

# HARNESSING TECHNOLOGICAL INNOVATION

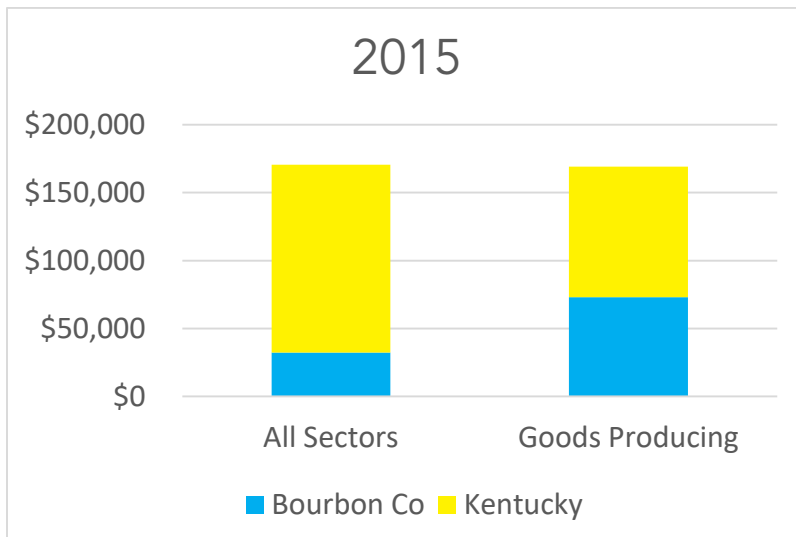
## Percent of Population with Higher Education Degree

	Total population 25 years old +	Number of individuals with Bachelor's Degree (25 years +)	Number of individuals with Graduate Degree (25 years +)	Percentage of population with at least Bachelor's degree (25 years +)
<b>Bourbon County</b>	1,3912	1,712 ± 273	926 ± 183	18.9%
<b>Kentucky</b>	2,986,199	406,916 ± 4,801	285,652 ± 4,379	23.2%

Source: S1501 from American Community Survey

<https://factfinder.census.gov/faces/tableservices/jsf/pages/productview.xhtml?src=bkmk>

## Productivity (GDP per worker)



	2012		2013		2014		2015	
	Bourbon Co	KY	Bourbon Co	KY	Bourbon Co	KY	Bourbon Co	KY
<b>All sectors</b>	\$38,116	\$143,058	\$39,585	\$151,252	\$35,448	\$142,954	\$32,457	\$137,961
<b>Goods Producing</b>	\$84,359	\$97,315	\$90,541	\$98,433	\$82,236	\$97,154	\$73,033	\$96,090

GDP output and number of personnel data available at: <https://www.bea.gov/data/gdp/gdp-county>

Goods producing includes agriculture, forestry, mining, construction, and manufacturing

## Patents

Bourbon County is ranked 42<sup>nd</sup> out of 120 counties in the total number of patents. In 2015, approximately 1% of the total patents in Kentucky (664 patents) are in Bourbon County but less than 1% over the last 15 years.

	Total number of jobs (2015)	Total number of patents (2015)	Patents/jobs
Bourbon County	5,235	7	1.3 per 1,000 jobs
Kentucky	1,579,477	664	0.4 per 1,000 jobs

Source: <https://www.uspto.gov/web/offices/ac/ido/oeip/taf/countyall/index.html>

## Small Business Innovation Research (SBIR) program awards



Bourbon County, KY

2 Awards

1 Unique Applicant

Source: <https://www.sbir.gov/sbirsearch/firm/all>

## Higher Education R&D Headcount and Expenditures, 2017

State, institutional control, and institution	Expenditures	Headcount of R&D personnel			
	2017, in \$1,000s	2014	2015	2016	2017
Eastern Kentucky U.	\$1,248	108	92	92	94
Kentucky State U.	\$7,412	129	115	162	162
Morehead State U.	\$2,860	10	10	10	10
Murray State U.	\$2,459	132	144	123	116
Northern Kentucky U.	\$1,649	188	197	181	159
U. Kentucky	\$378,374	5,434	5,514	5,576	6,042
U. Louisville	\$177,588	3,198	2,573	2,656	2,657
Western Kentucky U.	\$10,814	318	265	381	396

Source: Higher Ed research and development survey <https://ncesdata.nsf.gov/herd/2017/>

## STEM Occupations, by Nonmetropolitan Region

SOC Code	OCC_TITLE	Total Employment	Location Quotient*	Median Annual Earnings
11-3021	Computer and Information Systems Managers	200	0.42	\$ 75,340
11-9041	Architectural and Engineering Managers	210	0.88	\$ 101,160
11-9121	Natural Sciences Managers	70	0.90	\$ 69,960
15-1121	Computer Systems Analysts	730	1.01	\$ 57,500
15-1131	Computer Programmers	140	0.49	\$ 63,440
15-1132	Software Developers, Applications	150	0.13	\$ 68,870
15-1134	Web Developers	40	0.27	\$ 52,680
15-1141	Database Administrators	70	0.50	\$ 68,960
15-1142	Network and Computer Systems Administrators	300	0.66	\$ 50,260
15-1143	Computer Network Architects	150	0.78	\$ 53,830
15-1151	Computer User Support Specialists	320	0.41	\$ 40,970
15-1152	Computer Network Support Specialists	80	0.37	\$ 58,860
15-1199	Computer Occupations, All Other	80	0.18	\$ 77,230
15-2031	Operations Research Analysts	40	0.35	\$ 56,470
17-2051	Civil Engineers	450	1.19	\$ 86,720
17-2071	Electrical Engineers	90	0.40	\$ 81,770
17-2081	Environmental Engineers	80	1.19	\$ 71,550
17-2112	Industrial Engineers	680	1.96	\$ 72,290
17-2141	Mechanical Engineers	310	0.84	\$ 81,410
17-2199	Engineers, All Other	90	0.54	\$ 88,030
17-3013	Mechanical Drafters	50	0.65	\$ 60,190
17-3022	Civil Engineering Technicians	360	4.07	\$ 47,880
17-3023	Electrical and Electronics Engineering Technicians	90	0.55	\$ 62,820
17-3026	Industrial Engineering Technicians	200	2.49	\$ 48,610
17-3027	Mechanical Engineering Technicians	40	0.79	\$ 49,690
17-3029	Engineering Technicians, Except Drafters, All Other	110	1.06	\$ 72,460
17-3031	Surveying and Mapping Technicians	50	0.78	\$ 27,440
19-1022	Microbiologists	40	1.50	\$ 45,430
19-1029	Biological Scientists, All Other	30	0.65	\$ 46,950
19-2031	Chemists	110	1.02	\$ 57,990
19-2041	Environmental Scientists & Specialists, Including Health	390	3.89	\$ 47,510
19-2042	Geoscientists, Except Hydrologists and Geographers	50	1.49	\$ 53,280
19-4021	Biological Technicians	50	0.49	*
19-4031	Chemical Technicians	40	0.55	\$ 57,420
19-4091	Environmental Science and Protection Technicians	40	0.92	\$ 36,930
25-1021	Computer Science Teachers, Postsecondary	50	1.32	\$ 75,960
25-1022	Mathematical Science Teachers, Postsecondary	60	0.98	\$ 68,640
25-1042	Biological Science Teachers, Postsecondary	80	1.24	\$ 76,810
25-1052	Chemistry Teachers, Postsecondary	40	1.60	\$ 78,560
41-4011	Sales Representatives, Wholesale and Manufacturing, Technical and Scientific Products	70	0.17	\$ 73,660

\*The Location Quotient (LQ) measures the relative concentration of occupations compared to the nation. An LQ significant larger than 1 suggests a relative concentration of that occupation in the county/region.

County occupation data are not available through BLS. The data provided in this table were collected at the regional level (strictly for nonmetropolitan communities within the region). County data are data available through private entities including EMSI or Chmura.

## Employment within High-Tech Industries

NAICS	Industry Description	Establishments	Employees	Average annual pay
325	Chemical Manufacturing	1	ND	ND
333	Ag, Construction and Machine Manufacturing	4	95	\$70,201
336	Motor Vehicle Manufacturing	3	601	\$64,806
511	Newspaper, Periodical, Book, and Directory Publishers	2	ND	ND
517	Wired and Wireless Telecommunications Carriers	2	ND	ND
518	Data Processing, Hosting, and Related Services	1	ND	ND
5415	Computer Systems Design and Related Services	9	10	\$80,925
5416	Management, Scientific, and Technical Consulting Services	5	6	\$72,106
5417	Scientific Research and Development Services	1	ND	ND

Source: Bureau of Labor Statistics; website: <https://data.bls.gov/PDQWeb/en>

Based on Wolf and Terrell, "The high-tech industry, what is it and why it matters to our economic future," Beyond the Numbers, Bureau of Labor Statistics, 2016, 5(8).

\* High-tech industries include the following NAICS codes:

21 - Mining, Quarrying, and Oil and Gas Extraction  
 325 - Chemical Manufacturing  
 3332 - Industrial Machinery Manufacturing  
 3333 - Commercial/Service Industry Machinery Manufacturing  
 3336 - Engine, Turbine, and Power Transmission Equipment Manufacturing  
 3339 - Other General Purpose Machinery Manufacturing  
 3341 - Computer and Peripheral Equipment Manufacturing  
 3342 - Communications Equipment Manufacturing  
 3343 - Audio and Video Equipment Manufacturing  
 3344 - Semiconductor and Other Electronic Component Manufacturing  
 3345 - Navigational, Measuring, Electromedical, and Control Instruments Manufacturing

3346 - Manufacturing and Reproducing Magnetic and Optical Media  
 3353 - Electrical Equipment Manufacturing  
 3364 - Aerospace Product and Parts Manufacturing  
 5112 - Software Publishers  
 5173 - Wired and Wireless Telecommunications Carriers  
 5174 - Satellite Telecommunications  
 5182 - Data Processing, Hosting, and Related Services  
 5191 - Other Information Services  
 5413 - Architectural, Engineering, and Related Services  
 5415 - Computer Systems Design and Related Services  
 5416 - Management, Scientific, and Technical Consulting Services  
 5417 - Scientific Research and Development Services

# Innovation 2.0 (Stats America)

Innovation Index for U.S. Counties

## Bourbon County, KY

**85.3**

Headline Index

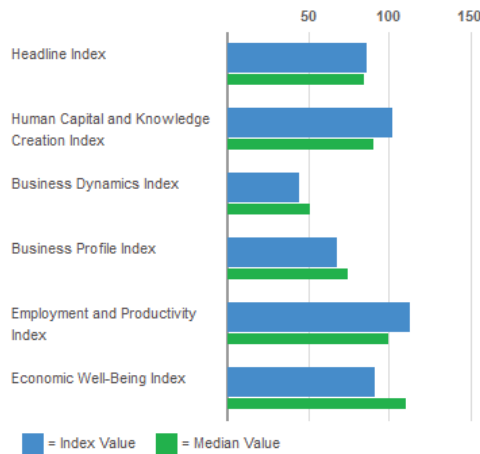
**1,440**

Rank of 3110 Counties

**This area has normal relative capacity for innovation.**

### About this Area

Largest City/Town:	Paris city
Population:	20,184
Per Capita Income:	\$43,186
Dominant Sector:	Manufacturing



Drill into the underlying data for each major index category:

### Innovation Inputs



**HUMAN CAPITAL AND KNOWLEDGE CREATION INDEX**  
Explore the population and labor force's ability to innovate.

**101.6**



**BUSINESS DYNAMICS INDEX**  
Gauge the region's competitiveness by looking at entry and exit of individual firms.

**44.2**



**BUSINESS PROFILE INDEX**  
Assess local business conditions and resources available to entrepreneurs.

**67.3**

### Innovation Outputs



**EMPLOYMENT AND PRODUCTIVITY INDEX**  
Measure economic improvement and the direct outcomes of innovation.

**111.9**



**ECONOMIC WELL-BEING INDEX**  
Evaluate economic well-being and standard of living for residents.

**90.7**

The index is based on five major categories including: Human Capital and Knowledge Creation index, Business Dynamics Index, Business Profile index, Employment and Productivity index, and Economic Well-being index.

Source: <http://www.statsamerica.org/ii2/>

