2021	16,346,934	-	16,346,934	FY 2021	266,060,125	-	266,060,125

EXCISE CORRECTION

MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	-	-	-	FY 2019	-	-	-	FY 2019	-	-	-
FY 2020	-	-	-	FY 2020	-	-	-	FY 2020	-	-	-
FY 2021	-	-	-	FY 2021	-	-	-	FY 2021	-	-	-

ADJUSTED FY19 - FY21 FORECAST

MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	249,713,191	-	249,713,191	FY 2019	16,346,934	-	16,346,934	FY 2019	266,060,125	-	266,060,125
FY 2020	249,713,191	-	249,713,191	FY 2020	16,346,934	-	16,346,934	FY 2020	266,060,125	-	266,060,125
FY 2021	249,713,191	-	249,713,191	FY 2021	16,346,934	-	16,346,934	FY 2021	266,060,125	-	266,060,125

MVET NOTE: The MVET spillover amount into FY 2019 is $0. The forecasted spillover amounts for FY 2019 through FY 2021 are flat-lined at FY 2018 levels.

CVET NOTE: CVET forecasts amounts for FY 2019 through FY 2021 are flat-lined at FY 2018 levels.

EXCISE CORRECTION: Nothing to paid in FY 2019.

MVET & CVET MVET
UPDATED: 04/11/2019 CAGR 2012-18 3.492%

CURRENT METHODOLOGY

ACTUALS

MVET					CVET				MVET & CVET TOTAL				
	Current Year	Spillover Prior FY $	Prior Year (LaPorte)	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	Prior Year (LaPorte)	TOTAL
FY 2012	179,517,719	24,169,024	-	203,686,743	FY 2012	18,208,371	-	18,208,371	FY 2012	197,726,090	24,169,024	-	221,895,114
FY 2013	193,433,372	23,721,395	7,144,043	224,298,810	FY 2013	18,251,532	-	18,251,532	FY 2013	211,684,904	23,721,395	7,144,043	242,550,342
FY 2014	208,193,844	17,338,005	7,075,110	232,606,958	FY 2014	17,688,826	-	17,688,826	FY 2014	225,882,670	17,338,005	7,334,689	250,555,363
FY 2015	211,768,308	6,334,917	-	218,103,225	FY 2015	18,162,171	-	18,162,171	FY 2015	229,930,479	6,334,917	-	236,265,396
FY 2016	220,459,985	9,053,998	-	229,513,983	FY 2016	18,162,171	-	18,162,171	FY 2016	238,622,156	9,053,998	-	247,676,154
FY 2017	228,744,087	665,442	-	229,409,529	FY 2017	16,856,475	-	16,856,475	FY 2017	245,600,562	665,442	-	246,266,004
FY 2018	249,713,191	-	-	249,713,191	FY 2018	16,346,934	-	16,346,934	FY 2018	266,060,125	-	-	266,060,125

FY19 - FY21 FORECAST

MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	258,432,532	-	258,432,532	FY 2019	16,346,934	-	16,346,934	FY 2019	274,779,466	-	274,779,466
FY 2020	267,456,330	-	267,456,330	FY 2020	16,346,934	-	16,346,934	FY 2020	283,803,264	-	283,803,264
FY 2021	276,795,216	-	276,795,216	FY 2021	16,346,934	-	16,346,934	FY 2021	293,142,150	-	293,142,150

EXCISE CORRECTION

MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	-	-	-	FY 2019	-	-	-	FY 2019	-	-	-
FY 2020	-	-	-	FY 2020	-	-	-	FY 2020	-	-	-
FY 2021	-	-	-	FY 2021	-	-	-	FY 2021	-	-	-

ADJUSTED FY19 - FY21 FORECAST

MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	258,432,532	-	258,432,532	FY 2019	16,346,934	-	16,346,934	FY 2019	274,779,466	-	274,779,466
FY 2020	267,456,330	-	267,456,330	FY 2020	16,346,934	-	16,346,934	FY 2020	283,803,264	-	283,803,264
FY 2021	276,795,216	-	276,795,216	FY 2021	16,346,934	-	16,346,934	FY 2021	293,142,150	-	293,142,150

MVET NOTE: The MVET spillover amount into FY 2019 is $0. The forecasted spillover amounts for FY 2019 through FY 2021 are flat-lined at FY 2018 levels.

CVET NOTE: CVET forecasts amounts for FY 2019 through FY 2021 are flat-lined at FY 2018 levels.

EXCISE CORRECTION: Nothing to paid in FY 2019.

FY 2019 - 2021 MISCELLANEOUS REVENUE FORECAST

					FORECAST				
REVENUE TYPE	FY 2016	FY 2017	FY 2018	FY 2019 YTD (July - March)	FY 2019	FY 2020	FY 2021	Method	Notes
15% OF AGR TO GF	-	-	-	-	-	-	-	FY18 Value	
ABANDONED PROPERTY	25.00	25.00	36.50	-	25.00	25.00	25.00	FY18 Value	$25 million is an Attorney General office estimate
BUSINESS AND PERSONAL LICENSES	24.79	20.35	31.03	6.73	27.91	16.79	26.35	Cyclical Average of Every Other Year	Two year renewal on some licenses.
CHARITY/TYPE II GAMING	0.44	0.48	0.51	0.41	0.49	0.49	0.49	Two year Average	
COURT FEES, FINES & PENALTIES	51.25	49.51	47.76	39.59	47.76	47.76	47.76	FY18 Value	
EXAMINATION FEES	0.01	-	-	-	0.00	0.00	0.00	Two year Average	Board of Accounts Exam Fees are decreasing
FEDERAL SWCAP	7.91	6.80	6.58	5.19	6.58	6.58	6.58	FY18 Value	
LAKE COUNTY CREDITS	4.31	6.29	7.71	4.75	4.10	4.10	4.10	LSA	
MISCELLANEOUS RECEIPTS	8.04	0.30	0.14	0.50	0.22	0.22	0.22	Two year Average	
NON-BUSINESS LICENSES	0.02	0.02	0.03	0.02	0.02	0.02	0.02	Two year Average	
OTHER FEDERAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Two year Average	Less FED grant revenue
OTHER FEES	38.31	37.62	37.07	23.24	37.35	37.35	37.35	Two year Average	
OTHER TAXES	3.89	3.41	3.71	2.30	3.56	3.56	3.56	Two year Average	
PERMITS	3.76	3.77	3.79	2.12	3.78	3.78	3.78	Two year Average	
RENTAL OF PROPERTIES	0.20	0.45	0.35	0.21	0.40	0.40	0.40	Two year Average	
STATE SALES	0.19	0.03	0.02	0.06	0.02	0.02	0.02	FY18 Value	
TOTAL	**168.1**	**154.03**	**175.20**	**85.12**	**157.2**	**146.08**	**155.63**		
			FY 2019 (December 2018) Forecast		***157.2***				

MVET & CVET MVET
UPDATED: 04/11/2019 CAGR 2012-18 3.492%

ALTERNATIVE METHODOLOGY

ACTUALS

	MVET				CVET				MVET & CVET TOTAL			
	Current Year	Spillover Prior FY $	Prior Year (LaPorte)	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	Prior Year (LaPorte)	TOTAL
FY 2012	179,517,719	24,169,024	-	203,686,743	FY 2012	18,208,371	-	18,208,371	FY 2012	197,726,090	24,169,024	-	221,895,114
FY 2013	193,433,372	23,721,395	7,144,043	224,298,810	FY 2013	18,251,532	-	18,251,532	FY 2013	211,684,904	23,721,395	7,144,043	242,550,342
FY 2014	208,193,844	17,338,005	7,075,110	232,606,958	FY 2014	17,688,826	-	17,688,826	FY 2014	225,882,670	17,338,005	7,334,689	250,555,363
FY 2015	211,768,308	6,334,917	-	218,103,225	FY 2015	18,162,171	-	18,162,171	FY 2015	229,930,479	6,334,917	-	236,265,396
FY 2016	220,459,985	9,053,998	-	229,513,983	FY 2016	18,162,171	-	18,162,171	FY 2016	238,622,156	9,053,998	-	247,676,154
FY 2017	228,744,087	665,442	-	229,409,529	FY 2017	16,856,475	-	16,856,475	FY 2017	245,600,562	665,442	-	246,266,004
FY 2018	249,713,191	-	-	249,713,191	FY 2018	16,346,934	-	16,346,934	FY 2018	266,060,125	-	-	266,060,125

FY19 - FY21 FORECAST

	MVET			CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	258,432,532	-	258,432,532	FY 2019	16,346,934	-	16,346,934	FY 2019	274,779,466	-	274,779,466
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FY 2021	276,795,216	-	276,795,216	FY 2021	16,346,934	-	16,346,934	FY 2021	293,142,150	-	293,142,150

EXCISE CORRECTION

	MVET			CVET				MVET & CVET TOTAL			
	Current Year	Spillover1 Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL		Current Year	Spillover Prior FY $	TOTAL
FY 2019	-	-	-	FY 2019	-	-	-	FY 2019	-	-	-
FY 2020	-	-	-	FY 2020	-	-	-	FY 2020	-	-	-
FY 2021	-	-	-	FY 2021	-	-	-	FY 2021	-	-	-

ADJUSTED FY19 - FY21 FORECAST

	MVET			CVET				MVET & CVET TOTAL			
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FY 2019	258,432,532	-	258,432,532	FY 2019	16,346,934	-	16,346,934	FY 2019	274,779,466	-	274,779,466
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FY 2021	276,795,216	-	276,795,216	FY 2021	16,346,934	-	16,346,934	FY 2021	293,142,150	-	293,142,150

MVET NOTE: The MVET spillover amount into FY 2019 is $0. The forecasted spillover amounts for FY 2019 through FY 2021 are flat-lined at FY 2018 levels.

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EXCISE CORRECTION: Nothing to paid in FY 2019.

FY 2019 - 2021 MISCELLANEOUS REVENUE FORECAST

					FORECAST				
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COURT FEES, FINES & PENALTIES	51.25	49.51	47.76	39.59	47.76	47.76	47.76	FY18 Value	
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FEDERAL SWCAP	7.91	6.80	6.58	5.19	6.58	6.58	6.58	FY18 Value	
LAKE COUNTY CREDITS	4.31	6.29	7.71	4.75	4.10	4.10	4.10	LSA	
MISCELLANEOUS RECEIPTS	8.04	0.30	0.14	0.50	0.22	0.22	0.22	Two year Average	
NON-BUSINESS LICENSES	0.02	0.02	0.03	0.02	0.02	0.02	0.02	Two year Average	
OTHER FEDERAL	0.00	0.00	0.00	0.00	0.00	0.00	0.00	Two year Average	Less FED grant revenue
OTHER FEES	38.31	37.62	37.07	23.24	37.35	37.35	37.35	Two year Average	
OTHER TAXES	3.89	3.41	3.71	2.30	3.56	3.56	3.56	Two year Average	
PERMITS	3.76	3.77	3.79	2.12	3.78	3.78	3.78	Two year Average	
RENTAL OF PROPERTIES	0.20	0.45	0.35	0.21	0.40	0.40	0.40	Two year Average	
STATE SALES	0.19	0.03	0.02	0.06	0.02	0.02	0.02	FY18 Value	
TOTAL	**168.1**	**154.03**	**175.20**	**85.12**	**157.2**	**146.08**	**155.63**		
			FY 2019 (December 2018) Forecast		***157.2***				

RIVERBOAT AND RACINO FORECAST - APR 18.3

Indiana Quarterly AGR = -42,568,877 +3,336 (Q_IPI) - 32,135,212 (Q4 Dummy) + 641,635,103 (FW Dummy) + 59,938,029 (Racino Dummy) - 0.56 (Ohio AGR) -3,146 (FW Dummy*IPI)

Period	Total AGR	IPI (in $mil)	Q4 Dummy	FW Dummy	Racinos	Ohio AGR Competition	IPI*FWinds	Estimation
(2002 Q3 : 2018 Q2)								
2007:3	669,706,633	216,148	0	0.67	0	0	144,819	*IN Sample*
2007:4	605,340,091	218,552	1	1	0	0	218,552	*IN Sample*
2008:1	635,114,158	222,725	0	1	0	0	222,725	*IN Sample*
2008:2	659,518,798	231,086	0	1	0.33	0	231,086	*IN Sample*
2008:3	708,951,139	226,130	0	1	1	0	226,130	*IN Sample*
2008:4	664,461,473	223,430	1	1	1	0	223,430	*IN Sample*
2009:1	713,967,664	218,346	0	1	1	0	218,346	*IN Sample*
2009:2	714,834,115	219,094	0	1	1	0	219,094	*IN Sample*
2009:3	710,858,996	218,826	0	1	1	0	218,826	*IN Sample*
2009:4	659,197,107	222,584	1	1	1	0	222,584	*IN Sample*
2010:1	705,009,228	224,192	0	1	1	0	224,192	*IN Sample*
2010:2	709,112,945	228,551	0	1	1	0	228,551	*IN Sample*
2010:3	712,304,695	231,034	0	1	1	0	231,034	*IN Sample*
2010:4	667,781,556	234,132	1	1	1	0	234,132	*IN Sample*
2011:1	695,373,942	239,612	0	1	1	0	239,612	*IN Sample*
2011:2	696,270,032	242,539	0	1	1	0	242,539	*IN Sample*
2011:3	688,843,666	247,142	0	1	1	0	247,142	*IN Sample*
2011:4	650,439,270	248,912	1	1	1	0	248,912	*IN Sample*
2012:1	705,147,536	251,763	0	1	1	0	251,763	*IN Sample*
2012:2	677,800,091	255,515	0	1	1	33,918,719	255,515	*IN Sample*
2012:3	676,060,728	256,030	0	1	1	90,692,672	256,030	*IN Sample*
2012:4	624,787,212	261,722	1	1	1	128,826,717	261,722	*IN Sample*
2013:1	653,351,206	259,355	0	1	1	159,549,630	259,355	*IN Sample*
2013:2	621,670,088	259,444	0	1	1	188,103,565	259,444	*IN Sample*
2013:3	609,106,600	259,696	0	1	1	186,468,131	259,696	*IN Sample*
2013:4	564,493,731	259,605	1	1	1	184,619,700	259,605	*IN Sample*
2014:1	552,013,699	263,342	0	1	1	212,850,668	263,342	*IN Sample*
2014:2	571,604,784	268,427	0	1	1	224,479,041	268,427	*IN Sample*
2014:3	561,134,246	271,736	0	1	1	234,203,248	271,736	*IN Sample*
2014:4	546,080,494	274,866	1	1	1	237,225,395	274,866	*IN Sample*
2015:1	551,545,412	275,836	0	1	1	248,654,369	275,836	*IN Sample*
2015:2	562,374,675	278,919	0	1	1	259,876,226	278,919	*IN Sample*
2015:3	556,580,267	280,851	0	1	1	256,532,388	280,851	*IN Sample*
2015:4	545,094,734	283,214	1	1	1	256,515,448	283,214	*IN Sample*
2016:1	574,153,339	284,239	0	1	1	268,839,479	284,239	*IN Sample*
2016:2	552,823,438	287,309	0	1	1	267,332,733	287,309	*IN Sample*
2016:3	555,214,448	290,629	0	1	1	258,367,088	290,629	*IN Sample*
2016:4	533,813,247	294,480	1	1	1	254,770,097	294,480	*IN Sample*
2017:1	569,598,758	297,832	0	1	1	278,541,284	297,832	*IN Sample*
2017:2	561,547,759	299,318	0	1	1	279,869,176	299,318	*IN Sample*
2017:3	562,351,387	301,995	0	1	1	276,712,948	301,995	*IN Sample*
2017:4	546,395,038	304,887	1	1	1	272,542,601	304,887	*IN Sample*
2018:1	559,768,485	309,655	0	1	1	285,497,409	309,655	*IN Sample*
2018:2	573,207,568	309,760	0	1	1	292,484,061	309,760	*IN Sample*
2018:3	555,869,743	312,472	0	1	1	290,548,637	312,472	*IN Sample*
2018:4	544,522,117	316,715	1	1	1	272,542,601	316,715	*IN Sample*

Durbin-Watson	1.47
Predictors	6
Obs.	66
dL	1.40
dU	1.80

Error Statistics on Quarterly AGR	
RMSE	13,588,410
MAE	11,223,295
MAPE	1.84%

Comments:
10% increase in personal income would result in 1% increase in AGR.
Half of racino revenues are cannibilized from other Indiana facilities.
56% of Ohio competion's AGR is cannibilized from Indiana facilities.

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.97319
R Square	0.94709
Adjusted R Square	0.94171
Standard Error	14,371,914
Observations	66

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	2.18151E+17	3.6359E+16	176.026162	9.54285E-36
Residual	59	1.21866E+16	2.0655E+14		
Total	65	2.30338E+17			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-42,568,877	51,522,181	-0.83	0.4120	-145,664,523	60,526,769	-145,664,523	60,526,769
IPI (in millions)	3,336	263	12.68	0.0000	2,809	3,863	2,809	3,863
Q4 Dummy	-32,135,212	4,059,392	-7.92	0.0000	-40,258,036	-24,012,387	-40,258,036	-24,012,387
Four Winds Dummy	641,635,103	67,340,190	9.53	0.0000	506,887,693	776,382,513	506,887,693	776,382,513
Racinos	59,938,029	9,446,180	6.35	0.0000	41,036,267	78,839,790	41,036,267	78,839,790
Ohio Competion AGR	-0.56	0.047	-11.80	0.0000	-0.654	-0.464	-0.654	-0.464
IPI*FourWinds	-3,146	327	-9.62	0.0000	-3,801	-2,492	-3,801	-2,492

2018Q3 - 2019Q2	1,117,275,361
2019Q3 - 2020Q2	2,218,257,263
2020Q3 - 2021Q3	2,228,395,987

		Base Forecast			Adjustments				Taxable AGR		
Riverboat	AGR Distribution by Riverboat	FY 2019	FY 2020	FY 2021	FY 2019	FY 2020	FY 2021	FY19 Q1Q2	FY 2019	FY 2020	FY 2021
Hollywood	7.7%	85,567,712	169,887,574	170,664,059	(7,000,000)	(7,000,000)	(7,000,000)	84,292,925	162,860,637	162,887,574	163,664,059
Belterra	5.1%	56,616,374	112,407,101	112,920,866	(7,000,000)	(7,000,000)	(7,000,000)	55,336,421	104,952,795	105,407,101	105,920,866
Blue Chip	7.2%	80,639,551	160,103,121	160,834,885	(7,000,000)	(7,000,000)	(7,000,000)	76,720,262	150,359,813	153,103,121	153,834,885
Horseshoe S. IN	11.2%	124,660,353	247,502,760	248,633,991	(7,000,000)	(7,000,000)	(7,000,000)	117,073,674	234,734,027	240,502,760	241,633,991
Tropicana	5.8%	64,619,581	128,296,802	128,883,192	2,692,937	12,244,520	12,332,479	73,911,565	141,224,083	140,541,322	141,215,671
Grand Victoria	2.4%	26,560,422	52,733,509	52,974,531	(7,000,000)	(7,000,000)	(7,000,000)	25,153,510	44,713,932	45,733,509	45,974,531
Ameristar	9.8%	109,941,573	218,279,847	219,277,512	(7,000,000)	(7,000,000)	(7,000,000)	111,411,398	214,352,971	211,279,847	212,277,512
Horseshoe	18.3%	203,971,540	404,968,524	406,819,466	(7,000,000)	(7,000,000)	(7,000,000)	191,760,175	388,731,715	397,968,524	399,819,466
Majestic Star I	4.1%	45,819,886	90,971,572	91,387,364	(7,000,000)	(7,000,000)	(7,000,000)	42,839,638	81,659,524	83,971,572	84,387,364
Majestic Star II	2.8%	31,200,705	61,946,405	62,229,536	(7,000,000)	(7,000,000)	(7,000,000)	29,911,891	54,112,596	54,946,405	55,229,536
French Lick	4.1%	46,133,825	91,594,872	92,013,514	(7,000,000)	(7,000,000)	(7,000,000)	48,922,043	88,055,868	84,594,872	85,013,514
Hoosier Park	9.4%	105,250,755	208,966,617	209,921,716	(32,546,935)	(32,075,994)	(32,190,606)	107,640,374	180,344,193	176,890,623	177,731,110
Indiana Live	12.2%	136,293,074	270,598,561	271,835,353	(39,605,327)	(39,471,827)	(39,620,242)	135,417,984	232,105,731	231,126,733	232,215,111
Total		1,117,275,361	2,218,257,263	2,228,395,987	(139,459,325)	(129,303,301)	(129,478,369)	1,100,391,860	2,078,207,886	2,088,953,962	2,098,917,618

RIVERBOAT AND RACINO FORECAST - APR 18.3

ADJUSTED AGR-DEC 2018 FORECAST	REPORTED AGR	YOY Change	YOY Percent Change
FY 2014 AGR	2,297,218,814	-278,650,419	-10.8%
FY 2015 AGR	2,221,134,827	-76,083,987	-3.3%
FY 2016 AGR	2,228,651,778	7,516,951	0.3%
FY 2017 AGR	2,220,174,212	-8,477,566	-0.4%
FY 2018 AGR	2,241,722,478	21,548,266	1.0%
FY 2019 AGR	2,238,446,883	-3,275,595	-0.1%
FY 2020 AGR	2,237,501,783	-945,100	0.0%
FY 2021 AGR	2,247,728,466	10,226,683	0.5%

GENERAL FUND WAGERING TAX FORECAST	Actual GF Wagering Tax	YOY Change	YOY % Change
FY 2018 Actual	432,165,366	539,515	0.1%
FY 2019 (forecast)	434,154,209	1,988,843	0.5%
FY 2020 (forecast)	437,862,236	3,708,027	0.9%
FY 2021 (forecast)	440,895,643	3,033,407	0.7%

Riverboat to GF			
FY 2016 Actual	330,041,387	-6,181,830	-1.8%
FY 2017 Actual	317,596,400	-12,444,987	-3.8%
FY 2018 Actual	317,322,674	-273,726	-0.1%
FY 2019 (forecast)	**318,813,945**	**1,491,271**	**0.5%**
FY 2020 (forecast)	**323,900,693**	**5,086,747**	**1.6%**
FY 2021 (forecast)	**326,301,021**	**2,400,328**	**0.7%**
Racino to GF			
FY 2016 Actual	110,890,616	341,198	0.3%
FY 2017 Actual	114,029,451	3,138,835	2.8%
FY 2018 Actual	114,842,692	813,241	0.7%
FY 2019 (forecast)	**115,340,264**	**497,572**	**0.4%**
FY 2020 (forecast)	**113,961,544**	**-1,378,720**	**-1.2%**
FY 2021 (forecast)	**114,594,622**	**633,078**	**0.6%**

Freeplay Deduction
-65,000,000
-65,000,000
-91,000,000
-91,000,000
-91,000,000
-91,000,000
-91,000,000
-91,000,000

FINAL RESULTS - APRIL 2019 FORECAST

APRIL 2019 GAMING FORECAST (in $ Millions)

Fiscal Year	Riverboat Taxes	Wagering Taxes	Admissions Tax
FY 2019	$300.9	$113.3	$9.4
FY 2020	$306.0	$111.9	$9.3
FY 2021	$308.4	$112.5	$9.4

SOUTH BEND		
Adjustment	Adjusted Forecast	Diff From Dec 2018
-17,910,000	300,903,945	*1,361,125*
-17,910,000	305,990,693	*1,928,788*
-17,910,000	308,391,021	*2,571,412*

SOUTH BEND		
Adjustment	Adjusted Forecast	Diff From Dec 2018
-2,090,000	113,250,264	*1,270,951*
-2,090,000	111,871,544	*527,712*
-2,090,000	112,504,622	*679,886*

APRIL 2019 FORECAST RESULTS

ALCOHOLIC BEVERAGE TAX FORECAST & DISTRIBUTION

	ACTUAL	ACTUAL	ACTUAL	ACTUAL	FORECAST	FORECAST	FORECAST
in Mil $	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
GENERAL FUND	$17.5	$18.0	$18.4	$19.2	$20.0	$20.4	$20.9
POST WAR CONST. FUND	$19.3	$19.0	$19.5	$20.5	$21.3	$21.8	$22.3
ENFORCEMENT & ADMIN	$2.1	$3.7	$3.8	$3.8	$4.0	$4.1	$4.1
ADDICTION SERVICES	$3.1	$3.3	$3.3	$3.3	$3.4	$3.4	$3.5
PENSION RELIEF FUND	$3.6	$3.7	$3.9	$4.1	$4.3	$4.4	$4.5
WINE GRAPE FUND	$0.5	$0.6	$0.6	$0.6	$0.6	$0.7	$0.7
FY TOTAL	**$46.1**	**$48.3**	**$49.4**	**$51.6**	**$53.6**	**$54.8**	**$55.9**
Growth		*4.9%*	*2.3%*	*4.4%*	*3.9%*	*2.3%*	*2.0%*
December 2018 Forecast					$54.1	$55.8	$56.9
Difference from Dec 2018					-$0.6	-$0.9	-$1.0

in Mil $	FY 2015	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021
GENERAL FUND	$17.5	$18.0	$18.4	$19.2	$20.0	$20.4	$20.9
Diff from Dec 2018					*-$0.21*	*-$0.36*	*-$0.39*

BEER (GALLONS SOLD) — $0.115 per Gallon

log real fiscal year Indiana personal income
slope dummy, pre 1979=0, 1979 and after=log real IPI
slope dummy, pre 1993=0, 1993 and after=log real IPI
dummy, 1979 and after
dummy, 1993 and after
dummy, 2012 and after (to control for exceptional drop in beer consumption in 2012)

LIQUOR (GALLONS SOLD) — $2.68 per Gallon

log real fiscal year Indiana personal income
real price, not logged
slope dummy, pre 1999=0, 1999 and after=log real IPI
dummy, 1999 and after

WINE (GALLONS SOLD) — $0.47 per Gallon

log real fiscal year personal income, Indiana
real price, not logged
dummy, 1987 and after
dummy, 2012 and after (to control for exceptional slowdown in wine consumption in 2012)

BEER CONSUMPTION FORECAST

Regression Statistics	
Multiple R	0.9907
R Square	0.9815
Adjusted R Square	0.9791
Standard Error	0.0232
Observations	54

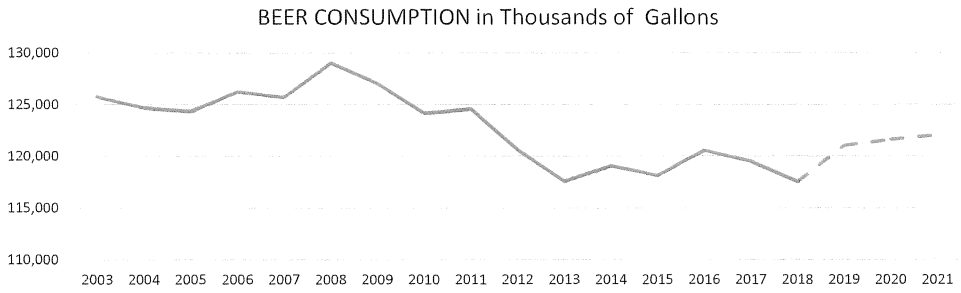
MAPE	**1.5%**

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	6	1.3359	0.2226	415.3457	0.0000
Residual	47	0.0252	0.0005		
Total	53	1.3611			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	1.4420	0.5543	2.6013	0.0124	0.3268	2.5572	0.3268	2.5572
LRFYPY	0.8693	0.0485	17.9241	0.0000	0.7717	0.9669	0.7717	0.9669
DSLOPE When Year > 1978	-0.8594	0.0759	-11.3264	0.0000	-1.0121	-0.7068	-1.0121	-0.7068
DSLOPE When Year > 1992	0.2205	0.0739	2.9829	0.0045	0.0718	0.3692	0.0718	0.3692
D =1 when Year > 1978	10.1469	0.8842	11.4760	0.0000	8.3681	11.9256	8.3681	11.9256
D =1 when Year > 1992	-2.6922	0.8854	-3.0405	0.0039	-4.4735	-0.9109	-4.4735	-0.9109
D =1 when Year > 2012	-0.0871	0.0146	-5.9671	0.0000	-0.1165	-0.0578	-0.1165	-0.0578

FISCAL YEAR	BEER CONSUMPTION (in 000's Gallons)	*Growth*
2003	125,757	
2004	124,707	*-0.8%*
2005	124,338	*-0.3%*
2006	126,268	*1.6%*
2007	125,741	*-0.4%*
2008	129,051	*2.6%*
2009	127,076	*-1.5%*
2010	124,167	*-2.3%*
2011	124,580	*0.3%*
2012	120,602	*-3.2%*
2013	117,524	*-2.6%*
2014	119,053	*1.3%*
2015	118,124	*-0.8%*
2016	120,569	*2.1%*
2017	119,492	*-0.9%*
2018	117,514	*-1.7%*
2019	121,052	*3.0%*
2020	121,651	*0.5%*
2021	122,103	*0.4%*



LIQUOR CONSUMPTION FORECAST

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9832
R Square	0.9666
Adjusted R Square	0.9639
Standard Error	0.0419
Observations	54

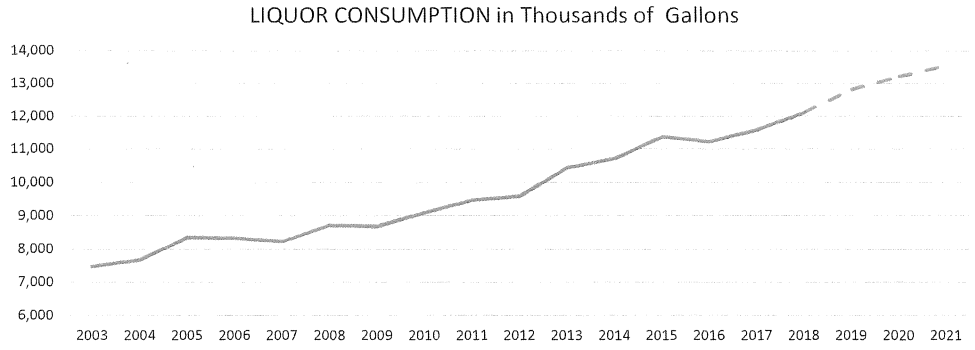
MAPE	**3.1%**

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	2.4900	0.6225	354.6673	0.0000
Residual	49	0.0860	0.0018		
Total	53	2.5760			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	16.4504	0.6579	25.0030	0.0000	15.1282	17.7725	15.1282	17.7725
LOG REAL FY IPI	-0.5605	0.0517	-10.8306	0.0000	-0.6644	-0.4565	-0.6644	-0.4565
REAL LIQUOR PRICE	-0.0780	0.0043	-18.2983	0.0000	-0.0866	-0.0694	-0.0866	-0.0694
DSLOPE When Year > 1998	1.9713	0.1126	17.5090	0.0000	1.7450	2.1975	1.7450	2.1975
D =1 when Year > 1998	-23.9557	1.3884	-17.2546	0.0000	-26.7457	-21.1656	-26.7457	-21.1656

FISCAL YEAR	LIQUOR CONSUMPTION (in 000's Gallons)	*Growth*
2003	7,475	
2004	7,664	*2.5%*
2005	8,357	*9.0%*
2006	8,327	*-0.4%*
2007	8,238	*-1.1%*
2008	8,711	*5.7%*
2009	8,678	*-0.4%*
2010	9,086	*4.7%*
2011	9,462	*4.1%*
2012	9,579	*1.2%*
2013	10,432	*8.9%*
2014	10,713	*2.7%*
2015	11,369	*6.1%*
2016	11,220	*-1.3%*
2017	11,577	*3.2%*
2018	12,123	*4.7%*
2019	12,813	*5.7%*
2020	13,207	*3.1%*
2021	13,544	*2.6%*



WINE CONSUMPTION FORECAST

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9499
R Square	0.9023
Adjusted R Square	0.8944
Standard Error	0.1615
Observations	54

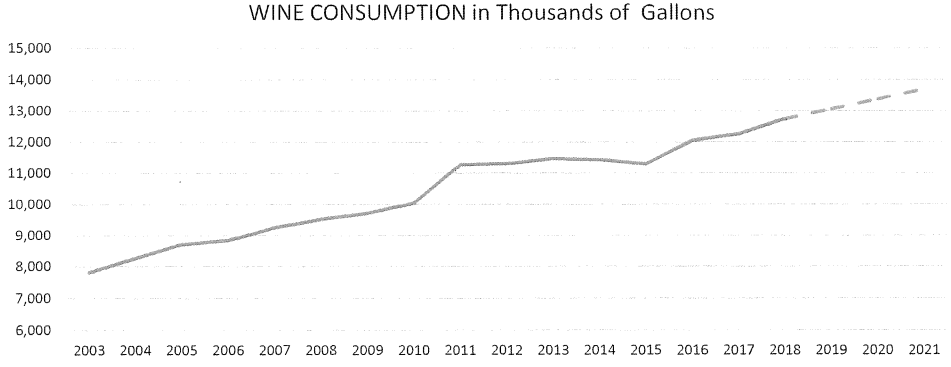
MAPE	**12.1%**

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	11.8052	2.9513	113.1959	0.0000
Residual	49	1.2775	0.0261		
Total	53	13.0827			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Upper 95.0%*
Intercept	-1.1583	2.4033	-0.4820	0.6320	-5.9879	3.6713	-5.9879	3.6713
LOG REAL FY IPI	1.0233	0.1683	6.0802	0.0000	0.6851	1.3616	0.6851	1.3616
REAL WINE PRICE	-0.4522	0.1259	-3.5926	0.0008	-0.7051	-0.1993	-0.7051	-0.1993
DUM87	-0.2747	0.0983	-2.7962	0.0074	-0.4722	-0.0773	-0.4722	-0.0773
DUM12	-0.1900	0.0923	-2.0593	0.0448	-0.3755	-0.0046	-0.3755	-0.0046

FISCAL YEAR	WINE CONSUMPTION (in 000's Gallons)	*Growth*
2003	7,806	
2004	8,271	*6.0%*
2005	8,711	*5.3%*
2006	8,847	*1.6%*
2007	9,253	*4.6%*
2008	9,521	*2.9%*
2009	9,713	*2.0%*
2010	10,045	*3.4%*
2011	11,280	*12.3%*
2012	11,305	*0.2%*
2013	11,469	*1.4%*
2014	11,430	*-0.3%*
2015	11,296	*-1.2%*
2016	12,047	*6.6%*
2017	12,254	*1.7%*
2018	12,739	*4.0%*
2019	13,066	*2.6%*
2020	13,380	*2.4%*
2021	13,699	*2.4%*



INDIANA - CIGARETTE TAX MODEL
UPDATED APR 2019

FISCAL YEAR	CIGARETTE PACKET SALES	2012 $ REAL INDIANA PERSONAL INCOME	2012 $ TOTAL REAL CIGARETTE PRICE (in Cents) IN INDIANA	2012 $ REAL CIGARETTE PRICE (in Cents) TOTAL OF ALL OF NEIGHBORS	LSALES	LRFY	LRPIN	LRPALL	TREND
1985	761.9	130,542.3	171.8	710.9	6.6	11.8	5.1	6.6	20
1986	751.0	133,323.0	176.7	747.3	6.6	11.8	5.2	6.6	21
1987	752.0	137,848.2	185.4	773.6	6.6	11.8	5.2	6.7	22
1988	750.7	143,020.6	196.6	802.8	6.6	11.9	5.3	6.7	23
1989	725.1	150,336.5	206.0	842.8	6.6	11.9	5.3	6.7	24
1990	720.4	153,170.1	218.5	899.8	6.6	11.9	5.4	6.8	25
1991	705.6	154,459.3	218.8	897.5	6.6	11.9	5.4	6.8	26
1992	696.9	158,636.0	240.4	1,017.9	6.5	12.0	5.5	6.9	27
1993	694.9	166,474.8	241.3	1,039.1	6.5	12.0	5.5	6.9	28
1994	711.0	171,667.5	219.2	936.9	6.6	12.1	5.4	6.8	29
1995	769.5	178,072.7	214.2	1,021.3	6.6	12.1	5.4	6.9	30
1996	769.5	182,164.5	212.2	1,027.1	6.6	12.1	5.4	6.9	31
1997	795.0	189,513.9	220.7	1,048.6	6.7	12.2	5.4	7.0	32
1998	787.6	199,044.4	232.3	1,075.2	6.7	12.2	5.4	7.0	33
1999	781.6	207,751.4	261.6	1,200.7	6.7	12.2	5.6	7.1	34
2000	758.7	215,891.0	352.5	1,565.2	6.6	12.3	5.9	7.4	35
2001	735.9	220,600.7	357.3	1,595.6	6.6	12.3	5.9	7.4	36
2002	747.3	218,745.6	392.2	1,730.6	6.6	12.3	6.0	7.5	37
2003	614.2	219,809.3	458.8	1,903.4	6.4	12.3	6.1	7.6	38
2004	588.7	222,795.5	442.9	1,882.6	6.4	12.3	6.1	7.5	39
2005	595.6	225,041.8	422.4	1,929.7	6.4	12.3	6.0	7.6	40
2006	617.3	228,888.1	416.2	2,002.5	6.4	12.3	6.0	7.6	41
2007	638.1	233,170.8	402.5	2,005.7	6.5	12.4	6.0	7.6	42
2008	510.7	237,949.5	468.0	2,027.9	6.2	12.4	6.1	7.6	43
2009	500.8	233,737.1	458.7	2,007.9	6.2	12.4	6.1	7.6	44
2010	460.0	234,285.4	532.5	2,356.3	6.1	12.4	6.3	7.8	45
2011	452.8	244,029.5	560.2	2,367.4	6.1	12.4	6.3	7.8	46
2012	428.3	253,172.0	554.3	2,358.8	6.1	12.4	6.3	7.8	47
2013	435.7	256,863.8	547.8	2,411.6	6.1	12.5	6.3	7.8	48
2014	419.7	255,807.4	540.7	2,419.4	6.0	12.5	6.3	7.8	49
2015	411.3	264,015.9	546.2	2,408.1	6.0	12.5	6.3	7.8	50
2016	416.5	269,678.6	543.2	2,459.1	6.0	12.5	6.3	7.8	51
2017	407.3	276,384.2	551.8	2,462.4	6.0	12.5	6.3	7.8	52
2018	390.5	280,901.9	549.0	2,444.8	6.0	12.5	6.3	7.8	53
2019	**378.1**	**285,739.4**	**548.1**	**2,483.2**	**5.9**	**12.6**	**6.3**	**7.8**	**54**
2020	**367.9**	**291,928.2**	**549.4**	**2,484.7**	**5.9**	**12.6**	**6.3**	**7.8**	**55**
2021	**354.3**	**296,667.5**	**556.4**	**2,510.3**	**5.9**	**12.6**	**6.3**	**7.8**	**56**

CIGARETTE TAX FORECAST RESULTS
UPDATED APR 2019

TOBACCO TAX REVENUE										TOTAL GROWTH	
in Millions	PACKETS SOLD	TAX 99.5c PER PACK	COLLECTION ALLOWANCE		NET CIGARETTE TAX TO STATE FUNDS	OTP TAXES FOR DISTRIBUTION SAME AS CIGARETTE	TOTAL DISTRIBUTION TO CIGARETTE FUNDS		OTP TAXES TO AFFORDABLE HOUSING	TOTAL TOBACCO TAX	% Growth
FY 2013	435.7	$433.5	$5.2		$428.3	$25.0	$453.3		$8.3	$461.6	1.2%
FY 2014	419.7	$417.6	$5.0		$412.5	$26.2	$438.8		$8.7	$447.5	-3.1%
FY 2015	411.3	$409.2	$4.9		$404.3	$26.2	$430.5		$8.7	$439.2	-1.9%
FY 2016	416.5	$414.5	$5.0		$409.5	$25.3	$434.8		$8.4	$443.2	0.9%
FY 2017	407.3	$405.3	$5.3		$400.0	$25.7	$425.7		$8.6	$434.3	-2.0%
FY 2018	390.5	$388.5	$5.1		$383.4	$26.5	$409.9		$8.8	$418.8	-3.6%
FY 2019	378.1	$376.2	$4.9		$371.3	$26.8	$398.1		$8.9	$407.0	-2.8%
FY 2020	367.9	$366.1	$4.8		$361.3	$27.1	$388.4		$9.0	$397.5	-2.3%
FY 2021	354.3	$352.5	$4.6		$347.9	$27.5	$375.4		$9.2	$384.5	-3.3%

	ACTUAL				FORECASTED			Dec 2018 Forecast	Difference from Dec 18
in $ M	DIST.	FY 2016	FY 2017	FY 2018	FY 2019	FY 2020	FY 2021	FY 2019	FY 2019
General Fund	56.24%	$244.5	$239.4	$230.6	$223.9	$218.4	$211.1	$226.1	-$2.2
Mental Health Fund	0.60%	$2.6	$2.6	$2.5	$2.4	$2.3	$2.3	$2.4	$0.0
Cigarette Tax Fund	4.22%	$18.3	$18.0	$17.3	$16.8	$16.4	$15.8	$17.0	-$0.2
Pension Relief Fund	5.43%	$23.6	$23.1	$22.3	$21.6	$21.1	$20.4	$21.8	-$0.2
Retiree Health Trust Fund	4.00%	$17.4	$17.0	$16.4	$15.9	$15.5	$15.0	$16.1	-$0.2
Med Prov Reimb	2.46%	$10.7	$10.5	$10.1	$9.8	$9.6	$9.2	$9.9	-$0.1
Healthy Indiana Plan Trust Fund	27.05%	$117.6	$115.2	$110.9	$107.7	$105.1	$101.5	$108.7	-$1.1
Affordable Housing Fund	25% of OTP	$8.4	$8.6	$8.8	$8.9	$9.0	$9.2	$8.9	$0.0
TOTAL TOBACCO TAX		$443.2	$434.3	$418.8	$407.0	$397.5	$384.5	$410.9	-$3.9
			-2.0%	-3.6%	-2.8%	-2.3%	-3.3%		

	GF Forecast			Dec 2018 GF Forecast	GF Difference from Dec 18
	FY 2019	FY 2020	FY 2021	FY 2019	FY 2019
TOTAL GF FORECAST	$233.7	$228.0	$220.3	$236.0	-$2.3

SPECIFICATION:
CIGARETTE PACKET SOLD FORECAST USING:

- LOG_REAL FISCAL YEAR INDIANA PERSONAL INCOME (2012 $)
- LOG_ REAL INDIANA CIGARETTE PRICE (Including Taxes)
- LOG_REAL ALL NEIGHBORS PRICE ((MI Pr)+(OH Pr)+(KY Pr)+(IL Pr))
- TREND VARIABLE - 1965 =1

SUMMARY OUTPUT

Regression Statistics	
Multiple R	0.9941
R Square	0.9883
Adjusted R Square	0.9866
Standard Error	0.0287
Observations	34

ANOVA

	df	*SS*	*MS*	*F*	*Significance F*
Regression	4	2.0056	0.5014	609.7756	0.0000
Residual	29	0.0238	0.0008		
Total	33	2.0294			

	Coefficients	*Standard Error*	*t Stat*	*P-value*	*Lower 95%*	*Upper 95%*	*Lower 95.0%*	*Jpper 95.0%*
Intercept	-14.6933	1.3323	-11.0284	0.0000	-17.4181	-11.9684	-17.4181	-11.9684
LOG REAL IPI	1.8072	0.1338	13.5031	0.0000	1.5335	2.0810	1.5335	2.0810
LOG REAL IN PRICE	-0.9418	0.1228	-7.6712	0.0000	-1.1929	-0.6907	-1.1929	-0.6907
LOG REAL NEIGHBORS PRICE	0.9395	0.1537	6.1126	0.0000	0.6252	1.2538	0.6252	1.2538
TREND	-0.0645	0.0029	-22.3406	0.0000	-0.0704	-0.0586	-0.0704	-0.0586

RESIDUAL OUTPUT

Observation	*Predicted Y*	*Residuals*	**in Millions PREDICTED PACKETS SOLD**	**in Millions ACTUAL PACKETS SOLD**	**RESIDUAL**	**APE**
1985	6.6280	0.0078	**756.0**	**761.9**	**5.9**	**0.8%**
1986	6.6222	-0.0008	**751.6**	**751.0**	**-0.6**	**0.1%**
1987	6.6055	0.0172	**739.2**	**752.0**	**12.8**	**1.7%**
1988	6.5871	0.0339	**725.7**	**750.7**	**25.0**	**3.3%**
1989	6.6147	-0.0284	**746.0**	**725.1**	**-20.9**	**2.9%**
1990	6.5898	-0.0100	**727.7**	**720.4**	**-7.3**	**1.0%**
1991	6.5366	0.0224	**689.9**	**705.6**	**15.7**	**2.2%**
1992	6.5501	-0.0034	**699.3**	**696.9**	**-2.4**	**0.3%**
1993	6.5886	-0.0448	**726.8**	**694.9**	**-31.9**	**4.6%**
1994	6.5729	-0.0062	**715.4**	**711.0**	**-4.4**	**0.6%**
1995	6.6774	-0.0316	**794.2**	**769.5**	**-24.7**	**3.2%**
1996	6.6681	-0.0224	**786.9**	**769.5**	**-17.4**	**2.3%**
1997	6.6580	0.0204	**779.0**	**795.0**	**16.0**	**2.0%**
1998	6.6571	0.0119	**778.3**	**787.6**	**9.3**	**1.2%**
1999	6.6621	-0.0008	**782.2**	**781.6**	**-0.6**	**0.1%**
2000	6.6351	-0.0035	**761.4**	**758.7**	**-2.7**	**0.4%**
2001	6.6151	-0.0140	**746.3**	**735.9**	**-10.4**	**1.4%**
2002	6.5238	0.0926	**681.2**	**747.3**	**66.1**	**8.8%**
2003	6.4100	0.0104	**607.9**	**614.2**	**6.3**	**1.0%**
2004	6.3927	-0.0148	**597.5**	**588.7**	**-8.8**	**1.5%**
2005	6.4143	-0.0247	**610.5**	**595.6**	**-14.9**	**2.5%**
2006	6.4293	-0.0039	**619.7**	**617.3**	**-2.4**	**0.4%**
2007	6.4313	0.0272	**621.0**	**638.1**	**17.1**	**2.7%**
2008	6.2718	-0.0361	**529.5**	**510.7**	**-18.8**	**3.7%**
2009	6.1846	0.0316	**485.2**	**500.8**	**15.6**	**3.1%**
2010	6.1344	-0.0032	**461.5**	**460.0**	**-1.5**	**0.3%**
2011	6.1002	0.0153	**445.9**	**452.8**	**6.9**	**1.5%**
2012	6.1086	-0.0488	**449.7**	**428.3**	**-21.4**	**5.0%**
2013	6.1023	-0.0253	**446.9**	**435.7**	**-11.2**	**2.6%**
2014	6.0457	-0.0063	**422.3**	**419.7**	**-2.6**	**0.6%**
2015	6.0244	-0.0052	**413.4**	**411.3**	**-2.1**	**0.5%**
2016	6.0233	0.0087	**412.9**	**416.5**	**3.6**	**0.9%**
2017	5.9896	0.0200	**399.3**	**407.3**	**8.1**	**2.0%**
2018	5.9525	0.0148	**384.7**	**390.5**	**5.7**	**1.5%**

MAPE
2.0%

Exhibit A-6

Indiana Michigan Power Company
Profiles of Monthly Peak Internal Demands
2008, 2013, 2018 (Actual)
2028 and 2038