



**K**EWEENAW

**H**OUGHTON

**O**NTONAGON

**B**ARAGA

**2018  
ECONOMIC  
OUTLOOK  
REPORT**

ECONOMICS CLUB AT MICHIGAN TECH  
SCHOOL OF BUSINESS AND ECONOMICS

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## EXECUTIVE SUMMARY

The KHOB economy has been growing in value despite significant adversities – e.g. declining population, high energy costs, physical distance to big economic hubs (transportation costs, etc.), cost and lack of wide geographic accessibility to high quality telecommunications infrastructure. Its economy grew at an average annual rate of 0.94% per year during the 2010 to 2017 period (real rate, i.e. nominal rate discounted for inflation), while its real personal income per capita increased at an average rate of 1.29% per year. For the State of Michigan these growth rates were 2.25% and 2.21%, respectively.

The main economic sectors in the region are health care and social assistance, construction, retail trade and manufacturing. Businesses related to Tourism, natural resources, financial intermediaries, and higher education institutions along with other professional, scientific and technical services are also of economic and strategic relevance.

In addition to current socioeconomic constraints, future challenges may arise due to the negative trend in labor force, an aging population in most counties, and an increasing dependence of personal income on government transfers (e.g. Retirement and Disability insurance, Medicare and Medicaid, Veterans' benefits, unemployment insurance, income maintenance benefits).

However, there are significant opportunities for economic growth and development as well. The prevalence of human capital with tertiary education has been increasing, though at a moderate pace. Despite several meaningful initiatives already in place by higher education institutions, business associations, and governmental entities, more synergies and efforts across stakeholders are strongly recommended to foster the retention of skilled labor and entrepreneurialism in the region. Concurrently, the decreasing costs of technological adoption provide opportunities that the regional economy should further explore to improve its state-of-the-art and increase its exports of goods and services to intranational and international markets.

In the short-run, we are concerned that the neutral performance of US stock market indexes in 2018 may indicate a slow down of the US economy in the near future. On the other hand, lower growth rates in global markets along with international trade disputes may have a negative impact on the KHOB's economy in 2019, primarily through indirect effects (e.g. lower demand for KHOB's goods and services by consumers and businesses in Michigan and neighboring States, given their relatively higher degree of trade openness).

[November 2018]

## METHODOLOGY

We compiled and statistically analyzed data disseminated by governmental agencies, such as the Bureau of Economic Analysis (BEA), Bureau of Labor Statistics (BLS), Federal Reserve Bank (FED), and the US Census Bureau.

Despite the known challenges of gathering county level data (particularly for those with populations smaller than 50,000 individuals), data mining was mostly avoided due to the presence of high volatility in most of the county level time series with missing observations. When feasible, we populated missing observations in a dataset gathered from one governmental agency with data published for the same variable by another governmental agency, instead of using statistical mining techniques. For example, at the time of making this report, the US Census Bureau had already published its estimates for county level population for 2017 whereas the BEA and BLS had yet to include those in their datasets.

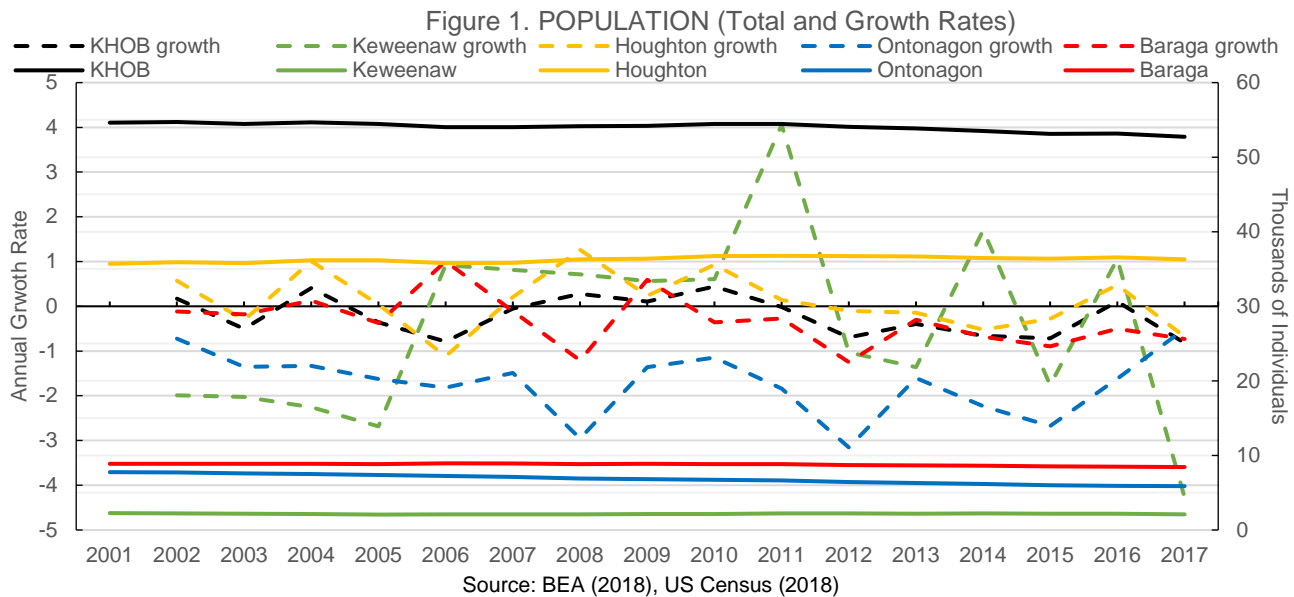
Data analysis comprehends the 2001-2017 period, due to data availability constraints. Complementary to annual data, we also assessed the local economy performance during the time intervals of 2001 to 2009 versus 2010 to latest available data. The reasoning for said time intervals is based on the recorded business cycles for the US economy, and identified by the National Bureau of Economic Research (NBER, 2018). The latest trough-to-trough period defined by NBER was from November 2001 to June 2009. The US economy has been experiencing an expansion since then.

In this first edition of the KHOB Economic Outlook Report, we employed basic time series statistical techniques in our forecasts instead of more insightful structural models. In particular we employed autoregressive models taking into account moving averages, using both fundamental and judgmental methods. This was primarily due to the lack of data for all economic sectors in the counties, which considerably hampered our ability to investigate interactions between supply and demand, as well as across economic sectors. In an attempt to address this issue, we conducted an online survey targeting 110 local economic experts during October-November 2018. The response rate was 11.82% but there were only 5 fully valid surveys (insights used to complement our judgmental analysis) - we attribute this result to the fact that this was the first edition of the report. As we build awareness, we expect higher response rates.

In the future we will make additional efforts to secure funding from stakeholders in order to conduct the required local economy surveys, interviews with local businesses, and get access to the confidential data held by governmental agencies (e.g. access and work on this data requires a formal permission and physical presence at the location of said institutions). Our long-run goal is to develop a structural model for the local economy that can provide more granular data-based insights to decision-makers.

## KHOB REGION

The geographic area of interest is located in the Western area of the Upper Peninsula of Michigan, and comprised of 4 Counties: Keweenaw, Houghton, Ontonagon, and Baraga.



Population	KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	Individuals	growth	Individuals	growth	Individuals	growth	Individuals	growth	Individuals	growth
2001	54,622	---	2,264	---	35,701	---	7,758	---	8,899	---
2009	54,211	0.10%	2,131	0.57%	36,378	0.24%	6,828	-1.36%	8,874	0.59%
2016	53,168	0.10%	2,199	1.06%	36,555	0.48%	5,911	-1.61%	8,503	-0.50%
<b>2017 *</b>	<b>52,732</b>	<b>-0.82%</b>	<b>2,105</b>	<b>-4.27%</b>	<b>36,305</b>	<b>-0.68%</b>	<b>5,881</b>	<b>-0.51%</b>	<b>8,441</b>	<b>-0.73%</b>
2001-2009	54,367	-0.09%	2,143	-0.74%	36,000	0.24%	7,339	-1.58%	8,885	-0.03%
<b>2010-2017</b>	<b>53,664</b>	<b>-0.34%</b>	<b>2,182</b>	<b>-0.12%</b>	<b>36,576</b>	<b>-0.02%</b>	<b>6,260</b>	<b>-1.85%</b>	<b>8,645</b>	<b>-0.62%</b>
2001-2017	54,036	-0.22%	2,162	-0.43%	36,271	0.11%	6,831	-1.71%	8,772	-0.33%

Note: \* 2017 population from US Census July 2017 release - missing variable in BEA dataset. Multiyear data shown as annual averages (not total change).

Table 1. Higher Education: Percentage of Total Population

	MI	KHOB	Keweenaw	Houghton	Ontonagon	Baraga
<b>2011</b>	25.6	23.1	22.6	27.1	16.9	11.3
2012	26.0	23.6	23.6	27.7	16.7	11.6
2013	26.9	24.4	23.9	28.9	15.3	12.0
2014	27.4	25.0	24.6	29.6	15.8	12.5
2015	27.8	26.1	22.8	31.1	15.1	13.1
2016	28.3	26.8	24.9	31.0	17.4	15.6
<b>2011-2016</b>	<b>27.0</b>	<b>24.8</b>	<b>23.7</b>	<b>29.2</b>	<b>16.2</b>	<b>12.7</b>

Note: Higher education defined as holding a Bachelor's degree or higher.  
Source: Census (2018)

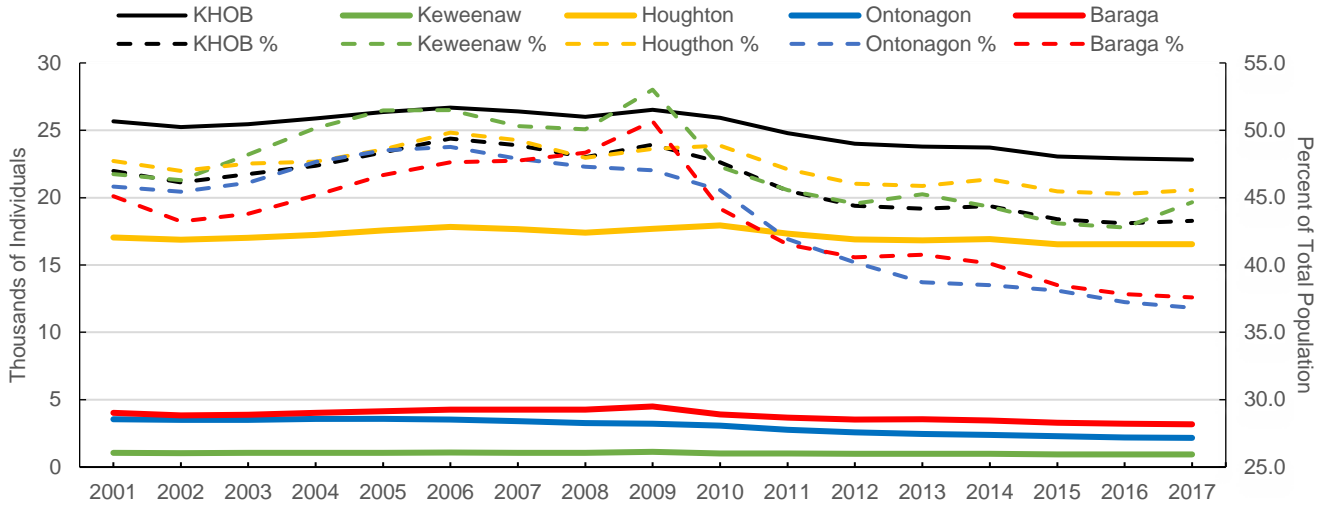
Table 2. Demographic Characteristics

	KHOB	Keweenaw	Houghton	Ontonagon	Baraga
Persons under age 18, 2017	18.83	15.50	20.20	12.60	18.10
Persons age 65 and over, 2017	20.45	35.10	17.00	35.40	21.20
White, 2017	90.82	97.90	93.60	96.10	73.40
American Indian and Alaska Native, 2017	2.93	0.30	0.70	1.50	14.20
High school graduate or higher, age 25+, *	90.67	94.40	92.00	91.70	83.30

Notes: \* 2012-2016. Source: Census (2018).

Additional Population-related statistics available in Table A1 (see annex).

Figure 2. LABOR FORCE (Individuals vs. Share of Total Population)

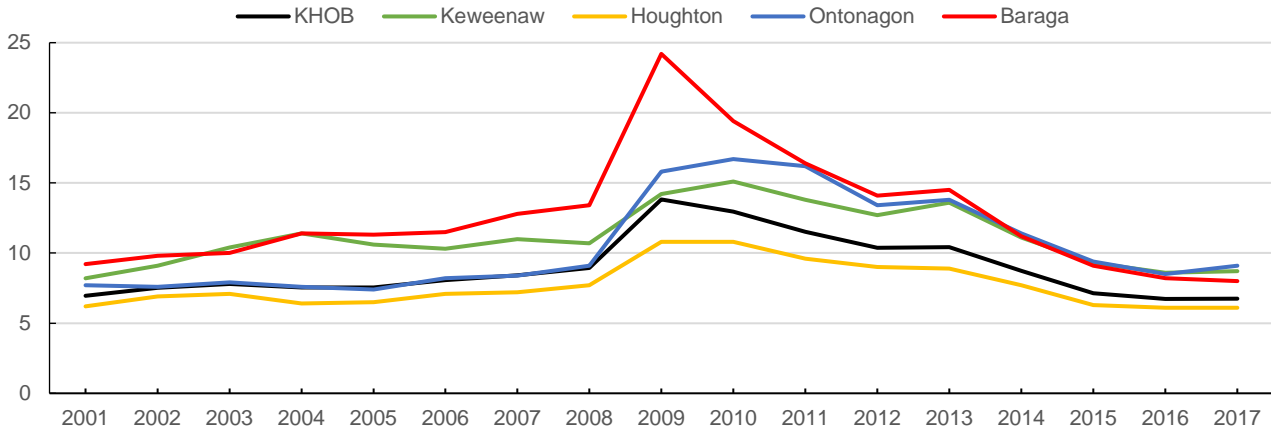


Source: BEA (2018), FED (2018)

Labor Force	KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate
2001	25,659	47.0	1,058	46.7	17,033	47.7	3,555	45.8	4,014	45.1
2009	26,526	48.9	1,130	53.0	17,689	48.6	3,211	47.0	4,497	50.7
2016	22,912	43.1	941	42.8	16,552	45.3	2,201	37.2	3,218	37.8
<b>2017</b>	<b>22,821</b>	<b>43.3</b>	<b>940</b>	<b>44.7</b>	<b>16,542</b>	<b>45.6</b>	<b>2,166</b>	<b>36.8</b>	<b>3,173</b>	<b>37.6</b>
2001-2009	26,021	47.9	1,065	49.8	17,366	48.2	3,460	47.2	4,130	46.5
<b>2010-2017</b>	<b>23,888</b>	<b>44.5</b>	<b>975</b>	<b>44.7</b>	<b>16,942</b>	<b>46.3</b>	<b>2,489</b>	<b>39.6</b>	<b>3,473</b>	<b>40.1</b>
2001-2017	25,013	46.3	1,023	47.4	17,166	47.3	3,003	43.6	3,821	43.5

Note: Multiyear data shown as annual averages (not total change); Labor Force Participation rate was proxied as share of Total Population due to the lack of Adult Population data for the entire period.

Figure 3. UNEMPLOYMENT RATE

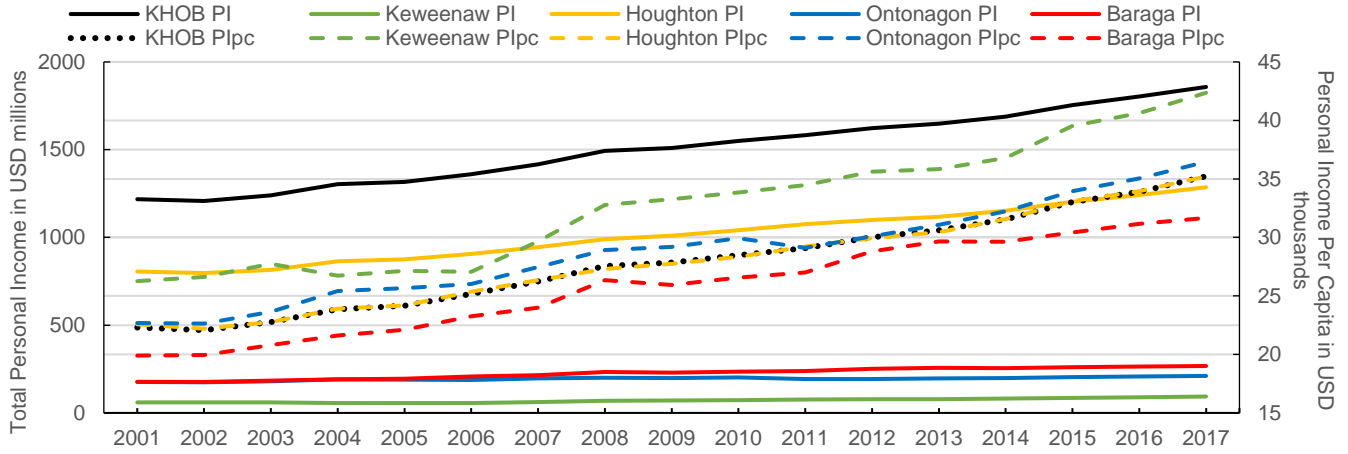


Source: FED (2018)

Unemployment	MI	KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	rate	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate
2001	5.2	1,786	7.0	87	8.2	1056	6.2	274	7.7	369	9.2
2009	13.6	3,666	13.8	160	14.2	1910	10.8	507	15.8	1088	24.2
2016	5.0	1,542	6.7	81	8.6	1010	6.1	187	8.5	264	8.2
<b>2017</b>	<b>4.6</b>	<b>1,542</b>	<b>6.8</b>	<b>82</b>	<b>8.7</b>	<b>1009</b>	<b>6.1</b>	<b>197</b>	<b>9.1</b>	<b>254</b>	<b>8.0</b>
2001-2009	7.6	2,219	8.5	114	10.7	1273	7.3	304	8.9	528	12.6
<b>2010-2017</b>	<b>7.9</b>	<b>2,248</b>	<b>9.3</b>	<b>114</b>	<b>11.6</b>	<b>1373</b>	<b>8.1</b>	<b>315</b>	<b>12.3</b>	<b>447</b>	<b>12.6</b>
2001-2017	7.7	2,233	8.9	114	11.1	1320	7.7	309	10.5	490	12.6

Note: Multiyear data shown as annual averages (not total change)...

Figure 4. PERSONAL INCOME (Total and Per Capita)

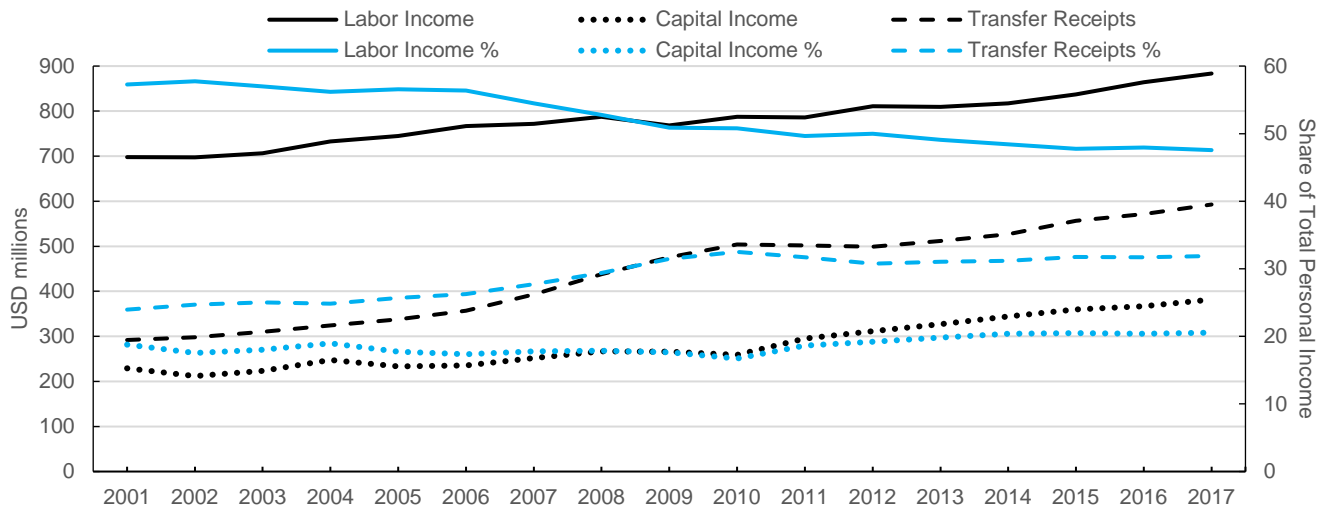


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

Personal Income	KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	region	per capita	county	per capita	county	per capita	county	per capita	county	per capita
2001	\$ 1219 M	\$ 22,309	\$ 59 M	\$ 26,265	\$ 806 M	\$ 22,580	\$ 176 M	\$ 22,670	\$ 177 M	\$ 19,901
2009	\$ 1510 M	\$ 27,853	\$ 71 M	\$ 33,265	\$ 1010 M	\$ 27,753	\$ 199 M	\$ 29,204	\$ 230 M	\$ 25,925
2016	\$ 1803 M	\$ 33,903	\$ 89 M	\$ 40,622	\$ 1241 M	\$ 33,957	\$ 207 M	\$ 35,033	\$ 265 M	\$ 31,150
<b>2017</b>	<b>\$ 1857 M</b>	<b>\$ 35,225</b>	<b>\$ 93 M</b>	<b>\$ 42,361</b>	<b>\$ 1286 M</b>	<b>\$ 35,214</b>	<b>\$ 211 M</b>	<b>\$ 36,462</b>	<b>\$ 267 M</b>	<b>\$ 31,666</b>
2001-2009	\$ 1340 M	\$ 24,663	\$ 61 M	\$ 28,586	\$ 890 M	\$ 24,710	\$ 188 M	\$ 25,735	\$ 201 M	\$ 22,648
<b>2010-2017</b>	<b>\$ 1688 M</b>	<b>\$ 31,484</b>	<b>\$ 82 M</b>	<b>\$ 37,385</b>	<b>\$ 1152 M</b>	<b>\$ 36,576</b>	<b>\$ 201 M</b>	<b>\$ 32,237</b>	<b>\$ 254 M</b>	<b>\$ 29,363</b>
2001-2017	\$ 1504 M	\$ 27,872	\$ 71 M	\$ 32,727	\$ 1013 M	\$ 27,894	\$ 194 M	\$ 28,795	\$ 226 M	\$ 25,808

Note: Multiyear data shown as annual averages (not total change); In Ontonagon from 2010 to 2011 its economy declined from \$202M to \$193M, and it only fully recovered by 2015. PI for 2017 extrapolated from BLS wage data and county-level trend in output per worker; 2017 population from US Census; At the time of making this report, 2017 variables were missing on BEA dataset. See Annex for definition of Personal Income.

Figure 5. KHOB SOURCES of PERSONAL INCOME

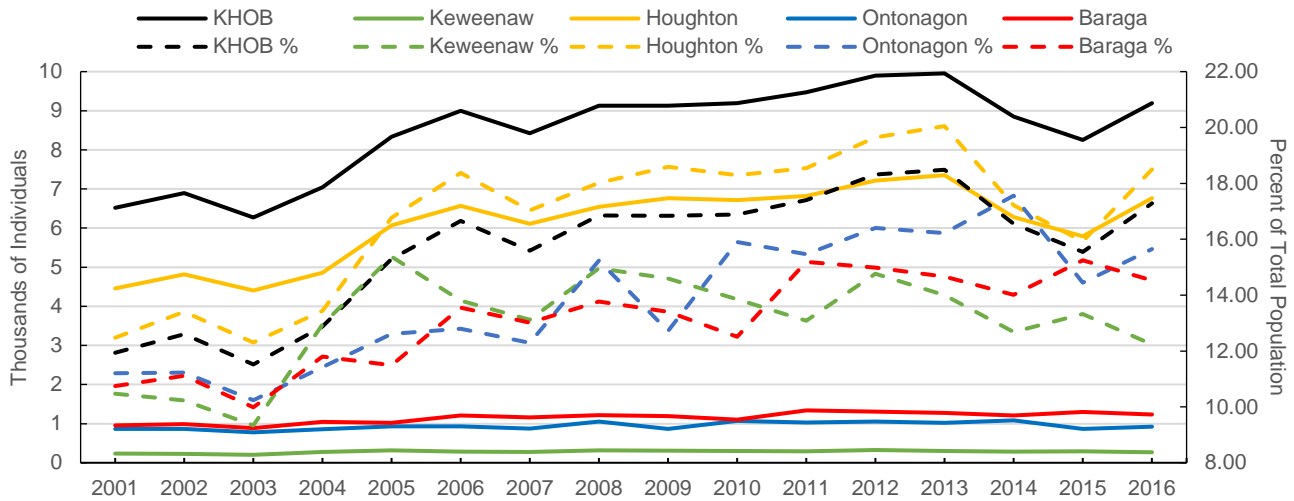


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

Personal Income	KHOB	Labor Income			Capital Income			Transfer Receipts		
		amount	share	MI %	amount	share	MI %	amount	share	MI %
2001	\$ 1219 M	\$ 698 M	57.26%	69.49%	\$ 698 M	18.78%	16.37%	\$ 698 M	23.96%	14.13%
2009	\$ 1510 M	\$ 769 M	50.90%	61.41%	\$ 266 M	17.62%	15.55%	\$ 475 M	31.48%	23.03%
2016	\$ 1803 M	\$ 864 M	47.94%	61.44%	\$ 367 M	20.37%	17.27%	\$ 571 M	31.69%	21.29%
<b>2017</b>	<b>\$ 1857 M</b>	<b>\$ 883 M</b>	<b>47.56%</b>	<b>61.38%</b>	<b>\$ 382 M</b>	<b>20.55%</b>	<b>17.41%</b>	<b>\$ 593 M</b>	<b>31.91%</b>	<b>21.22%</b>
2001-2009	\$ 1340 M	\$ 741 M	55.48%	66.76%	\$ 241 M	17.96%	16.36%	\$ 358 M	26.56%	16.88%
<b>2010-2017</b>	<b>\$ 1688 M</b>	<b>\$ 824 M</b>	<b>48.90%</b>	<b>61.42%</b>	<b>\$ 331 M</b>	<b>19.53%</b>	<b>16.77%</b>	<b>\$ 533 M</b>	<b>31.57%</b>	<b>21.81%</b>
2001-2017	\$ 1504 M	\$ 781 M	52.38%	64.25%	\$ 283 M	18.70%	16.56%	\$ 441 M	28.92%	19.20%

Note: Multiyear data shown as annual averages (not total change); Capital income proxied by Dividends, interest, and rents. See Annex for definitions of transfer receipts and labor income. County level data is shown in the respective section.

Figure 6. POVERTY (Individuals and Share of Population)

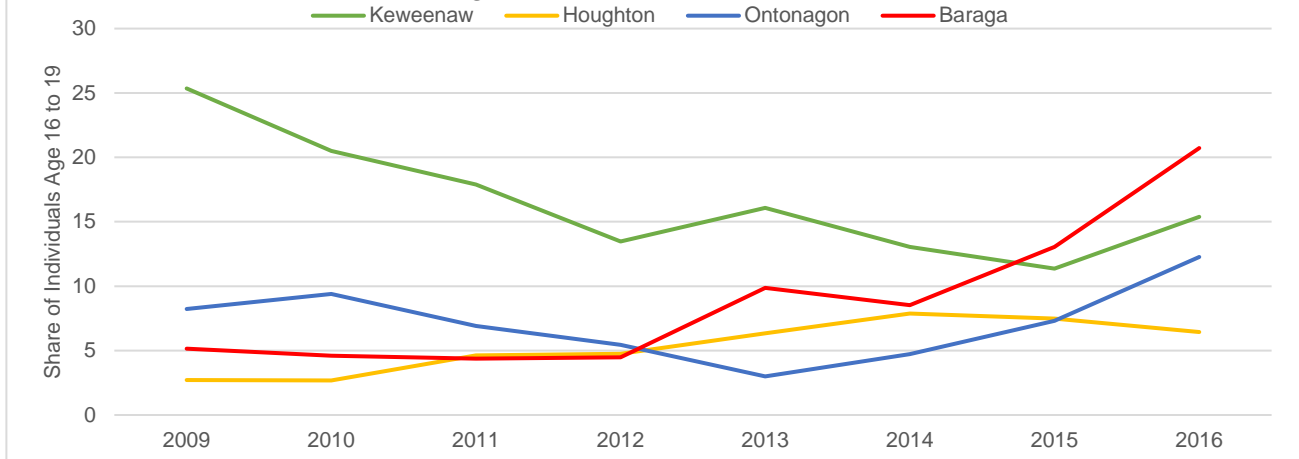


Source: BEA (2018), FED (2018)

Poverty	US		MI		KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	rate	rate	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate	Individuals	rate
2001	11.7	9.8	6,518	11.9	237	10.5	4,456	12.5	869	11.2	956	10.7		
2009	14.3	16.1	9,132	16.8	311	14.6	6,764	18.6	868	12.7	1,189	13.4		
<b>2016</b>	<b>14.0</b>	<b>14.9</b>	<b>9,191</b>	<b>17.3</b>	<b>269</b>	<b>12.2</b>	<b>6,762</b>	<b>18.5</b>	<b>925</b>	<b>15.6</b>	<b>1,235</b>	<b>14.5</b>		
2001-2009	12.9	12.8	7,859	14.5	272	12.8	5,620	15.6	892	12.2	1,075	12.1		
<b>2010-2016</b>	<b>15.3</b>	<b>16.5</b>	<b>9,260</b>	<b>17.2</b>	<b>294</b>	<b>13.4</b>	<b>6,706</b>	<b>18.3</b>	<b>1,007</b>	<b>15.9</b>	<b>1,253</b>	<b>14.4</b>		
2001-2016	13.9	14.4	8,472	15.7	282	13.1	6,095	16.8	942	13.8	1,153	13.1		

Note: In 2016, the Poverty threshold for single individuals was \$12,228 and for a 4-people household was \$24,563 (Census, 2018).

Figure 7. DISCONNECTED YOUTH

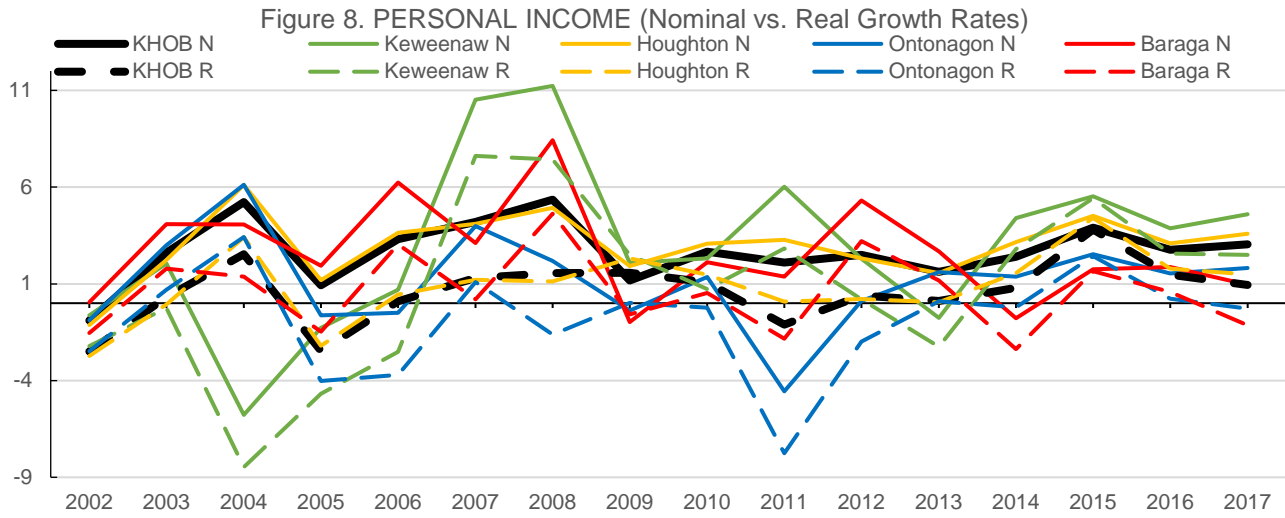


Source: FED (2018)

Age 16 to 19	US		MI		Keweenaw		Houghton		Ontonagon		Baraga	
	%	%	%	%	%	%	%	%	%	%	%	
2009	9	9	25.35	2.71	8.23	5.15						
<b>2013</b>	<b>8</b>	<b>8</b>	<b>16.09</b>	<b>6.33</b>	<b>3.00</b>	<b>9.86</b>						
2014	7	6	13.04	7.88	4.73	8.52						
2015	7	7	11.36	7.49	7.31	13.04						
<b>2016</b>	<b>7</b>	<b>7</b>	<b>15.38</b>	<b>6.44</b>	<b>12.27</b>	<b>20.72</b>						
<b>2010-2016</b>	<b>7.88</b>	<b>7.88</b>	<b>15.39</b>	<b>5.74</b>	<b>7.00</b>	<b>9.37</b>						

Note: "Disconnected Youth represents the percentage of youth in a county who are between the ages of 16 and 19 who are not enrolled in school and who are unemployed or not in the labor force. The date of the data is the end of the 5-year period. For example, a value dated 2015 represents data from 2010 to 2015." (FED, 2018). It is noteworthy that Survey data suggests that share of "Disconnected Youth" has more than doubled since 2013 in Ontonagon and Baraga, which may lead to socioeconomic challenges in the future. However, further research is necessary to evaluate the generalization of these findings because the sample size has not been disclosed in FED data.

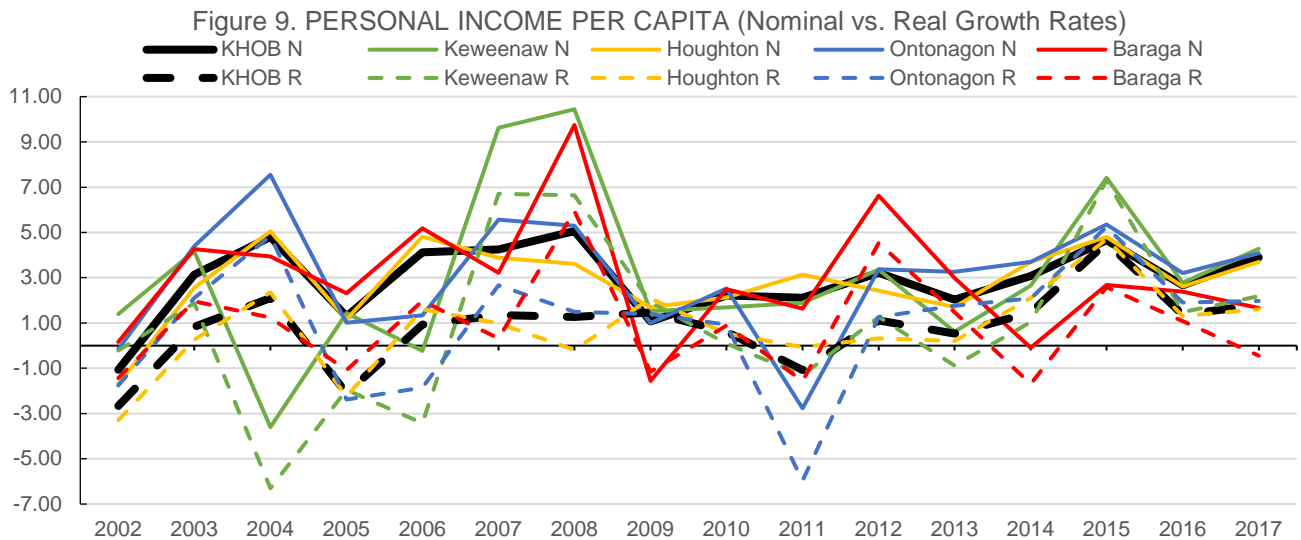




Source: BEA (2018), BLS (2018), US Census Bureau (2018), FED (2018)

Personal Income	US	MI		KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	Inflation	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
2002	1.60	0.06	-1.54	-0.90	-2.50	-0.62	-2.22	-1.13	-2.73	-0.88	-2.48	0.06	-1.54
2009	-0.40	-5.14	-4.74	1.17	1.57	2.09	2.49	1.92	2.32	-0.38	0.02	-0.98	-0.58
2016	1.30	2.85	1.55	2.77	1.47	3.86	2.56	3.09	1.79	1.53	0.23	1.88	0.58
<b>2017</b>	<b>2.10</b>	<b>4.22</b>	<b>2.12</b>	<b>3.05</b>	<b>0.95</b>	<b>4.59</b>	<b>2.49</b>	<b>3.59</b>	<b>1.49</b>	<b>1.81</b>	<b>-0.29</b>	<b>0.95</b>	<b>-1.15</b>
2002-2009	2.44	1.15	-1.28	2.74	0.30	2.36	-0.07	2.88	0.44	1.61	-0.83	3.36	0.93
<b>2010-2017</b>	<b>1.69</b>	<b>3.94</b>	<b>2.25</b>	<b>2.63</b>	<b>0.94</b>	<b>3.53</b>	<b>1.84</b>	<b>3.07</b>	<b>1.39</b>	<b>0.72</b>	<b>-0.97</b>	<b>1.91</b>	<b>0.22</b>
2001-2017	2.06	2.55	0.49	2.68	0.62	2.95	0.89	2.97	0.91	1.17	-0.90	2.64	0.57

Note: Multiyear data shown as annual averages (not total change); It is noteworthy that in Ontonagon from 2010 to 2011 its economy declined by 7.76% in real terms (or 4.56% in nominal terms). Growth rates for all years are shown in Table A2 in annex.

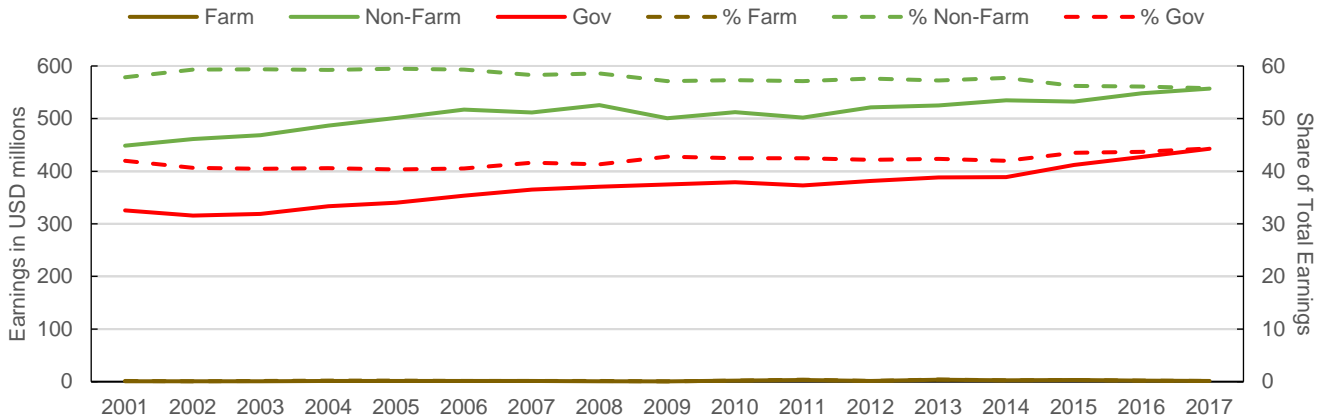


Source: BEA (2018), BLS (2018), US Census Bureau (2018), FED (2018)

PI per capita	US	MI		KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	Inflation	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real	Nominal	Real
2002	1.60	-0.19	-1.79	-1.06	-2.66	1.39	-0.21	-1.69	-3.29	-0.16	-1.76	0.17	-1.43
2009	-0.40	-4.71	-4.31	1.07	1.47	1.52	1.92	1.69	2.09	0.99	1.39	-1.56	-1.16
2016	1.30	2.74	1.44	2.66	1.36	2.78	1.48	2.61	1.31	3.20	1.90	2.39	1.09
<b>2017</b>	<b>2.10</b>	<b>4.12</b>	<b>2.02</b>	<b>3.90</b>	<b>1.80</b>	<b>4.28</b>	<b>2.18</b>	<b>3.70</b>	<b>1.60</b>	<b>4.08</b>	<b>1.98</b>	<b>1.66</b>	<b>-0.44</b>
2002-2009	2.44	1.27	-1.17	2.83	0.40	3.09	0.66	2.63	0.20	3.25	0.81	3.41	0.97
<b>2010-2017</b>	<b>1.69</b>	<b>3.89</b>	<b>2.21</b>	<b>2.98</b>	<b>1.29</b>	<b>3.09</b>	<b>1.40</b>	<b>3.03</b>	<b>1.34</b>	<b>2.84</b>	<b>1.15</b>	<b>2.55</b>	<b>0.86</b>
2001-2017	2.06	2.58	0.52	2.91	0.85	3.09	1.03	2.83	0.77	3.04	0.98	2.98	0.92

Note: Multiyear data shown as annual averages (not total change); It is noteworthy that in Ontonagon from 2010 to 2011 *PI per capita* declined by 5.97% in real terms (or 2.77% in nominal terms). Growth rates for all years are shown in Table A2 in annex.

Figure 10. KHOB EARNINGS: Farm, Non-Farm, and Government Activities

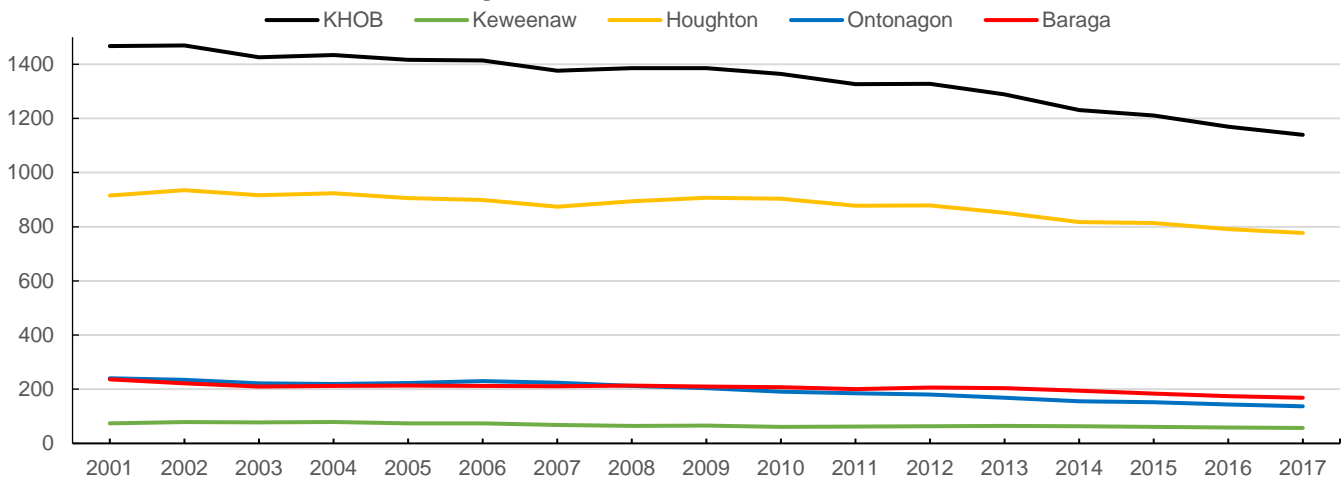


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

	KHOB				Farm			Non-Farm			Government		
	PI	Earnings	%	MI %	Earnings	%	MI %	Earnings	%	MI %	Earnings	%	MI %
2001	\$ 1219 M	\$ 775 M	63.60	77.76	\$ 1.1 M	0.14	0.24	\$ 449 M	57.88	85.94	\$ 325 M	41.98	13.83
2009	\$ 1510 M	\$ 876 M	58.05	69.38	\$ 0.6 M	0.07	0.46	\$ 501 M	57.13	81.77	\$ 375 M	47.80	17.77
2016	\$ 1803 M	\$ 977 M	54.20	69.09	\$ 1.8 M	0.18	0.34	\$ 548 M	56.12	84.94	\$ 427 M	43.70	14.40
<b>2017</b>	<b>\$ 1857 M</b>	<b>\$ 998 M</b>	<b>53.76</b>	<b>68.98</b>	<b>\$ 1.5 M</b>	<b>0.15</b>	<b>0.25</b>	<b>\$ 557 M</b>	<b>55.78</b>	<b>85.26</b>	<b>\$ 443 M</b>	<b>44.33</b>	<b>14.17</b>
2001-2009	\$ 1340 M	\$ 836 M	62.54	75.06	\$ 1.1 M	0.13	0.40	\$ 491 M	58.73	84.23	\$ 344 M	41.13	15.37
<b>2010-2017</b>	<b>\$ 1688 M</b>	<b>\$ 930 M</b>	<b>55.16</b>	<b>68.88</b>	<b>\$ 2.4 M</b>	<b>0.26</b>	<b>0.62</b>	<b>\$ 529 M</b>	<b>56.90</b>	<b>84.10</b>	<b>\$ 399 M</b>	<b>42.86</b>	<b>15.29</b>
2001-2017	\$ 1504 M	\$ 881 M	59.07	72.15	\$ 1.7 M	0.20	0.51	\$ 509 M	57.87	84.17	\$ 370 M	41.95	15.33

Note: Multiyear data shown as annual averages (not total change). Earnings captures wages, salaries and proprietor's income earned in the county; it equals PI less dividends, interest, rents, and transfer receipts (e.g. social security) earned from outside the county. Glossary in Annex.

Figure 11. PRIVATE ESTABLISHMENTS



Source: FED (2018)

Private Establish.	KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	region	growth %	county	growth %	county	growth %	county	growth %	county	growth %
2001	1467	-1.76	74	3.85	916	-2.35	241	-2.34	237	-0.53
2009	1385	0.07	66	0.77	907	1.51	204	-4.24	210	-1.87
2016	1169	-3.45	59	-2.07	791	-2.82	144	-5.25	174	-5.17
<b>2017</b>	<b>1140</b>	<b>-2.52</b>	<b>57</b>	<b>-3.80</b>	<b>777</b>	<b>-1.80</b>	<b>137</b>	<b>-5.03</b>	<b>169</b>	<b>-3.30</b>
2001-2009	1420	-0.81	73	-0.87	908	-0.35	223	-2.06	216	-1.34
<b>2010-2017</b>	<b>1257</b>	<b>-2.41</b>	<b>61</b>	<b>-1.68</b>	<b>839</b>	<b>-1.91</b>	<b>164</b>	<b>-4.81</b>	<b>193</b>	<b>-2.68</b>
2001-2017	1343	-1.57	67	-1.25	875	-1.08	196	-3.35	205	-1.97

Note: An establishment is an economic unit, such as a factory, mine, store, or office that produces goods or services. Multiyear data shown as annual averages (not total change).

Table 3. Quarterly Census of Employment and Wages (BLS, 2018): Summary Statistics

NAICS & AREA	Establishments		Annual % Δ	Employment		Annual % Δ	Wages		Annual % Δ
	2014	2017		2014	2017		2014	2017	
<b>11 Agriculture, forestry, fishing and hunting</b>									
KHOB *	13	15	5.13	24	34	13.89	25,707	32,663	9.02
Michigan	2,559	2,803	3.18	30,122	31,359	1.37	28,275	31,653	3.98
USA	100,329	104,445	1.37	1,231,162	1,261,312	0.82	30,614	34,464	4.19
<b>21 Mining, quarrying, and oil and gas extraction</b>									
KHOB	NA	NA	NA	NA	NA	NA	NA	NA	NA
Michigan	433	400	-2.54	6,660	5,441	-6.10	77,339	75,658	-0.72
USA	35,906	32,477	-3.18	841,879	623,934	-8.63	102,137	102,130	0.00
<b>22 Utilities</b>									
KHOB	5	9	26.67	46	85	28.26	70,326	84,354	6.65
Michigan	410	423	1.06	19,723	20,196	0.80	108,989	117,008	2.45
USA	17,419	17,972	1.06	548,993	551,935	0.18	98,123	107,194	3.08
<b>23 Construction</b>									
KHOB	168	143	-4.96	843	706	-5.42	40,488	41,868	1.14
Michigan	19,017	19,544	0.92	141,350	161,903	4.85	55,585	61,511	3.55
USA	751,571	784,852	1.48	6,108,673	6,919,107	4.42	55,037	60,735	3.45
<b>31-33 Manufacturing</b>									
KHOB	61	62	0.55	1,216	1,233	0.47	40,879	43,063	1.78
Michigan	14,600	15,721	2.56	576,576	615,106	2.23	64,469	66,395	1.00
USA	337,760	346,723	0.88	12,156,537	12,406,757	0.69	62,976	66,840	2.05
<b>42 Wholesale trade</b>									
KHOB	41	37	-3.25	206	197	-1.46	43,695	49,917	4.75
Michigan	14,764	13,421	-3.03	167,270	172,437	1.03	69,954	73,968	1.91
USA	620,906	612,359	-0.46	5,815,992	5,898,637	0.47	71,043	75,904	2.28
<b>44-45 Retail trade</b>									
KHOB	195	183	-2.05	2,214	2,008	-3.10	21,750	25,518	5.77
Michigan	30,934	31,908	1.05	459,796	472,615	0.93	27,334	30,111	3.39
USA	1,039,996	1,042,096	0.07	15,343,711	15,854,454	1.11	28,742	31,217	2.87
<b>48-49 Transportation and warehousing</b>									
KHOB	8	15	29.17	29	71	48.28	32,458	46,959	14.89
Michigan	5,751	6,397	3.74	106,715	119,145	3.88	50,663	54,063	2.24
USA	230,243	242,932	1.84	4,391,274	4,947,369	4.22	48,708	51,726	2.07
<b>51 Information</b>									
KHOB	12	12	0.00	114	112	-0.58	38,407	43,311	4.26
Michigan	4,657	5,934	9.14	57,590	56,524	-0.62	63,983	70,884	3.60
USA	150,736	162,702	2.65	2,732,191	2,793,429	0.75	90,823	105,722	5.47
<b>52 Finance and insurance</b>									
KHOB	55	52	-1.82	399	383	-1.34	33,586	37,733	4.12
Michigan	11,861	11,722	-0.39	139,489	148,179	2.08	71,047	78,024	3.27
USA	472,362	484,801	0.88	5,633,839	5,908,709	1.63	97,380	106,185	3.01

\* For NAICS 11, KHOB values for 2014 were populated with 2015 data due to missing values in BLS dataset.

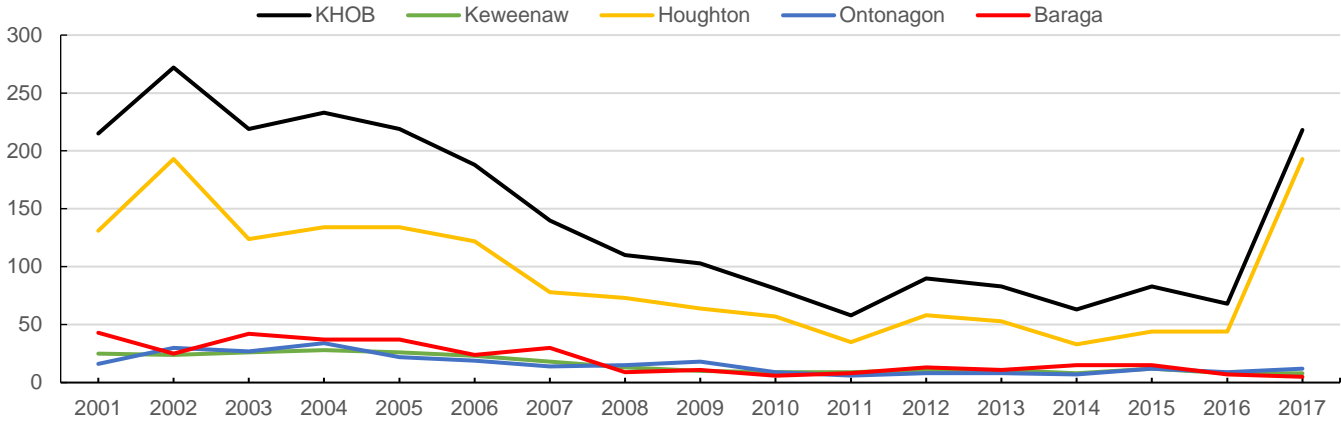
Notes: Data reported as annual averages of quarterly observations; KHOB statistics based on available data for the region – some counties lack data for certain NAICS or year (see BLS data source for details).

Table 3. Quarterly Census of Employment and Wages (BLS,2018): Summary Statistics – continued

NAICS & AREA	Establishments		Annual % Δ	Employment		Annual % Δ	Wages		Annual % Δ
	2014	2017		2014	2017		2014	2017	
<b>53 Real estate and rental and leasing</b>									
KHOB	28	23	-5.95	125	110	-4.00	21,796	28,929	10.91
Michigan	6,856	7,220	1.77	50,589	54,180	2.37	39,699	45,345	4.74
USA	360,116	385,826	2.38	2,040,198	2,179,696	2.28	51,820	56,970	3.31
<b>54 Professional and technical services</b>									
KHOB	75	82	3.11	477	494	1.19	46,047	52,540	4.70
Michigan	26,379	27,168	1.00	266,747	292,424	3.21	76,538	86,463	4.32
USA	1,114,713	1,183,104	2.05	8,347,995	8,996,430	2.59	86,391	93,687	2.82
<b>55 Management of companies and enterprises</b>									
KHOB	NA	NA	NA	NA	NA	NA	NA	NA	NA
Michigan	926	1,233	11.05	57,733	66,058	4.81	118,947	132,233	3.72
USA	60,115	64,772	2.58	2,154,136	2,278,042	1.92	112,901	119,885	2.06
<b>56 Administrative and waste services</b>									
KHOB	31	7	-25.81	125	17	-28.80	19,463	19,396	-0.11
Michigan	13,470	13,870	0.99	287,826	286,797	-0.12	32,423	35,902	3.58
USA	498,665	534,038	2.36	8,572,145	9,064,811	1.92	35,843	39,621	3.51
<b>61 Educational services</b>									
KHOB	7	7	0.00	195	185	-1.71	34,360	32,005	-2.28
Michigan	2,678	2,985	3.82	64,894	65,280	0.20	35,664	37,676	1.88
USA	107,873	117,479	2.97	2,668,917	2,824,421	1.94	46,580	50,053	2.49
<b>62 Health care and social assistance</b>									
KHOB	75	74	-0.44	2,305	2,005	-4.34	39,006	44,531	4.72
Michigan	22,012	21,972	-0.06	558,137	590,740	1.95	46,585	49,591	2.15
USA	1,377,010	1,532,134	3.76	17,904,219	19,322,491	2.64	45,857	49,076	2.34
<b>71 Arts, entertainment, and recreation</b>									
KHOB	14	13	-2.38	71	75	1.88	14,155	13,272	-2.08
Michigan	3,509	3,565	0.53	48,871	52,982	2.80	30,740	33,910	3.44
USA	132,517	141,502	2.26	2,094,615	2,293,872	3.17	34,867	37,759	2.76
<b>72 Accommodation and food services</b>									
KHOB	94	94	0.00	1,217	1,378	4.41	11,564	13,072	4.35
Michigan	17,651	18,217	1.07	356,292	378,335	2.06	15,561	17,863	4.93
USA	660,287	697,728	1.89	12,531,941	13,606,761	2.86	18,676	20,731	3.67
<b>81 Other services, except public administration</b>									
KHOB	131	118	-3.31	436	413	-1.76	20,068	21,717	2.74
Michigan	25,442	29,930	5.88	132,501	137,568	1.27	29,726	32,157	2.73
USA	810,449	839,795	1.21	4,235,390	4,434,678	1.57	33,936	37,320	3.32
<b>99 Unclassified</b>									
KHOB	6	5	-5.56	2	6	66.67	44,071	56,802	9.63
Michigan	4,965	2,956	-13.49	9,360	7,166	-7.81	44,436	49,334	3.67
USA	188,238	209,099	3.69	214,881	219,719	0.75	49,153	55,887	4.57

Notes: Data reported as annual averages of quarterly observations; KHOB statistics based on available data for the region – some counties lack data for certain NAICS or year (see BLS data source for details).

Figure 12. NEW HOUSING PERMITS

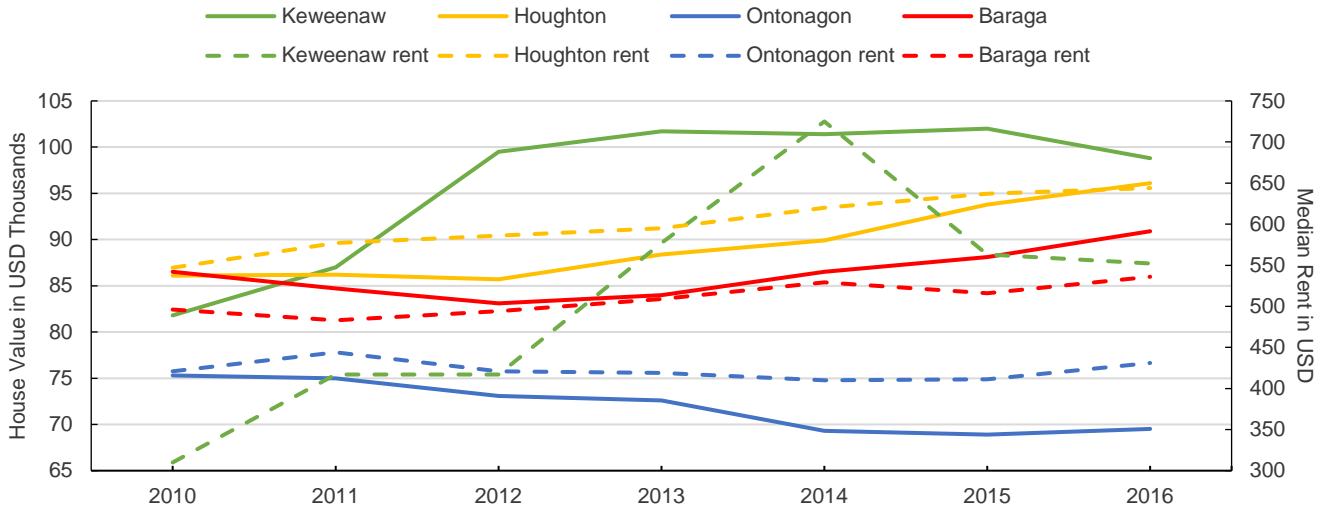


Source: FED (2018)

Housing Permits	KHOB		Keweenaw		Houghton		Ontonagon		Baraga	
	region	growth %	county	growth %	county	growth %	county	growth %	county	growth %
2001	215	-49.88	25	0.00	131	11.02	16	-11.11	43	-18.87
2009	103	-6.36	10	-23.08	64	-12.33	18	20.00	11	22.22
2016	68	-18.07	8	-33.33	44	0.00	9	-25.00	7	-53.33
<b>2017</b>	<b>218</b>	<b>220.59</b>	<b>8</b>	<b>0.00</b>	<b>193</b>	<b>338.64</b>	<b>12</b>	<b>33.33</b>	<b>5</b>	<b>-28.57</b>
2001-2009	189	-12.22	21	-8.81	117	-3.68	22	4.91	29	-6.95
<b>2010-2017</b>	<b>93</b>	<b>25.98</b>	<b>10</b>	<b>0.20</b>	<b>65</b>	<b>42.72</b>	<b>9</b>	<b>2.16</b>	<b>10</b>	<b>-1.32</b>
2001-2017	144	5.76	16	-4.57	92	18.16	16	3.62	20	-4.30

Note: Multiyear data shown as annual averages (not total change).

Figure 13. HOUSING VALUE vs. MEDIAN RENT



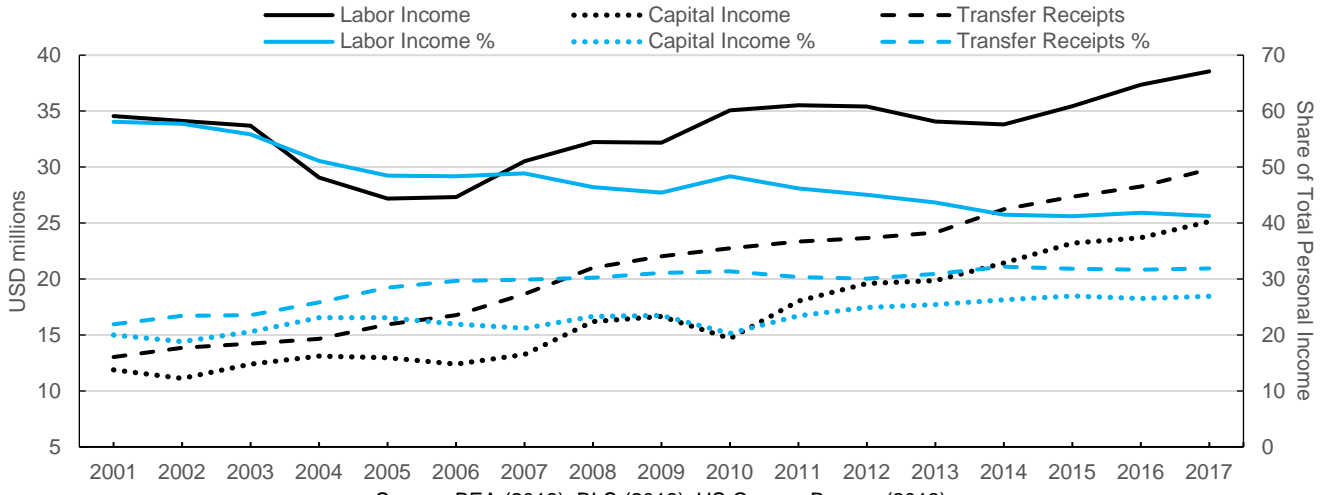
Source: US Census Bureau (2018)

Value vs. Rent	KHOB				Keweenaw				Houghton				Ontonagon				Baraga			
	Value	%	Rent	%	Value	%	Rent	%	Value	%	Rent	%	Value	%	Rent	%	Value	%	Rent	%
2011	84.0	0.13	526	5.61	87.0	6.36	417	34.52	86.2	0.12	577	5.48	75.0	-0.40	444	5.46	84.7	-2.08	483	-2.62
2012	84.1	0.09	529	0.57	99.5	14.37	417	0.00	85.7	-0.58	586	1.56	73.1	-2.53	421	-5.18	83.1	-1.89	494	2.28
2013	85.9	2.14	548	3.59	101.7	2.21	577	38.37	88.4	3.15	595	1.54	72.6	-0.68	419	-0.48	84.0	1.08	509	3.04
2014	86.6	0.79	576	5.11	101.4	-0.29	725	25.65	89.9	1.70	620	4.20	69.3	-4.55	410	-2.15	86.5	2.98	529	3.93
2015	89.1	2.90	572	-0.69	102.0	0.59	563	-22.34	93.8	4.34	637	2.74	68.9	-0.58	411	0.24	88.1	1.85	516	-2.46
2016	90.8	1.86	582	1.75	98.8	-3.14	552	-1.95	96.1	2.45	644	1.10	69.5	0.87	431	4.87	90.9	3.18	536	3.88
<b>2010-2016</b>	<b>86.3</b>	<b>1.32</b>	<b>547</b>	<b>2.66</b>	<b>96.0</b>	<b>3.35</b>	<b>509</b>	<b>12.37</b>	<b>89.5</b>	<b>1.86</b>	<b>601</b>	<b>2.77</b>	<b>72.0</b>	<b>-1.31</b>	<b>422</b>	<b>0.46</b>	<b>86.3</b>	<b>0.85</b>	<b>509</b>	<b>1.34</b>

Note: Rent expressed in dollars. Value expressed in thousands of dollars. Multiyear data shown as annual averages (not total change).

**KEWEENAW COUNTY**

Figure 14. KEWEENAW SOURCES of PERSONAL INCOME

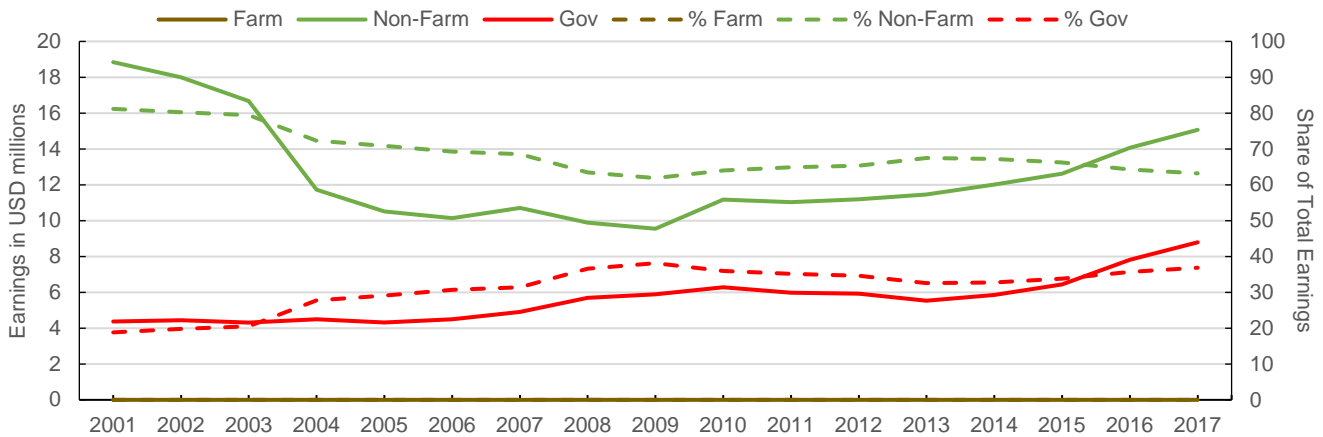


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

Personal Income	KEWEENAW	Labor Income			Capital Income			Transfer Receipts		
		amount	share	KHOB %	amount	share	KHOB %	amount	share	KHOB %
2001	\$ 59 M	\$ 34 M	58.09%	57.26%	\$ 12 M	19.99%	18.78%	\$ 13 M	21.91%	23.96%
2009	\$ 71 M	\$ 32 M	45.41%	50.90%	\$ 17 M	23.52%	17.62%	\$ 22 M	31.07%	31.48%
2016	\$ 89 M	\$ 37 M	41.83%	47.94%	\$ 24 M	26.52%	20.37%	\$ 28 M	31.65%	31.69%
<b>2017</b>	<b>\$ 93 M</b>	<b>\$ 39 M</b>	<b>41.26%</b>	<b>47.56%</b>	<b>\$ 25 M</b>	<b>26.90%</b>	<b>20.55%</b>	<b>\$ 30 M</b>	<b>31.90%</b>	<b>31.91%</b>
2001-2009	\$ 61 M	\$ 31 M	51.15%	55.48%	\$ 13 M	21.73%	17.96%	\$ 17 M	27.11%	26.56%
<b>2010-2017</b>	<b>\$ 82 M</b>	<b>\$ 36 M</b>	<b>43.63%</b>	<b>48.90%</b>	<b>\$ 21 M</b>	<b>25.09%</b>	<b>19.53%</b>	<b>\$ 26 M</b>	<b>31.29%</b>	<b>31.57%</b>
2001-2017	\$ 71 M	\$ 33 M	47.61%	52.38%	\$ 17 M	23.31%	18.70%	\$ 21 M	29.08%	28.92%

Note: Multiyear data shown as annual averages (not total change); Capital income proxied by Dividends, interest, and rents. See Annex for definitions of transfer receipts and labor income.

Figure 15. KEWEENAW EARNINGS: Farm, Non-Farm, and Government Activities



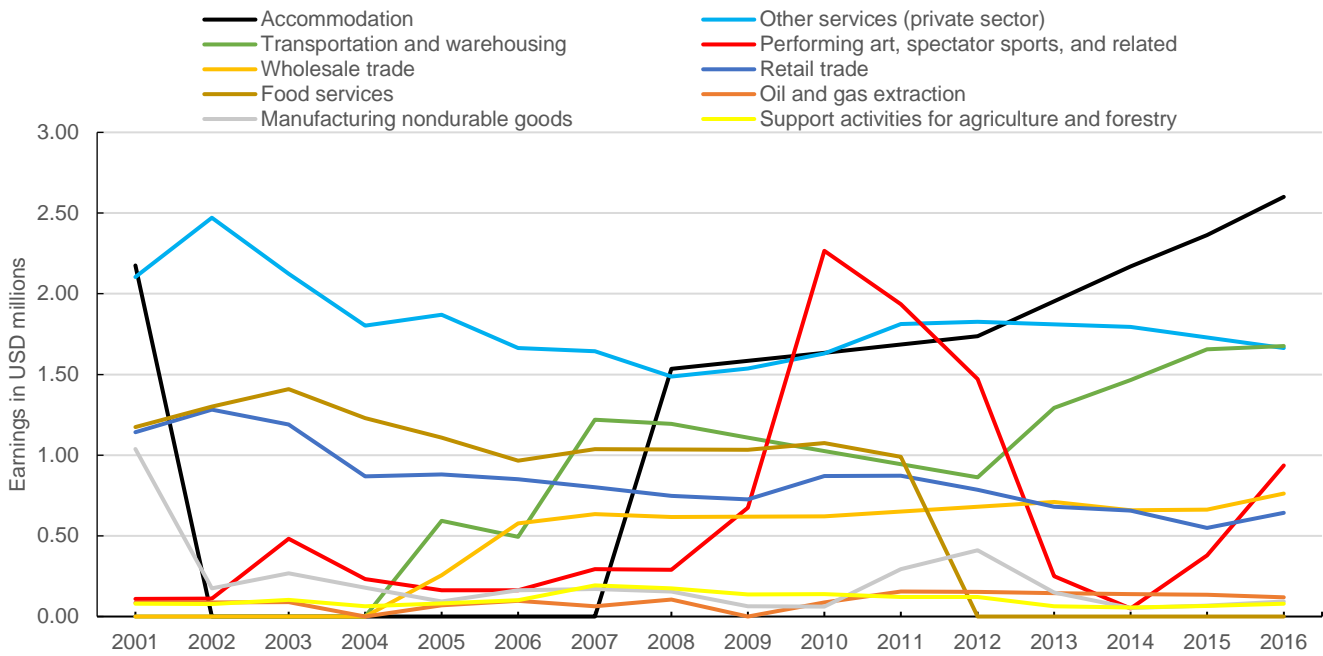
Source: BEA (2018), BLS (2018), US Census Bureau (2018)

	KEWEENAW				Farm			Non-Farm			Government		
	PI	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%
2001	\$ 59 M	\$ 23 M	39.04	63.60	0	0	0.14	\$ 19 M	81.18	57.88	\$ 4 M	18.82	41.98
2009	\$ 71 M	\$ 15 M	21.77	58.05	0	0	0.07	\$ 15 M	61.87	57.13	\$ 6 M	38.13	47.80
2016	\$ 89 M	\$ 22 M	24.50	54.20	0	0	0.18	\$ 14 M	64.28	56.12	\$ 8 M	35.72	43.70
<b>2017</b>	<b>\$ 93 M</b>	<b>\$ 24 M</b>	<b>25.51</b>	<b>53.76</b>	<b>0</b>	<b>0</b>	<b>0.15</b>	<b>\$ 15 M</b>	<b>63.23</b>	<b>55.78</b>	<b>\$ 9 M</b>	<b>36.89</b>	<b>44.33</b>
2001-2009	\$ 61 M	\$ 18 M	29.11	62.54	0	0	0.13	\$ 13 M	71.90	58.73	\$ 5 M	28.10	41.13
<b>2010-2017</b>	<b>\$ 82 M</b>	<b>\$ 19 M</b>	<b>22.97</b>	<b>55.16</b>	<b>0</b>	<b>0</b>	<b>0.26</b>	<b>\$ 12 M</b>	<b>65.33</b>	<b>56.90</b>	<b>\$ 7 M</b>	<b>34.68</b>	<b>42.86</b>
2001-2017	\$ 71 M	\$ 18 M	26.22	59.07	0	0	0.20	\$ 13 M	68.81	57.87	\$ 6 M	31.20	41.95

Note: Multiyear data shown as annual averages (not total change). R% = ratios for the Region = KHOB %. See glossary in Annex for definitions.

County-level graphs for *Earnings of Non-Farm Industries* display available data. The US Bureau of Economic Analysis (BEA) does not disclose data for specific industry sectors, sub-sectors, or specific years, when facing confidentiality concerns (e.g. number of firms is too small), or if earnings are below \$50,000. For these reasons, some plots will show curves dropping to zero in some years, which merely indicates that data was not disclosed for that period - not that earnings were zero dollars. On the other hand, since data omission per industry varied significantly across counties, we did not aggregate KHOB totals per industry given that these figures would provide distorted references for comparisons and inferences.

Figure 16. KEWEENAW: EARNINGS of NON-FARM INDUSTRIES



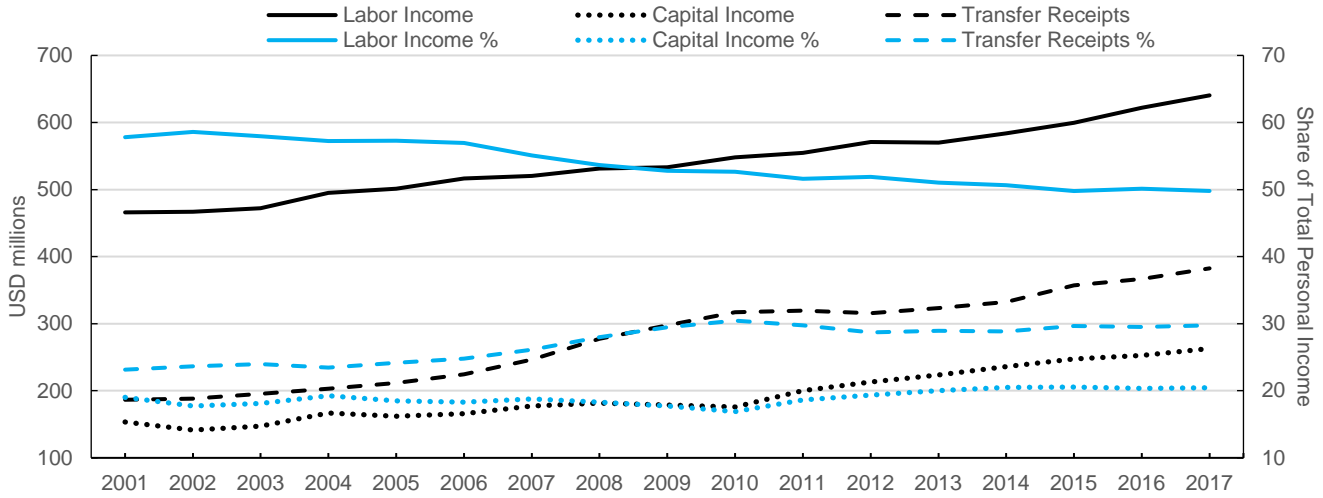
Source: BEA (2018), BLS (2018), US Census Bureau (2018), FED (2018)

Keweenaw Top 4	Accommodation		Other Services		Transport. & Warehous.		Retail Trade*	
	earnings	growth	earnings	growth	earnings	growth	earnings	growth
2001	\$ 2.2 M	NA	\$ 2.1 M	NA	NA	NA	\$ 0.9 M	NA
2009	\$ 1.6 M	3.15 %	\$ 1.5 M	3.36 %	\$ 1.1 M	-7.00 %	\$ 0.7 M	-2.94 %
<b>2016</b>	<b>\$ 2.6 M</b>	<b>10.00 %</b>	<b>\$ 1.7 M</b>	<b>-3.79 %</b>	<b>\$ 1.7 M</b>	<b>1.21 %</b>	<b>\$ 0.7 M</b>	<b>16.94 %</b>
2001-2009	NA	NA	NA	NA	NA	NA	\$ 0.9 M	-4.93 %
<b>2010-2016</b>	<b>\$ 2.0 M</b>	<b>7.41 %</b>	<b>\$ 1.7 M</b>	<b>1.26 %</b>	<b>\$ 1.2 M</b>	<b>7.62 %</b>	<b>\$ 0.7 M</b>	<b>-0.88 %</b>
2001-2016	NA	NA	NA	NA	NA	NA	\$ 0.8 M	-3.04 %

Note: \* Retail Trade selected as the 4<sup>th</sup> most relevant industry due to better data availability since 2001 (in 2017, the dollar difference between “Performing Arts, spectator sports, and related” and “Wholesale Trade” was less about \$300k). BEA did not disclose data from 2002 to 2006 for “Accommodation” due to data confidentiality reasons. For the same reason, no data for “Construction” (and other industries) was disclosed but it should be a relevant sector. “Other services” includes repair and maintenance, personal and laundry services, religious, civic, professional and similar organizations, and private households. Nondurable goods up to 2013 was mainly driven by “Petroleum and coal products manufacturing”. Plot displays available data – BEA does not disclose data for all sectors when facing confidentiality concerns (e.g. number of firms is too small).

# HOUGHTON COUNTY

Figure 17. HOUGHTON SOURCES of PERSONAL INCOME

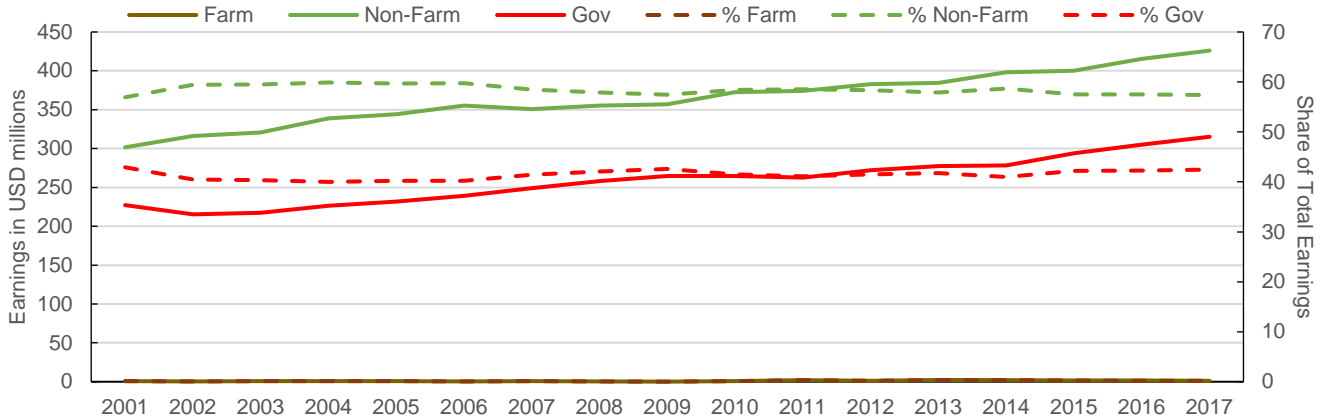


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

Personal Income	HOUGHTON	Labor Income			Capital Income			Transfer Receipts		
		amount	share	KHOB %	amount	share	KHOB %	amount	share	KHOB %
2001	\$ 806 M	\$ 466 M	57.81%	57.26%	\$ 154 M	19.04%	18.78%	\$ 187 M	23.15%	23.96%
2009	\$ 1010 M	\$ 533 M	52.81%	50.90%	\$ 179 M	17.73%	17.62%	\$ 297 M	29.46%	31.48%
2016	\$ 1241 M	\$ 622 M	50.12%	47.94%	\$ 252 M	20.34%	20.37%	\$ 367 M	29.54%	31.69%
<b>2017</b>	<b>\$ 1286 M</b>	<b>\$ 640 M</b>	<b>49.81%</b>	<b>47.56%</b>	<b>\$ 263 M</b>	<b>20.45%</b>	<b>20.55%</b>	<b>\$ 383 M</b>	<b>29.75%</b>	<b>31.91%</b>
2001-2009	\$ 890 M	\$ 500 M	56.22%	55.48%	\$ 164 M	18.41%	17.96%	\$ 226 M	25.36%	26.56%
<b>2010-2017</b>	<b>\$ 1152 M</b>	<b>\$ 586 M</b>	<b>50.89%</b>	<b>48.90%</b>	<b>\$ 226 M</b>	<b>19.66%</b>	<b>19.53%</b>	<b>\$ 339 M</b>	<b>29.46%</b>	<b>31.57%</b>
2001-2017	\$ 1013 M	\$ 541 M	53.37%	52.38%	\$ 193 M	19.08%	18.70%	\$ 279 M	27.55%	28.92%

Note: Multiyear data shown as annual averages (not total change); Capital income proxied by Dividends, interest, and rents. See Annex for definitions of transfer receipts and labor income.

Figure 18. HOUGHTON EARNINGS: Farm, Non-Farm, and Government Activities



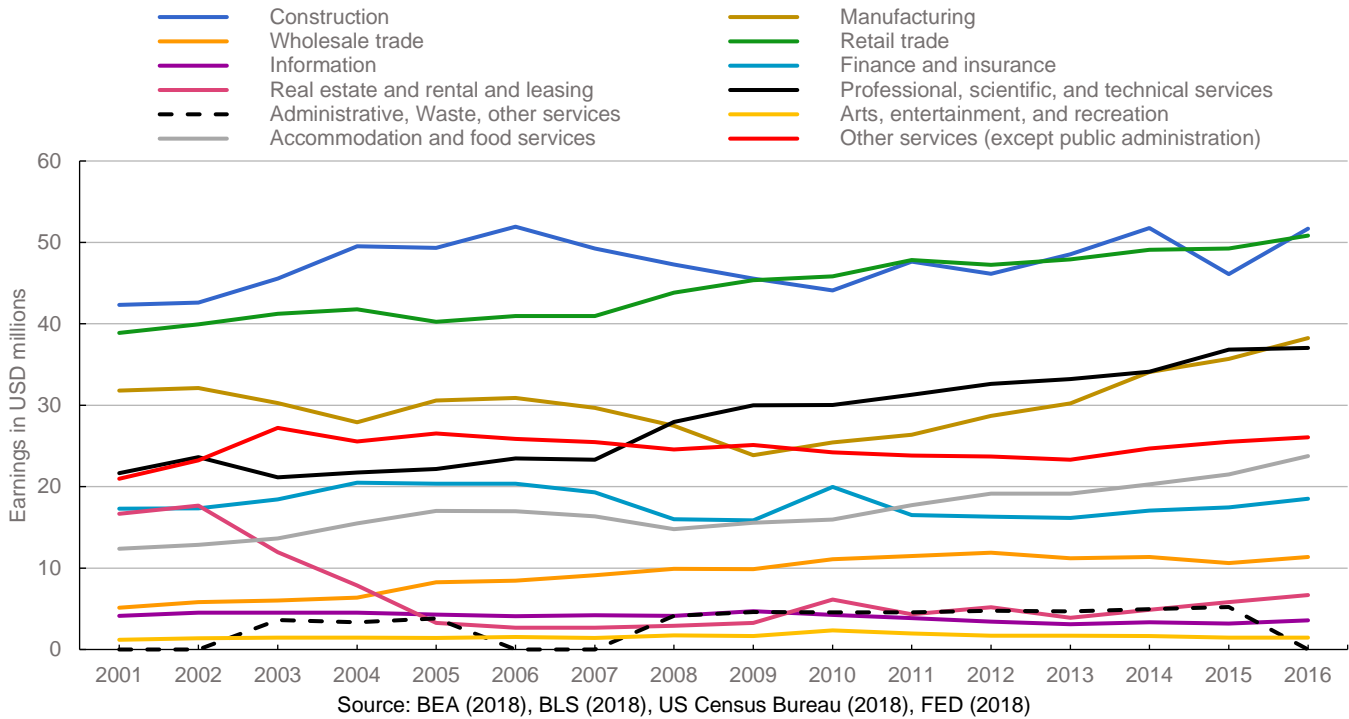
Source: BEA (2018), BLS (2018), US Census Bureau (2018)

	HOUGHTON				Farm			Non-Farm			Government		
	PI	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%
2001	\$ 806 M	\$ 530 M	65.71	63.60	\$ 0.79 M	0.15	0.14	\$ 302 M	56.94	57.88	\$ 227 M	42.92	41.98
2009	\$ 1010 M	\$ 623 M	61.60	58.05	\$ 0.14 M	0.02	0.07	\$ 357 M	57.42	57.13	\$ 265 M	42.56	47.80
2016	\$ 1241 M	\$ 722 M	58.16	54.20	\$ 1.69 M	0.24	0.18	\$ 415 M	57.52	56.12	\$ 305 M	42.28	43.70
<b>2017</b>	<b>\$ 1286 M</b>	<b>\$ 742 M</b>	<b>57.73</b>	<b>53.76</b>	<b>\$ 1.46 M</b>	<b>0.20</b>	<b>0.15</b>	<b>\$ 426 M</b>	<b>57.40</b>	<b>55.78</b>	<b>\$ 315 M</b>	<b>42.46</b>	<b>44.33</b>
2001-2009	\$ 890 M	\$ 575 M	64.75	62.54	\$ 0.52 M	0.09	0.13	\$ 338 M	58.77	58.73	\$ 237 M	41.14	41.13
<b>2010-2017</b>	<b>\$ 1152 M</b>	<b>\$ 679 M</b>	<b>59.05</b>	<b>55.16</b>	<b>\$ 1.59 M</b>	<b>0.23</b>	<b>0.26</b>	<b>\$ 394 M</b>	<b>58.04</b>	<b>56.90</b>	<b>\$ 284 M</b>	<b>41.72</b>	<b>42.86</b>
2001-2017	\$ 1013 M	\$ 624 M	62.07	59.07	\$ 1.02 M	0.16	0.20	\$ 364 M	58.43	57.87	\$ 259 M	41.41	41.95

Note: Multiyear data shown as annual averages (not total change).



Figure 19. HOUGHTON: EARNINGS of NON-FARM INDUSTRIES



Houghton Top 4	Construction		Retail Trade		Manufacturing		Prof., Scien., Technical	
	earnings	growth	earnings	growth	earnings	growth	earnings	growth
2001	\$ 42 M	NA	\$ 39 M	NA	\$ 32 M	NA	\$ 22 M	NA
2009	\$ 45 M	-3.69 %	\$ 45 M	3.48 %	\$ 24 M	-13.18 %	\$ 30 M	7.36 %
<b>2016</b>	<b>\$ 52 M</b>	<b>12.09 %</b>	<b>\$ 51 M</b>	<b>3.26 %</b>	<b>\$ 38 M</b>	<b>7.20 %</b>	<b>\$ 37 M</b>	<b>0.59 %</b>
2001-2009	\$ 47 M	1.04 %	\$ 41 M	1.98 %	\$ 29 M	-3.30 %	\$ 24 M	4.48 %
<b>2010-2016</b>	<b>\$ 48 M</b>	<b>2.10 %</b>	<b>\$ 48 M</b>	<b>1.66 %</b>	<b>\$ 31 M</b>	<b>7.01 %</b>	<b>\$ 36 M</b>	<b>3.09 %</b>
2001-2016	\$ 47 M	1.54 %	\$ 44 M	1.83 %	\$ 30 M	1.51 %	\$ 28 M	3.83 %

Note: Multiyear data shown as annual averages (not total change). Plot displays available data – BEA does not disclose data for all sectors when facing confidentiality concerns (e.g. number of firms is too small).

It is noteworthy that we omitted Health Care and Social Assistance (NAICS 62) from the graph above due to having merely 3 data points in the BEA dataset, namely 2010, 2014, and **2015**. These values amounted to \$105M, \$110M, and **\$113M**, respectively, **making NAICS 62 the largest economic sector in Houghton and therefore in the KHOB’s economy**. However, we decided to exclude it from further consideration at this point because the lack of data prevents us from making forecasts.

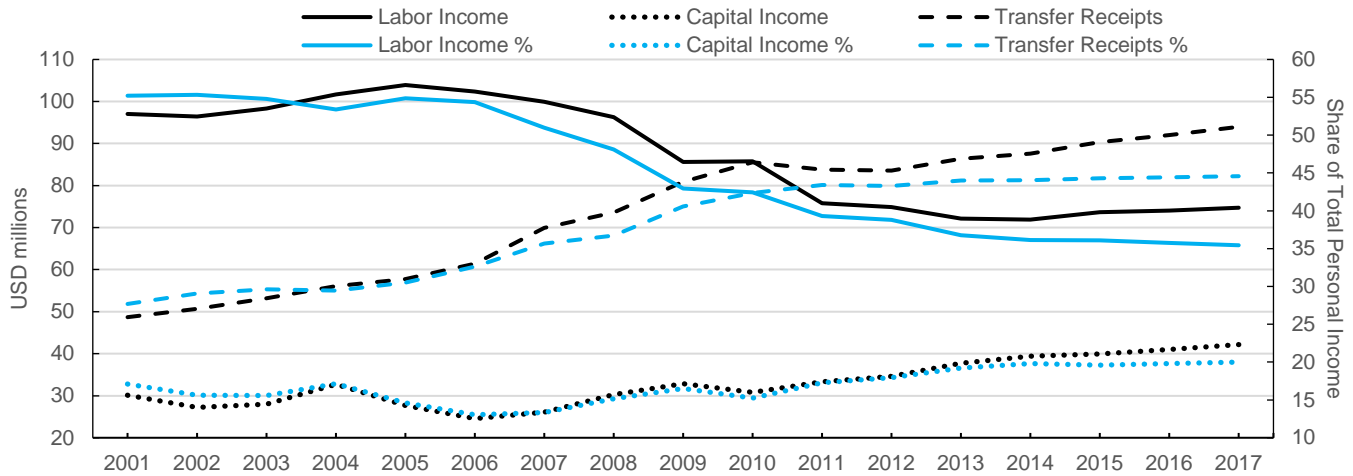
Another relevant sector in Houghton County is Educational Services (NAICS 61) – e.g. Universities. Similarly to the above, we only had 3 data points for the entire period, and for the exact same years. These values amounted to \$10M, \$11M, and \$11M for 2010, 2014, and 2015, respectively, making this sector as big as the Arts, Entertainment, and Recreation (NAICS 71) in terms of Industry Earnings, however the economic spillovers of NAICS 61 tend to be much greater (e.g. rentals).

For both NAICS 61 and 62, the BEA justifies data omission with the following statement:

“(D) Not shown to avoid disclosure of confidential information; estimates are included in higher-level totals.” (BEA, 2018)

## ONTONAGON COUNTY

Figure 20. ONTONAGON SOURCES of PERSONAL INCOME

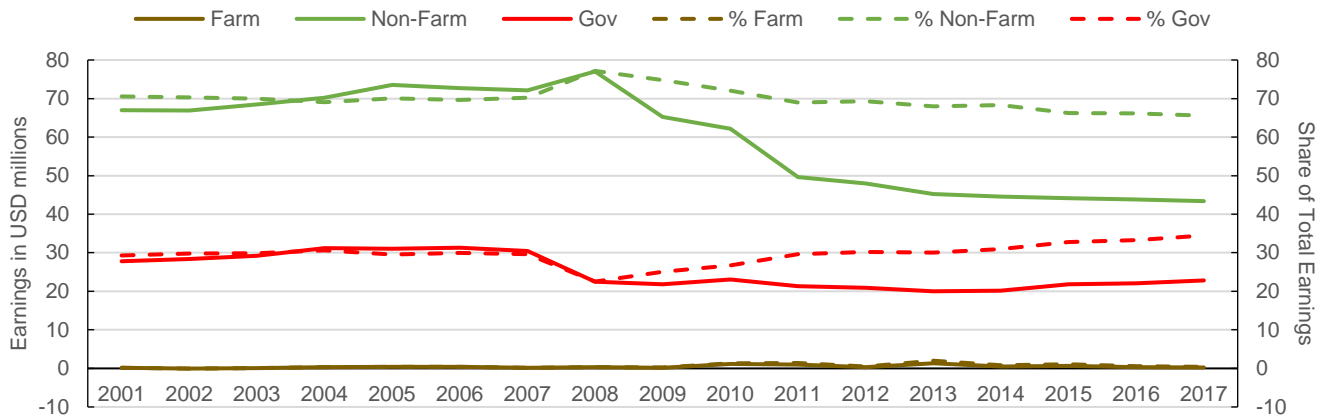


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

Personal Income	ONTONAGON	Labor Income			Capital Income			Transfer Receipts		
		amount	share	KHOB %	amount	share	KHOB %	amount	share	KHOB %
2001	\$ 176 M	\$ 97 M	55.19%	57.26%	\$ 30 M	17.12%	18.78%	\$ 49 M	27.68%	23.96%
2009	\$ 199 M	\$ 86 M	42.95%	50.90%	\$ 33 M	16.49%	17.62%	\$ 81 M	40.56%	31.48%
2016	\$ 207 M	\$ 74 M	35.77%	47.94%	\$ 41 M	19.80%	20.37%	\$ 92 M	44.43%	31.69%
<b>2017</b>	<b>\$ 211 M</b>	<b>\$ 75 M</b>	<b>35.44%</b>	<b>47.56%</b>	<b>\$ 42 M</b>	<b>20.00%</b>	<b>20.55%</b>	<b>\$ 94 M</b>	<b>44.57%</b>	<b>31.91%</b>
2001-2009	\$ 188 M	\$ 98 M	52.07%	55.48%	\$ 29 M	15.33%	17.96%	\$ 61 M	32.61%	26.56%
<b>2010-2017</b>	<b>\$ 201 M</b>	<b>\$ 75 M</b>	<b>37.56%</b>	<b>48.90%</b>	<b>\$ 37 M</b>	<b>18.63%</b>	<b>19.53%</b>	<b>\$ 88 M</b>	<b>43.81%</b>	<b>31.57%</b>
2001-2017	\$ 194 M	\$ 87 M	45.01%	52.38%	\$ 33 M	16.93%	18.70%	\$ 74 M	38.06%	28.92%

Note: Multiyear data shown as annual averages (not total change); Capital income proxied by Dividends, interest, and rents. See Annex for definitions of transfer receipts and labor income.

Figure 21. ONTONAGON EARNINGS: Farm, Non-Farm, and Government Activities

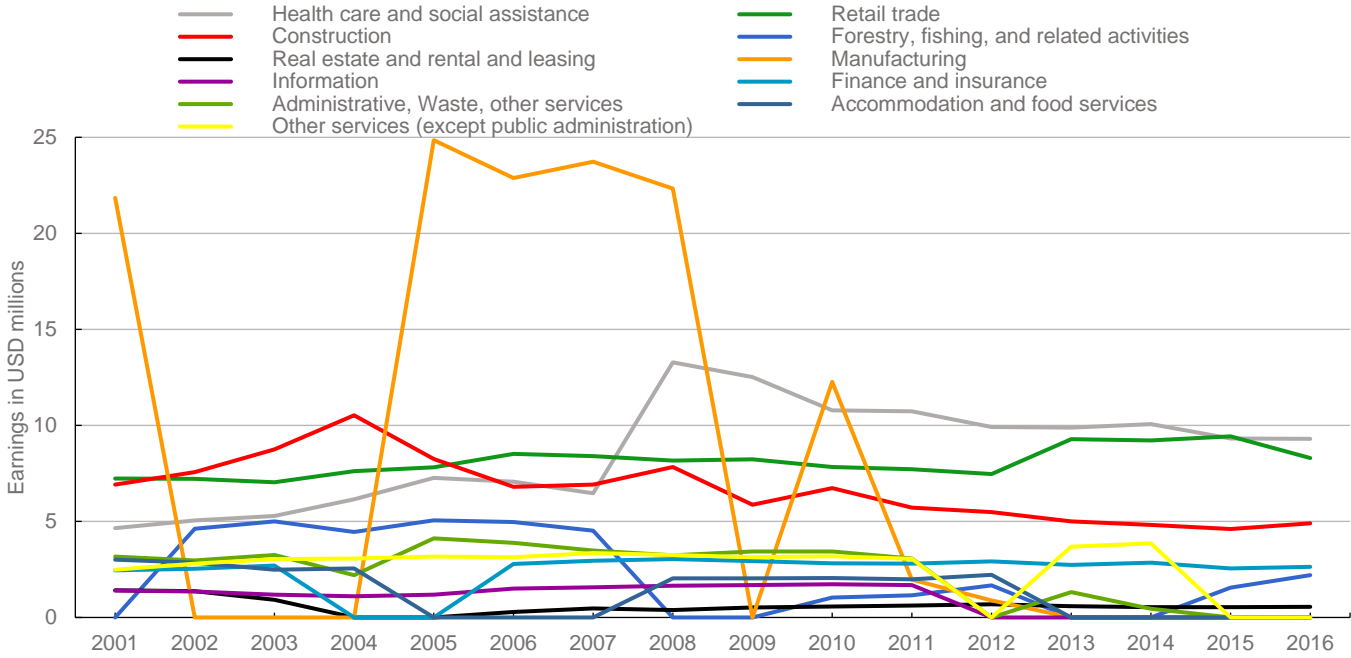


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

	ONTONAGON				Farm			Non-Farm			Government		
	PI	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%
2001	\$ 176 M	\$ 95 M	54.00	63.60	\$ 0.14 M	0.15	0.14	\$ 67 M	70.55	57.88	\$ 28 M	29.29	41.98
2009	\$ 199 M	\$ 87 M	43.76	58.05	\$ 0.18 M	0.21	0.07	\$ 65 M	74.77	57.13	\$ 22 M	25.02	47.80
2016	\$ 207 M	\$ 66 M	32.00	54.20	\$ 0.36 M	0.55	0.18	\$ 44 M	66.16	56.12	\$ 22 M	33.30	43.70
<b>2017</b>	<b>\$ 211 M</b>	<b>\$ 66 M</b>	<b>31.39</b>	<b>53.76</b>	<b>\$ 0.27 M</b>	<b>0.41</b>	<b>0.15</b>	<b>\$ 43 M</b>	<b>65.56</b>	<b>55.78</b>	<b>\$ 23 M</b>	<b>34.47</b>	<b>44.33</b>
2001-2009	\$ 188 M	\$ 98 M	52.60	62.54	\$ 0.22 M	0.22	0.13	\$ 70 M	71.30	58.73	\$ 28 M	28.48	41.13
<b>2010-2017</b>	<b>\$ 201 M</b>	<b>\$ 70 M</b>	<b>34.84</b>	<b>55.16</b>	<b>\$ 0.71 M</b>	<b>1.00</b>	<b>0.26</b>	<b>\$ 48 M</b>	<b>68.06</b>	<b>56.90</b>	<b>\$ 22 M</b>	<b>31.00</b>	<b>42.86</b>
2001-2017	\$ 194 M	\$ 85 M	44.25	59.07	\$ 0.45 M	0.59	0.20	\$ 60 M	69.77	57.87	\$ 25 M	29.67	41.95

Note: Multiyear data shown as annual averages (not total change).

Figure 22. ONTONAGON: EARNINGS of NON-FARM INDUSTRIES



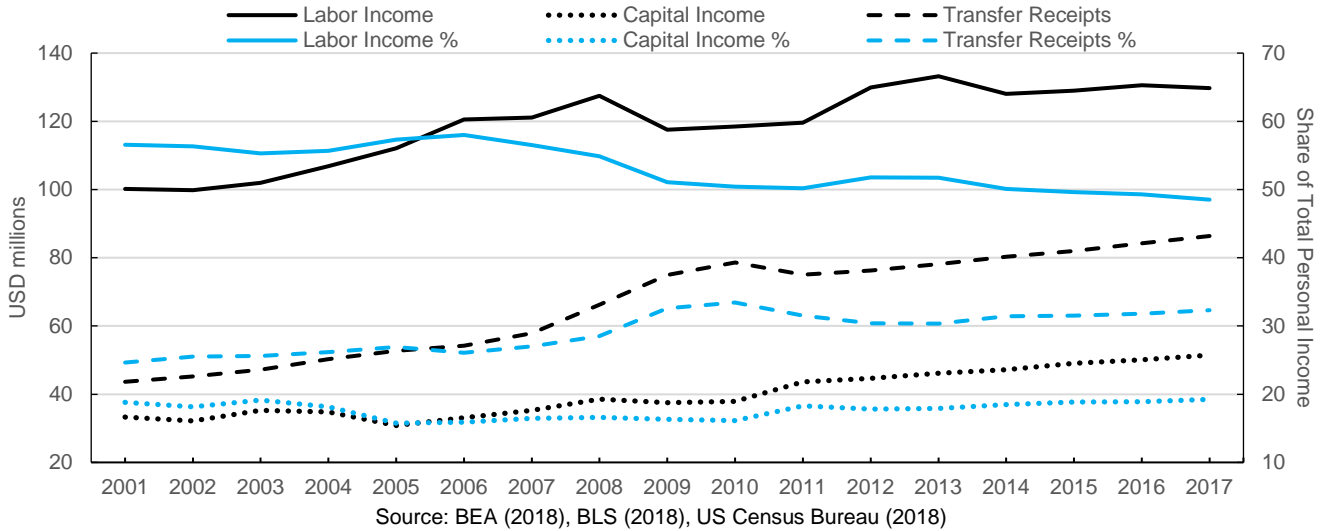
Source: BEA (2018), BLS (2018), US Census Bureau (2018), FED (2018)

Ontonagon Top 4	Health Care & Social		Retail Trade		Construction		Finance & Insurance	
	earnings	growth	earnings	growth	earnings	growth	earnings	growth
2001	\$ 4.6 M	NA	\$ 7.2 M	NA	\$ 6.9 M	NA	\$ 2.5 M	NA
2009	\$ 12 M	-5.77 %	\$ 8.2 M	0.86 %	\$ 5.9 M	-25.20 %	\$ 2.9 M	-3.62 %
<b>2016</b>	<b>\$ 9.3 M</b>	<b>-0.21 %</b>	<b>\$ 8.3 M</b>	<b>-11.97 %</b>	<b>\$ 4.9 M</b>	<b>6.51 %</b>	<b>\$ 2.6 M</b>	<b>3.61 %</b>
2001-2009	\$ 7.5 M	17.01 %	\$ 7.8 M	1.72 %	\$ 7.7 M	-0.50 %	NA	NA
<b>2010-2016</b>	<b>\$ 10 M</b>	<b>-4.00 %</b>	<b>\$ 8.5 M</b>	<b>0.62 %</b>	<b>\$ 5.3 M</b>	<b>-2.10 %</b>	<b>\$ 2.8 M</b>	<b>-1.32 %</b>
2001-2016	\$ 8.6 M	7.21 %	\$ 8.1 M	1.21 %	\$ 6.7 M	-1.25 %	NA	NA

Note: Multiyear data shown as annual averages (not total change). Plot displays available data – BEA does not disclose data for all sectors when facing confidentiality concerns (e.g. number of firms is too small).

**BARAGA COUNTY**

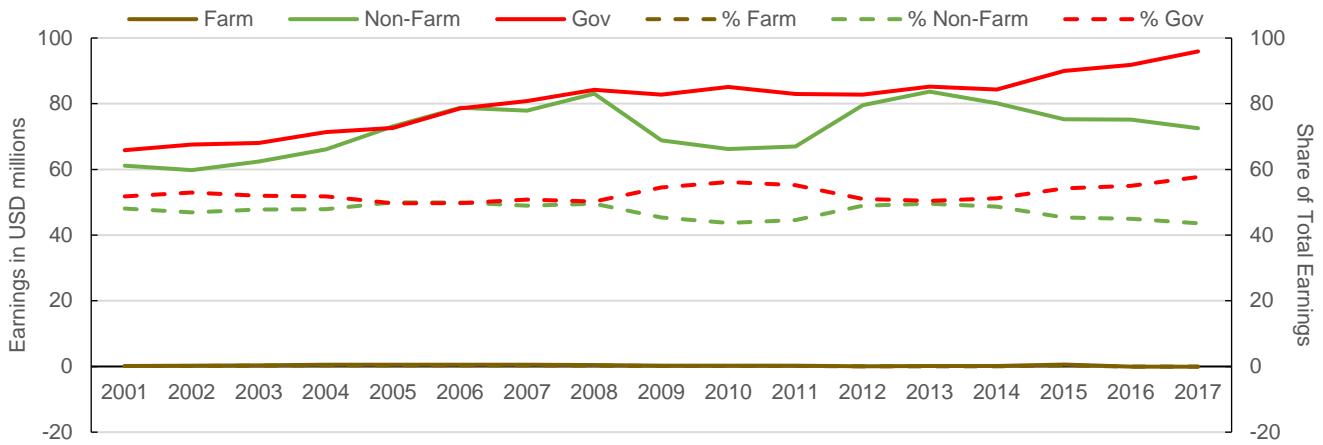
Figure 23. BARAGA SOURCES of PERSONAL INCOME



Personal Income	BARAGA	Labor Income			Capital Income			Transfer Receipts		
		amount	share	KHOB %	amount	share	KHOB %	amount	share	KHOB %
2001	\$ 177 M	\$ 34 M	58.09%	57.26%	\$ 12 M	19.99%	18.78%	\$ 13 M	21.91%	23.96%
2009	\$ 230 M	\$ 32 M	45.41%	50.90%	\$ 17 M	23.52%	17.62%	\$ 22 M	31.07%	31.48%
2016	\$ 265 M	\$ 37 M	41.83%	47.94%	\$ 24 M	26.52%	20.37%	\$ 28 M	31.65%	31.69%
<b>2017</b>	<b>\$ 267 M</b>	<b>\$ 39 M</b>	<b>41.26%</b>	<b>47.56%</b>	<b>\$ 25 M</b>	<b>26.90%</b>	<b>20.55%</b>	<b>\$ 30 M</b>	<b>31.90%</b>	<b>31.91%</b>
2001-2009	\$ 201 M	\$ 31 M	51.15%	55.48%	\$ 13 M	21.73%	17.96%	\$ 17 M	27.11%	26.56%
<b>2010-2017</b>	<b>\$ 254 M</b>	<b>\$ 36 M</b>	<b>43.63%</b>	<b>48.90%</b>	<b>\$ 21 M</b>	<b>25.09%</b>	<b>19.53%</b>	<b>\$ 26 M</b>	<b>31.29%</b>	<b>31.57%</b>
2001-2017	\$ 226 M	\$ 33 M	47.61%	52.38%	\$ 17 M	23.31%	18.70%	\$ 21 M	29.08%	28.92%

Note: Multiyear data shown as annual averages (not total change); Capital income proxied by Dividends, interest, and rents. See Annex for definitions of transfer receipts and labor income.

Figure 24. Baraga EARNINGS: Farm, Non-Farm, and Government Activities

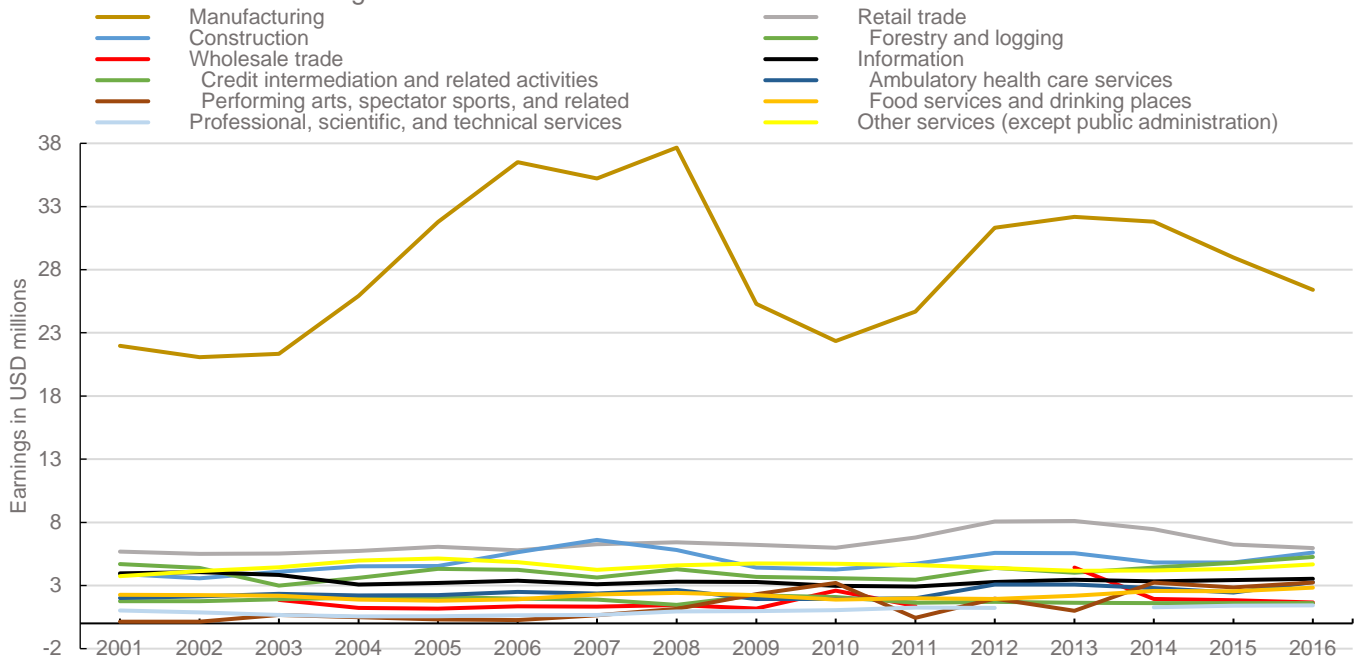


Source: BEA (2018), BLS (2018), US Census Bureau (2018)

	BARAGA				Farm			Non-Farm			Government		
	PI	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%	Earnings	%	R%
2001	\$ 177 M	\$ 127 M	71.77	63.60	\$ 0.15 M	0.11	0.14	\$ 61 M	48.08	57.88	\$ 66 M	51.81	41.98
2009	\$ 230 M	\$ 152 M	66.03	58.05	\$ 0.29 M	0.19	0.07	\$ 69 M	45.33	57.13	\$ 83 M	54.48	47.80
2016	\$ 265 M	\$ 167 M	63.03	54.20	\$ -0.04 M	-0.02	0.18	\$ 75 M	45.00	56.12	\$ 92 M	55.02	43.70
<b>2017</b>	<b>\$ 267 M</b>	<b>\$ 166 M</b>	<b>62.18</b>	<b>53.76</b>	<b>\$ -0.07 M</b>	<b>-0.04</b>	<b>0.15</b>	<b>\$ 75 M</b>	<b>43.60</b>	<b>55.78</b>	<b>\$ 96 M</b>	<b>57.69</b>	<b>44.33</b>
2001-2009	\$ 201 M	\$ 145 M	72.20	62.54	\$ 0.40 M	0.25	0.13	\$ 70 M	48.25	58.73	\$ 75 M	51.50	41.13
<b>2010-2017</b>	<b>\$ 254 M</b>	<b>\$ 162 M</b>	<b>63.91</b>	<b>55.16</b>	<b>\$ 0.15 M</b>	<b>0.09</b>	<b>0.26</b>	<b>\$ 75 M</b>	<b>46.18</b>	<b>56.90</b>	<b>\$ 87 M</b>	<b>53.88</b>	<b>42.86</b>
2001-2017	\$ 226 M	\$ 153 M	68.30	59.07	\$ 0.27 M	0.18	0.20	\$ 72 M	47.28	57.87	\$ 81 M	52.62	41.95

Note: Multiyear data shown as annual averages (not total change).

Figure 25. BARAGA: EARNINGS of NON-FARM INDUSTRIES



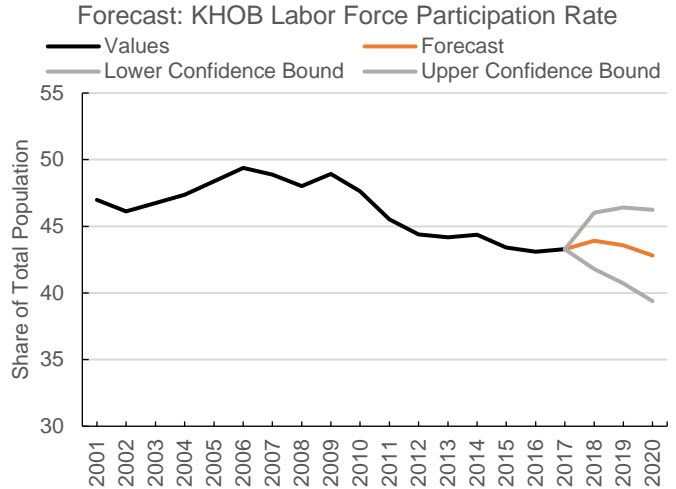
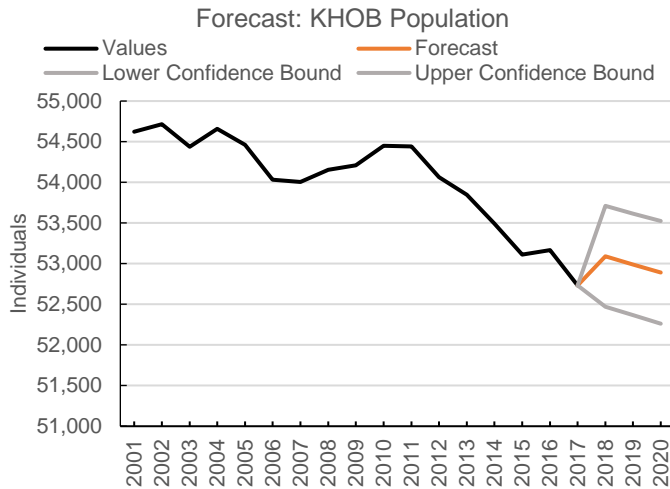
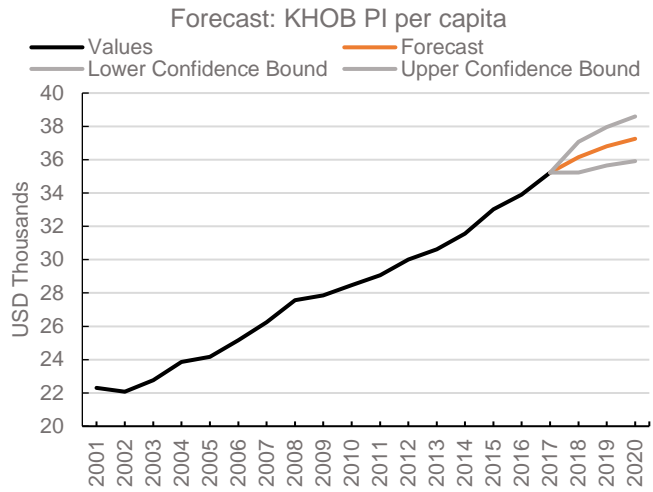
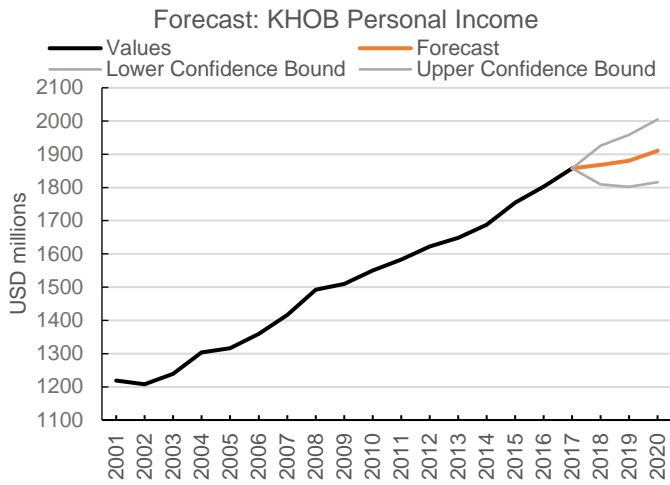
Source: BEA (2018), BLS (2018), US Census Bureau (2018), FED (2018)

Baraga Top 4	Manufacturing		Retail Trade		Construction		Forestry & Logging	
	earnings	growth	earnings	growth	earnings	growth	earnings	growth
2001	\$ 22 M	NA	\$ 5.7 M	NA	\$ 3.9 M	NA	NA	NA
2009	\$ 25 M	-32.82	\$ 6.2 M	-2.90	\$ 4.4 M	-23.81	\$ 3.7 M	0.66
<b>2016</b>	<b>\$ 26 M</b>	<b>-8.86</b>	<b>\$ 6.0 M</b>	<b>-4.56</b>	<b>\$ 5.6 M</b>	<b>16.56</b>	<b>\$ 5.3 M</b>	<b>9.65</b>
2001-2009	\$ 28 M	3.34	\$ 5.9 M	1.22	\$ 4.8 M	2.78	\$ 3.9 M *	4.25 *
<b>2010-2016</b>	<b>\$ 28 M</b>	<b>1.35</b>	<b>\$ 6.9 M</b>	<b>0.01</b>	<b>\$ 5.1 M</b>	<b>4.00</b>	<b>\$ 4.3 M</b>	<b>5.8</b>
2001-2016	\$ 28 M	2.41	\$ 6.4 M	0.66	\$ 4.9 M	3.35	\$ 4.1 M **	5.08 **

Note: Multiyear data shown as annual averages (not total change). \* and \*\* use year 2004 as the lower bound, instead of 2001 due to lack of data. Plot displays available data – BEA does not disclose data for all sectors when facing confidentiality concerns (e.g. number of firms is too small).

## FORECASTS

Figure 26. KHOB SOCIOECONOMIC ESTIMATES



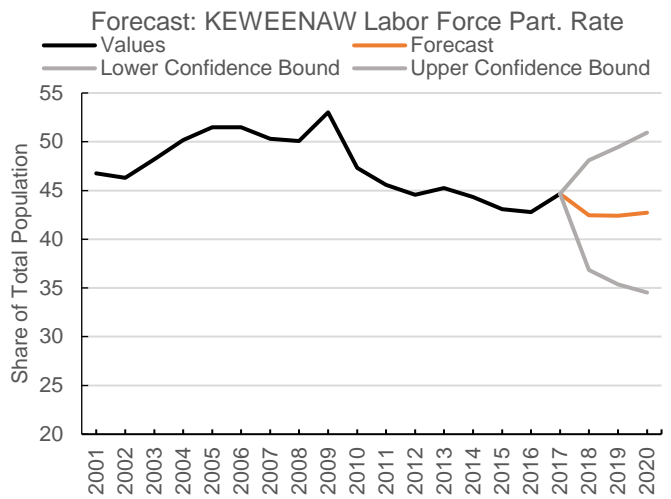
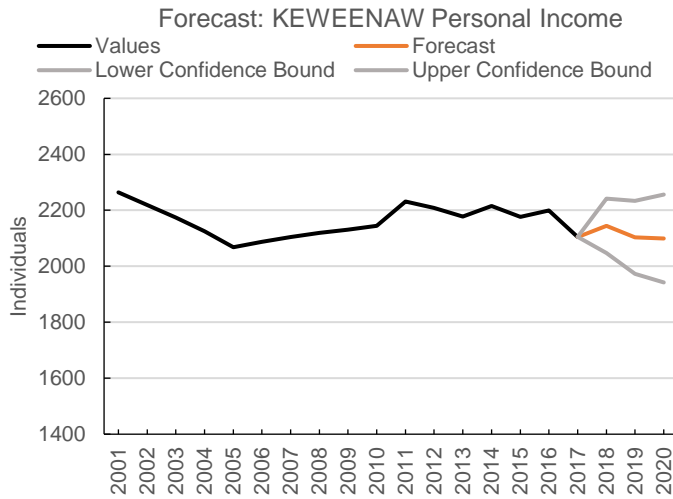
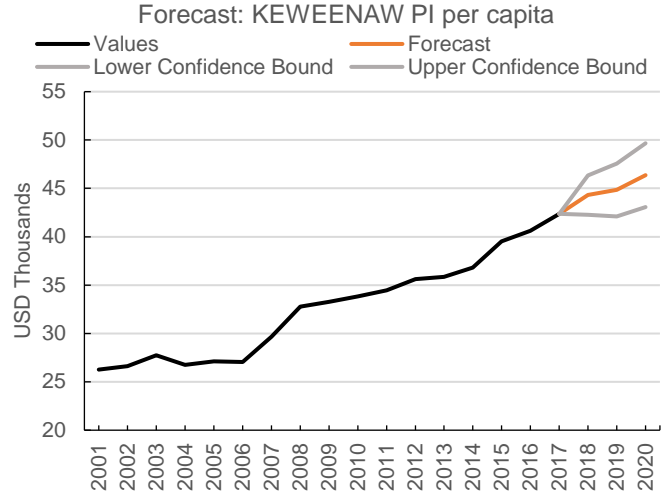
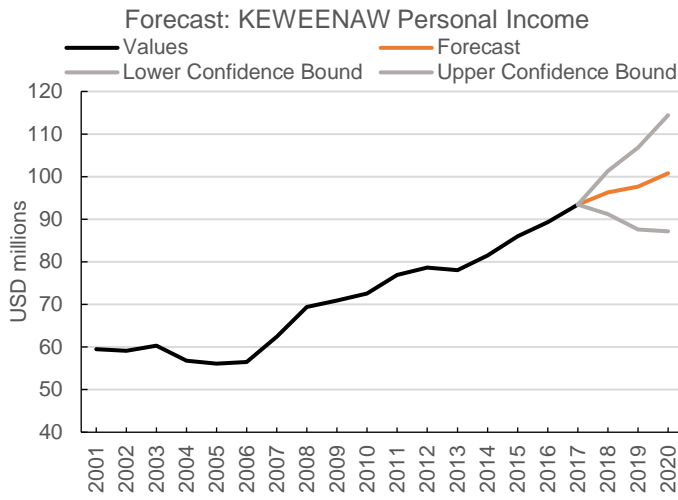
Personal Income	95% Confidence Interval				PI per capita	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 1,857 M				2017	\$ 35,225			
2018	\$ 1,868 M	0.55 %	\$ 1,809 M	\$ 1,926 M	2018	\$ 35,104	2.63 %	\$ 33,869	\$ 36,339
2019	\$ 1,880 M	0.68 %	\$ 1,802 M	\$ 1,959 M	2019	\$ 35,292	1.82 %	\$ 33,630	\$ 36,954
2020	\$ 1,910 M	1.60 %	\$ 1,816 M	\$ 2,005 M	2020	\$ 35,720	1.21 %	\$ 33,719	\$ 37,721

Population	95% Confidence Interval				Labor F. %	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	52,732				2017	43.3			
2018	53,090	0.68%	52,470	53,711	2018	43.9	1.48	41.8	46.0
2019	52,991	-0.19%	52,366	53,617	2019	43.6	-0.81	40.7	46.4
2020	52,892	-0.19%	52,261	53,523	2020	42.8	-1.73	39.4	46.2

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 27. KEWEENAW SOCIOECONOMIC ESTIMATES



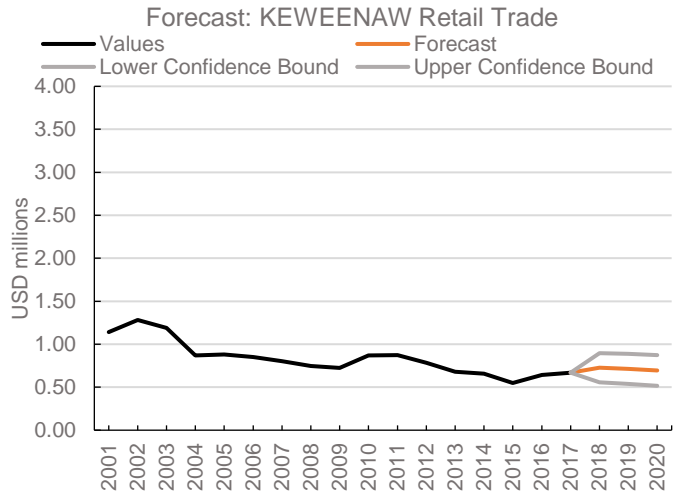
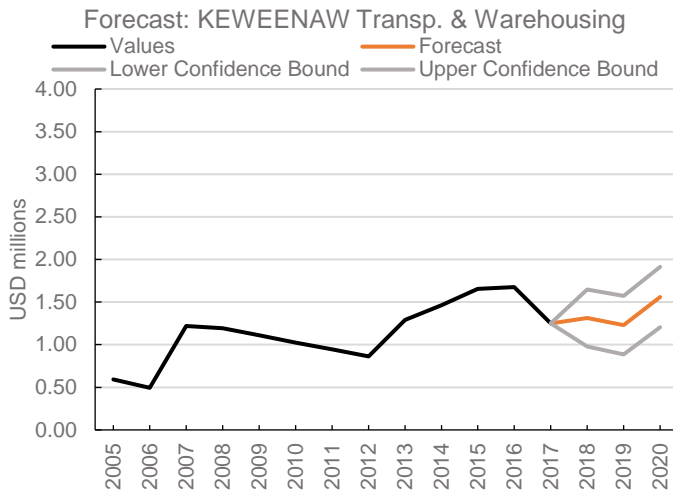
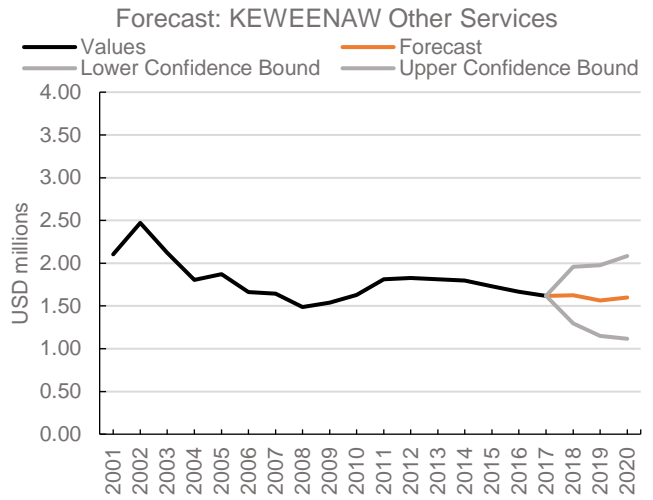
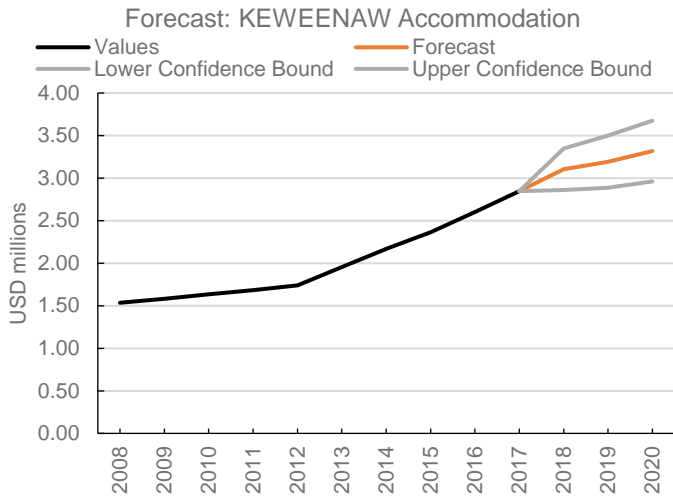
Personal Income	95% Confidence Interval				PI per capita	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 93 M				2017	\$ 42,361			
2018	\$ 96 M	3.05 %	\$ 91 M	\$ 101 M	2018	\$ 44,839	4.61 %	\$ 42,100	\$ 47,579
2019	\$ 98 M	1.15 %	\$ 88 M	\$ 107 M	2019	\$ 46,366	1.19 %	\$ 43,068	\$ 49,663
2020	\$ 101 M	3.17%	\$ 87 M	\$ 114 M	2020	\$ 44,313	3.40 %	\$ 42,278	\$ 46,348

Population	95% Confidence Interval				Labor F. %	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	2,105				2017	44.7			
2018	2,144	1.87 %	2,047	2,241	2018	42.5	-4.89 %	36.9	48.1
2019	2,103	-1.92 %	1,973	2,234	2019	42.4	-0.15 %	35.4	49.4
2020	2,099	-0.19 %	1,942	2,256	2020	42.7	0.76 %	34.5	50.9

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 28. KEWEENAW INDUSTRY ESTIMATES



Accomm.	95% Confidence Interval				Other Services	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 2.85 M				2017	\$ 1.62 M			
2018	\$ 3.11 M	9.09 %	\$ 2.86 M	\$ 3.35 M	2018	\$ 1.62 M	0.42 %	\$ 1.29 M	\$ 1.96 M
2019	\$ 3.19 M	2.79 %	\$ 2.89 M	\$ 3.50 M	2019	\$ 1.56 M	-3.76 %	\$ 1.15 M	\$ 1.98 M
2020	\$ 3.32 M	3.95 %	\$ 2.96 M	\$ 3.68 M	2020	\$ 1.60 M	2.31 %	\$ 1.12 M	\$ 2.08 M

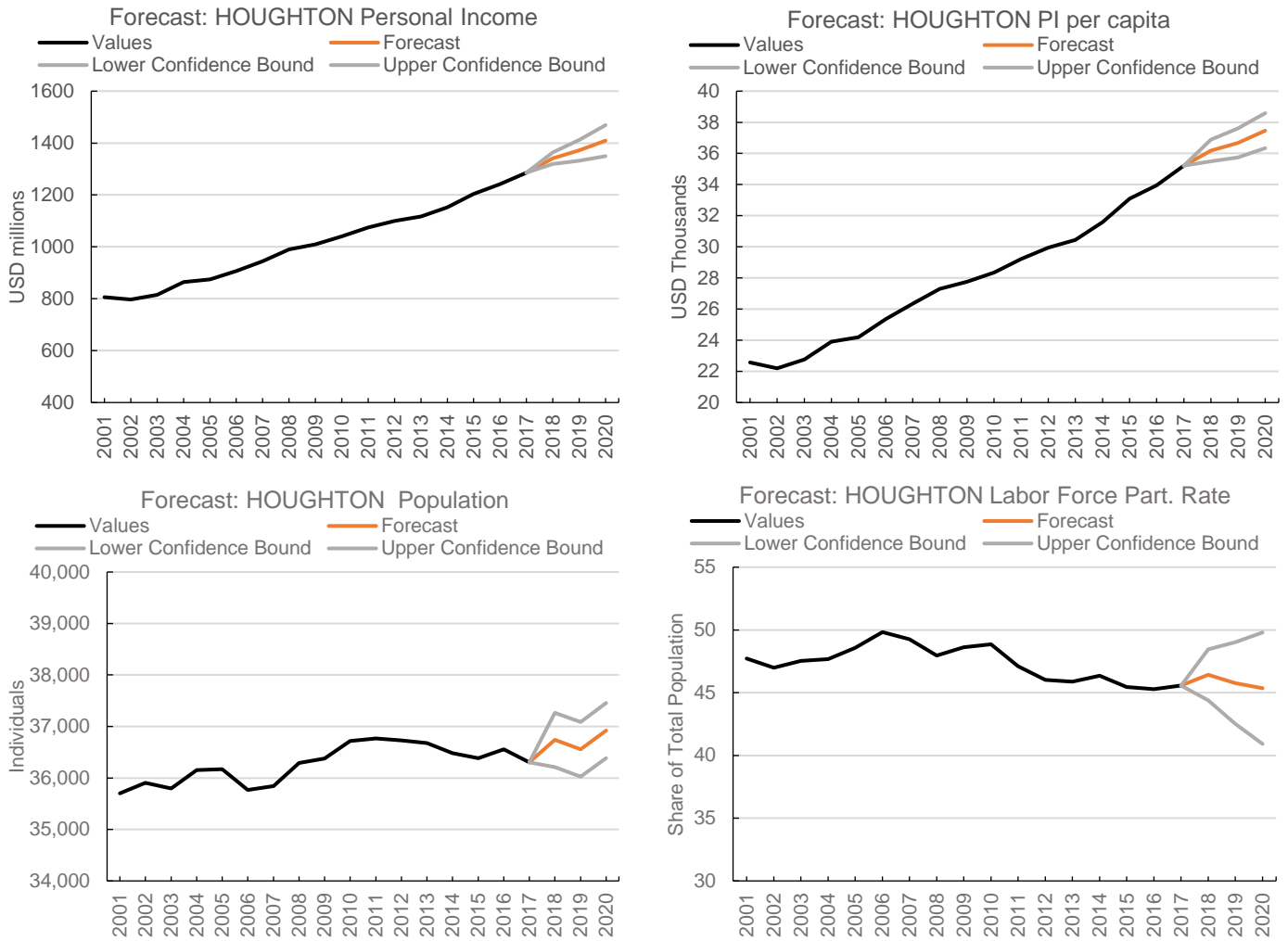
  

Transport. & Wareh.	95% Confidence Interval				Retail Trade	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 1.25 M				2017	\$ 0.67 M			
2018	\$ 1.31 M	5.08 %	\$ 0.98 M	\$ 1.65 M	2018	\$ 0.73 M	8.67 %	\$ 0.56 M	\$ 0.90 M
2019	\$ 1.23 M	-6.39 %	\$ 0.89 M	\$ 1.57 M	2019	\$ 0.71 M	-1.91 %	\$ 0.54 M	\$ 0.89 M
2020	\$ 1.56 M	26.79 %	\$ 1.21 M	\$ 1.91 M	2020	\$ 0.70 M	-2.47 %	\$ 0.52 M	\$ 0.87 M

Note: Estimates shall be considered cautiously since these are merely guesses about the future.



Figure 29. HOUGHTON SOCIOECONOMIC ESTIMATES



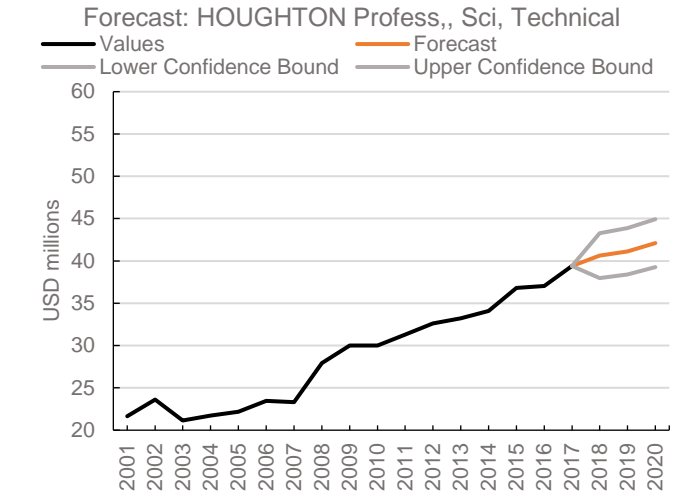
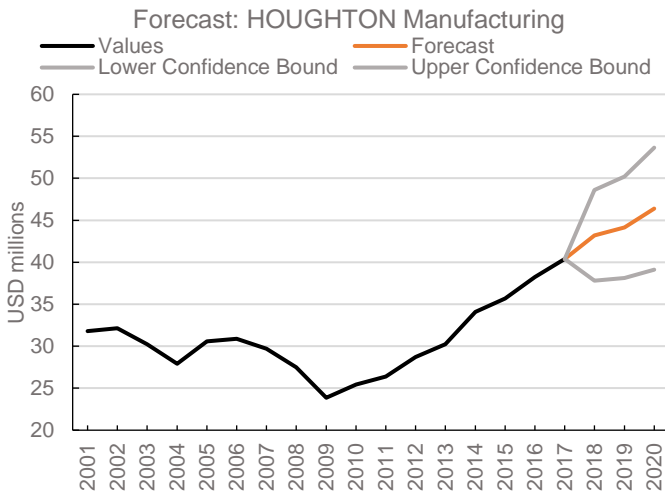
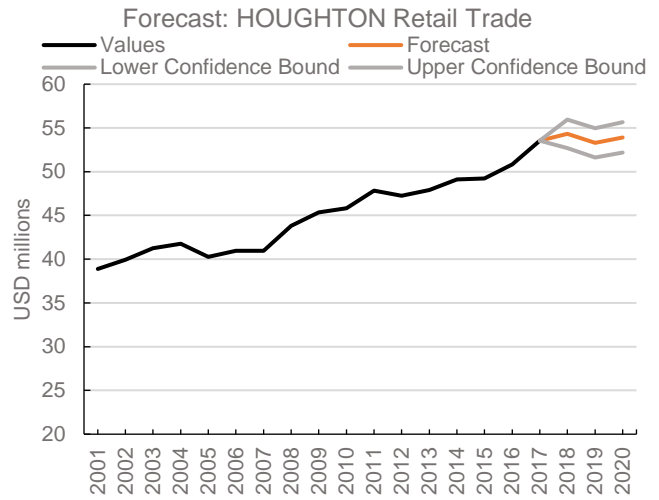
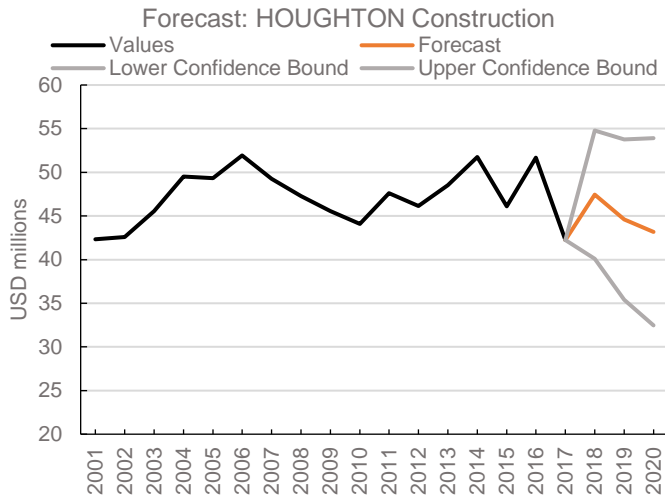
Personal Income	95% Confidence Interval				PI per capita	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 1,857 M				2017	\$ 35,225			
2018	\$ 1,868 M	0.55 %	\$ 1,809 M	\$ 1,926 M	2018	\$ 35,104	2.63 %	\$ 33,869	\$ 36,339
2019	\$ 1,880 M	0.68 %	\$ 1,802 M	\$ 1,959 M	2019	\$ 35,292	1.82 %	\$ 33,630	\$ 36,954
2020	\$ 1,910 M	1.60 %	\$ 1,816 M	\$ 2,005 M	2020	\$ 35,720	1.21 %	\$ 33,719	\$ 37,721

Population	95% Confidence Interval				Labor F. %	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	52,732				2017	43.3			
2018	53,090	0.68%	52,470	53,711	2018	43.9	1.48	41.8	46.0
2019	52,991	-0.19%	52,366	53,617	2019	43.6	-0.81	40.7	46.4
2020	52,892	-0.19%	52,261	53,523	2020	42.8	-1.73	39.4	46.2

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 29. HOUGHTON INDUSTRY ESTIMATES



Construct.	95% Confidence Interval			
	Estimate	Growth	Trade	Upper
2017	\$ 42.24 M			
2018	\$ 47.44 M	12.32 %	\$ 40.10 M	\$ 54.78 M
2019	\$ 44.59 M	-6.01 %	\$ 35.40 M	\$ 53.78 M
2020	\$ 43.18 M	-3.15 %	\$ 32.46 M	\$ 53.91 M

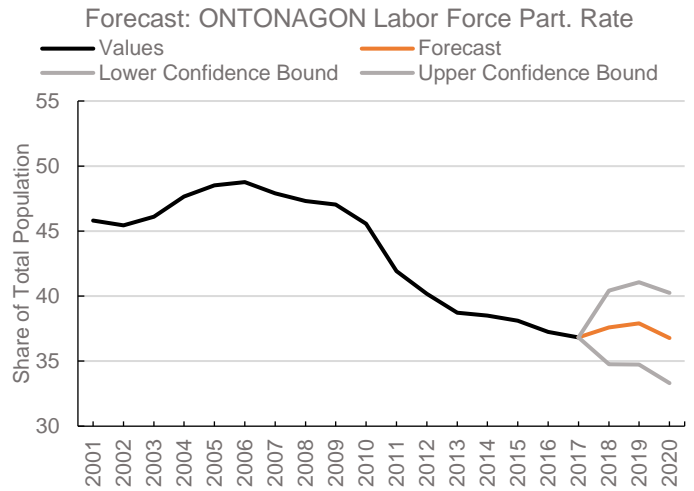
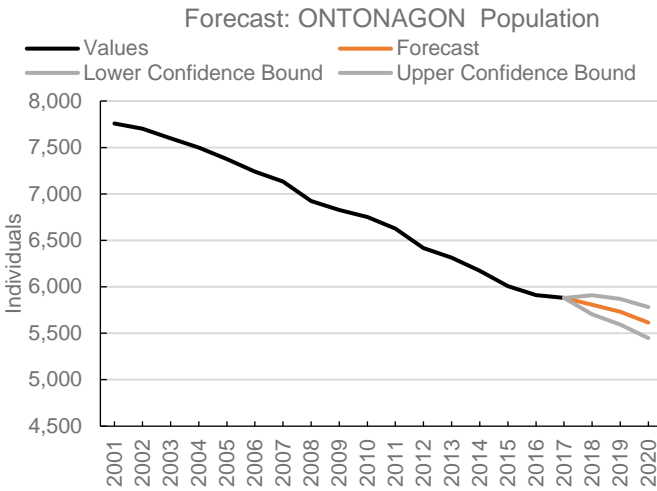
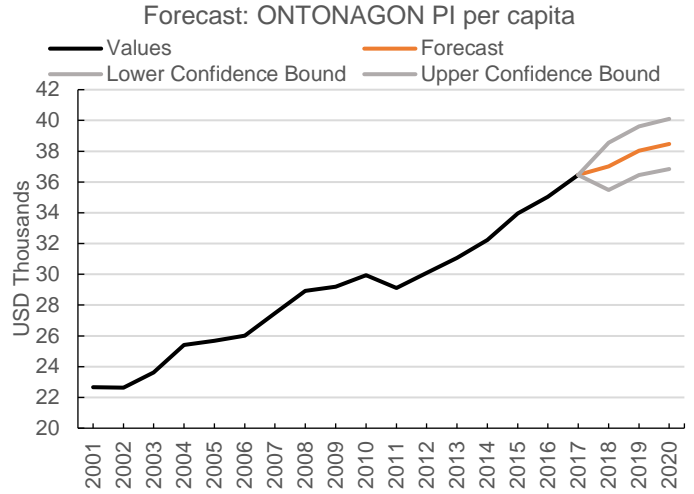
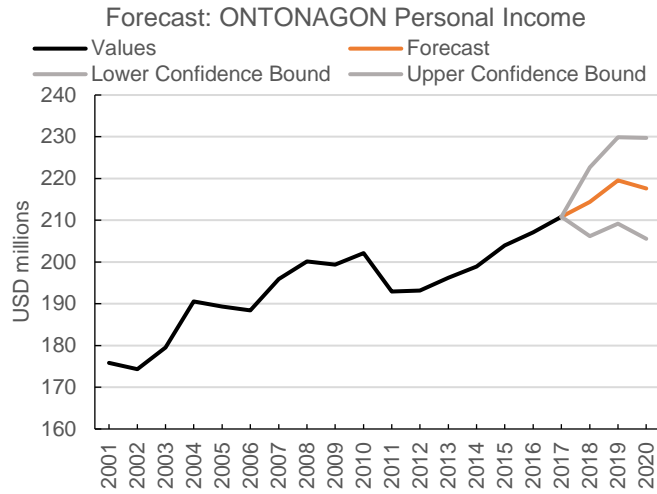
Retail Services	95% Confidence Interval			
	Estimate	Growth	Lower	Upper
2017	\$ 53.54 M			
2018	\$ 54.33 M	1.46 %	\$ 52.70 M	\$ 55.95 M
2019	\$ 53.30 M	-1.90 %	\$ 51.62 M	\$ 54.97 M
2020	\$ 53.92 M	1.18 %	\$ 52.20 M	\$ 55.65 M

Manufact.	95% Confidence Interval			
	Estimate	Growth	Lower	Upper
2017	\$ 40.39 M			
2018	\$ 43.20 M	6.96 %	\$ 37.81 M	\$ 48.60 M
2019	\$ 44.17 M	2.23 %	\$ 38.14 M	\$ 50.20 M
2020	\$ 46.39 M	5.04 %	\$ 39.13 M	\$ 53.65 M

Prof, Sci, Technical	95% Confidence Interval			
	Estimate	Growth	Lower	Upper
2017	\$ 39.40 M			
2018	\$ 40.63 M	3.12 %	\$ 37.97 M	\$ 43.29 M
2019	\$ 41.14 M	1.25 %	\$ 38.40 M	\$ 43.88 M
2020	\$ 42.11 M	2.35 %	\$ 39.28 M	\$ 44.93 M

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 30. ONTONAGON SOCIOECONOMIC ESTIMATES



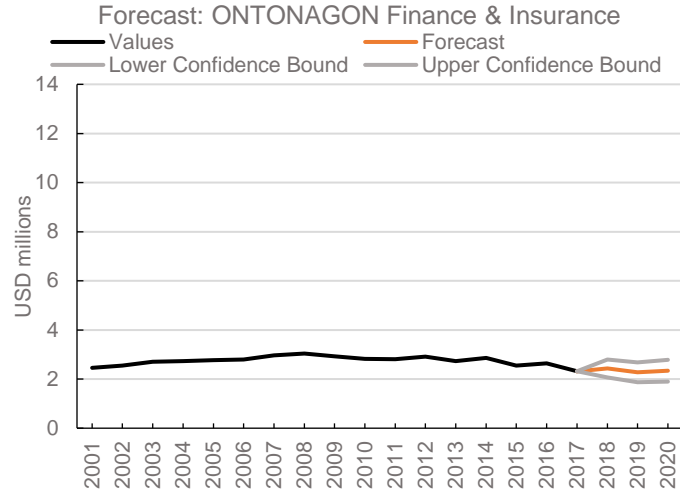
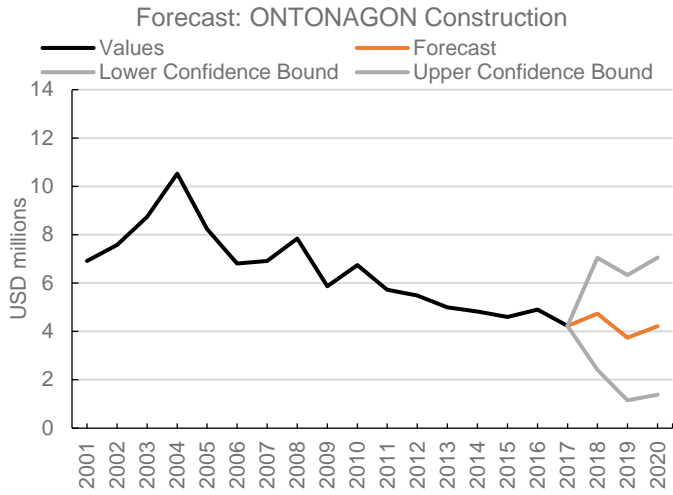
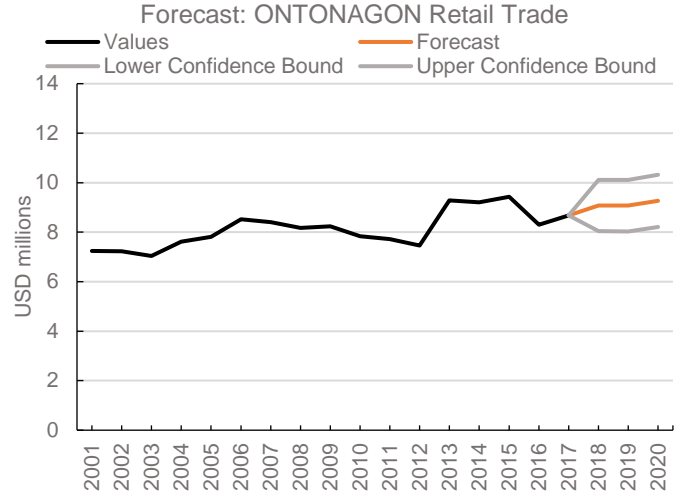
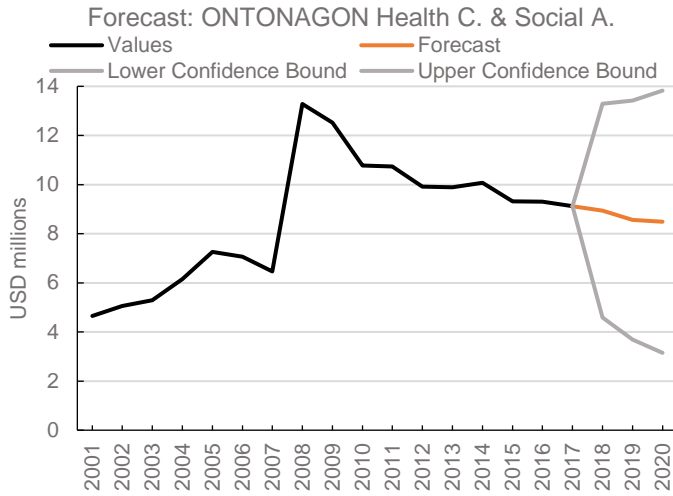
Personal Income	95% Confidence Interval				PI per capita	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 1,857 M				2017	\$ 35,225			
2018	\$ 1,868 M	0.55 %	\$ 1,809 M	\$ 1,926 M	2018	\$ 35,104	2.63 %	\$ 33,869	\$ 36,339
2019	\$ 1,880 M	0.68 %	\$ 1,802 M	\$ 1,959 M	2019	\$ 35,292	1.82 %	\$ 33,630	\$ 36,954
2020	\$ 1,910 M	1.60 %	\$ 1,816 M	\$ 2,005 M	2020	\$ 35,720	1.21 %	\$ 33,719	\$ 37,721

Population	95% Confidence Interval				Labor F. %	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	52,732				2017	43.3			
2018	53,090	0.68%	52,470	53,711	2018	43.9	1.48	41.8	46.0
2019	52,991	-0.19%	52,366	53,617	2019	43.6	-0.81	40.7	46.4
2020	52,892	-0.19%	52,261	53,523	2020	42.8	-1.73	39.4	46.2

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 31. ONTONAGON INDUSTRY ESTIMATES



Health Ca. Social Ass.	95% Confidence Interval			
	Estimate	Growth	Trade	Upper
2017	\$ 9.12 M			
2018	\$ 9.94 M	-1.97 %	\$ 4.58 M	\$ 13.29 M
2019	\$ 8.56 M	4.27%	\$ 3.69 M	\$ 13.42 M
2020	\$ 8.49 M	-0.81 %	\$ 3.15 M	\$ 13.83 M

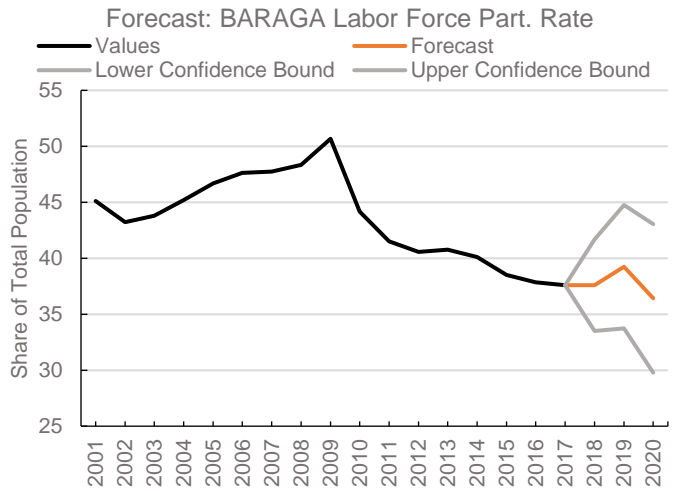
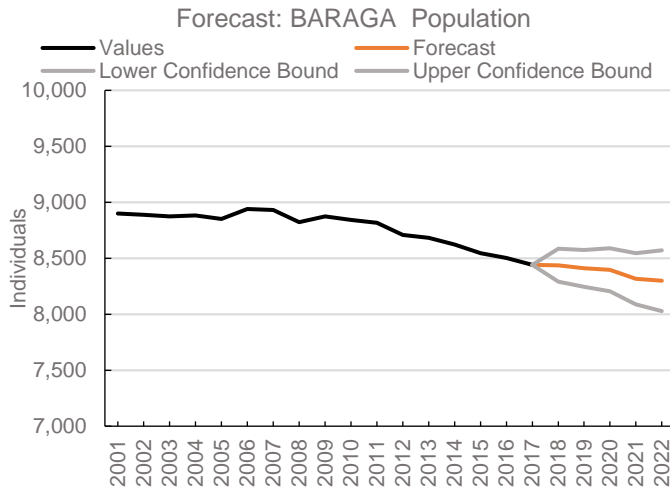
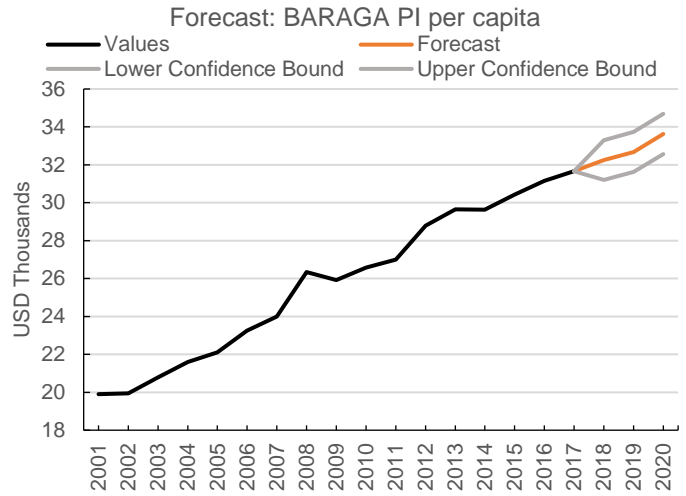
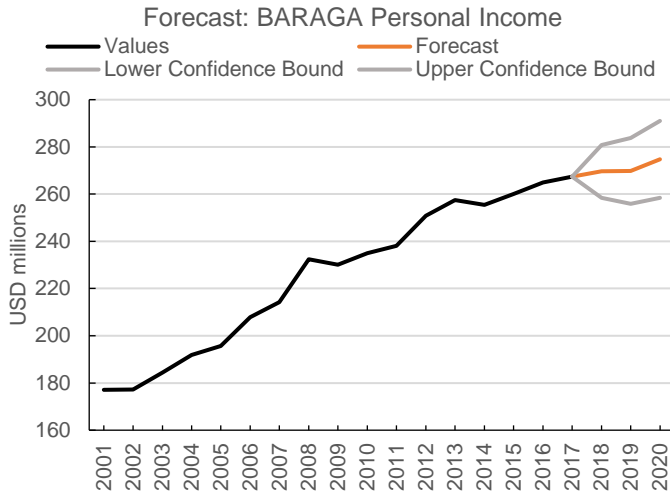
Retail Services	95% Confidence Interval			
	Estimate	Growth	Lower	Upper
2017	\$ 8.68 M			
2018	\$ 9.08 M	4.64 %	\$ 8.29 M	\$ 10.12 M
2019	\$ 9.07 M	-0.09 %	\$ 8.15 M	\$ 10.12 M
2020	\$ 9.27 M	2.16 %	\$ 8.12 M	\$ 10.32 M

Construct.	95% Confidence Interval			
	Estimate	Growth	Lower	Upper
2017	\$ 4.23 M			
2018	\$ 4.74 M	11.90 %	\$ 2.42 M	\$ 7.05 M
2019	\$ 3.74 M	-20.99 %	\$ 1.15 M	\$ 6.33 M
2020	\$ 4.22 M	12.70 %	\$ 1.38 M	\$ 7.06 M

Finance & Insurance	95% Confidence Interval			
	Estimate	Growth	Lower	Upper
2017	\$ 2.32 M			
2018	\$ 2.43 M	4.93 %	\$ 2.07 M	\$ 2.80 M
2019	\$ 2.28 M	-6.47 %	\$ 1.87 M	\$ 2.68 M
2020	\$ 2.34 M	2.69 %	\$ 1.89 M	\$ 2.78 M

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 32. BARAGA SOCIOECONOMIC ESTIMATES



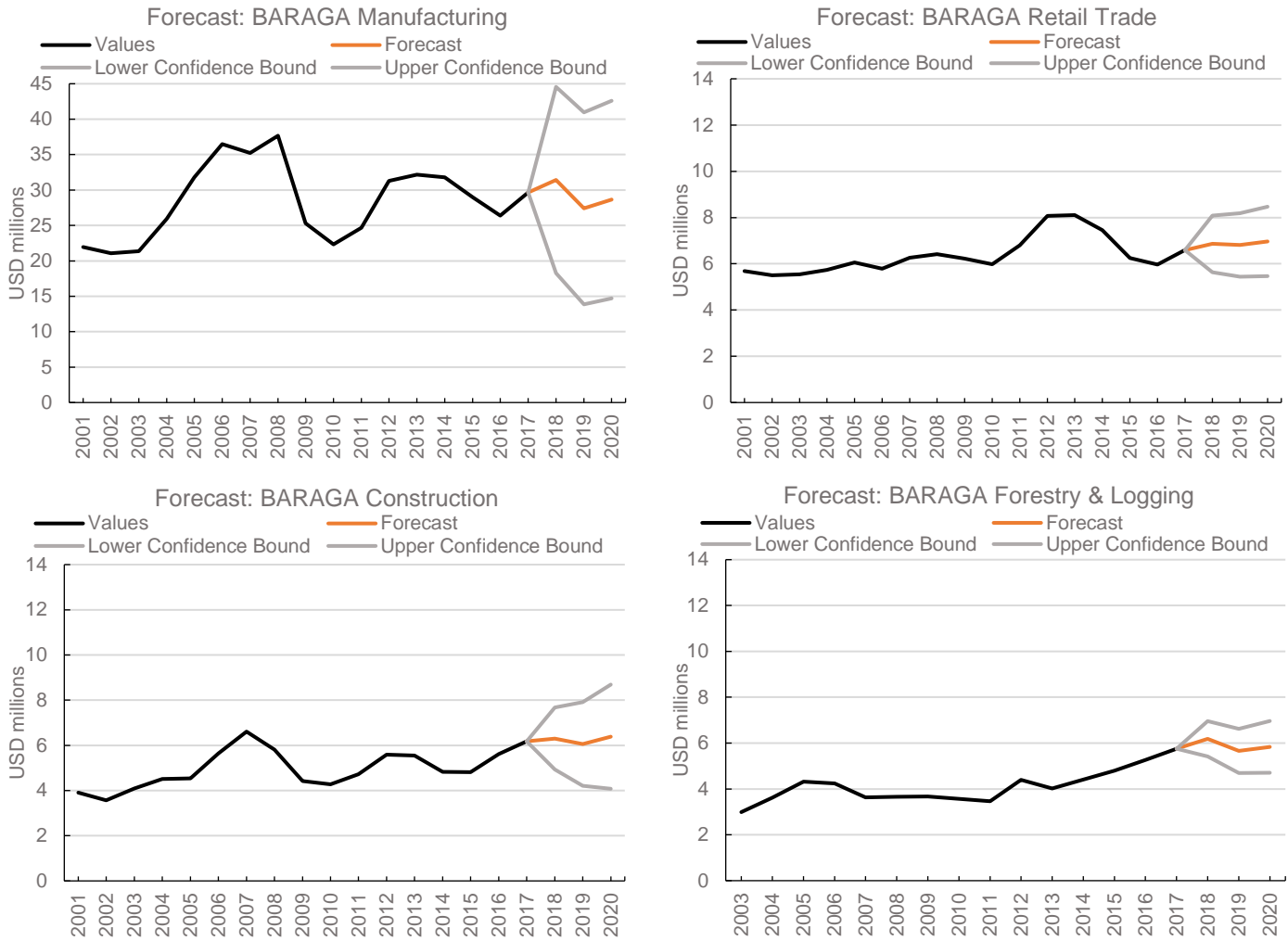
Personal Income	95% Confidence Interval				PI per capita	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 1,857 M				2017	\$ 35,225			
2018	\$ 1,868 M	0.55 %	\$ 1,809 M	\$ 1,926 M	2018	\$ 35,104	2.63 %	\$ 33,869	\$ 36,339
2019	\$ 1,880 M	0.68 %	\$ 1,802 M	\$ 1,959 M	2019	\$ 35,292	1.82 %	\$ 33,630	\$ 36,954
2020	\$ 1,910 M	1.60 %	\$ 1,816 M	\$ 2,005 M	2020	\$ 35,720	1.21 %	\$ 33,719	\$ 37,721

Population	95% Confidence Interval				Labor F. %	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	52,732				2017	43.3			
2018	53,090	0.68%	52,470	53,711	2018	43.9	1.48	41.8	46.0
2019	52,991	-0.19%	52,366	53,617	2019	43.6	-0.81	40.7	46.4
2020	52,892	-0.19%	52,261	53,523	2020	42.8	-1.73	39.4	46.2

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

Figure 33. BARAGA INDUSTRY ESTIMATES



Manufact.	95% Confidence Interval				Retail Services	95% Confidence Interval			
	Estimate	Growth	Trade	Upper		Estimate	Growth	Lower	Upper
2017	\$ 29.66 M				2017	\$ 6.59 M			
2018	\$ 31.42 M	5.94 %	\$ 18.28 M	\$ 44.56 M	2018	\$ 6.86 M	4.10 %	\$ 5.63 M	\$ 8.08 M
2019	\$ 27.42 M	-12.75 %	\$ 13.86 M	\$ 40.97 M	2019	\$ 6.81 M	-0.70 %	\$ 5.44 M	\$ 8.18 M
2020	\$ 28.65 M	4.50 %	\$ 14.69 M	\$ 42.60 M	2020	\$ 6.97 M	2.25 %	\$ 5.46 M	\$ 8.47 M

Construct.	95% Confidence Interval				Forestry & Logging	95% Confidence Interval			
	Estimate	Growth	Lower	Upper		Estimate	Growth	Lower	Upper
2017	\$ 6.18 M				2017	\$ 5.75 M			
2018	\$ 6.30 M	2.03 %	\$ 4.93 M	\$ 7.68 M	2018	\$ 6.18 M	7.50 %	\$ 5.41 M	\$ 6.96 M
2019	\$ 6.06 M	-3.87 %	\$ 4.21 M	\$ 7.91 M	2019	\$ 5.66 M	-8.47 %	\$ 4.69 M	\$ 6.63 M
2020	\$ 6.38 M	5.38 %	\$ 4.08 M	\$ 8.69 M	2020	\$ 5.84 M	3.10 %	\$ 4.71 M	\$ 6.96 M

Note: Estimates shall be considered cautiously since these are merely guesses about the future.

## REFERENCES

Bureau of Economic Analysis (2018). "Regional Data". Accessed: 1 September 2018.

Bureau of Labor Statistics (2018). "Quarterly Census of Employment and Wages". Accessed: 1 September 2018.

National Bureau of Economic Analysis (2018). "US Business Cycle Expansions and Contractions". Accessed: 1 September 2018.

US Census Bureau (2018). "American Community Survey". Accessed: 1 September 2018.

## ANNEX

### GLOSSARY

**Capital Income** (a.k.a. investment income) equals the summation of dividends, interest, and rent.

**Disconnected Youth** represents the percentage of youth in a county who are between the ages of 16 and 19 who are not enrolled in school and who are unemployed or not in the labor force. The date of the data is the end of the 5-year period. For example, a value dated 2015 represents data from 2010 to 2015. (FED, 2018)

**Dividends:** Payments in cash or other assets, excluding the corporation's own stock, made by corporations located in the United States and abroad to stockholders who are U.S. residents (BEA, 2018).

**Earnings** by place of work (not necessarily the same as place of residence) is the sum of wages and salaries, supplements to wages and salaries, and proprietors' income. **BEA's industry estimates** are presented on an earnings by place of work basis (BEA, 2018).

**Interest:** Personal interest income is the interest income (monetary and imputed) from all sources that is received by individuals, employee retirement plans, and quasi-individuals (BEA, 2018).

**Labor income** can be proxied by Net Earnings by place of residence which is calculated as earnings by place of work minus contributions for government social insurance (employee, self-employed, and employer) plus adjustment for residence.

**Personal income:** Income received by persons from all sources. It includes income received from participation in production as well as from government and business transfer payments. It is the sum of compensation of employees (received), supplements to wages and salaries, proprietors' income with inventory valuation adjustment (IVA) and capital consumption adjustment (CCAdj), rental income of persons with CCAdj, personal income receipts on assets, and personal current transfer receipts, less contributions for government social insurance (BEA, 2018). Personal Income can be disaggregated as **Labor Income** plus **Capital Income** plus **Transfer Receipts**.

**Personal income Per capita** is calculated as the total personal income of the residents of a county divided by the population of the county (BEA, 2018).

**Private Establishment:** an economic unit, such as a factory, mine, store, or office that produces goods or services. It generally is at a single location and is engaged predominantly in one type of economic activity. Where a single location encompasses two or more distinct activities, these are treated as separate establishments, if separate payroll records are available, and the various activities are classified under different industry codes (FED, 2018).

**Rent:** Earnings from the rental of real property by persons who are not primarily engaged in the real estate business. It also includes the imputed net rental income of owner-occupants and the royalties received by persons from patents, copyrights, and rights to natural resources (BEA, 2018).

**Transfer receipts** are benefits received by persons from federal, state, and local governments and from businesses for which no current services are performed. They include retirement and disability insurance benefits (mainly Social Security), medical benefits (mainly Medicare and Medicaid), income maintenance benefits, unemployment insurance compensation, veterans' benefits, and federal education and training assistance (BEA, 2018).

**Wages and Salaries:** The total remuneration, in cash and in kind, of employees, including the compensation of corporate officers; commissions, tips, and bonuses; voluntary employee contributions to certain deferred compensation 401(k) plans; employee gains from nonqualified stock options; receipts- in-kind; and miscellaneous compensation of employees, such as judicial fees to jurors and to witnesses (BEA, 2018).



Table A1. Region and County Profiles (US Census, 2018)

	<b>KHOB</b>	Keweenaw	Houghton	Ontonagon	Baraga
<b>Population</b>					
Population estimates 2017	52,732	2,105	36,305	5,881	8,441
Population estimates 2010	54,424	2,156	36,628	6,780	8,860
<b>Total Population change, 2010 to 2017</b>	<b>-3.11%</b>	<b>-2.37%</b>	<b>-0.88%</b>	<b>-13.26%</b>	<b>-4.73%</b>
Persons under age 5, 2017	4.69%	3.60%	5.20%	2.80%	4.10%
Persons under age 18, 2017	18.83%	15.50%	20.20%	12.60%	18.10%
Persons age 65 and over, 2017	20.45%	35.10%	17.00%	35.40%	21.20%
Female persons, 2017	46.17%	48.70%	45.90%	49.00%	44.70%
Foreign born persons, 2012-2016	3.80%	1.20%	4.70%	1.80%	2.00%
Veterans, 2012-2016	4,636	317	2,745	853	721
Households, 2012-2016	20,332	1,023	13,378	2,969	2,962
Persons per household, 2012-2016	2.41	2.13	2.57	2.05	2.15
<b>Race and Hispanic Origin (2017)</b>					
White alone	90.82%	97.90%	93.60%	96.10%	73.40%
Black or African American alone	1.90%	0.30%	0.90%	0.30%	7.70%
American Indian and Alaska Native alone	2.93%	0.30%	0.70%	1.50%	14.20%
Asian alone	2.23%	0.00%	3.10%	0.60%	0.20%
Two or More Races	2.12%	1.50%	1.70%	1.50%	4.50%
Hispanic or Latino	1.58%	1.20%	1.60%	1.60%	1.60%
<b>Housing (2012-2016, unless noted)</b>					
Housing units, 2017	32,248	2,496	18,758	5,691	5,303
Owner-occupied housing unit rate	74.63%	88.50%	69.50%	87.60%	84.20%
Median value of owner-occupied housing units	\$90,760	\$98,800	\$96,100	\$69,500	\$90,900
Median monthly owner costs -with mortgage	\$944	\$956	\$964	\$870	\$946
Median monthly owner costs -without mortgage	\$390	\$419	\$387	\$382	\$398
Median gross rent	\$582	\$552	\$644	\$431	\$536
Building permits, 2017	218	8	193	12	5
<b>Education (2012-2016)</b>					
High school graduate or higher, age 25+	90.67%	94.40%	92.00%	91.70%	83.30%
Bachelor's degree or higher, age 25+	26.77%	24.90%	31.00%	17.40%	15.60%
<b>Health (2012-2016)</b>					
With a disability, under age 65	8.85%	12.00%	7.70%	13.10%	11.00%
Persons without Health Ins., under age 65	7.43%	6.70%	7.00%	8.50%	8.90%
<b>Businesses</b>					
Total employer establishments, 2016	1,240	60	839	161	180
Total nonemployer establishments, 2016	2,911	158	2,013	359	381
Total establishments, 2016	4,151	218	2,852	520	561

Table A2. Nominal versus Real Economic Growth

	US CPI rate	Michigan					KHOB					Keweenaw				
		PI		Plpc		POP	PI		Plpc		POP	PI		Plpc		POP
		Nom	Real	Nom	Real		Nom	Real	Nom	Real		Nom	Real	Nom	Real	
2002	1.60	0.06	-1.54	-0.19	-1.79	0.25	-0.90	-2.50	-1.06	-2.66	0.17	-0.62	-2.22	1.39	-0.21	-1.99
2003	2.30	2.14	-0.16	1.88	-0.42	0.25	2.61	0.31	3.13	0.83	-0.50	2.06	-0.24	4.17	1.87	-2.03
2004	2.70	2.90	0.20	2.75	0.05	0.14	5.23	2.53	4.80	2.10	0.41	-5.77	-8.47	-3.60	-6.30	-2.25
2005	3.40	1.96	-1.44	2.01	-1.39	-0.04	0.93	-2.47	1.30	-2.10	-0.36	-1.28	-4.68	1.44	-1.96	-2.68
2006	3.20	2.36	-0.84	2.51	-0.69	-0.15	3.30	0.10	4.13	0.93	-0.79	0.69	-2.51	-0.23	-3.43	0.92
2007	2.90	2.78	-0.12	3.13	0.23	-0.35	4.20	1.30	4.25	1.35	-0.05	10.51	7.61	9.62	6.72	0.81
2008	3.80	2.19	-1.61	2.75	-1.05	-0.54	5.35	1.55	5.06	1.26	0.28	11.23	7.43	10.45	6.65	0.71
2009	-0.40	-5.14	-4.74	-4.71	-4.31	-0.46	1.17	1.57	1.07	1.47	0.10	2.09	2.49	1.52	1.92	0.57
2010	1.60	3.39	1.79	3.64	2.04	-0.24	2.67	1.07	2.22	0.62	0.44	2.32	0.72	1.70	0.10	0.61
2011	3.20	6.22	3.02	6.24	3.04	-0.01	2.10	-1.10	2.11	-1.09	-0.02	6.03	2.83	1.89	-1.31	4.06
2012	2.10	3.59	1.49	3.47	1.37	0.11	2.50	0.40	3.22	1.12	-0.70	2.30	0.20	3.36	1.26	-1.03
2013	1.50	1.45	-0.05	1.33	-0.17	0.12	1.62	0.12	2.03	0.53	-0.39	-0.76	-2.26	0.61	-0.89	-1.36
2014	1.60	4.30	2.70	4.12	2.52	0.17	2.39	0.79	3.07	1.47	-0.66	4.39	2.79	2.65	1.05	1.70
2015	0.10	5.52	5.42	5.50	5.40	0.02	3.91	3.81	4.65	4.55	-0.71	5.52	5.42	7.41	7.31	-1.76
2016	1.30	2.85	1.55	2.74	1.44	0.11	2.77	1.47	2.66	1.36	0.11	3.86	2.56	2.78	1.48	1.06
2017	2.10	4.22	2.12	4.12	2.02	0.10	3.05	0.95	3.90	1.80	-0.82	4.59	2.49	4.28	2.18	-4.27

	Houghton					Ontonagon					Baraga				
	PI		Plpc		POP	PI		Plpc		POP	PI		Plpc		POP
	Nom	Real	Nom	Real		Nom	Real	Nom	Real		Nom	Real	Nom	Real	
2002	-1.13	-2.73	-1.69	-3.29	0.57	-0.88	-2.48	-0.16	-1.76	-0.72	0.06	-1.54	0.17	-1.43	-0.11
2003	2.24	-0.06	2.56	0.26	-0.31	2.99	0.69	4.40	2.10	-1.35	4.08	1.78	4.26	1.96	-0.18
2004	6.11	3.41	5.05	2.35	1.01	6.12	3.42	7.55	4.85	-1.33	4.07	1.37	3.94	1.24	0.12
2005	1.20	-2.20	1.15	-2.25	0.04	-0.62	-4.02	1.02	-2.38	-1.63	1.93	-1.47	2.31	-1.09	-0.37
2006	3.64	0.44	4.81	1.61	-1.12	-0.50	-3.70	1.34	-1.86	-1.82	6.24	3.04	5.18	1.98	1.01
2007	4.10	1.20	3.89	0.99	0.21	3.99	1.09	5.57	2.67	-1.49	3.10	0.20	3.22	0.32	-0.11
2008	4.92	1.12	3.61	-0.19	1.26	2.18	-1.62	5.29	1.49	-2.96	8.42	4.62	9.75	5.95	-1.21
2009	1.92	2.32	1.69	2.09	0.24	-0.38	0.02	0.99	1.39	-1.36	-0.98	-0.58	-1.56	-1.16	0.59
2010	3.08	1.48	2.13	0.53	0.93	1.36	-0.24	2.53	0.93	-1.14	2.12	0.52	2.49	0.89	-0.36
2011	3.28	0.08	3.14	-0.06	0.14	-4.56	-7.76	-2.77	-5.97	-1.84	1.36	-1.84	1.64	-1.56	-0.27
2012	2.32	0.22	2.42	0.32	-0.10	0.11	-1.99	3.37	1.27	-3.15	5.30	3.20	6.63	4.53	-1.25
2013	1.56	0.06	1.71	0.21	-0.15	1.60	0.10	3.26	1.76	-1.61	2.68	1.18	2.99	1.49	-0.30
2014	3.16	1.56	3.70	2.10	-0.52	1.38	-0.22	3.69	2.09	-2.23	-0.77	-2.37	-0.09	-1.69	-0.68
2015	4.51	4.41	4.80	4.70	-0.28	2.53	2.43	5.35	5.25	-2.67	1.76	1.66	2.68	2.58	-0.89
2016	3.09	1.79	2.61	1.31	0.48	1.53	0.23	3.20	1.90	-1.61	1.88	0.58	2.39	1.09	-0.50
2017	3.59	1.49	3.70	1.60	-0.68	1.81	-0.29	4.08	1.98	-0.51	0.95	-1.15	1.66	-0.44	-0.73

Sources: BEA (2018),  
BLS (2018), US  
Census (2018).

Notes:  
All numbers shown as  
percentages.  
US CPI rate = US  
annual inflation rate  
(consumer prices).  
PI = Personal Income.  
Plpc = PI *per capita*.  
Nom = Nominal.  
POP = Population.

Table A3. Industry Codes in adopted BEA datasets

2012 NAICS	Nonfarm earnings
	Private nonfarm earnings
11 (mod)	<b>Forestry, fishing, and related activities</b>
	Forestry and logging
	Fishing, hunting and trapping
	Support activities for agriculture and forestry
21	<b>Mining, quarrying, and oil and gas extraction</b>
	Oil and gas extraction
	Mining (except oil and gas)
	Support activities for mining
22	<b>Utilities</b>
23	<b>Construction</b>
	Construction of buildings
	Heavy and civil engineering construction
	Specialty trade contractors
31-33	<b>Manufacturing</b>
	Durable goods manufacturing
	Wood product manufacturing
	Nonmetallic mineral product manufacturing
	Primary metal manufacturing
	Fabricated metal product manufacturing
	Machinery manufacturing
	Computer and electronic product manufacturing
	Electrical equipment, appliance, and component manufacturing
	Motor vehicles, bodies and trailers, and parts manufacturing
	Other transportation equipment manufacturing
	Furniture and related product manufacturing
	Miscellaneous manufacturing
	Nondurable goods manufacturing
	Food manufacturing
	Beverage and tobacco product manufacturing
	Textile mills
	Textile product mills
	Apparel manufacturing
	Leather and allied product manufacturing
	Paper manufacturing
	Printing and related support activities
	Petroleum and coal products manufacturing
	Chemical manufacturing
	Plastics and rubber products manufacturing
42	<b>Wholesale trade</b>
44-45	<b>Retail trade</b>
	Motor vehicle and parts dealers
	Furniture and home furnishings stores
	Electronics and appliance stores
	Building material and garden equipment and supplies dealers
	Food and beverage stores
	Health and personal care stores
	Gasoline stations
	Clothing and clothing accessories stores
	Sporting goods, hobby, musical instrument, and book stores
	General merchandise stores
	Miscellaneous store retailers
	Nonstore retailers
48-49	<b>Transportation and warehousing</b>
	Air transportation
	Rail transportation
	Water transportation
	Truck transportation
	Transit and ground passenger transportation
	Pipeline transportation
	Scenic and sightseeing transportation
	Support activities for transportation
	Couriers and messengers
	Warehousing and storage

Table A3. Industry Codes in adopted BEA datasets - Continued

51	<b>Information</b>
	Publishing industries (except Internet)
	Motion picture and sound recording industries
	Broadcasting (except Internet)
	Internet publishing and broadcasting 8/
	Telecommunications
	Data processing, hosting, and related services
	Other information services 8/
52	<b>Finance and insurance</b>
	Monetary Authorities-central bank
	Credit intermediation and related activities
	Securities, commodity contracts, and other financial investments and related activities
	Insurance carriers and related activities
	Funds, trusts, and other financial vehicles
53	<b>Real estate and rental and leasing</b>
	Real estate
	Rental and leasing services
	Lessors of nonfinancial intangible assets (except copyrighted works)
54	<b>Professional, scientific, and technical services</b>
55	<b>Management of companies and enterprises</b>
56	<b>Administrative and support and waste management and remediation services</b>
	Administrative and support services
	Waste management and remediation services
61	<b>Educational services</b>
62	<b>Health care and social assistance</b>
	Ambulatory health care services
	Hospitals
	Nursing and residential care facilities
	Social assistance
71	<b>Arts, entertainment, and recreation</b>
	Performing arts, spectator sports, and related industries
	Museums, historical sites, and similar institutions
	Amusement, gambling, and recreation industries
72	<b>Accommodation and food services</b>
	Accommodation
	Food services and drinking places
81	<b>Other services (except public administration)</b>
	Repair and maintenance
	Personal and laundry services
	Religious, grantmaking, civic, professional, and similar organizations
	Private households

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