

## Crossroads Resource Center

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*Tools for Community Self-determination*

# Auburn, Maine Local Economy: Agriculture, Forestry, and Housing



## DATA BOOK

Prepared for the  
Ad Hoc Committee, City of Auburn, Maine  
Agriculture and Resource Protection Zone (ARPZ)

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## Executive Summary

### Demographics:

- Auburn has a solid steady-state economy.
- Population has suffered a slight decline but has generally held steady since 1960.
- Personal income has risen all the same, even when inflation is taken into account.
- Auburn residents earn about \$650 million per year.

### Housing:

- Most Auburn residents stay put; about 20% move each year.
- Most of those who move into Auburn homes are tenants who move from elsewhere in the City or Androscoggin County.
- Income levels of those who move are generally lower than average.
- The median home price has held relatively steady since 2000, but has declined somewhat.
- Auburn compares well with nearby communities so it could attract new homeowners.
- On average, 31 new homes have been built inside the City each year since 2010.

### Personal Income:

- Androscoggin County is highly dependent upon federal programs, with 43% of personal income channeled through government programs or jobs.
- Both manufacturing and farming income are quite limited.
- Still, County residents earn \$4 billion each year.
- The Health sector provides the most significant portion of payroll.
- Nearly one of every three Auburn residents lives in a household earning less than 185% of the Federal Poverty Limit

### Industry:

- The top 12 employers in Androscoggin County account for 35% of all employment.
- Unemployment is quite low, at 1.6%.
- The food industry is one of the top business clusters (led by bottled water and distilled spirits).
- Among the top employers in the County are grocery stores and restaurants, yet these jobs do not typically pay well.

### Farming:

- Androscoggin County had 463 farms in 2012.
  - 111 farms grow 754 acres of vegetables, up from 60 farms growing 698 acres in 2007.
  - 28 farms raise potatoes.
  - 3 farms raise onions.
  - 41 farms raise pumpkins.
  - 38 farms sell direct to retail stores.
  - 58 farms sell through CSAs.
  - 58 farms do value-added processing on their farms.
- Cattle production, dairy, and poultry/eggs were more prosperous industries in 1964 than they are today.

- Raising forage for animals is still a strong industry, but has weakened as livestock farming has declined.
- The main growth sector in farming is vegetable production. Much of this is potatoes grown on larger farms.
- Direct sales are also an important rising sector, with 34% of County farms selling direct to households.
- Net cash income for County farmers was negative in 2016 — and \$42 million lower than in 1969.

### **Forestry**

- Much of the land that was preserved as farmland in 1964 has become forested since then.
- Most forested land in Maine is owned by individuals.
- Most income in forestry in Auburn is earned by owner-operators who harvest wood for home heating.
- Employment in forestry in Androscoggin County has hovered around 300 for 16 years.
- Several new industries are emerging that might create more demand for pelletized wood for fuel, etc.

### **Conclusions**

- The market, if left to its own devices, is likely to favor slow decline but not significant change.
- Market pressures make housing appear attractive, but often at a substantial cost in civic services.
- Our interviews suggested that rural residential (RR) housing is liked by some, disliked by others.
- The ARPZ has been effective at holding land prices low, and in limiting development, but was not a policy that could foster a strong agriculture sector in itself.
- If Auburn wishes to retain agriculture, it needs to support local farmers as they build both household and wholesale markets.
- Auburn is unlikely to get many new farms of the scale of Bell Farms due to startup costs.
- A key influence will be policy decisions that the City of Auburn makes, and the investments it makes in infrastructure and marketing.
- Auburn should consider embracing an emerging sector of vegetable producers and build supportive infrastructure.
- Auburn should consider launching marketing campaigns that encourage residents to buy from local farms.
- If Auburn does not invest in agriculture, there is a significant threat that farmers will go away (move elsewhere, not locate here, etc.).
- Auburn may be able to make supportive investments in forestry as well.

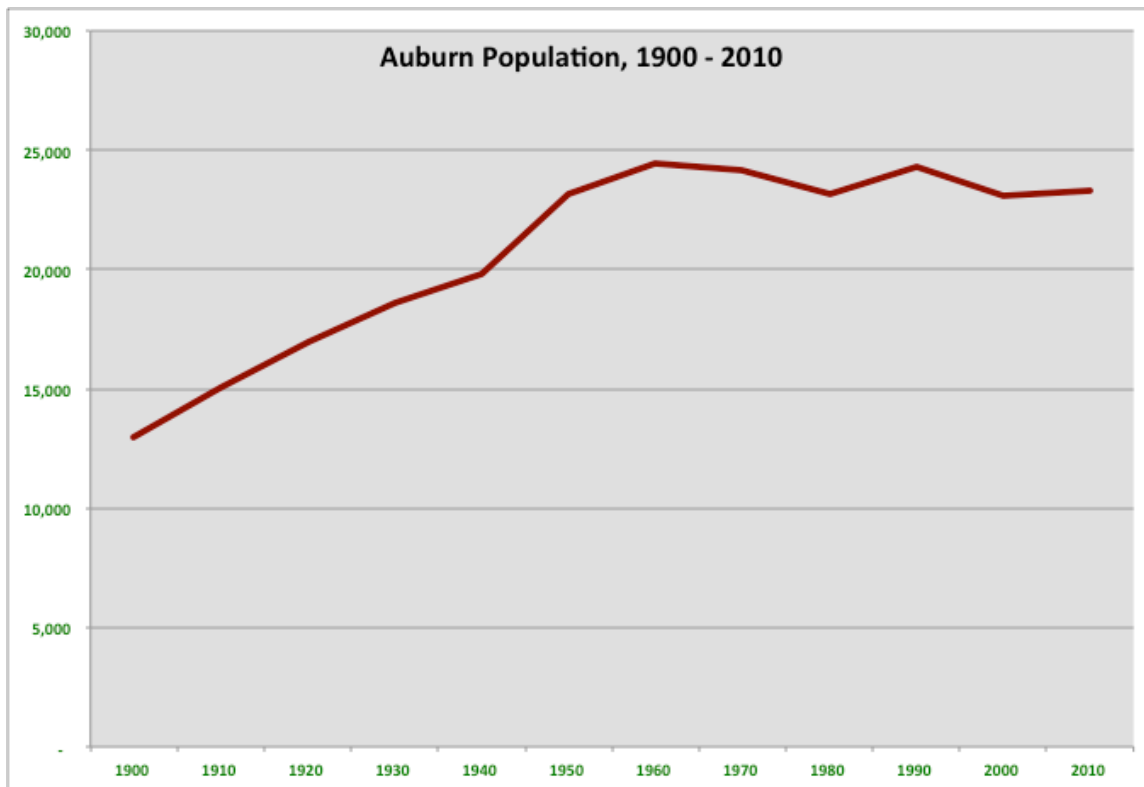
## Auburn Has a Steady State Economy

Auburn is an excellent example of a “steady state” local economy. That is to say, the City has a stable set of industries that are not changing greatly, at least at this time. The same could be said about Androscoggin County as a whole.

### Residency & Population

The population of Auburn peaked in 1960 at 24,449, just before the Agricultural Zone Ordinance was passed, as Chart 1 below shows. It has fallen slowly ever since, and now stands at 22,943.

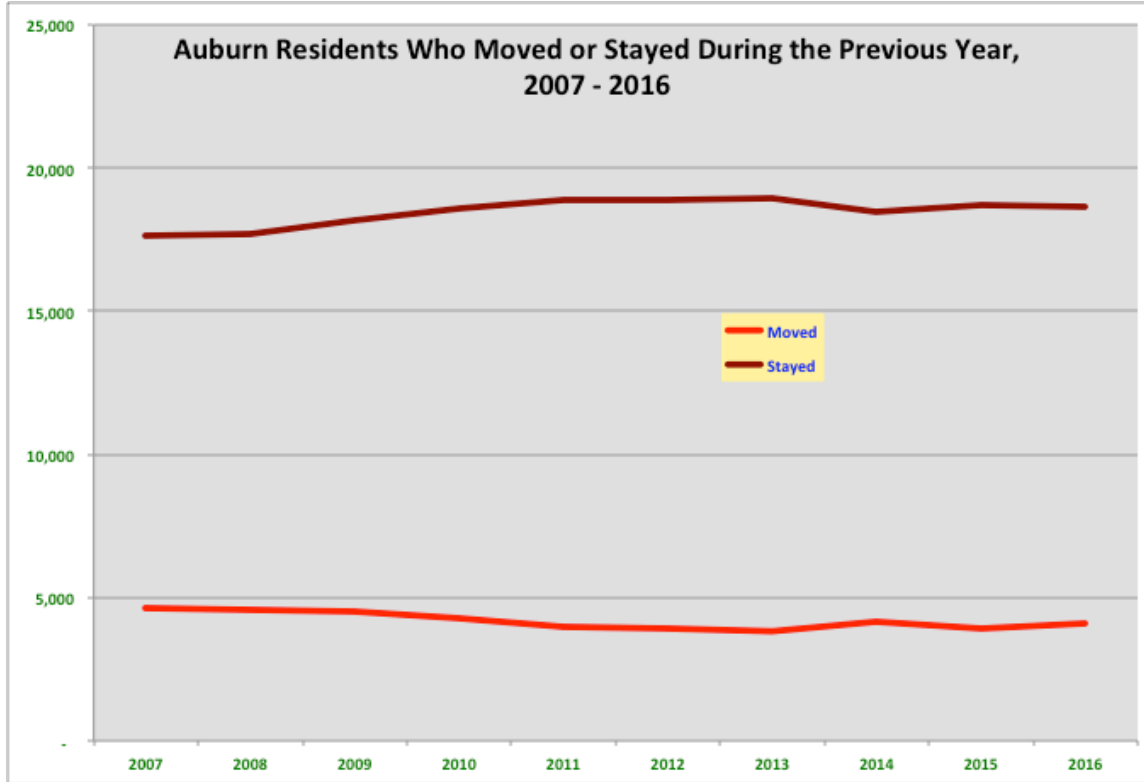
Chart 1: Population in Auburn, Maine, 1900 – 2010



Source: Federal Census

The stability of the City population is reflected in mobility patterns for Auburn residents. Most (82%) remain in their current home, while nearly one in five (18%) moves in a given year. The number of Auburn residents who choose to stay has increased slowly over the past decade, while the number that choose to move has fallen slightly. This is shown in Chart 2 below.

**Chart 2: Auburn Residents Who Moved or Stayed During the Previous Year, 2007 - 2016**

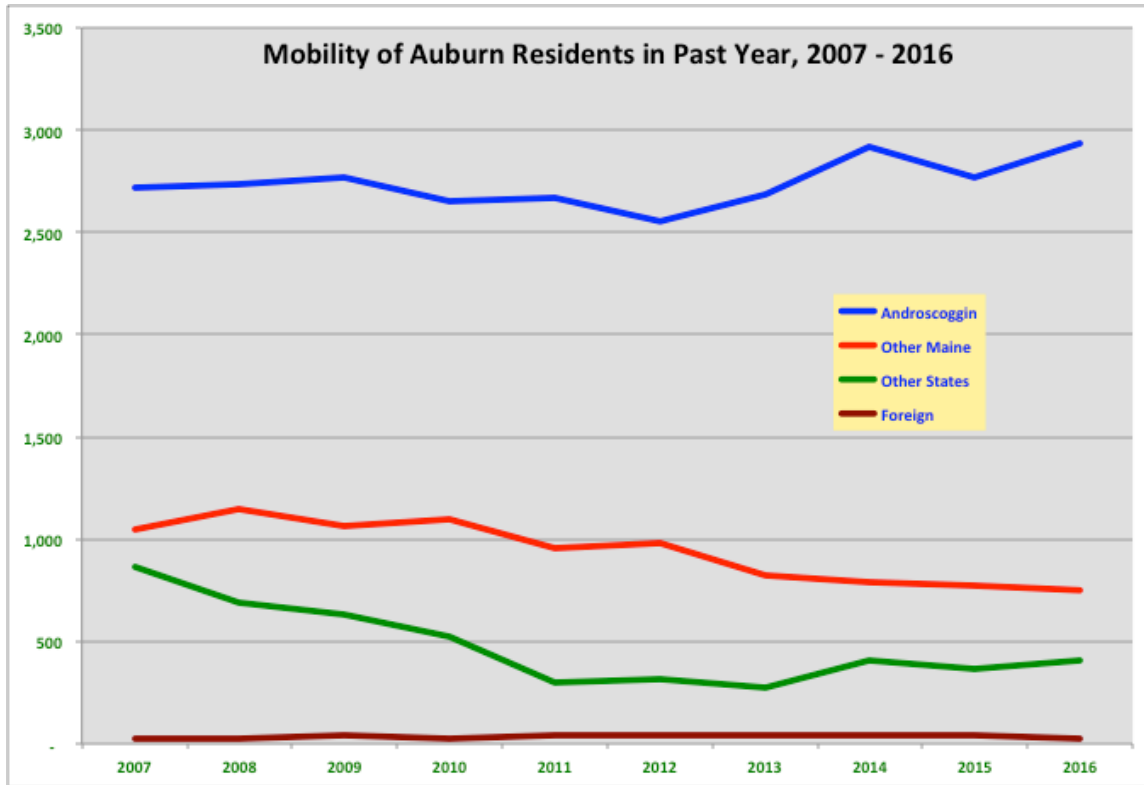


Source: Federal Census. Note that these data cover Auburn residents age 1 or older.

Perhaps even more telling, as Chart 3 shows, most of those who relocate to Auburn come from somewhere else in Androscoggin County, often moving within the City itself. The number of residents moving to Auburn from elsewhere in Maine, or from other states, have fallen steadily over the past decade, while a small number of residents move in from abroad.

### **Auburn's Population Has Remained Steady since 1960**

**Chart 3: Mobility of Auburn Residents in Past Year, 2007 - 2016**



Source: Federal Census. Note that these data cover Auburn residents age 1 or older.

One of the patterns is that those who relocate to homes in Auburn are often lower-income people who lived elsewhere in Androscoggin County (including elsewhere in the City itself). While the median income of the City population was \$25,957 in 2016, the median income of those who moved within the County was \$18,583. Obviously, this may include lower-income residents who are able to purchase homes in the city. Those who move from elsewhere in Maine have a slightly lower median income, at \$17,965.

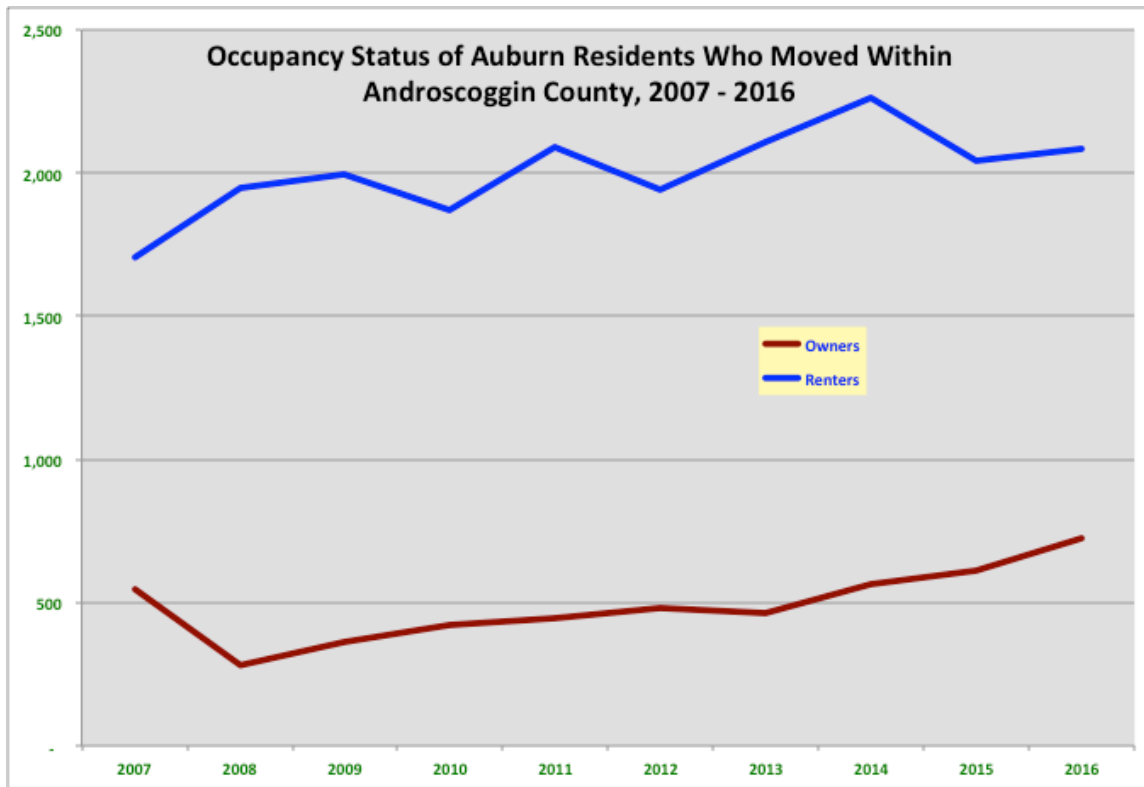
**Those who relocate to homes in Auburn are most often lower-income renters who move from somewhere else in Auburn or Androscoggin County**

While Census data show that many of the foreign arrivals earn more than established Auburn residents, this data set has not been reported for two years. This suggests that many of those who move in from other nations come to take jobs at colleges or hospitals.

Poverty does not appear to be a significant factor in why people stay or relocate. About one quarter of those who move into Auburn each year earn less than 150% of poverty while one quarter of those who remain in the City are at the same poverty level. These ratios have been relatively steady for the past decade.

Nevertheless, the number of people who move into Auburn who rent their homes is more than three times the number of those who purchase homes, as Chart 4 shows. About 724 residents moved into purchased homes in 2016, compared to 2,084 renters.

**Chart 4: Occupancy Status of Auburn Residents Who Moved Within Androscoggin County During the Previous Year, 2007 – 2016**



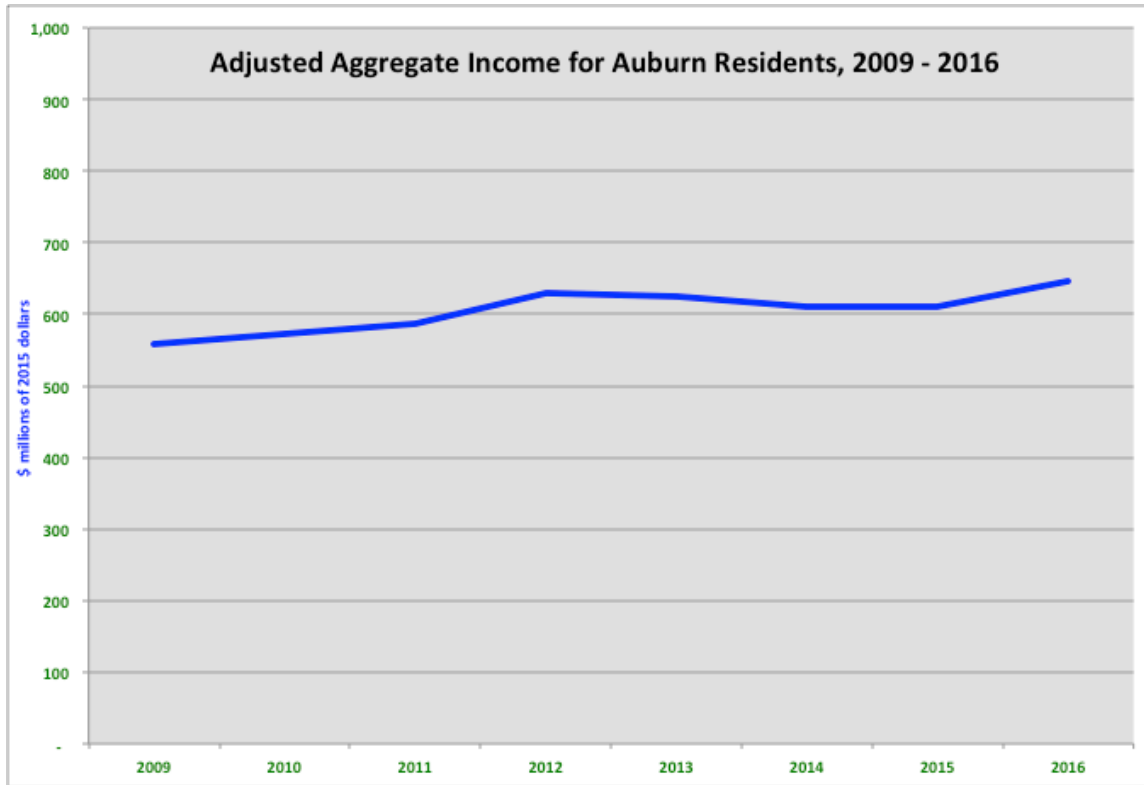
Source: Federal Census

## Household Income and Employment in Auburn

Although not entirely satisfying as income data, the Federal Census does report aggregate income for residents of the City. These data indicate that Auburn residents earned about \$645 million in 2016. As Chart 5 shows, household income for City residents has risen steadily over the past decade, even as population has declined and inflation affected the value of a dollar, showing that each household is earning a bit more money. Such trends as shown by Census data should be more reliable than the actual numbers listed here.



Chart 5: Adjusted Aggregate Household Income of Auburn Residents, 2009-2016



Source: Federal Census. These data are adjusted for inflation and shown in 2015 dollars. Census data for aggregate income are not entirely consistent with other sources, for example the Bureau of Economic Analysis (BEA). However, BEA only reports income data for entire counties. BEA data will be shown below.

The Census also lists 1,759 veterans living in the City.

The employment base in the City of Auburn is stable, with 17,666 workers, 11,277 of which live in the City itself (EMSI, 2016). The unemployment rate is 4%, and the median household income is \$46,976. Nine percent of the City's residents do not have health insurance. About half of these residents without insurance (1,373) are employed (Federal Census, 2012-2016).

The Census reports that 11,466 Auburn residents are employed in a variety of industries, as Table 1 below shows. Leading industries are health care, education, and government, but a substantial number of residents work in accommodation and food services, retail sales, and manufacturing.

Unfortunately, manufacturing income has fallen dramatically since 1958, when the Blackwell report tracked 13,265 manufacturing jobs in Auburn. Today that figure has fallen to 1,151. Similarly, the number of people employed in agriculture and forestry occupations (this excludes farm families) is still a relatively small percentage of the employment profile, and has fallen from 95 workers in 1958 to 44 in 2016.

**Table 1: Employment by Industry for Auburn Residents**

Industry	Estimated Workers
Agriculture, forestry, fishing & hunting, and mining	44
Construction	528
Manufacturing	1,151
Wholesale trade	303
Retail trade	1,599
Transportation, warehousing, and utilities	603
Information	208
Finance, insurance, and real estate	904
Professional, scientific, and management	880
Educational services, health care, and social assistance	3,191
Arts, entertainment, recreation, and accommodation & food services	1,263
Other services, except public administration	444
Public administration	348
<b>Total:</b>	<b>11,466</b>

Source: Federal Census, 2012-2016

Yet income is not always enough to meet basic needs. As Chart 6 below shows, Auburn residents experience a wide range of household incomes, with 1,562 people earning less than \$10,000 per household (each household averages 2.35 people), to 574 people earning more than \$200,000. Significantly, more than half of the City’s households (nearly 12,000 residents) earn less than \$50,000 per year.

Census data also show that 7,229 Auburn residents live in households earning less than 185% of the Federal Poverty Line (averages for the years 2012-2016). This is 32% of the City’s population, nearly one of every three people. Note that 185% of the FPL is typically the highest threshold for receiving household income based support such as food assistance and medical coverage. This makes it a rough proxy for a livable wage, though the measure of a livable wage depends on household size and location.

Federal Census data show that 2,045 Auburn households received SNAP benefits (formerly called food stamps) on average during the years 2012-2016. This is one of every five households, primarily working households. Of the households surveyed, 31% had two or more people working, while 51% had one worker in the workforce. Only 18% of the households had no one working at all. Average household income for SNAP recipients was \$17,885.

Feeding America estimates that 15.5% of the Androscoggin County population is food insecure.<sup>1</sup> We found no similar data for the City of Auburn, but we assume the rate is similar inside the City.

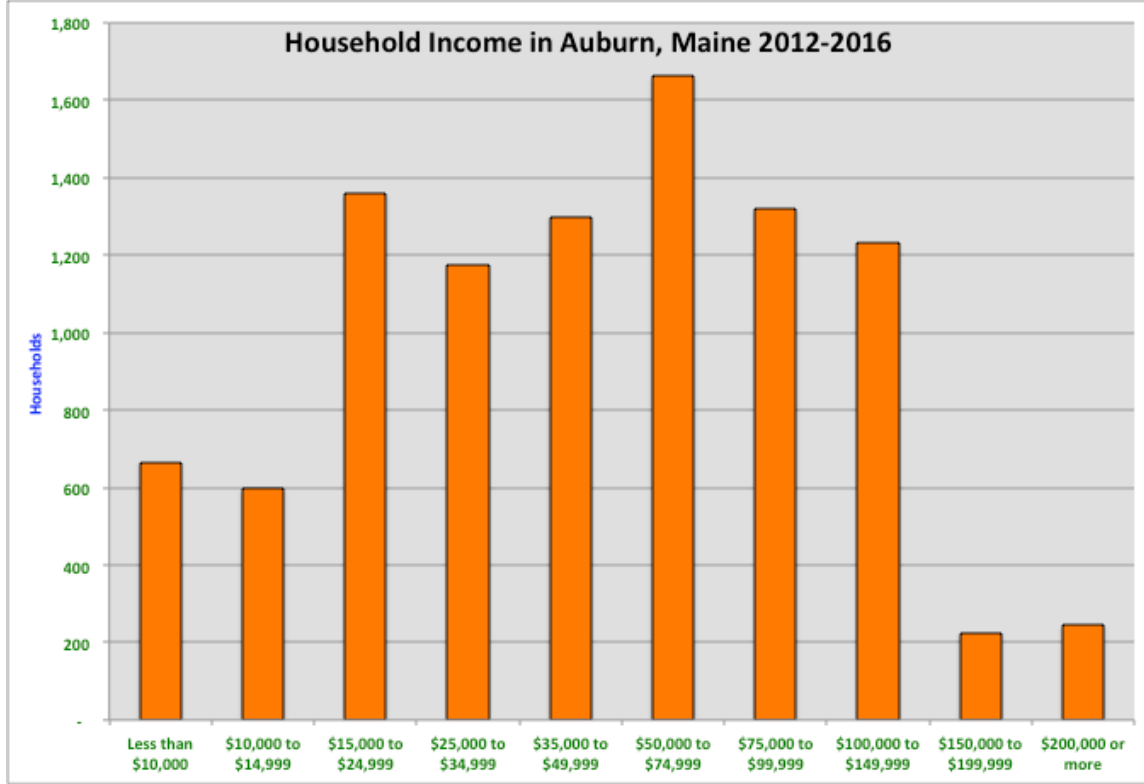
The Federal Census reports that 5.5% percent of Auburn residents are unemployed. This is a marked decline from a rate of 8.6% in 2014, and also is well below the national average of 7.4% reported by the

<sup>1</sup> <http://map.feedingamerica.org/county/2015/overall/maine/county/androscoggin>

<sup>2</sup> Note that the Bureau of Labor Statistics reports that the US unemployment rate for 2016 was about 5%, and is

Census.<sup>2</sup> Auburn economic development deputy director Eric Cousens notes that since the Census was compiled, unemployment rates have fallen to very low levels: 1.6% in December 2017.<sup>3</sup>

**Chart 6: Household Income of Auburn Residents, 2012-2016 Averages**



Source: Federal Census, 2012-2016

**Nearly one of every three people lives  
in a household earning less than  
185% of the Federal Poverty Limit**

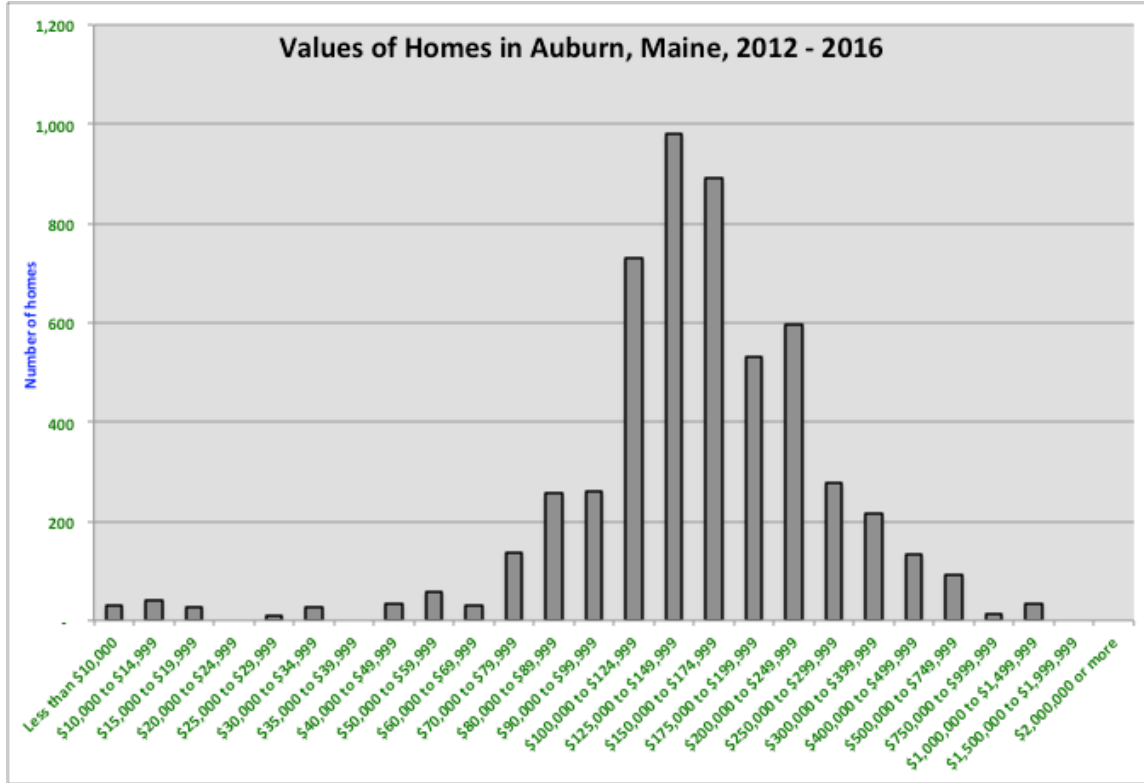
<sup>2</sup> Note that the Bureau of Labor Statistics reports that the US unemployment rate for 2016 was about 5%, and is currently about 4.1%. See <https://data.bls.gov/timeseries/LNS14000000>

<sup>3</sup> Eric Cousens, personal communication, January 29, 2018.

## Auburn’s Housing Market

As Chart 7 below shows, Auburn has a wide variety of houses available at a broad set of price ranges.

**Chart 7: Values of Homes in Auburn, 2012-2016 Averages**



Source: Federal Census. These data average the value of Auburn homes over a five-year period, 2012-2016.

Census data also show that home building in Auburn peaked in the 1980s and has slowed considerably since then, as Table 2 shows. Since 2010, about 31 new homes have been built each year, half the rate of the previous two decades.

**Table 2: Years in Which Auburn Houses Were Built**

<b>Decade</b>	<b>Number</b>
Before 1940	4,487
1940-1949	706
1950-1959	1,017
1960-1969	735
1970-1979	811
1980-1999	1,504
1990-1999	646
2000-2009	585
2010-2016	216

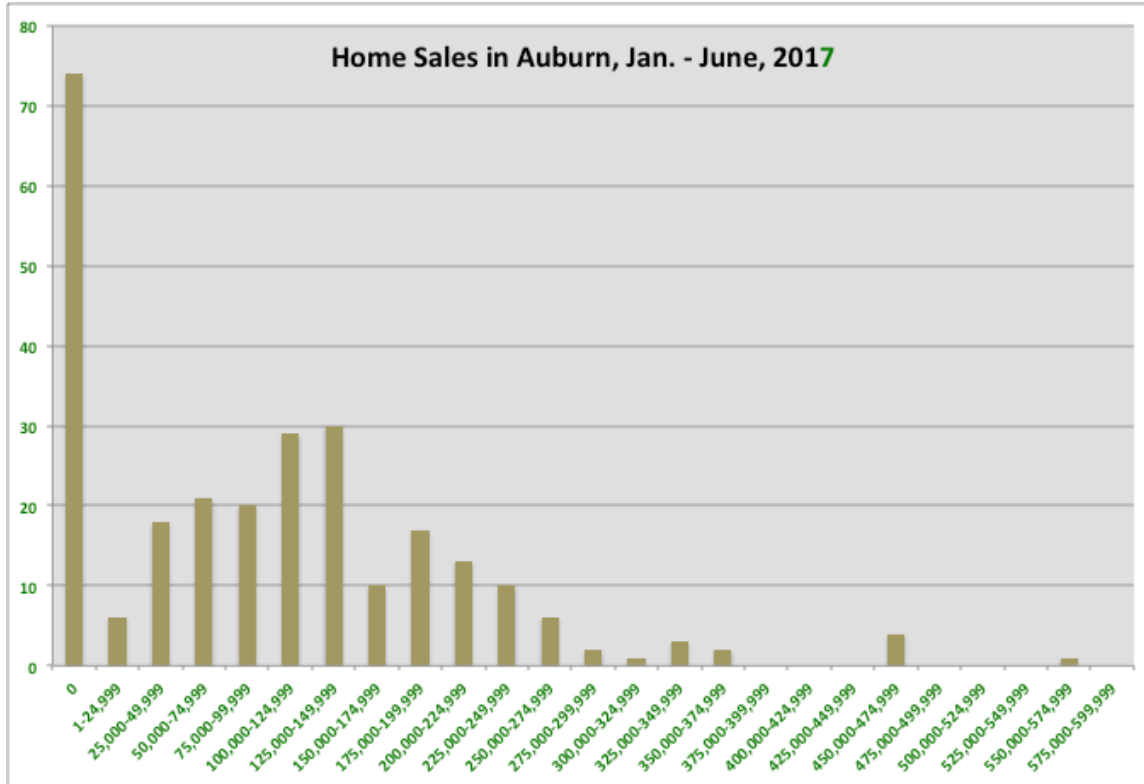
*Source: Federal Census, 2012-2016. Note that since the entry for the years 2010-2016 covers only seven years rather than 10, this figure looks low in comparison with other entries for prior years. If the current rate of home building holds steady, one could project that about 310 homes would be built in Auburn for the decade 2010-2019.*

More precise data is available from the Assessor's office in the City of Auburn. These data (See Chart 8) show that a few individual houses are selling for far more than the median value — with one house selling for \$556,000 and several over \$400,000. Yet overall, the median sale price for the 267 homes sold in Auburn (not including multi-family homes) during the first half of 2017 was \$125,000 (City of Auburn Assessor, 2018).

Four of these homes were in the ARPZ. The average sale price for these homes was \$119,725 (City of Auburn Assessor, 2018).

The Assessor's data also show that 17 rural land parcels were sold in the first half of 2017. Only nine of these parcels were in the ARPZ. Most parcels were relatively small, with a maximum price of \$100,000 and an average price of \$17,147 (City of Auburn Assessor, 2018).

Chart 8: Values of Homes Sold in Auburn, Jan. – June 2017



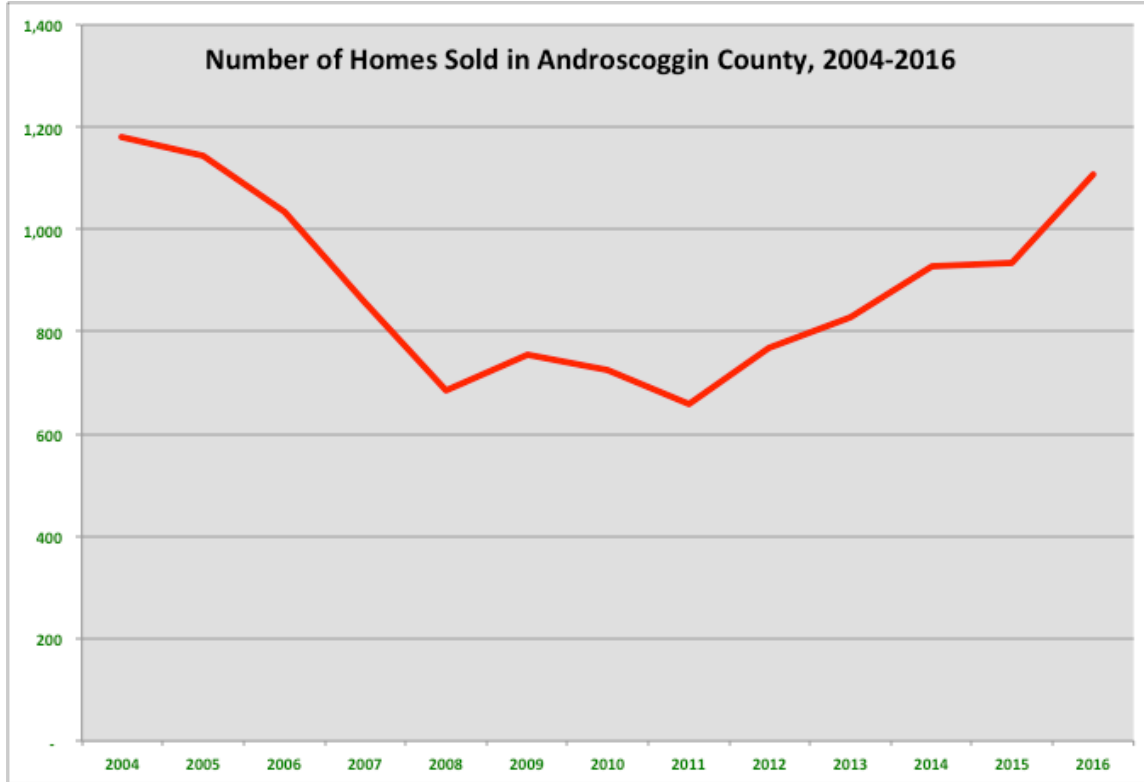
Source: City of Auburn Assessor

Auburn Assessor data also show that two new homes were built in 2016 that sold for more than \$400,000 each. Both were in areas zoned R1 residential.

While detailed data for Auburn were not available, it is likely that home sales roughly followed trends for the rest of the County. Maine realtors published data showing how many homes were sold in Androscoggin County over the past 13 years (See Chart 9). Currently, there are about 1,000 homes sold in the County per year. This means that Auburn accounts for about half of the home sales in the County. Housing sales diminished during the global housing finance crisis, and are only now recovering to 2004 levels.

**Median sale price for Auburn homes  
in the first half of 2017 was \$125,000**

**Chart 9: Number of Homes Sold in Androscoggin County, 2004 – 2016**



Source: Association of Maine Realtors

Since one potential competing use for land in the City of Auburn’s Agricultural Resource Protection Zoning areas is housing, it is also useful to consider the size of the housing industry in Androscoggin County (See Table 3). In 2016, single-family home developers earned \$13.6 million of sales in the County, while contractors building single houses for sale directly to individual buyers sold \$881,181. This latter total amounts to about 5 houses at current median housing values. No multi-family development sales appear in the EMSI data.

**Table 3: In-Region Sales by Primary Resource Industries in Androscoggin County, 2016**

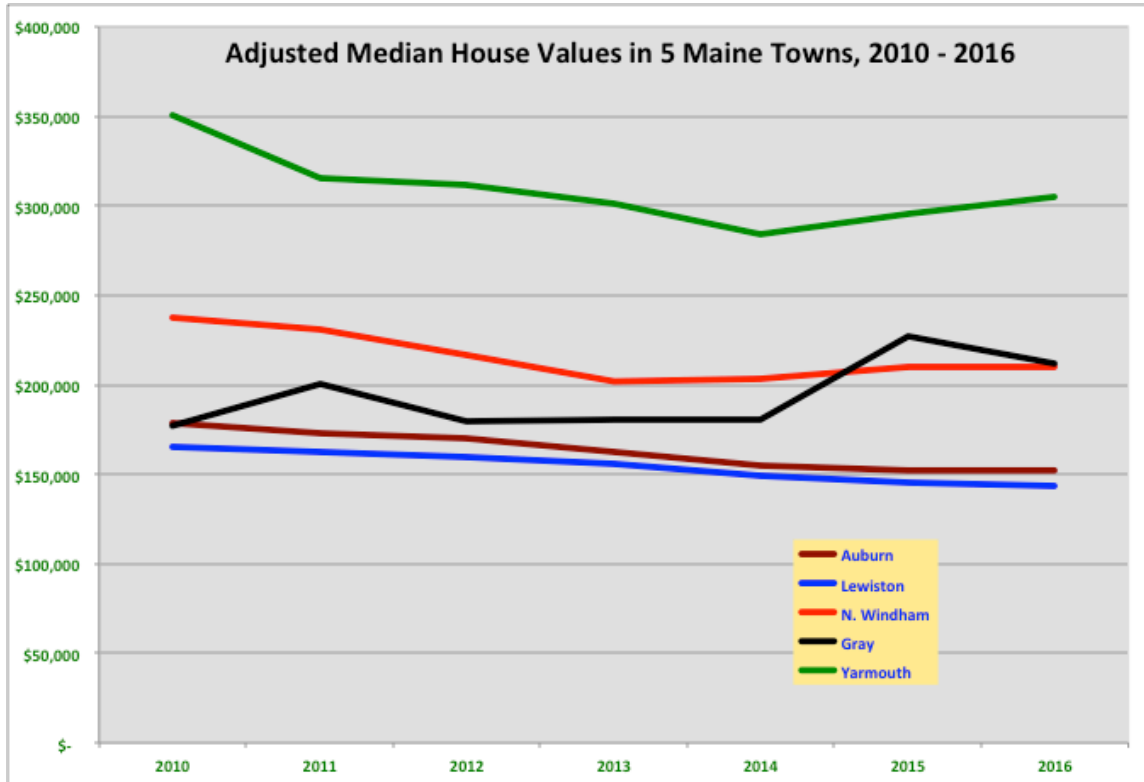
NAICS	Sector	2016 Total Sales
236115	New Single-Family Housing Construction (except For-Sale Builders)	\$13,562,361
236116	New Multifamily Housing Construction (except For-Sale Builders)	\$0
236117	New Housing For-Sale Builders	\$881,181

Source: Economic Modeling Specialists, Inc. (EMSI)

Since Auburn operates within a competitive real estate environment, the values of homes in nearby cities and towns are shown here for comparison. Chart 10 shows median home values for Auburn, Gray, Lewiston, North Windham, and Yarmouth. Not surprisingly, home values in Lewiston and Auburn are similar to each other — but median values in both towns are declining. Gray and North Windham show

similar home values, but while values in North Windham are falling, values in Gray are rising slightly. The Yarmouth market, as any market close to the ocean, is dominated by higher priced homes. Yet even here, median home values are declining, Census data show.

**Chart 10: Adjusted Median Values of Homes in 5 Maine Towns, 2012-2016**



Source: Federal Census. These data show 5-year average values.

Our interviewees noted that Auburn may find itself at a disadvantage due to the age of its housing stock, which may not look attractive to buyers who come from outside the community. Older housing stock can be viewed as a disadvantage since it may be perceived as being in need of significant repair, with outdated utility systems, and potentially difficult to retrofit for new electronic technology.

The age of the housing stock is only one potential measure of the attractiveness of housing in the Auburn market, since some older homes are viewed as more desirable, and buyers have a host of other variables in mind, such as physical location, school, open space, recreational opportunities, and the like. The advantage of considering the age of the City’s housing stock is that a consistent data set is available from the Federal Census. The most recent data is shown in Chart 11 below.



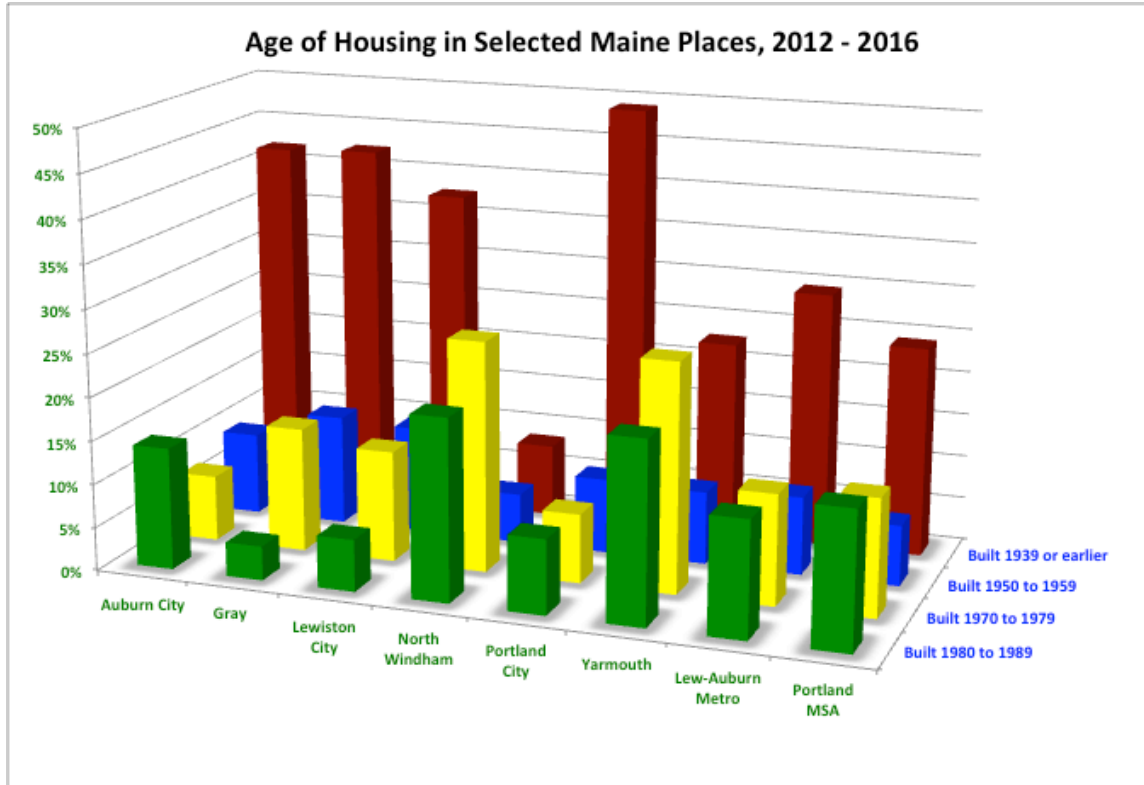
## Auburn's housing market compares well with nearby communities

From the standpoint of this one measure, Auburn is not placed too badly. Fully 42% of the City of [Auburn](#)'s housing stock was built before 1939. While this ranks higher than the City of Lewiston (38%), this is not an immense difference. Gray and Portland have even higher rates. Moreover, if one includes the entire Lewiston-Auburn metro area, including the agricultural lands of Auburn and other rural residential areas, the percentage falls to 29%, slightly higher than Metro Portland's rate of 24%. Yarmouth is about the same, at 23%, while North Windham is the lowest of the selected towns, at 8%.

Yarmouth and North Windham also have the highest percentage of newer homes, with 21% built in the 1980s, and 26%-27% of homes in each community built in the 1970s. With Yarmouth serving as a more upscale location given its proximity to the ocean and commercial centers, it is unlikely to attract those looking for housing in Auburn. Yet North Windham certainly is a significant competitor to Auburn, as a community with significant open space near Portland. Yet even here, Auburn remains competitive, with 14% of its housing stock built in the 1980s, just less than Portland itself.

This suggests that the age of Auburn's housing stock may not serve as an impediment to home buyers, especially if the older homes can be modernized in significant ways. This suggests that other factors, such as schools, proximity to open space, proximity to turnpike and freeway access, may be more important.

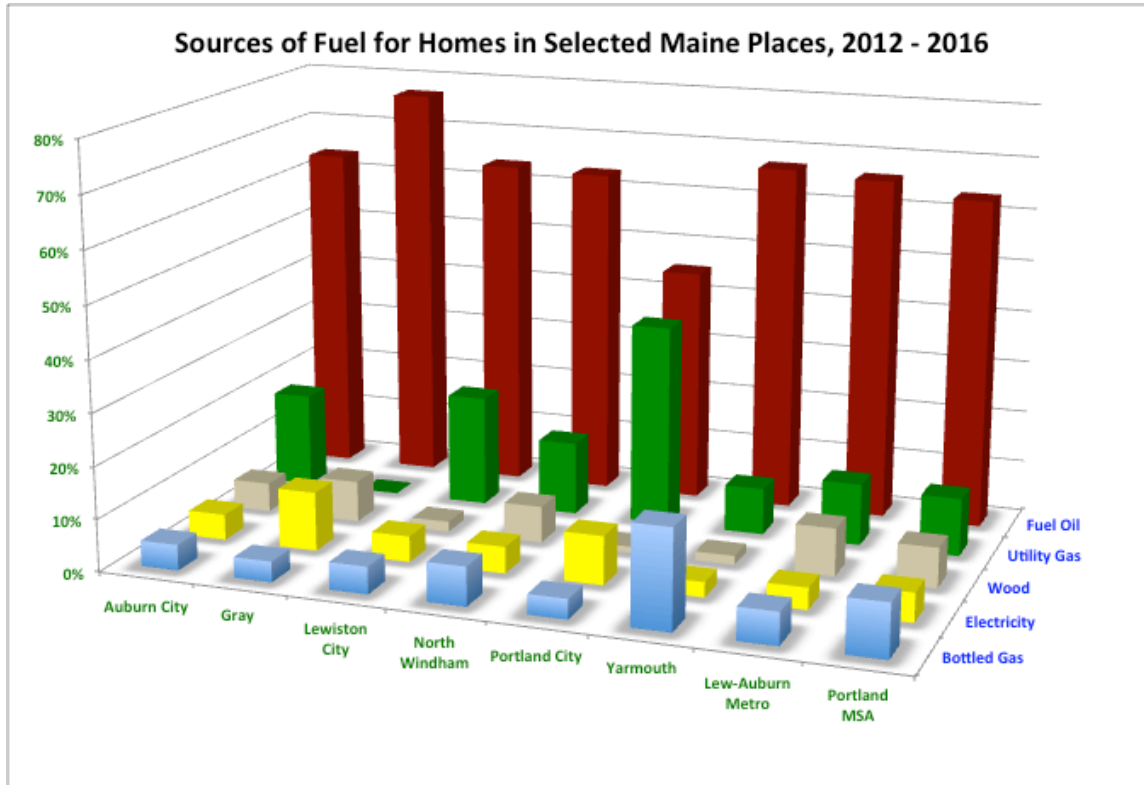
Chart 11: Age of Housing in Selected Maine Places, 2012-2016



Source: Federal Census. These data show 5-year average values. To simplify presentation of findings, this chart includes only the four periods in which most houses were built.

Similarly, as Chart 12 below shows, Auburn is not especially distinctive for its reliance on fuel oil for heat, nor for rural residences that depend on bottled gas. Since the City of Portland has invested in natural gas infrastructure, it uniquely offers this service to 40% of its homes.

**Chart 12: Sources of Fuel for Homes in Selected Maine Places, 2012-2016**



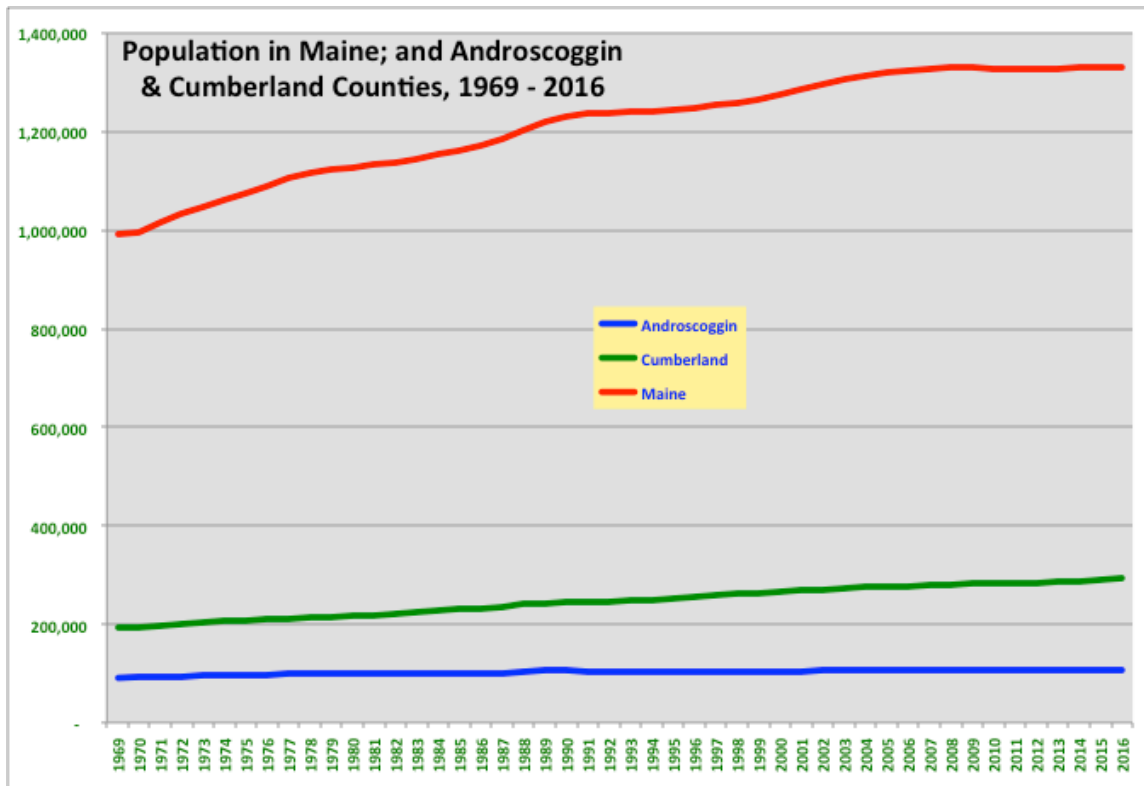
Source: Federal Census. These data show 5-year average values. To simplify presentation of findings, this chart includes only the fuel sources that were most prevalent among homes in the selected places, so it omits solar energy and other fuel sources.

## Economic Conditions in Androscoggin County

Considerable data that is relevant to the City’s zoning decisions is available only at the County level. While this is less satisfactory than counts that are specific to Auburn itself, these data do reflect accurately the conditions in Auburn, which holds 21% of the County population. When the combined cities of Lewiston and Auburn are considered, fully 60% of the County population is included.

Once again, considering only population growth, Androscoggin County is in a long-standing pattern of slow and steady growth. Population has increased 18% over the past 47 years, as Chart 13 below shows. This compares with growth of 52% in Cumberland County, which drives the growth of 34% in the state’s population over the same period of time.

**Chart 13: Population in Maine; and Androscoggin & Cumberland Counties, 1969-2016**



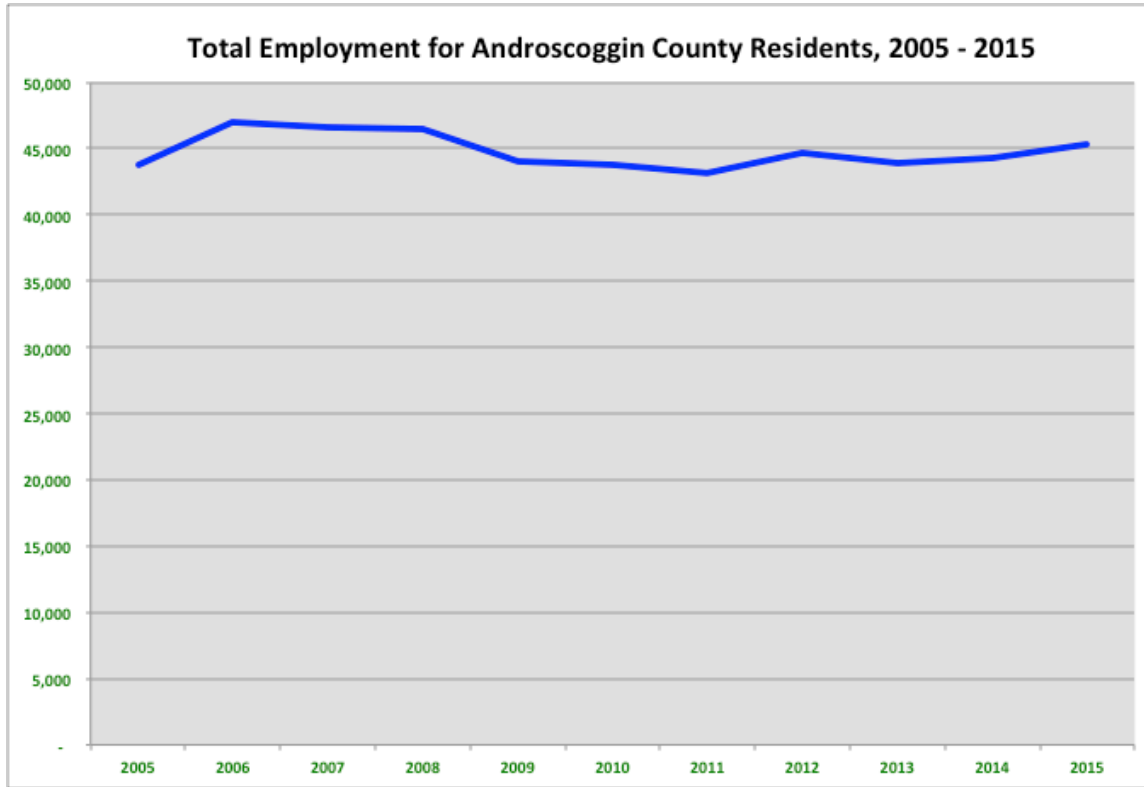
Source: Bureau of Economic Analysis

Yet a closer look at the data shows that population growth has slowed for both Maine and Androscoggin since about 2005, while the population of Cumberland County has continued to increase at similar rates. This suggests that people are attracted to urban centers more than rural communities, and also reflects broader economic trends that will be covered later.

## Employment and Income in the County

As Chart 14 shows, employment has remained fairly steady in Androscoggin County despite the increase in population.

**Chart 14: Total Employment for Androscoggin County Residents, 2005 - 2015**

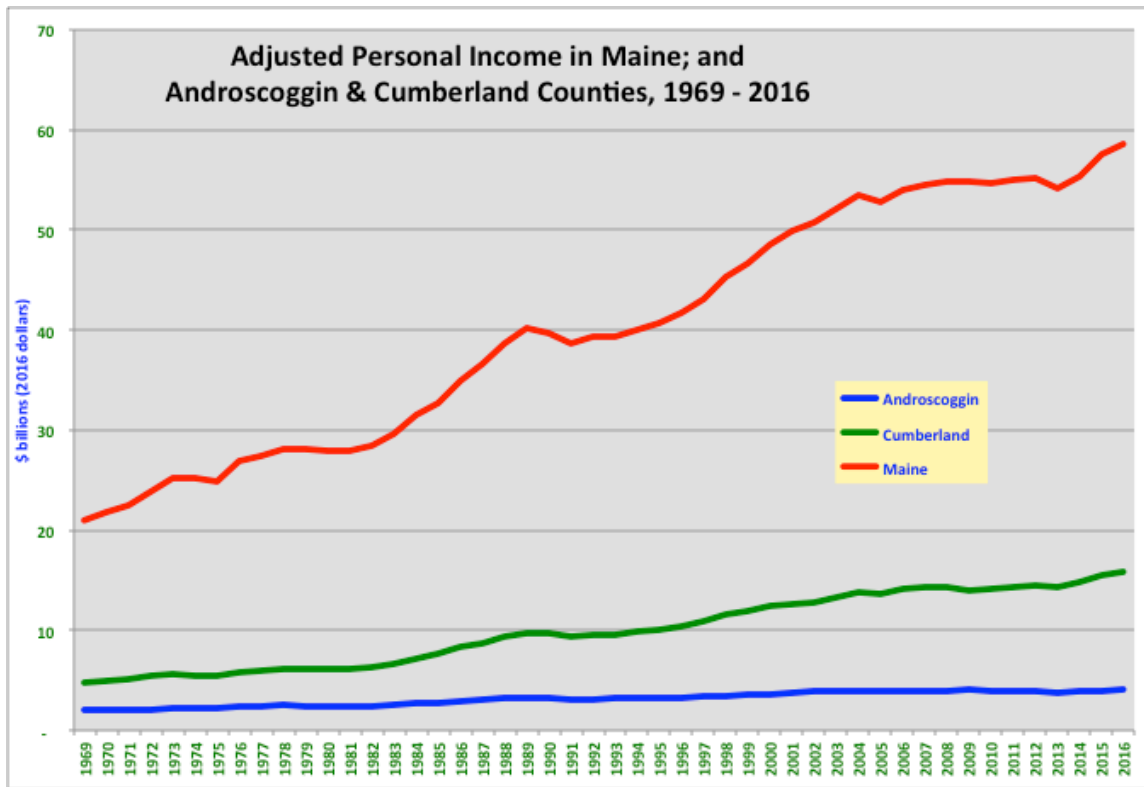


Source: Federal Census, County Business Patterns

Interestingly, personal income has increased far more rapidly than population, even after adjusting for inflation. Income has more than doubled (103%) in Androscoggin County over the past 47 years. Yet the county is not growing as fast as surrounding areas, with Cumberland County income more than tripling (234% increase), and the state of Maine rising 179%, over the same years. Moreover, the rate of growth in Androscoggin County has slowed since 2003 relative to the other regions. This is shown on Chart 15.

**Androscoggin County holds considerable spending power, with its 107,319 residents earning a combined total of \$4 billion in 2016**

Chart 15: Adjusted Personal Income in Maine; and Androscoggin & Cumberland Counties, 1969-2016



Source: Bureau of Economic Analysis. Adjusted using Federal Reserve Board Consumer Price Index.

All the same, Androscoggin County holds considerable spending power, with its 107,319 residents earning a combined total of \$4 billion in 2016.

Yet little of this income is earned by working in manufacturing, farming, or forestry. The largest share of this income (\$1.1 billion, or 27%) comes from transfer payments — through programs such as retirement pensions, unemployment benefits, and SNAP benefits. Each of these depends upon government action. This is shown on Chart 16 below.

The next most important source of income is working in the health care industry, where workers earn \$620 million, or 15% of all personal income. Capital investments rank third, accounting for \$526 million of personal income, 13% of the total. The fourth largest source of income is government jobs (including educators), which account for \$341 million (8%) of income. These public positions began to outrank manufacturing jobs in 2013. Manufacturing now accounts for \$321 million of personal income, also 8%.

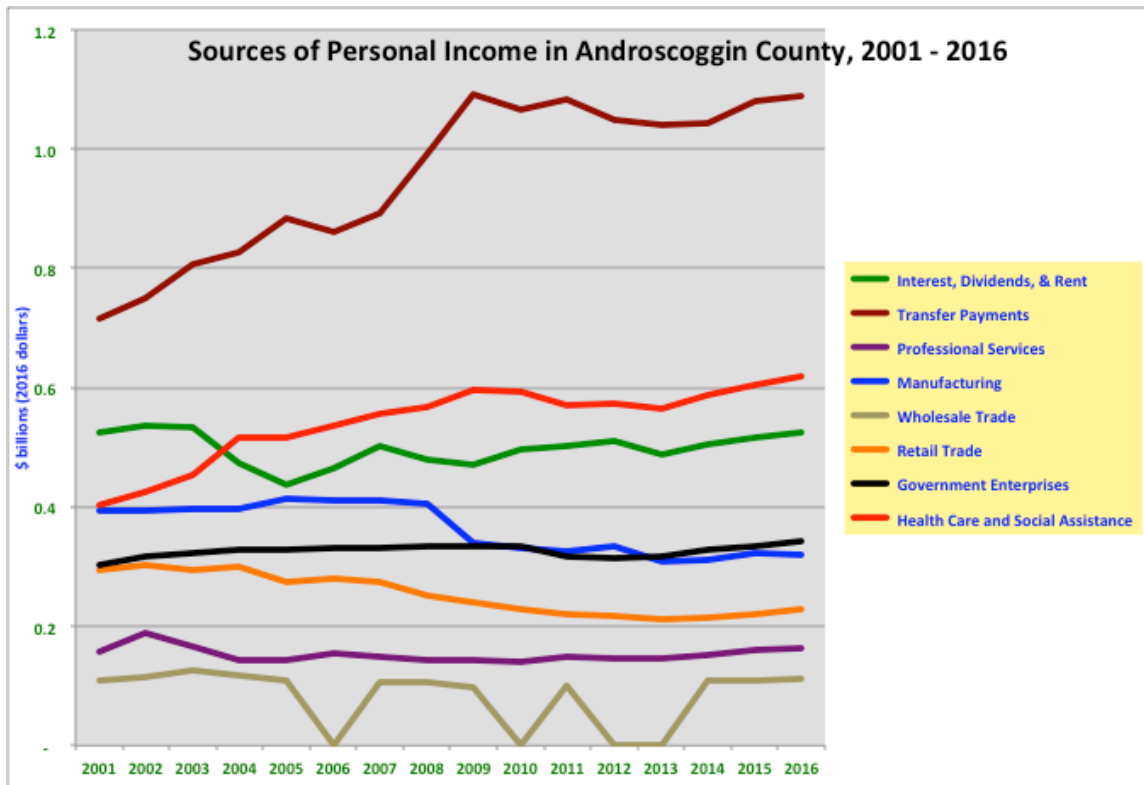
Strikingly, when the two public programs are combined — transfer payments and government jobs — public sources account for 35% of all income earned in the County.

Chart 16 also shows that most sources of income are holding quite steady over the past 16 years. The only rising employment sector is health care, and even this has been relatively stable since 2009. Income

earned by retail workers has declined steadily. Transfer payments are not only the largest source of income in the County, but also the one rising the most rapidly, experiencing 52% growth since 2001.

**Public sources account for 35% of all income earned in the County**

**Chart 16: Sources of Personal Income in Androscoggin County, 2001 - 2016**

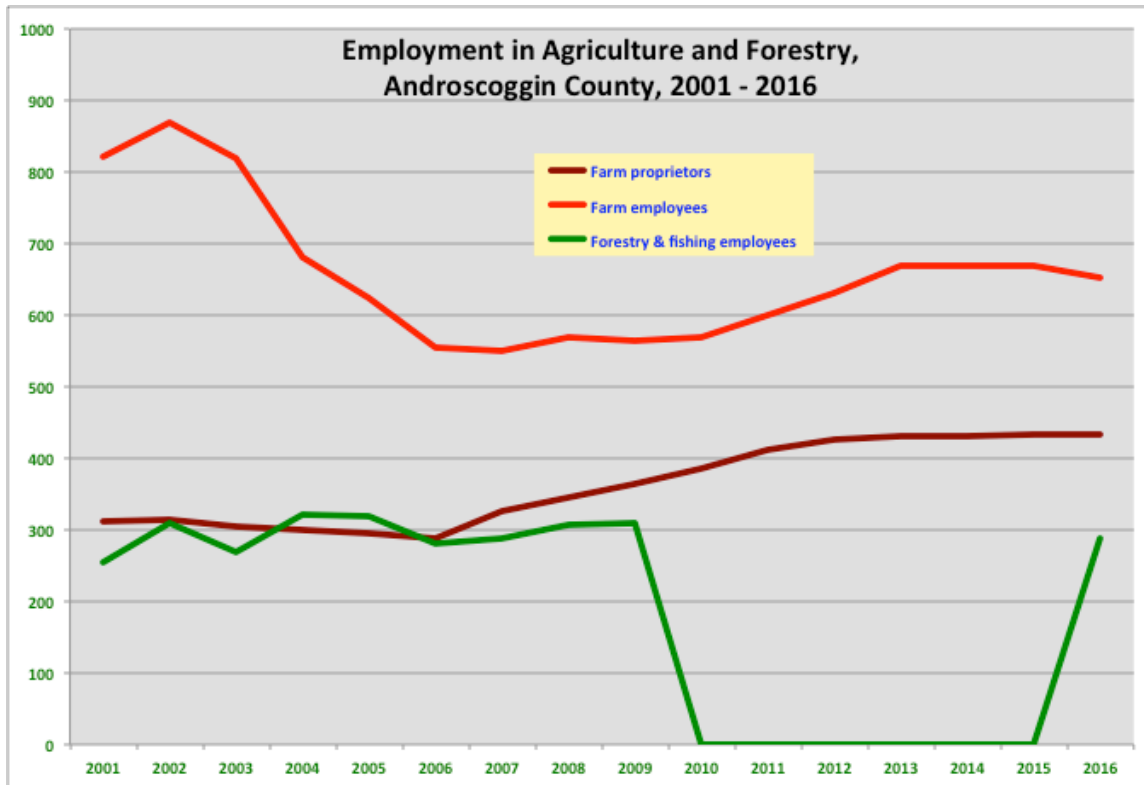


Source: Bureau of Economic Analysis. Data are adjusted for inflation using 2016 dollars. Where income falls to zero, this signifies data that were suppressed in an effort to protect confidentiality.

Trends for employment in agriculture and forestry in Androscoggin County reflect similar developments, with the key difference being that farm jobs have declined markedly from a peak of 869 to a low of 550 in 2007, then rebounding to 653 in 2016). The number of farm owners has increased slightly from 312 to 433, contributing to the rise in the number of farm workers. Employment in the forestry and fishing sectors has remained steady at about 300 for 16 years. These trends are shown in Chart 17 below.

**Employment in the forestry and fishing sectors  
has remained steady at about 300 for 16 years**

**Chart 17: Employment in Agriculture and Forestry in Androscoggin County, 2001 - 2016**



Source: Bureau of Economic Analysis. Where income data shows as zero, this signifies data that were suppressed in an effort to protect confidentiality.

These developments are extensions of longer-term trends in agriculture that Androscoggin County has experienced since Auburn created agricultural zoning in 1964. While of course the data below reflect conditions County-wide, rather than within the City itself, these do account for the economic context in which farmers have worked since the district was created. These historical trends are shown in Chart 18.

Employment on Androscoggin County farms peaked at 2,269 in 1974, the result of globally high grain prices that rose precipitously in 1973-1974 when the Soviet Union began purchasing grain from US farmers during the OPEC Energy Crisis.<sup>4</sup> Yet employment fell steadily from that peak to a low of 671 in 1997, then rose to 766 in 2000. The number of farm proprietors fell from 420 to 301 during the same years.

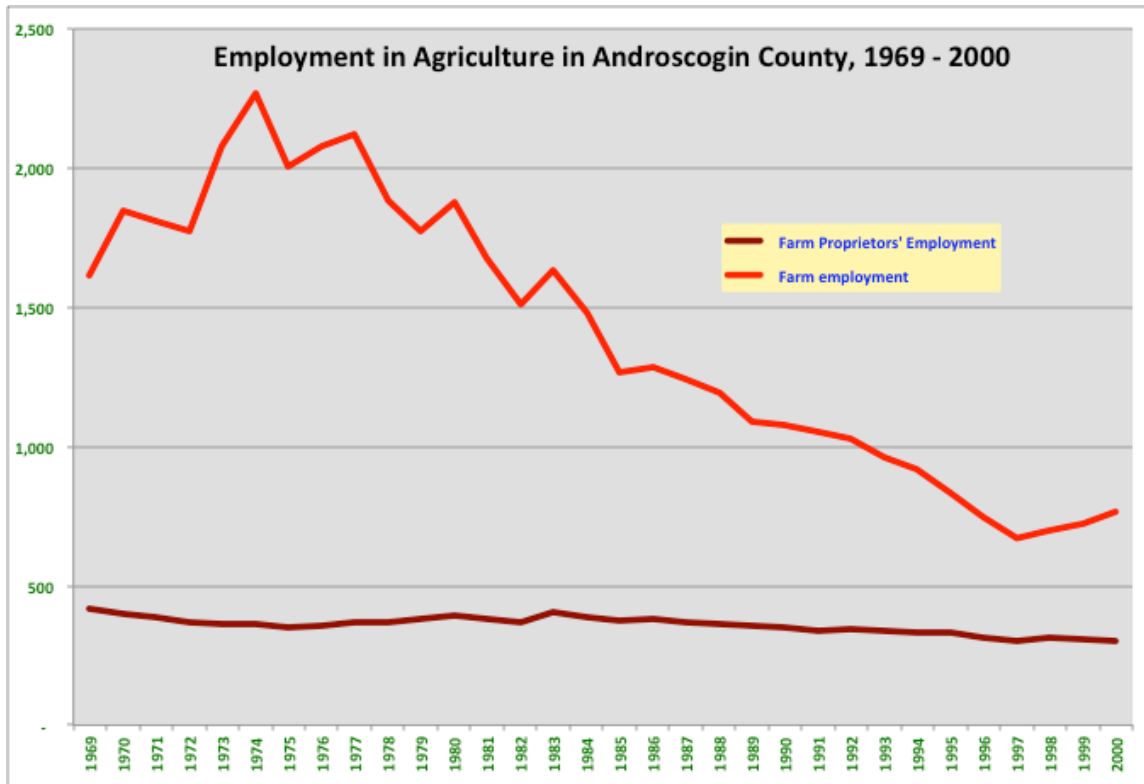
<sup>4</sup> Further farm income data covering this period is shown below, on Charts 24 and 25.



One substantial pressure on farm employment was the adoption of new labor-saving technology, including larger equipment and greater reliance upon farm chemicals. This is a trend that began after World War II, earlier than can be shown using this data set. This technological expansion coincided with an increased desire among workers to live in more urbanized areas.

These data suggest that global markets had a significant role to play in the protection of both jobs and farmland in the County. When combined with more recent trends shown in Chart 17, above (when attention to local food production and support from Maine consumers increased), connection with direct markets appears to have resulted in slow but steady growth in the number of farms and in employment. This makes it clear that the efficacy of farmland protection is tied to having robust markets for what farmers produce.

**Chart 18: Employment in Agriculture in Androscoggin County, 1969 - 2000**



Source: Bureau of Economic Analysis. Note that these data reflect an earlier coding of industries, the Standard Industrial Classification (SIC) codes, which was changed to the North American Industry Classification System (NAICS) in 2000-2001. This means the data shown on Chart 18 are not always fully comparable to data on the previous chart, Chart 17.

Note: Similar data on employment in forestry and fishing, as shown in Chart 17, is not available in this data set.

## The efficacy of farmland protection is tied to having robust markets for what farmers produce

### Key Industries in Androscoggin County

We will discuss the farm economy in greater detail below, but first an overview of the main industries in the County, including food industries. Table 4 below shows employment in the County for the 12 largest industries currently hiring workers in Androscoggin County. These dozen industries account for 35% of all county employment. Overall, Economic Modeling Inc. (EMSI) tracks 3,128 firms selling \$7.7 billion of products, and hiring 61,957 people in Androscoggin County in 2016.<sup>5</sup>

### The 12 largest industries account for 35% of all county employment

Table 4 also offers a more nuanced view of the industry category “Government” that was used in BEA data above. 2016 jobs data show that medical professions offer the strongest employment sector, with 7% of the County’s jobs. Education accounts for more than 8% of all jobs, while actual jobs with government account for 2.7% of employment in the County. Temporary help services are a surprisingly large fifth-ranked sector.

To focus on food industries, three of the top 12 industries in the County involve food, with restaurants and supermarkets hiring 3,274 workers, or 6% of the County workforce.

**Table 4: Employment by Industry in Androscoggin County, 2016**

NAICS Code	Industry	Jobs 2016
622110	General Medical and Surgical Hospitals	3,953
903611	Elementary and Secondary Schools (Local Government)	2,846
611310	Colleges, Universities, and Professional Schools	1,751
903999	Local Government, Excluding Education and Hospitals	1,459
561320	Temporary Help Services	1,260
561422	Telemarketing Bureaus and Other Contact Centers	1,253
722511	Full-Service Restaurants	1,187
551114	Corporate, Subsidiary, and Regional Managing Offices	1,175
623210	Residential Intellectual and Developmental Disability Facilities	1,164
623110	Nursing Care Facilities (Skilled Nursing Facilities)	1,095
722513	Limited-Service Restaurants	1,049
445110	Supermarkets and Other Grocery (except Convenience) Stores	1,038
<b>Total</b>		<b>19,231</b>

<sup>5</sup> This tally is higher than was reported earlier by the Federal Census, since the Census tracked the number of residents who were employed, while EMSI data sets track total jobs in the County, no matter who holds them.

Source: Economic Modeling Specialists, Inc. (EMSI). These are color-coded by industrial category: Turquoise shading=Food Retail; Yellow=Medical Care; Blue=Government and Education.

Closely reflecting employment are corporate earnings for County industries, as Table 5 shows. The only food industry among the top earners is bottled water.

**Three of the top 12 industries in the County involve food, with restaurants and supermarkets hiring 3,274 workers, or 6% of the County workforce**

**Table 5: Corporate Earnings in Androscoggin County, 2016**

NAICS	Industry	Corporate Earnings 2016 (\$ millions)
622110	General Medical and Surgical Hospitals	298
903611	Elementary and Secondary Schools (Local Government)	162
903999	Local Government, Excluding Education and Hospitals	95
551114	Corporate, Subsidiary, and Regional Managing Offices	78
611310	Colleges, Universities, and Professional Schools	64
621111	Offices of Physicians (except Mental Health Specialists)	61
561320	Temporary Help Services	46
493110	General Warehousing and Storage	44
561422	Telemarketing Bureaus and Other Contact Centers	39
623110	Nursing Care Facilities (Skilled Nursing Facilities)	38
484121	General Freight Trucking, Long-Distance, Truckload	36
623210	Residential Intellectual and Developmental Disability Facilities	36
238220	Plumbing, Heating, and Air-Conditioning Contractors	33
312112	Bottled Water Manufacturing	32
541110	Offices of Lawyers	31

Source: Economic Modeling Specialists, Inc. These are color-coded by industrial category: Turquoise shading=Food Industries; Yellow=Medical Care; Blue=Government and Education.

Table 6 shows employment in the food industries in Androscoggin County with more than \$1,000,000 in sales in 2016. These are color-coded by industrial category: Turquoise shading= Farming; Yellow=Manufacturing; Blue=Retail; and Gray=Wholesale. These data show that food retailers rank among the largest employers in the County, yet also show that if crop and livestock production were combined, they would rank fourth in food-sector employment in the County, with 581 jobs.

**If Crop and Livestock Production were combined, they would rank fourth in food-sector employment in the County, with 581 jobs**

**Table 6: Food Industry Employment in Androscoggin County, 2016**

NAICS	Industry	2016 Jobs
722511	Full-Service Restaurants	1,187
722513	Limited-Service Restaurants	1,049
445110	Supermarkets and Other Grocery (except Convenience) Stores	1,038
312112	Bottled Water Manufacturing	416
722515	Snack and Nonalcoholic Beverage Bars	404
112000	Animal Production and Aquaculture	391
311812	Commercial Bakeries	315
111000	Crop Production	190
424490	Other Grocery and Related Products Merchant Wholesalers	185
722310	Food Service Contractors	166
445120	Convenience Stores	119
722410	Drinking Places (Alcoholic Beverages)	101
312140	Distilleries	85
424810	Beer and Ale Merchant Wholesalers	85
445310	Beer, Wine, and Liquor Stores	63
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	59
311811	Retail Bakeries	55
445230	Fruit and Vegetable Markets	33
311824	Dry Pasta, Dough, and Flour Mixes Manufacturing	32
311612	Meat Processed from Carcasses	23
312120	Breweries	18
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	12
311511	Fluid Milk Manufacturing	-

Source: *Economic Modeling Specialists, Inc.* These are color-coded by industrial category: Turquoise shading= Farming; Yellow=Manufacturing; Blue=Retail; and Gray=Wholesale.

Table 7 shows earnings in the food industries in Androscoggin County that pay more than \$10,000 in average wages. These are color-coded by industrial category: Turquoise shading= Farming; Yellow=Manufacturing; Blue=Retail; and Gray=Wholesale. Not surprisingly, the County’s bottled water and distilling firms pay the best, along with other manufacturers. Wholesale occupations tend to pay a bit more than farming itself, but farming jobs tend to pay better than retail food jobs.

This table also shows that while restaurants and supermarkets are among the County’s larger employers, they do not necessarily pay the highest salaries.

**While restaurants and supermarkets are among the County’s larger employers, they do not necessarily pay the highest salaries**

**Table 7: Food Industry Worker Earnings in Androscoggin County, 2016**

NAICS	Food Industry Sector	Adjusted Earnings
312112	Bottled Water Manufacturing	\$63,834
312140	Distilleries	\$58,234
312120	Breweries	\$55,532
311941	Mayonnaise, Dressing, and Other Prepared Sauce Manufacturing	\$50,838
424810	Beer and Ale Merchant Wholesalers	\$48,023
311812	Commercial Bakeries	\$46,768
424490	Other Grocery and Related Products Merchant Wholesalers	\$40,202
423820	Farm and Garden Machinery and Equipment Merchant Wholesalers	\$36,332
115310	Support Activities for Forestry	\$34,332
424420	Packaged Frozen Food Merchant Wholesalers	\$33,813
112000	Animal Production and Aquaculture	\$28,824
115114	Postharvest Crop Activities (except Cotton Ginning)	\$25,130
111000	Crop Production	\$24,004
311612	Meat Processed from Carcasses	\$23,950
445310	Beer, Wine, and Liquor Stores	\$23,239
722310	Food Service Contractors	\$22,592
311811	Retail Bakeries	\$22,407
445230	Fruit and Vegetable Markets	\$21,019
722320	Caterers	\$20,734
445110	Supermarkets and Other Grocery (except Convenience) Stores	\$20,499
115115	Farm Labor Contractors and Crew Leaders	\$20,309
722410	Drinking Places (Alcoholic Beverages)	\$19,047
722511	Full-Service Restaurants	\$17,345
722330	Mobile Food Services	\$16,982
445120	Convenience Stores	\$15,556
722515	Snack and Nonalcoholic Beverage Bars	\$14,284
722514	Cafeterias, Grill Buffets, and Buffets	\$14,241
722513	Limited-Service Restaurants	\$13,571

*Source: Economic Modeling Specialists, Inc. This table shows average earnings per worker for all food industries in the County that pay more than \$10,000. Data for several industries was not reported due to the small number of firms in those categories.*

*Turquoise shading=Farming; Yellow=Manufacturing; Blue=Retail; and Gray=Wholesale.*

Economic Modeling Specialists [Inc.](#) also compiled data on unemployment in the County, shown in Table 8. These data show that there is considerable unemployment in the accommodation and retail sector, as well as in the construction industry, which rank as the top two sectors, accounting for 32% of all unemployment. A limited number (25) of farm workers are looking for work.

**Table 8: Unemployment in Androscoggin County, 2016**

NAICS	Industry	Unemployed Jan. 1, 2017
72	Accommodation and Food Services	267
23	Construction	266
56	Administrative and Support; Waste Management; Remediation Services	197
99	No Previous Work Experience/Unspecified	179
31	Manufacturing	170
44	Retail Trade	166
62	Health Care and Social Assistance	86
48	Transportation and Warehousing	70
90	Government	52
54	Professional, Scientific, and Technical Services	43
81	Other Services (except Public Administration)	38
42	Wholesale Trade	31
61	Educational Services	26
11	Crop and Animal Production	25
71	Arts, Entertainment, and Recreation	23
52	Finance and Insurance	18
51	Information	9
53	Real Estate and Rental and Leasing	8
55	Management of Companies and Enterprises	4
21	Mining, Quarrying, and Oil and Gas Extraction	3
22	Utilities	2
<b>Total</b>		<b>1,884</b>

Source: Economic Modeling Specialists, Inc.

Next we drill down into the resource-based industries that are the focus of the Ad Hoc Committee’s deliberations. These 14 industries account for about 2% of the County’s economic activity, with a total of \$156 million in sales in 2016, as shown in Table 9. Leading them is Crop and Livestock production. Including its associated industries, this sector accounts for \$135 million in sales.

With \$16 million in sales, and another \$1.5 million in support activities, logging accounts for \$17.5 million in sales. Shellfish fishing (presumably Androscoggin County residents who live in the County but ply the fishing trade in the Atlantic) is the fourth largest sector in terms of sales.

**Table 9: Sales by Primary Resource Industries in Androscoggin County, 2016**

<b>NAICS</b>	<b>Sector</b>	<b>Total Sales</b>
112000	Animal Production and Aquaculture	\$108,330,794
111000	Crop Production	\$23,018,381
113310	Logging	\$16,200,974
114112	Shellfish Fishing	\$2,173,940
115115	Farm Labor Contractors and Crew Leaders	\$1,713,110
115310	Support Activities for Forestry	\$1,450,853
115114	Postharvest Crop Activities (except Cotton Ginning)	\$1,065,021
115210	Support Activities for Animal Production	\$942,239
114210	Hunting and Trapping	\$559,105
114111	Finfish Fishing	\$374,685
115112	Soil Preparation, Planting, and Cultivating	\$201,855
115113	Crop Harvesting, Primarily by Machine	\$187,960
115116	Farm Management Services	\$68,638
113110	Timber Tract Operations	\$61,546
	<b>Total</b>	<b>\$156,349,101</b>

Source: Economic Modeling Specialists, Inc.

As Table 10 shows, earnings reflect total sales.

**Table 10: Sales by Primary Resource Industries in Androscoggin County, 2016**

<b>NAICS</b>	<b>Sector</b>	<b>Earnings</b>
112000	Animal Production and Aquaculture	\$19,135,774
111000	Crop Production	\$5,808,546
113310	Logging	\$5,559,470
115115	Farm Labor Contractors and Crew Leaders	\$1,411,442
115310	Support Activities for Forestry	\$1,194,590
114112	Shellfish Fishing	\$936,935
115114	Postharvest Crop Activities (except Cotton Ginning)	\$877,798
115210	Support Activities for Animal Production	\$775,802
114210	Hunting and Trapping	\$238,765
115112	Soil Preparation, Planting, and Cultivating	\$166,308
114111	Finfish Fishing	\$165,923
115113	Crop Harvesting, Primarily by Machine	\$154,852
115116	Farm Management Services	\$56,556
113110	Timber Tract Operations	\$21,102

Source: Economic Modeling Specialists, Inc.

Of the sales figures listed in the previous Table (10), only a portion is made by buyers in the County. Table 11 below shows the estimates that EMSI makes, based on its computer models, for purchasing in Androscoggin County from the County’s resource-based industries. This is a total of \$44 million, once again primarily by farms. Yet this is only 28% of total sales. Another \$108 million of sales (72%) is channeled to external clients.

**Table 11: In-Region Sales by Primary Resource Industries in Androscoggin County, 2016**

NAICS	Sector	2016 In-Region Sales	2016 % In-Region Sales
112000	Animal Production and Aquaculture	\$18,402,093	17%
111000	Crop Production	\$14,791,566	64%
113310	Logging	\$5,180,969	32%
115115	Farm Labor Contractors and Crew Leaders	\$1,326,851	77%
115114	Postharvest Crop Activities (except Cotton Ginning)	\$1,022,664	96%
115210	Support Activities for Animal Production	\$877,165	93%
114112	Shellfish Fishing	\$602,809	28%
115310	Support Activities for Forestry	\$572,180	39%
114111	Finfish Fishing	\$309,934	83%
115113	Crop Harvesting, Primarily by Machine	\$180,423	96%
115112	Soil Preparation, Planting, and Cultivating	\$162,238	80%
114210	Hunting and Trapping	\$151,068	27%
115116	Farm Management Services	\$60,682	88%
113110	Timber Tract Operations	\$45,015	73%
		\$43,685,657	28% 28%

Source: Economic Modeling Specialists, Inc.

## The County’s Farm Economy

The USDA NASS 2012 Census of Agriculture counted 463 farms in Androscoggin County, 22% fewer than the County held five years earlier. All told the County has 59,446 acres of land in farms, which means that the City of Auburn ARPZ district holds one of every three acres of farmland in the County.

Androscoggin County holds an important place in Maine agriculture, ranking first in the state for tobacco sales, poultry and egg sales, and for its inventory of laying hens. However, none of these figures were released by USDA in an effort to protect the confidentiality of these growers. The County also ranks 2<sup>nd</sup> in the state for acreage planted to sweet corn (no figures were released), and also second in the state for inventory of hogs and pigs, with 1,155 [head](#).

As Table 12 shows, the most prevalent farm size in Androscoggin County is farms of 50 to 179 acres. Nonetheless, half of the County’s farms are less than 50 acres in size, while 8 farms (1.7%) are larger than 1,000 acres.



**Table 12: Farms in Androscoggin County by Size, 2012**

<b>Size Range</b>	<b>Number</b>
1 to 9 acres	141
10 to 49 acres	98
50 to 179 acres	118
180 to 499 acres	83
500 to 999 acres	15
1,000 acres or more	8

*Source: USDA NASS Census of Agriculture, 2012*

All told, Androscoggin County farmers sold \$53.8 million of farm products in 2012, the Census showed. Of this, \$41.9 million of sales were livestock, and \$11.9 million were crops. Due to concentration in the poultry and dairy industries, and the small number of hog producers, however, the Census did not report sales for most of the top products sold by farms in the County. Table 13 shows the data that are available.

**Table 13: Top Farm Products in Androscoggin County, 2012**

<b>Product</b>	<b>\$ millions</b>
Poultry & Eggs	(no sales data released)
Forage Crops	\$3.6
Vegetables	\$3.2
Cattle & Calves	\$1.9
Milk & Dairy Products	(no sales data released)
Hogs & Pigs	(no sales data released)

*Source: USDA NASS Census of Agriculture, 2012*

Census of Agriculture data also show that two of every three farms in Androscoggin County sold less than \$10,000 of products in 2012. Thirty-seven farms (8%) sold more than \$100,000. These figures are found in Table 14 below.<sup>6</sup>

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<sup>6</sup> The Census of Agriculture defines a “farm” as “an operation that produces, or would normally produce and sell, \$1,000 or more of agricultural products per year.”

**Table 14: Farms in Androscoggin County by Sales, 2012**

<b>Sales Range</b>	<b>Number</b>
Less than \$2,500	197
\$2,500 to \$4,999	61
\$5,000 to \$9,999	53
\$10,000 to \$24,999	58
\$25,000 to \$49,999	31
\$50,000 to \$99,999	26
\$100,000 or more	37

*Source: USDA NASS Census of Agriculture, 2012*

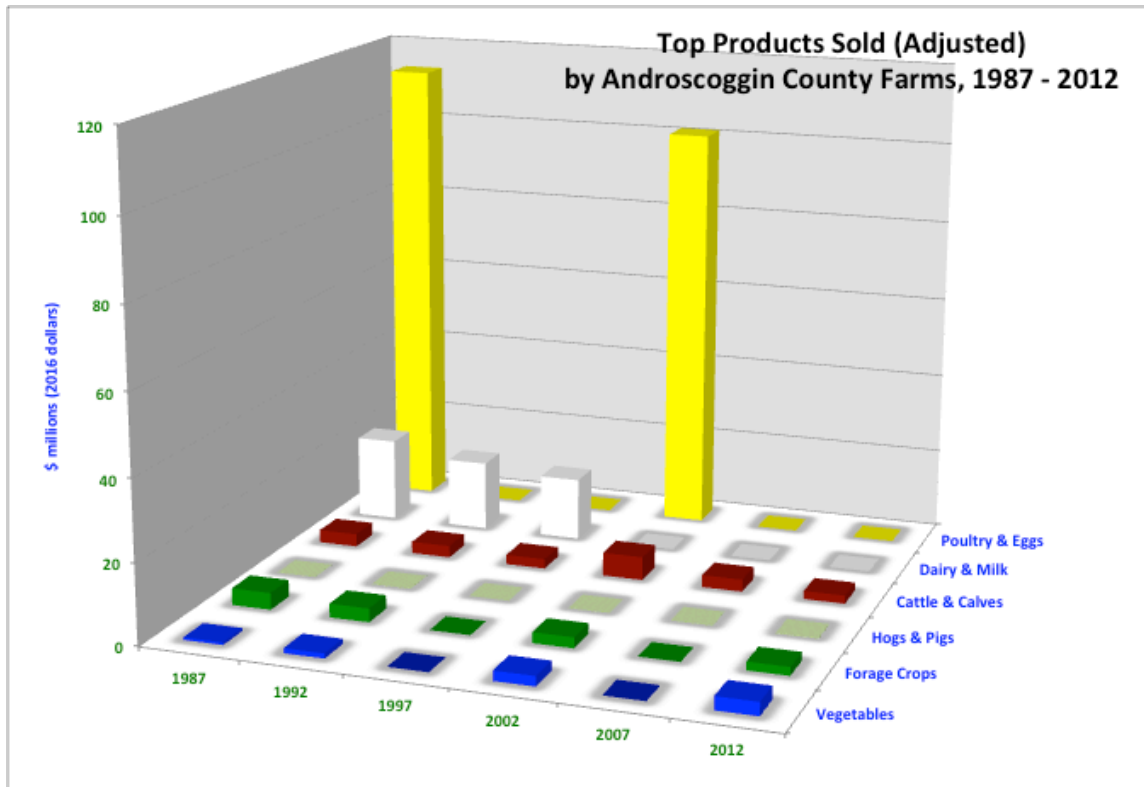
Sales of the major commodities sold by Androscoggin County farmers are generally declining, with the exception of vegetables and direct sales. Chart 19 shows the principal crops and livestock products sold by County farms since 1987.

Perhaps one of the most significant features of this chart is that no sales data were reported for poultry producers in 1992, 1997, 2007, or 2012, and that no dairy sales are recorded for 2002, 2007, or 2012. Nor were forage sales reported for 1997 or 2007, or sales figures for vegetables in 1997 or 2007. These data went unreported because there were such a small number of producers (or such a small level of sales) that census takers withheld sales figures in an effort to protect the confidentiality of each business.

Despite this, some clues in the data illuminate broader trends. In poultry production, the data we have shows that poultry and egg sales were overwhelmingly the largest sector of farming in the County, with \$101 million of sales in 2002. This is nearly twice the value of total sales for all County farms in 2012. Similarly, dairy production has fallen so much, from \$15.5 million in 2002, that it is no longer reported.

Chart 19 further shows that vegetable growing is the main sector of the County farm economy that is expanding, having increased from \$0.6 million in 1987 (in 2016 dollars) to \$3.3 million in 2012. Hog and pig sales rose from \$30,000 in 2007 to \$120,000 in 2012. This sector remains small so it is difficult to see this on the chart. Forage production has diminished as dairy farms scaled back. Currently, sales of cattle and forage each total about \$2 million.

Chart 19: Number of Androscoggin County Farms Selling Direct to Households, 1992-2012

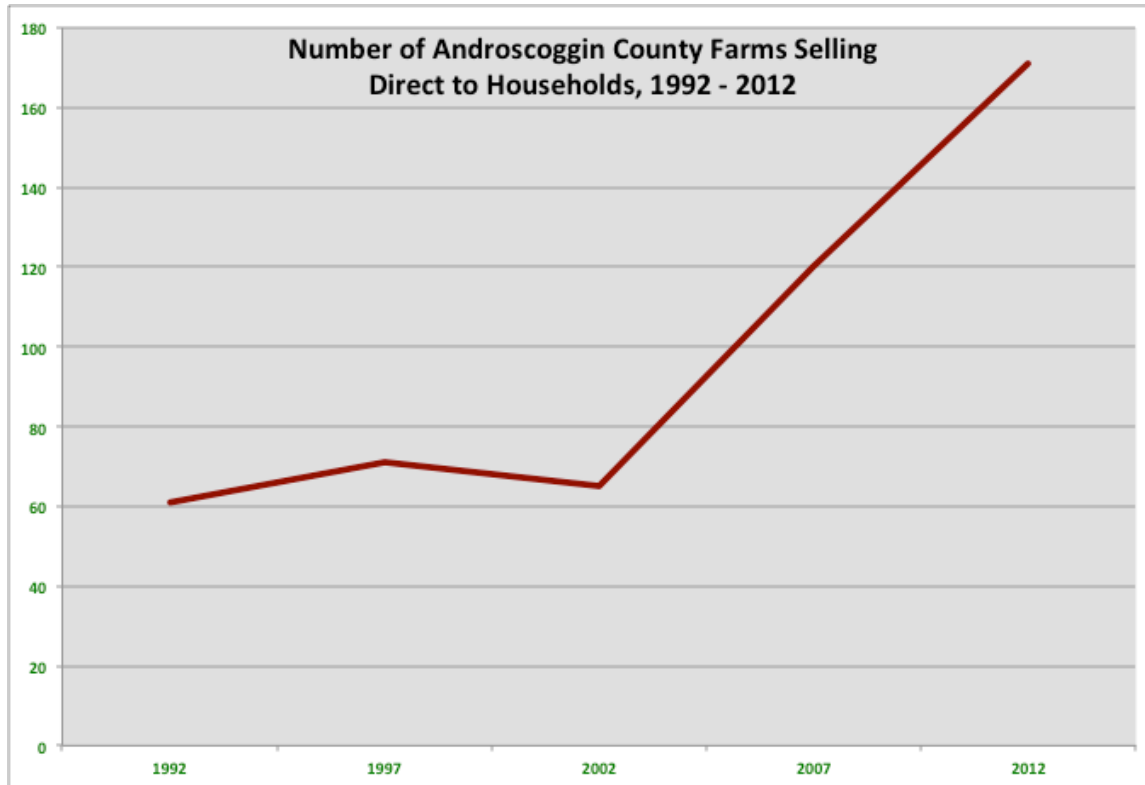


Source: Census of Agriculture

**Vegetable production is the main growth sector of the County farm economy**

Significantly, one further sector should be mentioned. This is not a form of production but rather a method of marketing — when farms sell direct to households. Such sales are likely to be primarily sales of vegetables and beef. In 2012, the 171 (37%) farms in the County who sell direct sold \$2 million of food products directly — making this sector as significant as the cattle sector. While this was an increase of 43% in the number of farms selling direct since 2007, reported sales actually declined slightly from \$2.3 million — although this difference could be due to sampling error that was experienced nationally (See Chart 21). Chart 20 below shows that the number of farms selling direct to households has increased markedly (nearly tripling) from 65 in 2002 to 171 in 2012. This suggests there is strong interest from Androscoggin County consumers in purchasing food direct from nearby farms.

**Chart 20: Number of Androscoggin County Farms Selling Direct to Households, 1992-2012**

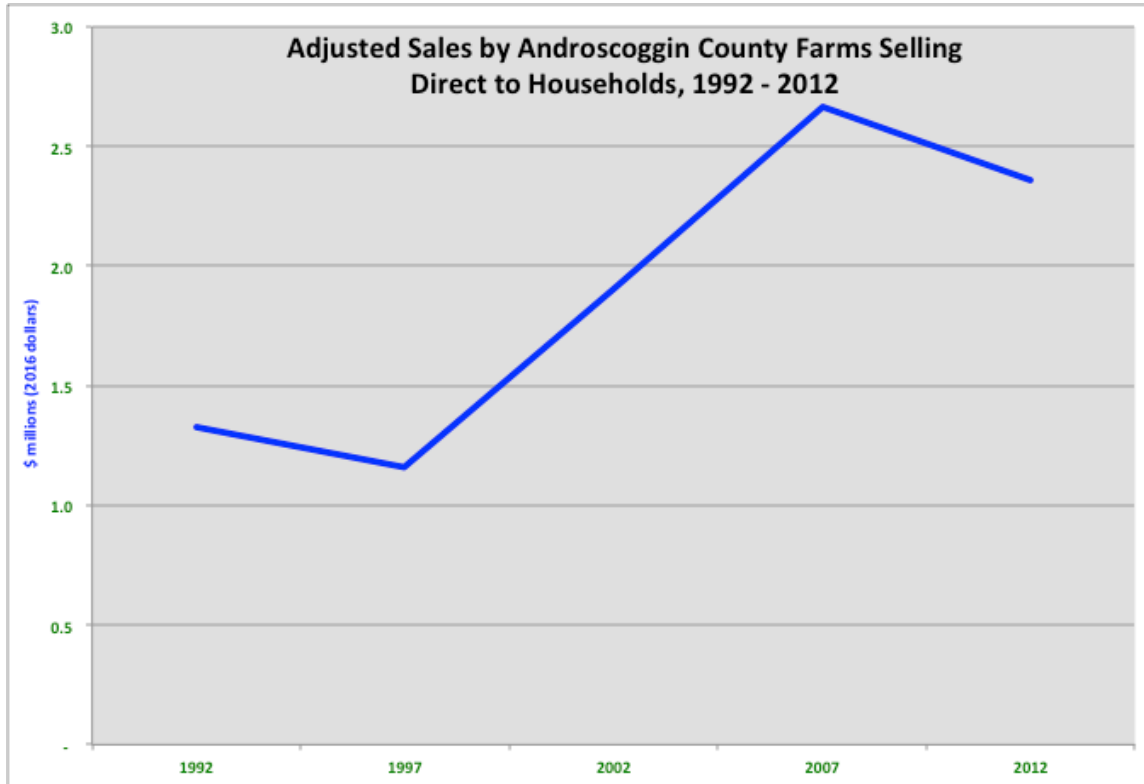


Source: Census of Agriculture

**The number of farms selling direct to households has increased markedly (nearly tripling) from 65 in 2002 to 171 in 2012.**

**This suggests there is strong interest from Androscoggin County consumers in purchasing food direct from nearby farms.**

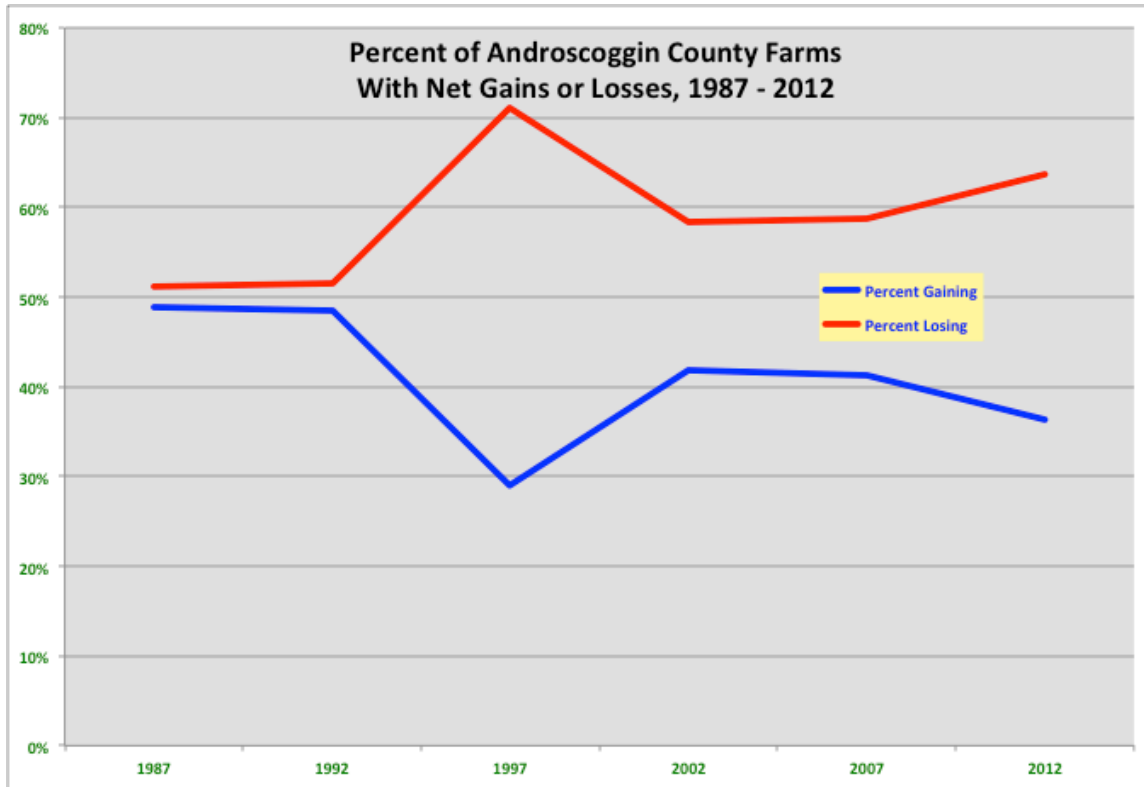
Chart 21: Adjusted Value of Direct Household Sales from Androscoggin County Farms, 1992-2012



Source: Census of Agriculture

Unfortunately, most of the farms in the County (64%) reported a net loss in 2012. As Chart 22 below shows, this represents a marked increase since 1987, when 51% of the County’s farms reported net losses. Concurrently, the number of farms reporting a net gain has fallen from 49% to 36%.

Chart 22: Percent of Androscoggin County Farms With Net Gains or Losses, 1987 - 2012

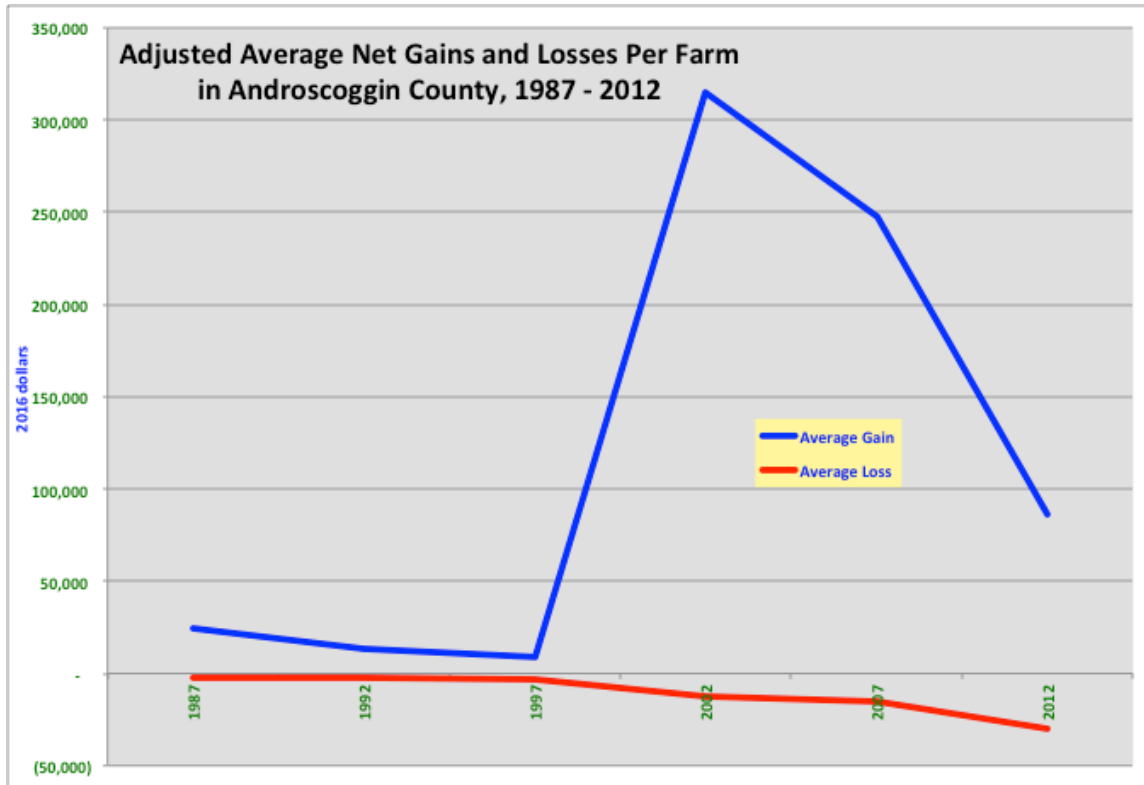


Source: Bureau of Economic Analysis

Tempering this news is that those farms that gained tended to gain more than those who lost. This is shown in Chart 23. Yet even here, there is humbling news, since gains fell substantially from 2007 to 2012, so the average net gain per farm is \$85,872.

**Nearly two of every three farms in the County reported net losses in 2012**

**Chart 23: Adjusted Average Net Gains and Losses Per Farm in Androscoggin County 1987 - 2012**

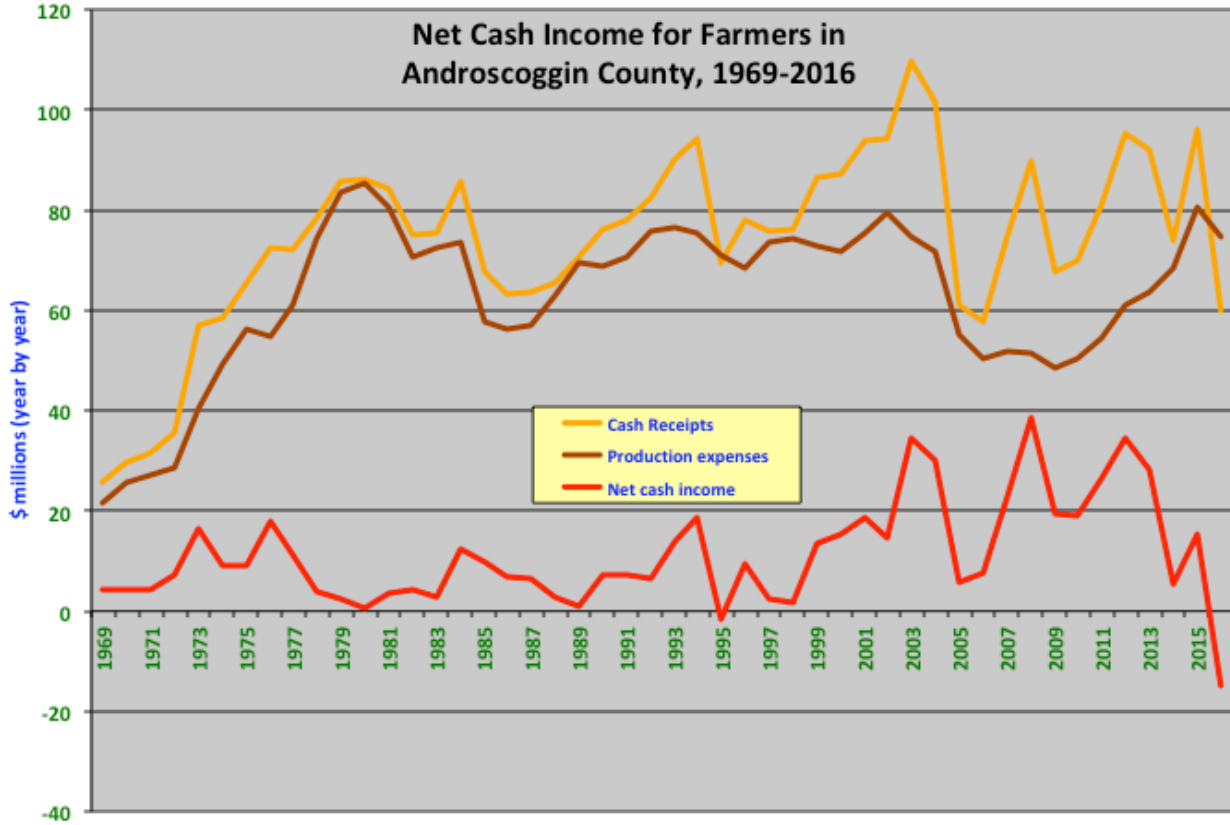


Source: Census of Agriculture

Longer-term trends for Androscoggin County farmers are more visible when looking at data covering personal income for the County’s farms. These show that sales made by County farmers rose substantially from \$26 million in 1969 (five years after the Ag District was formed) to \$96 million in 2015, only to fall precipitously to \$60 million in 2016. This is shown on the orange line on Chart 24. Moreover, sales levels were precarious, rising and falling rapidly and unpredictably in response to market fluctuations.

Chart 24 also shows that production costs (the maroon line) rose and fell along cash receipts, from \$22 million in 1969 to \$75 million in 2016. Notably, however, production costs remained high in 2016, even as cash receipts fell. Net cash income (cash receipts less production costs) remained rather low for the entire 48-year period, falling well below zero in 2016. While in some years County farmers made \$34-\$40 million in net cash income, in this most recent year the farmers in Androscoggin County lost a combined \$15 million — earning \$19 million less than in 1969, after doubling productivity.

Chart 24: Net Cash Income for Farmers in Androscoggin County, 1969-2016



Source: Bureau of Economic Analysis

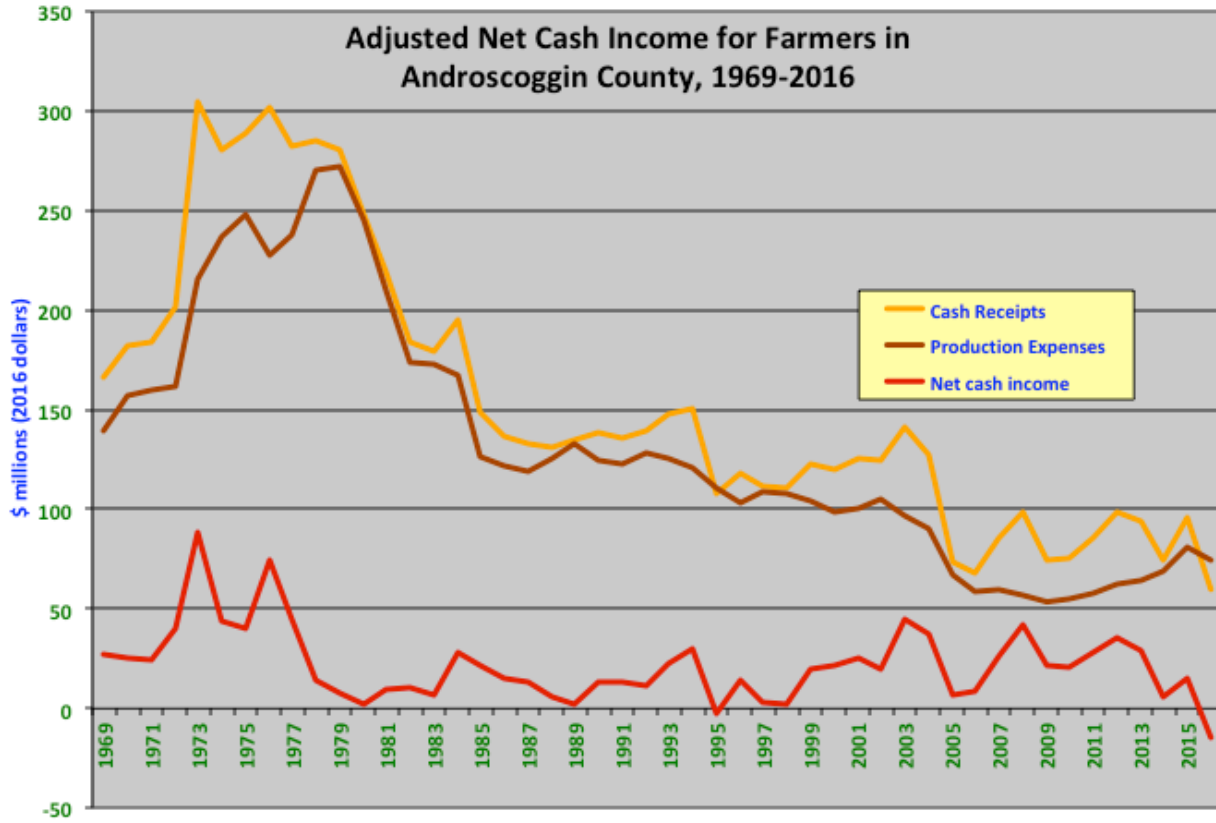
Yet some caution should be used with this data, since inflation has taken a toll on farm income, just as it has with everyone else. Due to cost-of-living increases, the value of the dollar in 2016 was one-sixth the value it held in 1969. The next chart, Chart 25, shows the same data as above, adjusted for this increase in the cost of living.

Now very different patterns emerge from the same data. In 2016 dollars, Androscoggin County farmers sold more than \$300 million of products in two years: 1973 and 1976. This had mainly to do with livestock sales, which peaked in those two years. Yet after this period of relative prosperity, sales fell steadily to current levels, just below \$100 million.

Production costs still mirrored cash receipts. Certainly in the two prosperous years, 1973 and 1976, County farmers enjoyed surpluses of \$74 and \$88 million each year — surpluses that are larger than total sales today. Moreover, overall trends appear more negative once inflation is taken into account. Overall, the net cash income for County farms fell from \$27 million in 1969 (in 2016 dollars) to a \$15 million loss in 2016 — a \$42 million decrease.



Chart 25: Adjusted Net Cash Income for Farmers in Androscoggin County, 1969-2016

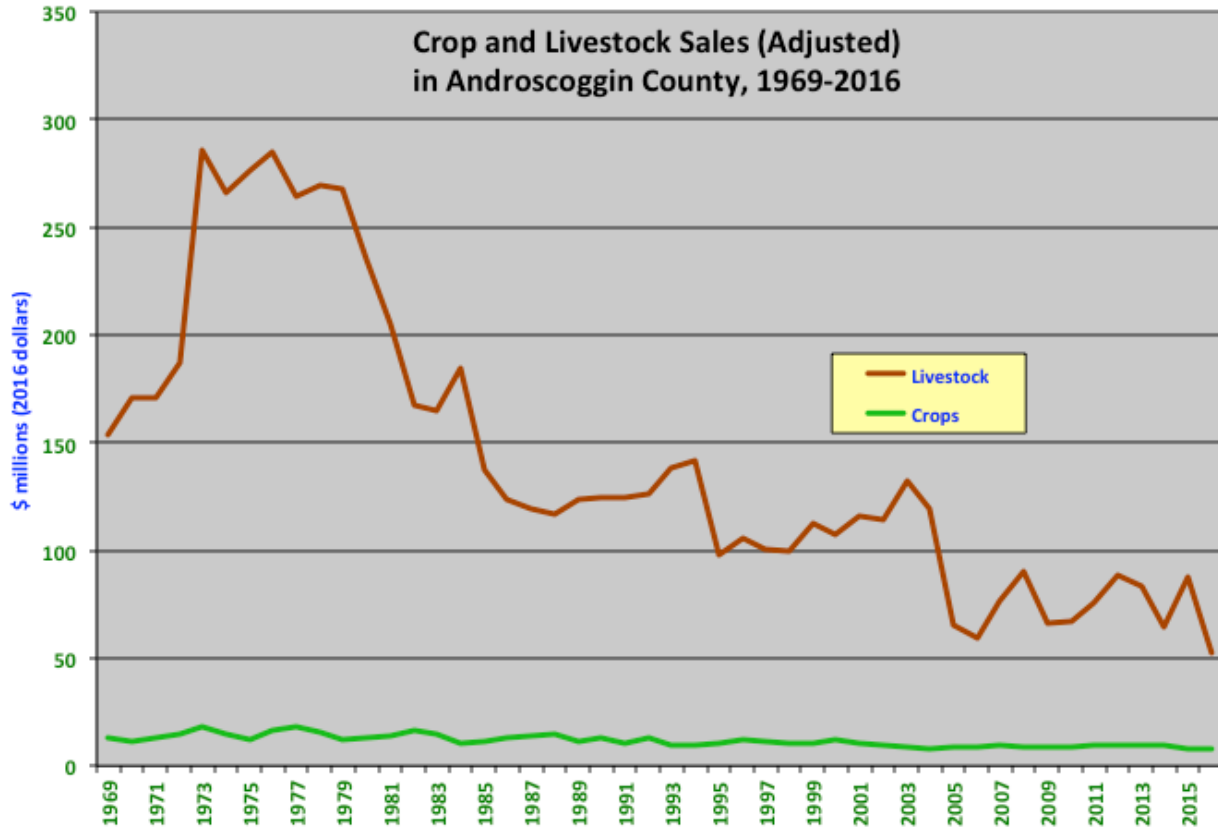


Source: Bureau of Economic Analysis

As Chart 26 below shows, the decline in farm product sales is largely due to an erosion of livestock sales, primarily cattle, dairy, and poultry. As larger feedlots and dairy plants took hold in other regions of the US, prices and margins for livestock became smaller. Crop production has remained fairly steady, but has declined from \$13 million in 1969 to \$8 million in 2016. This decrease would seem to be tied to limited demand for forage as the dairy industry has weakened.

**County farmers lost a combined \$15 million in 2016 —  
earning \$42 million less than in 1969, after doubling productivity**

Chart 26: Crop and Livestock Sales (Adjusted) in Androscoggin County, 1969-2016



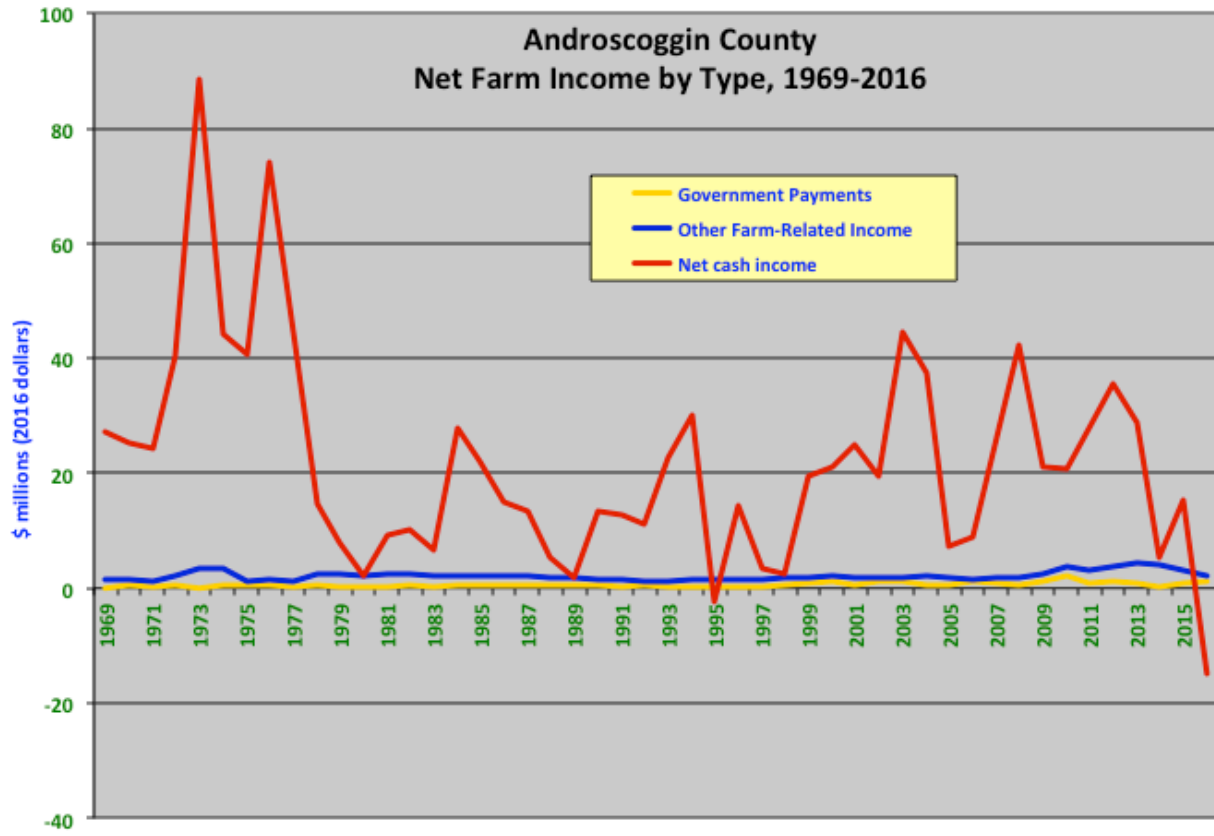
Source: Bureau of Economic Analysis

If we look at the three main sources of net farm income, as Chart 27 below shows, it becomes clear that the negative margins for County farmers pose a substantial threat to farmland protection. Federal subsidies are a rather unimportant source of farm income in the County, while farm production itself is costing farmers money. This means the largest source of net income (outside of holding off-farm jobs) is what the BEA calls “farm-related income.” This is largely rent income and payments from neighboring farmers for custom work (such as combining or harvesting hay). Chart 27 shows that renting out farmland has become a more important source of income than actually farming the land.

**The largest source of net farm income is renting out land to others who farm**

**Most farm families rely on someone working off the farm**

Chart 27: Androscoggin County Net Farm Income by Type, 1969-2016



Source: Bureau of Economic Analysis

## Auburn’s Forest Economy

The City of Auburn has 1,583 acres of forestland that have been enrolled in state current-use-tax programs. This includes 41 acres of softwood, 1,368 acres of mixed forest, and 174 acres of hardwoods on 33 properties that have been registered with the State Farmland Protection program. This land has a total value of \$652,419. Another 1,098 acres of Auburn land, including 311 acres of softwood, 442 acres of mixed forest, and 345 acres of hardwoods have been placed into the Tree Growth Program. These lands have a combined valuation of \$445,468. All this is shown in Table 15.

**Table 15: Auburn Properties Enrolled in State Current-Use-Tax Programs, 2017**

	<b>Farmland Program</b>	<b>Tree Growth Program</b>
Orchard (acres)	182.82	-
Cropland (acres)	35.00	-
Pastureland (acres)	1,547.26	-
Hort1 (acres)	10.25	-
Hort11 (acres)	21.20	-
Blueberry (acres)	1.00	-
Softwoods (acres)	41.00	310.70
Mixed Woods (acres)	1,368.36	441.92
Hardwoods (acres)	173.90	345.36
Open Space (acres)	123.60	-
Valuation of Open Space (\$)	\$155,700.00	-
Valuation of Farmland (\$)	\$615,801.00	-
Valuation of Woodland (\$)	\$652,419.24	\$445,468.20
Valuation of Classified Land (\$)	\$1,222,563.24	\$445,468.20

*Source: City of Auburn Assessor’s Office, 2017*

The value of land for acreage enrolled in state programs is fixed by the State of Maine, as shown in Table 16:

**Table 16: City of Auburn Land Valuation Rates for Farmland Program, Based on State Mandates, 2017**

<b>Classification</b>	<b>Dollars Per Acre</b>
Orchard	450
Crop	400
Pasture	325
Hort 1	450
Hort 11	550
Blueberry	400
Softwd	430
Mixwd	440
Hardwd	340
Open Space	Based on % of Full Market Value of Property

*Source: City of Auburn Assessors Office, 2017*

**Definitions used in Table 16 above:**

- Orchard Land = trees bearing fruit at a density of 60 trees per acre
- Cropland = field crops grown in rotation with potatoes
- Pasture = land growing forage for animals
- Hort1 = edible, vegetable, small fruit, marketing gardening, etc.
- Hort11 = ornamental, Christmas trees, flowers, nursery stock, etc.
- Blueberry = land growing wild, low-bush blueberries

*Source: Maine Revenue Service, 2017*

The Maine Tree Growth program has enrolled forest acreage in all counties of the state, as Table 17 shows.

**Table 17: Maine Tree Growth Enrollment by County, 2015**

County	No. of Parcels	Total Acres	Total Value	Acres First Classified	Acres Withdrawn	Penalties assessed
Androscoggin	689	35,464	\$10,468,775	327	9	\$903
Aroostook	1,774	702,564	\$94,476,355	2,697	1,786	\$13,708
Cumberland	1,669	83,124	\$26,379,826	224	150	\$83,515
Franklin	1,630	292,083	\$71,229,559	787	144	\$25,549
Hancock	1,486	229,388	\$26,991,741	304	80	\$49,195
Kennebec	1,445	73,376	\$18,424,670	972	154	\$46,837
Knox	395	18,955	\$4,990,039	304	0	\$0
Lincoln	706	36,476	\$9,438,958	64	201	\$56
Oxford	3,505	460,812	\$110,337,627	2,434	799	\$82,088
Penobscot	3,092	531,911	\$64,340,524	2,381	253	\$41,589
Piscataquis	1,431	292,640	\$39,506,689	330	162	\$7,311
Sagadahoc	409	18,345	\$5,550,560	152	31	\$10,609
Somerset	2,311	388,983	\$51,615,096	1,599	575	\$4,430
Waldo	876	57,115	\$14,505,825	74	40	\$9,412
Washington	1,532	369,950	\$44,295,688	1,481	483	\$11,983
York	1,439	92,785	\$28,868,289	850	292	\$31,472
<b>State totals</b>	<b>24,389</b>	<b>3,683,971</b>	<b>\$621,420,221</b>	<b>14,980</b>	<b>5,159</b>	<b>\$418,657</b>

Source: *Maine Resource Services*

## Maine’s Forest Economy

Foresters and landowners in the ARPZ District operate within an economic context that is rich with forested lands. In fact, 89% of Maine’s land mass is forested. Ninety-one percent of the state’s forests are owned privately. Table 18 shows the ownership of this land.

**Table 18: Ownership of Forestland in Maine, 2016**

2015 Forestland Acres & Ownership	Acres of Land	% of Forested Land
Total Acres Forested	17,600,000	100.1
Privately Owned	15,900,000	90.7
State & Local Gov. Owned	1,400,000	8.1
US Forest Service	60,902	0.3
Other Federal Agencies	162,293	0.9

Source: *Maine Forest Service, 2016*

Most of the commercial forestland in the state is owned by small holders. These owners hold 33% of all commercial forestland and own 40% of total wood resources, including the most valuable tree species. Most of these owners of small woodlands are older: 40% of small woodland owners are 65 years old or older; 66% are 55 years or old. Others estimate that small woodland ownership is even higher, at 49% of Maine's privately owned forestlands. (Leahy, Silver, & Weiskittel, 2014). This means that, just as in agriculture, woodlands will experience a massive change in land ownership in the coming decades. (Doak, 2016).

### Most of the commercial forestland in the state is owned by small holders

Much of the industry is located in Southern Maine. The largest concentration of operating mills is in the southern half of the state, as is the largest concentration of small, woodland owners. In recent years, demand in the paper industry has shifted from soft firs and spruce to hardwoods, and this places additional emphasis of the value of small woodlands (Doak, 2016).

Yet demand has simultaneously been diminished by the closing of paper mills. One report states that recent mill closures have eliminated 4 million tons of demand, nearly 30% of Maine's timber harvest (Kingsley, 2017). Another report offers lower figures, estimating the market gap at 2 million tons, or 20% of the industry (Strauch, 2016). Yet both scholars agree that new markets for biomass as fuel in heat and power systems, pellet mills, sawmills, and tissue paper are already leading to reinvestment in the industry (Kingsley, 2017; Strauch, 2016).

Most forestland owners are flexible as the industry changes. One study of small woodland owners' perceptions, and their interest in management and harvesting, concluded that land owners don't care about the eventual market of their wood harvests, as long as it is going to good use and the land is left in good condition (Leahy, Silver, & Weiskittel, 2014). A survey of Maine landowners whose lands were harvested in 2016 found that most were satisfied to engage in forestry management programs, and held dual motivations for stewardship of their properties, seeking both harvest income and woodland improvement (Schultz, 2016).

Ultimately, forest industries are long-term industries, so short-term fluctuations in the market will not greatly influence a small woodland owner or their property values. Larger owners, however, — the larger professional foresters, harvesters, and processors, etc. — are the most likely to experience significant impacts of market fluctuations, since they have greater investment at stake and less flexibility in changing their operations.

Given the competing uses for land in the ARPZ District, it is useful to understand the relative costs for providing public services to various land uses. Data from the Farmland Information Center, a national program sponsored by the American Farmland Trust and the USDA Natural Resources Conservation Service, show (Table 19) that residential developments, even in dense subdivisions, require more public services than they generate in tax revenue. Both commercial/industrial uses and farms and forestlands return far more tax revenue than they require in public services.

**Table 19: Median Cost of Community Services Provided Per Dollar of Tax Revenue Raised, US, 2016**

	<b>Cost/\$</b>
Business/Commercial/Industrial Use	\$0.30
Agriculture/Forestry/Working Lands	\$0.37
Residential	\$1.16

| Source: [\*Farmland Information Center, 2016\*](#)

**Residential developments, even in dense subdivisions,  
require more public services than they generate in tax revenue**



## Consumer Markets for Food

The irony of farmers losing money while their neighbors are seeking more food from Maine farms is a strong one. To address this, we examine the consumer market for food in the City of Auburn and in Androscoggin County.

The Bureau of Labor Statistics does a comprehensive survey of consumer purchasing every year and publishes data showing household spending. These are regional averages, so this data covers an “average” household in the Northeast, but is not specific to Auburn. Since this region encompasses many urban centers as well as rural areas, it is likely to overstate actual consumption in Auburn.

### Auburn residents spend about \$66 million each year buying food

Yet even so, City residents spend about \$66 million each year buying food, BLS data suggest. Of this, \$38 million is food purchased at grocery stores and other venues to eat at home. Since the vast majority of this food is sourced outside of the City, this means that Auburn residents probably purchase at minimum \$63 million of food from outside sources. This is a substantial drain of wealth when farmers are losing \$15 million per year.

Table 20 below estimates the amount of food that is purchased by Auburn residents.

**Table 20: Estimated Food Purchases by Auburn Residents to Eat at Home, 2015**

	\$ millions
Meats, poultry, fish, and eggs	9
Fruits and vegetables	8
Cereals and bakery products	5
Dairy products	4
Other food at home	12

*Source: Bureau of Labor Statistics Consumer Expenditure Survey. Note that these data may overstate actual consumption in Auburn, since they are based on regional averages.*

If each resident of the City purchased \$5 of food each week from some farm in Auburn, the City’s farmers would earn **an additional \$5.9 million annually**. This would not be enough to stem the losses County farmers currently experience, but would be enough to cut them by more than one-third.

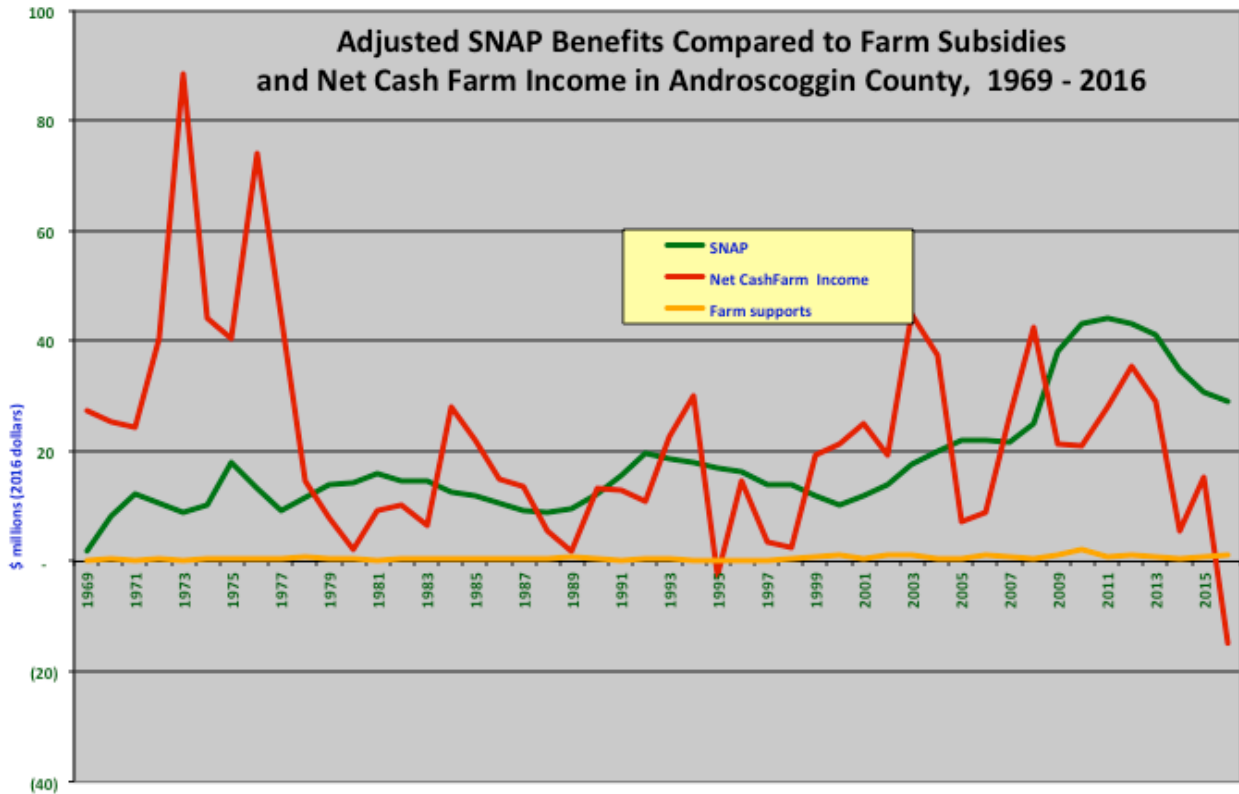
If Auburn farms sought to sell food only in Androscoggin County, they would be striving for a \$307 million market for food, **annually**.

### SNAP Recipients in Auburn

Yet there **is** also a large number of Auburn residents with not enough to eat, as mentioned above.

One sobering comparison is made on Chart 28. This compares the net cash income for farmers, the same line we saw before on Charts 24 and 25, compared to both federal farm supports (which are not large in Androscoggin County) and SNAP benefits received by low-income residents. Tragically, this shows that SNAP benefits, which have risen from \$2 million in 1969 to \$29 million in 2016 after peaking at \$44 million in 2011, are a more important source of income for Androscoggin County than farming.

**Chart 28: Adjusted SNAP Benefits Compared to Farm Subsidies and Net Cash Income in Androscoggin County, 1969-2016**



Source: Bureau of Economic Analysis

**SNAP benefits are a more important source of income for Androscoggin County than farming**

## Historical Perspective

Even as the Auburn population was peaking, one important planner predicted tremendous growth for the City. The 1958 Blackwell Report predicted that the city population would rise to “45,000-50,000 or more by the year 2000.” To accommodate this rise in population, the report recommended allowing housing development along major roadways in rural areas, as well as in the urban center (Blackwell, 1958).

To protect the rural quality of life in Auburn, Blackwell recommended setting aside farm and forest areas (Blackwell 1958).

“Generally, farming as a way of life has been declining,” the report stated on page 16. It did not address how the City could protect farmlands in the face of this presumed decline. No specific provisions were offered for agriculture, nor did the report address whether local farms ought to increase production to meet the consumer demand from [a population he predicted](#) would [double](#).

The Blackwell report did specifically mention the City-owned farm, which had once served as a poor farm. The study recommended that this farm might no longer be necessary due to “the decline in farm living and because of far-reaching changes in community approaches to rehabilitating or caring for disabled, enfeebled, or abandoned older citizens.” Blackwell recommended that the City retain ownership of the land so it could serve as part of a circle of public open space surrounding Lake Auburn.

The report noted that the “Turner Centre Creamery...north of Auburn, was once one of the largest in New England,” and that the cannery at Skilling’s Corner had closed [page 17-18].

Blackwell correctly predicted that, “The Auburn future population will be mainly urban, suburban, and rural non-farm... The number of people will depend mainly on future urban employment, which we believe will to be more in non-manufacturing categories than in manufacturing.” [page 95].

Further, the Blackwell report stated that, “More future population growth can be expected within Auburn municipal boundaries than in Lewiston, we suggest, because there was in 1957 so much more attractively developable acreage in Auburn, both for industry and for residence.” [Page 96].

Section IX of the Blackwell report offers, “An Urban Renewal Program for Auburn.” Nothing regarding agricultural or forestry economic development is mentioned [page 110].

Moreover, the Blackwell report set out the vision for what became rural residential districts. “The principal eight suburban and rural residential districts suggested in the Land Use and Circulation Plan (not counting strips zoned for rural residence in outlying Auburn) appear to aggregate some 3,500 buildable acres and would accommodate, we estimate, some 2,250 new one-family dwellings, over and above those already existing.”

The report further [noted](#), “Auburn and Lewiston have very little employment directly related to forestry exploitation, notwithstanding the extended wooded lands in and surrounding Auburn” [page 18]. Blackwell found that 95 jobs in Lewiston-Auburn involved forestry and agriculture, compared to 13,265 jobs in manufacturing at the time. The report concluded, “Farming and forestry activities in and around

Auburn may expand also because of the national need for more food and more fibre products as the regional and national populations increase, but farm and forestry employment will not expand as much as productivity by new methods and equipment” [page 19].

## Works Cited

American Farmland Trust — Farmland Information Center. Viewed December 2017 at [www.farmlandinfo.org](http://www.farmlandinfo.org)

Blackwell, J. (1958). *City of Auburn City Plan Report*. State of Maine, Department of Economic Development.

[Bureau of Economic Analysis. \(2014\). Bureau of Economic Analysis. Retrieved January 2016, from U.S. Department of Commerce: http://www.bea.doc.gov/bea/regional/reis/](http://www.bea.doc.gov/bea/regional/reis/)

[City of Auburn Assessor’s Office. \(2017\). Personal communication.](#)

[City of Auburn Assessor’s Office. \(2018\). Personal communication.](#)

Cousens, E. (2018). Personal communication, January 29.

Doak, T. (2016). *Small woodland owners are vital to forest economy*. Maine Forest Products Council.

Economic Modeling Specialists, Inc. Social Account Matrix model drawing upon data from the Federal Census, Current Population Survey (CPS) and American Community Survey (ACS); the Bureau of Economic Analysis (BEA) National Income and Product Accounts (NIPAs), and the BEA Input-Output Make and Use Tables (MUT).

Farmland Information Center. (2016). *Cost of Community Services Studies*. American Farmland Trust.

Kingsley, E. (2017). *Maine Forest Industry Positioning Itself for the Future*. Forest2Market.

Leahy, J., Silver, E., & Weiskittel, A. (2014). *Attitudes of Small Woodland Owners Toward Harvesting for Bioenergy Markets*. University of Maine, School of Forest Resources. Northeastern States Research Cooperative.

Maine Forest Service. (2016). *Forest Service Forest Inventory*. USDA.

[Maine Realtor’s Association](#) (2017). Profile of Androscoggin County home sales.

Schultz, A. (2016). *Maine Harvest Satisfaction Survey*. Maine Forest Service.

Strauch, P. (2016). *The forest product industry is reinventing itself*. Maine Forest Products Council.

[United States Census Bureau. \(2011-2015\). Federal Census. Washington D.C.: United States Census Bureau.](#)

USDA-NASS. (2012). *2012 Census of Agriculture*. United States Department of Agriculture, National Agricultural Statistics Service. Washington D.C.: United States Department of Agriculture.