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The Economic Impact of Illinois's Livestock Industry

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By

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and

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Executive Summary

The goal of this report is to provide the Illinois Livestock industry with an economic snapshot of the current state of the industry. The State's livestock and meat and dairy processing sectors significantly contribute to the state's economy in three important ways: 1) significant economic activity in the form of output, jobs and taxes; 2) real growth for an overall declining Illinois economy; and 3) important local impacts in key county and legislative regions. This contribution becomes increasingly important when other sectors in the economy have shed jobs and declined in recent years.

Livestock contributes $3.5B of total impact and over 25,000 jobs to the State's economy. When combined with meat and dairy processing the entire complex produces $27B of total impact, or 5% of the state's economy, and 99,000 jobs, or 1.4% of the State's jobs. The industry continues to serves as an economic engine in both rural and urban areas of the state. Since 2000, the trend in Illinois livestock output shows modest growth in the real value of products sold. Pork and poultry lead with positive real growth, dairy is nominally flat and declined in real terms, and beef and sheep and lamb marketings decline both nominally and in real terms.

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Section I

1 Introduction

Per capita meat consumption continues to expand worldwide as well as in the United States. Since mid-1990 to 2010, meat consumption world-wide increased 15%, with 80 lb/year of consumption in 1996 and 92 lb/year in 2010 respectively, or about 1.1% per year. (FAO Food Outlook 1997 & 2010). Since 1990, the U.S. consumption expanded 10%, from 180 lb/person in 1990 to 198 lb/person in 2008, or about 0.6% per year. (USDA, Economic Research Service 2010). U.S. consumers eat on average 1.9 times as much meat per capita as the rest of the world, though the gap has fallen from 2.2 to 1.9 in the last five years (FAO Food Outlook 2010). Demand for meat and dairy products continues to expand rapidly among developing countries, while more slowly in the United States.

As a result, the livestock and meat and dairy sectors in the U.S. in general, and in Illinois in particular face several key strategic questions: 1) how to maintain profitability while servicing a mature domestic market; 2) how to leverage the industry's tremendous knowledge and asset base to service growing overseas markets, and 3) how to defend domestic markets simultaneously from both low cost and high quality imports.

Meat imports have increased less than 1% per year since 1990, while exports have grown from 1.3 million tons to 7.2 million tons, or 25% a year (FAOStat, 2011). World imports of meat increased 24 million tons since 1990, about 9% per year. Therefore the United States has captured 30% of these new expanded import markets. This demonstrates that while relative currency valuations always play a significant role in trade, the U.S. meat complex continues to be globally very competitive.

Unfortunately over the last thirty years there has been a steady decline in Illinois's livestock industry; relative to the rest of the country, in the industry in nominal terms, and relative to the rest of the State's economy. The State's industrial base has tended to focus on activities other than livestock, and within agriculture, the change in the industry has been greater specialization to crop production (corn and soybeans).

Since 2000, the trend in Illinois livestock industry output though showed modest growth in the real value of products sold. Pork and poultry led with positive real growth, dairy was nominally flat and declined in real terms, and beef and sheep and lamb marketings declined both nominally and in real terms. The industry outpaced the overall Illinois economy, which with higher rates of inflation saw real declines in output since 2000. The State's livestock and meat and dairy processing sectors significantly contribute to the state's economy in three important ways: 1) significant

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economic activity in the form of output, jobs and taxes; 2) real growth for an overall declining Illinois economy; and 3) important local impacts in key county and legislative regions.

This report serves as a touchstone for the industry, stakeholders, and policymakers to better understand the economic role of livestock production and meat and dairy processing in Illinois.

The most current data available, and the study period for this report, are from 2009. The report is structured as follows:

Section I contains an abstract, introduction, and overview of the methodology. Discussed is the approach used to assemble the labor and individual species group data.

Section II provides an overview of the livestock industry in Illinois.

Section III contains the economic impact analysis for livestock production and the meat and dairy complex.

Section IV shows the geography of meat processing.

Section V presents road and highway revenue impact

2 Methodology

Policy makers, industry members and regional planners often need information about the economic impact of specific industries on the economy at large. Changes in employment or output often occur locally as a result of new business locations, business closings and regulatory changes. Expansion of an industry will then have economic impact on other parts of the economy. For example, expansion of sales by livestock farms within a region will mean increased sales by businesses that support livestock farms, increased incomes for farm proprietors and workers, and increased sales for local retail and service businesses. Input-output (I/O) analysis is one of the most widely used methods to evaluate the economic impact of a particular sector in the economy (Schaffer, 1999).

An I/O model traces the flow of goods, services, and employment among related sectors of the economy. Using a matrical framework, the basic industries in the economy are linked through the marketing chain in terms of product supply, labor allocation, and demand. The I/O model is a balanced model in that all supply must have an end destination, whether it is inventory or consumption. Thus the I/O approach models the economy in general equilibrium. The input-output flows are also balanced across counties, states, and the nation. As one can imagine, modeling the economy in such a comprehensive way is a daunting task.

Most large I/O models depend on secondary information, provided by government.

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This raises the first important issue related to I/O modeling: a critical tradeoff. The uses for I/O modeling are very important, with powerful implications, but this power comes at a price. Secondary information, such that the government provides, is not complete across all industries and political units. Because of the massive complications of collecting high-quality data on firms and industries, the most common approach the government uses is to survey small samples of the population under study. This "second-best" option, using small samples, has obvious data quality problems related to poor sampling properties. Such problems are not specific to I/O models, but to macroeconomic information in general. Therefore I/O modelers constantly wrestle with the data quality problem and strive to achieve a balance with functionality.

A second issue relates to agricultural data in particular. The motivation to use I/O modeling to study the livestock industry is clear; yet agriculture is one of the most cumbersome industries for which to collect data (Lindall, 1998; MIG, 2000). I/O models depend on public secondary data about output produced, prices received, labor required, taxes paid, and consumption. The government has an easier time collecting such data from industries that utilize more formal business practices, contain larger firms, and that are relatively more concentrated. Industries that consist of many smaller firms with numerous informal transactions are more difficult for the government to follow. Agriculture has a high concentration of unincorporated firms and informally employs large quantities of labor. Therefore I/O models are challenged by the agricultural sector.

2.1 IMPLAN Database

To conduct our analysis we selected a software product and database called IMPLAN Pro, version 3.0 (2009). IMPLAN maintains and sells commercial I/O software for the U.S. economy. Since 1993, the IMPLAN software and database have been developed under exclusive rights by the Minnesota IMPLAN Group (MIG), Inc. (Stillwater, Minnesota), which licenses and distributes the software to users. IMPLAN has been used for livestock studies since early 1990s, such as Lawrence and Otto, 1994 (cattle); Morse, 1998 (poultry); Goldsmith and Hedi, 1999 (Livestock); Ferris, 2000 (all of agriculture, including livestock); Goldsmith and Kim, 2001 (Livestock, Meat and Dairy); Goldsmith and Saripally, 2007 (Livestock, Meat and Dairy), and Hansen, Dean, and Spurlock, 2009 (Aquaculture).

IMPLAN is a static model and looks at the economy as a snapshot based on 2009 data. This software estimates the direct effects, indirect effects, and induced effects of an economic activity. Direct effect refers to a production change associated with a change in demand for the good itself. It is the initial impact to the economy. The indirect effect refers to secondary impact caused by changing input needs of directly affected industries (e.g., additional input purchases to produce additional output). Induced effects are caused by changes in household spending due to the additional

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employment generated by direct and indirect effects. The IMPLAN model also estimates economic multipliers such as those used for output and employment. Output multipliers relate the changes in output by all industries within a region from a marginal change in output by one industry. Similarly, employment multipliers relate the changes in direct employment to changes in total employment within a specified economy. The following sections describe the data sources used by IMPLAN.

There are four methodological areas that required special attention to complete our analysis; output and impact estimates by species group, labor productivity estimates, direct employment estimates, and tax flows from livestock that support transportation infrastructure.

2.1.1 Output

IMPLAN presents agricultural output as gross sales by commodity group by county within the state. The National Agricultural Statistics Service (NASS) annual surveys of cash receipts integrated with and validated by the 2009 and Census of Agriculture figures results in the gross sales figure by species group. The census figures help to generate estimates of missing data as well as to form the county production estimates. IMPLAN covers 509 industries, not all of which may be represented in any one county.

Unfortunately in 2009 IMPLAN increased its level of aggregation of species and reduced the number of categories dedicated to livestock. The previous nine categories were reduced to four. The livestock sectors now are; Cattle Ranching and farming (sector 11), Dairy cattle and milk production (sector 12), Poultry and egg production (sector 13); and Animal production, except cattle and poultry and egg (sector 14). While Ranch Fed Cattle, Range Fed Cattle and Cattle Feedlots comprise sector 11, Dairy is in sector 12, and Poultry is in sector 13. All The other livestock species, including sheep, lambs and goats, hogs, pigs, and swine, wool and mohair and other miscellaneous meat animal products, which includes such industries as aquaculture, bees and honey and horses, are combined in sector 14.

We do not present detail poultry data in this report. In prior years county level data were consistent between IMPLAN and NASS data. This consistency check, along with a third check using Census data, is very important to validate the internal consistency among the counties within a reporting year, and across Livestock Impact reports. This year, poultry data validation failed on both accounts; at the county level for 2009 and with respect to poultry values in previous reports. The county level data reported by IMPLAN for 2009 are only estimates, and bad estimates at that. They do not reflect actual NASS values and often counties were given the same poultry output value. Total values for the state though are accurate.

Part of the challenge for IMPLAN and NASS are the small number problems

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associated with the minor commercial species, such as poultry, where there are few flocks. Small numbers at the county level creates disclosure problems as individual farm values may be revealed. NASS does not report egg and turkey sales vales for most counties either because sales are zero or there are too few farms in the county. We do know that there are over $40 million in turkey sales in Illinois. NASS does not report broiler sales numbers at all for the State.

An objective of this study was to look at individual species. Disaggregating the three livestock categories into relevant species groups was a unique problem and the most challenging and time consuming aspect of this report. The three livestock sectors had to be disaggregated in order to conduct the analysis at the species level. To this end, the old production functions for each of the species (the production function used before 2009), obtained from MIG, were used to estimate economic impacts. The older production functions were then matched with 2009 levels of direct output.

A second estimation was required because the impact of the disposable portion (net of taxes and saving) of the labor income was not fully captured. A second impact analysis was conducted on the household sector with the disposable income as the driver for each of the species in all the counties to fully capture the economic impact of the sectors under study. This second step was essential for accurately estimating the tax impacts of the species groups.

The 2009 IMPLAN-based labor productivity estimates were significantly higher than one might expect, for poultry, dairy, and beef, and lower for pork (Appendix A). Previous research has discussed the problem with agricultural data that leads to high estimates of labor productivity. A number of factors explain the deviation. IMPLAN uses significantly higher values for output per worker. Since the output per worker, the denominator is large in the calculation, direct employment or the number of employee falls. As a feedback effect, the lower direct employment number generates a smaller induced effect, and hence a low labor economic impact multiplier.

2.1.2 Labor Productivity

A significant part of the economic impact of an industry is its employment impact. Secondary economic activity occurs as a result of the jobs created by an industry. Thus an industry that creates either a large quantity of jobs or high-paying jobs can be a significant contributor to the economic activity of a region. Data are not available at the national level disaggregated by livestock species group even though employment is an important component of economic activity,. For most industries, IMPLAN derives its labor figures from the Bureau of Labor Statistics (BLS) ES 202 data from unemployment insurance. As MIG notes, agricultural labor data is “pesky” (Lindall, 1998), thus other means are used to estimate the employment data. MIG also suggests researchers calculate their own employment estimates if possible (MIG, 2000). We follow, and discuss below, MIG’s advice and construct our own employment

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estimates.

Notwithstanding the employment data problems, IMPLAN divides the species group cash receipts by the sum of proprietor and non-proprietor employment to create a ratio of output per employee. These ratios are adjusted based on the changes in output for the inter-census years. From this, an estimate is created of wage and salary employment for each dollar of output. The output value for each sector is multiplied by the proprietor ratio and wage and salary ratio to form state or county vectors of estimated employment. The Bureau of Economic Analysis's (BEA), Regional Economic Information System (REIS) data, which provide total farm employment data at the state level, are then distributed to the twenty-three agricultural sectors by counties based on the estimated vectors of employment just described.

The Census process assumes each farm has one proprietor (Olson, 2001). Also, and very importantly, the agricultural census defines a livestock farm for each species in inventory. Therefore if a proprietor had one cow and one pig, the census, and subsequently IMPLAN, would assume there are two farms present, each with an employee. Therefore, in terms of proprietor employment, IMPLAN overestimates the level of employment on livestock farms and underestimates the output per proprietor.

On the other hand the opposite is true for non-proprietor farm labor. The BLS ES 202 data is generated at the county level and provides information for covered wage and salary employment. The problem with agricultural employment is that much of it is self-employment or informal employment where much goes unreported. This leads IMPLAN to underestimate the level of farm employment and overestimate the economic output per employee.

Therefore either IMPLAN's labor level is too low or the output is too high. First, changing output figures has significant effects for a balanced input-output model. Thus unless there was significant cause pointing to output error this should remain untouched. Second, IMPLAN's output estimates closely mirror the Illinois Agricultural Statistics Service's (IASS) data on estimated cash marketings by commodity group. Questioning IMPLAN's output estimates would be the same as questioning the official Department of Agriculture figures and thus would begin a slippery-slope process, calling into question most if not all macroeconomic data. We are aware of no indication that the IASS estimates are not valid estimates of livestock commodity group marketings.

The IMPLAN labor productivity estimates for beef and dairy were over four times, those derived from the University of Illinois Farm Business Farm Management (FBFM) data of pure livestock farms (Appendix 1). The low labor estimates created output for full time dairy and beef worker in excess of $300,000. Government data estimates output per worker in Illinois poultry sector to be $1.25m per worker. One of the explanations for the discrepancy between the two estimates is that IMPLAN

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does not account for the unpaid labor or management. The low estimate for pork producers created an output (revenue) per full time worker in the pork sector at only $100,000. It is hard to explain the governments low productivity estimates for pork production. The IMPLAN/Government estimates for total direct labor in Illinois livestock are 12,134.

We used the output per worker obtained using pure species farms from the FBFM dataset instead of the IMPLAN estimates. The FBFM data represent 5,540 farms in Illinois, are confidential, and are strictly monitored for accuracy. They are a statistically valid sample of the major farm populations in the state (Lattz, 2001). By analyzing the average output per full time equivalent (FTE), as reported in the FBFM dataset, new and more accurate estimates for dairy, beef, and pork operations were generated. The output per FTE for beef, dairy and hog farms are $78,903, $75,344 and $165,634 respectively. The beef number was used as a proxy for "other" types of livestock and the pork estimate was used for "poultry." The "other" and "poultry" types of farms are not represented in the FBFM dataset.

2.1.3 Employment

The output per FTE is considerably higher in 2009 when compared to those in 1997 even when FBFM calculations were utilized. A higher output per FTE implies that there has been a decrease in the number of people employed in the livestock industry. When compared to the data in 1997, while the industry output remained almost the same at $1.9 billion of direct sales, the direct employment has fallen significantly, indicating increases in industry labor productivity.

From the above labor productivity estimates, the results indicated that either IMPLAN's employment estimate is too low or the output was too high. First, as noted above changing output figures has significant effects for a balanced input-output model. Thus unless there was significant cause pointing to output error this should remain untouched. Third,

The IMPLAN estimate seems inaccurate based on simple rules of thumb. According to the IASS, there are 10,218 commercial units alone. Conservatively assuming 1.5 FTEs per commercial farm, there would be 15,237 FTEs in commercial-scale animal agriculture. Plus there are more than 29,000 non-commercial farms. Given that most NTC farms are part-time and using a "rule of thumb" that such farms expend 29 percent of an FTE (weekends), would amount to an estimate of close to an additional 9,000 FTEs. Combining the rough labor estimates for commercial and non-commercial farms provides an estimate of 24,000 FTEs of direct livestock labor in Illinois, which is significantly more than IMPLAN's figure. The true labor number for the state probably lies somewhere between 12,134 (IMPLAN) and 24,000 (rule of thumb). Therefore, for these three reasons, we more formally estimated the direct labor utilization for the Illinois livestock sector using the FBFM estimates of labor

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productivity. Those estimates are shown in Section III.

2.1.4 Taxes and Personal Consumption

Following are the general sources for tax and personal consumption data:

- NIPA: All IMPLAN tax impact data is controlled by the National Income and Product Accounts (NIPA) data published in the Survey of Current Business (SCB) by the BEA.
- REIS (Regional Economic Information System): The BEA collects and reports income, wealth, tax, and employment data on a regional (state and county) basis. The data used to distribute the US NIPA values to states and counties come from the BEA's REIS table.
- CES: The Bureau of the Census annually conducts a Consumer Expenditure Survey (CES) of, household expenditure patterns. It is from these surveys that the BEA benchmarks the personal consumption expenditure portion of NIPA.
- Annual Survey of State and Local Government Finances (SLGF): The Bureau of the Census also collects annual state and local government receipts and expenditure data. This data acts as preliminary control for state-level values (subject to controlling to national NIPA values).

2.1.5 Other Important Methodological Notes

1) We use personal income as a measure of the State's economy whenever we need to compare or highlight the amount of economic activity in the state. The reason we choose personal over the more common gross state product is because personal income disaggregates well at the county level. Personal income reflects the earnings of those people who reside in the county. Clearly different from a gross county product, it does provide an accurate measure of economic size at the county level. The gross state product for Illinois in 2009 was $631B while personal income, which we use, was $535B. We answer the important question in this study as to how significant an industry or species group is to a particular geographic unit, such as a county. We would be inconsistent if we used gross state product for discussions at the state level and personal income when discussing counties and political districts. The concept of gross county product is flawed because very little of an industry's trade is in actuality limited to a particular county. Limiting trade at the state level too is flawed for similar reasons, but much less so. Input-output analysis employs regional production coefficients to estimate the geographic flows into and out of an industry. These coefficients are fixed for each industry in the state for a particular commodity. Modelers ensure the balance of inputs and outputs across geographies by assuming fixed coefficients. One direct drawback of our use of personal income over gross county product is that we overestimate the percent that livestock contributes to a local economy, because personal income is always less than the gross product. We feel the tradeoff is worthwhile, because the county level personal income is much more precise

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than the estimate of overall economic activity.

2) We estimate total economic impact for the meat and dairy complex using two different methodologies. The essential question for those interested in understanding economic impact is: if industry B, the downstream industry, were to disappear (appear), would industry A, the upstream industry, too disappear (appear). This is a classic question of an industry's impact. For how many upstream jobs, for example, should and industry receive credit? Is the new industry bringing new jobs or would those jobs have been there anyway? Or if the downstream industry were to close, would those upstream workers leave the state? In this study we take a conservative approach and assume that livestock's jobs are not being created by the meat and dairy processing sector. That is to say, meat and dairy's jobs impact does not include livestock's jobs.

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Section II

1. Livestock Industry Overview

Hog numbers in the United States grew over the study period while beef, dairy, and sheep and lamb declined (Figure 1). Illinois looks similar, except hog numbers grew at half the rate of the national average, and beef and dairy declines significantly outpaced the U.S. as a whole (Figure 2). Illinois was able to hold its national position (#4) in hog production but slipped compared with other states in the other species categories (Figure 3). The growth trend of the livestock industry expansion in the United States continued in the south and the west (Figures 4-7). Illinois livestock farm numbers continue to decline due to the economic effects of scale economies (Figure 8). In nominal terms the share of the State's gross state product, at .32%, continues to drift downward (Figure 9). Real revenue, which removes the effects of rising/falling prices, has grown 3.7% or .41% per year since 2000 (Figure 10). That compares with State growth of 1.8% per year over the same period. Pork production provides the source for growth in Illinois' livestock sector. The industry has grown 14.4% or 1.6% per year since 2000, compared with real declines in milk, beef, sheep, and lamb gross receipts. Poultry meat and eggs have grown substantially in percentage terms from a very low base.

There are over 30,000 livestock farms in Illinois, with almost half being cow calf operations (Table 1). Commercial operations, 26% of all herds and 7,811 in number, require at least one full time equivalent of labor (Table 2). Almost all of the commercial herds are found in four species groups, dairy, fed cattle, cow-calf and hogs.

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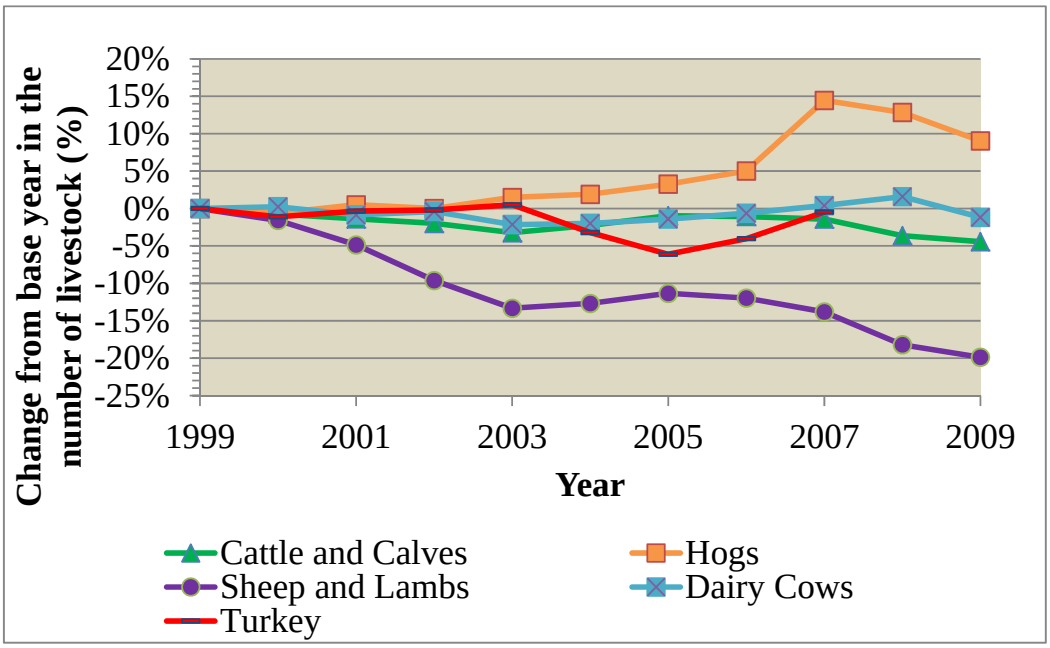
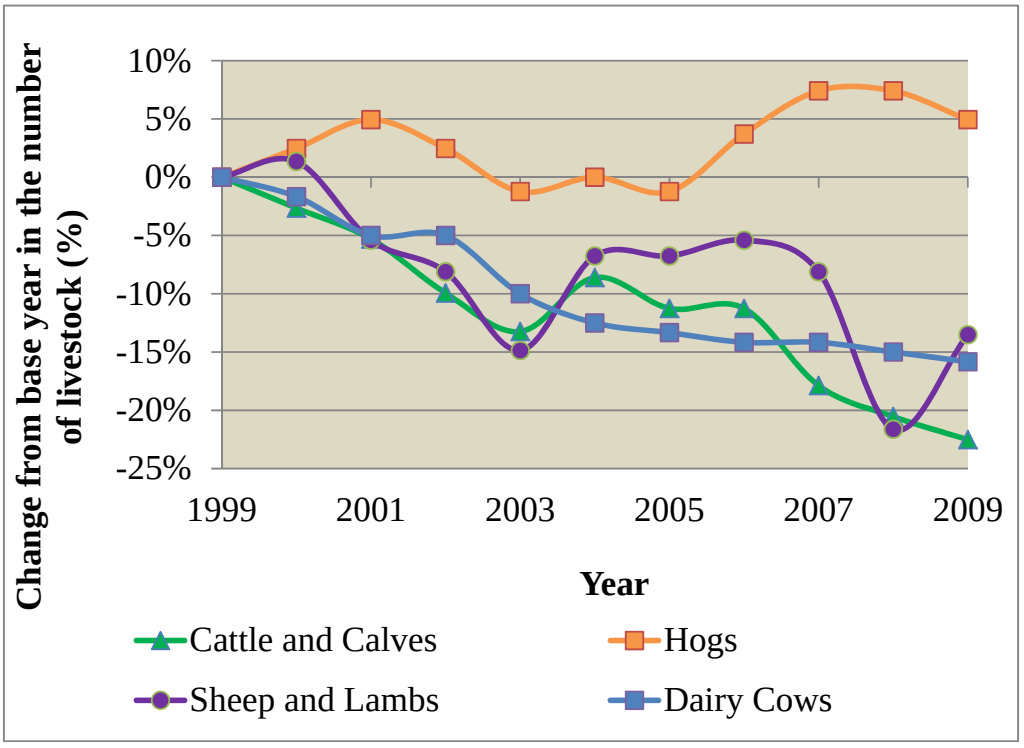
Figure 1: United States Livestock Index (base year 1998)



Source: National Agricultural Statistics Service, Annual Statistics Bulletin

Figure 2: Illinois Livestock Index (base year 1999)



Source: National Agricultural Statistics Service, Illinois Annual Statistics Bulletin

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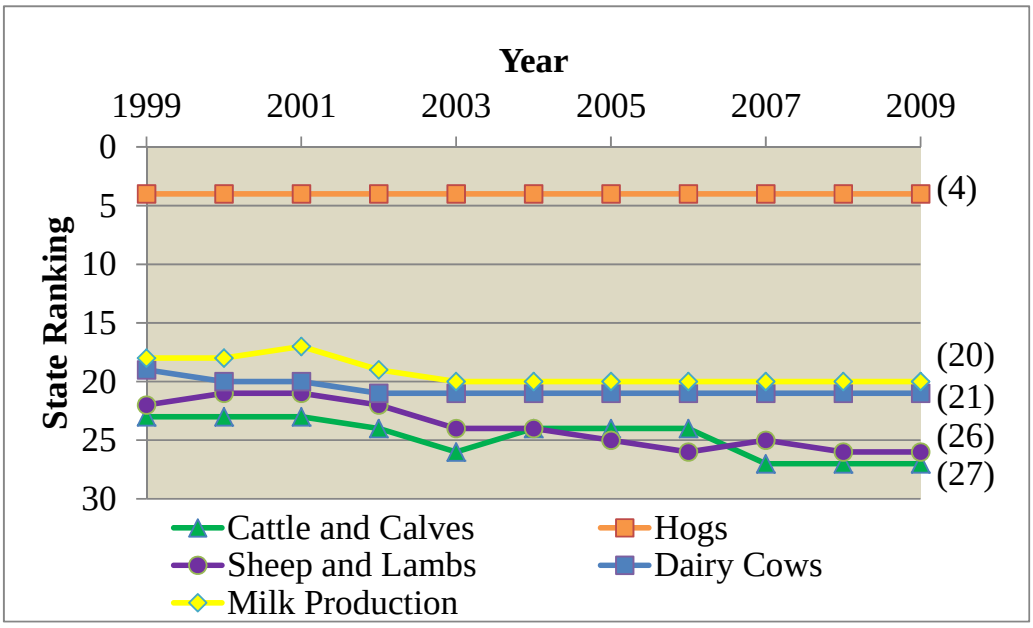
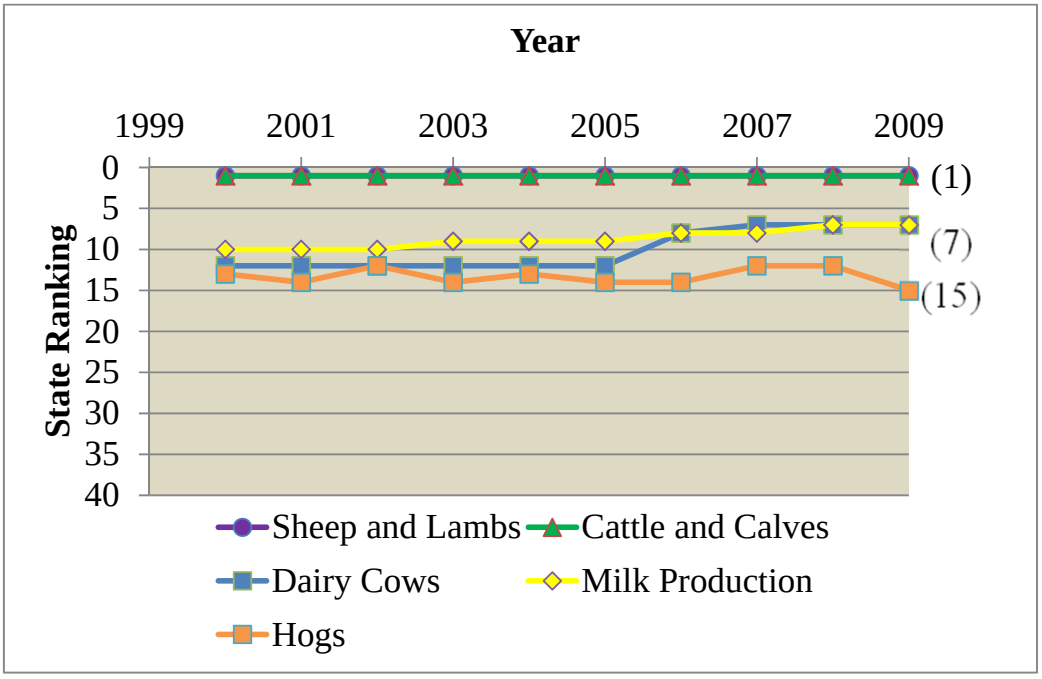
Figure 3: Illinois National Rank for Livestock Production (1999-2009)



Source: National Agricultural Statistics Service, Illinois Annual Statistics Bulletin

Figure 4: Texas Rank for Livestock Production (2000-2009)



Source: National Agricultural Statistics Service, Texas Annual Statistics Bulletin

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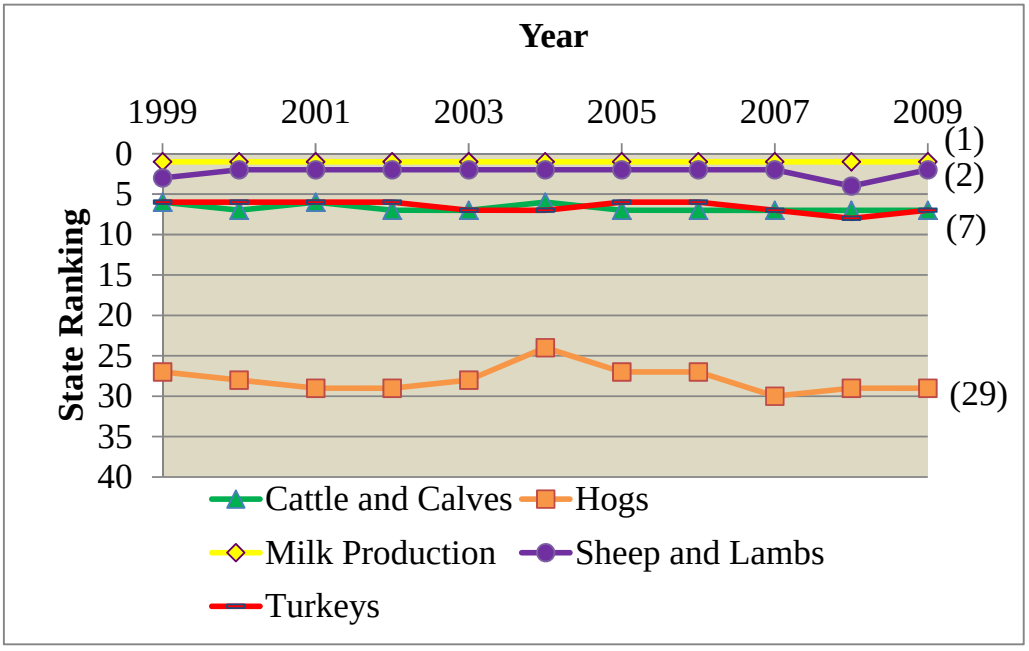
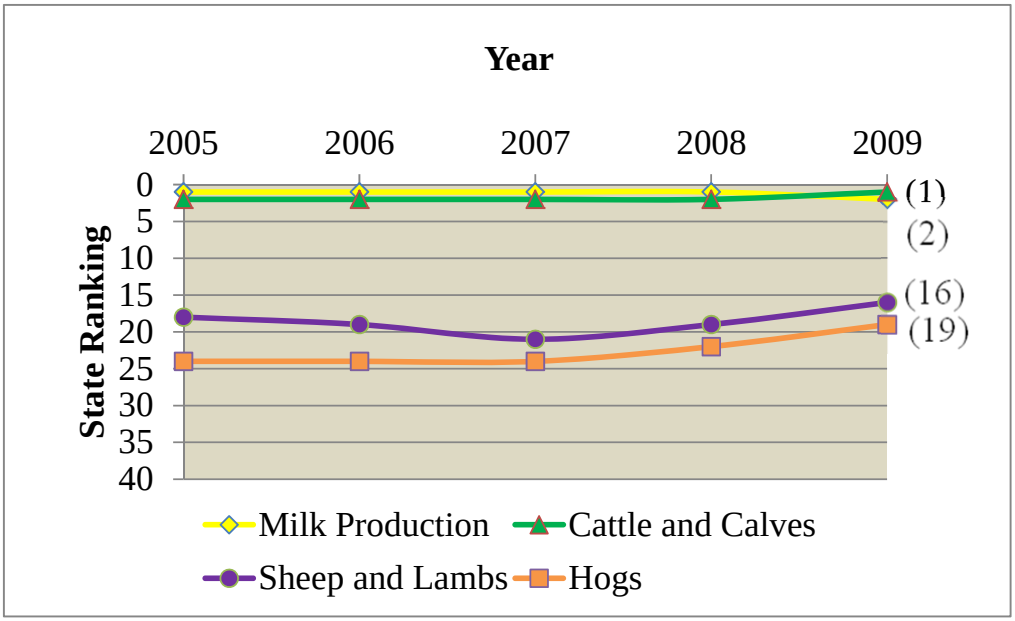
Figure 5: California Rank for Livestock Production* (1999-2009)



Source: National Agricultural Statistics Service, California Annual Statistics Bulletin

Figure 6: New Mexico Rank for Livestock Production* (2005-2009)



Source: United States Department of Agriculture, Leading Commodities by States

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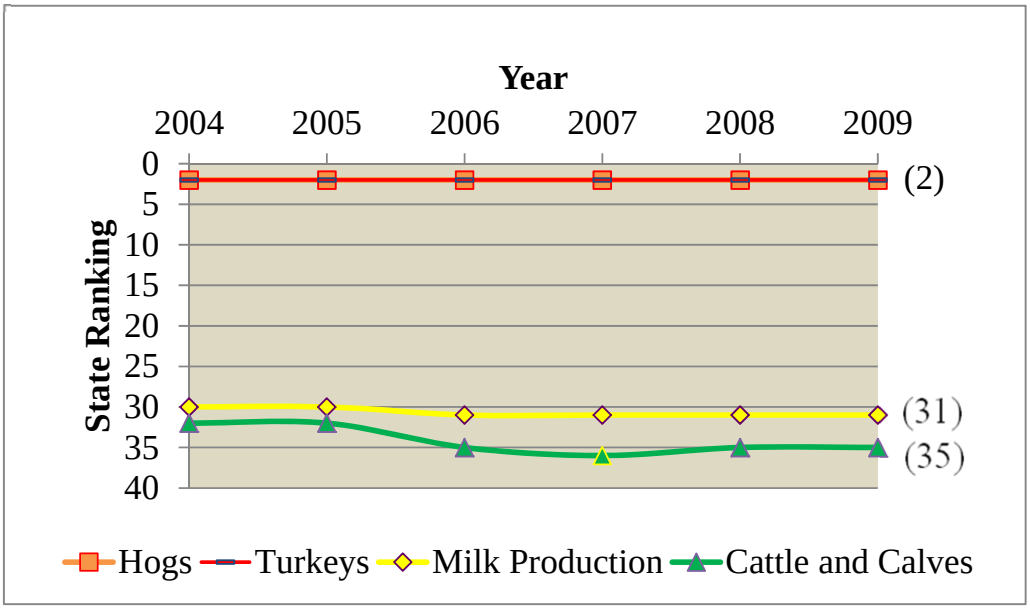
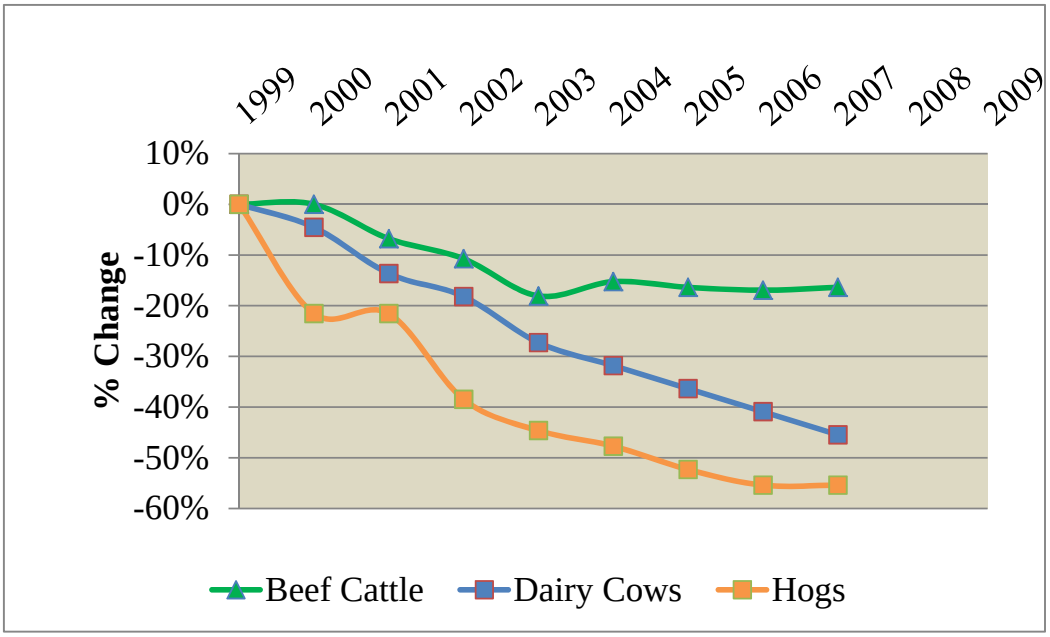
Figure 7: North Carolina Rank for Livestock Production* (2004-2009)



Source: National Agricultural Statistics Service, North Carolina Annual Statistics Bulletin

Figure 8: Change in Number of Illinois Farms since 1999: Selected Species



Source: National Agricultural Statistics Service, absence of data in 2008 and 2009

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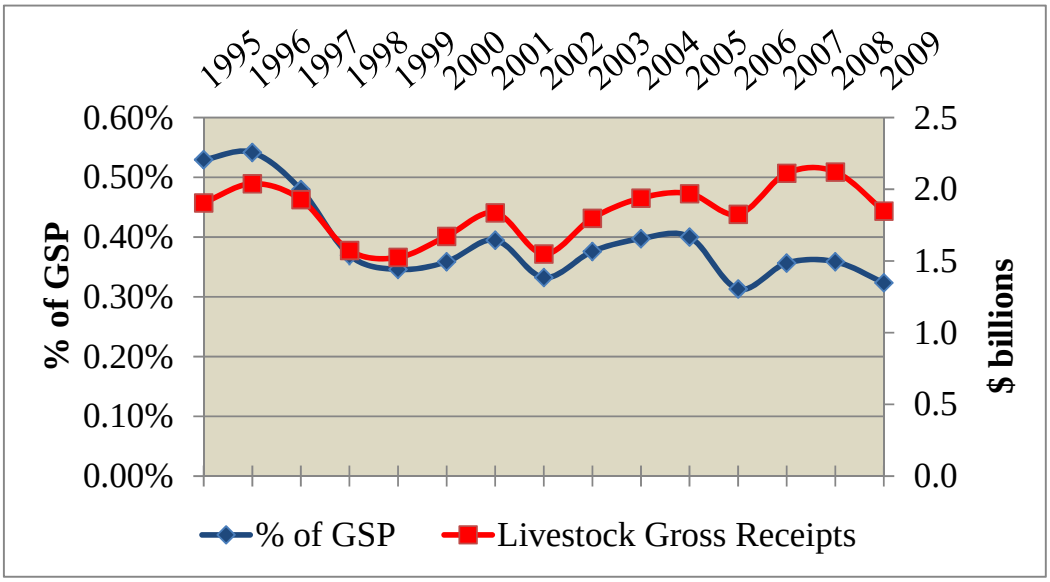
Figure 9: Illinois Gross Livestock Receipts as a Percentage of the Gross State Product (1999-2009)



Source: National Agricultural Statistics Service, Illinois Annual Statistics Bulletin, Bureau of Economic Analysis

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Figure 10. Real Change in Illinois Livestock Marketing Revenue Since 2000

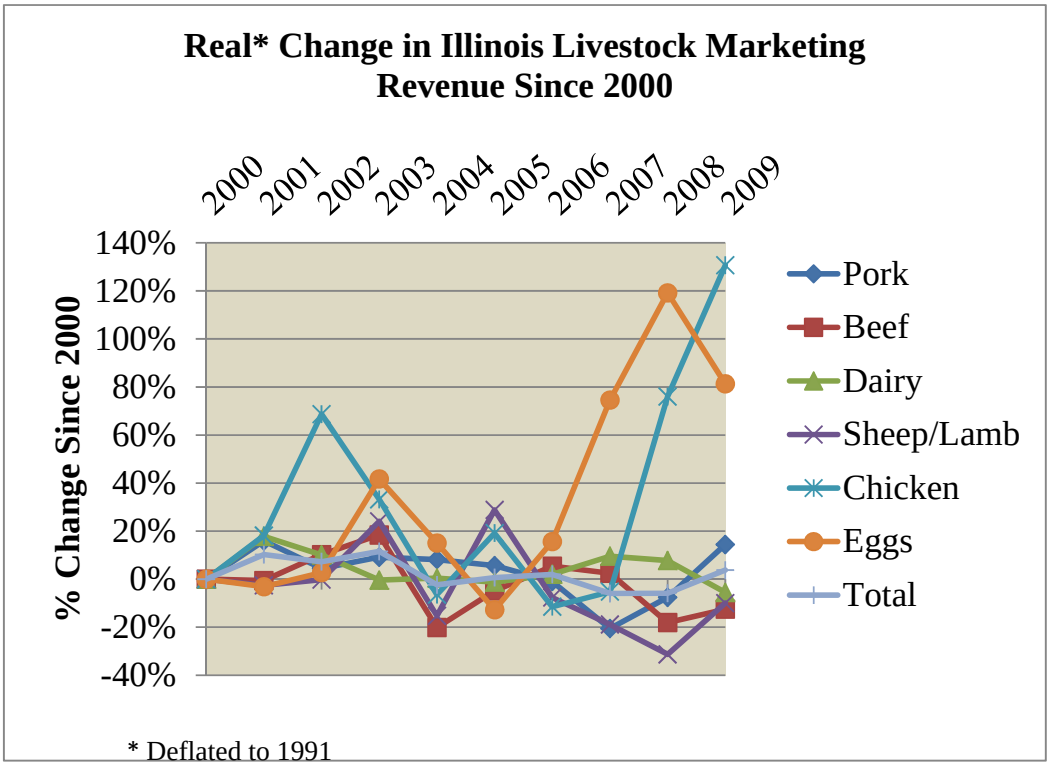

Table 1: Number of Livestock Farms in Illinois, 2007

All Livestock Farms	Number	% of Total
Cow-Calf	14,800	49%
Fed Cattle	3,700	12%
Dairy Cattle	1,200	4%
Hogs	2,900	10%
Sheep	1,900	6%
Goats	470	2%
Poultry	938	3%
Mink	7	0%
Aquaculture	29	0%
Horses	3,071	10%
Other	1,079	4%
Total	30,094	

Source: National Agricultural Statistics Service, 2007Agricultural Census, and authors' calculations

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Table 2: Number of Commercial Livestock Farms in Illinois, 2007

All Livestock Farms	Number	% of Species	% of Total
Beef Cattle (>49hd)	2,400	16%	31%
Cattle Feedlots(>100 head)	2,340	63%	30%
Dairy Cattle	1,200	100%	15%
Hogs (>99 head)	1,700	59%	22%
Sheep (>$50k sales)	8	0%	0%
Goats (>$50k sales)	NA	NA	NA
Poultry (>$50k sales)	85	9%	1%
Mink	0	0%	0%
Aquaculture (>$50k sales)	11	38%	0%
Horses (>$50K sales)	45	1%	1%
Other (>$50k sales)	22	2%	0%
Total	7,811	26%	

Source: National Agricultural Statistics Service, 2007Agricultural Census, and authors' calculations

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Section III

I. Statewide Impact of the livestock Sector

I.1. Economic Impact of Livestock

In terms of economic impact, the livestock industry is a $3.5 billion industry (Table 3). The industry sold about $1.9 billion worth of goods as measured by cash receipts. The industry directly employs 16,739 people with a total impact of 25,385 full time job equivalents. The industry annually contributes almost $292 million in local, state and federal taxes (NASS 2009 and IMPLAN, 2009). The hog industry provides over 10,000 jobs and $170 million in taxes,, the highest among the State's leading livestock species groups. The industry directly provides .35% to the Illinois economy (measured in terms of the state's total personal income) and .23% of the employment (Figure 4). The Hogs, dairy, and beef production contribute 91% of the State's livestock output, and 94% of the jobs (Figures 10 and 11).

Table 3: Economic Impact of Livestock in Illinois in 2009

	Output			Employment			Taxes	Share of State Total	
	Direct	Total	Multipl.	Direct	Total	Multipl.	Total		
	Mill. $			Mill. $			Mill. $	% PI	% Empl.
Beef	496	870	1.75	6,286	8,264	1.31	63	0.09%	0.09%
Dairy	260	529	2.04	3,451	4,639	1.34	36	0.05%	0.05%
Hog	972	1,797	1.85	5,868	10,533	1.79	170	0.18%	0.08%
Poultry	129	290	2.24	779	1,459	1.87	19	0.02%	0.01%
Others	28	52	1.85	355	491	1.38	5	0.01%	0.00%
Livestock	1,886	3,538	1.88	16,739	25,385	1.52	292	0.35%	0.23%

Source: National Agricultural Statistics Service, Illinois Annual Bulletin 2009, IMPLAN 2009, FBFM and authors' calculation

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Table 4: Illinois Industry Comparison

	Output*			Employment**		
	Direct	**Total**	**Multiplier**	**Direct**	**Total**	**Multiplier**
State Total	534,639***			7,223		
Livestock	1,886	3,538	1.88	17	25	1.52
% share@	0.35%	0.66%		0.23%	0.35%	
Agriculture	14,664	29,023	1.98	96	185	1.92
% share@	2.74%	5.43%		1.33%	2.56%	
Mining	6,778	12,556	1.85	24	59	2.46
% share@	1.27%	2.35%		0.33%	0.81%	
Construction	38,204	78,016	2.04	277	554	2.00
% share@	7.15%	14.59%		3.83%	7.66%	
Forestry	47	85	1.82	.2	.6	2.50
% share@	0.01%	0.02%		0.00%	0.01%	

* in million dollars

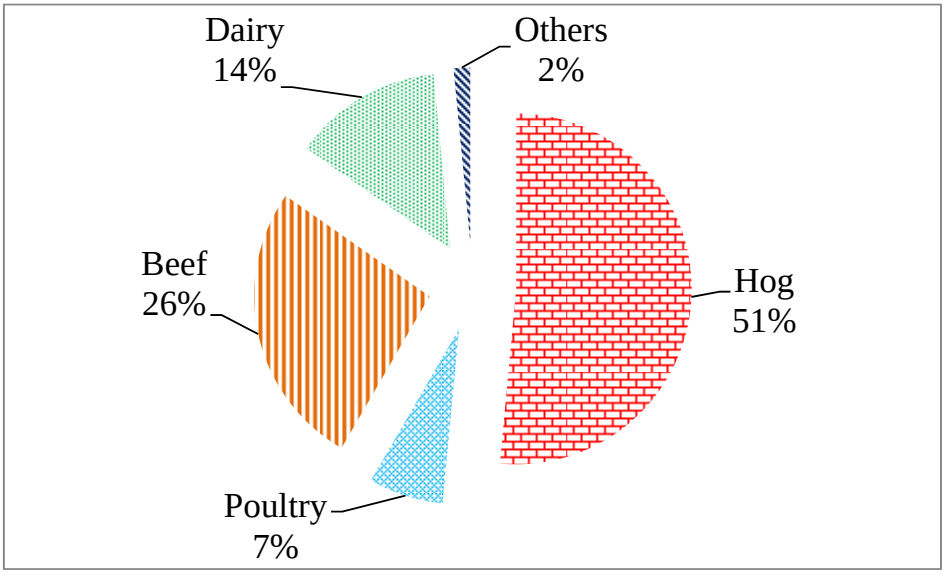
** in thousands

*** Total Personal Income (2009 Illinois Gross State Product = $635B)

@: share of total state personal income. We use total personal income here because it provides a more consistent variable for county level analyses. Gross county product, being difficult to measure, has less relevance as a metric of economic activity.

Source: IMPLAN (2009), authors' calculations

Figure 10: Distribution of Total Output by Species in Illinois in 2009



Source: National Agricultural Statistics Service, Illinois Annual Bulletin 2009 and authors' calculations

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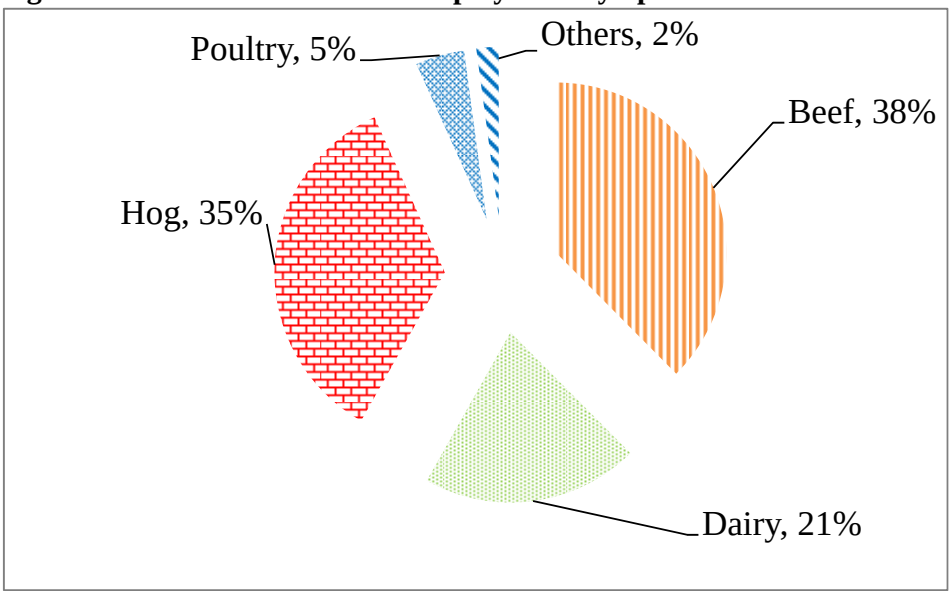
Figure 11: Distribution of Total Employment by Species in Illinois in 2009



Source: National Agricultural Statistics Service, Illinois Annual Bulletin 2009 and authors' calculations

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I.2. Inter-Industry Economic Impact: Multipliers

One useful application of input-output modeling is to better understand the interrelationship between the industry under study and other components of the economy. One important statistic concerning an industry's economic impact is its multiplying effect. The multiplier indicates how much extra-industry economic activity is generated by the industry under study. Such activity comprises two key effects: indirect effects and induced effects. Indirect effects are the ancillary purchases of goods and services, such as inputs. Induced effects are the additional purchases and economic activity contributed by employees of the industry. The livestock's multiplier effect then is the non-livestock economic activity created by one unit of livestock activity.

The state's livestock industry has an output multiplier of 1.88, meaning that for each dollar of output created, 88 cents of additional economic activity is created outside the industry (Table 3). Of our selected industries, construction has the highest output multiplier at 2.04 and the lowest is forestry at 1.82 (Table 4). Such a difference is significant on a percentage basis, for example: construction has 22% more impact on the economy than forestry, and 16% more than livestock. Construction is also a much larger industry. So its total impact is quite large; justifying its importance in the political economy and policy discussions of the State.

In terms of the employment multiplier, the poultry industry has the highest multiplier at 1.87 jobs created outside the industry for every job within the industry. However, the size of the poultry industry is small in the state, with only 26 counties having any activity. Livestock as a whole in Illinois has an employment multiplier of 1.52. Mining and forestry, with employment multipliers of 2.46 and 2.5, respectively, are over 58 percent more influential on the economy than livestock.

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I.3. Investment Analysis: Estimated impact of Additional Livestock Farm

Table 5: Effects of adding a 2,400-sow-Farrow-to-finish operation

		Direct Output	Indirect Output	% Share	Induced Output	% Share	Total Output	% Share
	Total	4,867,145	2,541,810		1,586,625		8,995,580	
	Animal production except cattle and poultry	4,867,145	130,775	5.1%	606	0.0%	4,998,526	55.6%
	External							
1	Wholesale trade	0	207,133	8.1%	71,305	4.5%	278,438	3.1%
2	Real estate	0	225,177	8.9%	99,423	6.3%	324,600	3.6%
3	Petroleum refineries	0	163,393	6.4%	20,744	1.3%	184,137	2.0%
4	Owner-occupied dwellings	0	0	0.0%	185,668	11.7%	185,668	2.1%
5	Truck transportation	0	106,138	4.2%	13,544	0.9%	119,682	1.3%
6	Oil and gas extraction	0	21,703	0.9%	3,460	0.2%	25,163	0.3%
7	Grain farming	0	92,383	3.6%	674	0.0%	93,057	1.0%
8	Other animal food manufacturing	0	494,555	19.5%	1,120	0.1%	495,676	5.5%
9	Power generation and supply	0	93,922	3.7%	22,938	1.4%	116,860	1.3%
10	Insurance carriers	0	26,266	1.0%	64,432	4.1%	90,698	1.0%
11	All other crop farming	0	13,039	0.5%	45	0.0%	13,084	0.1%
12	Monetary authorities and depository credit	0	83,878	3.3%	53,136	3.3%	137,014	1.5%
13	Farm machinery and equipment manufacturing	0	35,925	1.4%	50	0.0%	35,974	0.4%
14	Food services and drinking places	0	12,222	0.5%	74,436	4.7%	86,657	1.0%
15	Hospitals	0	0	0.0%	97,559	6.1%	97,560	1.1%
16	Offices of physicians- dentists- and other health	0	0	0.0%	75,232	4.7%	75,233	0.8%
17	Pharmaceutical and medicine manufacturing	0	157	0.0%	24	0.0%	182	0.0%
18	Rail transportation	0	28,613	1.1%	2,520	0.2%	31,133	0.3%
19	Commercial machinery repair and maintenance	0	8,991	0.4%	1,778	0.1%	10,769	0.1%
20	Veterinary services	0	474	0.0%	2,559	0.2%	3,033	0.0%
	Tax Impact: Total tax impact		851,284					
	Tax Impact: State/Local Govt. Non-Education		393,902					

Source: IMPLAN (2009), authors' calculations

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Table 6: Effects of adding a 400-cow Dairy operation

		Direct Output	Indirect Output	% Share	Induced Output	% Share	Total Output	% Share
	Total	1,025,814	829,847		233,775		2,089,436	
	Cattle ranching and farming	0	3,132.3	0.4%	51.8	0.0%	3,184.0	0.2%
	External							
1	Real estate	0	58,080.6	7.0%	14,804.9	6.3%	72,885.5	3.5%
2	Wholesale trade	0	95,266.3	11.5%	10,608.8	4.5%	105,875.1	5.1%
3	Petroleum refineries	0	40,347.5	4.9%	3,072.6	1.3%	43,420.1	2.1%
4	Veterinary services	0	20.1	0.0%	374.3	0.2%	394.4	0.0%
5	Oil and gas extraction	0	5,434.5	0.7%	512.8	0.2%	5,947.3	0.3%
6	Owner-occupied dwellings	0	0.0	0.0%	27,106.7	11.6%	27,106.7	1.3%
7	All other crop farming	0	4,445.3	0.5%	6.6	0.0%	4,451.9	0.2%
8	Power generation and supply	0	27,980.5	3.4%	3,408.4	1.5%	31,388.9	1.5%
9	Truck transportation	0	26,744.0	3.2%	1,988.0	0.9%	28,732.0	1.4%
10	Grain farming	0	27,442.9	3.3%	99.5	0.0%	27,542.5	1.3%
11	Monetary authorities and depository credit	0	23,469.1	2.8%	7,866.9	3.4%	31,336.0	1.5%
12	Insurance carriers	0	4,927.2	0.6%	9,440.9	4.0%	14,368.2	0.7%
13	Agriculture and forestry support activities	0	9,369.0	1.1%	10.5	0.0%	9,379.5	0.4%
14	Pharmaceutical and medicine manufacturing	0	110.5	0.0%	2,015.3	0.9%	2,125.7	0.1%
15	Food services and drinking places	0	3,625.8	0.4%	10,976.4	4.7%	14,602.2	0.7%
16	Hospitals	0	0.1	0.0%	14,437.9	6.2%	14,438.0	0.7%
17	Farm machinery, equipment manufacturing	0	6,877.9	0.8%	7.3	0.0%	6,885.3	0.3%
18	Offices of physicians-dentists- and other health	0	0.0	0.0%	11,128.5	4.8%	11,128.6	0.5%
19	Warehousing and storage	0	3,035.4	0.4%	472.8	0.2%	3,508.2	0.2%
20	Commercial machinery repair and maintenance	0	3,267.3	0.4%	262.1	0.1%	3,529.5	0.2%
	Tax Impact:							
	Total tax impact			140,741				
	State/Local Govt. Non-Education			68,203				

Source: IMPLAN (2009), authors' calculations

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Table 7: Effects of adding a 2,400-head Feeder operation

		Direct Output	Indirect Output	% Share	Induced Output	% Share	Total Output	% Share
	Total	2,445,171	1,349,915		492,631		4,287,718	
	Cattle ranching and farming	2,445,171	110,029	8.2%	109	0.0%	2,555,309	59.6%
	External			0.0%		0.0%		0.0%
1	Real estate	0	193,752	14.4%	31,242	6.3%	224,994	5.2%
2	Wholesale trade	0	134,827	10.0%	22,385	4.5%	157,212	3.7%
3	Petroleum refineries	0	102,941	7.6%	6,480	1.3%	109,421	2.6%
4	Veterinary services	0	82	0.0%	788	0.2%	870	0.0%
5	Oil and gas extraction	0	13,718	1.0%	1,081	0.2%	14,800	0.3%
6	Owner-occupied dwellings	0	0	0.0%	57,051	11.6%	57,051	1.3%
7	All other crop farming	0	19,603	1.5%	14	0.0%	19,617	0.5%
8	Power generation and supply	0	38,514	2.9%	7,190	1.5%	45,704	1.1%
9	Truck transportation	0	66,785	4.9%	4,187	0.8%	70,972	1.7%
10	Grain farming	0	54,906	4.1%	210	0.0%	55,116	1.3%
11	Monetary authorities and depository credit	0	119,172	8.8%	16,588	3.4%	135,760	3.2%
12	Insurance carriers	0	8,358	0.6%	19,880	4.0%	28,238	0.7%
13	Agriculture and forestry support activities	0	14,936	1.1%	22	0.0%	14,958	0.3%
14	Pharmaceutical and medicine manufacturing	0	9,261	0.7%	4,256	0.9%	13,517	0.3%
15	Food services and drinking places	0	6,685	0.5%	23,133	4.7%	29,818	0.7%
16	Hospitals	0	0	0.0%	30,443	6.2%	30,443	0.7%
17	Farm machinery, equipment manufacturing	0	3,765	0.3%	15	0.0%	3,781	0.1%
18	Offices of physicians-dentists- and other health	0	0	0.0%	23,463	4.8%	23,463	0.5%
19	Warehousing and storage	0	9,149	0.7%	997	0.2%	10,146	0.2%
20	Commercial machinery repair and maintenance	0	4,805	0.4%	552	0.1%	5,357	0.1%
	Tax Impact:							
	Total tax impact				309,650			
	State/Local Govt. Non-Education				159,199			

Source: IMPLAN (2009), authors' calculations

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I.4. Illinois Livestock Product: Supply-Demand Situation

I.4.1. Supply-Demand of Livestock Products

Illinois is a high population state with a large demand for meat and dairy products. Producers export 3% of their products outside the country and 36% to other states (Table 8). Livestock producers theoretically would supply 38% of the State's $4.6B demand, but with exports supply only 23% of the State's needs for meat and dairy products.

Table 8: Illinois Livestock Supply-Demand Situation

	Local Supply* A	Foreign Exports* B	Domestic Exports* C	In-state Availability* D=A-B-C	Total Imports* E	Total Demand* F=D+E	Local Supply A/F	State Imports E/F
Beef and Dairy	729.33	2.12	97.44	629.77	2,511.39	3,141.16	23%	80%
Poultry and Egg Production	125.62	1.00	111.96	12.66	356.16	368.82	34%	97%
All Other Animal Production	919.30	45.99	436.16	437.15	699.21	1,136.36	81%	62%
All Livestock	1,774.25	49.11	645.56	1,079.59	3,566.76	4,646.34	38%	77%

*: in million dollars

Source: IMPLAN (2009), authors' calculations

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II. The Meat and Dairy Complex

Illinois' meat and dairy processing sector generates $12.8B in direct sales (Table 9). Its total impact excluding the Illinois livestock sector is 16.4B. The sector directly employs 23,043 jobs, and has a total employment impact of 49,685. Combining both the livestock and processing sectors creates the Meat and Dairy Complex. The Complex in Illinois generates $14.6B in direct economic impact, $27.1 in total impacts (5% of the state's economy), and 98,762 jobs. The jobs impact amounts to 1.37% of Illinois' workforce.

When measured in terms of direct output, processing comprises 87% of the complex's output while livestock production contributes the remaining 13%. Over 64% of the complex's direct output originates from animal slaughter, making it the largest sub sector, more than four times larger than livestock production.

Illinois Livestock production and meat and dairy processing share tight linkages with 69% of the State's production being processed in-state (Table 10). The State's processors process over 86% of the beef and dairy production, over 50% of the hogs, but only 10% of the poultry and eggs. But Illinois processes many more meat and dairy products than can be supplied by local producers. Thus the processors have strong external linkages as they import into the State 75% of the $4B of raw material they require (Table 11). Pork processors import the lowest percentage of their needs at 59%, while poultry and egg processors import 96%. Therefore there appears to be capacity for Illinois processors to utilize additional in-state raw materials supplied by local producers.

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Table 9: Meat and Dairy Complex Overview

	Output			Employment		
	Direct*	Total*	Multiplier	Direct*	Total	Multiplier
Fluid milk and creamery butter	1,686.17	3,455.51	2.05	2,361	11,441	4.85
Cheese manufacturing	979.27	1,905.05	1.95	1,003	5,649	5.63
Condensed and evaporated milk	500.26	1,037.64	2.07	439	3,017	6.87
Ice cream and frozen dessert	171.38	366.06	2.14	407	1,413	3.47
Animal slaughtering - except poultry	8,222.54	16,053.19	1.95	17,970	62,666	3.49
Animal Fats and oils	1,158.65	2,529.77	2.18	501	5,198	10.37
Poultry processing	86.42	146.05	1.69	361	732	2.03
All Processing	12,804.69	25,493.27	1.99	23,043	90,116	3.91
% share of state	2.40%	4.77%		0.32%	1.25%	
Adjusted M&D Processing**		**16,357**	1.11		**49,685**	1.25
Beef	495.88	869.55	1.75	6,286	8,264	1.31
Dairy	259.90	529.39	2.04	3,451	4,639	1.34
Pork	972.47	1,797.34	1.85	5868	10,533	1.79
Poultry	129.37	289.70	2.24	779	1,459	1.87
Sheep and Others	28.31	52.32	1.85	355	491	1.38
All Livestock	1,885.94	3,538.30	1.88	16,739	25,385	1.52
% share of state	0.35%	0.66%		0.23%	0.35%	
Unadjusted Meat and Dairy Complex Total	14,691	29,032	1.98	39,782	115,501	2.90
Adjusted M&D Complex***		**27,146**			**98,762**	
% share of state		**5.08%**			**1.37%**	
Illinois	534,638			7,222,842		

Source: IMPLAN (2009), authors' calculations *: in million dollars. **The adjusted M&D Processing assumes that the livestock industry would exist regardless of the presence of the meat and dairy processing sectors. ***The adjusted M&D Complex assumes livestock and processing are link, thus there is no double counting.

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II.1. Industry Linkages

Table 10: Illinois Livestock and Milk Processed In-State

	Industry output* A	Total exports* B	Processed in-state* C=A-B	% processed in-state C/A
Beef and Dairy	739.75	101.45	638.30	86.3%
Poultry and Egg production	126.63	112.97	13.66	10.8%
All other Animal production (mostly pork production)	979.54	483.36	496.18	50.7%
All Livestock	2,585.66	799.22	1,786.45	69.1%

*: in million dollars

Source: IMPLAN (2009), author's calculation

Table 11: Industry-Linkage: Livestock and Meat and Dairy Processing

	INPUTS	All Livestock*		Beef & Dairy*		Poultry*		Pork & Others*	
Fluid milk & Creamery butter manufacturing	Total	459.15		459.15					
	Local	119.06	26%	119.06	26%				
	Foreign	340.08	74%	340.08	74%				
Cheese manufacturing	Total	240.90		240.90					
	Local	62.47	26%	62.47	26%				
	Foreign	178.43	74%	178.43	74%				
Dry-condensed-and evaporated dairy products	Total	89.94		89.94					
	Local	23.32	26%	23.32	26%				
	Foreign	66.62	74%	66.62	74%				
Ice cream and frozen dessert manufacturing	Total	9.73		4.75		4.99			
	Local	1.42	15%	1.23	26%	0.18	4%		
	Foreign	8.32	85%	3.52	74%	4.80	96%		
Animal-except poultry-processing	Total	3,076.21		2,198.62				877.59	
	Local	756.76	25%	398.15	18%			358.61	41%
	Foreign	2,319.45	75%	1,800.46	82%			518.98	59%
Poultry processing	Total	34.19				34.04		0.15	
	Local	1.32	4%			1.26	4%	0.06	41%
	Foreign	32.87	96%			32.79	96%	0.09	59%
All Processing	Total	3,910.13		2,993.36		39.03		877.74	
	Local	964.36	25%	604.24	20%	1.44	4%	358.67	41%
	Foreign	2,945.78	75%	2,389.12	80%	37.59	96%	519.07	59%

*: in million dollars

Source: IMPLAN (2009), author's calculation

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III. Analysis of Leading Political Units

III.1. Regional Livestock Production

Clinton County, located in south central Illinois, produces the most livestock products of any county in Illinois. It produces $123m in direct output and $169M in total output (Table 12). The industry generates annual taxes of $13m and total employment of 1,443 full time workers. The livestock industry in Jasper County, in southeastern Illinois ranks highest in terms of the share of a county's economic activity (Table 13). The industry equals 9.9% of all the personal income generated in the county.

The 93rd state legislative district, located in western Illinois, produces the most livestock products of any district in Illinois. It produces $135m in direct output and $182M in total output (Table 14). The industry generates annual taxes of $13.4m and total employment of 1,310 full time workers. The livestock industry in the 93rd district ranks highest in terms of the share of a district's economic activity (Table 15). The industry equals 3.5% of all the personal income generated in the district.

The 47th state senate district, located in western Illinois, produces the most livestock products of any district in Illinois. It produces $242m in direct output and $348M in total output (Table 16). The industry generates annual taxes of $24m and total employment of 2,389 full time workers. The livestock industry in the 47th district ranks highest in terms of the share of a district's economic activity (Table 17). The industry equals 3.5% of all the personal income generated in the county.

The 15th congressional district, located in east central and southern Illinois, produces the most livestock products of any district in Illinois. It produces $471m in direct output and $662m in total output (Table 18). The industry generates annual taxes of $46m and total employment of 5,531 full time workers. The livestock industry in the 15th district ranks highest in terms of the share of a district's economic activity (Table 19). The industry equals 2.11% of all the personal income generated in the county.

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Table 12 Top 10 Livestock Counties

Ranked by Output

		Output*			Employment			Tax Impact*
		Direct	Total	% of PI	Direct	Total	% Total	
1	Clinton	122,696	168,873	8.81%	1,089	1,443	6.54%	13,136
2	DeKalb	74,725	98,823	2.57%	663	839	1.46%	7,322
3	Stephenson	71,743	94,125	4.48%	637	768	2.71%	5,261
4	Henry	55,804	75,246	2.97%	495	647	2.63%	5,178
5	Hancock	49,774	65,014	9.08%	442	570	6.64%	5,808
6	Whiteside	47,387	68,221	2.44%	421	565	1.53%	6,121
7	Jo Daviess	47,136	68,315	5.33%	418	625	3.40%	6,061
8	Knox	45,268	54,647	2.65%	402	488	1.58%	4,270
9	Livingston	45,135	59,163	3.20%	401	480	2.13%	4,055
10	Carroll	43,136	68,926	8.93%	383	543	5.26%	4,289

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

Table 13: Top 10 Livestock Counties

Ranked by Share in Total County Personal Income

		Output*			Employment			Tax Impact*
		Direct	Total	% of PI	Direct	Total	% Total	
1	Jasper	31,835	38,346	9.93%	232	287	5.10%	2,807
2	Hancock	49,774	65,014	9.08%	442	570	6.64%	5,808
3	Carroll	43,136	68,926	8.93%	383	543	5.26%	4,289
4	Clinton	122,696	168,873	8.81%	1,089	1,443	6.54%	13,136
5	Schuyler	17,861	26,614	8.38%	148	217	3.53%	2,192
6	Washington	40,629	50,852	7.88%	190	265	2.58%	3,153
7	Pike	35,559	49,029	6.97%	349	477	4.92%	4,262
8	Greene	26,961	36,211	6.77%	196	273	4.63%	2,615
9	Cass	24,041	34,087	5.40%	187	243	2.28%	2,474
10	Cumberland	18,776	25,059	5.12%	150	197	3.32%	1,641

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

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Figure 12 Top Ten Livestock Counties
Rank by Output

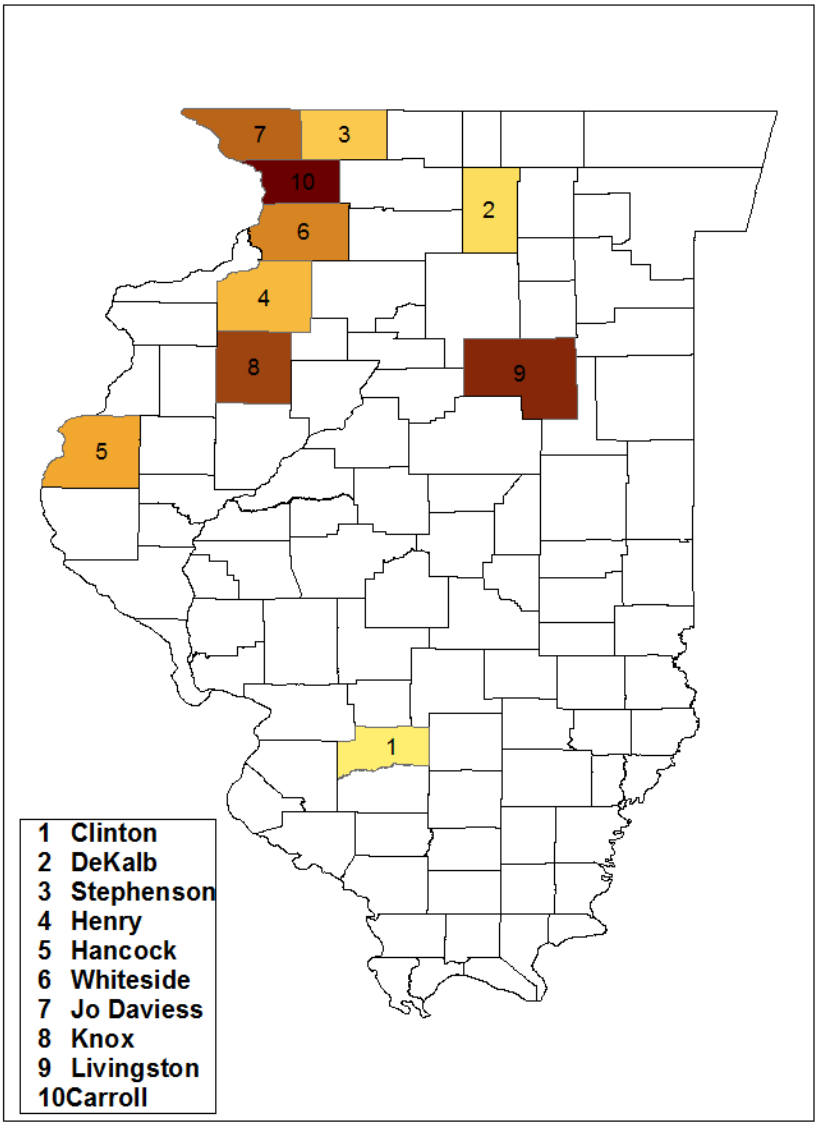

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Figure 13: Top 10 Livestock Counties
Rank by share in total county personal income

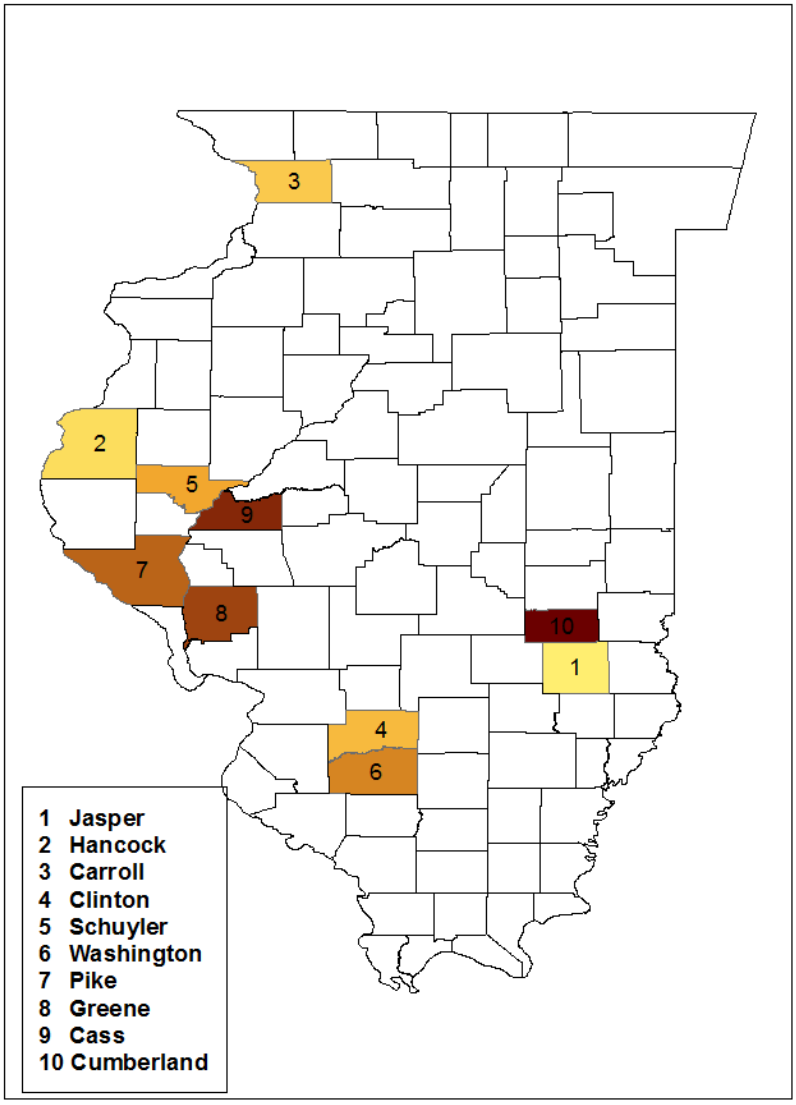

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Table 14: Top 10 Livestock Representative* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-93	134,837	182,295	3.45%	980	1,310	1.62%	13,398
2	RD-74	109,884	150,525	2.90%	799	1,128	1.89%	12,049
3	RD-89	109,364	164,696	2.25%	795	1,124	1.09%	10,170
4	RD-94	107,266	165,686	3.05%	780	1,079	1.40%	10,399
5	RD-71	106,583	150,770	2.04%	489	738	0.63%	9,038
6	RD-107	105,662	145,809	2.91%	768	1,066	1.46%	10,394
7	RD-109	103,185	137,710	3.25%	750	1,010	1.63%	9,735
8	RD-90	103,107	149,361	1.82%	750	1,023	0.96%	10,470
9	RD-100	99,855	140,161	1.65%	726	1,012	0.90%	10,937
10	RD-106	83,103	108,484	2.09%	604	771	1.25%	7,984

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 15: Top 10 Livestock Representative* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-93	134,837	182,295	3.45%	980	1,310	1.62%	13,398
2	RD-109	103,185	137,710	3.25%	750	1,010	1.63%	9,735
3	RD-94	107,266	165,686	3.05%	780	1,079	1.40%	10,399
4	RD-107	105,662	145,809	2.91%	768	1,066	1.46%	10,394
5	RD-74	109,884	150,525	2.90%	799	1,128	1.89%	12,049
6	RD-89	109,364	164,696	2.25%	795	1,124	1.09%	10,170
7	RD-106	83,103	108,484	2.09%	604	771	1.25%	7,984
8	RD-71	106,583	150,770	2.04%	489	738	0.63%	9,038
9	RD-90	103,107	149,361	1.82%	750	1,023	0.96%	10,470
10	RD-115	30,833	40,324	1.75%	224	298	0.77%	2,615

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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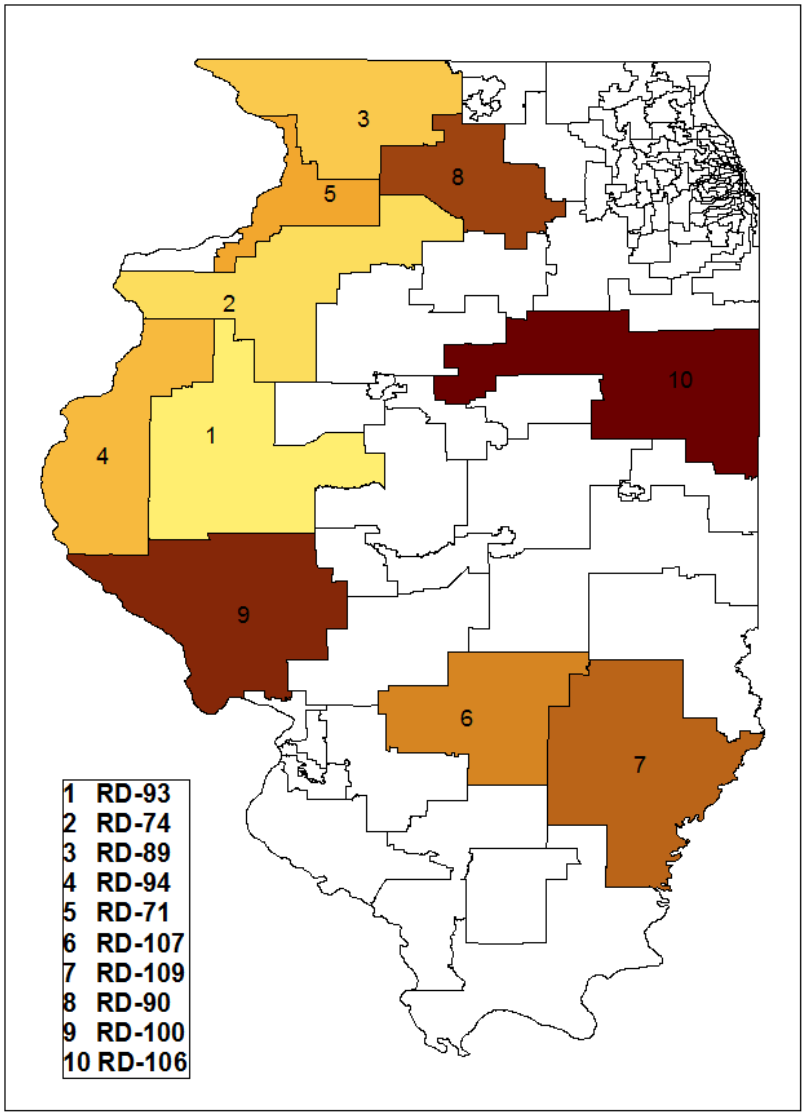
Figure 14: Top 10 Livestock Representative* Districts
Rank by Output



* 2011 political districts

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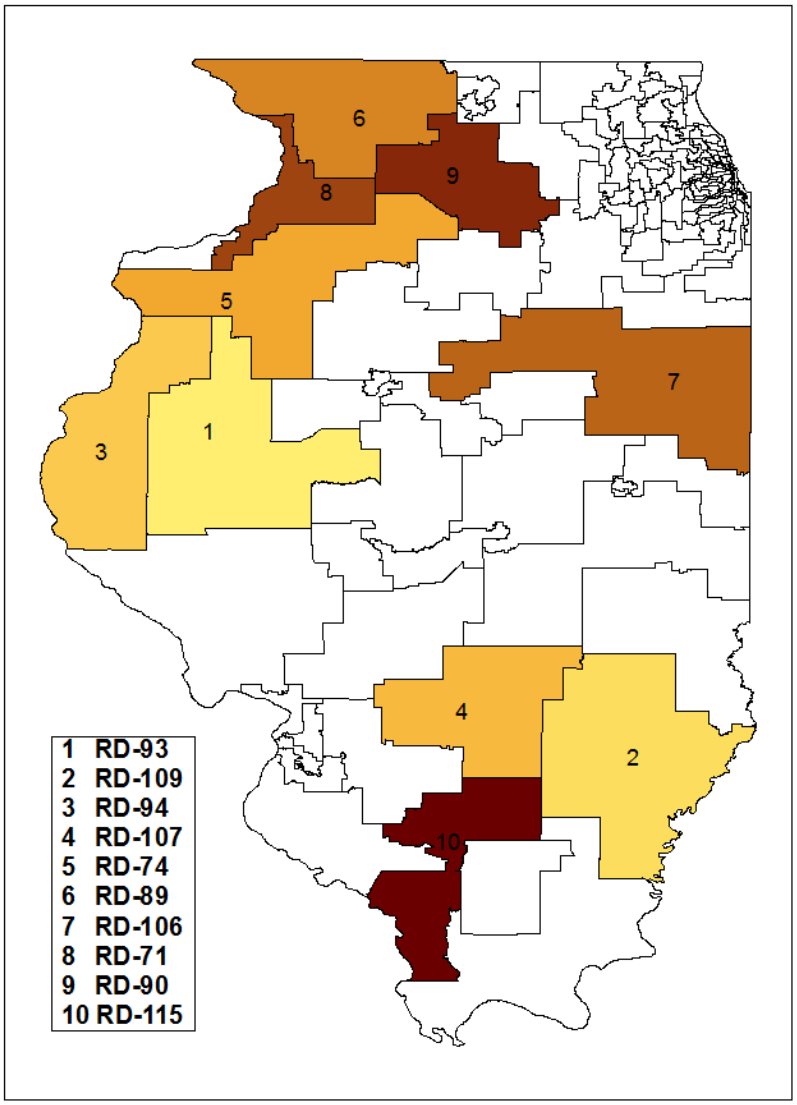
Figure 15: Top 10 Livestock Representative* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 16: Top 10 Livestock Senate* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	242,104	347,981	3.26%	1,760	2,389	1.51%	23,796
2	SD-45	212,470	314,057	2.02%	1,545	2,146	1.02%	20,640
3	SD-54	181,850	274,411	2.04%	1,322	1,913	1.13%	19,740
4	SD-55	157,512	206,293	2.29%	1,145	1,503	1.13%	14,353
5	SD-37	141,546	200,704	1.70%	1,036	1,494	1.01%	16,522
6	SD-53	118,580	157,126	1.71%	862	1,107	0.93%	11,496
7	SD-36	113,013	158,311	1.41%	532	788	0.44%	9,497
8	SD-50	104,644	146,278	1.30%	761	1,056	0.67%	11,384
9	SD-51	74,878	98,706	0.63%	545	681	0.31%	6,311
10	SD-58	71,539	103,531	0.96%	520	737	0.50%	7,019

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 17: Top 10 Livestock Senate* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	242,104	347,981	3.26%	1,760	2,389	1.51%	23,796
2	SD-55	157,512	206,293	2.29%	1,145	1,503	1.13%	14,353
3	SD-54	181,850	274,411	2.04%	1,322	1,913	1.13%	19,740
4	SD-45	212,470	314,057	2.02%	1,545	2,146	1.02%	20,640
5	SD-53	118,580	157,126	1.71%	862	1,107	0.93%	11,496
6	SD-37	141,546	200,704	1.70%	1,036	1,494	1.01%	16,522
7	SD-36	113,013	158,311	1.41%	532	788	0.44%	9,497
8	SD-50	104,644	146,278	1.30%	761	1,056	0.67%	11,384
9	SD-58	71,539	103,531	0.96%	520	737	0.50%	7,019
10	SD-59	60,063	86,354	0.93%	437	654	0.49%	5,436

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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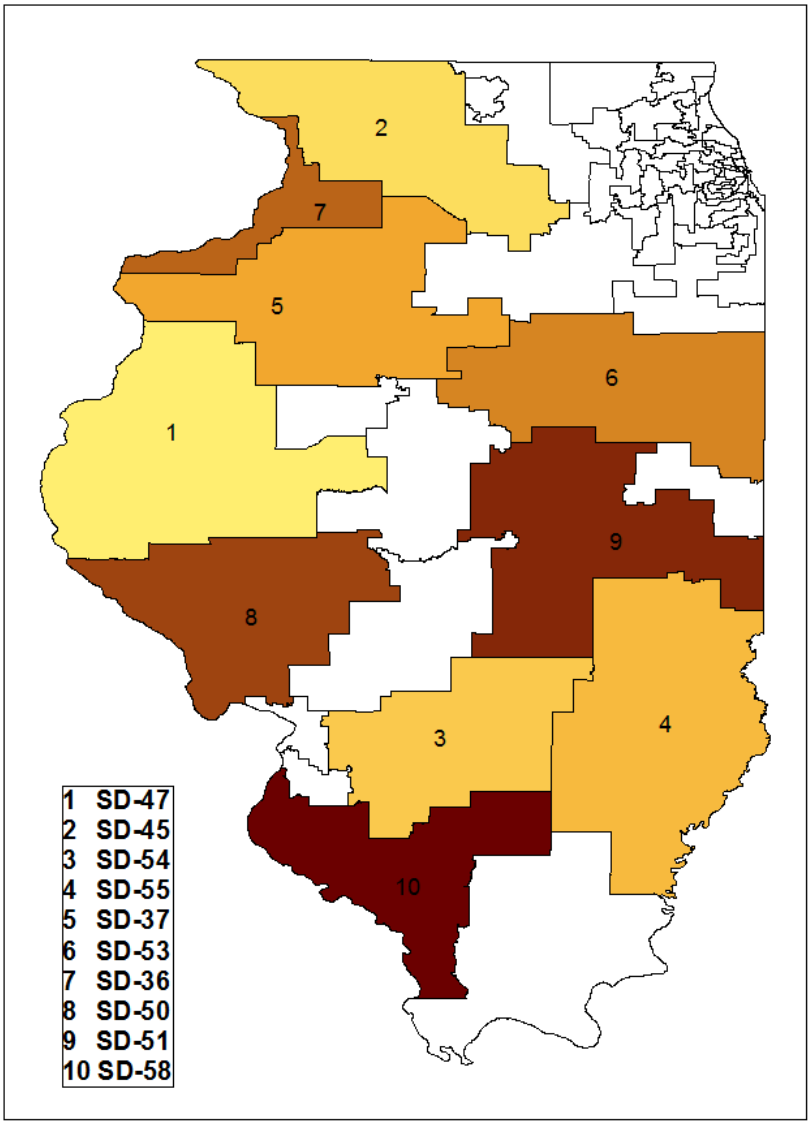
Figure 16: Top 10 Livestock Senate* Districts
Rank by Output



* 2011 political districts

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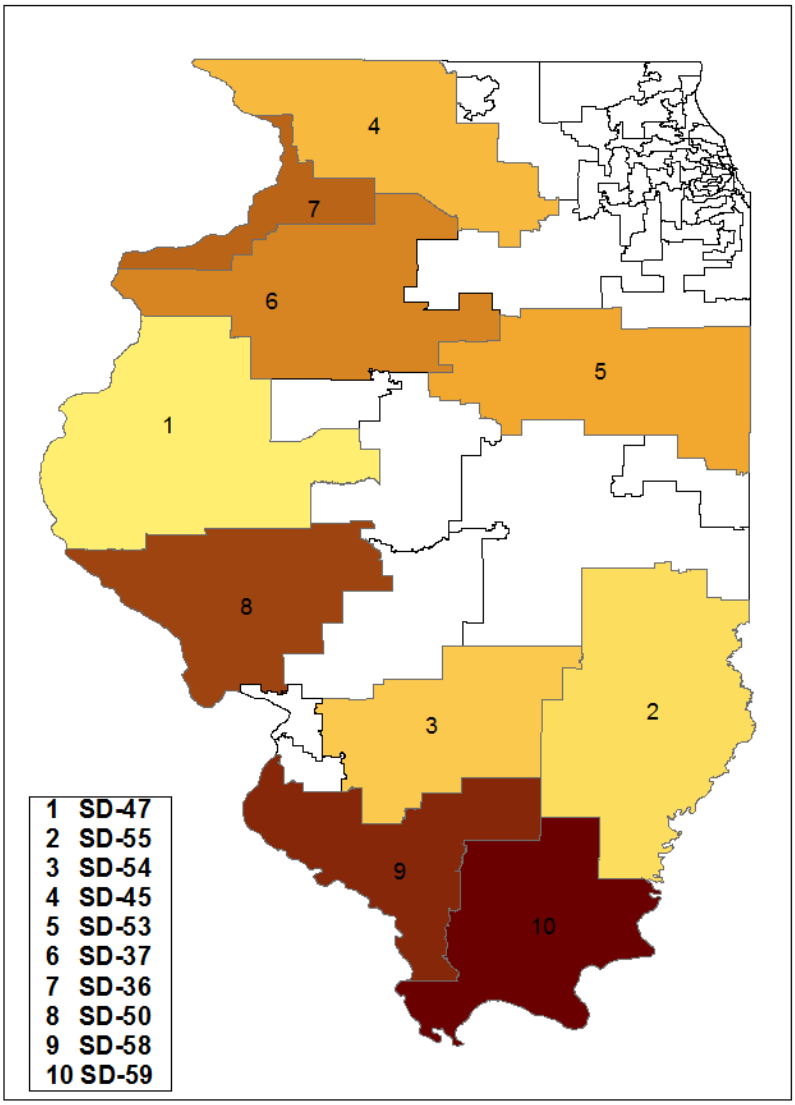
Figure 17: Top 10 Livestock Senate* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 18: Top 10 Livestock Congressional* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-15	470,923	662,230	2.11%	4,290	5,531	1.16%	46,287
2	CD-17	415,182	608,006	1.63%	3,949	5,135	1.09%	40,840
3	CD-18	307,155	504,291	1.24%	2,433	3,493	0.67%	36,551
4	CD-16	257,533	370,447	1.16%	2,152	2,841	0.70%	27,477
5	CD-13	140,943	193,649	0.65%	1,239	1,563	0.00%	13,673
6	CD-12	97,713	164,161	0.43%	917	1,302	0.26%	10,816
7	CD-14	60,530	82,606	0.16%	504	644	0.17%	6,424
8	CD-2	9,815	16,696	0.03%	124	159	0.03%	1,372
9	CD-6	8,691	15,321	0.01%	110	144	0.01%	1,240
10	CD-11	6,954	10,075	0.03%	88	107	0.03%	817

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 19: Top 10 Livestock Congressional* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-15	470,923	662,230	2.11%	4,290	5,531	1.16%	46,287
2	CD-17	415,182	608,006	1.63%	3,949	5,135	1.09%	40,840
3	CD-18	307,155	504,291	1.24%	2,433	3,493	0.67%	36,551
4	CD-16	257,533	370,447	1.16%	2,152	2,841	0.70%	27,477
5	CD-13	140,943	193,649	0.65%	1,239	1,563	0.00%	13,673
6	CD-12	97,713	164,161	0.43%	917	1,302	0.26%	10,816
7	CD-14	60,530	82,606	0.16%	504	644	0.17%	6,424
8	CD-1	2,420	3,294	0.04%	31	37	0.05%	245
9	CD-11	6,954	10,075	0.03%	88	107	0.03%	817
10	CD-2	9,815	16,696	0.03%	124	159	0.03%	1,372

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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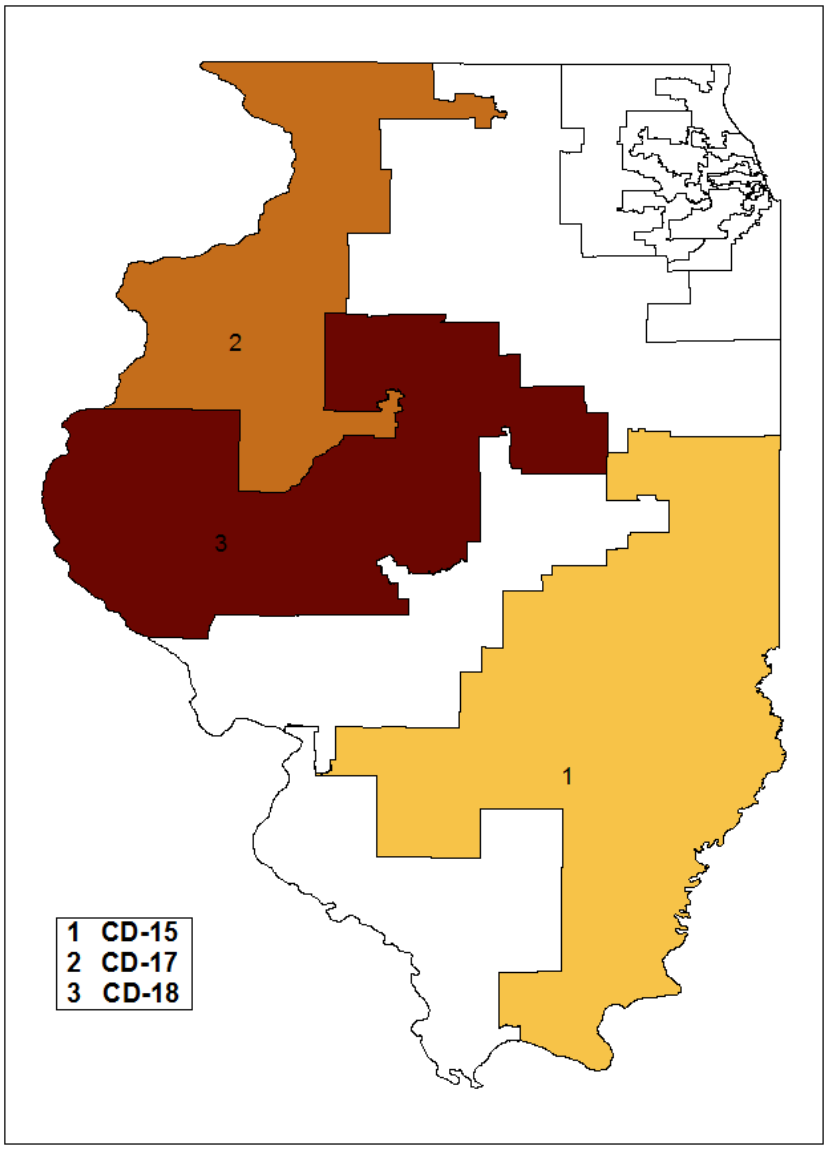
Figure 18: Top 10 Livestock Congressional* Districts
Rank by Output



* 2011 political districts

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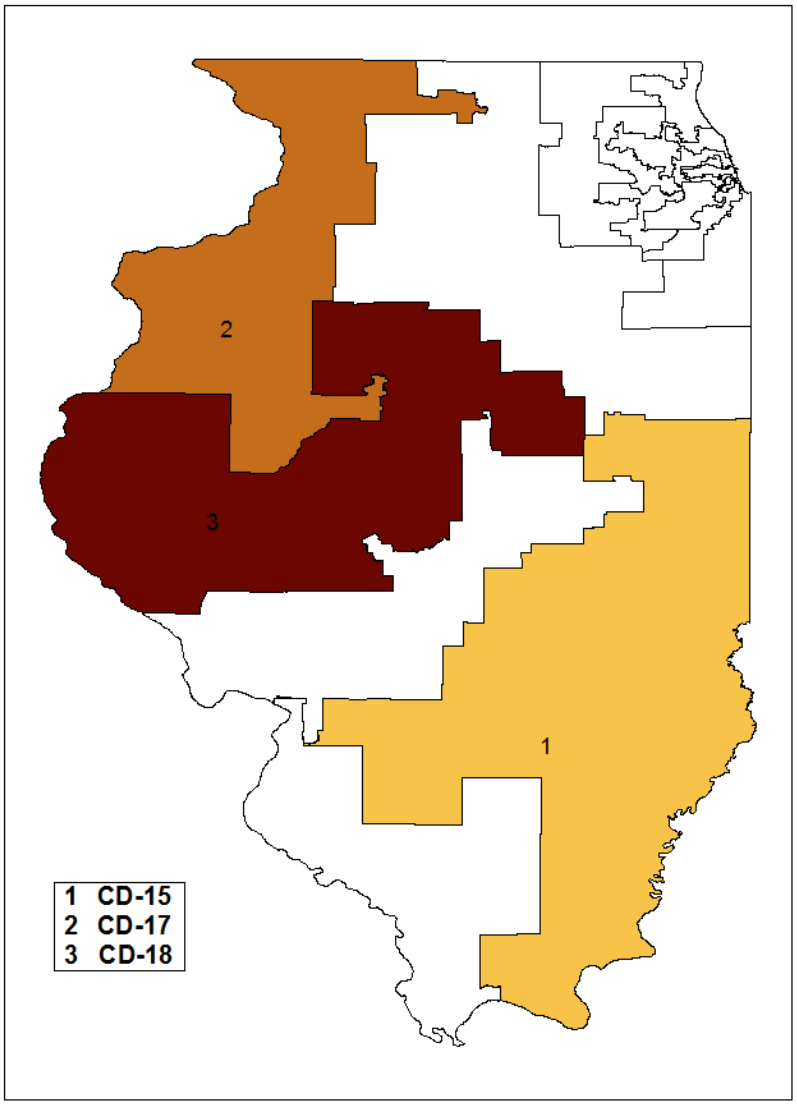
Figure 19: Top 10 Livestock Congressional* Districts
Rank by share in total county personal income



* 2011 political districts

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III.2. Beef Sector

Table 20: Top 10 Beef Counties

Ranked by Output

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	DeKalb	23,734	34,570	0.82%	45	105	0.10%	1,909
2	Carroll	23,639	42,331	4.89%	300	400	4.12%	2,386
3	Jo Daviess	21,641	36,148	2.45%	274	378	2.23%	1,995
4	Henry	21,360	33,960	1.14%	271	340	1.44%	1,725
5	Whiteside	20,266	36,040	1.04%	257	325	0.93%	1,699
6	Ogle	17,753	22,870	1.05%	225	255	1.01%	1,268
7	Stephenson	15,664	23,941	0.98%	199	243	0.85%	1,288
8	Adams	15,474	26,872	0.65%	196	260	0.47%	1,338
9	Knox	12,436	15,171	0.73%	158	178	0.62%	809
10	Fulton	11,346	20,389	0.93%	144	187	1.18%	1,071

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

Table 21: Top 10 Beef Counties

Ranked by Share in Total County Personal Income

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	Carroll	23,639	42,331	4.89%	300	400	4.12%	2,386
2	Jo Daviess	21,641	36,148	2.45%	274	378	2.23%	1,995
3	Henderson	4,729	7,573	1.67%	60	79	1.97%	482
4	Hancock	9,101	14,699	1.66%	176	203	2.64%	695
5	Brown	2,746	4,311	1.52%	35	43	0.81%	212
6	Schuyler	3,219	5,235	1.51%	41	56	0.97%	351
7	Scott	2,091	3,753	1.45%	27	34	1.36%	204
8	Washington	7,108	10,381	1.38%	90	108	1.23%	561
9	Jasper	4,300	6,237	1.34%	55	63	1.20%	291
10	Pope	1,447	2,166	1.33%	18	33	1.62%	90

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

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Figure 20: Top 10 Beef Counties
Rank by Output

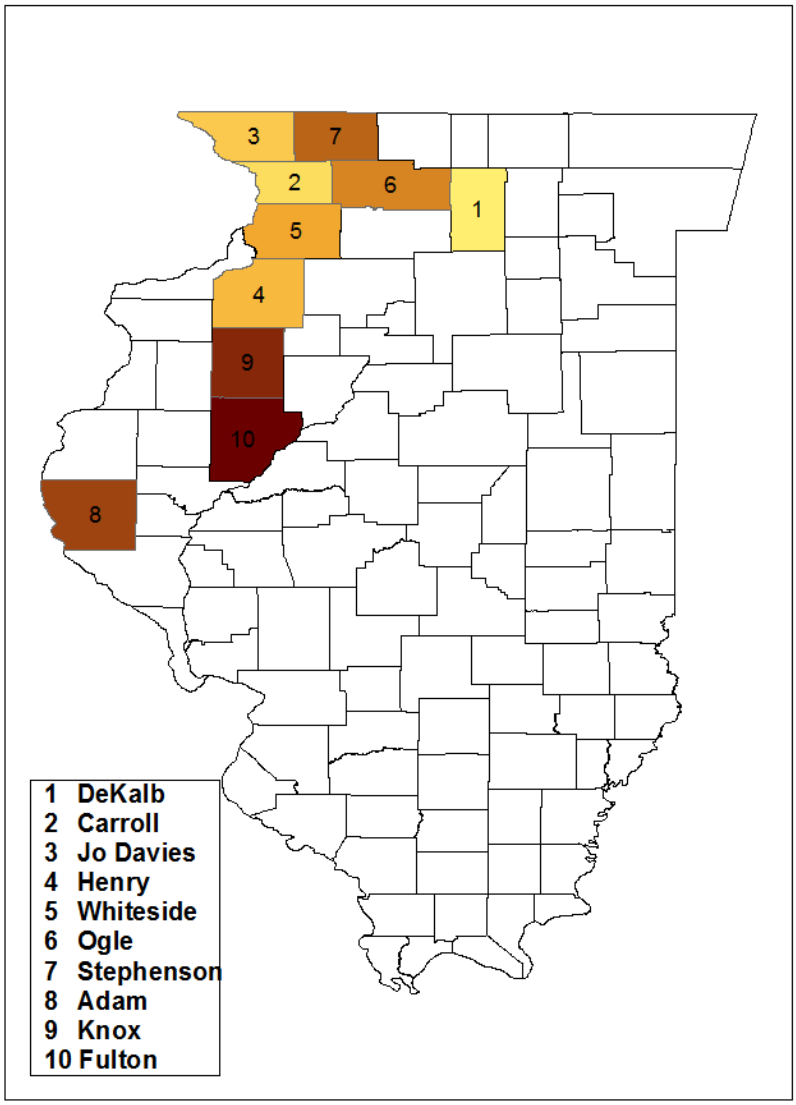

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Figure 21: Top 10 Beef Counties
Ranked by Share in Total County Personal Income

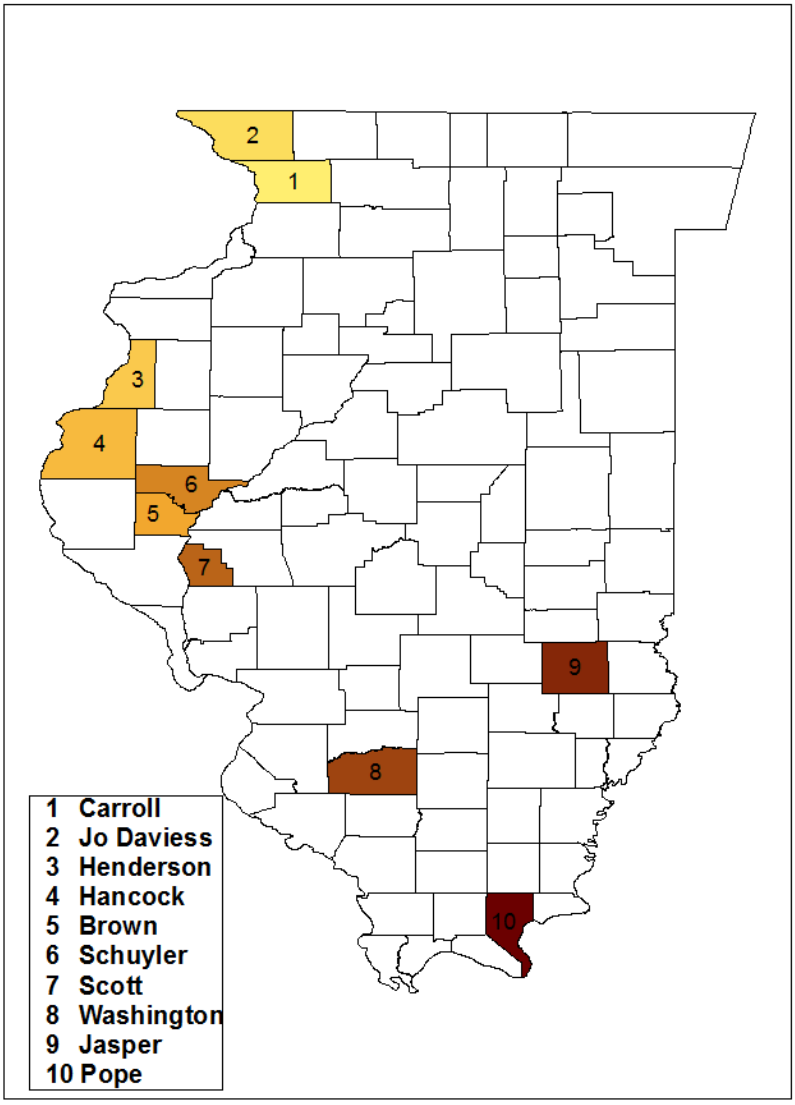

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Table 22: Top 10 Beef Representative* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-71	48,180	68,055	0.92%	611	723	0.79%	3,491
2	RD-90	36,793	53,717	0.65%	466	561	0.59%	3,048
3	RD-89	36,517	63,924	0.75%	463	623	0.63%	3,928
4	RD-93	32,145	43,646	0.82%	407	483	0.67%	2,393
5	RD-74	31,299	48,343	0.83%	397	494	0.94%	2,646
6	RD-94	29,833	40,737	0.85%	378	447	0.68%	2,014
7	RD-100	28,499	46,051	0.47%	361	458	0.45%	2,753
8	RD-107	22,640	36,243	0.62%	287	365	0.55%	2,033
9	RD-109	17,950	27,620	0.57%	227	279	0.49%	1,426
10	RD-118	17,784	30,366	0.62%	225	336	0.56%	1,624

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 23: Top 10 Beef Representative* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-71	48,180	68,055	0.92%	611	723	0.79%	3,491
2	RD-94	29,833	40,737	0.85%	378	447	0.68%	2,014
3	RD-74	31,299	48,343	0.83%	397	494	0.94%	2,646
4	RD-93	32,145	43,646	0.82%	407	483	0.67%	2,393
5	RD-89	36,517	63,924	0.75%	463	623	0.63%	3,928
6	RD-90	36,793	53,717	0.65%	466	561	0.59%	3,048
7	RD-107	22,640	36,243	0.62%	287	365	0.55%	2,033
8	RD-118	17,784	30,366	0.62%	225	336	0.56%	1,624
9	RD-109	17,950	27,620	0.57%	227	279	0.49%	1,426
10	RD-115	8,851	13,685	0.50%	112	141	0.38%	763

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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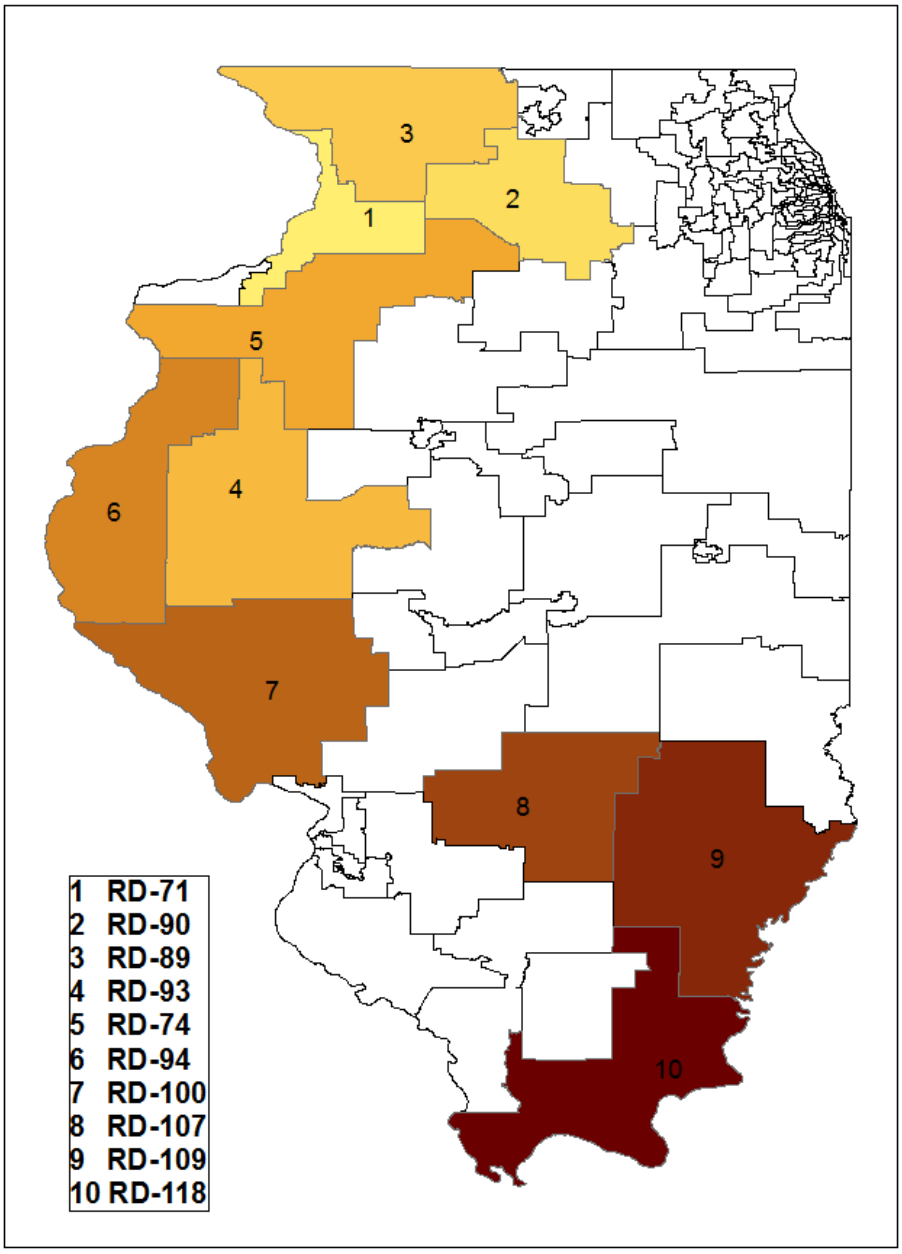
Figure 22: Top 10 Beef Representative* Districts
Rank by Output



* 2011 political districts

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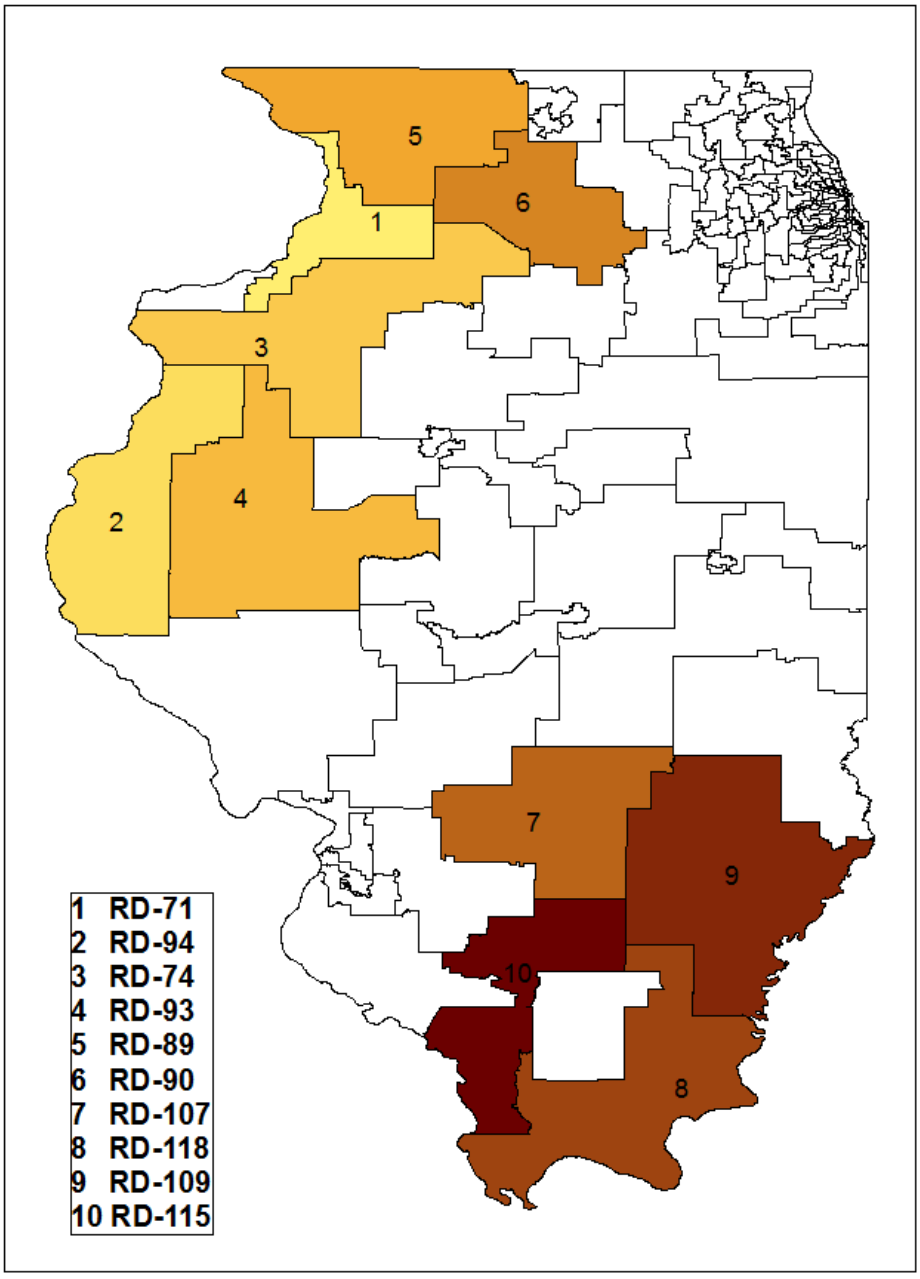
Figure 23: Top 10 Beef Representative* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 24: Top 10 Beef Senate* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-45	73,311	117,641	0.70%	929	1,185	0.61%	6,976
2	SD-47	61,978	84,383	0.83%	785	930	0.67%	4,407
3	SD-36	49,612	69,760	0.62%	629	743	0.52%	3,567
4	SD-37	37,698	59,084	0.45%	478	601	0.47%	3,352
5	SD-54	32,485	52,619	0.36%	412	526	0.35%	3,068
6	SD-50	29,812	47,895	0.37%	378	477	0.33%	2,854
7	SD-55	27,821	41,215	0.40%	352	423	0.35%	2,082
8	SD-59	24,240	40,147	0.37%	307	440	0.35%	2,120
9	SD-58	21,753	34,361	0.29%	276	353	0.27%	2,068
10	SD-51	19,327	24,419	0.16%	245	277	0.14%	1,328

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 25: Top 10 Beef Senate* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	61,978	84,383	0.83%	785	930	0.67%	4,407
2	SD-45	73,311	117,641	0.70%	929	1,185	0.61%	6,976
3	SD-36	49,612	69,760	0.62%	629	743	0.52%	3,567
4	SD-37	37,698	59,084	0.45%	478	601	0.47%	3,352
5	SD-55	27,821	41,215	0.40%	352	423	0.35%	2,082
6	SD-59	24,240	40,147	0.37%	307	440	0.35%	2,120
7	SD-50	29,812	47,895	0.37%	378	477	0.33%	2,854
8	SD-54	32,485	52,619	0.36%	412	526	0.35%	3,068
9	SD-40	5,989	7,435	0.36%	75	86	0.37%	410
10	SD-58	21,753	34,361	0.29%	276	353	0.27%	2,068

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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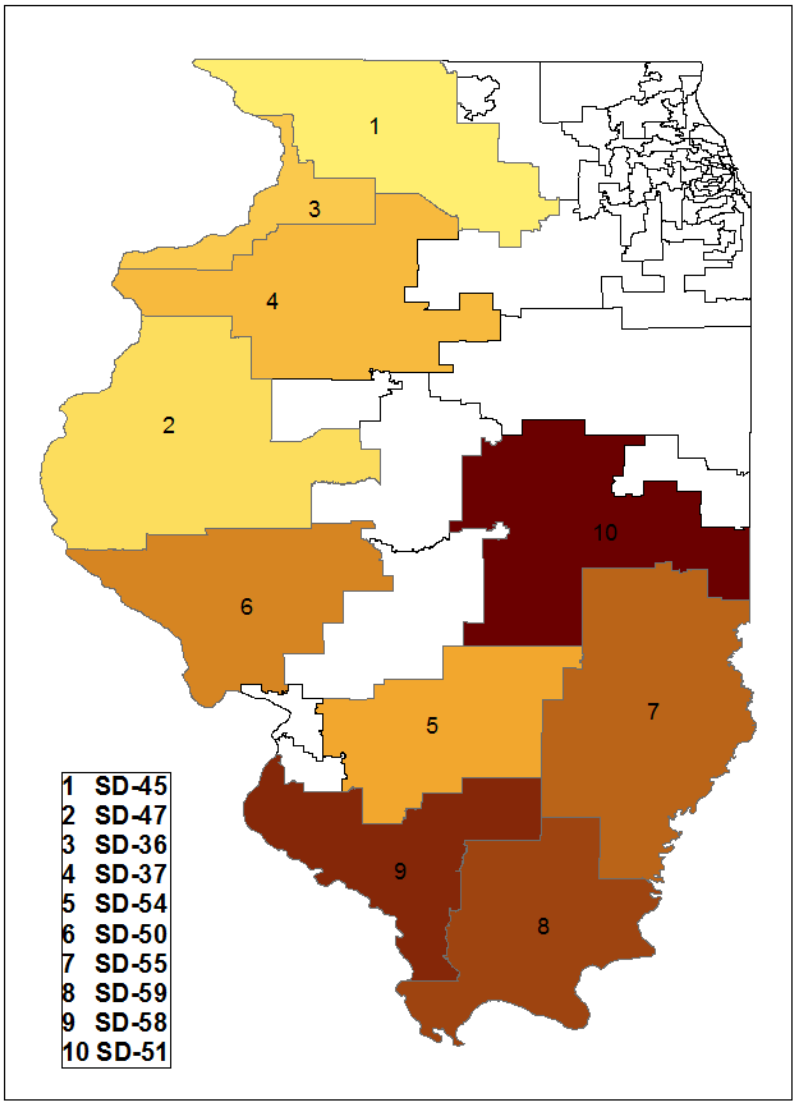
Figure 24: Top 10 Beef Senate* Districts
Rank by Output



* 2011 political districts

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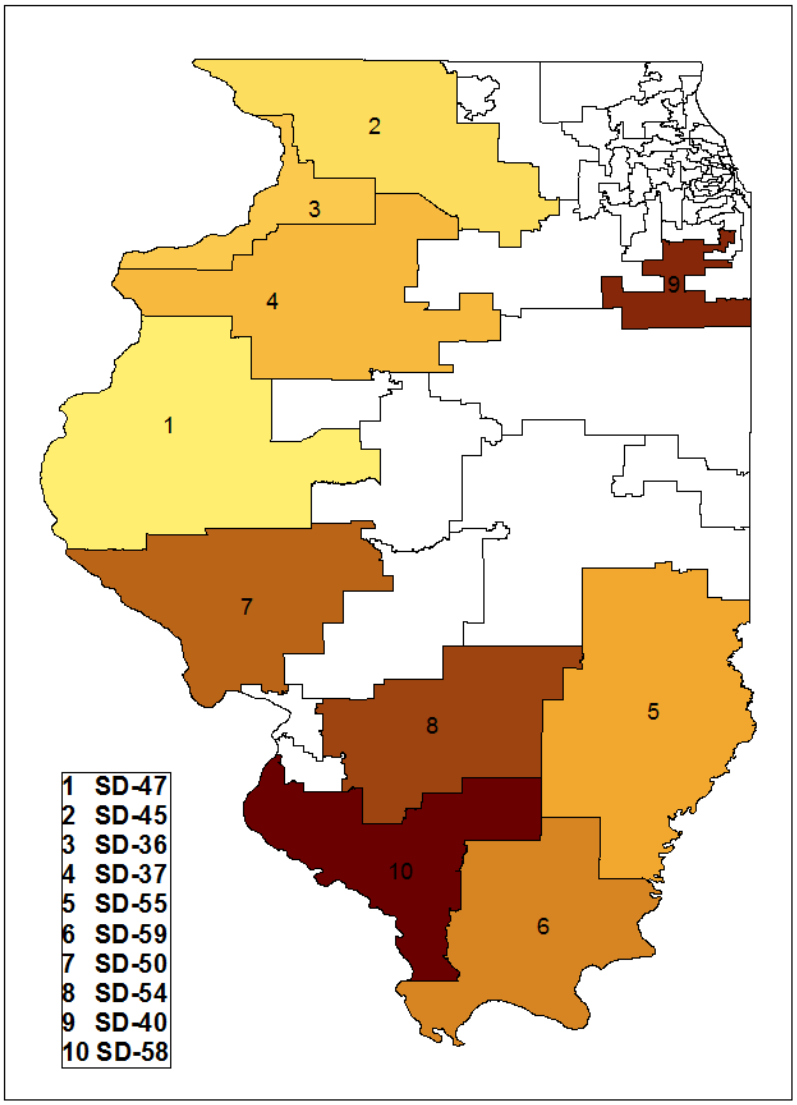
Figure 25: Top 10 Beef Senate* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 26: Congressional* Districts—Beef
Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-17	148,246	216,724	0.58%	1,879	2,295	0.52%	12,505
2	CD-15	101,446	142,645	0.46%	1,286	1,536	0.35%	7,909
3	CD-16	69,478	99,050	0.31%	881	1,049	0.29%	5,595
4	CD-18	68,110	101,785	0.28%	863	1,059	0.24%	5,960
5	CD-13	39,208	58,556	0.18%	497	595	0.00%	3,293
6	CD-12	33,097	56,123	0.15%	419	558	0.12%	3,410
7	CD-14	13,819	19,121	0.04%	175	208	0.06%	1,226
8	CD-6	4,437	7,311	0.01%	56	72	0.01%	551
9	CD-11	1,333	1,951	0.01%	17	21	0.01%	135
10	CD-2	1,327	2,129	0.00%	17	21	0.00%	150

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 27: Congressional* Districts—Beef
Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-17	148,246	216,724	0.58%	1,879	2,295	0.52%	12,505
2	CD-15	101,446	142,645	0.46%	1,286	1,536	0.35%	7,909
3	CD-16	69,478	99,050	0.31%	881	1,049	0.29%	5,595
4	CD-18	68,110	101,785	0.28%	863	1,059	0.24%	5,960
5	CD-13	39,208	58,556	0.18%	497	595	0.00%	3,293
6	CD-12	33,097	56,123	0.15%	419	558	0.12%	3,410
7	CD-14	13,819	19,121	0.04%	175	208	0.06%	1,226
8	CD-6	4,437	7,311	0.01%	56	72	0.01%	551
9	CD-11	1,333	1,951	0.01%	17	21	0.01%	135
10	CD-1	335	462	0.01%	4	5	0.01%	28

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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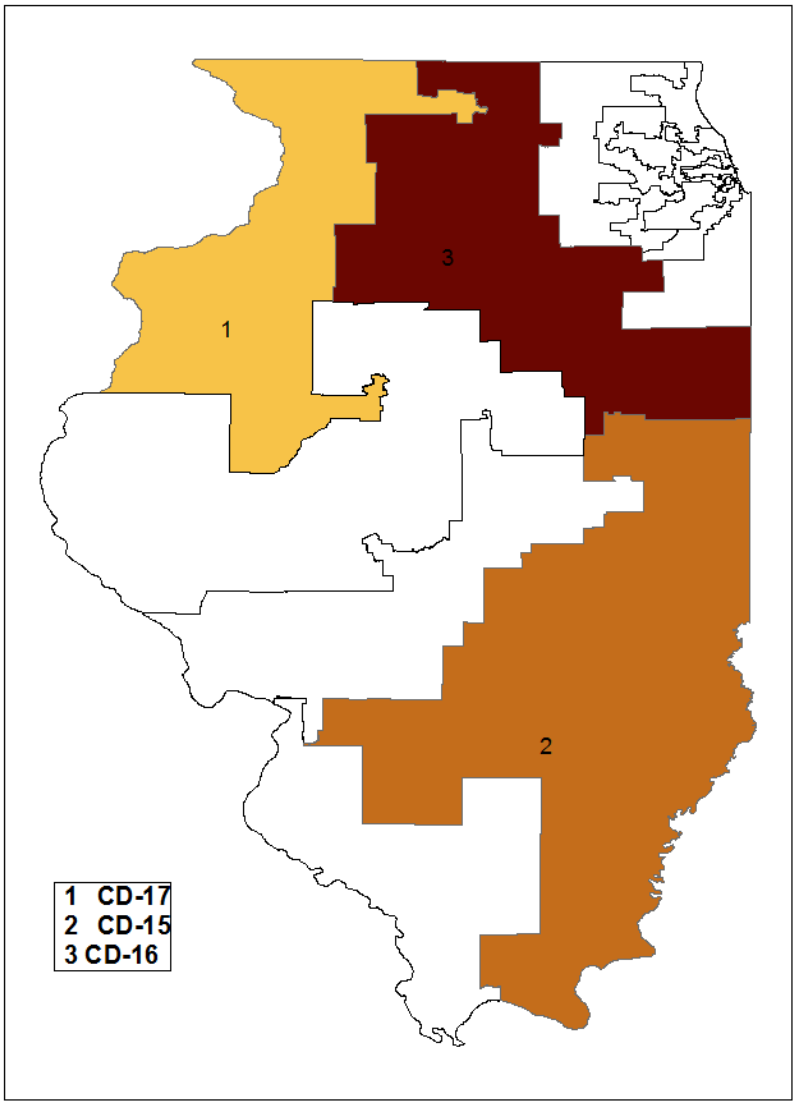
Figure 26: Top 3 Beef Congressional* Districts
Rank by Output



* 2011 political districts

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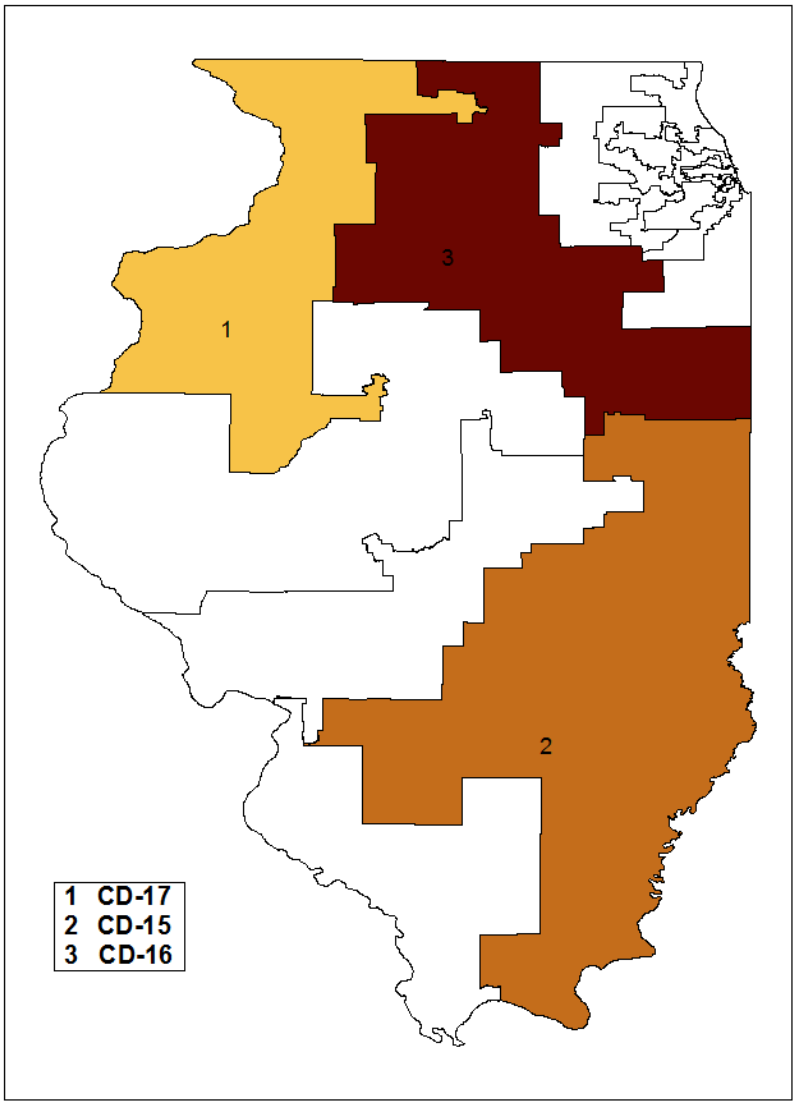
Figure 27: Top 3 Beef Congressional* Districts
Rank by share in total county personal income



* 2011 political districts

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III.3. Dairy

Table 28: Top 10 Dairy Counties

Ranked by Output

		Output*			Employment			Tax Impact*
		Direct	Total	% PI	Direct	Total	% Total	
1	Stephenson	43,488	56,649	2.71%	577	646	2.45%	2,537
2	Clinton	42,788	55,841	3.07%	556	644	3.34%	3,040
3	Jo Daviess	24,306	34,840	3.90%	323	413	3.40%	1,907
4	Washington	22,286	26,156	4.32%	296	326	4.03%	1,244
5	McLean	19,743	25,024	0.29%	262	294	0.25%	1,290
6	Effingham	16,753	20,832	1.42%	222	251	0.92%	1,045
7	Carroll	13,177	20,375	2.73%	175	215	2.40%	1,003
8	McHenry	11,014	13,398	0.10%	143	161	0.12%	734
9	Shelby	8,188	9,322	1.15%	109	117	1.47%	372
10	Bond	7,198	8,401	1.25%	96	105	1.39%	410

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

Table 29: Top 10 Dairy Counties (change format)

Ranked by Share in Total County Personal Income

		Output			Employment			Tax Impact
		Direct	Total	% of PI	Direct	Total	% Total	
1	Washington	22,286	26,156	4.32%	296	326	4.03%	1,244
2	Jo Daviess	24,306	34,840	3.90%	323	413	3.40%	1,907
3	Clinton	42,788	55,841	3.07%	556	644	3.34%	3,040
4	Carroll	13,177	20,375	2.73%	175	215	2.40%	1,003
5	Stephenson	43,488	56,649	2.71%	577	646	2.45%	2,537
6	Cumberland	6,884	9,154	1.88%	91	105	2.02%	432
7	Effingham	16,753	20,832	1.42%	222	251	0.92%	1,045
8	Bond	7,198	8,401	1.25%	96	105	1.39%	410
9	Shelby	8,188	9,322	1.15%	109	117	1.47%	372
10	Jasper	2,201	2,512	0.69%	29	31	0.64%	111

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

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Figure 28: Top 10 Dairy Counties
Rank by Output

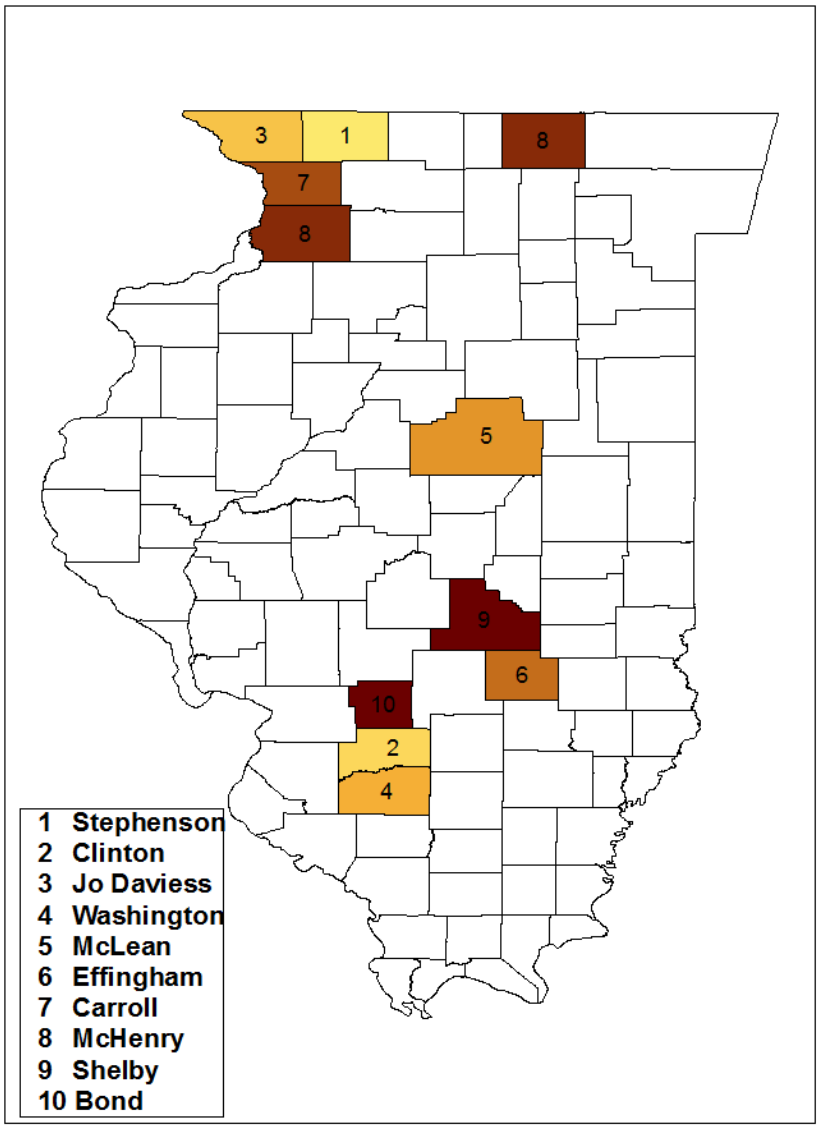

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Figure 29: Top 10 Dairy Counties
Ranked by Share in Total County Personal Income

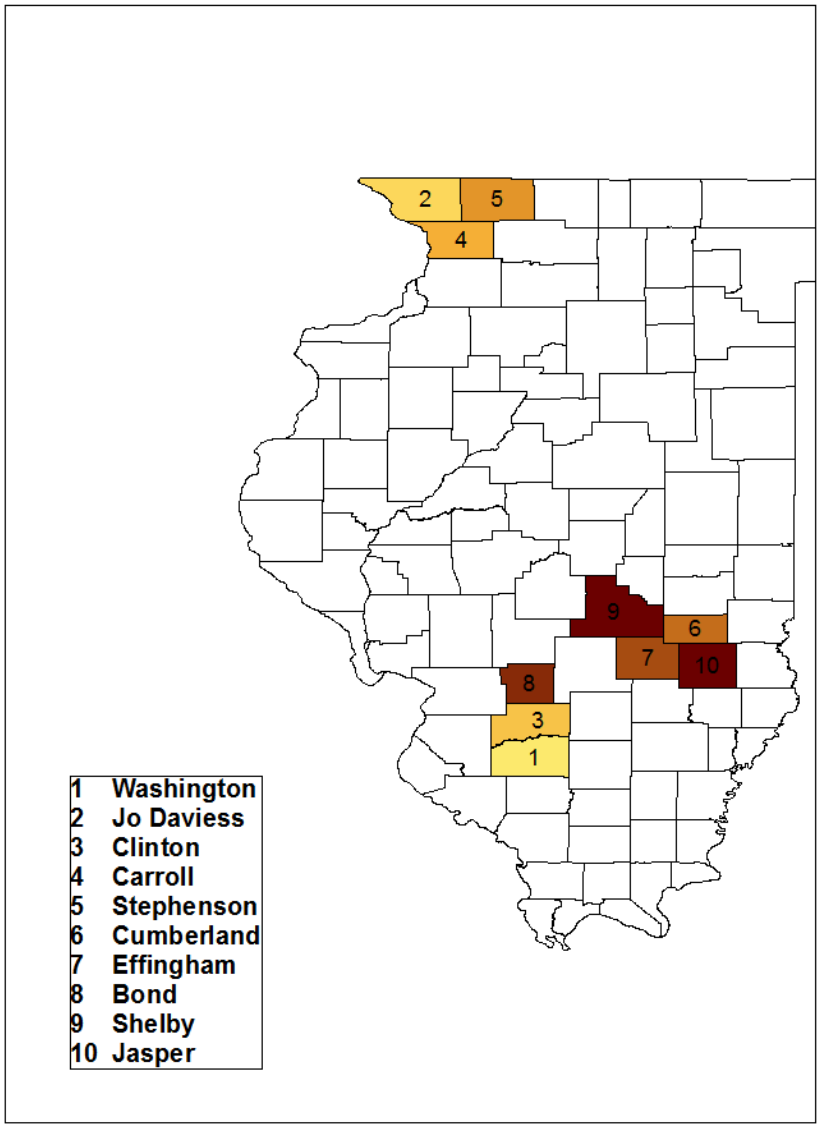

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Table 30: Top 10 Dairy Representative* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-89	49,088	75,633	1.01%	622	763	0.85%	4,107
2	RD-107	35,889	47,230	0.99%	455	528	0.87%	2,521
3	RD-108	30,701	51,215	0.58%	389	486	0.60%	2,856
4	RD-102	11,920	15,525	0.23%	151	168	0.20%	691
5	RD-71	10,734	16,217	0.21%	136	162	0.18%	738
6	RD-115	9,424	11,564	0.53%	125	141	0.43%	602
7	RD-116	7,272	11,472	0.13%	92	115	0.12%	648
8	RD-110	6,508	8,071	0.18%	83	91	0.15%	341
9	RD-109	6,079	7,832	0.19%	77	87	0.17%	372
10	RD-105	5,775	7,919	0.20%	73	84	0.16%	400

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 31: Top 10 Dairy Representative* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-89	49,088	75,633	1.01%	622	763	0.85%	4,107
2	RD-107	35,889	47,230	0.99%	455	528	0.87%	2,521
3	RD-108	30,701	51,215	0.58%	389	486	0.60%	2,856
4	RD-115	9,424	11,564	0.53%	125	141	0.43%	602
5	RD-102	11,920	15,525	0.23%	151	168	0.20%	691
6	RD-71	10,734	16,217	0.21%	136	162	0.18%	738
7	RD-105	5,775	7,919	0.20%	73	84	0.16%	400
8	RD-109	6,079	7,832	0.19%	77	87	0.17%	372
9	RD-110	6,508	8,071	0.18%	83	91	0.15%	341
10	RD-94	5,139	8,823	0.15%	65	81	0.12%	383

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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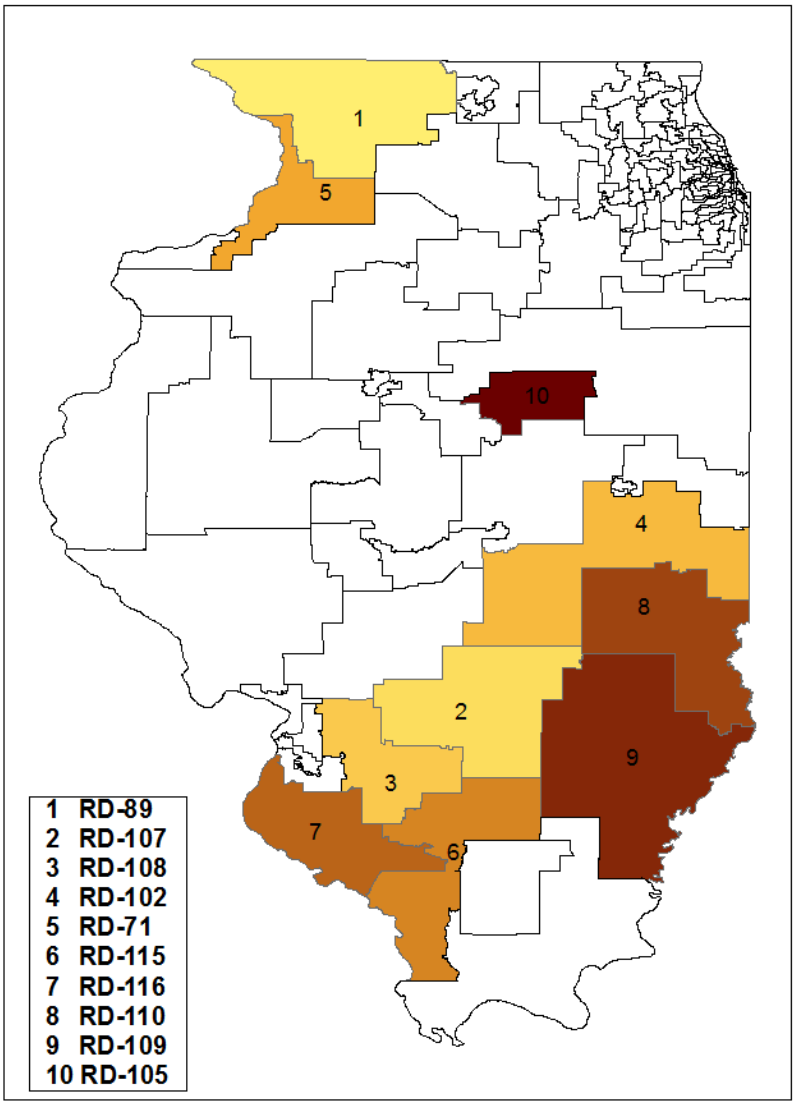
Figure 30: Top 10 Dairy Representative* Districts
Rank by Output



* 2011 political districts

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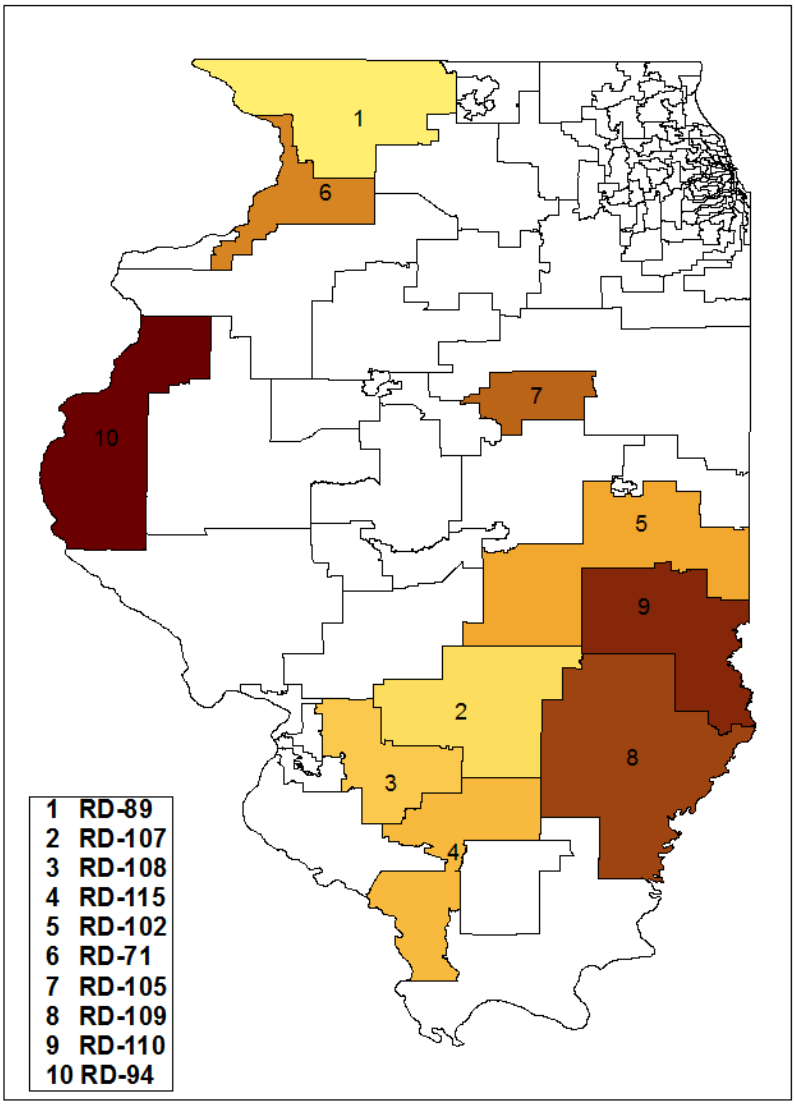
Figure 31: Top 10 Dairy Representative* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 32: Top 10 Dairy Senate* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-54	66,589	98,445	0.75%	844	1,015	0.72%	5,377
2	SD-45	54,562	83,939	0.52%	692	846	0.46%	4,541
3	SD-51	17,004	22,457	0.14%	215	241	0.12%	1,047
4	SD-58	16,696	23,036	0.22%	217	257	0.21%	1,250
5	SD-55	12,587	15,903	0.18%	160	178	0.16%	713
6	SD-36	11,047	16,581	0.14%	140	166	0.12%	753
7	SD-53	9,984	13,372	0.14%	127	144	0.14%	648
8	SD-47	9,402	14,797	0.13%	119	144	0.10%	667
9	SD-44	5,880	7,464	0.06%	75	85	0.06%	384
10	SD-35	5,235	7,923	0.08%	66	80	0.07%	429

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 33: Top 10 Dairy Senate* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-54	66,589	98,445	0.75%	844	1,015	0.72%	5,377
2	SD-45	54,562	83,939	0.52%	692	846	0.46%	4,541
3	SD-58	16,696	23,036	0.22%	217	257	0.21%	1,250
4	SD-55	12,587	15,903	0.18%	160	178	0.16%	713
5	SD-53	9,984	13,372	0.14%	127	144	0.14%	648
6	SD-51	17,004	22,457	0.14%	215	241	0.12%	1,047
7	SD-36	11,047	16,581	0.14%	140	166	0.12%	753
8	SD-47	9,402	14,797	0.13%	119	144	0.10%	667
9	SD-35	5,235	7,923	0.08%	66	80	0.07%	429
10	SD-34	4,103	6,381	0.08%	52	63	0.06%	336

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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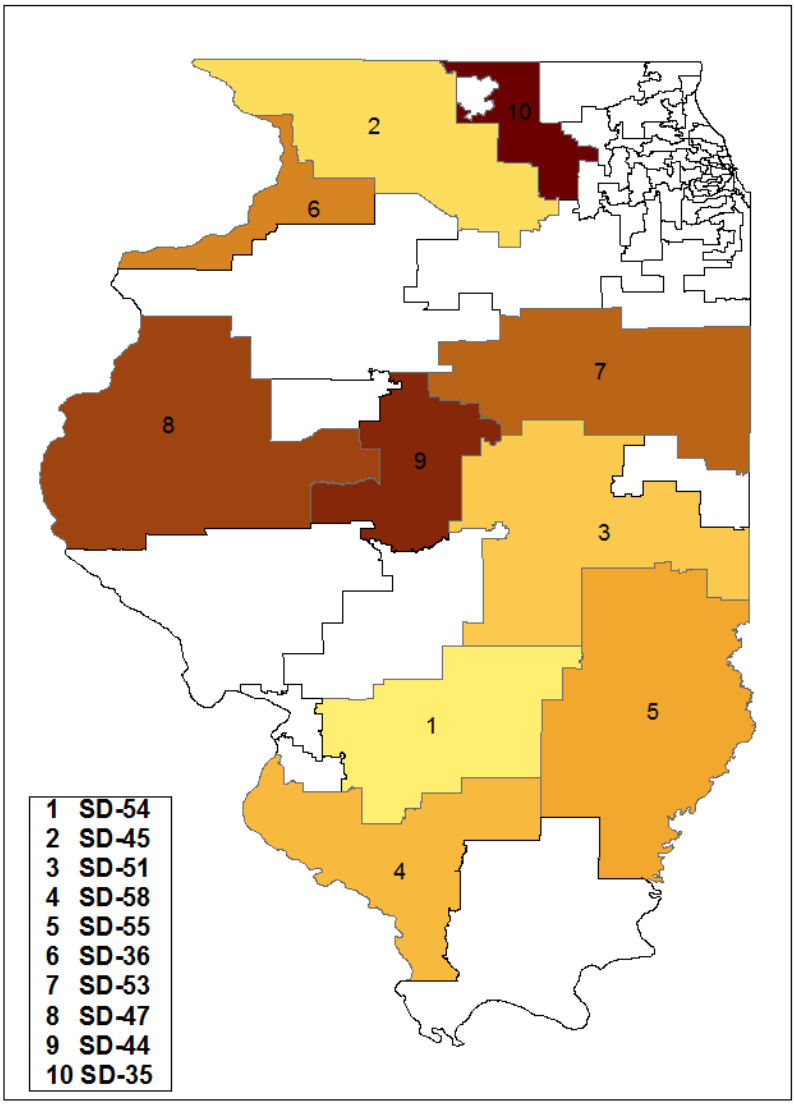
Figure 32: Top 10 Dairy Senate* Districts
Rank by Output



* 2011 political districts

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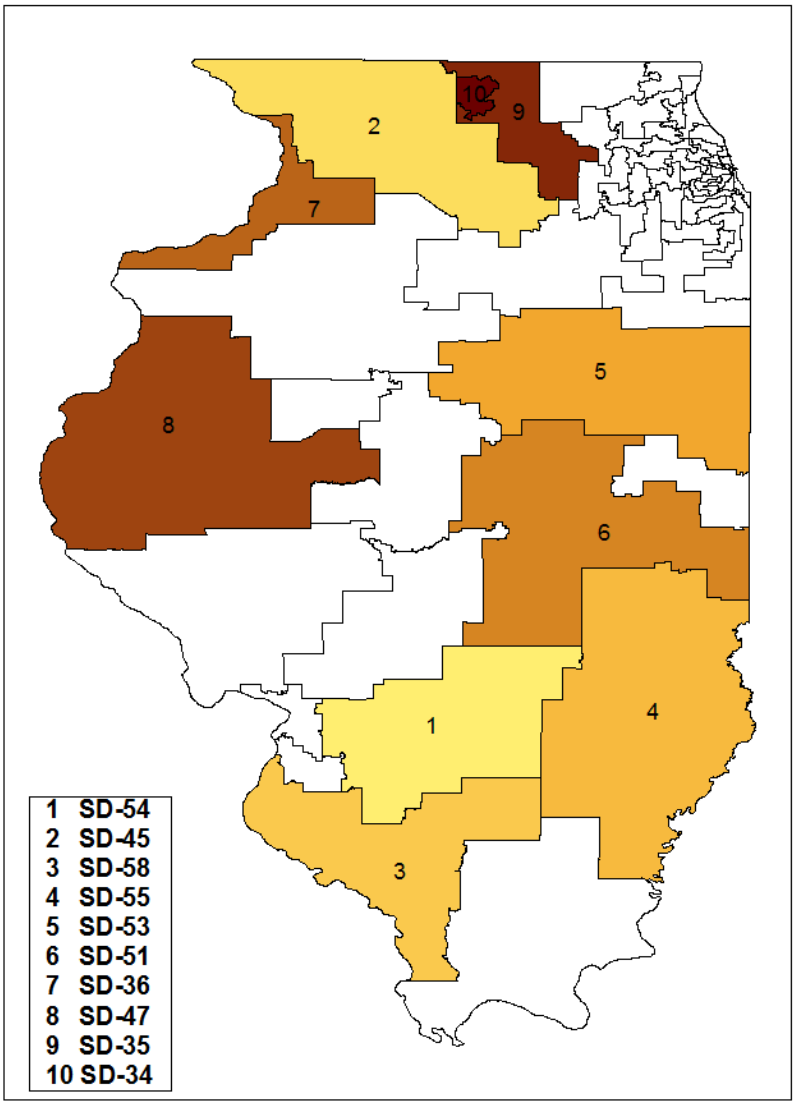
Figure 33 : Top 10 Dairy Senate* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 34: Congressional* Districts—Dairy
Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-15	103,384	144,661	0.46%	1,372	1,593	0.37%	**7,383**
2	CD-17	63,346	96,923	0.25%	841	1,020	0.23%	5,186
3	CD-16	18,852	27,957	0.08%	250	294	0.08%	1,423
4	CD-18	17,510	31,056	0.07%	232	292	0.06%	1,637
5	CD-13	16,358	21,768	0.08%	217	246	0.00%	1,115
6	CD-12	14,904	25,229	0.07%	198	249	0.06%	1,345
7	CD-14	6,537	9,121	0.02%	87	102	0.03%	534
8	CD-2	5,636	10,296	0.02%	71	91	0.02%	657
9	CD-6	4,553	8,594	0.01%	58	77	0.01%	595
10	CD-11	993	1,466	0.00%	13	15	0.00%	94

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 35: Congressional Districts—Dairy
Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-15	103,384	144,661	0.46%	1,372	1,593	0.37%	7,383
2	CD-17	63,346	96,923	0.25%	841	1,020	0.23%	5,186
3	CD-16	18,852	27,957	0.08%	250	294	0.08%	1,423
4	CD-13	16,358	21,768	0.08%	217	246	0.00%	1,115
5	CD-18	17,510	31,056	0.07%	232	292	0.06%	1,637
6	CD-12	14,904	25,229	0.07%	198	249	0.06%	1,345
7	CD-14	6,537	9,121	0.02%	87	102	0.03%	534
8	CD-2	5,636	10,296	0.02%	71	91	0.02%	657
9	CD-6	4,553	8,594	0.01%	58	77	0.01%	595
10	CD-1	335	462	0.01%	4	5	0.01%	28

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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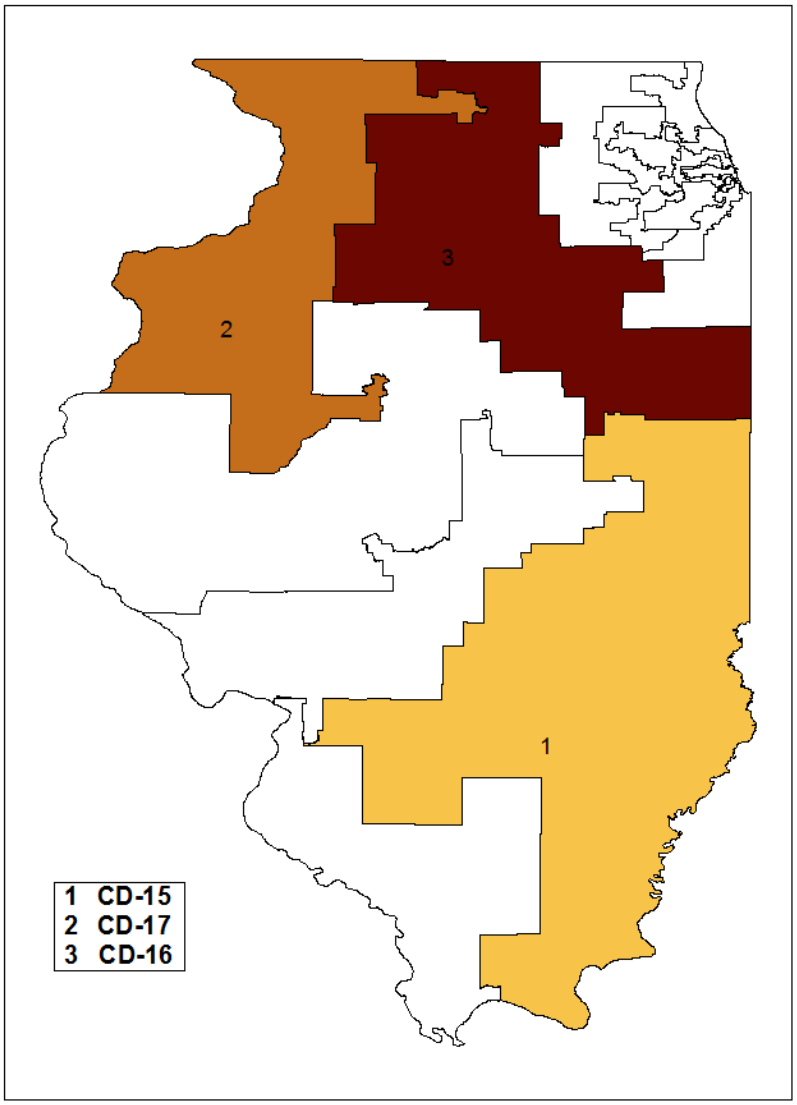
Figure 34: Top 3 Dairy Congressional* Districts
Rank by Output



* 2011 political districts

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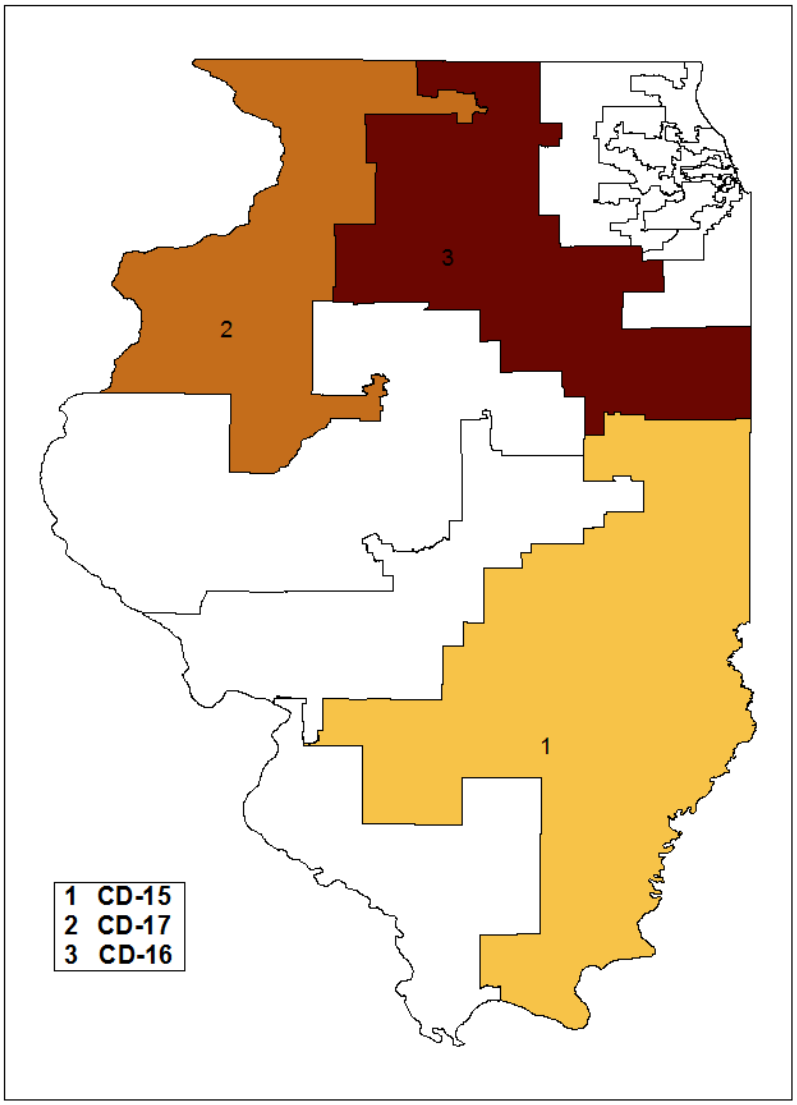
Figure 35: Top 3 Dairy Congressional* Districts
Rank by share in total county personal income



* 2011 political districts

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III.4. Hogs

Table 36: Top 10 Hog Counties

Ranked by Output

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	Clinton	61,701	86,050	4.43%	696	913	4.18%	8,888
2	DeKalb	49,588	64,749	1.71%	337	459	0.74%	5,569
3	Livingston	38,042	48,230	2.69%	204	268	1.08%	3,659
4	Hancock	35,013	49,000	6.39%	228	318	3.43%	3,350
5	Henry	30,946	40,065	1.65%	225	307	1.19%	3,195
6	Knox	30,756	37,674	1.80%	237	304	0.93%	3,425
7	Pike	28,580	38,740	5.60%	341	443	4.80%	3,678
8	Jasper	25,740	30,432	8.03%	259	299	5.70%	2,472
9	Greene	22,807	28,882	5.72%	275	331	6.50%	2,427
10	Cass	21,860	30,679	4.91%	181	235	2.20%	2,338

*: in thousands of dollars

Source: National Agricultural Statistics Service (2009), IMPLAN (2009), authors' calculations

Table 37: Top 10 Hog Counties

Ranked by Share in Total County Personal Income

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	Jasper	25,740	30,432	8.03%	259	299	6.60%	2,472
2	Hancock	35,013	49,000	6.39%	228	318	3.43%	3,350
3	Schuyler	12,690	18,553	5.95%	77	126	1.83%	1,708
4	Greene	22,807	28,882	5.72%	275	331	6.50%	2,427
5	Pike	28,580	38,740	5.60%	341	443	4.80%	3,678
6	Cass	21,860	30,679	4.91%	181	235	2.20%	2,338
7	Clinton	61,701	86,050	4.43%	696	913	4.18%	8,888
8	Clay	17,602	23,245	4.24%	106	147	1.53%	1,924
9	Edgar	20,193	24,136	3.32%	122	156	1.41%	2,068
10	Mercer	19,729	23,392	3.17%	119	147	2.40%	1,726

*: in thousands of dollars

Source: National Agricultural Statistics Service (2009), IMPLAN (2009), authors' calculations

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Figure 36: Top 10 Hog Counties
Rank by Output

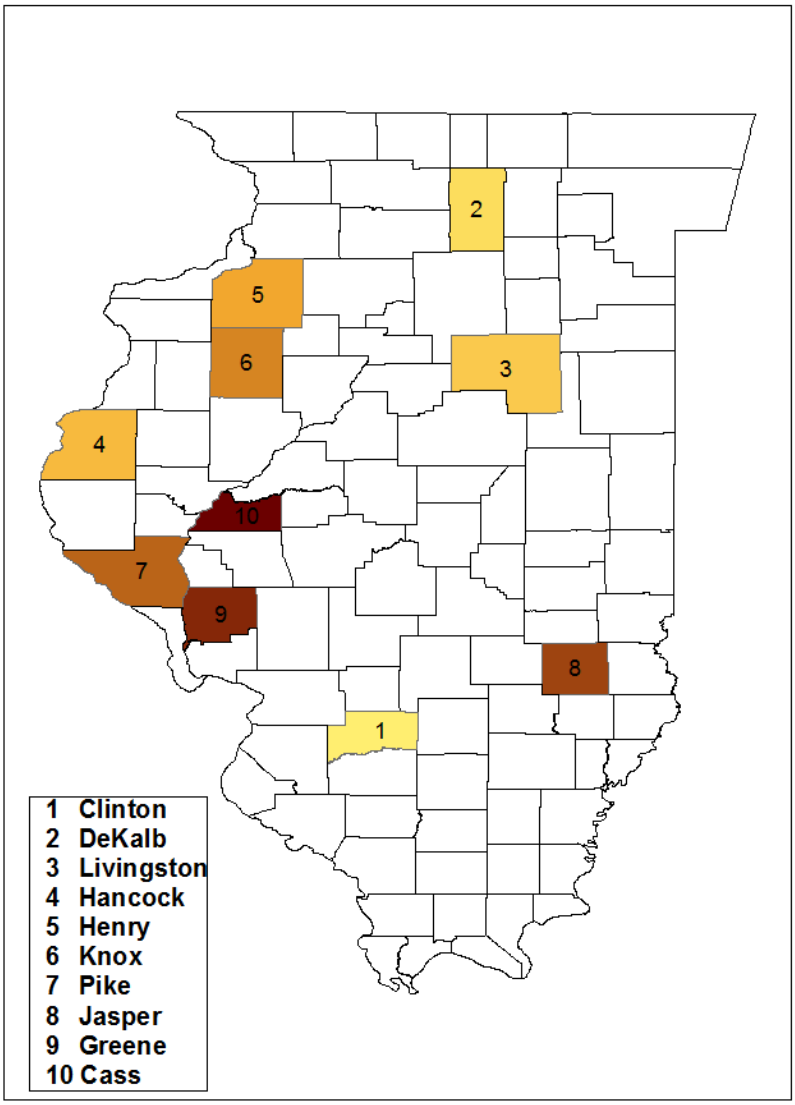

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Figure 37: Top 10 Hog Counties
Ranked by Share in Total County Personal Income

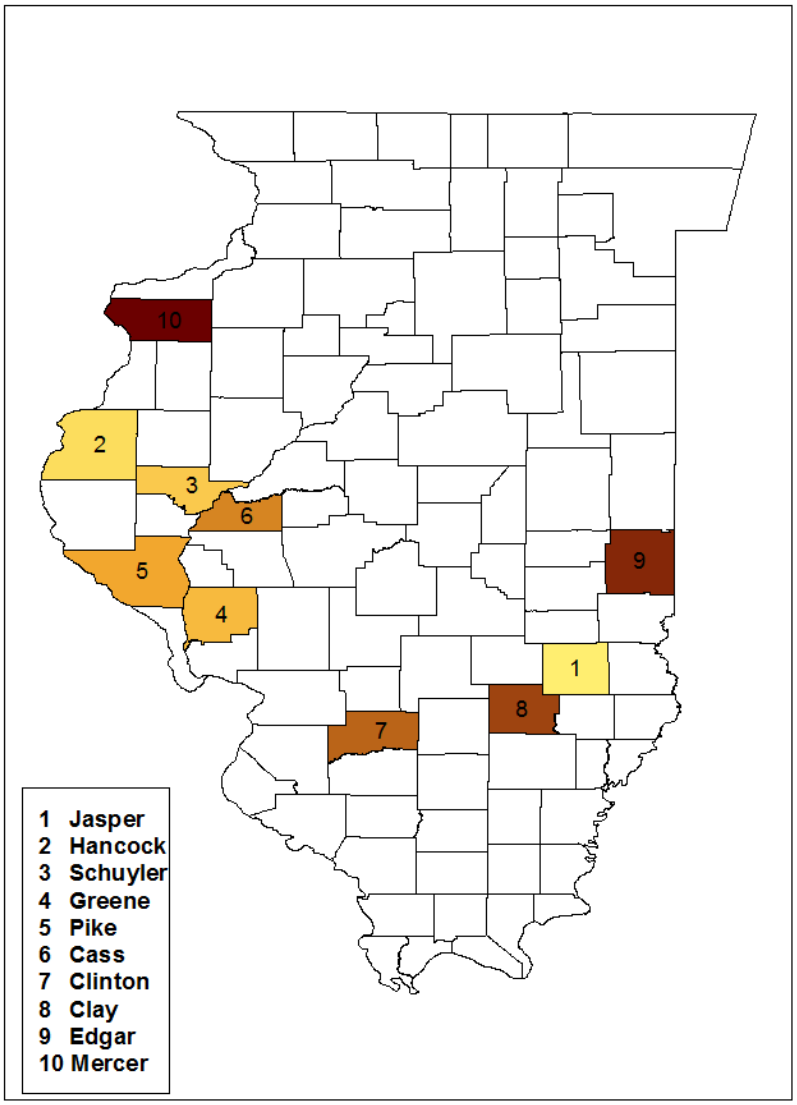

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Table 38: Top 10 Hog Representative* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-93	94,359	127,605	2.41%	570	824	0.94%	10,665
2	RD-74	74,251	99,986	1.96%	448	677	1.06%	9,154
3	RD-109	73,819	96,120	2.32%	447	628	0.97%	7,982
4	RD-94	70,027	104,346	1.99%	423	633	0.76%	7,699
5	RD-100	61,826	86,817	1.02%	373	570	0.46%	7,938
6	RD-106	58,018	74,498	1.46%	350	469	0.73%	6,217
7	RD-90	53,033	74,826	0.94%	320	467	0.41%	6,331
8	RD-71	43,732	60,840	0.84%	264	373	0.34%	4,641
9	RD-107	39,928	53,453	1.10%	241	371	0.46%	5,121
10	RD-108	33,274	55,056	0.63%	201	347	0.31%	5,247

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 39: Top 10 Hog Representative* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-93	94,359	127,605	2.41%	570	824	0.94%	10,665
2	RD-109	73,819	96,120	2.32%	447	628	0.97%	7,982
3	RD-94	70,027	104,346	1.99%	423	633	0.76%	7,699
4	RD-74	74,251	99,986	1.96%	448	677	1.06%	9,154
5	RD-106	58,018	74,498	1.46%	350	469	0.73%	6,217
6	RD-107	39,928	53,453	1.10%	241	371	0.46%	5,121
7	RD-100	61,826	86,817	1.02%	373	570	0.46%	7,938
8	RD-90	53,033	74,826	0.94%	320	467	0.41%	6,331
9	RD-110	33,011	41,051	0.89%	199	260	0.36%	3,347
10	RD-71	43,732	60,840	0.84%	264	373	0.34%	4,641

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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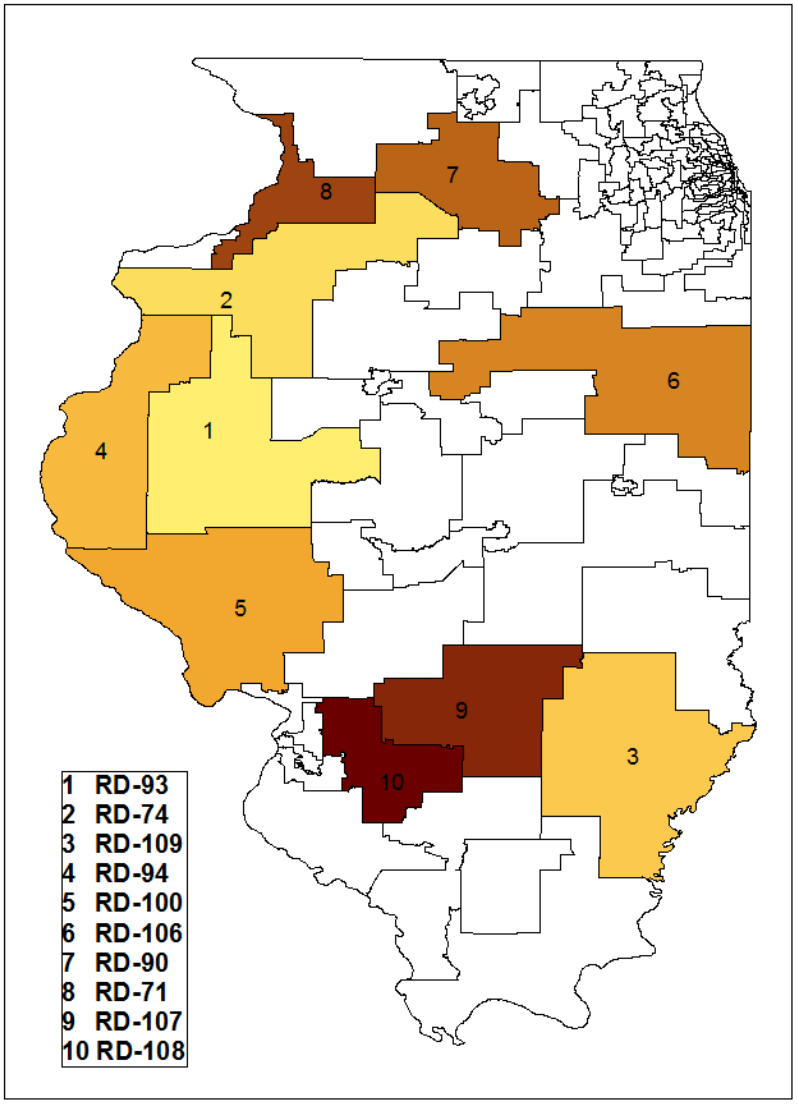
Figure 38: Top 10 Hog Representative* Districts
Rank by Output



* 2011 political districts

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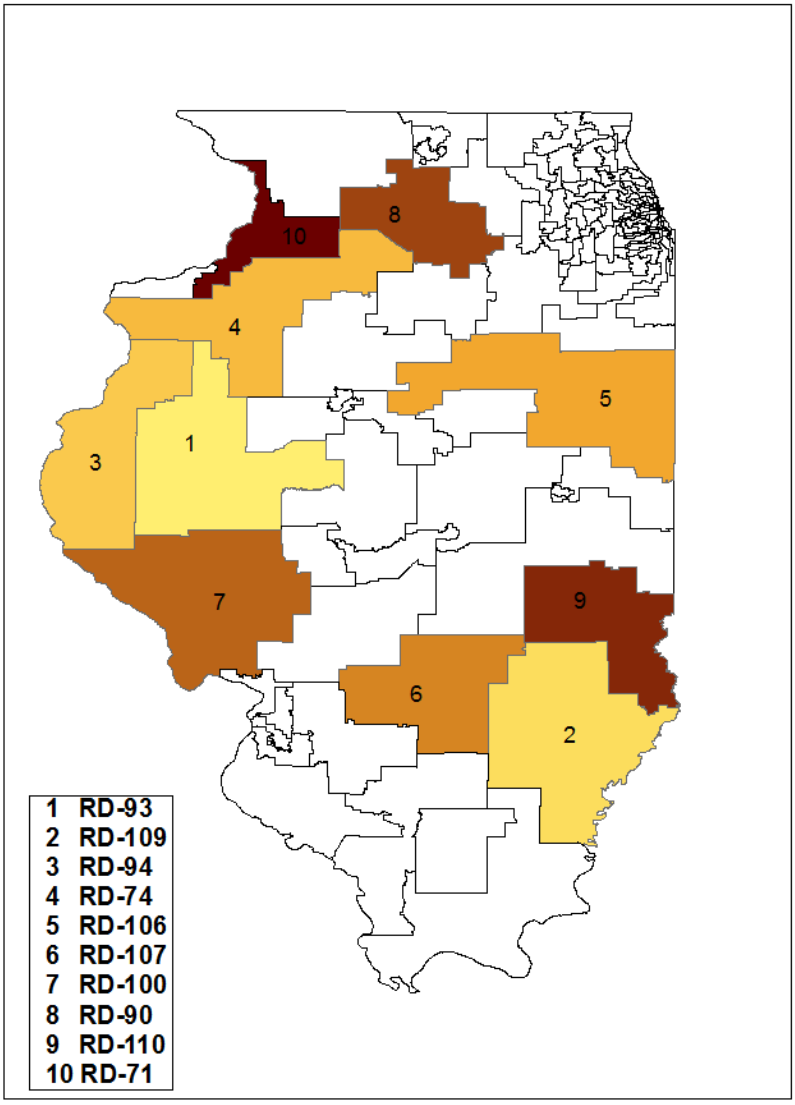
Figure 39: Top 10 Hog Representative* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 40: Top 10 Hog Senate* Districts

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	164,386	231,952	2.21%	993	1,457	0.85%	18,364
2	SD-55	106,830	137,172	1.55%	646	888	0.63%	11,329
3	SD-37	95,883	135,201	1.15%	579	910	0.57%	12,791
4	SD-53	81,552	106,094	1.18%	492	667	0.53%	8,920
5	SD-54	73,202	108,509	0.82%	442	718	0.38%	10,368
6	SD-45	71,743	102,879	0.68%	433	650	0.29%	8,929
7	SD-50	64,680	90,464	0.80%	391	594	0.35%	8,250
8	SD-36	47,683	65,530	0.60%	288	402	0.24%	4,983
9	SD-44	40,069	51,758	0.44%	242	334	0.19%	4,365
10	SD-48	37,852	52,146	0.43%	229	327	0.19%	4,543

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 41: Top 10 Hog Senate* Districts

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	164,386	231,952	2.21%	993	1,457	0.85%	18,364
2	SD-55	106,830	137,172	1.55%	646	888	0.63%	11,329
3	SD-53	81,552	106,094	1.18%	492	667	0.53%	8,920
4	SD-37	95,883	135,201	1.15%	579	910	0.57%	12,791
5	SD-54	73,202	108,509	0.82%	442	718	0.38%	10,368
6	SD-50	64,680	90,464	0.80%	391	594	0.35%	8,250
7	SD-45	71,743	102,879	0.68%	433	650	0.29%	8,929
8	SD-36	47,683	65,530	0.60%	288	402	0.24%	4,983
9	SD-44	40,069	51,758	0.44%	242	334	0.19%	4,365
10	SD-48	37,852	52,146	0.43%	229	327	0.19%	4,543

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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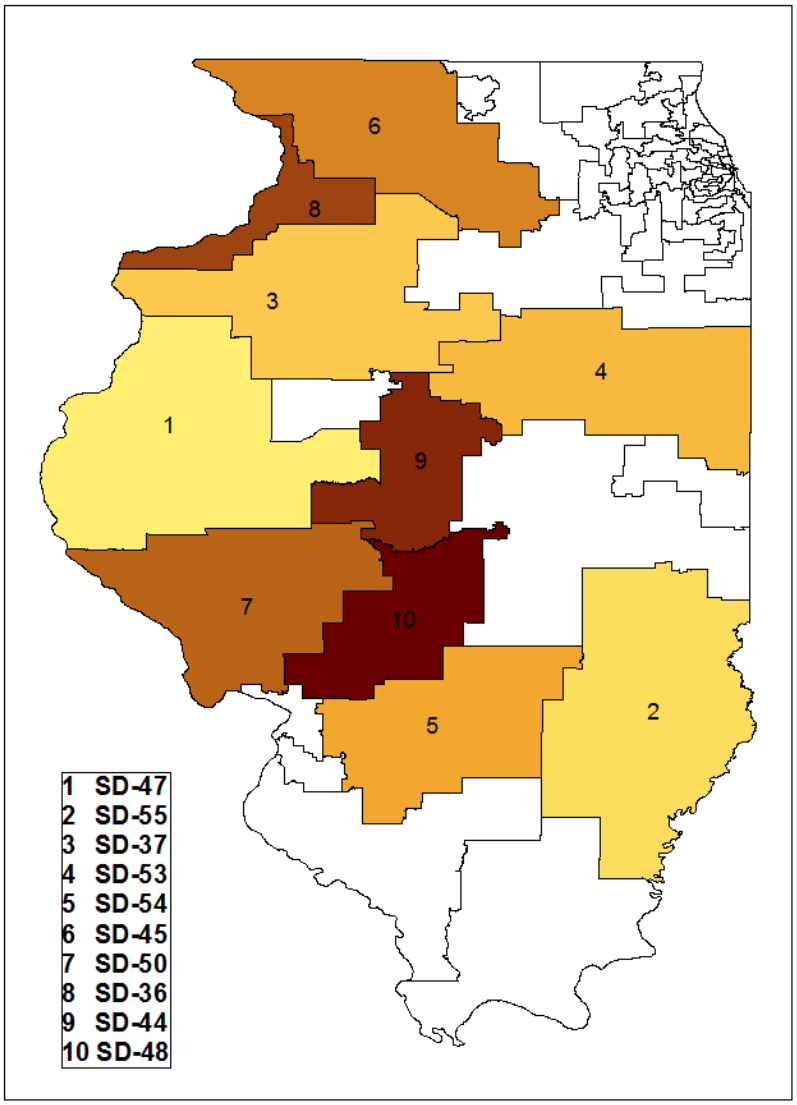
Figure 40: Top 10 Hog Senate* Districts
Rank by Output



* 2011 political districts

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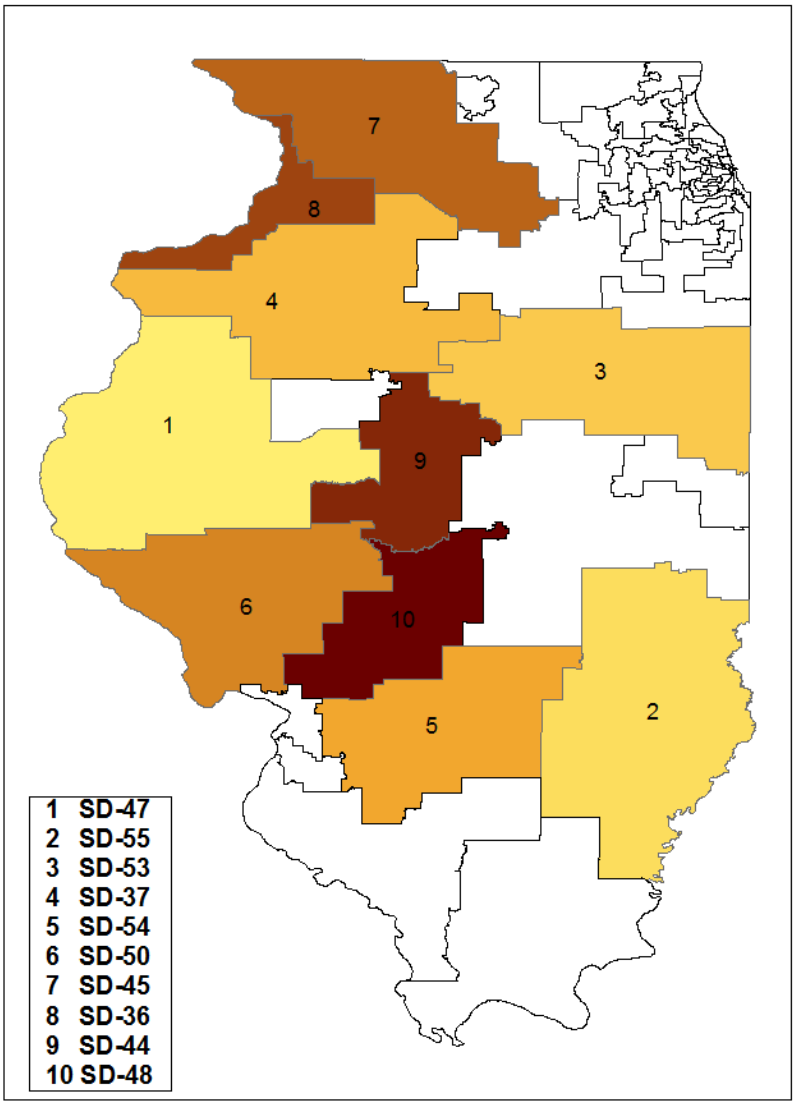
Figure 41: Top 10 Hog Senate* Districts
Rank by share in total county personal income



* 2011 political districts

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Table 42: Congressional* Districts—Hogs

Ranked by Output

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-15	238,704	333,309	1.07%	1,441	2,145	0.39%	29,445
2	CD-18	207,390	333,786	0.84%	1,252	2,030	0.35%	28,029
3	CD-17	185,910	270,606	0.73%	1,122	1,712	0.31%	22,743
4	CD-16	148,320	209,490	0.67%	895	1,327	0.29%	19,136
5	CD-13	76,168	105,306	0.35%	460	663	0.00%	9,373
6	CD-12	35,079	56,013	0.15%	212	354	0.06%	4,819
7	CD-14	35,069	47,786	0.09%	212	303	0.07%	4,394
8	CD-6	6,192	10,720	0.01%	78	105	0.01%	1,063
9	CD-2	5,636	9,537	0.02%	71	93	0.02%	905
10	CD-11	2,991	4,407	0.01%	38	47	0.01%	433

* 2011 political districts

**in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 43: Congressional* Districts—Hogs

Rank by share in total county personal income

		Output**			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-15	238,704	333,309	1.07%	1,441	2,145	0.39%	29,445
2	CD-18	207,390	333,786	0.84%	1,252	2,030	0.35%	28,029
3	CD-17	185,910	270,606	0.73%	1,122	1,712	0.31%	22,743
4	CD-16	148,320	209,490	0.67%	895	1,327	0.29%	19,136
5	CD-13	76,168	105,306	0.35%	460	663	0.00%	9,373
6	CD-12	35,079	56,013	0.15%	212	354	0.06%	4,819
7	CD-14	35,069	47,786	0.09%	212	303	0.07%	4,394
8	CD-2	5,636	9,537	0.02%	71	93	0.02%	905
9	CD-11	2,991	4,407	0.01%	38	47	0.01%	433
10	CD-1	734	1,018	0.01%	10	12	0.02%	95

* 2011 political districts

**: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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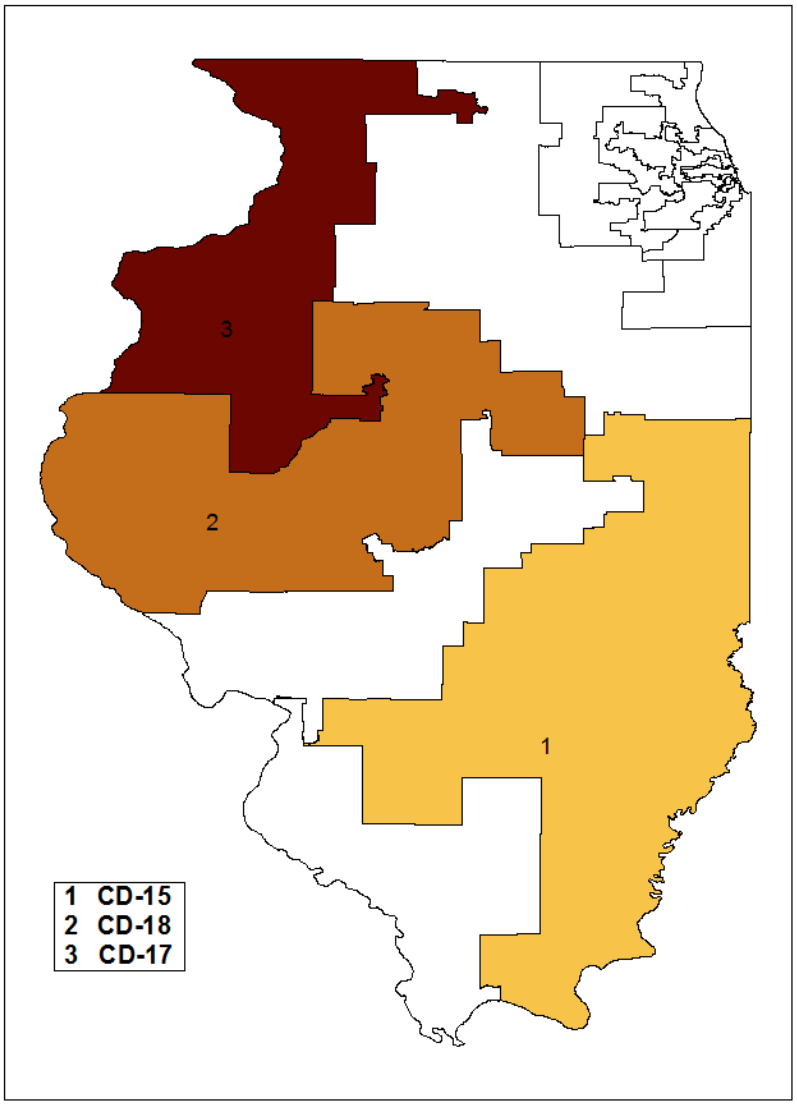
Figure 42: Top 3 Hog Congressional* Districts
Rank by Output



* 2011 political districts

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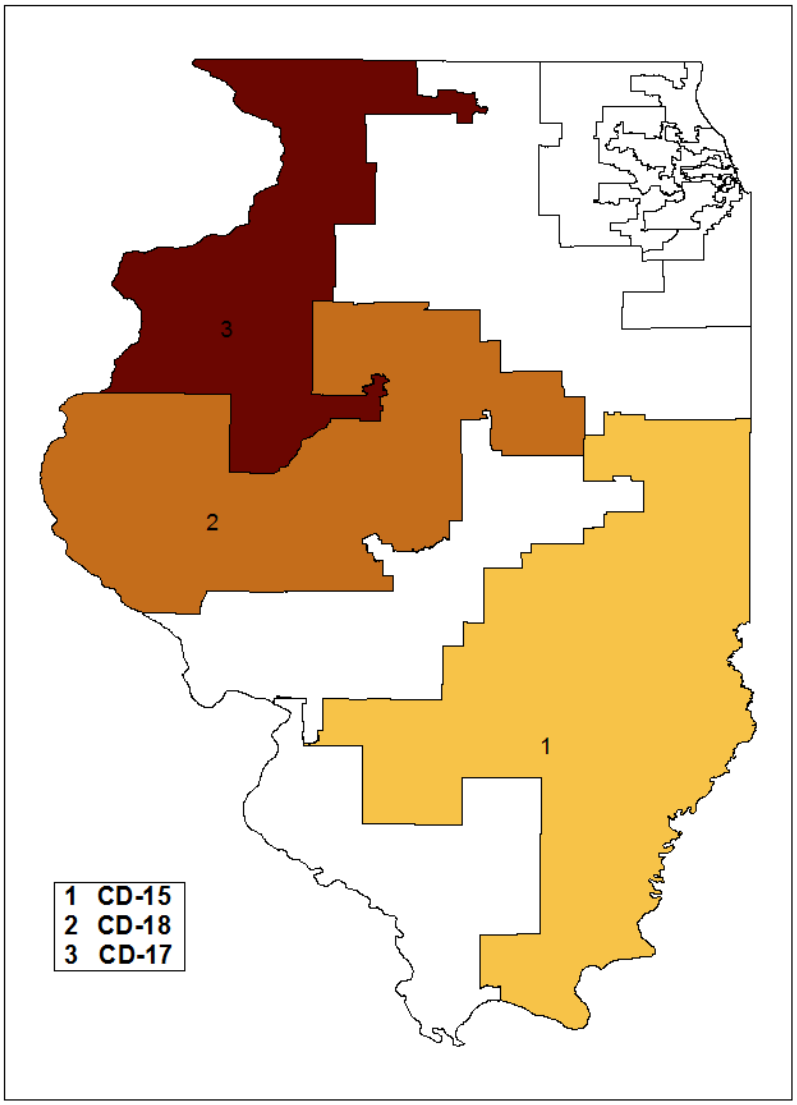
Figure 43: Top 3 Hog Congressional* Districts
Rank by share in total county personal income



* 2011 political districts

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IV. Geography of Meat and Dairy Processing

There are 249 inspected meat processing firms in Illinois generating about $10 billion in direct sales and a total of $19.7 billion in 2009. Cook County is the home to 40% (99) of the meat processing firms (Figures 43). Sangamon, Champaign, DuPage, Madison, McHenry and Macoupin and Randolph are the next most active with 6, 5, 5, 5, 5,5, 5 plants respectively.

Table 44: Meat Processing Plants (Adams to Hamilton)

	Number	Share of State Total
	Meat	Meat
State Total	249	
Adams	3	1%
Bond	1	0%
Brown	1	0%
Bureau	3	1%
Calhoun	1	0%
Carroll	3	1%
Cass	1	0%
Champaign	5	2%
Clark	1	0%
Clay	2	1%
Clinton	4	2%
Coles	2	1%
Cook	99	40%
Crawford	1	0%
DeKalb	1	0%
Dewitt	1	0%
Douglas	3	1%
DuPage	5	2%
Edgar	1	0%
Edwards	1	0%
Effingham	2	1%
Fayette	2	1%
Franklin	1	0%
Fulton	1	0%
Greene	1	0%
Grundy	1	0%
Hamilton	1	0%

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Table 45: Meat Processing Plants (Hancock to Perry)

	Number	Share of State Total
	Meat	Meat
State Total	249	
Hancock	1	0%
Henderson	1	0%
Henry	4	2%
Iroquois	3	1%
Jasper	1	0%
Jersey	1	0%
Kane	4	2%
Kankakee	1	0%
Kendall	2	1%
Knox	3	1%
La Salle	3	1%
Lee	2	1%
Livingston	2	0%
Logan	1	0%
Macon	2	1%
Macoupin	5	2%
Madison	5	2%
Marion	1	0%
McDonough	1	0%
McHenry	5	2%
McLean	3	1%
Menard	1	0%
Monroe	1	0%
Montgomery	1	0%
Morgan	1	0%
Moultrie	1	0%
Ogle	1	0%
Peoria	4	2%
Perry	1	0%

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Table 46 Meat Processing Plants (Randolph to Woodford)

	Number	Share of State Total
	Meat	Meat
State Total	249	
Randolph	5	2%
Rock Island	3	1%
Sangamon	6	2%
Schuyler	1	0%
Shelby	3	1%
St. Clair	2	1%
Stephenson	2	1%
Tazewell	1	0%
Union	1	0%
Vermilion	2	1%
Washington	1	0%
White	1	0%
Whiteside	4	2%
Williamson	1	0%
Winnebago	4	2%
Woodford	2	1%

Source: Illinois Department of Agriculture (2009) and authors' calculations

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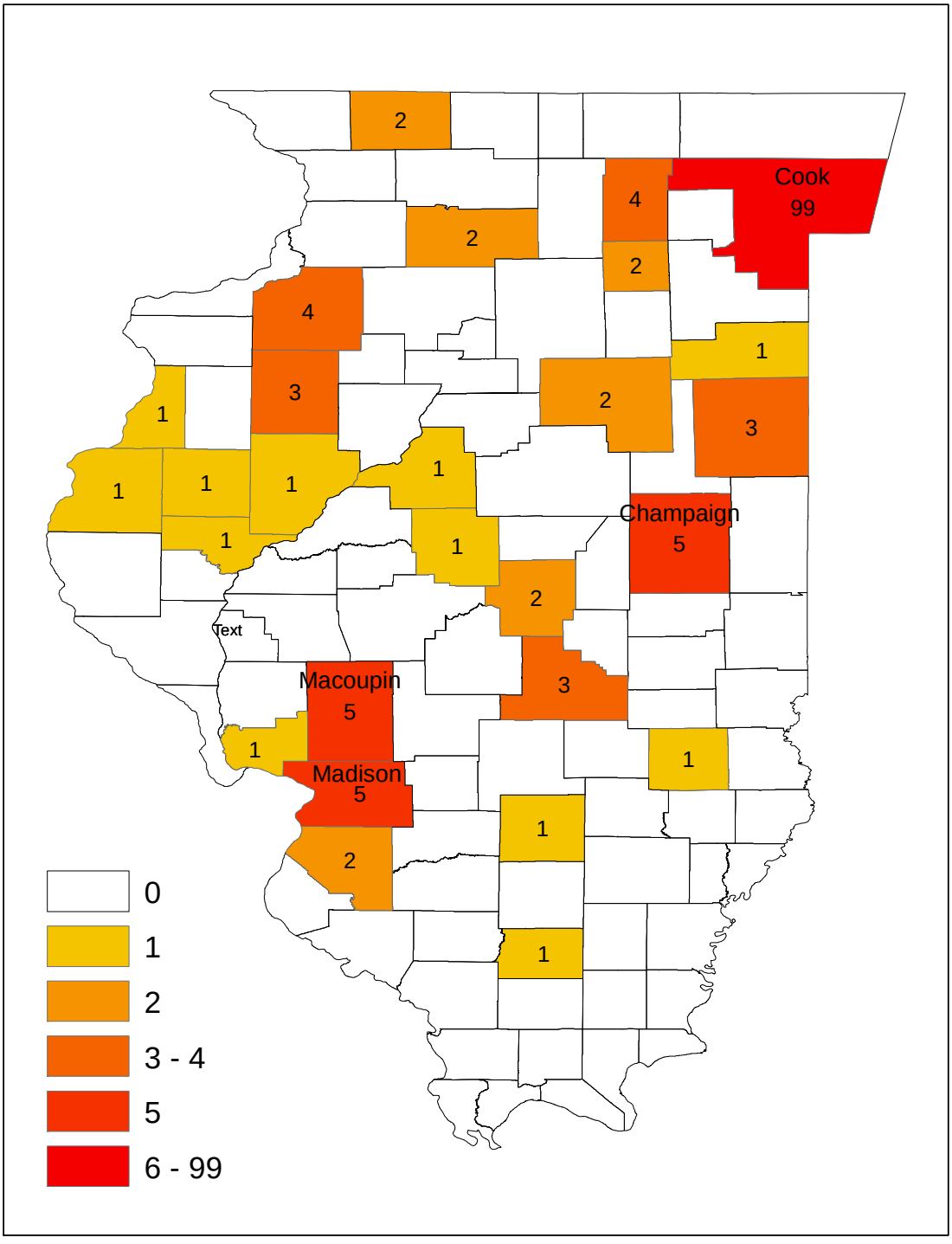
Figure 44: Spatial distribution of meat processing plants



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V. Road and Highway Revenue Impact

The Illinois Department of Revenue reported that local communities collected $25 billion of property taxes in 2009 across Illinois. Residential property owners contributed most of property taxes, accounting for 65 percent of all property tax collections (Figure 45). Commercial property owners generated 24 percent of the property tax revenue. Industrial properties and farm, railroads and mineral property owners contributed the remaining. All livestock farms are considered commercial establishments. Transportation usages diverted about 4 percent, or $943 million, from the $25 billion of property taxes collected throughout the state. This amounts to 37 percent of the $2.6 billion of transportation funds at the disposal of local governments. No property taxes went towards funding state highway needs.

In 2009, the State of Illinois collected $9.3 billion in the form of sales taxes, which comprised 35 percent of the $27 billion of total state tax revenue. State agencies collected $1.4 billion in the form of motor fuel taxes, which all support transportation. Motor vehicle tax revenue amounted to $858 million, also a dedicated transportation source, of the $1.7 billion highway user revenue collected in 2009. In 2009, state transportation agencies additionally had $541 million drawn from the State's General Fund.

The livestock industry in Illinois paid $292 million in taxes in 2009, of that $138 million or 47% went to the state or local communities (Figure 46). Indirect business taxes, as opposed to corporate and personal income taxes, comprise a large portion of both the industry's state and local tax contribution and state and local road infrastructure. Indirect business taxes constitute 73% or $101 million of state and local taxes paid by the livestock industry. The most important indirect business taxes are property and sales taxes contributing 91% of indirect business taxes paid to the state. The remaining 9% of indirect business taxes come from motor vehicle tax (1%), state and local fees (4%), and miscellaneous (3%). The livestock industry paid $50 million in property taxes and $42 million in sales taxes. Of the $101 million of indirect business taxes, $7.9 million went for transportation. Of that, $7.9 million or 65.8% went to the State and 34.2% went to local communities.

Transportation funding from the livestock industry flows from six different sources; Indirect Business Taxes (Property Tax, Motor Vehicle Tax) and Motor Fuel Tax General Fund, Road Tolls and Fees, Miscellaneous. The majority of state spending on roads originates from Motor Fuel (26.42%) and Motor Vehicle (39.65%) taxes (Figure 47). While most of local spending originates from property taxes (64.11%) (Figure 48). Property taxes at 26.54% comprise the single largest source of state and local transportation revenue, followed by motor vehicle (24.13%), motor fuel (23.76%) and tolls and fees (18.75%) (Figure 49).

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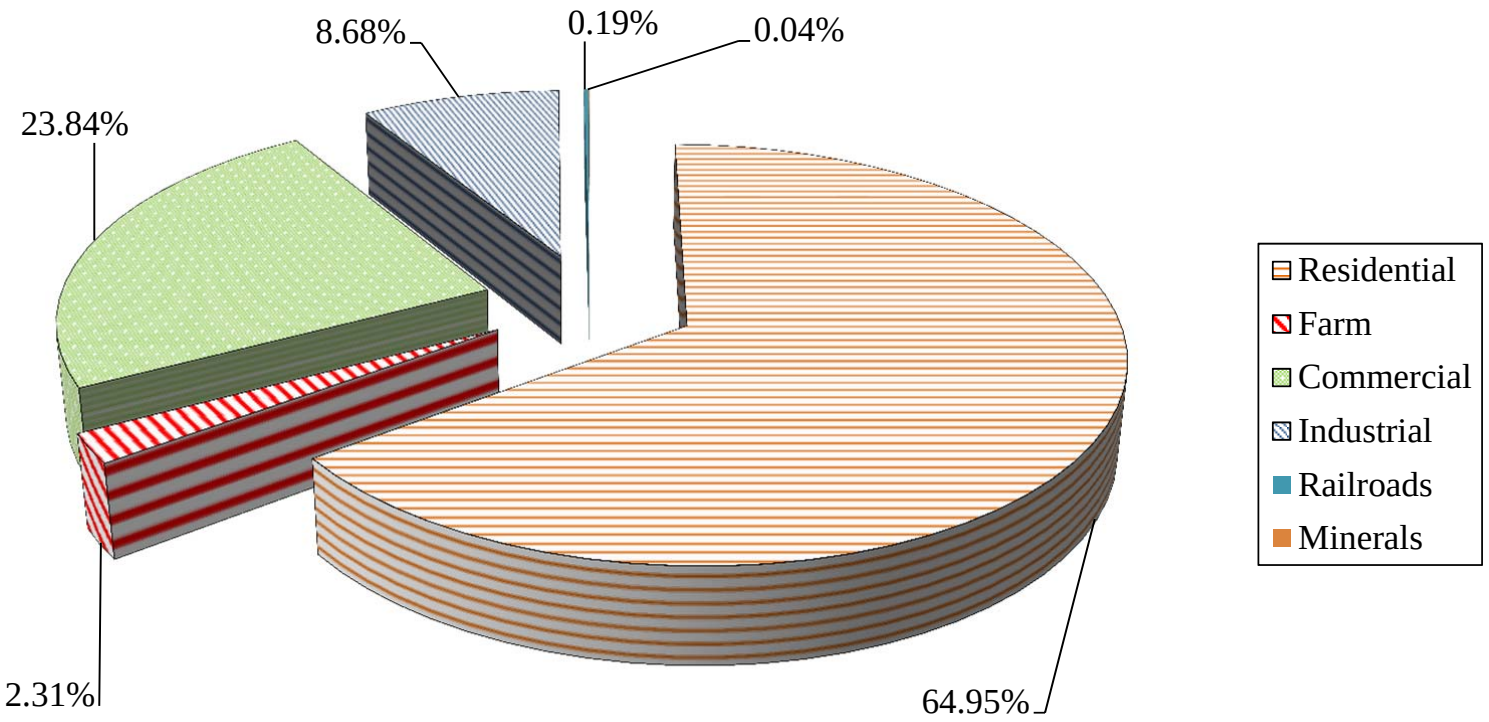
Figure 45. Property Taxes Collected in Illinois



Total state property taxes are $25 billion
Source: Illinois of Revenue 2009

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Figure 46. Tax Flows from the Illinois Livestock Industry to State and Local Transportation Budgets

Note: *Indirect Business Taxes include all business taxes except: corporate income tax, benefits taxes, and personal income taxes paid by employees

**: percent share of total state and local IBT

Source: Federal Highway Administration, 2009; Illinois of Revenue, 2009; IMPLAN, 2009; National Agricultural Statistics Service, 2009; and authors' calculations

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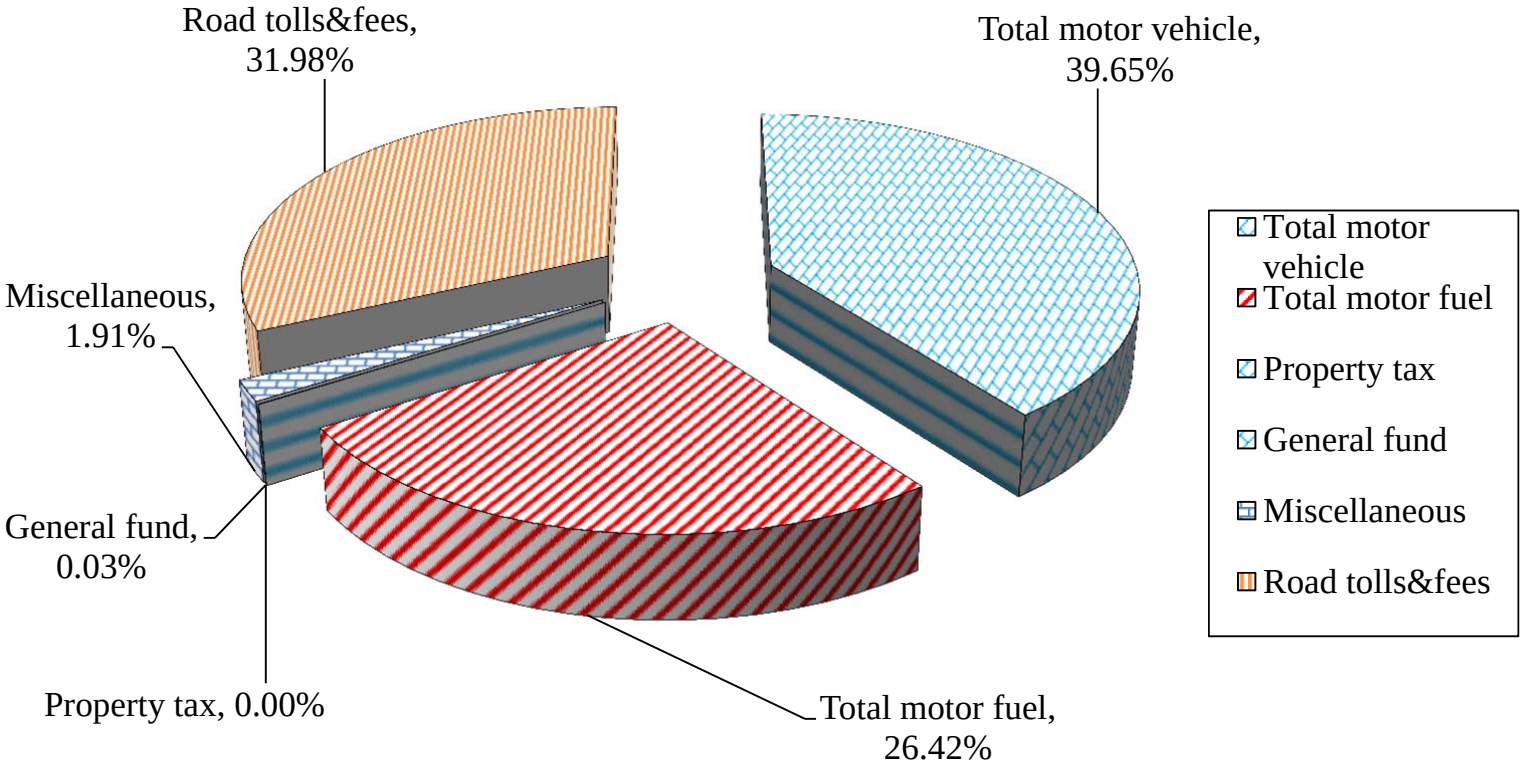
Figure 47. State Transportation Revenue from the Illinois Livestock Industry



Note: Total State Transportation revenue from the Illinois Livestock industry = $5.2 Million

Source: Federal Highway Administration, 2009; Illinois of Revenue, 2009; IMPLAN, 2009; National Agricultural Statistics Service, 2009; and authors' calculations

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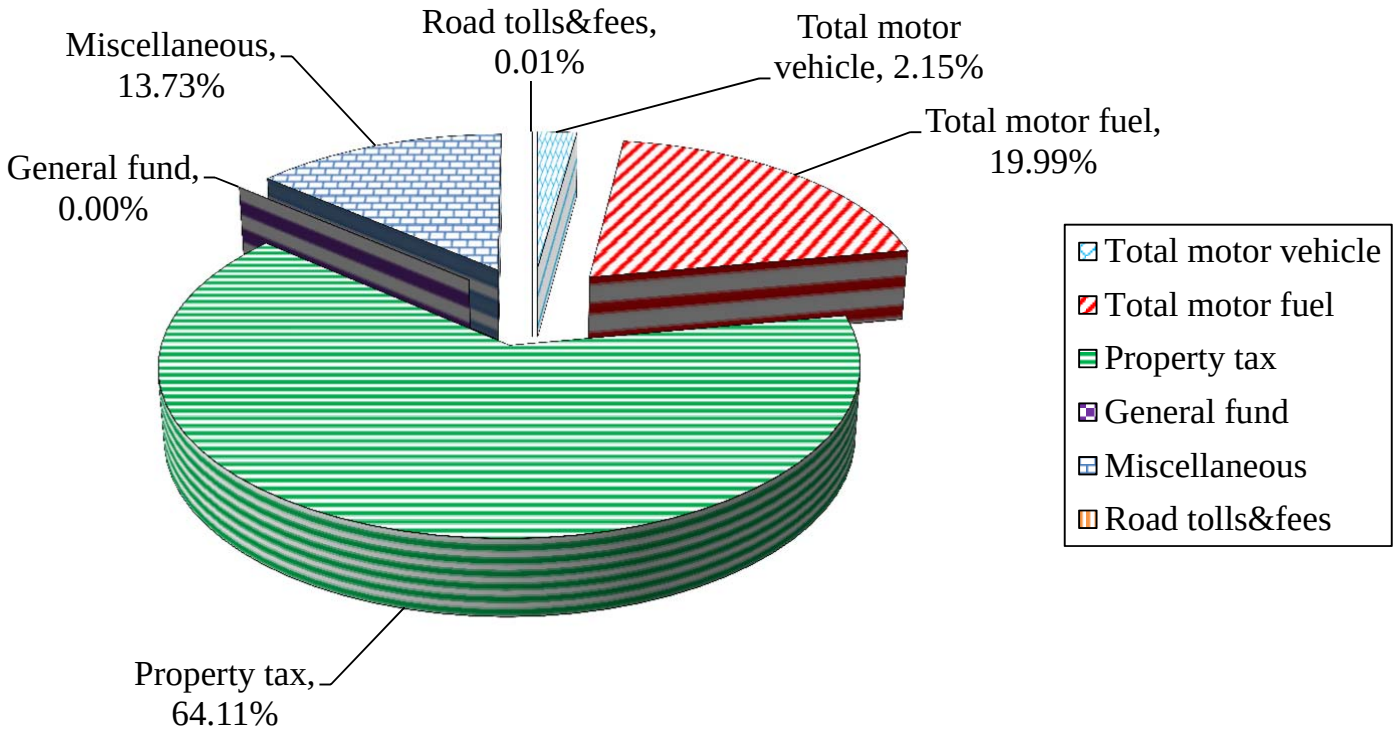
Figure 48. Local Transportation Revenue from the Illinois Livestock Industry



Total Local Transportation revenue from the Illinois Livestock industry = $2.7 Million

Source: Federal Highway Administration, 2009; Illinois of Revenue, 2009; IMPLAN, 2009; National Agricultural Statistics Service, 2009; and authors' calculations

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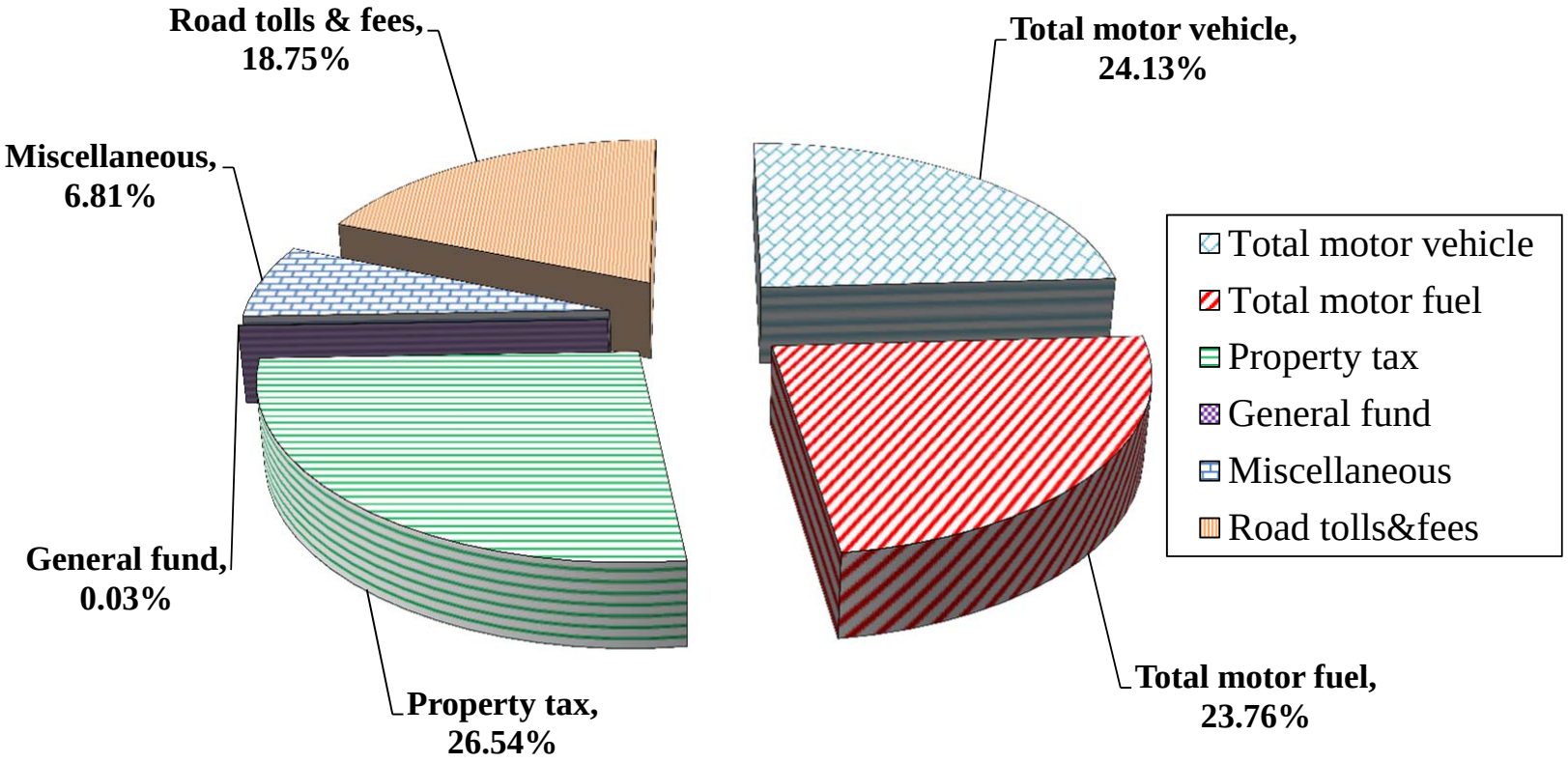
Figure 49. State and Local Transportation Revenue from the Illinois Livestock Industry



Note: Total State and Local Transportation revenue from the Illinois Livestock industry = $7.9 Million

Source: Federal Highway Administration, 2009; Illinois of Revenue, 2009; IMPLAN, 2009; National Agricultural Statistics Service, 2009; and authors' calculations

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Table 47. Top 10 Counties Ranked by Transportation Revenue Generated

#	County	Total Livestock Output*	Livestock Taxes*			Transportation Revenue*	% share of estimated county	
			All	State-Local Non-Education	State-Local IBT**	IBT**	Transportation Revenue	Transportation IBT**
1	Clinton	168,873	13,316	5,906	4,487	**354**	2.7%	4.4%
2	DeKalb	99,430	7,469	2,983	2,831	**223**	3.0%	2.8%
3	Jo Daviess	68,315	6,080	2,237	2,087	**165**	2.7%	2.1%
4	Henry	79,929	5,471	2,355	2,085	**165**	3.0%	2.1%
5	Carroll	77,961	4,841	1,908	1,945	**154**	3.2%	1.9%
6	Whiteside	85,256	4,907	2,104	1,915	**151**	3.1%	1.9%
7	Hancock	64,928	4,410	1,918	1,737	**137**	3.1%	1.7%
8	Stephenson	81,744	4,658	2,047	1,679	**133**	2.8%	1.7%
9	Livingston	63,625	4,376	1,888	1,644	**130**	3.0%	1.6%
10	Pike	52,560	4,548	1,965	1,518	**120**	2.6%	1.5%

* $1,000s; ** Indirect Business Taxes

Source: Federal Highway Administration, 2009; Illinois of Revenue, 2009; IMPLAN, 2009; National Agricultural Statistics Service, 2009; and Authors' calculation

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Figure 50. Top 10 Counties Ranked by Transportation Revenue Generated

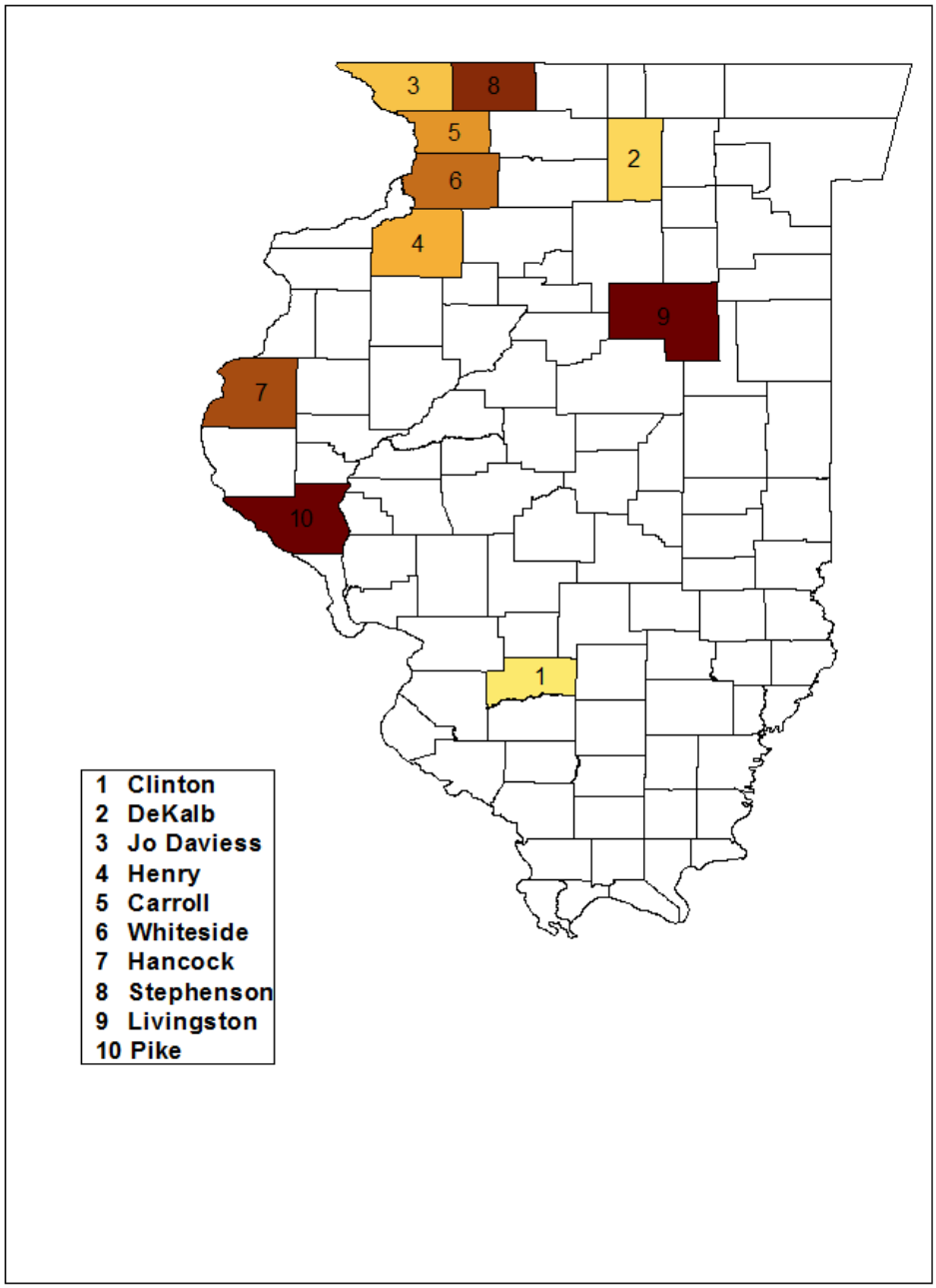

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Table 48. Top 10 Counties Ranked by Percent Contribution to Total County Transportation Revenue

#	County	Total Livestock Output*	Livestock Taxes*			Transportation Revenue*	% share of estimated county	
			All	State-Local Non-Education	State-Local IBT**	IBT**	Transportation Revenue	Transportation IBT**
1	Pope	3,005	125	48	62	5	**3.9%**	0.1%
2	Alexander	946	45	17	22	2	**3.8%**	0.0%
3	Pulaski	2,715	147	59	69	5	**3.7%**	0.1%
4	Marshall	5,577	287	113	132	10	**3.6%**	0.1%
5	Shelby	36,507	2,067	1,150	927	73	**3.5%**	0.9%
6	McDonough	11,296	671	262	300	24	**3.5%**	0.3%
7	Stark	4,845	301	123	134	11	**3.5%**	0.1%
8	Perry	6,601	314	127	139	11	**3.5%**	0.1%
9	Fulton	39,128	2,402	935	1,067	84	**3.5%**	1.1%
10	Johnson	9,331	526	211	232	18	**3.5%**	0.2%

* $1,000s; ** Indirect Business Taxes

Source: Federal Highway Administration, 2009; Illinois of Revenue, 2009; IMPLAN, 2009; National Agricultural Statistics Service, 2009; and Authors' calculations

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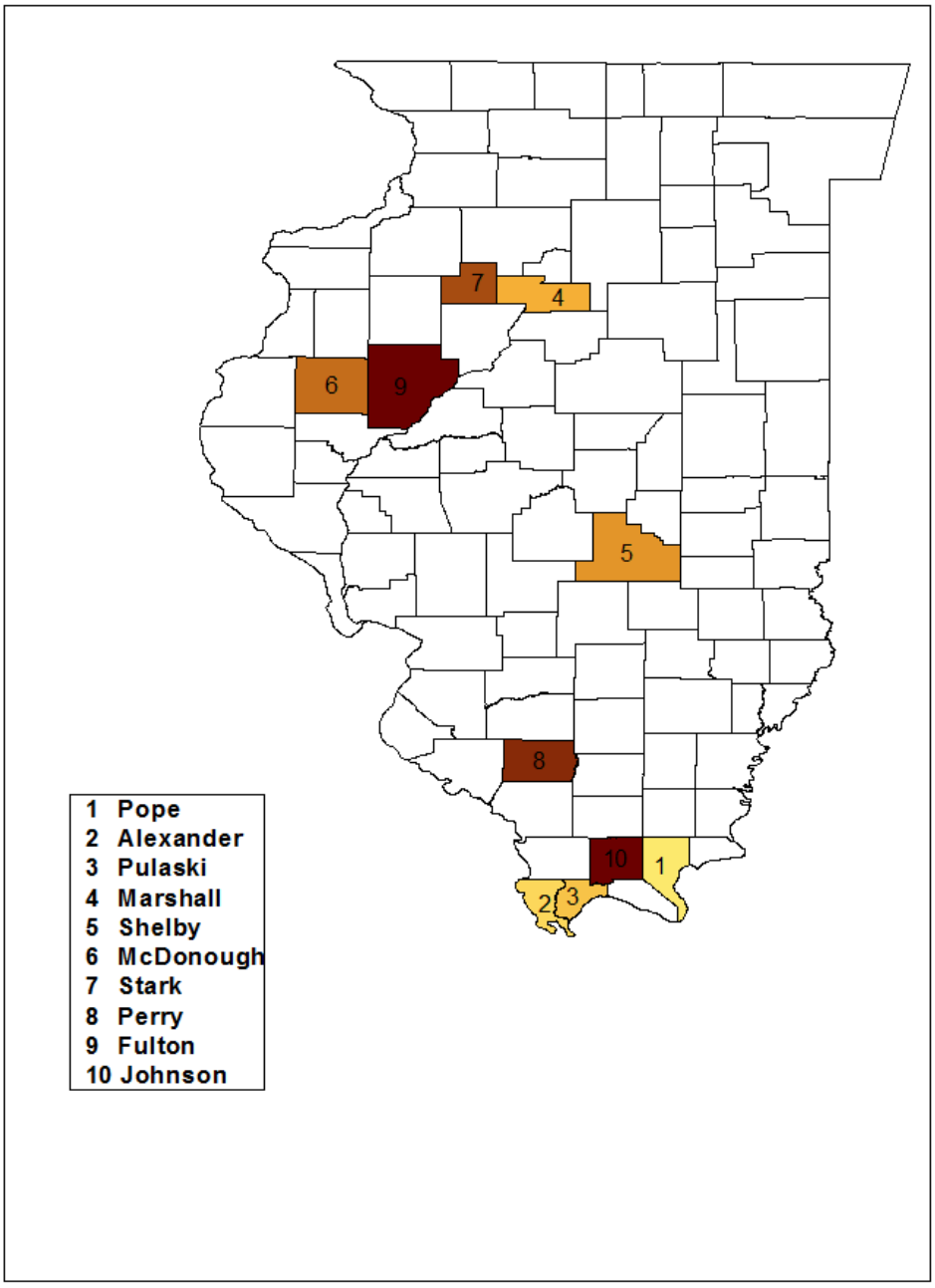
Figure 51. Top 10 Counties Ranked by Percent Contribution to Total County Transportation Revenue



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VI. Summary and Conclusion

The State's livestock and meat and dairy processing sectors significantly contribute to the state's economy in three important ways: 1) significant economic activity in the form of output, jobs and taxes; 2) real growth for an overall declining Illinois economy; and 3) important local impacts in key county and legislative regions. The goal of this report was to provide the Illinois livestock industry with an economic snapshot of the current state of the industry. Provided are detailed analyses of the overall state of the State's meat and dairy complex, highlights of leading counties and leading legislative districts. Citizens, elected officials, and industry members can see how and where the meat and dairy complex generates economic impact. Only the leading counties and districts are highlighted in this report. The data are available though to estimate the detailed economic impact of the meat and dairy complex for every county and legislative district in the state.

While the impact numbers are important to document, also critical is to understand the complementarity between livestock production and meat and dairy processing. Agglomeration economies are so important in industries dominated by low valued goods where transportation is costly. This report documents the extensive integration of Illinois livestock production with Illinois processors. The domestic supply of livestock

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provides processors with a substantial base (25%) of supply. Without this base, processors would be less incented to remain in the state. Transportation costs for Illinois producers would rise, making it difficult to compete, if processors were to leave. Therefore good industrial policy is good livestock policy. Maintaining a strong processor base in the state (nearby) gives Illinois farmers local markets for their products and competitive advantage compared with more distant producers. Processors too benefit from a large supply that may also be low cost due to minimal transportation.

Alternatively, good livestock siting policy is good industrial policy. That is local processors benefit if farmers are able to locate or expand in the state. Costs rise not only because of transport but also because of greater competition with other buyers when processors need to look further and further away for supply to keep their plants running. Therefore processors in the state have a stake in the success and viability of the State's livestock sector.

Working together on a favorable business environment in Illinois that is beneficial to both livestock production and meat and dairy processing would be invaluable to ensuring the future of this important agro-industrial complex.

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Glossary of Terms

Commercial farm = Has at least commercial scale (derived from IASS statistics) of a traditionally commercial species (beef, pork, dairy, poultry, wool/lamb). Other livestock may be on the farm
Commercial unit = Management of a commercial species needing at least one full-time equivalent employee. Derived from Illinois Agricultural Statistic Service categorical breakdown by size and species.
Direct effect = The direct economic effects from the production of the good or the delivery of the service by the specific industry.
Employment multiplier = The change in total employment in the economy from a unit increase in the economic activity of a specified industry.
FBFM = Farm Business Farm Management record keeping and tax preparation service http://web.aces.uiuc.edu/fbfm/
FTE = Full Time Equivalent – labor required to employ one person full time for a year. Standard is 40 hours times 52 weeks a year = 2080 hours of labor = 1 FTE.
IMPLAN = Economic Input-Output (I/O) Modeling software and database. Developed and Managed by Minnesota IMPLAN Group, Inc. http://www.mig-inc.com/
I/O = Economic Input-output analysis traces the flow of goods, services, and employment among related sectors of the economy.
Indirect effect = The additional economic impacts from producing an additional unit of output in a specified industry.
Induced effect = The additional economic demand effects from the specified industry's employees.
NASS = National Agricultural Statistics Service, part of the USDA, collects data on the agriculture sector. IASS is the local representative of the NASS system.
Output multiplier = Changes in total economic output by increasing output one unit in a specified industry.

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Appendices

Appendix 1: Labor estimates

Table 1 A: Output per full time employee estimates

	IMPLAN		Goldsmith and Wang		Share of unpaid labor
	Employment*	State average**	Employment	Pure livestock farms	Pure livestock farms
Beef	1,557	311,728	6,286	78,903	34%
Dairy	718	354,300	3,451	75,344	10%
Pork	9,482	100,383	5,868	165,634	36%
Poultry	101	1,253,735	779	165,634	36%
Others***	276	100,392	355	78,903	34%

* Number of direct employment impact in terms of FTEs

** The direct output ($) per direct employee.

*** Includes Sheep and wool, and all other non-traditional livestock products

Source: FBFM (2009), IMPLAN (2009) and authors' calculations

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Appendix 2: Livestock Production

Figure 2 A: Hog Production in Illinois (1999-2009)

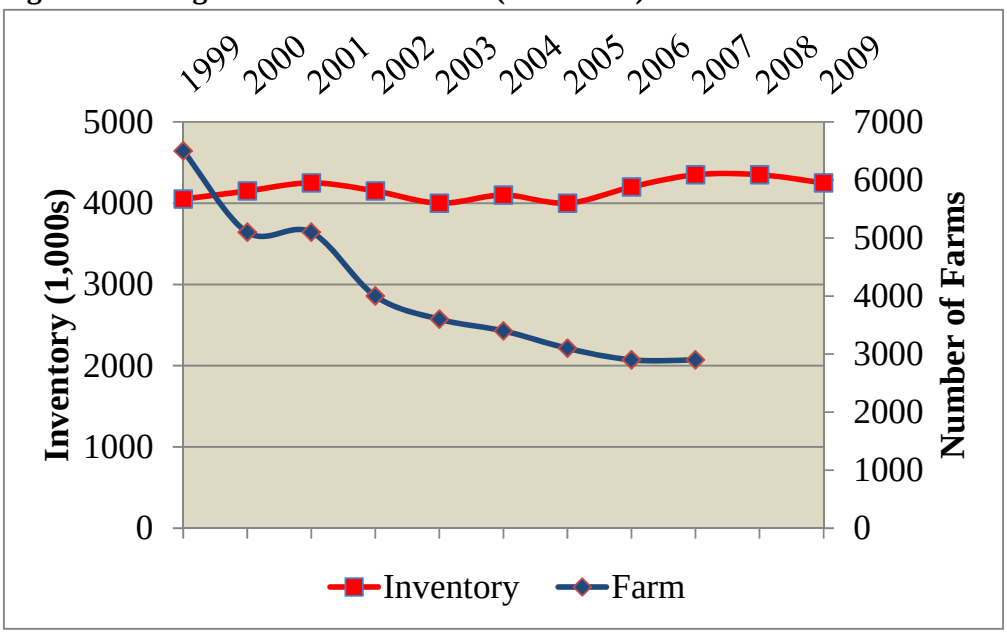

Figure 2 B: Milk Production in Illinois (1999-2009)

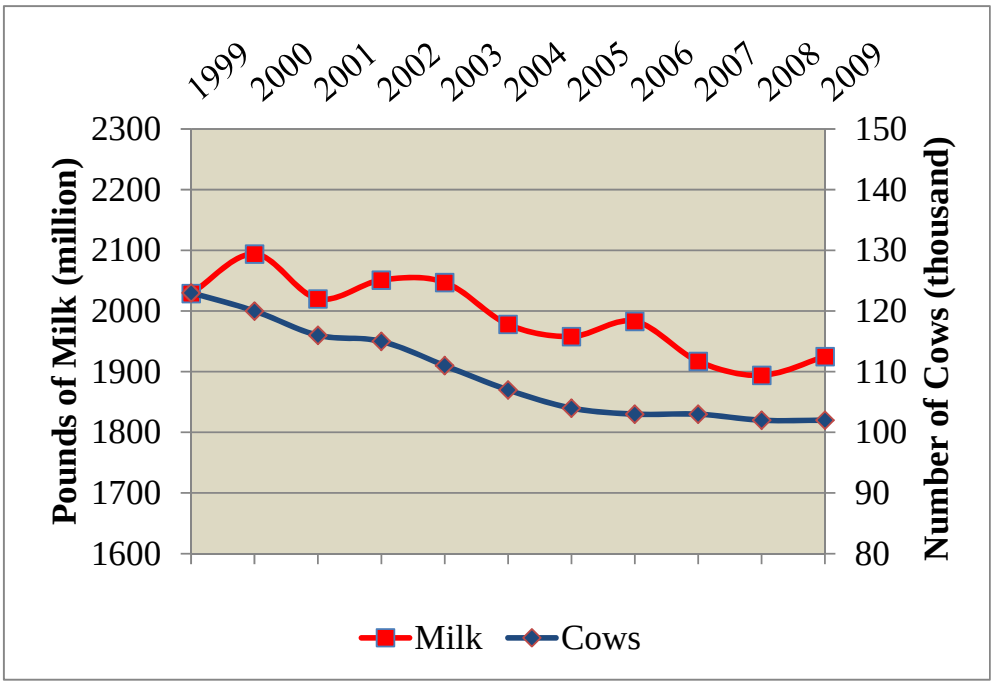

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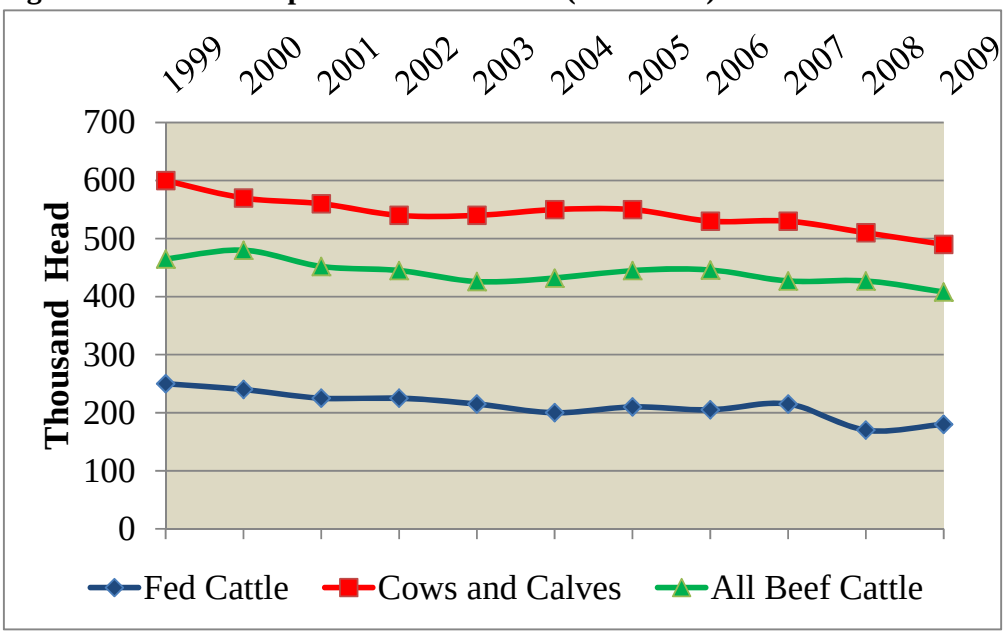
Figure 2 C: Fed cattle production in Illinois (1999-2009)



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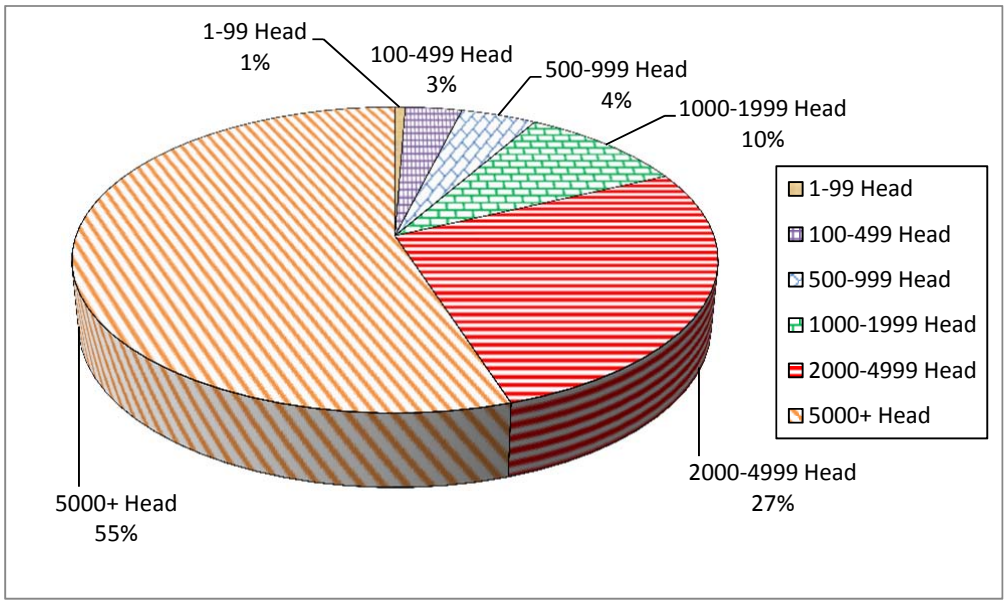
Appendix 3: Hog Inventory

Figure 3 A: Illinois Hog Inventory by Farm size (2007)



Source: National Agricultural Statistics Service, U.S. and All States Data, Hogs and Pigs

Figure 3 B: Illinois Hog Inventory by Farm size (2004)

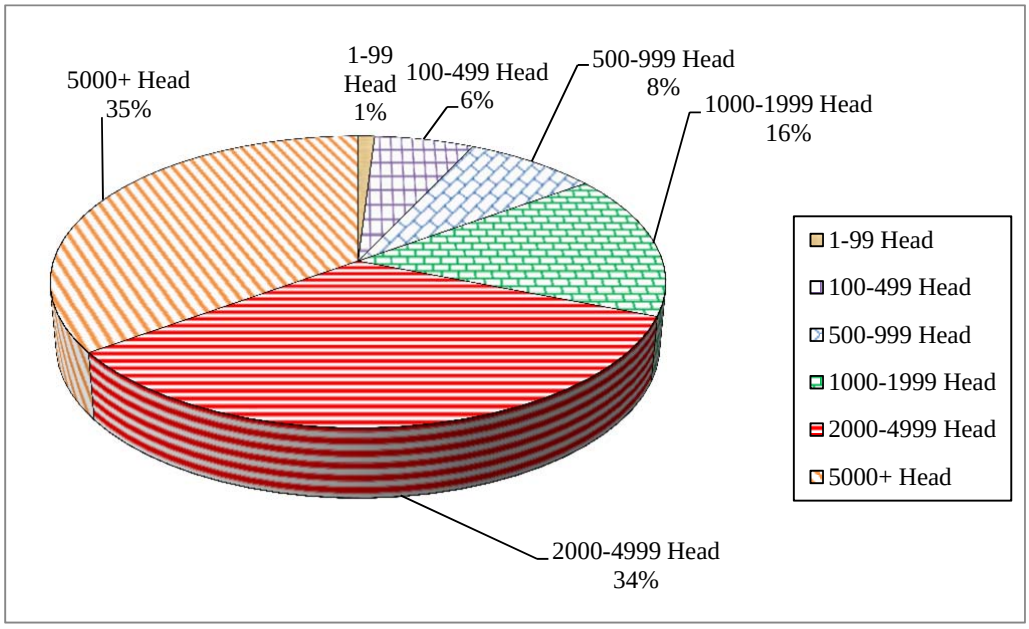


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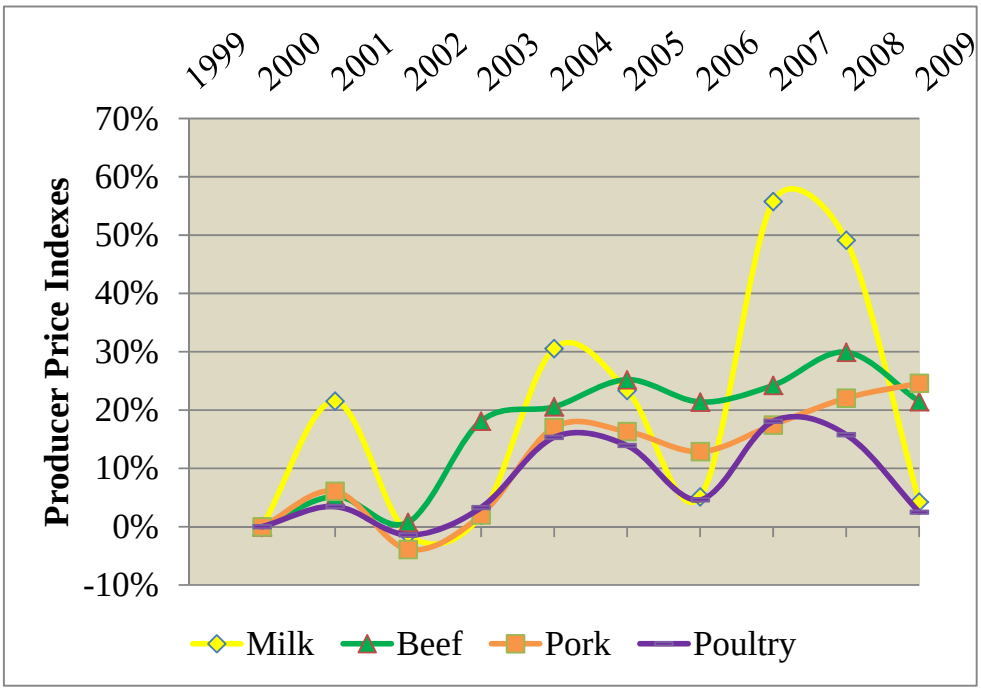
Figure 3 C: Producer Price Indexes (2000-2009)



Source: United States Department of Agriculture, Economic Research Service, Agricultural Outlook

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Appendix 4: Poultry

We do not present detail poultry data in this report. In prior years county level data were consistent between IMPLAN and NASS data. This consistency check, along with a third check using Census data, is very important to validate the internal consistency among the counties within a reporting year, and across Livestock Impact reports. This year, poultry data validation failed on both accounts; at the county level for 2009 and with respect to poultry values in previous reports. The county level data reported by IMPLAN for 2009 are only estimates, and bad estimates at that. They do not reflect actual NASS values and often counties were given the same poultry output value. Total values for the state though are accurate.

Part of the challenge for IMPLAN and NASS are the small number problems associated with the minor commercial species, such as poultry, where there are few flocks. Small numbers at the county level creates disclosure problems as individual farm values may be revealed. NASS does not report egg and turkey sales vales for most counties either because sales are zero or there are too few farms in the county. We do know that there are over $40 million in turkey sales in Illinois. NASS does not report broiler sales numbers at all for the State.

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Appendix 5: Sheep

Table 8 A: Top 10 Counties—Sheep

Rank by Output

		Output*			Employment			Tax Impact*
		Direct	Total	% PI	Direct	Total	% Total	
1	Warren	635	754	0.11%	4	5	0.06%	54
2	Wayne	390	475	0.08%	2	3	0.04%	40
3	La Salle	249	379	0.01%	2	3	0.01%	31
4	Woodford	192	252	0.01%	2	2	0.01%	23
5	Henry	189	245	0.01%	1	2	0.01%	20
6	Champaign	187	257	0.00%	1	2	0.00%	23
7	Stephenson	177	232	0.01%	2	3	0.01%	21
8	McDonough	168	199	0.02%	2	2	0.01%	17
9	Mclean	162	215	0.00%	1	1	0.00%	21
10	Winnebago	140	204	0.00%	2	2	0.00%	17

*: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

Table 8 B: Top 10 Counties—Sheep

Rank by share in total county personal income

		Output*			Employment			Tax Impact*
		Direct	Total	% PI	Direct	Total	% Total	
1	Warren	635	754	0.11%	4	5	0.06%	54
2	Wayne	390	475	0.08%	2	3	0.04%	40
3	Clinton	110	154	0.02%	1	2	0.01%	16
4	McDonough	168	199	0.02%	2	2	0.01%	17
5	Schuyler	35	51	0.02%	1	1	0.02%	5
6	Edgar	80	95	0.01%	1	1	0.01%	8
7	Woodford	192	252	0.01%	2	2	0.01%	23
8	Pike	60	82	0.01%	1	1	0.01%	8
9	Stephenson	177	232	0.01%	2	3	0.01%	21
10	Henry	189	245	0.01%	1	2	0.01%	20

*: in thousands of dollars

Source: NASS (2009), IMPLAN (2009), authors' calculations

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Figure 8 A: Top 10 Counties—Sheep

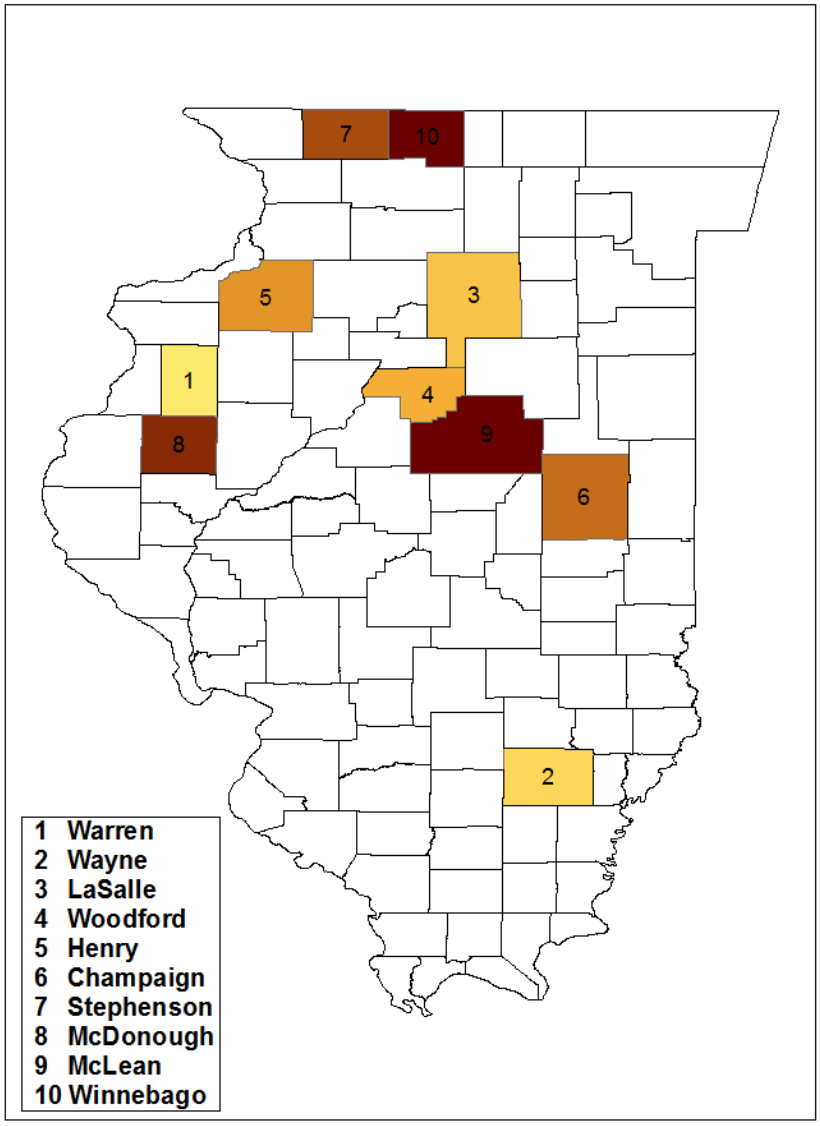

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Figure 8 B: Top 10 Counties—Sheep
Rank by share in total county personal income

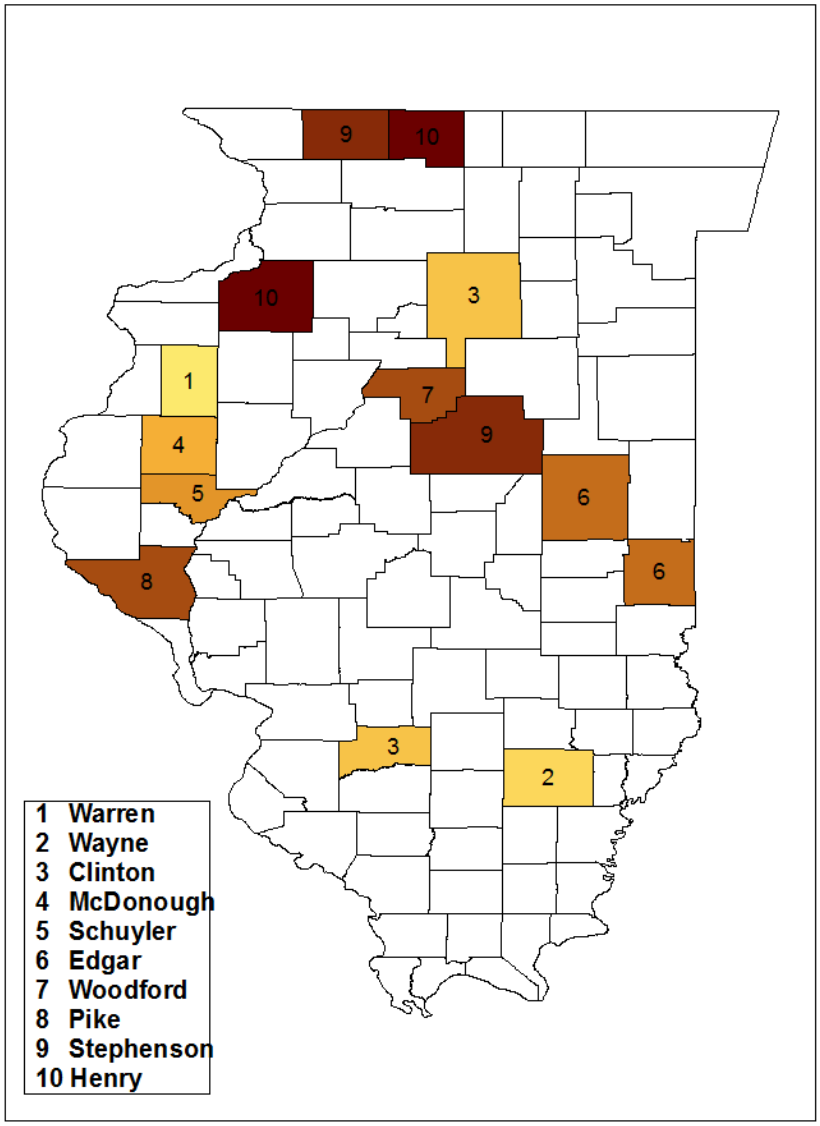

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Table 9 A: Top 10 Representative Districts--Sheep

Rank by Output

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-93	647	875	0.02%	4	6	0.01%	73
2	RD-94	621	925	0.02%	4	6	0.01%	68
3	RD-109	528	687	0.02%	3	5	0.01%	57
4	RD-90	480	677	0.01%	3	5	0.00%	57
5	RD-74	361	486	0.01%	2	3	0.01%	44
6	RD-71	323	449	0.01%	2	3	0.00%	34
7	RD-106	316	406	0.01%	2	3	0.00%	34
8	RD-89	289	434	0.01%	2	3	0.00%	40
9	RD-107	279	385	0.01%	2	3	0.00%	37
10	RD-100	226	317	0.00%	1	2	0.00%	29

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

Table 9 B: Top 10 Representative Districts--Sheep

Rank by share in total county personal income

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	RD-94	621	925	0.02%	4	6	0.01%	68
2	RD-109	528	687	0.02%	3	5	0.01%	57
3	RD-93	647	875	0.02%	4	6	0.01%	73
4	RD-74	361	486	0.01%	2	3	0.01%	44
5	RD-90	480	677	0.01%	3	5	0.00%	57
6	RD-106	316	406	0.01%	2	3	0.00%	34
7	RD-107	279	385	0.01%	2	3	0.00%	37
8	RD-72	179	212	0.01%	1	1	0.00%	15
9	RD-71	323	449	0.01%	2	3	0.00%	34
10	RD-89	289	434	0.01%	2	3	0.00%	40

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

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Figure 9 A: Top 10 Representative Districts--Sheep

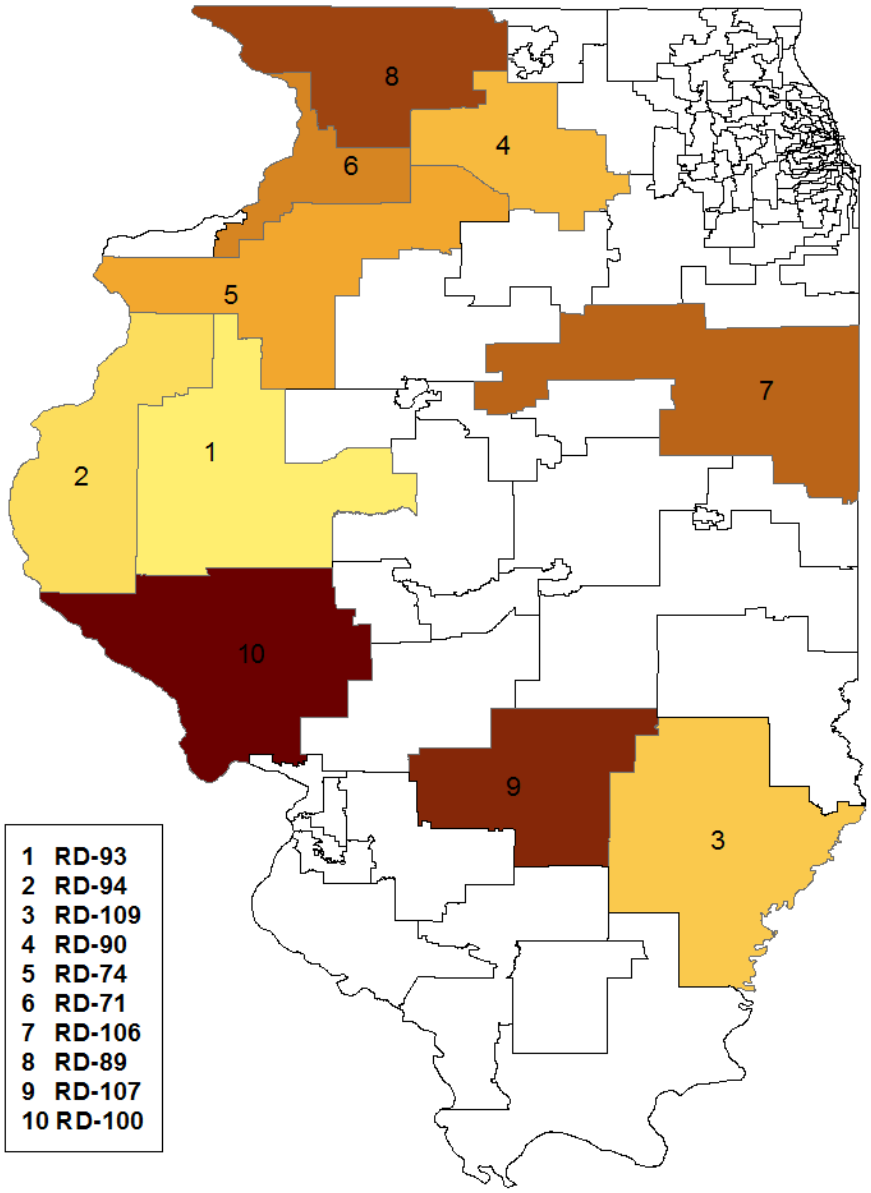

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Figure 9 B: Top 10 Representative Districts—Sheep
Rank by share in total county personal income

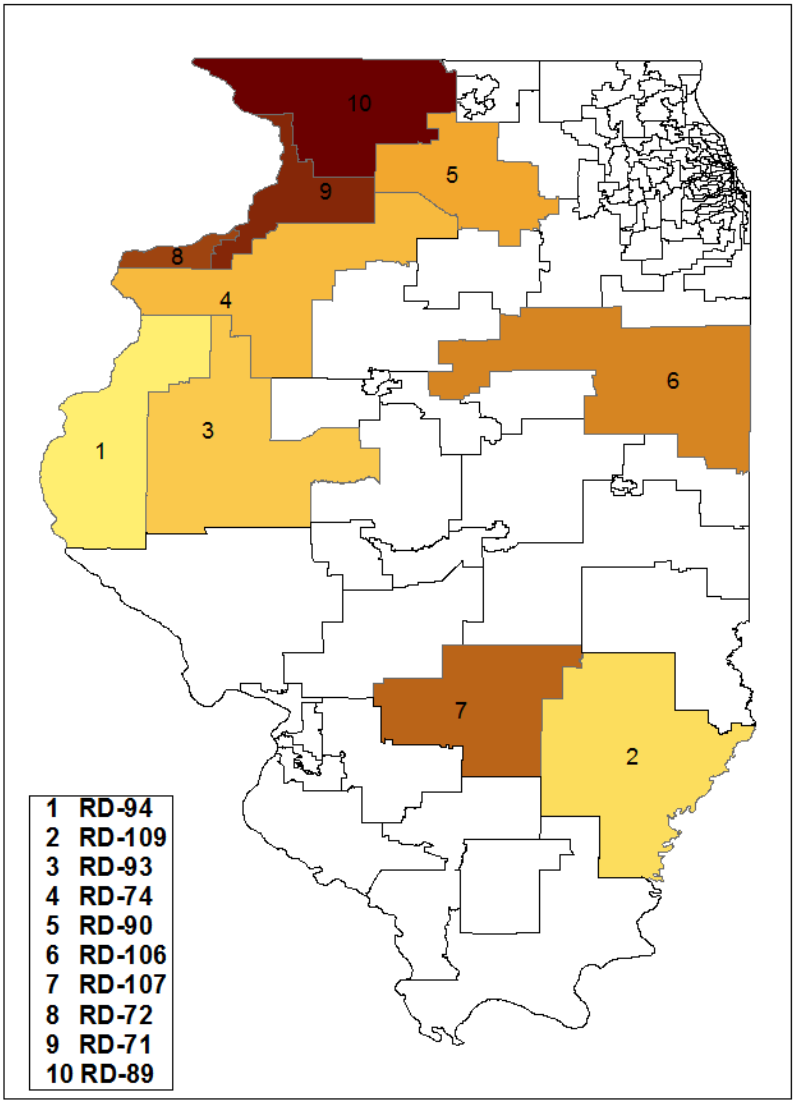

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Table 10 A: Top 10 Senate Districts--Sheep

Rank by Output

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	1,268	1,800	0.02%	8	11	0.01%	141
2	SD-45	769	1,111	0.01%	5	8	0.00%	97
3	SD-55	631	815	0.01%	4	6	0.00%	67
4	SD-37	536	771	0.01%	3	5	0.00%	74
5	SD-36	502	661	0.01%	3	4	0.00%	50
6	SD-53	416	540	0.01%	3	4	0.00%	45
7	SD-54	365	527	0.00%	3	4	0.00%	50
8	SD-51	359	473	0.00%	2	3	0.00%	41
9	SD-50	238	332	0.00%	2	2	0.00%	30
10	SD-48	225	310	0.00%	1	2	0.00%	27

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

Table 10 B: Top 10 Senate Districts--Sheep

Rank by share in total county personal income

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	SD-47	1,268	1,800	0.02%	8	11	0.01%	141
2	SD-55	631	815	0.01%	4	6	0.00%	67
3	SD-45	769	1,111	0.01%	5	8	0.00%	97
4	SD-37	536	771	0.01%	3	5	0.00%	74
5	SD-36	502	661	0.01%	3	4	0.00%	50
6	SD-53	416	540	0.01%	3	4	0.00%	45
7	SD-54	365	527	0.00%	3	4	0.00%	50
8	SD-59	220	299	0.00%	2	3	0.00%	24
9	SD-51	359	473	0.00%	2	3	0.00%	41
10	SD-50	238	332	0.00%	2	2	0.00%	30

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

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Figure 10 A: Top 10 Senate Districts—Sheep

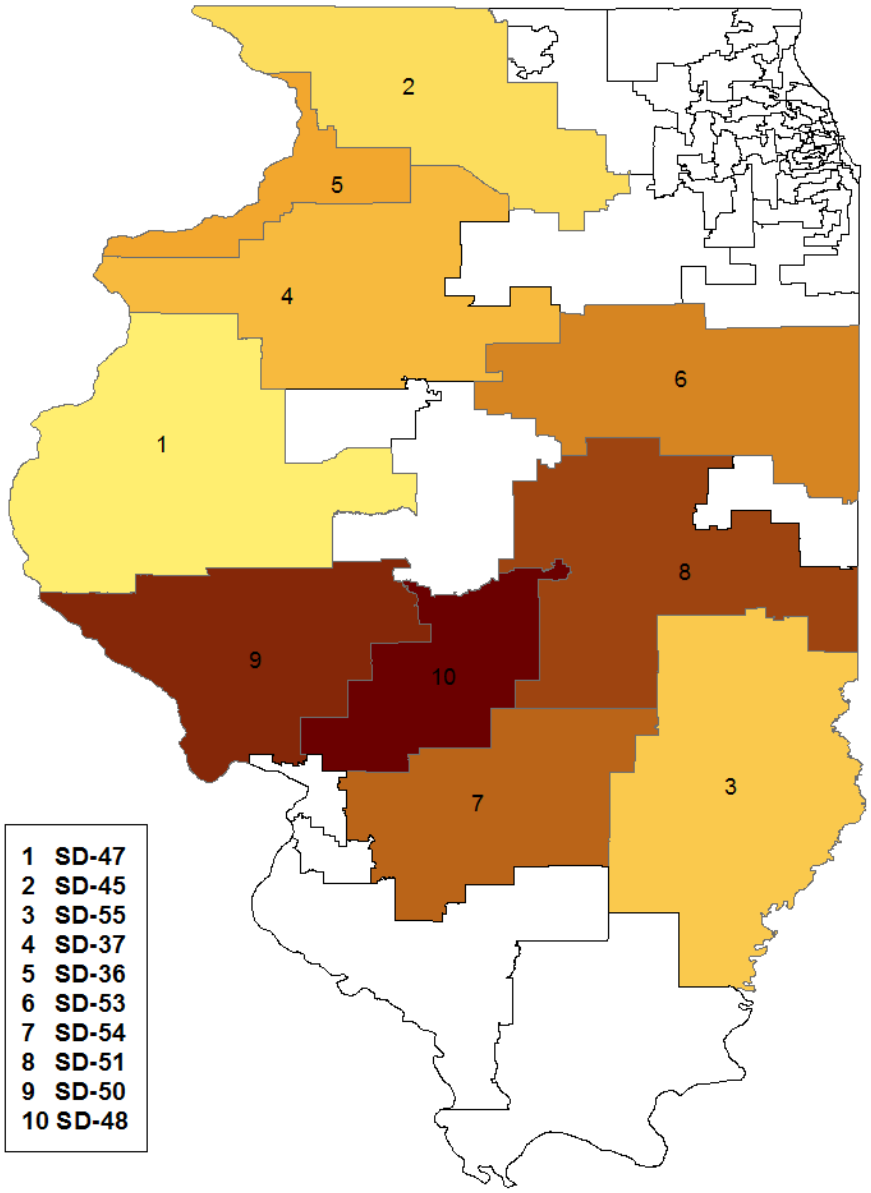

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Figure 10 B: Top 10 Senate Districts—Sheep
Rank by share in total county personal income

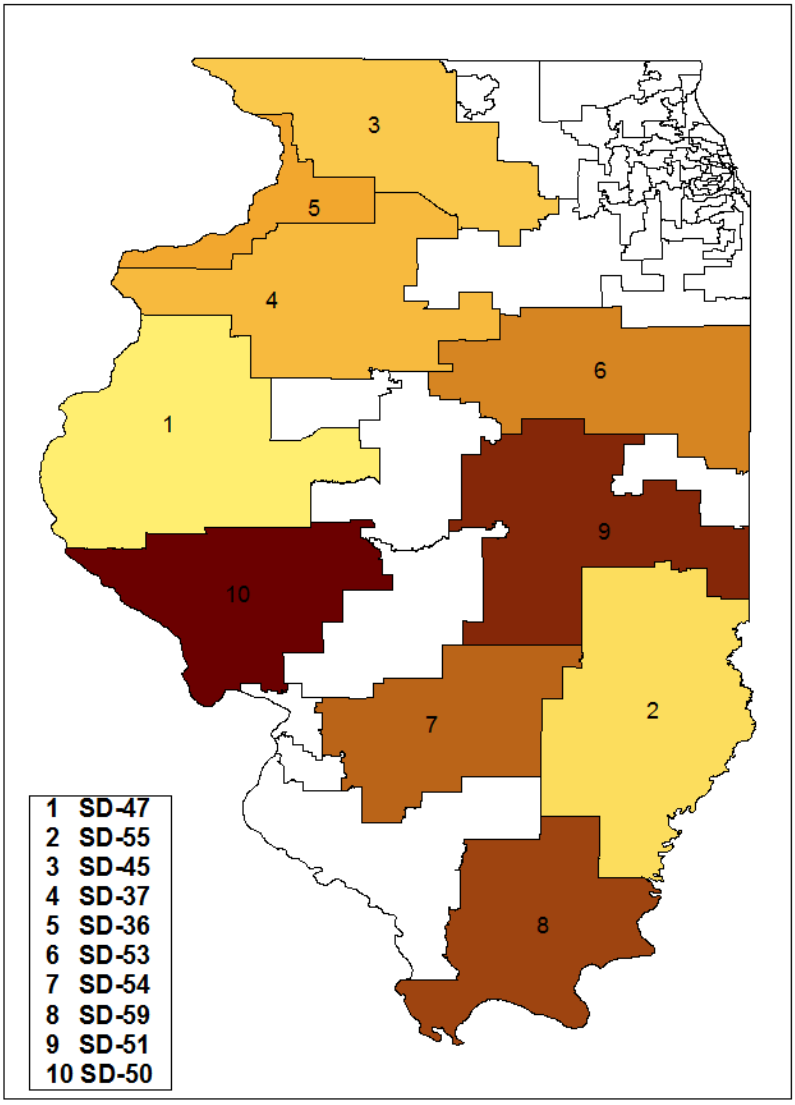

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Table 11 A: Congressional Districts—Sheep

Rank by output

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-16	17,462	24,664	0.08%	221	272	0.07%	2,253
2	CD-17	2,128	3,098	0.01%	27	34	0.01%	260
3	CD-15	1,517	2,118	0.01%	19	24	0.01%	187
4	CD-2	1,053	1,781	0.00%	13	17	0.00%	169
5	CD-18	994	1,600	0.00%	13	16	0.00%	134
6	CD-13	487	674	0.00%	6	8	0.00%	60
7	CD-12	265	423	0.00%	3	4	0.00%	36
8	CD-14	165	225	0.00%	2	2	0.00%	21
9	CD-6	51	87	0.00%	1	1	0.00%	9
10	CD-11	25	37	0.00%	0	1	0.00%	4

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

Table 11 B: Congressional Districts—Sheep

Rank by share in total county personal income

		Output*			Employment			Tax
		Direct	Total	% PI	Direct	Total	% Total	Impact*
1	CD-16	17,462	24,664	0.08%	221	272	0.07%	2,253
2	CD-17	2,128	3,098	0.01%	27	34	0.01%	260
3	CD-15	1,517	2,118	0.01%	19	24	0.01%	187
4	CD-18	994	1,600	0.00%	13	16	0.00%	134
5	CD-2	1,053	1,781	0.00%	13	17	0.00%	169
6	CD-13	487	674	0.00%	6	8	0.00%	60
7	CD-12	265	423	0.00%	3	4	0.00%	36
8	CD-14	165	225	0.00%	2	2	0.00%	21
9	CD-1	19	26	0.00%	0	0	0.00%	2
10	CD-11	25	37	0.00%	0	1	0.00%	4

*: in thousands of dollars

Source: National Agricultural Statistics Service, IMPLAN (2009), authors' calculations

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Figure 11 A: Top 3 Congressional Districts—Sheep

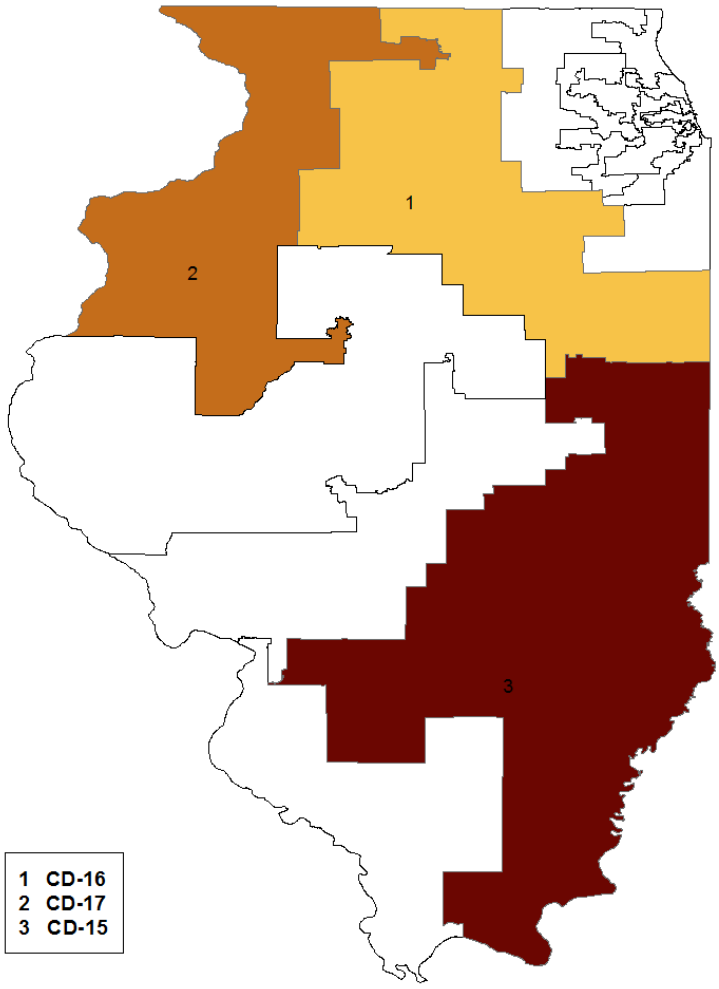

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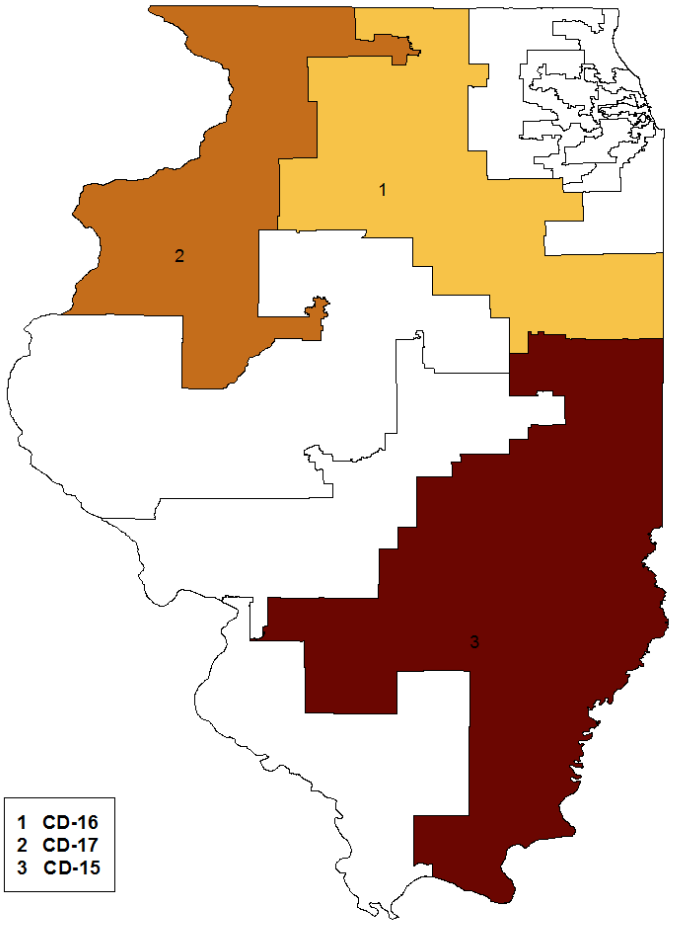
Figure 11 B: Top 3 Congressional Districts—Sheep
Rank by share in total county personal income



Appendix 6: Tax Analysis Methodology and References

1. Tax Impact

IMPLAN makes two assumptions in estimating the tax impact. Firstly, marginal changes and impacts will use the same distribution as the base year. Changes resulting in the addition of the impact to the economy will not be reflected in the analysis. Secondly, the disbursement of the taxes generated is first aggregated and then disbursed as a single entity. In other words, the tax disbursement will be identical for all industry sectors.

The tax report generated by IMPLAN is highly aggregated to enhance readability. The

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total taxes generated are classified as those made to the federal government for non-defense purposes and the state and local governments for non-education purposes. Each of the two categories is further sub-divided as corporate profits tax, indirect business tax and social insurance tax. There are five sources that pay these taxes—employee compensation, proprietary income, household expenditures, corporations and indirect business taxes. Social insurance tax is paid on the compensation earned by employees and proprietor's income. Households pay income tax and other personal taxes. Enterprises primarily pay tax on the profits.

Indirect Business Tax:

Indirect Business Taxes[1] (IBT) are the taxes paid by businesses to the government through sales and excise tax imposition. They are called 'indirect' because the businesses primarily collect these taxes from the consumers, or the household sector, to pay the government. IBT is calculated from the value added[2] due to economic activity. The total value added, which includes Employee Compensation, Proprietary Income, Other Property Type Income and Indirect Business Taxes, is calculated using state and county level industry-specific data[3]. The estimates of each of the sub-components are based on the average regional distribution and are not industry specific. In other words, the IMPLAN estimate of the tax impact of a million dollar investment in the livestock and lumber industry will be different. However, the percent distribution of IBT, employee compensation and other sub-components will be identical.

In the tax report, IBT has five components—motor vehicle licensing taxes, property taxes, sales tax, severance tax, other taxes and non-taxes. Explanation for each of the following follows.

Motor Vehicle Licensing Tax:

Motor vehicle licensing tax is imposed on owners or operators of motor vehicles for the right to use public highways, such as fees for title registration, license plates, vehicle inspection, vehicle mileage and weight taxes on motor carriers, highway use taxes, and off-highway fees. IMPLAN estimates of motor vehicle taxes are based on the regional average derived from the Illinois Department of Revenue (IDoR).

Property Tax and Assessments:

Property taxes relate to property as a whole, taxed at a single rate or at classified rates according to the class of property. Property refers to real property (e.g., land and

[1] Indirect Business Tax is the term used in NIPA for sales tax.

[2] According to the BEA, value added is *"the contribution of an industry to the overall Gross Domestic Product"*. It is calculated as the difference of the gross output and cost of intermediate inputs.

[3] Mention what the sources are here

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structures) as well as personal property; personal property can be either tangible (e.g., automobiles and boats) or intangible (e.g., bank accounts and stocks and bonds). Here, personal property taxes on motor vehicles. Property taxes and assessments are the most significant source of revenue for local governments. These taxes are also called *ad valorem*, which means according to value, because the tax is based on the value of the properties like land and buildings. The value of the property, as evaluated by the assessor is called the Equivalent Assessed Value (EAV). Property taxes are charged on the EAV and not the market value. These taxes are generally imposed by local taxing districts like the school district, municipalities and counties. Illinois does not have a state property tax.

Sales Tax:

These are generally levied by state and local governments as a percentage of the commodity's price. They include sales taxes collected by retail establishments, by wholesalers, and by service establishments. Many states have adopted local sales taxes that are dedicated to transportation projects. Often, transit projects are supported by transportation related local sales tax. Selective sales taxes are levied on a specific commodity at a percentage that differs from that of the general sales tax. They include taxes on motor fuels, tobacco products, alcoholic beverages, public utilities, meals, hotel occupancy, and amusements. (BEA)

Other Taxes:

Other taxes include all those taxes that are not listed here. These funds are primarily taxes on real estate transfer tax, and also include taxes on pharmaceutical assistance and qualified solid waste energy facility payment.

Transportation Funding and Finance:

Sources of Transportation Funds:

There are many sources of funding for transportation infrastructure projects in Illinois. Highway user taxes, property taxes and general funds and grant aids from the state and federal government are the primary sources of transportation finance for local government agencies. The Office of Highway Policy Information (OHPI) of the Federal Highway Administration (FHWA) publishes details of receipts and disbursement of funds at the state and national level.

For the purpose of this analysis, the statewide rates and ratios have been used to estimate the transportation funding impact of county livestock industry. As regards the

Highway User Taxes:

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These are the taxes that are levied directly on the users of the highway. There are three types of user taxes—motor vehicle tax, motor fuel tax and roads and bridges tolls.

Motor Fuel Taxes:

These are taxes on gasoline, diesel oil, aviation fuel, "gasohol," "ethanol," and any other fuels used in motor vehicles or aircraft.
These are collected by the retailer and paid to the government. Thus, this tax is listed as IBT. Motor fuel taxes are levied by both the federal and state governments in all states as well as some of the local governments in 15 states.

In Illinois, out of the 18.4 cents that is levied on purchase of a gallon of gasoline, 15.4 cents are allotted to the Federal Highway Trust Fund, and the rest go towards the federal Mass Transit account. The Illinois Motor Fuel tax imposes an additional 19 cents per gallon of gasoline.

In addition, Cook, DuPage, Kane and McHenry counties in metropolitan Chicago are authorized to collect local taxes on motor fuel purchase at the rate of six, four, two and four cents per gallon respectively. While road and transit districts are allowed to levy local fuel taxes for improvement of local street infrastructure, data pertaining to such collections, if any, are unavailable.

Motor Vehicle Licensing Tax:
Governments are authorized to impose tax on purchase, rent and lease of vehicles. While many states levy a state tax, in Illinois these taxes are implemented locally. The taxes can either be *ad valorem* or excise taxes. In Illinois, the tax rate varies by vehicle type, and is therefore *ad valorem*.

Road Toll Tax:

Road and bridge toll taxes are excise levies on transportation infrastructure paid by the user of the vehicle. These taxes are paid by both households and businesses, and have an impact beyond their geographical location. Illinois has both state and local toll tax on three of the bridges located in Chicago, St.Louis and Peoria. These are also dedicated funds.

Property Taxes:

Illinois has many provisions to divert property taxes and assessment revenue to fund local transportation projects and other services. These taxes can be levied by cities, counties and transit and road districts for various purposes related to transportation. However, the property taxes are not reported by the purpose of collection.

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General Fund Appropriations:

The general fund, as the name suggests, is a pool of money at the disposal of FHWA that is used for a variety of transportation projects. The sources of these funds are revenues from sales tax, income tax and other sources that are not explicitly identified by FHWA.

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Description of Methodology

The transportation tax impact of livestock industry is based on the data published by the Federal Highway Administration (FWHA) Office of Highway Policy and Information. As the data is aggregated at the state level, the estimates of the county contribution are not county specific and use the same distribution as the state.

Property Taxes

Only local governments collect property tax to be used for transportation projects. The contribution of the livestock industry to transportation funds through property taxes is estimated as a constant proportion derived from the IDoR and FHWA data. The constant used is calculated as the ratio of transportation funds raised by property taxes to total property taxes collected.

General Funds

The contribution of livestock taxes to the state and local transportation general fund is calculated as a constant proportion of the state and local sales tax generated by livestock industries. The constant, in turn is the ratio of total general funds to the total sales tax.

Miscellaneous Income

Estimate of contribution to miscellaneous sources of transportation funding follows the state average distribution based on the FHWA data.

County Transportation Fund

The total tax, and in turn the transportation tax, are in proportion to the county's total personal income. Therefore, the total state and local transportation revenue is disbursed in proportion of the county personal income (PI) to each of the counties.

Transportation Fund Raised by County Businesses

The contribution of businesses by source of transportation funding is calculated from the transportation dollars raised by the county businesses, as opposed to households. The contribution though property tax is estimated as the ratio of total commercial and retail property tax to total property tax collected. Similarly, the share in general fund contribution is assumed to be same as the share of sales tax in total of business and income tax. The highway taxes, which account for less than five percent of the total transportation fund, have been ignored for this calculation.

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Table 12 A: Transportation Revenue Generated through Tax

	Motor Fuel and Vehicle Tax	Road Toll Tax	General Funds	Miscellaneous Income	Property Tax	Total
			(in millions of dollars)			
Local	33	0	-	202	943	1,178
Share	3%	0%	0%	17%	80%	100%
State	1,702	666	541	40	-	2,949
Share	58%	23%	18%	1%	0%	100%
Total	**1,735**	**666**	**541**	**242**	**943**	**4,127**
Percent Share						
Local	2%	0%	0%	84%	100%	29%
State	98%	100%	100%	16%	0%	71%

Note:

Source: FHWA 2005, and authors' calculations

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Table 12 B: Revenues used by Local Governments for Highways

	Illinois		National	Illinois		National	Illinois		National
	Total*	Share	Share	Total*	Share	Share	Total*	Share	Share
Total	2,553	100%	100%	2,435	100%	100%	2,435	100%	100%
Motor-Fuel and Vehicle Taxes	33	1.3%	3.2%	32	1.3%	4.1%	30	1.2%	3.6%
Road and Crossing Tolls	0	0.0%	2.1%	0	0.0%	2.5%	0	0.0%	2.4%
Property Taxes	943	36.9%	12.0%	833	34.2%	13.3%	801	32.9%	13.8%
General Fund Appropriations	0	0.0%	30.3%	0	0.0%	33.6%	0	0.0%	32.6%
Other Taxes and Fees	461	18.1%	6.5%	444	18.2%	7.9%	436	17.9%	7.5%
Federal Government	0	0.0%	1.1%	0	0.0%	1.6%	0	0.0%	1.3%
State Agencies	607	23.8%	23.9%	706	29.0%	26.2%	672	27.6%	20.3%

Note:
http://www.fhwa.dot.gov/policyinformation/statistics/2009/
http://www.fhwa.dot.gov/policyinformation/statistics/2008/ldf.cfm
http://www.fhwa.dot.gov/policyinformation/statistics/2007/lgf1.cfm
*: in millions of dollars
Source: FHWA 2007, 2008, 2009, and authors' calculations

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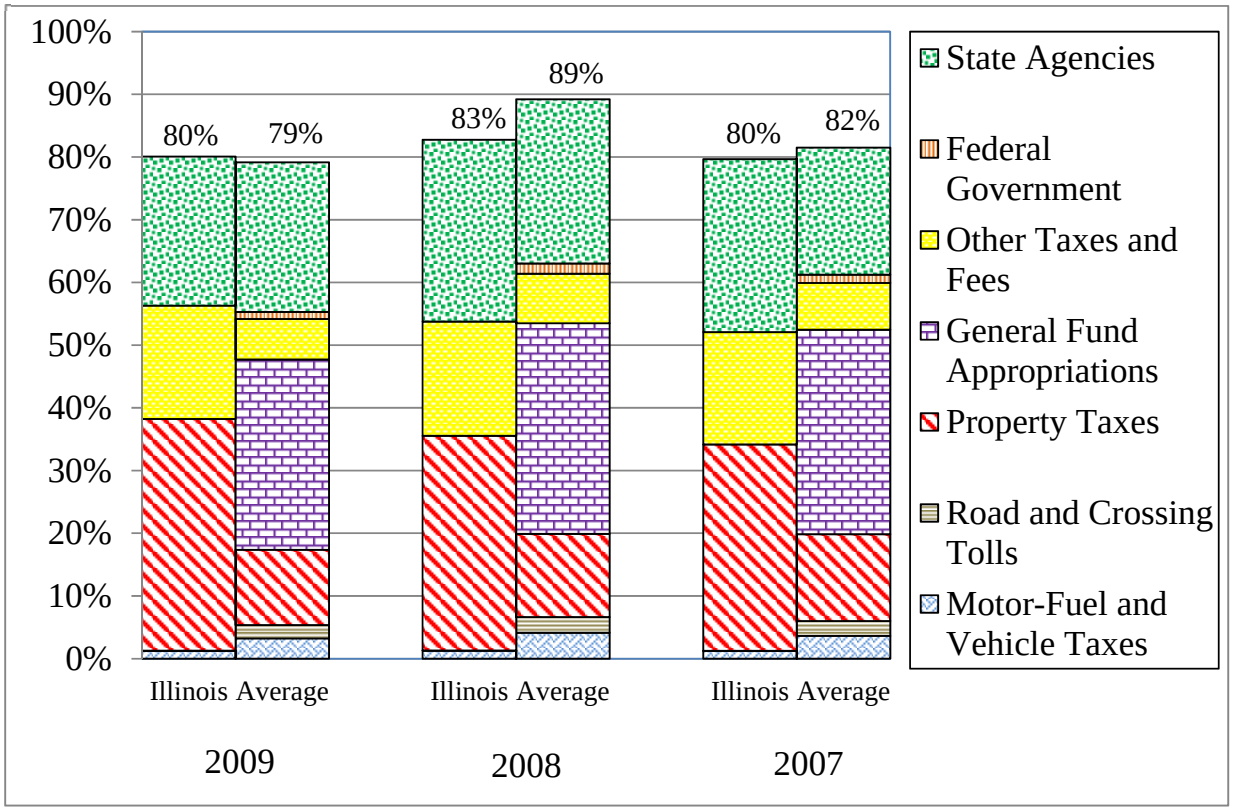
Figure 12 A: Local Highway Revenues by Source, 2009



Source: FHWA 2007, 2008, 2009, and authors' calculations

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Table 12 C: Disposition of Highway User Tax in 2009

	Collection		Expenditure			
	State	Local	State Highway	Transfers to Local Governments	Local Streets	Total Expenditure on Local Highways
	(in millions of dollars)					
Motor Vehicle Tax	857	16	489	288	81	858
Motor Fuel Tax	844	17	481	284	79	844
Road Toll Tax	666	0.2				
TOTAL	2,367	33				
Local Motor Fuel Tax per dollar of Motor Vehicle Tax:					1.07	
State Motor Fuel Tax per dollar of Motor Vehicle Tax:					0.98	
Local Road Toll Tax per dollar of Motor Fuel and Vehicle Tax:					0.01	
State Road Toll Tax per dollar of Motor Fuel and Vehicle Tax:					0.39	

Note:http://www.fhwa.dot.gov/policyinformation/statistics/2009/mv3.cfm,
http://www.fhwa.dot.gov/policyinformation/statistics/2009/mf3.cfm,
http://www.fhwa.dot.gov/policyinformation/statistics/2009/lgf1.cfm,
http://www.fhwa.dot.gov/policyinformation/statistics/2009/sf1.cfm.
Source: FHWA2009, and authors' calculations

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Table 12 D: Property Tax Revenue in 2009

	(in millions of dollars)		
	2007	2008	2009
Total taxes extended	22,443	23,552	24,768
Commercial	5,356	5,525	5,771
Share	24%	23%	23%
Local highway revenue	2,435	2,504	2,553
Local highway revenue from property taxes	801	833	943
Share			
of total	4%	4%	4%
of commercial	15%	15%	16%

Note:http://www.fhwa.dot.gov/policyinformation/statistics/2009/lgf21.cfm,
http://www.revenue.state.il.us/Publications/LocalGovernment/PtaxStats/2006/index.htm.
Source: FHWA2007, 2008, 2009, and authors' calculations

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Table 12 E: Total Revenue Collected by State Government in 2009

	(in millions of dollars)	
Total state collections	26,832	
Income tax	13,570	51%
Sales tax	9,284	35%
Motor fuel	1,371	5%
Excise tax	2,527	9%
Gaming tax	15	0%
Others	64	0%
Total state indirect business taxes*	45,827	78%
For local government	13,200	23%
Total state and local taxes	58,500	100%
		Share
Total of Income, Sales and Excise tax	25,381	100%
State General Fund Appropriations	541	2%
Local General Fund Appropriations	0	0%
Total General Fund Appropriations	541	

*: Sales, excise and other taxes paid during normal operation of industry

Note:http://www.fhwa.dot.gov/policyinformation/statistics/2009/sf1.cfm, http://www.fhwa.dot.gov/policyinformation/statistics/2009/lgf21.cfm, http://www.google.com/url?sa=t&source=web&cd=11&ved=0CC8QFjAAOAo&url=http%3A%2F%2Fwww.ctmirror.org%2Fsites%2Fdefault%2Ffiles%2Fdocuments%2FEY-COST_FY2008_50-State_Business_Tax_Study.pdf&rct=j&q=2009%20Illinois%20state%20and%20local%20business%20tax&ei=sSbxTfPPKMycgQer1ZnRBA&usg=AFQjCNEYhdp6gnhAwm8bDEugru_74F8Y2w&sig2=HcO5zbtLC84xlSU6tQgAvw&cad=rja.

Source: FHWA2009, and authors' calculations

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