

Pennsylvania Outlook: 2020 and Beyond

Thoughts to the PENNSYLVANIA ECONOMIC DEVELOPMENT ASSOCIATION

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W.E. Upjohn Institute for Employment Research

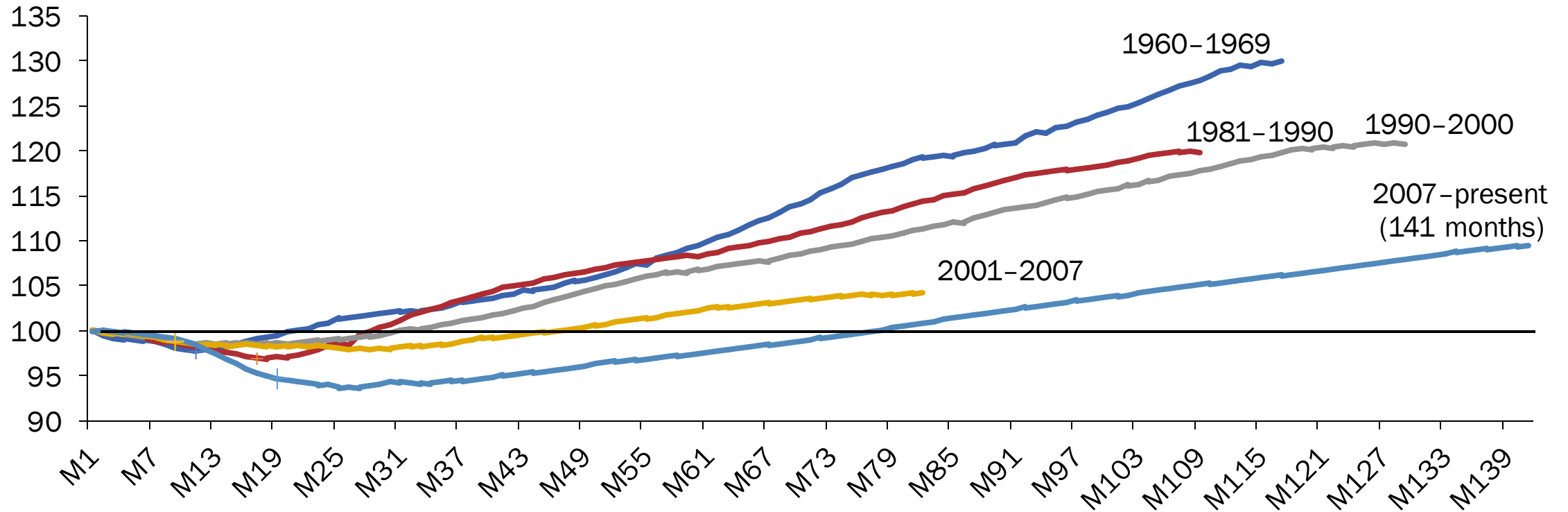
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National Economy

We are currently in the longest expansion since WWII

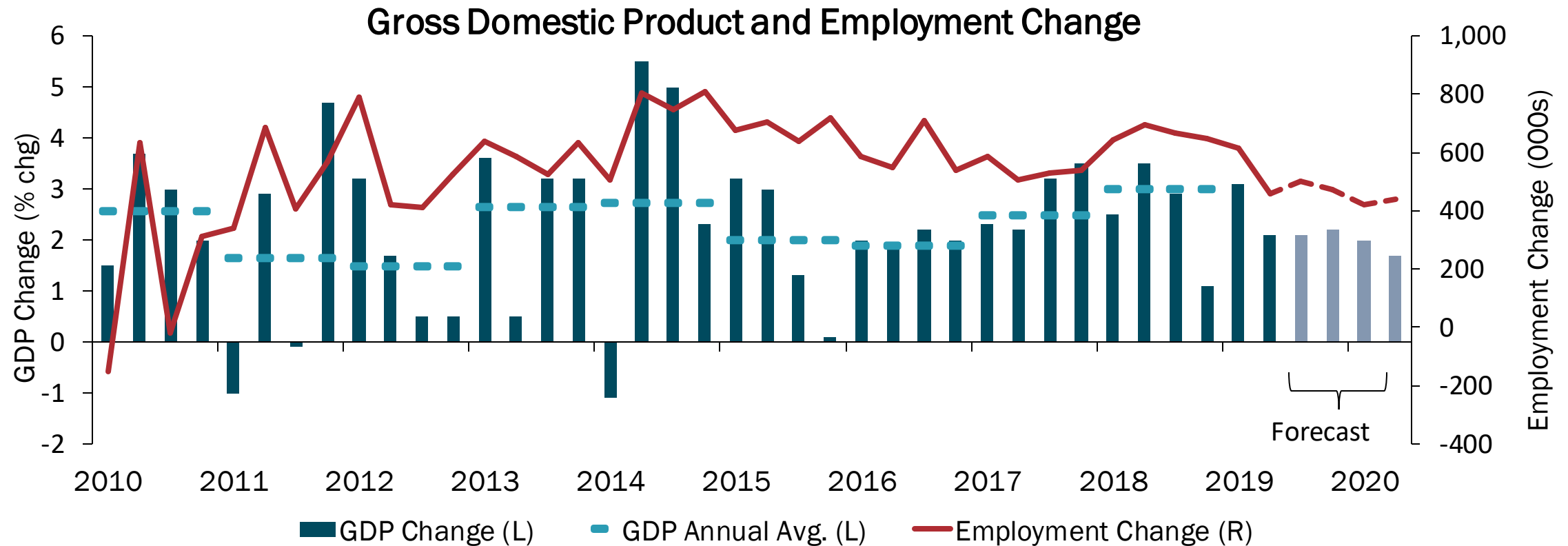
Employment Index From Business Cycle Peak



We're in the longest business cycle (contraction and expansion) and the longest expansion, after experiencing the longest recession since measurement began

Length of:	1945-1948	1949-1953	1954-1957	1958-1960	1961-1969	1970-1973	1975-1980	1980-1981	1982-1990	1991-2001	2002-2007	2009-?
Contraction	8	11	10	8	10	11	16	6	16	8	8	18
Expansion	37	45	39	24	106	36	76	12	92	120	73	123
Business Cycle	45	56	49	32	116	47	92	18	108	128	81	141

GDP is projected to remain solid, with a slowing rate of employment growth; Revision 3: Q2 2.0%

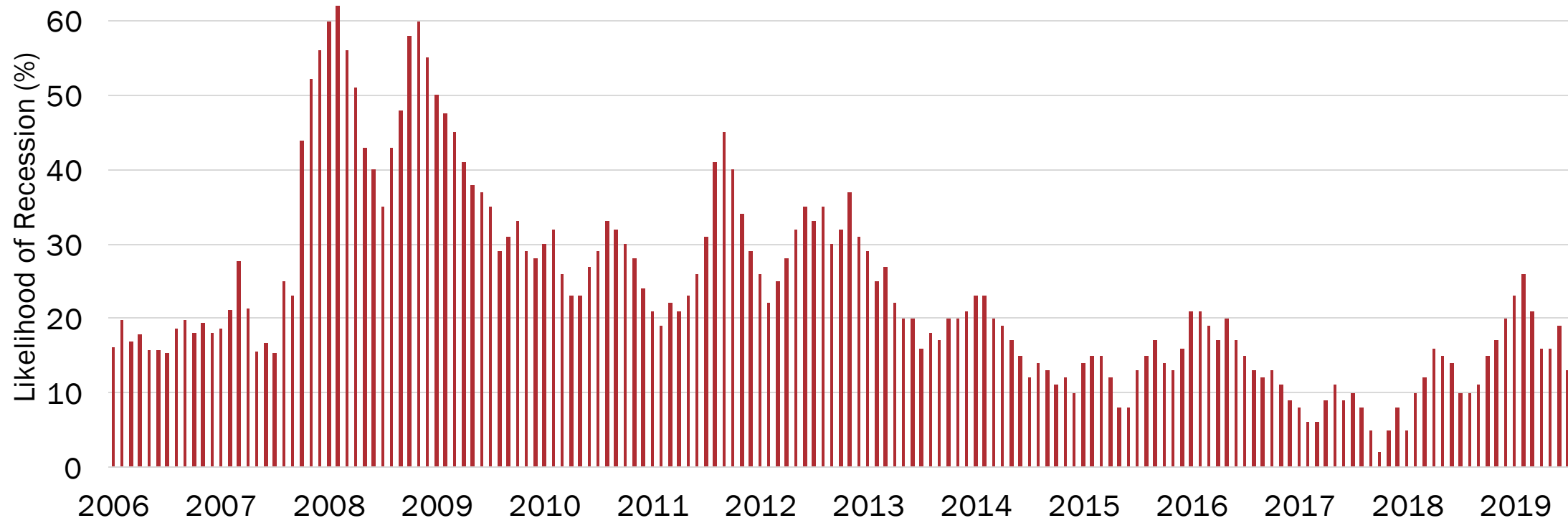


University of Michigan RSQE national forecast

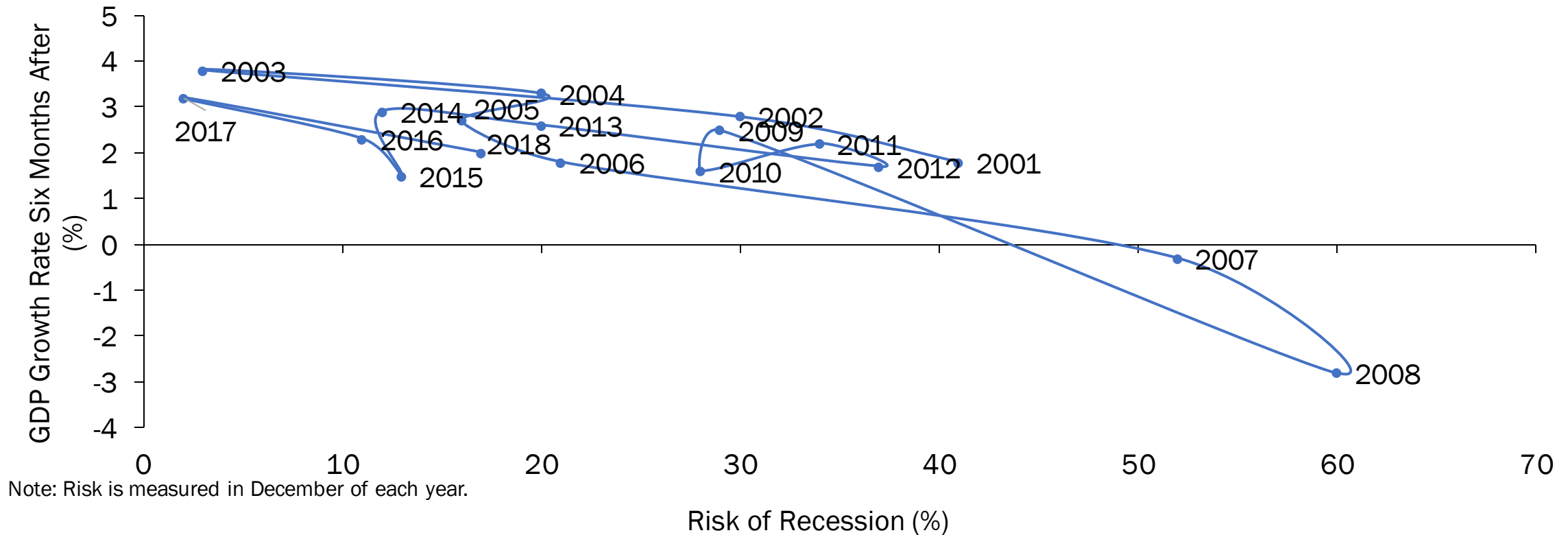
	2019 (Forecast)	2020 (Forecast)	2021 (Forecast)
GDP	2.3%	1.7%	1.6%
Employment	1.5%	1.1%	1.0%
Light Vehicle Sales (Millions)	\$17	\$16.9	\$16.6
Unemployment Rate	3.7%	3.6%	3.4%
Housing Starts (Millions)	\$1.23	\$1.24	\$1.24
CPI/Inflation	1.7%	1.9%	1.9%

Moody's predictions of a recession are relatively low and volatile: August 13%

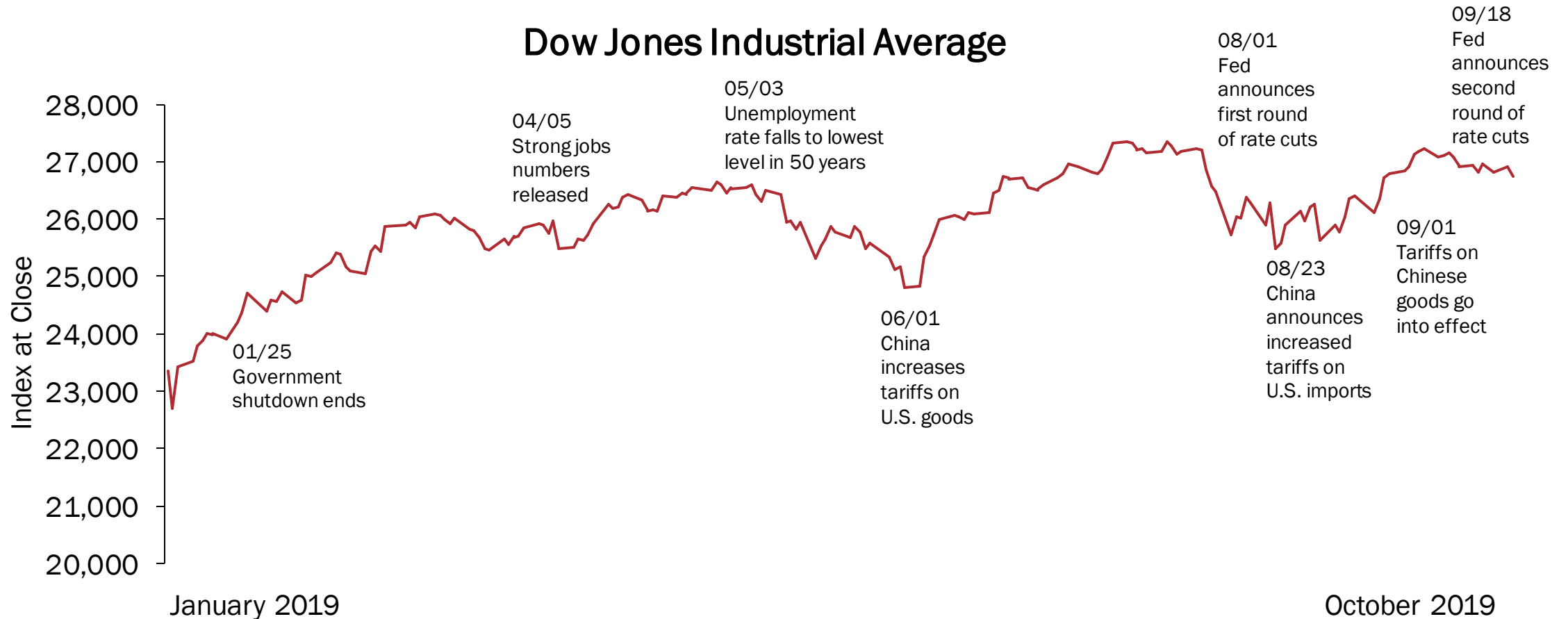
Likelihood of Being in a Recession in the Next Six Months



Moody's recession risk probability appears strongly correlated with real GDP change during the next six months

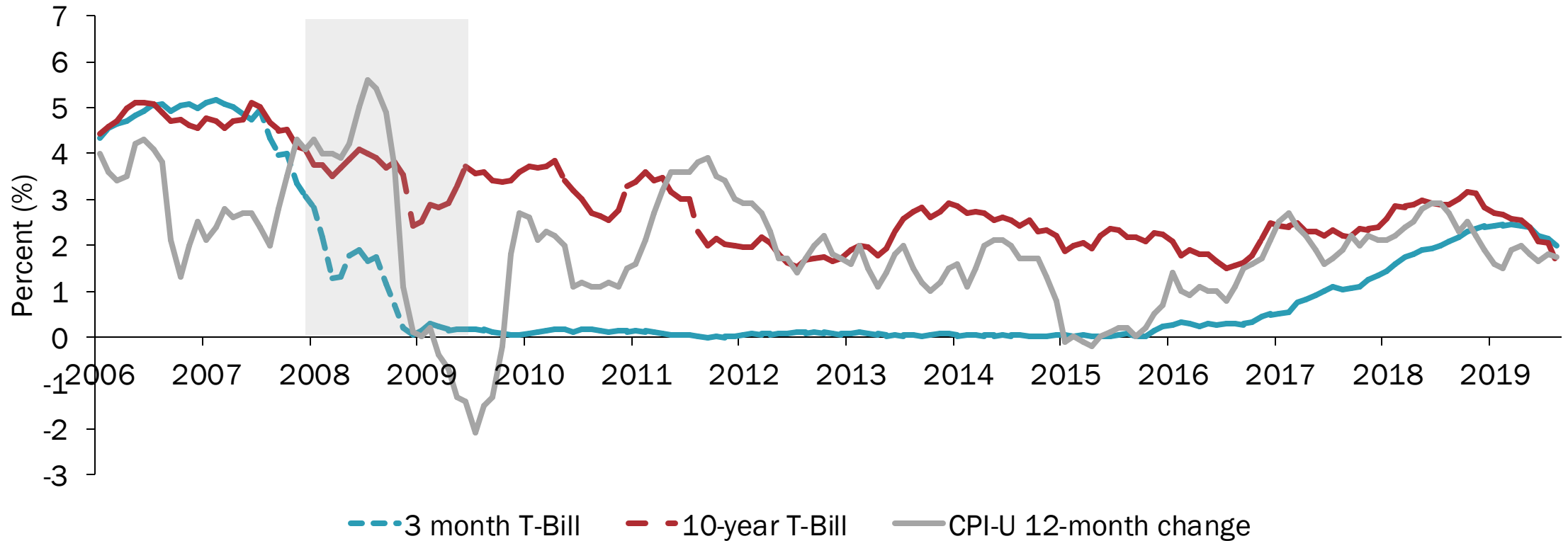


The stock market has reacted to various events this year, and the ride is getting bumpier



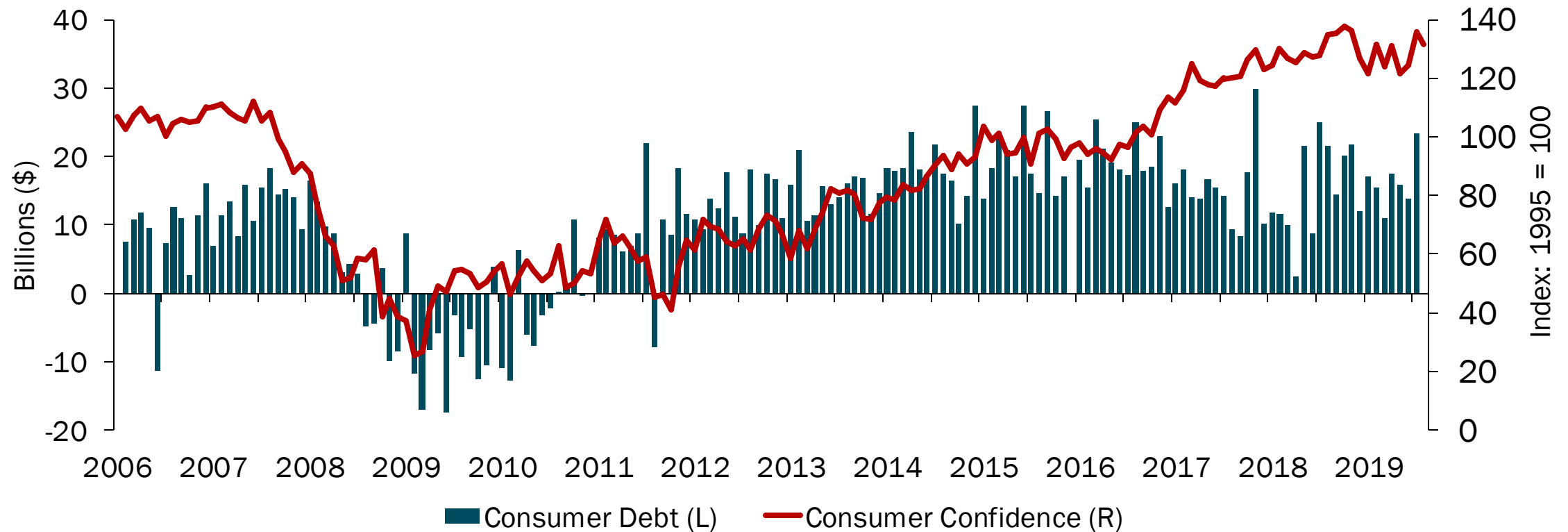
Inflation and interest rates have increased in the past two years

Interest Rates and 12-Month Inflation Change



High consumer confidence (↓@125.1) and slower debt growth

Consumer Confidence and Change in Consumer Debt

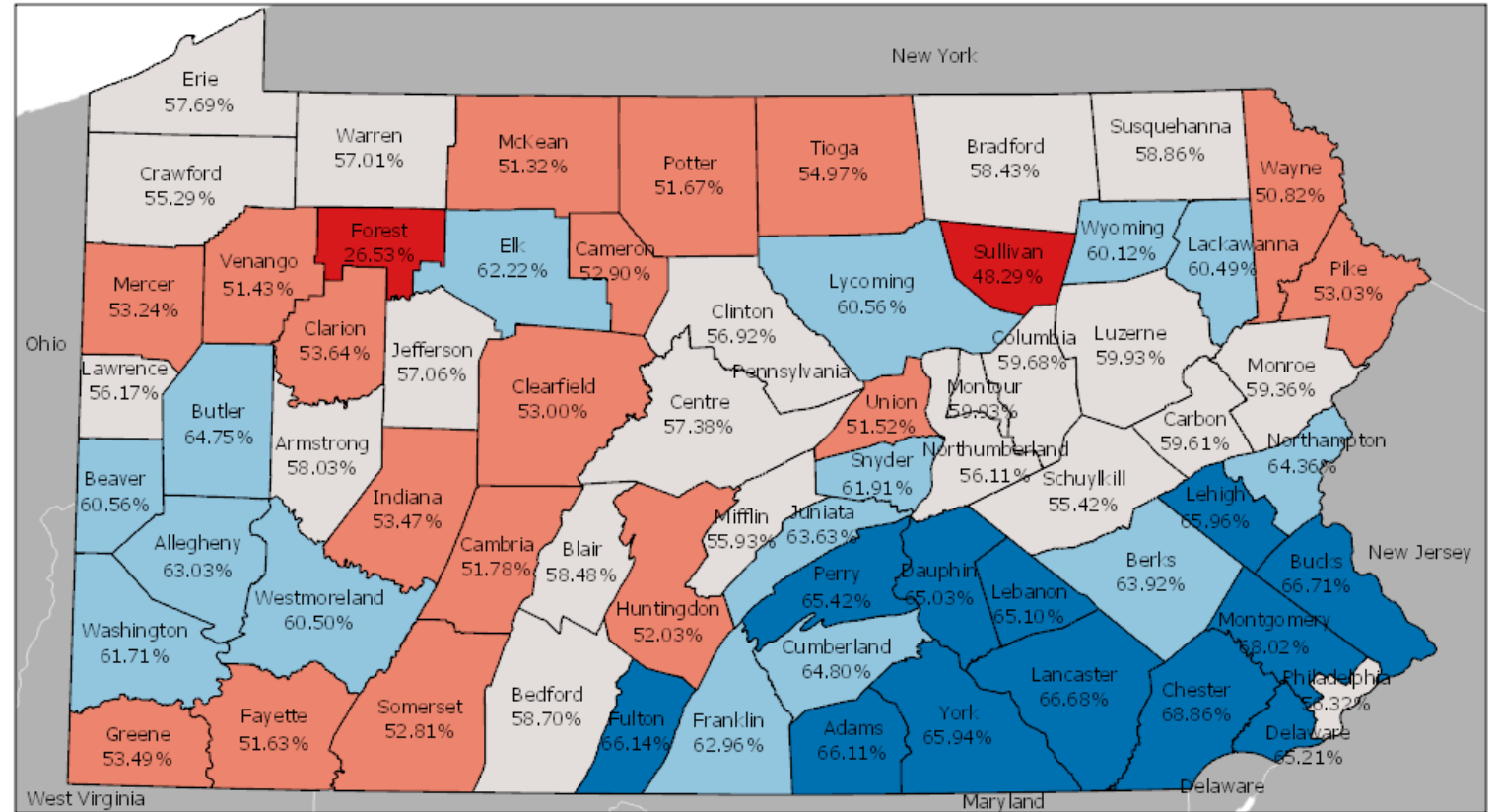




Indiana

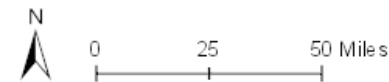
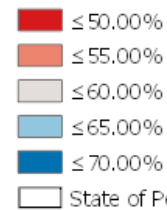
Labor force participation rate 2018

- Pennsylvania is currently at 62.9%
- The United States is currently at ~63% and has been since 2017



State of Pennsylvania

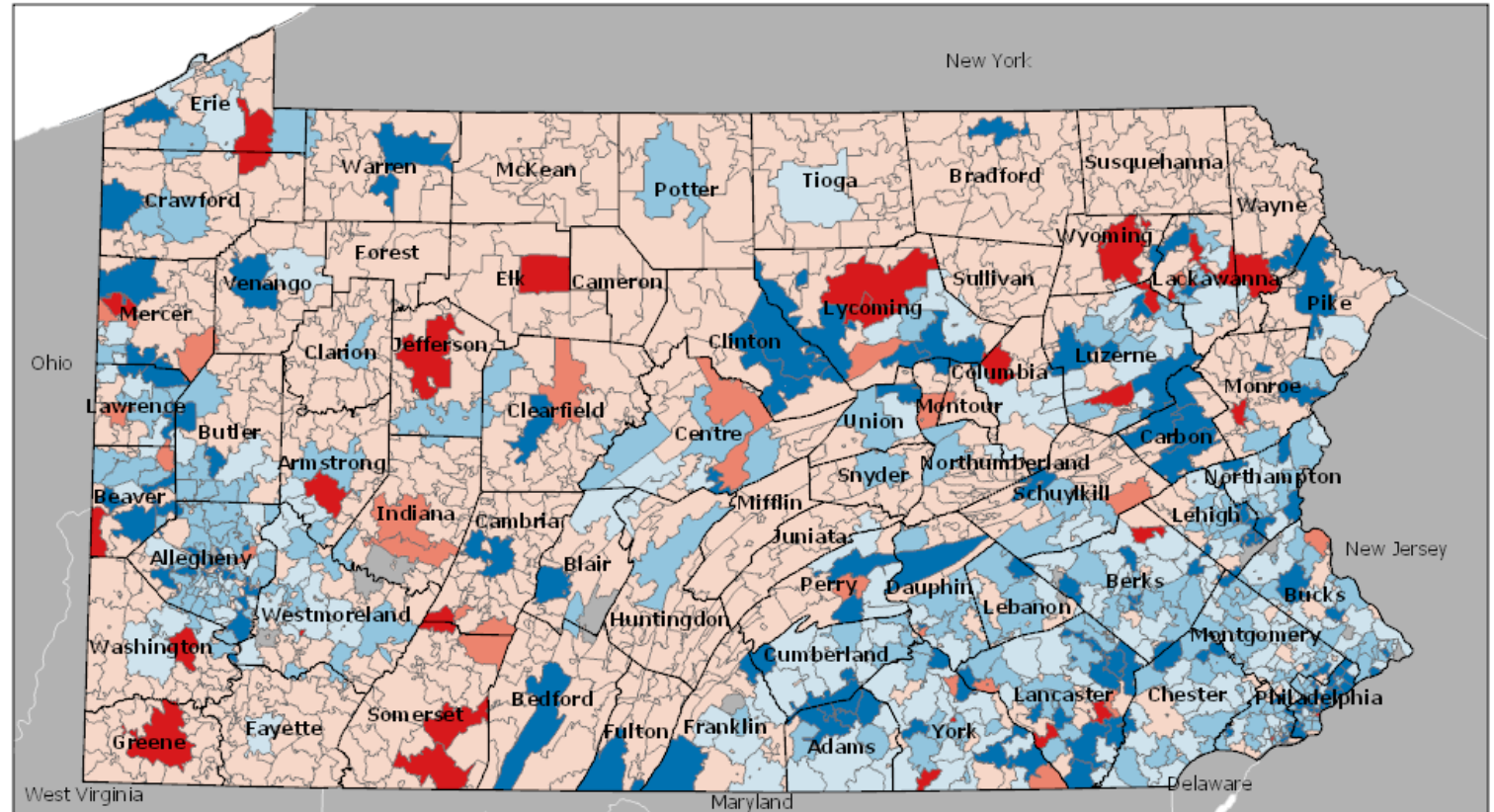
2018 Labor Force Participation Rate by County



Source: US Census - American Community Survey, Bureau of Labor Statistics

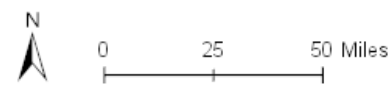
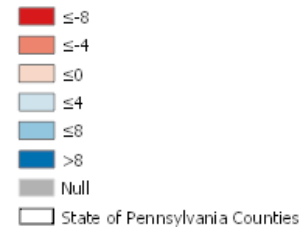
Housing price index change

- Pennsylvania's 2018 statewide HPI Change was 4.26%



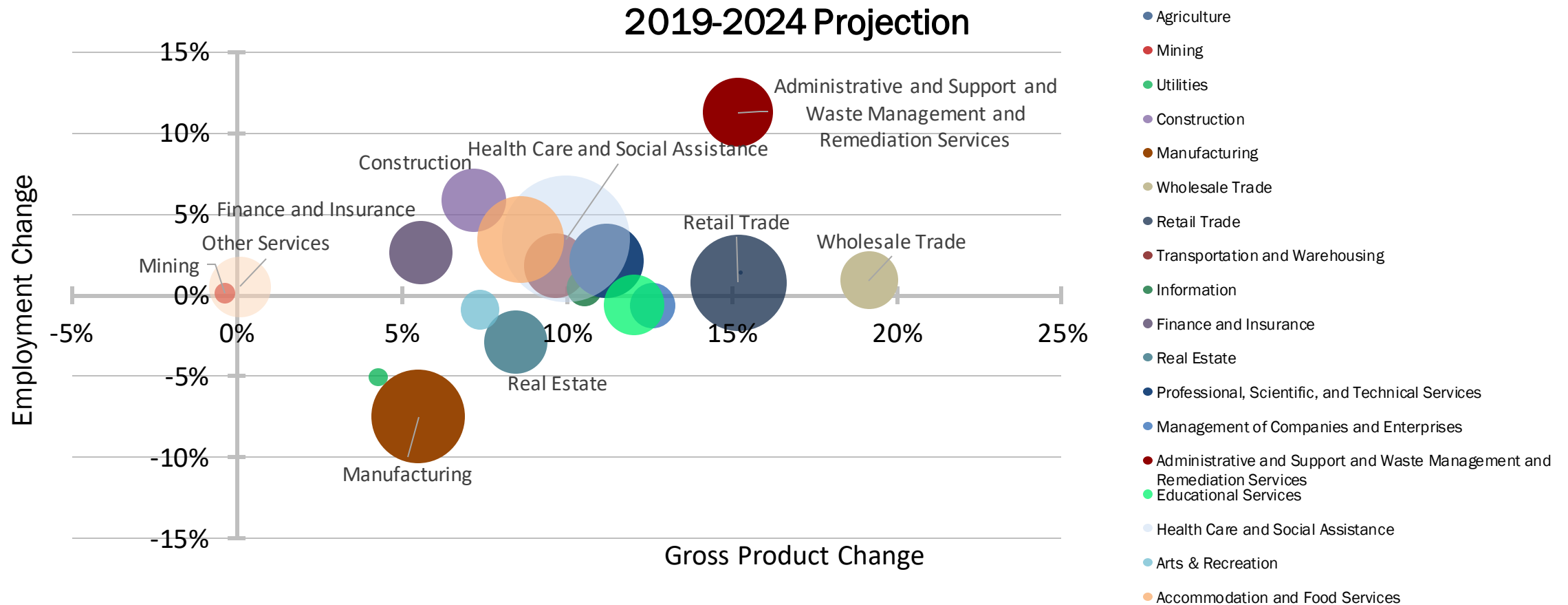
Pennsylvania Housing Price Index Change by 5 Digit Zip Code

2017 to 2018 Percent Change

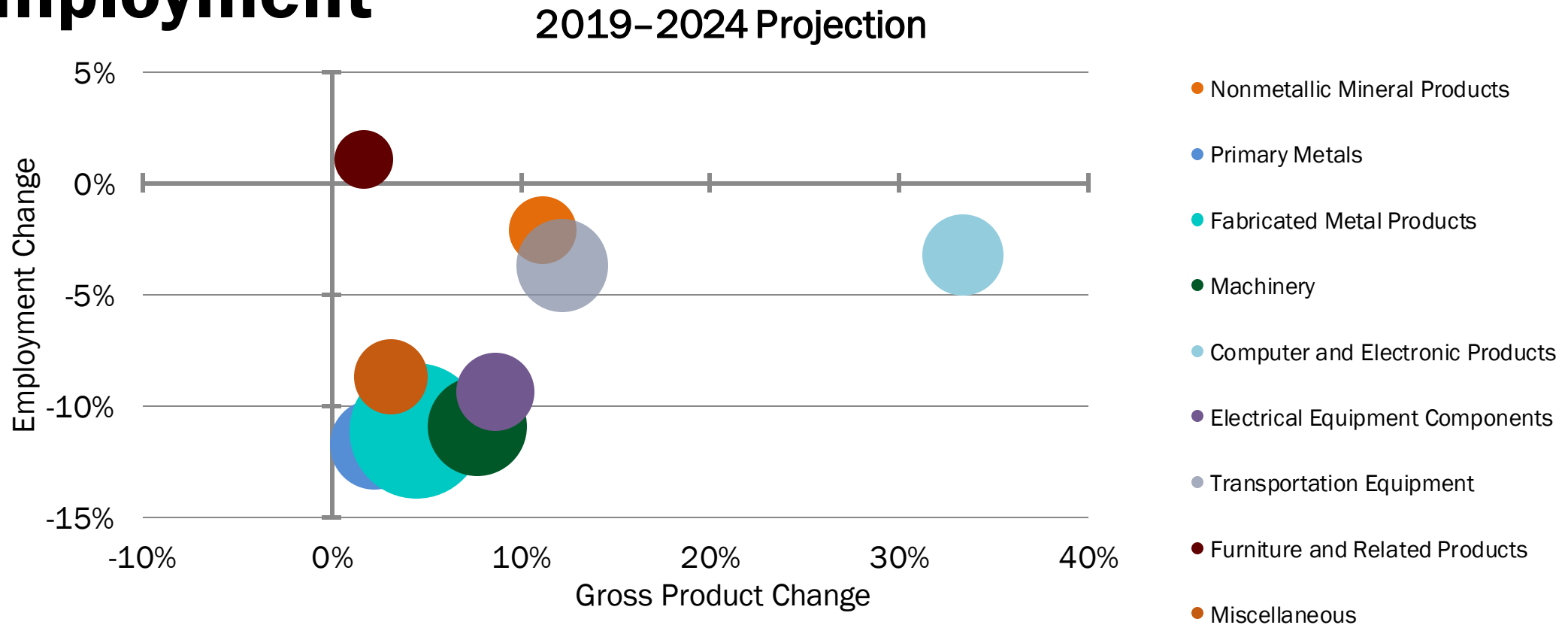


Source: Federal Housing Finance Agency

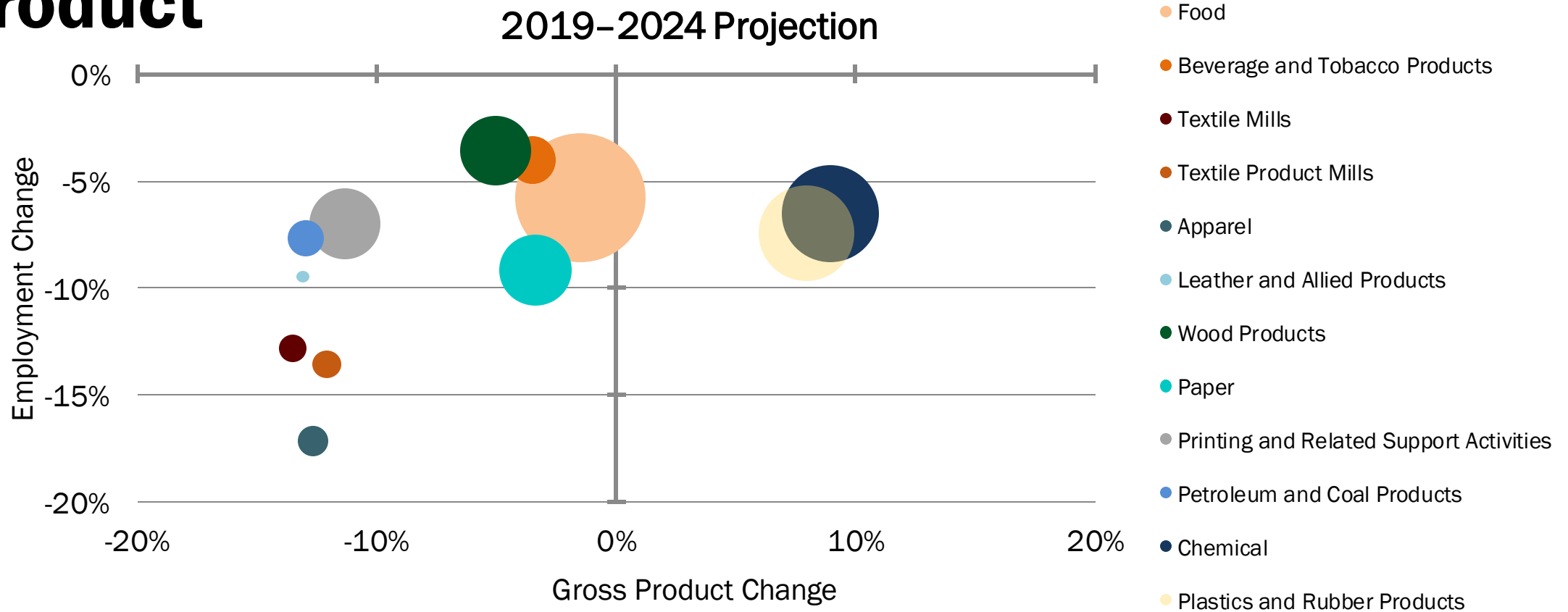
Growth is expected in both wholesale and retail trade, as well as the service sector



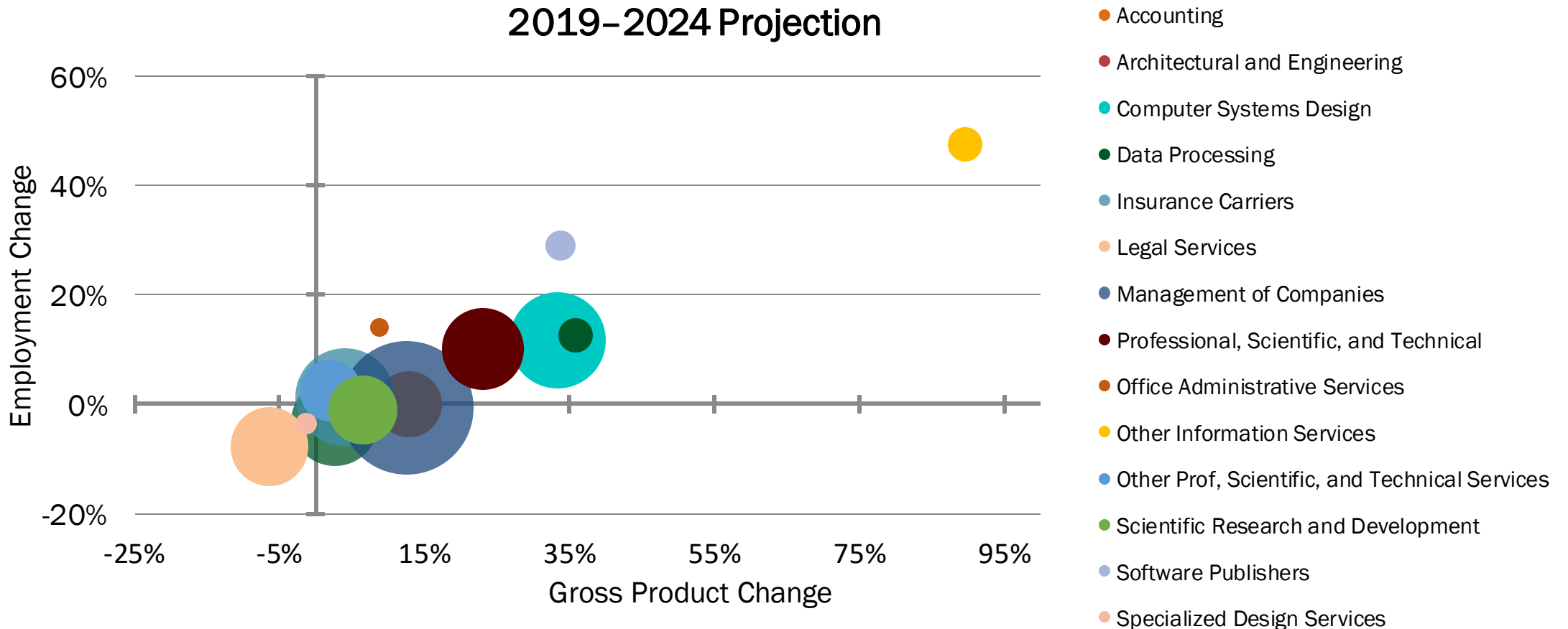
Durable manufacturing is expected to increase in gross domestic product, but decrease in employment



Non-durable manufacturing is expected to decline in employment and gross domestic product



Technology and services are expected to increase in both employment and gross domestic product



Pennsylvania manufacturing location quotients

Industry	NAICS	Employment	Location Quotient
Railroad rolling stock manufacturing	3365	5,568	5.65
Iron and steel mills and ferroalloy manufacturing	3311	11,630	3.41
Sugar and confectionery product manufacturing	3113	10,203	3.33
Other transportation equipment manufacturing	3369	4,463	3.23
Other electrical equipment and component manufacturing	3359	16,745	2.96
Steel product manufacturing from purchased steel	3312	5,773	2.51
Forging and stamping	3321	10,226	2.43
Nonferrous metal (except aluminum) production and processing	3314	5,587	2.42
Manufacturing and reproducing magnetic and optical media	3346	1,052	1.98
Foundries	3315	8,474	1.81

Pennsylvania Manufacturing location quotients and multipliers

Industry	NAICS	Employment	Location Quotient	Multiplier
Railroad rolling stock manufacturing	3365	5,568	5.65	4.9
Iron and steel mills and ferroalloy manufacturing	3311	11,630	3.41	8.3
Sugar and confectionery product manufacturing	3113	10,203	3.33	4.3
Other transportation equipment manufacturing	3369	4,463	3.23	3.7
Other electrical equipment and component manufacturing	3359	16,745	2.96	2.0
Steel product manufacturing from purchased steel	3312	5,773	2.51	3.8
Forging and stamping	3321	10,226	2.43	3.3
Nonferrous metal (except aluminum) production and processing	3314	5,587	2.42	6.4
Manufacturing and reproducing magnetic and optical media	3346	1,052	1.98	4.2
Foundries	3315	8,474	1.81	2.9

Pennsylvania Business Services location quotients

Industry	NAICS	Employment	Location Quotient
Other investment pools and funds	5259	424	1.68
Monetary authorities: central bank	5211	1,139	1.52
Management of companies and enterprises	5511	138,467	1.50
Newspaper, periodical, book, and directory publishers	5111	17,069	1.40
Scientific research and development services	5417	37,194	1.36
Facilities support services	5612	8,329	1.30
Insurance carriers	5241	76,378	1.26
Other support services	5619	16,192	1.17
Wired telecommunications carriers	5171	23,696	1.12
Agencies, brokerages, and other insurance related activities	5242	51,431	1.12

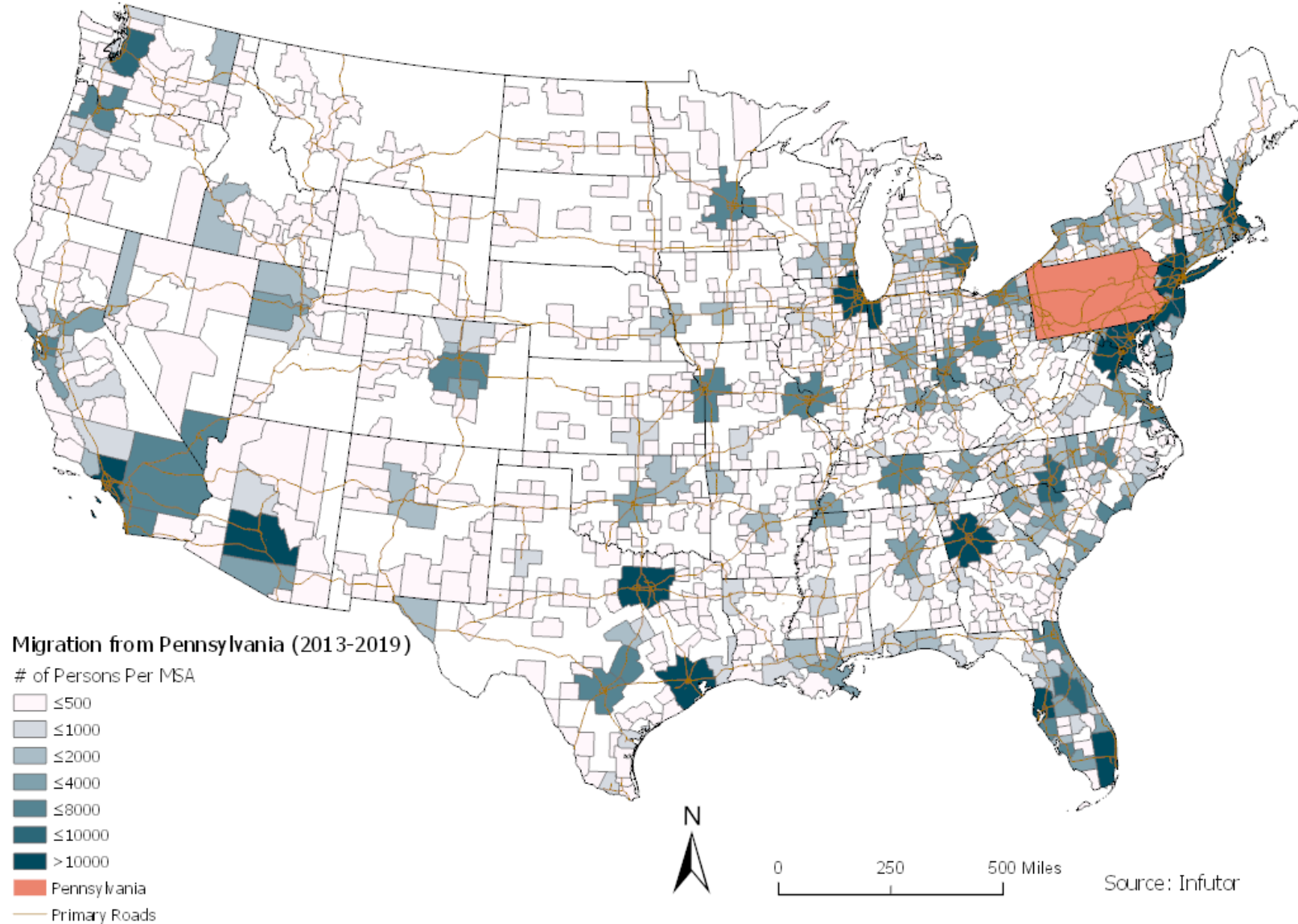
Pennsylvania Business Services location quotients and multipliers

Industry	NAICS	Employment	Location Quotient	Multiplier
Other investment pools and funds	5259	424	1.68	1.8
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Management of companies and enterprises	5511	138,467	1.50	2.7
Newspaper, periodical, book, and directory publishers	5111	17,069	1.40	3.8
Scientific research and development services	5417	37,194	1.36	1.4
Facilities support services	5612	8,329	1.30	2.5
Insurance carriers	5241	76,378	1.26	2.4
Other support services	5619	16,192	1.17	2.1
Wired telecommunications carriers	5171	23,696	1.12	3.8
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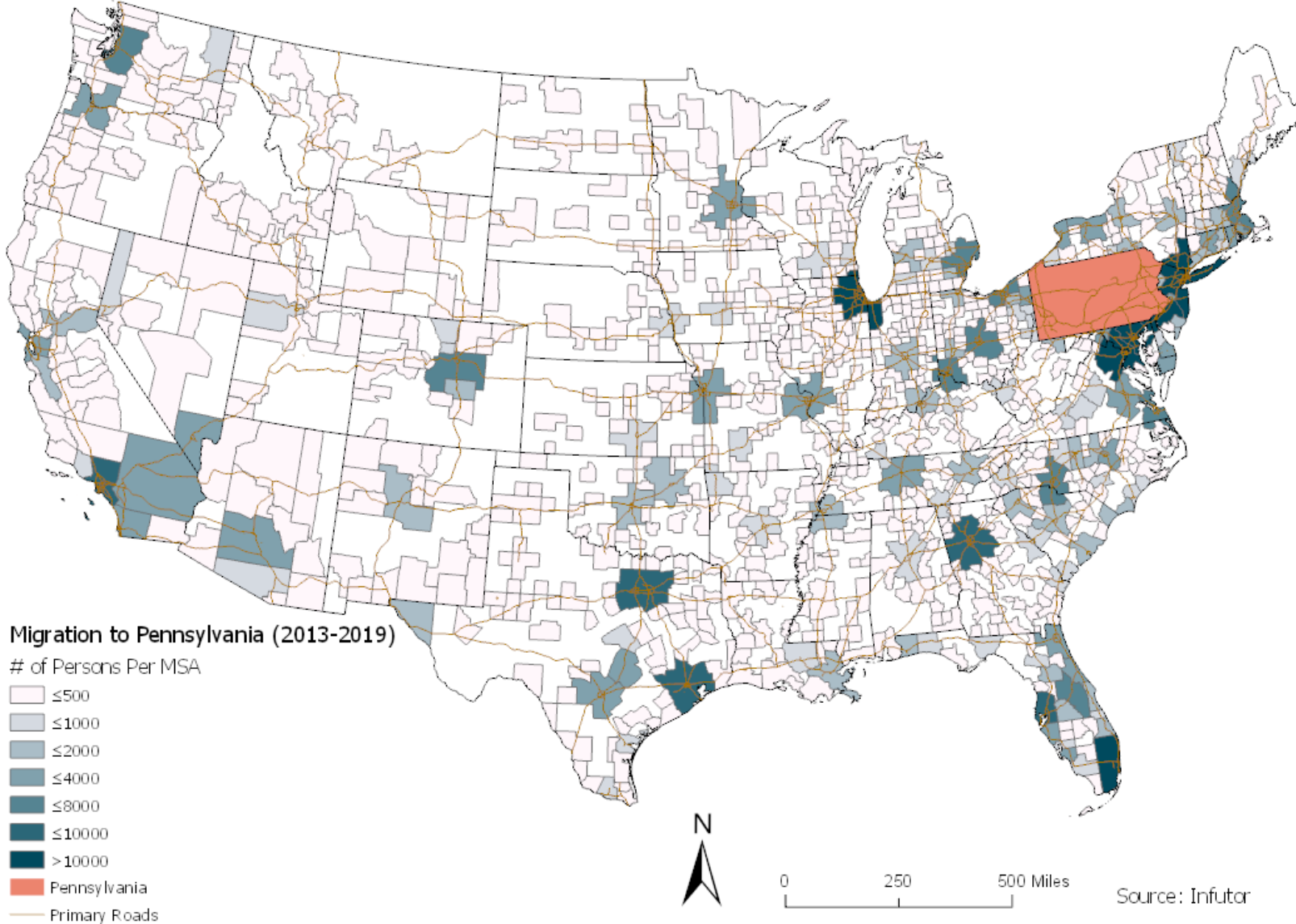
USMCA and Brexit matter to Pennsylvania

Industry	Total	China	Canada	Mexico	EU
TOTAL	\$41,192,635,837	6.2%	26.3%	10.2%	24.0%
Chemicals	\$8,861,275,049	3.9%	17.2%	14.3%	33.9%
Machinery	\$3,984,713,734	7.3%	32.1%	11.7%	17.8%
Primary Metal Manufactures	\$3,739,888,199	8.8%	26.9%	14.9%	31.3%
Transportation Equipment	\$3,609,821,718	2.8%	29.7%	7.7%	13.4%
Computer and Electronic Products	\$3,467,286,102	9.2%	24.5%	5.7%	22.8%
Minerals and Ores	\$2,806,359,739	9.7%	6.8%	0.1%	19.2%

Out-migration from Pennsylvania: 2013 to 2019

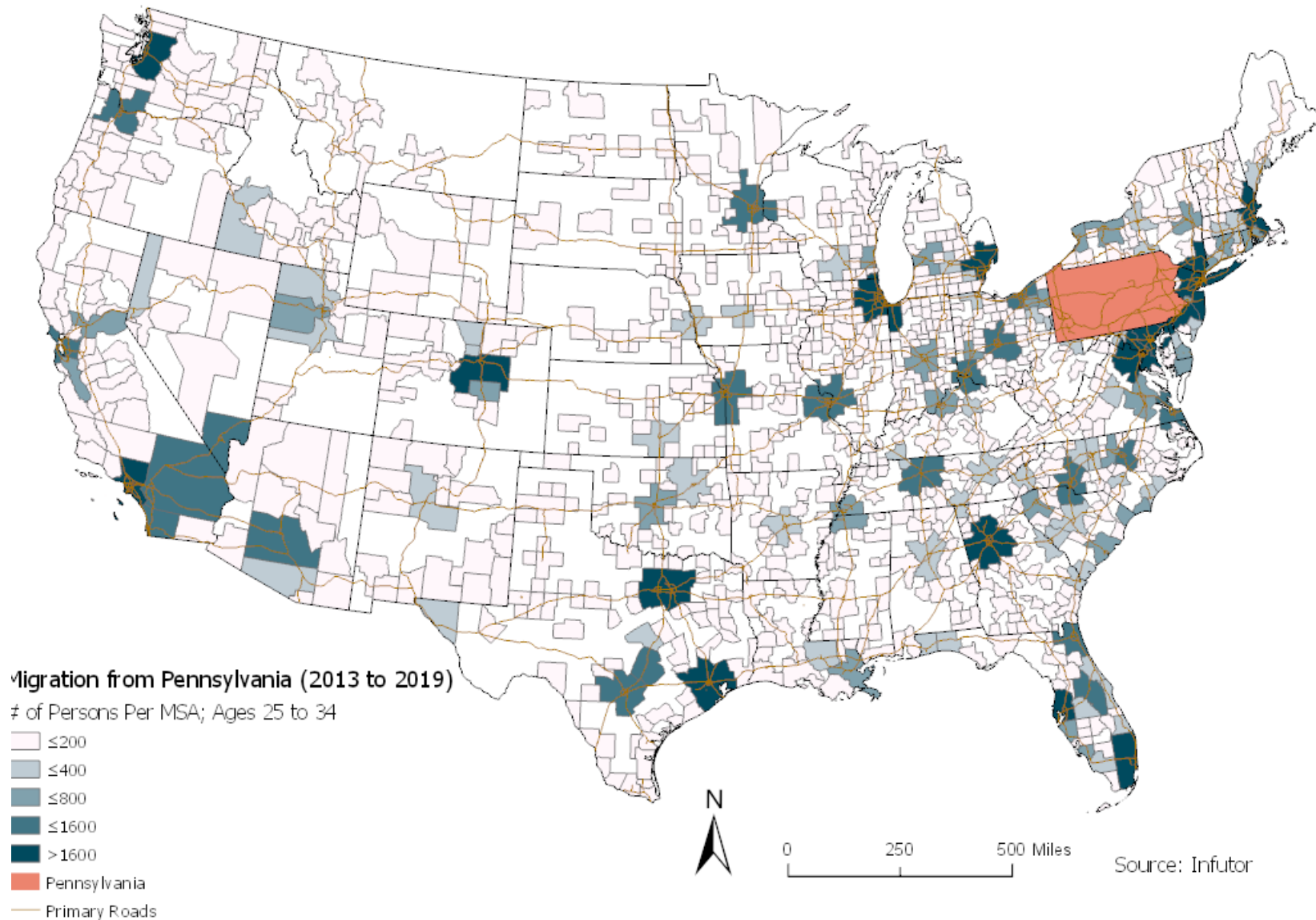


In-migration to Pennsylvania: 2013 to 2019



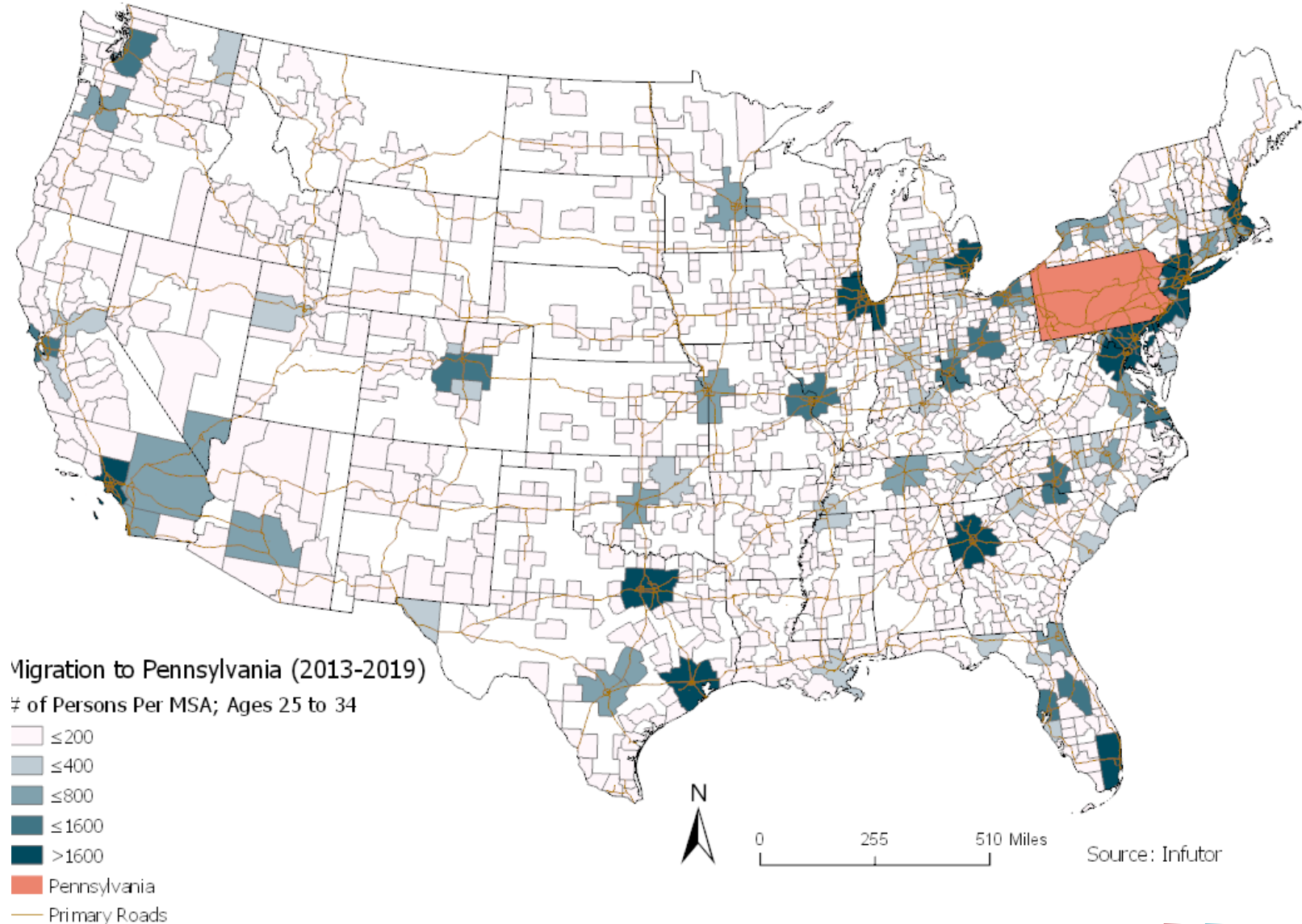
Out-migration from Pennsylvania: 2013 to 2019

Emerging workers age 25 to 34



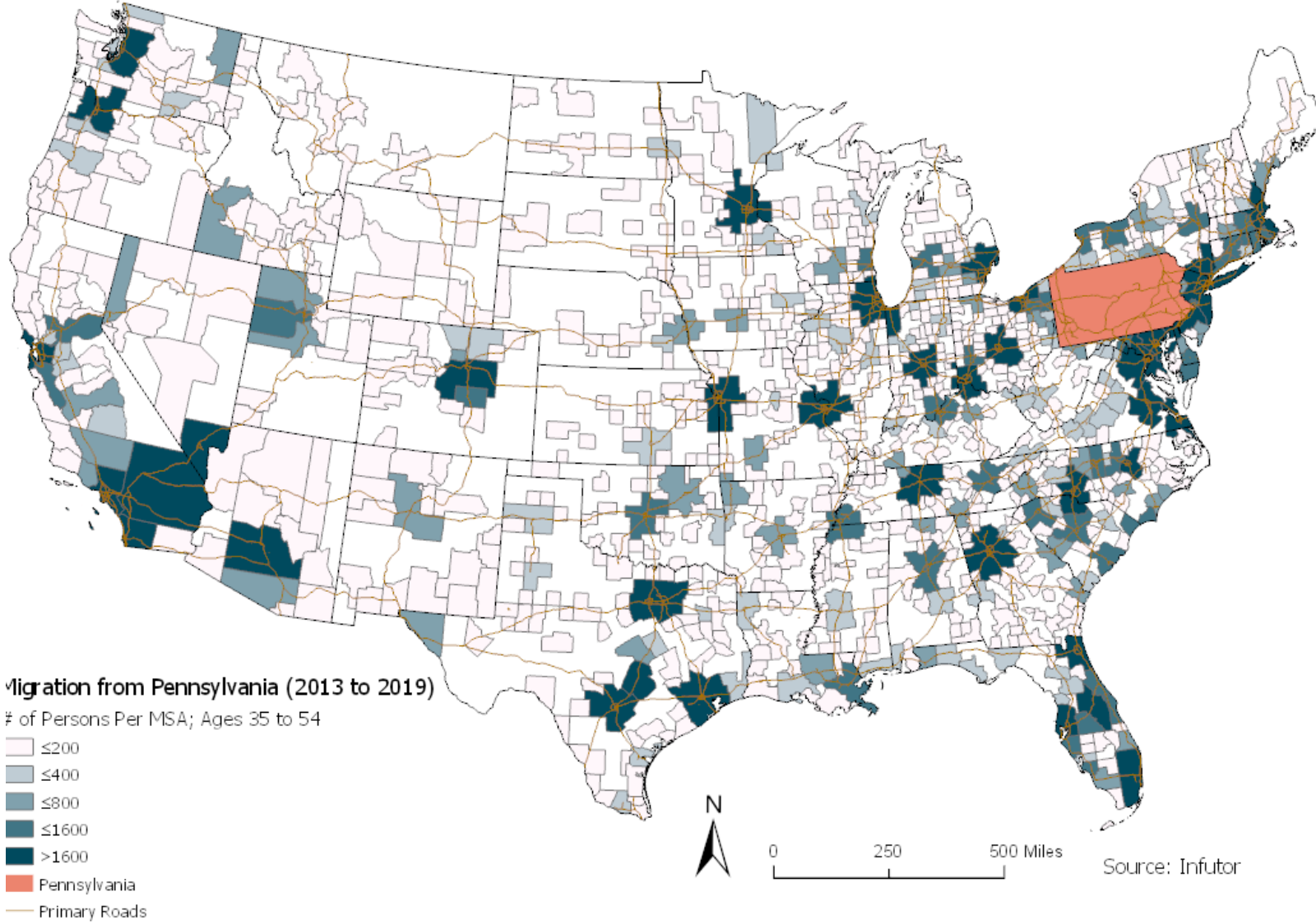
In-migration to Pennsylvania: 2013 to 2019

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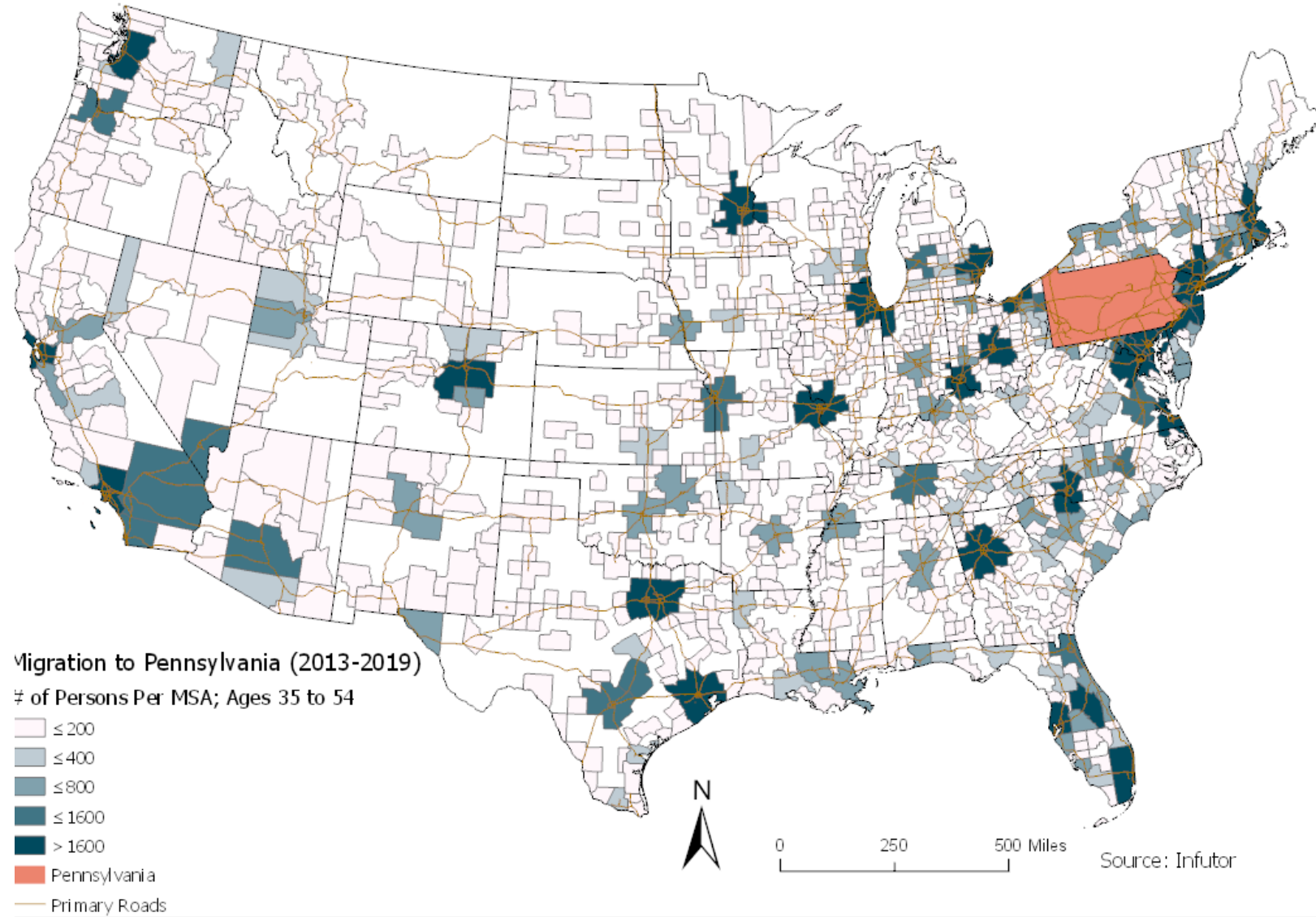
Out-migration from Pennsylvania: 2013 to 2019

Prime-age workers, 35 to 54



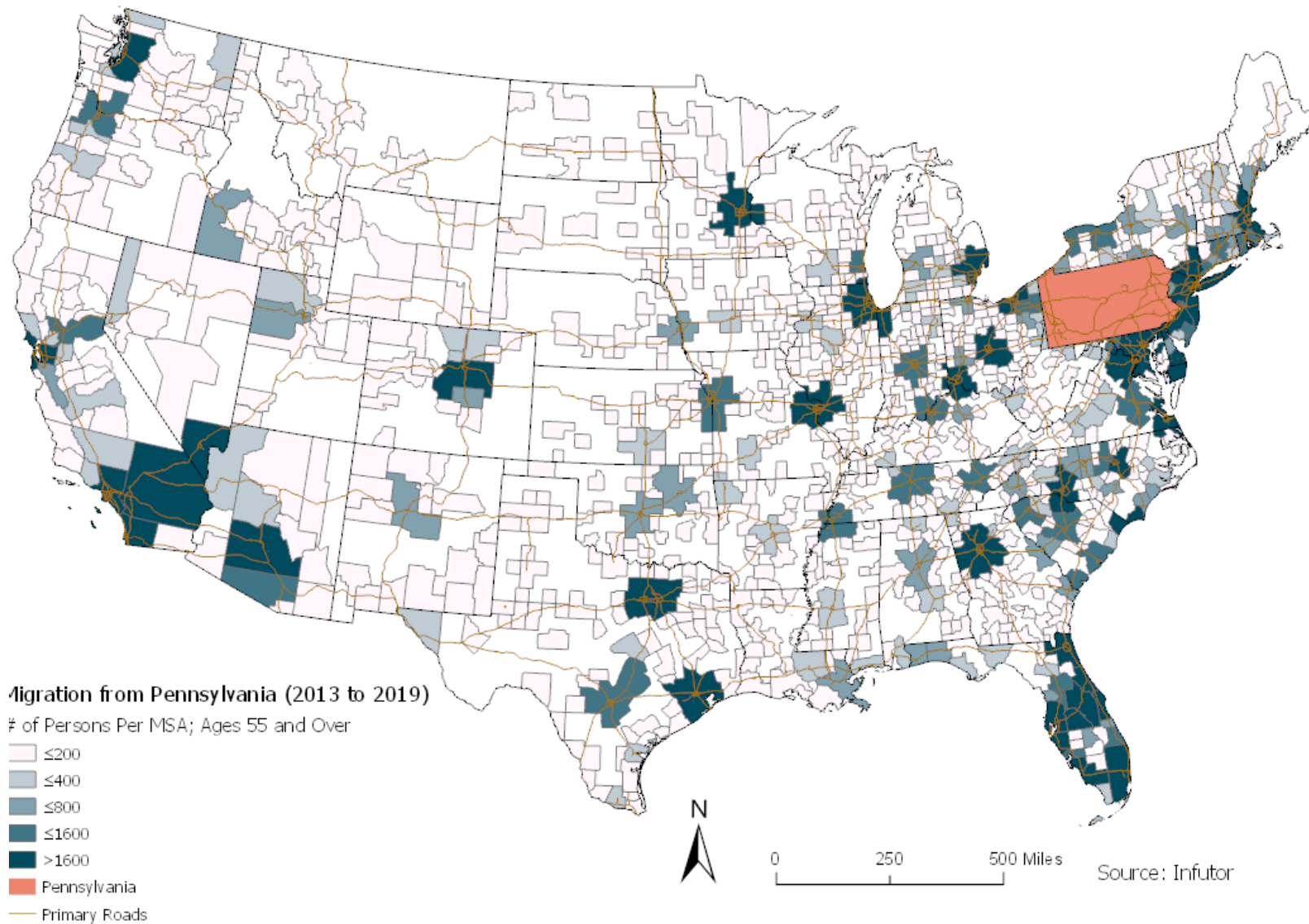
In-migration to Pennsylvania: 2013 to 2019

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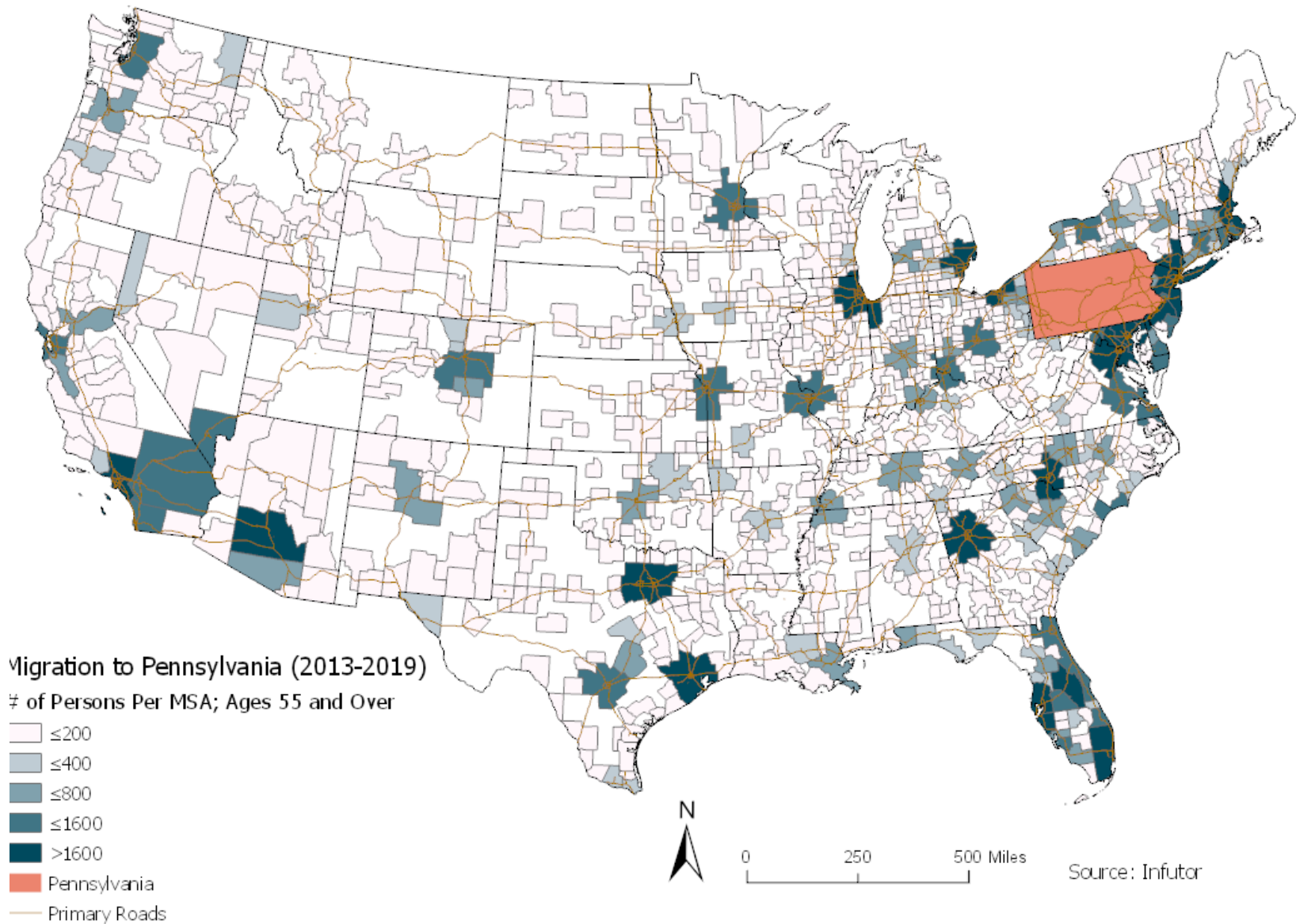
Out-migration from Pennsylvania: 2013 to 2019

Post-prime-age workers, 55 and older

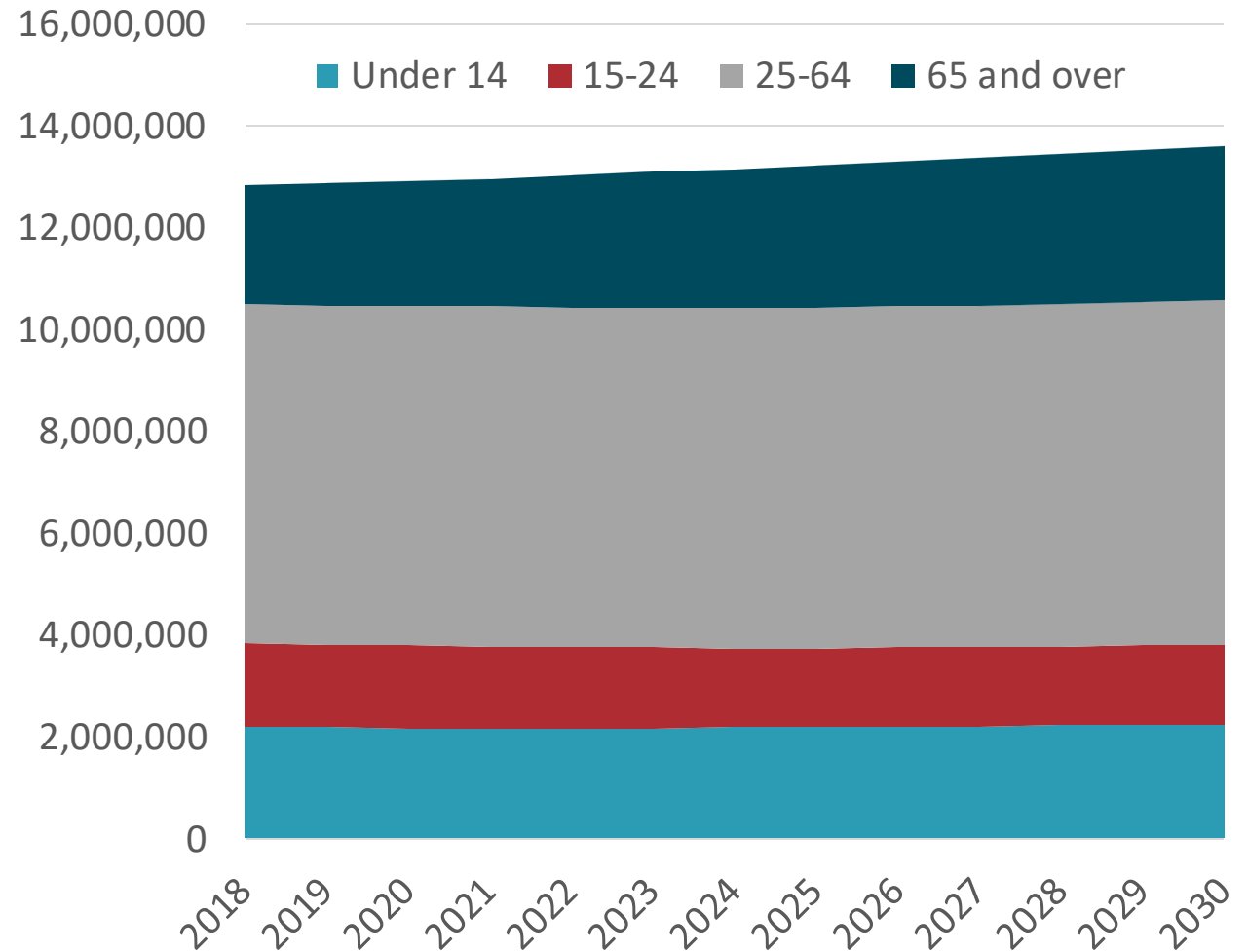


In-migration from Pennsylvania: 2013 to 2019

Post-prime-age workers, 55 and older



Population forecast: 2018 to 2030





The Next Recession: What We Are Watching

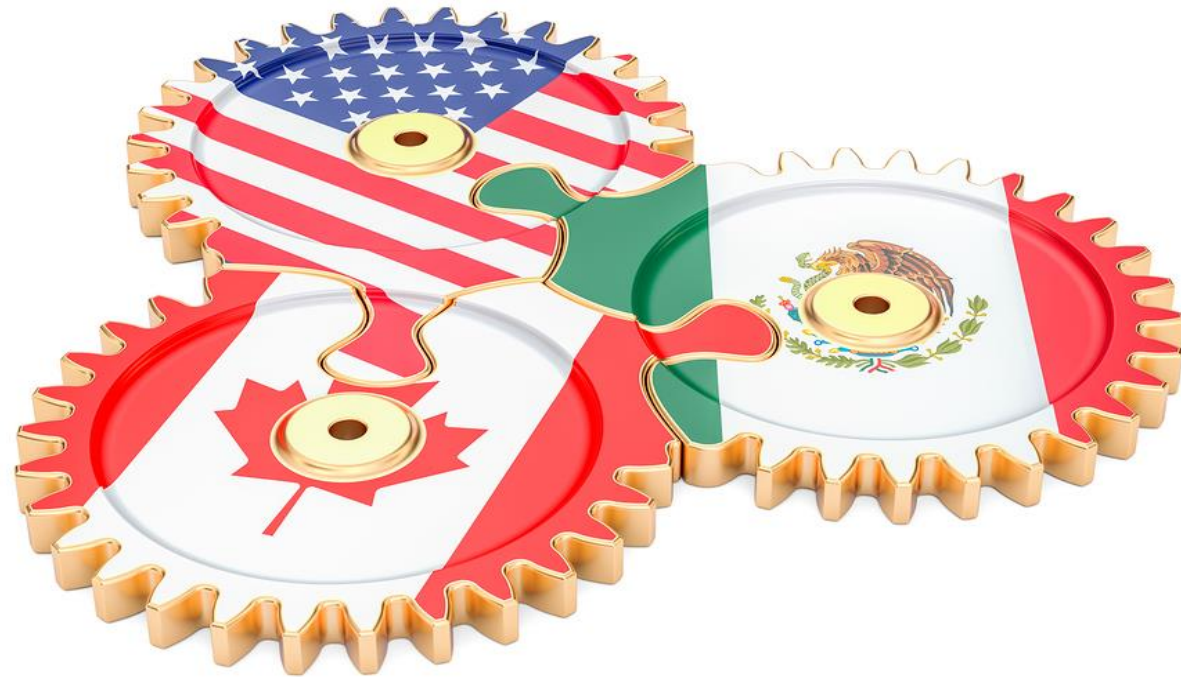
The next recession and what we're watching: Our thoughts and concerns



- The effect of the announced and anticipated tariffs

The next recession and what we're watching: Our thoughts and concerns

- The role of trade agreements
 - Blocks
 - Canada/Mexico
 - E.U
 - Bilateral
 - China
 - Japan
 - U.K.



The next recession and what we're watching: Our thoughts and concerns

- Expect interest rates to change



The next recession and what we're watching: Our thoughts and concerns

- Tight labor markets (U-3 and LFPR)



The next recession and what we're watching: Our thoughts and concerns

- “Elections have consequences”
 - Tax policy
 - Trade policy
 - Fiscal policy
 - Monetary Policy
 - Legal Policy
 - Issues of decisions and implementation



The next recession and what we're watching: Our thoughts and concerns

- The movement from industry 2.0, to 3.0, and to 4.0

The next recession and what we're watching: Our thoughts and concerns

- The rising deficit



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Questions?

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