

Sangamon County Economic Structure Analysis – January 2018

Executive summary

Sandy Dall’erba, Associate Professor, Agricultural and Consumer Economics (ACE),
Director, Regional Economics Applications Laboratory (REAL)

1. Location quotients

A location quotient (LQ) is a measure of a county’s industrial specialization relative to a larger geographic unit chosen here as the state of Illinois. A LQ is computed as an industry’s share in employment in a county divided by the same industry’s share at the State level.

Table 1 below shows the share of the largest occupations in the county as well as their LQ. Together they capture 64% of the total occupations. The data come from the Bureau of Labor Statistics (<https://data.bls.gov/oes/#/home>).

The results indicate that Sangamon is relatively specialized in all these occupations but transportation.

Table 1

Occupation	Share of Sangamon county’s occupations	LQ
Office and Administrative Support Occupations (430000)	19.83%	1.27
Food Preparation and Serving Related Occupations (350000)	9.59%	1.13
Sales and Related Occupations (410000)	9.11%	0.93
Healthcare Practitioners and Technical Occupations (290000)	8.97%	1.54
Business and Financial Operations Occupations (130000)	6.46%	1.17
Education, Training, and Library Occupations (250000)	5.86%	0.92
Transportation and Material Moving Occupations (530000)	4.10%	0.51

We complement the table above with two other tables for two reasons. First, the Bureau of Labor Statistics classifies employment by occupations which can be different from the sector the company one works for belongs to. For instance, “administrative occupations” includes the staff of the university while most of the university activities revolve around “education”. As a result, we obtain a different picture when we classify employment by economic sector. We do it in table 2 below for the largest sectors according to IMPLAN, a private provider of economic data. These sectors represent 48.1% of employment (full time equivalent). The second reason is that the sectoral disaggregation is much finer in the latter dataset.

Table 2

Employment (Full time equivalent)	Share of Sangamon county's employment	LQ with respect to Illinois
Hospitals	6.0%	1.97
Employment and payroll of state govt, non-education	5.3%	6.19
Employment and payroll of local govt, education	4.7%	1.10
Religious organizations	4.4%	2.79
Offices of physicians	3.8%	2.82
Employment services	3.1%	1.09
Limited-service restaurants	3.1%	1.22
Full-service restaurants	3.0%	1.11
Wholesale trade	3.0%	0.72
Employment and payroll of local govt, non-education	2.5%	0.89
Real estate	2.2%	0.68
Retail - General merchandise stores	2.0%	1.19
Insurance carriers	1.8%	2.17
Monetary authorities and depository credit intermediation	1.7%	1.47
Personal care services	1.5%	1.26

While table 2 is devoted to employment, table 3 offers the same exercise but for production. The largest sectors represent 52.1% of the county's production. For both variables, we see that the public sectors that drive the local economy are the local and state government employees. In the private sector, the main sectors are in the medical field (hospitals and physicians) and in wholesale trade.

Table 3

Production	Share of Sangamon's total production	LQ with respect to Illinois
Religious organizations	6.9%	4.57
Hospitals	5.7%	2.23
Insurance carriers	5.6%	2.17
Wholesale trade	5.1%	0.84
Owner-occupied dwellings	5.1%	1.22
Employment and payroll of state govt, non-education	4.5%	8.69
Offices of physicians	4.2%	3.92
Monetary authorities and depository credit intermediation	2.8%	1.42
Employment and payroll of local govt, education	2.3%	1.17

Electric power transmission and distribution	2.1%	1.94
Real estate	2.0%	0.51
Limited-service restaurants	1.7%	1.43
Automobile manufacturing	1.4%	1.30
Employment and payroll of local govt, non-education	1.4%	1.18
Coal mining	1.3%	7.05

2. Regional Purchase Coefficient (RPC) and Regional Supply Coefficient (RSC)

Another way to identify existing clusters – or the need to create clusters – is to look at Regional Purchase Coefficient (RPC) and the Regional Supply Coefficient (RSC). RPC describes how much of local demand is met by local producers. A RPC of 0.9 means that 90% of the local demand is met by local production while 10% is imported. RSC measures how much of the local production satisfies local demand. A RSC of 0.9 means that 90% of the supply is used by local agents while 10% is used by foreign agents (= export).

Table 4 below reports such figures for the sectors with the largest shares of employment (table 2).

Table 4

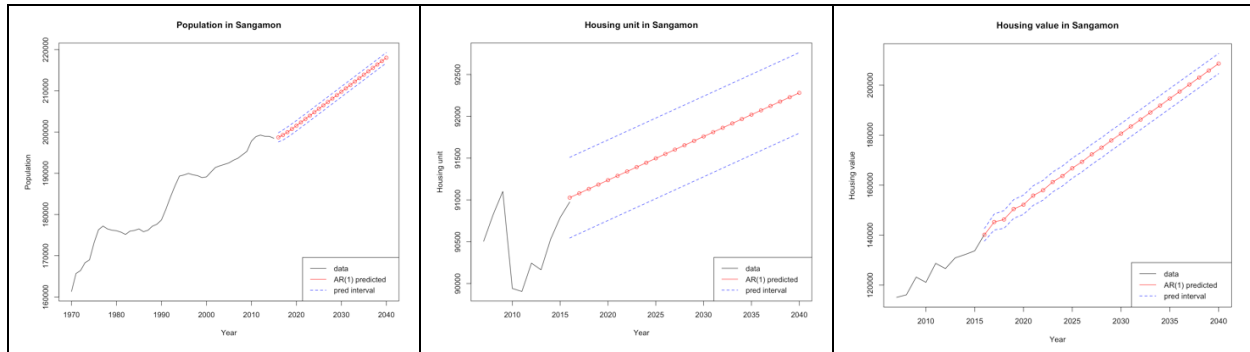
	RPC	RSC
482 - Hospitals	1.00	0.55
531 - Employment and payroll of state govt, non-education	1.00	1.00
534 - Employment and payroll of local govt, education	1.00	1.00
513 - Religious organizations	1.00	0.17
475 - Offices of physicians	1.00	0.36
464 - Employment services	1.00	0.69
502 -Limited-service restaurants	1.00	0.91
501 - Full-service restaurants	0.93	0.99
395 - Wholesale trade	0.95	0.75
533 - Employment and payroll of local govt, non-education	1.00	1.00
440 - Real estate	0.33	1.00
405 - Retail - General merchandise stores	0.99	0.87
437 - Insurance carriers	0.86	0.41
433 -Monetary authorities and depository credit intermediation	1.00	0.67
509 - Personal care services	1.00	0.65

We note that real estate is an important sector for the local economy. Yet, only 33% of the local demand is met by local production. Furthermore, while the services produced by the “Hospital” sector satisfy 100% of the local demand, 45% (=100%-55%) of such services are for patients outside of Sangamon county. The difference is even larger for “Office of physicians”. It would be interesting to learn how far the patients come from.

3. Forecasts until 2040

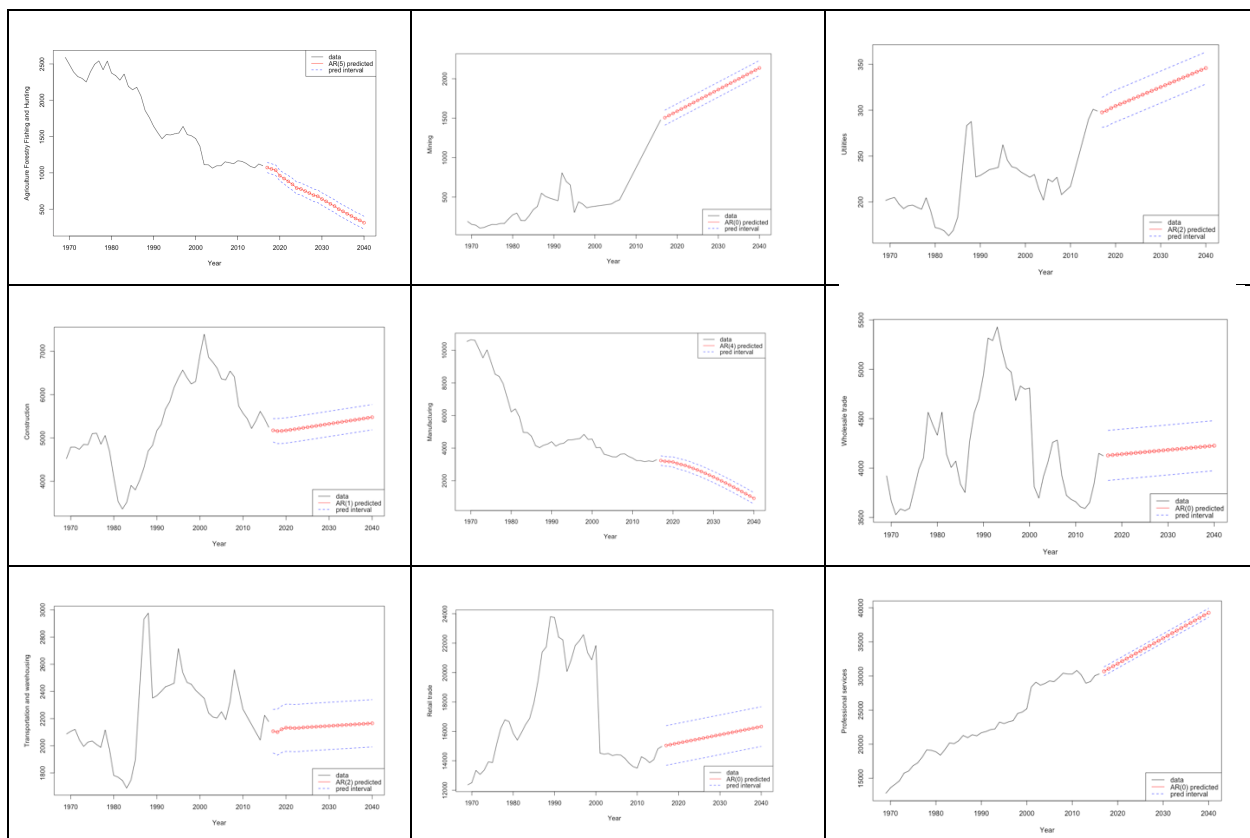
This section starts by offering forecasts in terms of a) population; b) housing (value and stock); c) employment by sector. Past data of a) and b) come from the Census Bureau. Past data of c come from the Bureau of Economic Analysis and start in 1969.

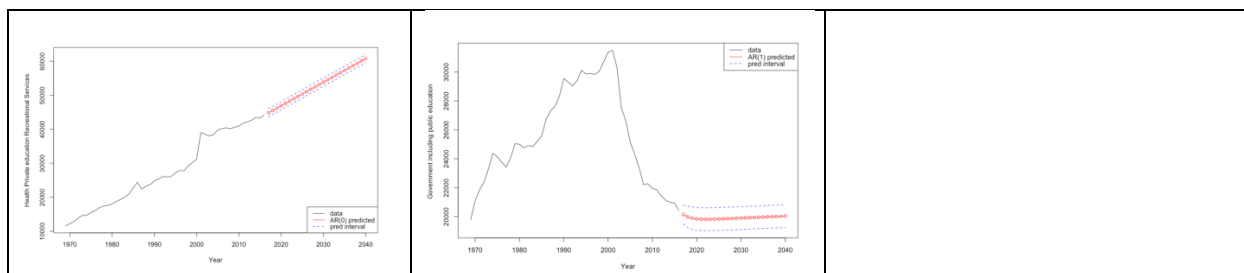
The basic idea of the forecast is to find the correct autoregressive model. For instance AR(1) means that this year's current value is a function of last year's value. AR(3) means that values of last year up to three years ago matter in determining the current year's value. For each variable, we tried various time lags and we report and plot below the model that fits our data the best.



Population is expected to grow by 9.8% by 2040 (198,496 inhabitants in 2015 compared to 218,030). It is correlated with an expected increase in the stock of housing units (+ 1.4%) and in housing values (+48.7%).

This expected increase is in tune with a small expected increase in the number of workers in construction (+0.59%), see below. Forecasts for the other sectors of the economy are reported below too.





We note that the expected change over 2015-2040 for most of the largest sectors of Sangamon's economy in terms of employment are positive and large: health services, recreational services and private education (+40.34%), wholesale trade (+1.87%), retail trade (+10.21%) and professional services (+30.63%). The only exception is government and public education for which a decrease of 4.27% is expected.

The table below reports the expected percentage change (2015 to 2040) across all 11 sectors of the economy.

Table 5 (% change over 2015-2040)

Agriculture, Forestry, Fishing and Hunting	-71.99%	Mining	+55.02
Utilities	+14.92%	Construction	+0.59%
Manufacturing	-70.84%	Wholesale Trade	+1.87%
Transportation & Warehousing	-2.67%	Retail trade	+10.21%
Professional Services	+30.63%	Health services, Recreational services, private education	+40.34%
Government and public education	-4.27%		