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Local Economic Development: Researching Clusters in Woodford County, Kentucky

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Executive Summary

Woodford Tomorrow, a citizen economic development planning group in Woodford County, is interested in promoting cluster development. Clusters are a geographic concentration of businesses and institutions which interact and collaborate within a particular economic sector. This report provides quantitative analysis of three clusters: (1) health, (2) agriculture, and (3) arts, entertainment, and tourism. The majority of this data comes from the consulting firm Economic Modeling Specialists Inc.

The agriculture cluster has many industries, specifically in the crop and animal production and manufacturing sectors, which appear to be potential industries to target. The hotel and motel industry seems to be an opportunity to develop the arts, entertainment, and tourism cluster more fully. This corresponds with the March Woodford Tomorrow meeting, in which there was discussion of the lack of hotels and the potential for value to the county if a hotel was present. The health cluster does not appear to contain any industries that could be targeted for large businesses to attract to Woodford County.

Before Woodford Tomorrow targets any industries for attraction or expansion within the county, an analysis of the demand for the cluster industries would be helpful. A demand analysis would complement the potential target industries found in this report. This effort would assist potential investors in industry attraction or expansion to determine the realistic market for the proposed venture.

Other policy recommendations include understanding and enhancing the county's amenities, such as its recreational infrastructure, and growing local capitalism and entrepreneurship in the county. Finally, the Woodford Tomorrow group should be promoted further for more membership and public awareness, because this is a community development organization that helps build social capital.

Cluster analysis of a larger scope—the Lexington metropolitan area—would likely provide a more complete assessment of the region's cluster strengths and opportunities.

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A. Introduction

Purpose

This report is to be submitted to a citizen planning group in Woodford County. Its aim is to assist subcommittees by providing them with quantitative data that assesses economic clusters' current standing and opportunities in the county. Based on analysis of the data, implications and expectations for the future in each cluster were developed. Other discussion is provided, including an overview of relevant literature discussing local economic development trends and an examination of when it is appropriate for governments to promote clusters. The report concludes with an assessment of the results, as well as policy implications for Woodford County.

Background

This project came about because a group of citizens in Woodford County believe the county is in transition and they want to plan for improved economic development. Sarah Burns, a fellow UK Martin School masters student, and I completed a report that provided a general summary of the county's economic profile in December of 2010. We presented our analysis and findings to Woodford Tomorrow, a citizen economic development planning group, on February 12, 2011. A great amount of assistance was provided by Dr. Allison Davis, a professor in the Agriculture Economics Department at UK and economic development consultant in CEDIK, in editing the report and presenting it to Woodford Tomorrow.

In order to understand what Woodford Tomorrow strives to do, their formation as a group must first be explained. On November 12, 2010, Woodford Coalition hosted an event called the Woodford County Economic Development Summit. According to their mission statement, Woodford Coalition is "a network of neighborhood associations and individuals who are committed to sustaining the agricultural and land resources of Woodford County that contribute to our unique identity."[1] People were invited representing many segments of the Woodford population, such as government officials, religious leaders, and business owners. The half-day event was held in a church fellowship hall, and around 90 people participated. Doug Henton was the featured speaker and facilitator of the summit. Henton is a nationally recognized consultant and author of books on how to develop successful strategies and action plans to promote local economic development.

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[1] Woodford Coalition mission statement, handout from November 13, 2010 meeting.

The goals of the summit were to

- ❖ bring leaders from all levels of government, business, education, economic development, tourism, agriculture, social services, banking, health services and other organizational leaders to the same table to begin a community conversation at the same place and time;
- ❖ have each participant hear the same message about local economic development issues across the nation, with the lecture given by consultant Doug Henton;
- ❖ get across the notion that this is a reality check, in relation to what a "changing economy" means, and to start a conversation among the county leaders; and
- ❖ implement a collaboration process and action plan, if a committee formed out of the summit.[2]

The organizers of the event and participants expressed how significant this summit was to the county residents. A common theme was discussed of developing a "spirit of collaboration." People said that these different groups representing various interests had argued over economic development policy and county planning for many years, even decades. Some participants expressed that the fact that they were meeting together and willing to listen to each other demonstrates that the summit was a positive development.

During the summit, Henton gave a presentation in which he stressed two main points relevant for local development in the 21st century:

(1) High quality of life is the most important economic development asset communities can have; and

(2) Many communities have been successful in developing clusters unique to the region's economic strengths and weaknesses.

Clusters were defined in the meeting as "a geographic concentration of firms and institutions whose activities are interconnected and interdependent within a particular economic sector."[3] A common example is Silicon Valley, with the high-tech industries and technologies interacting, sharing information, and selling products to each other.

Henton also facilitated small group discussions asking each group to assess Woodford County's strengths and weaknesses for economic development, the current reality, and the desired future. Additionally the groups identified what they thought the county's clusters are. The small groups were randomly assigned, so that a mix of individuals with different views could interact. These discussions were meant to be brainstorming opportunities—to get the conversation started. This facilitated a dialogue between different interests

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[2] Interview with Deborah Knittel, organizer of the summit, on February 7, 2011.
[3] Doug Henton, PowerPoint slides, November 12, 2010 summit

represented at the summit, so that a mix of people from each group could discuss these economic issues in the county in their small groups. Henton then had each small group choose a delegate to summarize the conclusions and opinions of each table.

Although there was some consensus on what are the weaknesses of the county, the vision or goals moving forward were less consistent. Nearly everyone who spoke wanted to develop a "spirit of collaboration", but discussion of how exactly to achieve this future did not occur. However, a major result of the summit was that a planning group was formed. The group intends to try to tackle some of the issues, including research into the two main issues Doug Henton had stressed, and how it applies for Woodford County. Around 25 people volunteered to participate in this new planning group, which came to be called Woodford Tomorrow.

Woodford Tomorrow's mission was established in subsequent meetings: to gather as neighbors and community leaders in acting as strategic facilitators to envision and collaborate on improving and communicating Woodford County's attractiveness to residents, businesses and visitors.[4]

The February 12 presentation to Woodford Tomorrow was one of the first meetings of the newly formed group. At the next monthly meeting, on March 14, the group discussed the implications of the general economic overview report they had received. The group decided to target a few particular clusters to be analyzed in greater depth, with subcommittees formed for each cluster. The goal of these subcommittees is to have different people within the group have more specialized knowledge of each cluster, and to bring that understanding back to the whole group to attempt to form a comprehensive plan and vision for Woodford County.

The subcommittees that the group formed were (1) agriculture, (2) arts and culture, (3) business and financial services, (4) health services, (5) hospitality, (6) manufacturing, and (7) education and knowledge creation. Each subcommittee was to provide monthly reports on their progress on their duties, which is outlined in the agenda for the March meeting in Appendix A.

This report will provide quantitative data and analysis of three clusters as identified by the consulting firm Economic Modeling Specialists Inc. (EMSI): (1) Agribusiness, (2) Biomedical, Biotechnical Life Sciences, and (3) Arts, Entertainment, Tourism. These clusters are very comparable areas of study in relation to the agriculture, health services, hospitality, and arts and culture subcommittees that Woodford Tomorrow formed. The report will conclude with a discussion of the results and implications for public policy in Woodford County.

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[4] Woodford Tomorrow, February 12, 2011 meeting notes.

B. Background Literature

Before providing the results of the analysis of Woodford County clusters, the following discussion gives a summary of local economic development strategies, a more complete definition of what clusters are, and an examination of when governments should pursue cluster development.

Brief History of Local Economic Development

Local economic development has the general aim of creating wealth in communities, often measured by increasing the tax base and creating jobs. Local economic development policy has been generally recognized as starting in the Great Depression era. Local and state governments supplemented the New Deal strategies of Roosevelt, aimed at adopting policy that encouraged short-term economic growth in certain sectors. One example is the Mississippi Balance Agriculture with Industry (BAWI).[5]

In 1929 Hugh White, the mayor of Columbia, Mississippi, attracted a manufacturing company to relocate by providing capital funds to help construct their buildings. In return, the company guaranteed at least 300 jobs for 10 years. Later in the 1930s Mississippi adopted the Mississippi Balance Agriculture with Industry (BAWI) program, setting policy that encouraged short-term economic growth in certain industries. The state sought to augment President Roosevelt's federal economic policies (like the Tennessee Valley Authority) with locally sponsored and financed operations.[6] Mississippi promoted itself as a low-cost alternative location for manufacturing firms that were in the northeastern United States. The most important BAWI development was the attraction method of providing tax incentives to businesses for relocating. This prompted other states to follow Mississippi's lead.[7]

The BAWI program is an example of what scholars call the first wave of economic development strategies. The purpose of first wave strategies is quite simple: to attract businesses and jobs to a region or state. Typically large industrial or manufacturing companies were the main type of firms that governments attempted to attract.

The first wave of economic development continued to be the major method for local and state governments from the 1970s to the 1990s. Business incentives were the most common technique that governments utilized. The rationale for local governments was to create a good business environment by recruiting businesses to lower their costs—either by providing land to build on, tax incentives that minimize costs, or both. This led to communities competing against each other for the best companies.

The second wave of economic development theory was developed after business attraction was successful to some degree between the 1970s and the 1990s, then the government focused on how to retain and expand the businesses in the community. Manufacturing

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[5] Deller and Goetz (2009)
[6] Lester (2004)
[7] Deller and Goetz (2009)

started to decline and urban centers were in decline, prompting local government to shift policies. Becoming a major focus to governments in the 1990s, business retention strategies were much more varied and specific to the local geography, culture, economy, and demography. The basic goal of this second wave, is keeping money within the local economy, tying businesses to the community through its workforce and assets. Cluster development is one example of a second wave strategy.[8]

Finally, the third wave of economic development strategy emerged in the 1990s, focusing more broadly on investing in the public to improve quality of life and empowering communities. Although even more varied and fluid than the second wave, this strategy seeks to invest in the people who live in the community, so that others may be attracted to live and work there. The rationale is that businesses follow high-quality workers, since people are much more willing to relocate in the present than in the past.[9] Richard Florida's discussion of the "creative class" is a prime example of a mobile workforce looking for a high quality of life as a prime motivator toward employee location. Third wave policies often encourage local service sector growth, such as developing microenterprises, community development neighborhood groups, or business incubation centers. [10]

Current Economic Development Strategy and Clusters

Governments began to move away from first wave in the last few decades because inter-governmental competition ended up forming an unhealthy cycle, such that even when a community "won" a business (i.e. it located there), the result was often an overreliance on that business, insufficient government revenue, and if the business left, a devastated community. The first wave is negatively termed "smokestack chasing" as a result, and is less emphasized by scholars as the sole viable economic development strategy.

Using results of surveys given to ICMA (International City/County Management Association) members, Zheng and Warner (2010) conclude that "although business incentives are widely used across local governments, there was a gradual shift toward second- and third-wave policies over the decade [1994-2004]." An increased notion of accountability has been applied to first wave strategies according to the results, causing a decline in intergovernmental competition. The authors state that first wave strategies can still be used effectively, but they must be tracked closely, to assure accountability.

One second wave strategy was developed by Michael Porter in the 1990s, in which he termed the "cluster" concept: "geographically close groups of interconnected companies and associated institutions in a particular field linked by common technologies and skills."[11] Porter promoted clusters as a public policy solution in economic development strategy as a response to increasingly globalized economies.

The benefits of a cluster are that it is a focused economic development strategy that may keep money and industry in the local economy, providing more benefits and stability over

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[8] Blakely and Leigh (2010)
[9] Zheng and Warner (2010)
[10] Florida (2002)
[11] Porter (2001)

time. Firms interacting and buying from one another helps to "plug leakages", so that money is spent inside the region. A nearby example comes from Georgetown, Kentucky, when the Toyota automobile manufacturing plant opened in 1988. This key firm sparked the location of local suppliers to provide input supplies and services to complement Toyota's operations. This is just one type of cluster— the "Hub-and-spoke" cluster type. It and other clusters are described in Table 1.

Other benefits of clusters include:

➢ production and marketing cost savings to businesses in cluster(e.g. Bourbon Trail),

➢ greater ability for firms to adopt new technologies (e.g. Silicon Valley), and

➢ development of linkages, cooperation, as well as competition among firms (e.g. Research Triangle, NC).

Some disadvantages of clusters include:

➢ "picking winners", or being too selective or restrictive about what local governments are looking for rather than being flexible and adaptable to the economic circumstances,

➢ no cluster opportunities available, either through no competitive advantage, too small a community, or otherwise imprudent, and

➢ imbalanced economic development in regions, distracting localities from having a comprehensive economic development plan.[12]

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[12] Shields, Barkley, and Emery (2009)

Table 1: Markusen's Types of Clusters[13]

Cluster Type	Description with Type of Member Firms	Example in Kentucky
Marshallian	Small and medium locally owned firms	"Buy Local" promotion/policies
Hub-and-spoke	One or several large firms with several smaller suppliers and service firms	Toyota plant in Georgetown, Kentucky
Satellite platforms	Medium and large branch plants	Amazon distribution centers in 6 counties in Kentucky
State-anchored	Large public or non-profit entity and related supplying and service firms	Lexington (with University of Kentucky)

When Is It Appropriate for Governments to Promote Clusters?

Whether it be implemented by citizen planning organizations, or city or county government organizations themselves, the question 'Should organizations that represent the public interest of Woodford County try to develop certain clusters?' is quite relevant when considering the overall purpose of this report. This question relies on many factors, one being whether county residents consider any of the cluster data provided Section D to be evidence of the potential for real economic growth.

In traditional economic theory, firms supply goods and services where they are demanded. Clusters may develop when it is a competitive advantage for a firm to locate near other similar and related businesses, thereby driving down costs, improving efficiency, and producing a greater profit. The market should, given perfect knowledge, tell firms where they should locate, and how much demand is available, creating equilibrium between supply and demand. Clusters would only exist under these circumstances when a local export industry is developed, allowing trade to occur to import the goods and services that are not supplied locally. Consequently in classical economics, public or government participation in developing clusters would damage the market by providing congestion when affecting where businesses locate.[14]

However proponents of cluster development argue that local economies do not operate with perfect knowledge, and that businesses are often unaware of untapped markets and demands. The traditional economic theory has two important assumptions that are unrealistic: (1) equilibrium of economic systems, and (2) mobility of capital. Money and

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[13] A similar table is found in *Targeting Regional Economic Development* in the Shields, Barkley, and Emery (2009) article. Other than the Marshallian cluster, Markusen (1996) developed the three other cluster types.
[14] Swann (2006)

labor is often tied to places, or communities, for other reasons than following the laws of supply and demand, where income is always maximized. There may be positive externalities that affect the entire community when it has a strong cluster. In this case, public planning organizations may become facilitators in developing clusters, to remove obstacles or provide evidence to businesses or other organizations that opportunities are present.
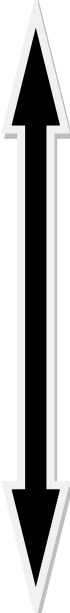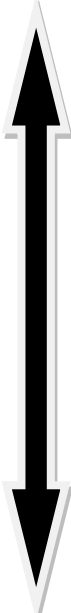
Table 2 provides an analysis of when local governments may or may not want to engage in promoting cluster development. If cluster effects at the bottom of the spectrum are induced (i.e. the "rich effects"), then governments should create policy to promote a cluster. The "shallow effects" may be necessary for clusters to be present, however if the richer effects do not result, the cluster may not benefit the overall economy as it may be intended.

The "shallow effects" are easier to measure, and thus are more likely to be known by businesses so that they can determine whether they should join a cluster or not. The rich effects of a cluster have to do with producing both better efficiency and economic output within the cluster, as well as attracting the kinds of workers necessary to sustain a strong cluster. These effects are hard to measure, and this is why the private sector may not recognize these effects as benefits when considering relocating to a cluster. It is a spectrum similar to public goods being promoted by the government over goods which should be left to the private sector.

A government's promotion of a cluster should be established so that the addition of a new business into a cluster does not only benefit that business (i.e. why the business joined the cluster), but also benefiting the existing cluster businesses. An equilibrium should develop so there is a balance of industries within the cluster. Governments should be vigilant to know when there is more room for growth, and when any additional cluster growth does not induce rich effects any longer. Afterward, businesses will join the cluster when it is economically profitable to do so, even though the new business may not produce rich effects to the rest of the cluster.[15]

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[15] Swann (2006)

Table 2: Interpretations of the Effects of Clusters[16]

	Shallow Effects	Easy to measure
Firms located closely together (agglomerated)		
Technological proximity		
Input/output multipliers complementary to firms		
Specialized local economy		
Network firms		
Labor mobility		
Explicit collaboration		
Informal knowledge spillovers	Rich Effects	Hard to measure

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[16] A similar table is provided on page 257 of *Clusters and Regional Development: Critical Reflections and Explorations*, in the Swann (2006) article.

C. Discussion of Quantitative Data

EMSI Data

A majority of the quantitative data presented in this report comes from the consulting firm Economic Modeling Specialists Inc. (EMSI). This data is proprietary and is presented with permission of Dr. Allison Davis of the Agriculture Economics Department at UK.

EMSI data is aggregated from statistics produced by many U.S. government agencies, including the Bureau of Economic Analysis, Bureau of Labor Statistics, and the U.S. Census Bureau. Their projections are based on trends in each industry, and can be affected by state or national growth rate projections from the Bureau of Labor Statistics. For a more complete description of the data used in preparing the EMSI analysis, see Appendix B.

Explanation of Terminology: "Industry" versus "Cluster"

As described on EMSI's website, "an industry is a category of economic activity." One business may be involved in one or many industries."[17] For example, a company may locate a corporate office in one community, a manufacturing plant in another state, and a warehouse in a third—thereby encompassing three different industries. Clusters, on the other hand, are made up of industries that interact with each other.

The industry names are categorized by the North American Industry Classification System (NAICS). According to the U.S. Census Bureau, "… [NAICS] is the standard used by Federal statistical agencies in classifying business establishments for the purpose of collecting, analyzing, and publishing statistical data related to the U.S. business economy."[18]

NAICS uses a six-digit hierarchical coding system to classify economic activity into twenty industries. Business establishments get a six-digit code and category title, which organizes them primarily by similar production processes. By removing digits from the end of a code you get a less detailed category code. There are 20 two digit industries classified by NAICS.[19] For example:

- 23 – Construction
- 236 – Construction of Buildings
- 2362 – Nonresidential Building Construction
- 23622 – Commercial and Institutional Building Construction
- 236220 – [Identical to parent category]

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[17] Economic Modeling Specialists Inc., "EMSI Data Guide: Industry Data," October 2010. http://www.economicmodeling.com/2010/10/04/emsi-data-guide-industry-data/
[18] U.S. Census Bureau http://www.census.gov/eos/www/naics/
[19] U.S. Bureau of Labor Statistics http://www.naics.com/naics2-6page.htm

D. Overview of Woodford County's Economy

In this section, a summary of Woodford County's economy is presented. Having a broad understanding of the current status of the county helps to pinpoint particular industries and clusters that can be further studied.

Woodford County as a whole has a population of 24,986, which is the 47th most populous of Kentucky's 120 counties. The county has 191 square miles of land, averaging of 121.7 people per square mile. The county seat is Versailles with at population of 7,292. The only other incorporated city in Woodford County is Midway, with a population of 1,627.

Income

Woodford County has the highest per capita personal income in Kentucky; however it is only 4% higher than the national average. Table 3 and Figure 1 both indicate that the county is relatively above average compared to state and national income levels.

Table 3: Incomes, 2008

	Woodford County	Kentucky	U.S.
Median household income, 2008	$58,076	$41,489	$52,029
Per capita income, 2008	$41,954	$31,936	$40,166
Persons below poverty level, percent, 2008	9.7%	17.3%	13.2%

(Source: US Census Quick Facts and Bureau of Economic Analysis)

Figure 1: Comparing Incomes, 2008
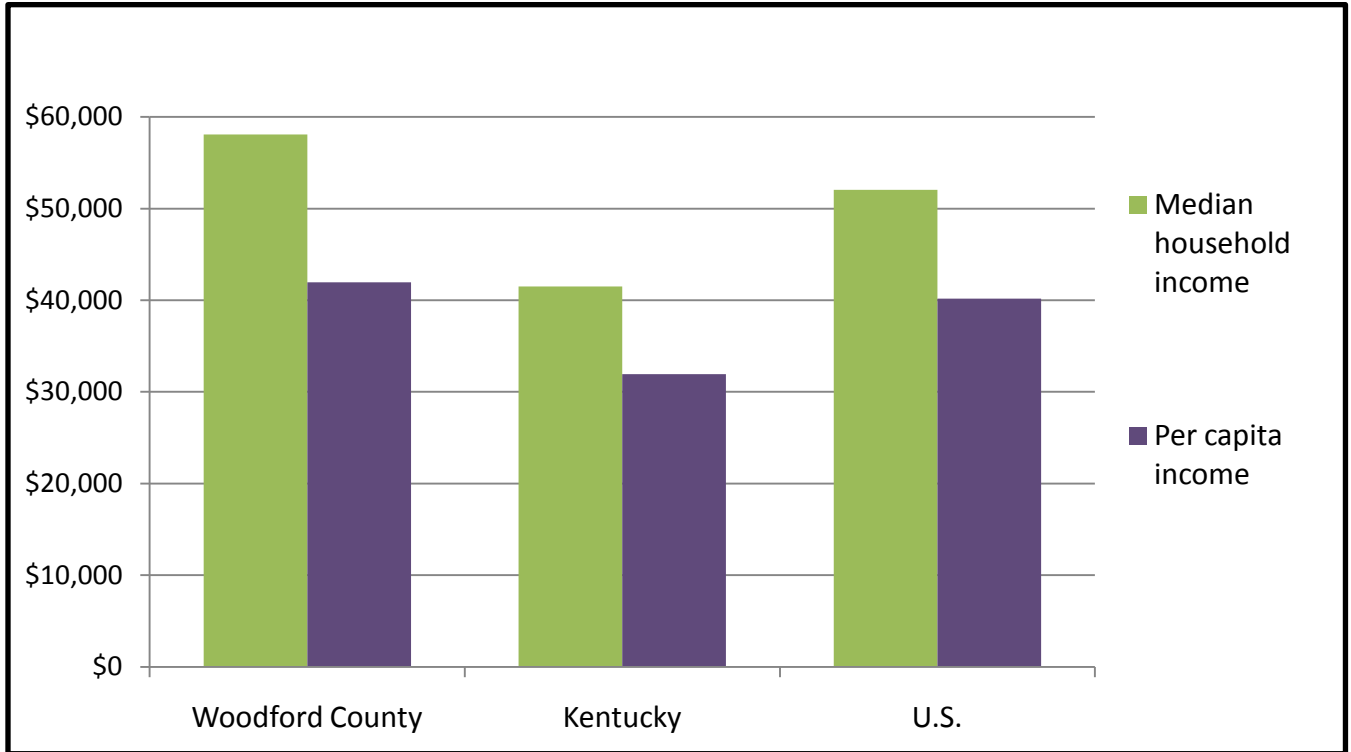
(Source: US Census Quick Facts and Bureau of Economic Analysis)

Employment

Figure 2 represents the employment growth rates across regional, state, and national scales from 2002 to 2010. The **region portrayed is solely Woodford County**. The results indicate that the county's employment changes parallel both the national and state growth rates. The county lost relatively more jobs than the state or national averages from 2009 to 2010.

Figure 2: Employment Changes, County, State, and National Levels, 2002-2010
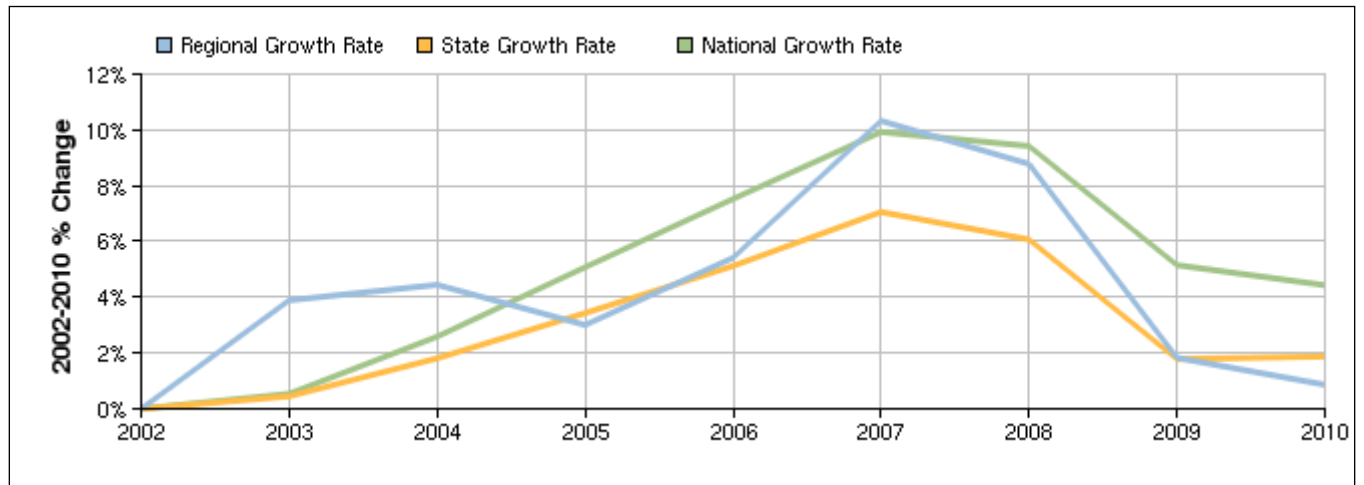
(Source: Economic Modeling Specialists Inc..)

Table 4 is helpful in knowing which types of jobs are in decline locally in the 21st century, and which jobs the county has been gaining. The county lost many jobs in manufacturing; however the county actually gained 104 jobs from 2002 to 2010. Other industries made up for this loss in aggregate, meaning that workers may have diversified or dispersed their employment upon the loss of manufacturing jobs to a more varied service sector job.

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Table 4: Change in Employment by Industry, 2002-2010

NAICS Industry Description	2002 Jobs	2010 Jobs	Change in Jobs
Administrative and Support and Waste Management and Remediation Services	271	675	404
Professional, Scientific, and Technical Services	779	987	208
Educational Services	265	459	194
Real Estate and Rental and Leasing	333	494	161
Transportation and Warehousing	137	259	122
Accommodation and Food Services	499	613	114
Retail Trade	1,129	1,239	110
Arts, Entertainment, and Recreation	414	476	62
Wholesale Trade	312	352	40
Finance and Insurance	386	422	36
Mining, Quarrying, and Oil and Gas Extraction	<10	32	22
Health Care and Social Assistance	670	683	13
Utilities	40	35	-5
Information	110	100	-10
Agriculture, Forestry, Fishing and Hunting	2,941	2,812	-129
Construction	805	631	-174
Manufacturing	3,016	1,949	-1,067
Total	**12,113**	**12,217**	**104**

(Source: EMSI Complete Employment - 4th Quarter 2010)

Figure 3 indicates that Woodford County saw no gains in the unemployment rate over the 2010 year, while other counties in Central Kentucky did. Woodford County had 0.0% change in unemployment, and Anderson County was the only neighboring county that did not see its unemployment rise.

Figure 3: Change in Unemployment in Kentucky Counties Jan 2010-Jan 2011
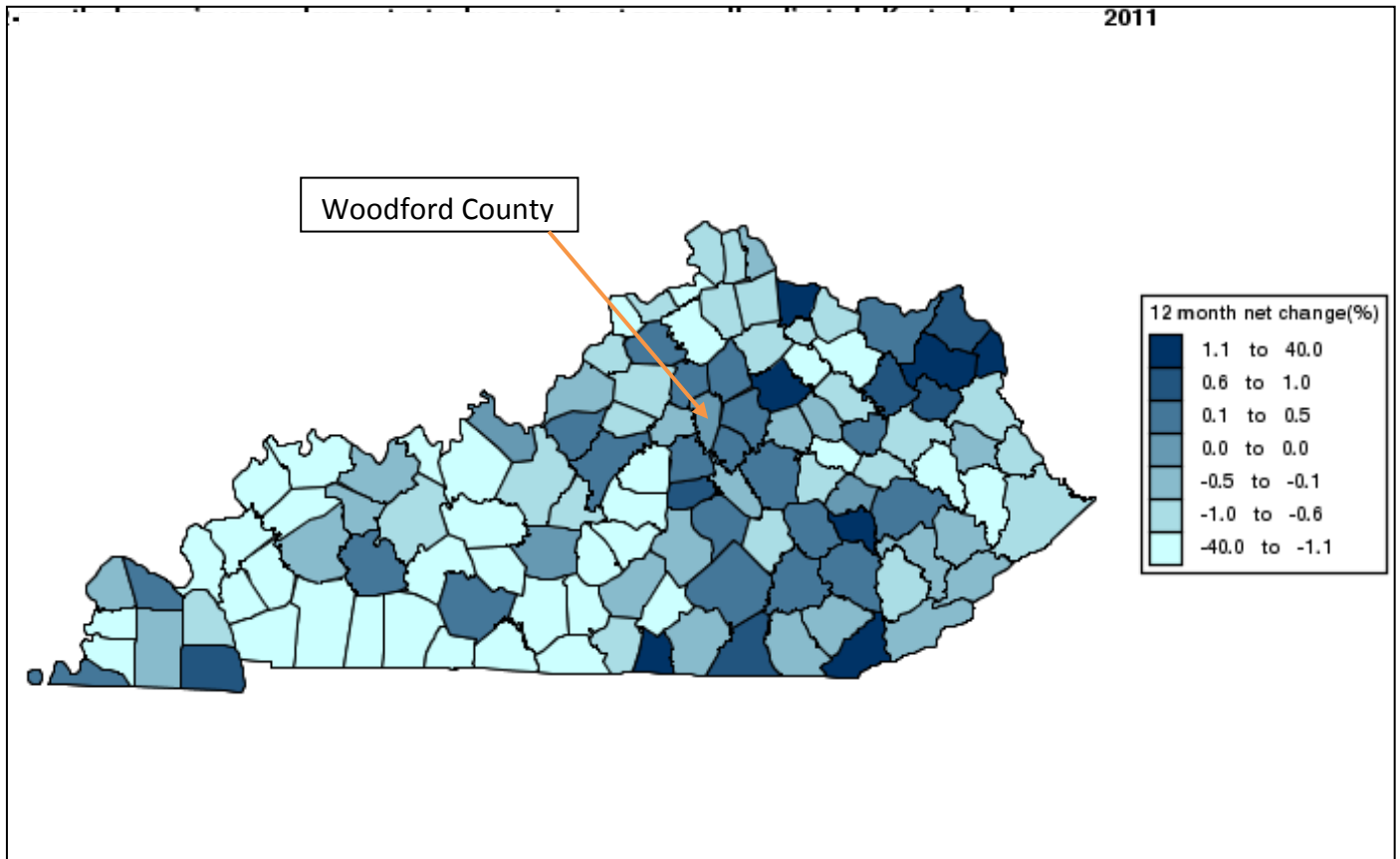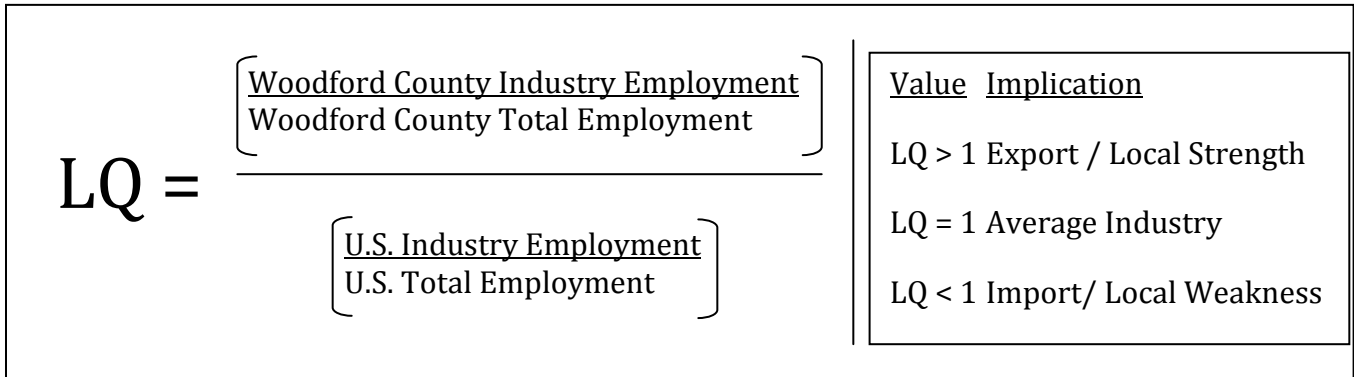

(Source: Bureau of Labor Statistics)

Location Quotients

Location Quotients (LQ) indicate the relative concentration or specialization of industries in an area compared to a larger base area. For example, the 2010 LQ in the manufacturing industry is 1.91 (Table 5). This means that the county's concentration of manufacturing jobs is 91% higher than the concentration of workers in this industry nationally. Thus manufacturing is likely an industry that exports its goods produced to outside the county.

Figure 4: Location Quotient Calculation

$$LQ = \dfrac{\dfrac{\text{Woodford County Industry Employment}}{\text{Woodford County Total Employment}}}{\dfrac{\text{U.S. Industry Employment}}{\text{U.S. Total Employment}}}$$

Value   Implication

LQ > 1 Export / Local Strength

LQ = 1 Average Industry

LQ < 1 Import/ Local Weakness

Location Quotients are often valued as measures to identify industry cluster potentials in regions. LQs can tell which industries the county is importing and exporting.
However LQ analysis has drawbacks. The LQ statistics focus on each industry individually, so it may be difficult to identify cluster opportunities based on such particular observations. LQ analysis is helpful in identifying which specific industries are strengths, so that other analyses can pick up from there to find the related industries that may help form a cluster.[20]

Table 5 shows how the location quotients have changed over time in the county. This is useful to see possible emerging advantages locally. Figure 7 indicates these statistics graphically.

As may be expected, given Woodford County's prevalence of horse farms, agriculture already had a high location quotient, but it rose higher. These results correspond with the Table 4 statistics—that manufacturing is in decline locally, but other service sector industries are becoming more competitive in the county. Two service sector industries are emerging in Woodford County over this time frame as competitive industries: educational services is already an export industry, while administrative services, although it has grown greatly from 2002 to 2010, with an LQ of 0.79 in 2010, is still an import industry locally. The agriculture industry, which is growing even more competitive, has still lost jobs over this time frame.

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[20] Shields, Barkley, and Emery (2009)

Table 5: Location Quotients, Woodford County, 2002-2010

NAICS Industry Description	2002 LQ	2010 LQ	Change in LQ
Administrative and Support and Waste Management and Remediation Services	0.33	0.79	0.46
Agriculture, Forestry, Fishing and Hunting	9.28	9.67	0.39
Educational Services	0.95	1.34	0.39
Transportation and Warehousing	0.26	0.51	0.25
Retail Trade	0.74	0.85	0.11
Real Estate and Rental and Leasing	0.69	0.8	0.11
Professional, Scientific, and Technical Services	0.91	1	0.09
Wholesale Trade	0.6	0.69	0.09
Accommodation and Food Services	0.54	0.61	0.07
Information	0.35	0.37	0.02
Arts, Entertainment, and Recreation	1.51	1.5	-0.01
Finance and Insurance	0.58	0.54	-0.04
Health Care and Social Assistance	0.51	0.43	-0.08
Construction	0.98	0.84	-0.14
Manufacturing	2.26	1.91	-0.35
Total	**1.09**	**1.06**	**-0.03**

(Source: Economic Modeling Specialists Inc.)

Figure 5 provides an image of which industries are emerging, while also showing the industry's importance in the county. The vertical Y axis represents the change in LQ over that time period, so the industries that are emerging are higher on the Y axis. The horizontal X axis characterizes the number of jobs each industry had in 2010, signifying their significance to the county recently. Finally the bubble size represents the 2010 LQ, or how much of a competitive advantage the industry is currently.

Figure 5 indicates that manufacturing is the largest employer (being the furthest to the right on the X axis), and thus is quite significant to the county economy, despite a loss in its advantage when compared to the United States as a whole. Agriculture is both a large employer and an industry which is increasing its competitive advantage. Arts, entertainment and recreation is an industry that has a moderately high LQ, and has remained stable in its competitiveness. Health care is an import industry, and its LQ has declined.

**Figure 5: Change in Location Quotient by Industry, 2002-2010**
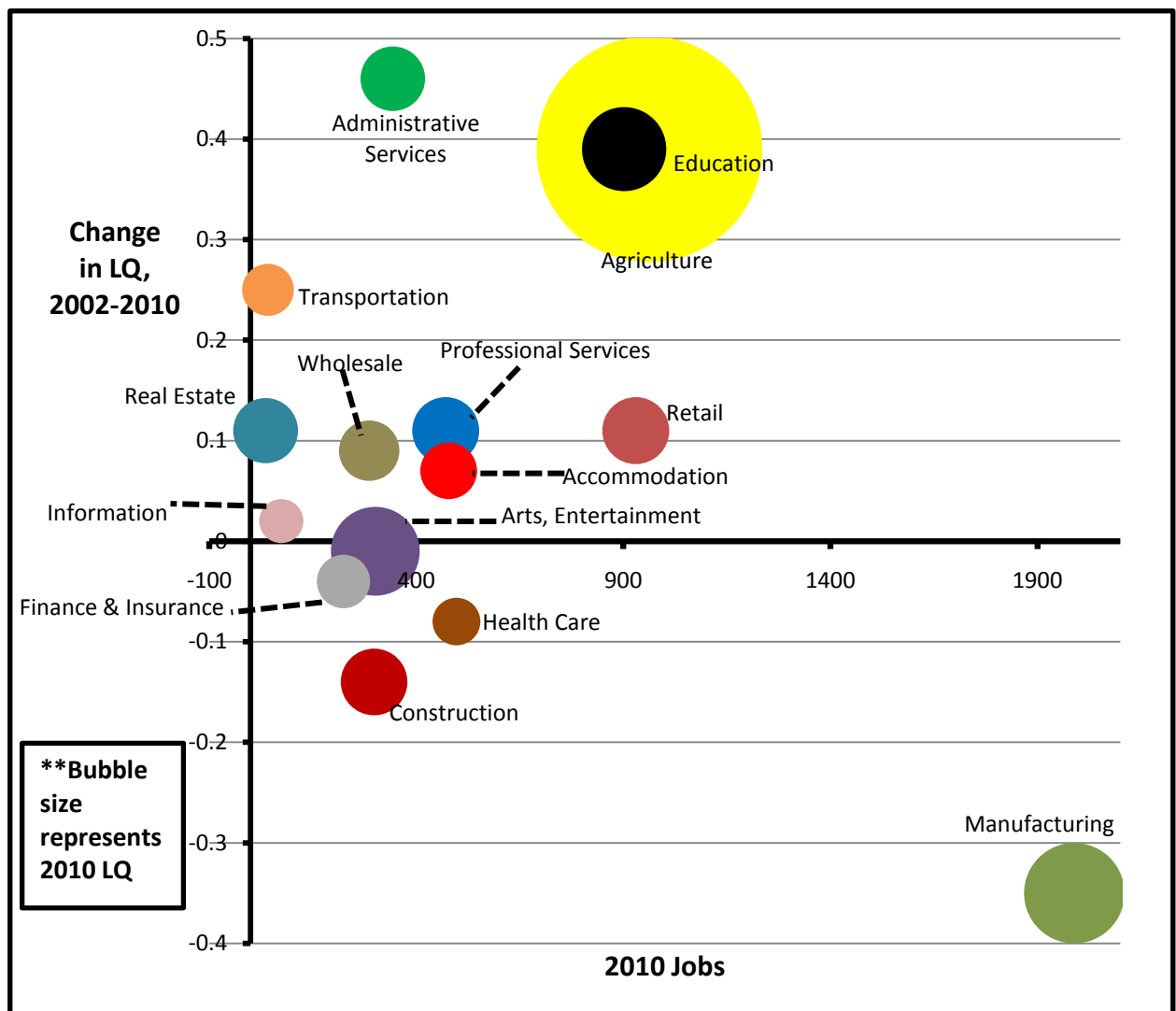
(Source: Economic Modeling Specialists Inc.. and U.S. Census Bureau)

Figure 6 represents an analysis of Woodford County broken down into the 11 NAICS super sectors, which is a larger grouping of industries. This is different from Figure 5 because it takes into account the actual change in jobs (X axis), and characterizes recent economic changes—three year time period instead of eight years in Figure 5. The bigger the bubble and the further up and right it is, the more important that supersector is to the county, and the greater competitive advantage that supersector has in the county.

Only the education and health services supersector has increased in employment from 2007 to 2009. Natural resources and mining has a very high location quotient in relation to the other supersectors in the county. This supersector includes employment in agriculture, forestry, fishing, hunting, and mining enterprises. Another point of emphasis in Figure 8 is the **importance of manufacturing to the county**--although it has lost around 20% of its employment from 2007 to 2009, it is the industry with the highest employment and is still a competitive advantage locally (LQ>1.5).

Figure 6: Location Quotient and Employment Change, 2007-2009
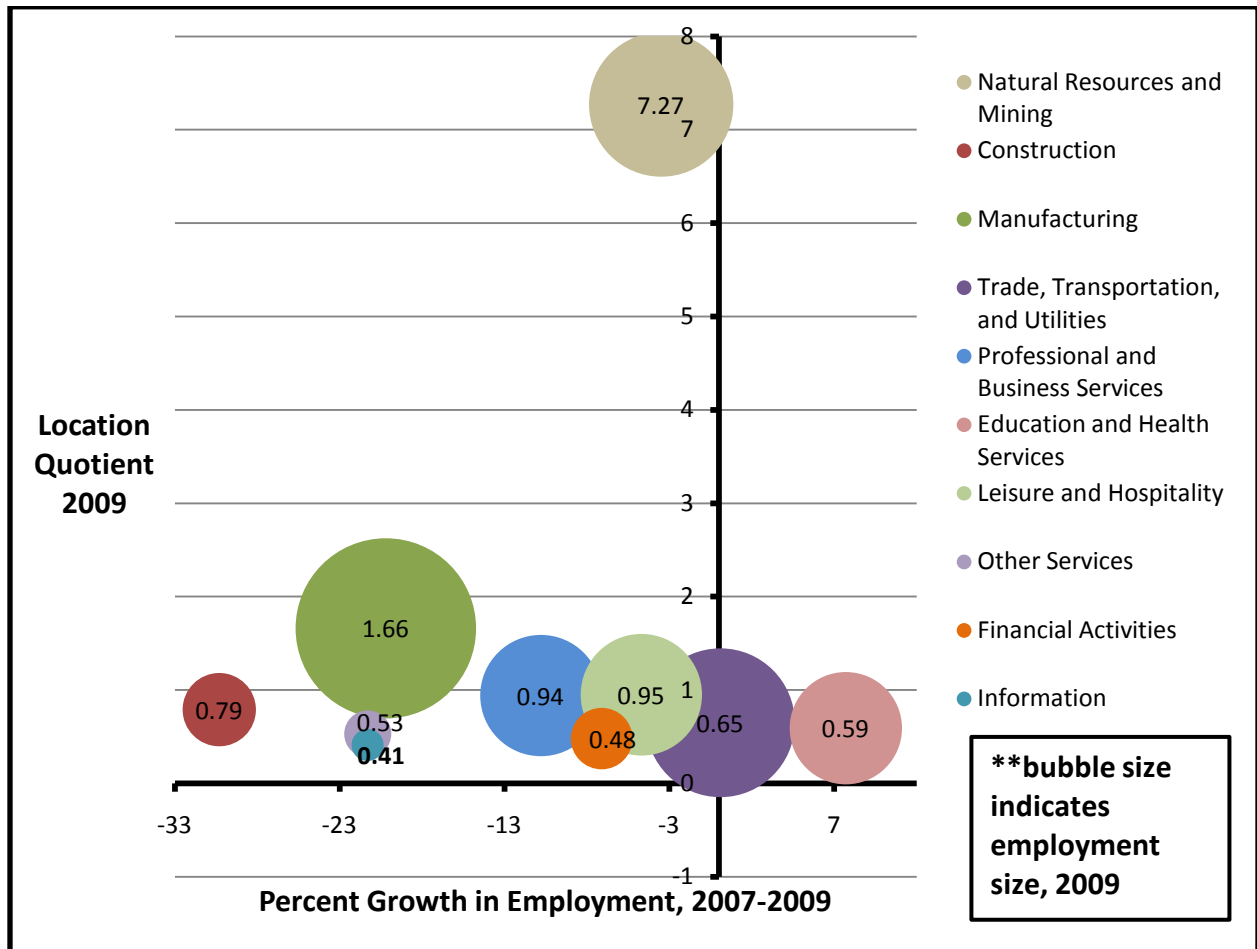
(Source: Bureau of Labor Statistics)

E. Specific Cluster Analyses

Health Cluster

Woodford Tomorrow created a health services subcommittee in their March 14, 2011 meeting. This subsection's purpose is to provide the subcommittee quantitative analysis to aid the group in understanding the current strengths and weaknesses of the county's health cluster, as well as identifying potential growth opportunities. EMSI, although they do not specifically analyze a "health cluster", provide data on the "Biomedical, Biotechnical Life Sciences Cluster". This is very similar to a health cluster, but includes a slightly wider range of industries.

Overall Assessment of Cluster

The data suggests that office and administrative service industries are among the industries with the most output to gain in the county; however, none of the industries require output of more than $750,000, so needs are basically being met. The growth in research and development jobs is an especially positive occurrence for two reasons:

(1) the new research and development jobs can be attributed to Woodford County's competitive local effects (Table 8), and
(2) the research and development industries keep the most money within the county of all health cluster industries (Table 9).

EMSI Data for Cluster and Discussion

Figure 7 represents the potential growth in certain industries if the county wanted to focus specifically on this cluster to be on par with the **best health clusters in the United States**. The implication of this chart is that if the county wanted to have a top notch health cluster, these industries are the ones that should be present in Woodford County. The "Additional Required in County" (y-axis) means that the industry would need to produce that additional amount of output in the county. Output is an economic term that means the quantity of goods or services an industry produces in a given time period. Table 6 shows the numbers represented in Figure 7.

For example, the corporate, subsidiary, and regional managing office industry has the most output required without being produced in Woodford County. So, if Woodford County enticed businesses that had jobs in this industry to relocate in the county, over $7.5 million in output could be produced.

It appears the main industries needed are either corporate or administrative offices, or insurance carriers. While most are service sector industries, two of the industries are specialized manufacturing industries (Pharmaceutical Preparation Manufacturing and In-Vitro Diagnostic Substance Manufacturing). In general, though, no industry needs more than $750,000 of output, so large business targeting does not appear to be an opportunity in the health cluster. However, small business development may be an option.

Figure 7: Industries with Most Additional Output Needed in Cluster
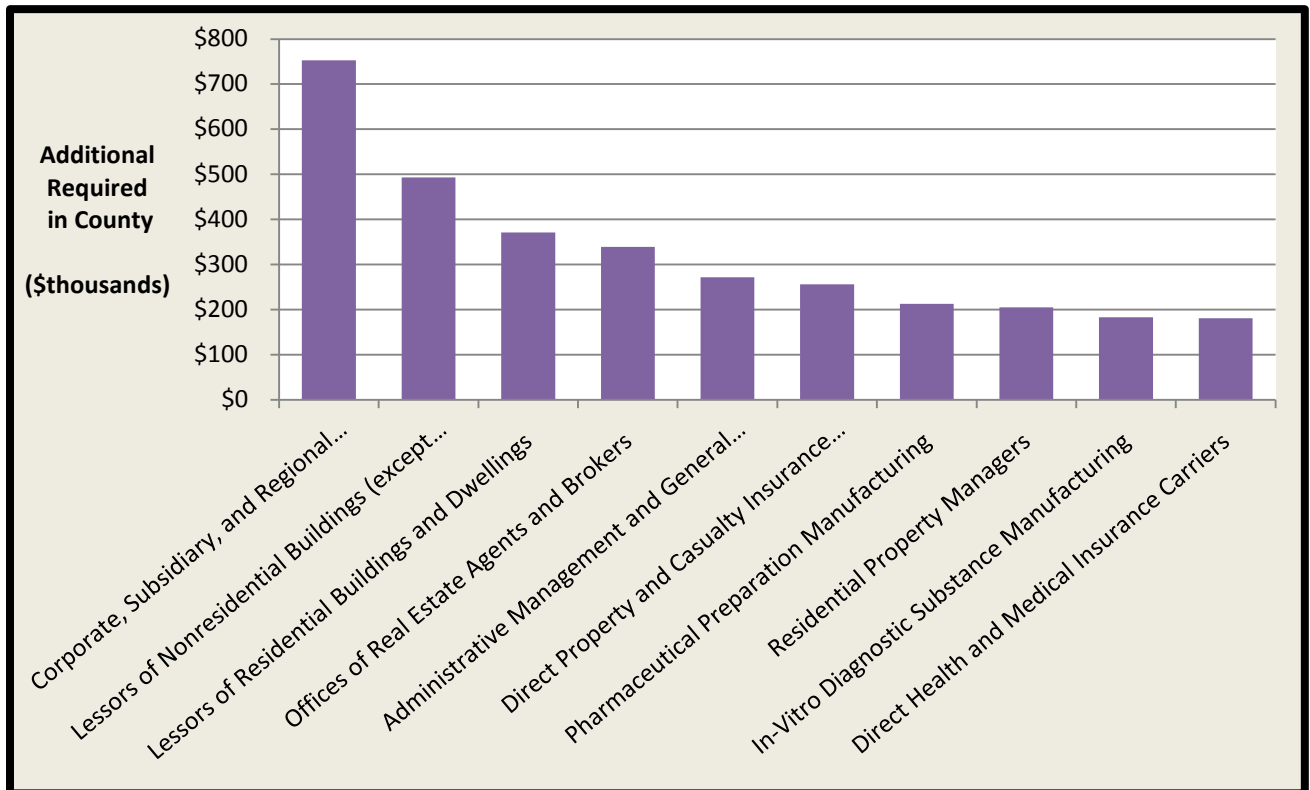
(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 6: Industry Requirements for Cluster Produced in Woodford County

NAICS Industry Description	Required ($K)	Produced in County ($K)	Difference ($K)
Corporate, Subsidiary, and Regional Managing Offices	$753	$0	$753
Lessors of Nonresidential Buildings (except Miniwarehouses)	$639	$146	$493
Lessors of Residential Buildings and Dwellings	$668	$297	$371
Offices of Real Estate Agents and Brokers	$585	$246	$339
Administrative Management and General Management Consulting Services	$273	$0	$272
Direct Property and Casualty Insurance Carriers	$256	$0	$256
Pharmaceutical Preparation Manufacturing	$213	$0	$213
Residential Property Managers	$301	$96	$205
In-Vitro Diagnostic Substance Manufacturing	$183	$0	$183
Direct Health and Medical Insurance Carriers	$185	$4	$181

(Source: EMSI Complete Employment - 1st Quarter 2011)

The time period of 2002 to 2010 is significant to study because it looks at what types of jobs the county is gaining in the 21st century. Woodford County had relatively small gains in health cluster jobs, illustrated in Table 7. The most significant increase in jobs was in the nursing care facilities industry, which increased from zero jobs in 2002 to 49 jobs in 2010.

Table 7: Industry Employment Growth in Cluster, 2002-2010

NAICS Industry Description	2002 Jobs	2010 Jobs
Nursing Care Facilities	0	49
Research and Development in Biotechnology	<10	20
General Medical and Surgical Hospitals	115	132
Research and Development in Sciences (except Biotechnology)	<10	15
Pharmacies and Drug Stores	40	46

(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 8 produces the results of a **shift-share analysis** of health cluster employment from 2002 to 2010. A shift-share analysis observes the change in jobs over a time period and accounts for the change by attributing it to 3 different factors:

Shift-Share Factor	Accounts For
(1) National Growth Effect	Overall rise or decline of jobs in the U.S
(2) Industrial Mix Effect	Rise or decline of the industry nationally
(3) Competitive Effect	Remaining change of jobs in county

The results in Table 8 show what industries the county has a competitive advantage in, after accounting for the other factors. For example, the general medical and surgical hospital industry gained 17 jobs from 2002 to 2010—9 of the jobs can be accounted for by the industrial mix effect (possibly the growth of the hospital industry as a whole in the U.S.), 6 jobs can be attributed to the overall national growth in employment from 2002 to 2010, 14 new jobs were expected to be gained over the time period, and the 2 remaining jobs were the competitive advantage of the county.

Table 8: Shift-Share Analysis of Most Competitive Industries in Cluster, 2002-2010

NAICS Industry Description	Job Change	Industrial Mix Effect	National Growth Effect	Competitive Effect
Research & Development in Biotechnology	20	0	0	20
Research & Development in Sciences (except Biotech)	13	0	0	12
General Medical & Surgical Hospitals	17	9	6	2

(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 9 shows the industries that have the highest output multipliers in Woodford County, meaning that these are the **most successful industries at keeping money circulating inside Woodford County**. Consequently, for every $1 spent producing the good or service in the industry, an additional amount of money is added to the county's output as a result.

For example, if a business outside Woodford County gave a $1 million grant to a company that does research and development in biotechnology, $270,000 of additional output is produced locally so that the company can successfully do the granted research. The output multipliers in the chart are Type II effects, which include direct spending between industries, indirect spending of businesses buying and selling to one another, and induced household spending.

The results of Table 9 indicate that only around 25% of output is circulated inside the county. This may be explained by the diverse inputs that health industries have to import from outside the county. For example, equipment in medical laboratories or pharmaceutical drugs are very specialized products that are likely not supplied locally. Other clusters like agriculture have inputs that produce higher multipliers because they can be made available locally at competitive prices.

Table 9: Cluster Industries with Top Output Multiplier Effects

NAICS Industry Description	Output Multiplier
Research and Development in Biotechnology	1.27
Research and Development in Sciences (except Biotechnology)	1.26
General Medical and Surgical Hospitals	1.24
Outpatient Mental Health and Substance Abuse Centers	1.24
All Other Miscellaneous Ambulatory Health Care Services	1.24
Pharmacies and Drug Stores	1.23
Medical Laboratories	1.23
Diagnostic Imaging Centers	1.23
Freestanding Ambulatory Surgical and Emergency Centers	1.23
Nursing Care Facilities	1.22

(Source: EMSI Complete Employment - 1st Quarter 2011)

Agriculture Cluster

Woodford Tomorrow created an agriculture subcommittee in their March 14, 2011 meeting. This subsection's purpose is to provide the subcommittee quantitative analysis to aid the group in understanding the current strengths and weaknesses of the county's health cluster, as well as identifying potential growth opportunities. EMSI provide data on the "Agribusiness Cluster", which is very similar if not identical to common notions of an agriculture cluster. The agribusiness cluster includes crop and animal production, as well as food manufacturing, farm supplies, and similar industries.

Overall Assessment of Cluster

The data suggests that several agriculture cluster industries have potential for economic growth in Woodford County. Commercial banking may be one of these types of industries, but further financial analysis is required before this can be affirmed. Production and manufacturing industries, however, do seem like potential markets. Processing and manufacturing industries have high output multipliers as well, meaning that money from outside the county that is spent in those industries distributes a higher amount of money to other industries in Woodford County.

EMSI Data for Cluster and Discussion

Figure 8 represents the potential growth in certain industries if the county wanted to focus specifically on this cluster to be on par with the **best agriculture clusters in the United States**. The implication of this chart is that if the county wanted to have a top notch agriculture cluster, these industries are the ones that should be present in Woodford County. The "Additional Required in County" (y-axis) means that the industry would need to produce that additional amount of output in the county. Output is an economic term that means the quantity of goods or services produced, in a given time period, by an industry.

For example, commercial banking industry has the most output required without being satisfied, or produced, in Woodford County. So, if Woodford County enticed businesses that had jobs in this industry to relocate in the county, over $8.5 million in output could be produced. Table 10 shows the numbers represented in Figure 8.

Commercial banking and soybean processing are the two industries with significantly higher amounts of output required to fulfill the county's cluster potential, with over $3 million difference to the next industry. Commercial banking is an industry that likely needs further study as a part of a deeper analysis of business and financial operations in the county as well as the Bluegrass Region. Overall, the agriculture cluster appears to have opportunities for more industries locally, in both service type jobs and processing and manufacturing type jobs.

Figure 8: Industries with Most Output Needed to Be Produced in Cluster
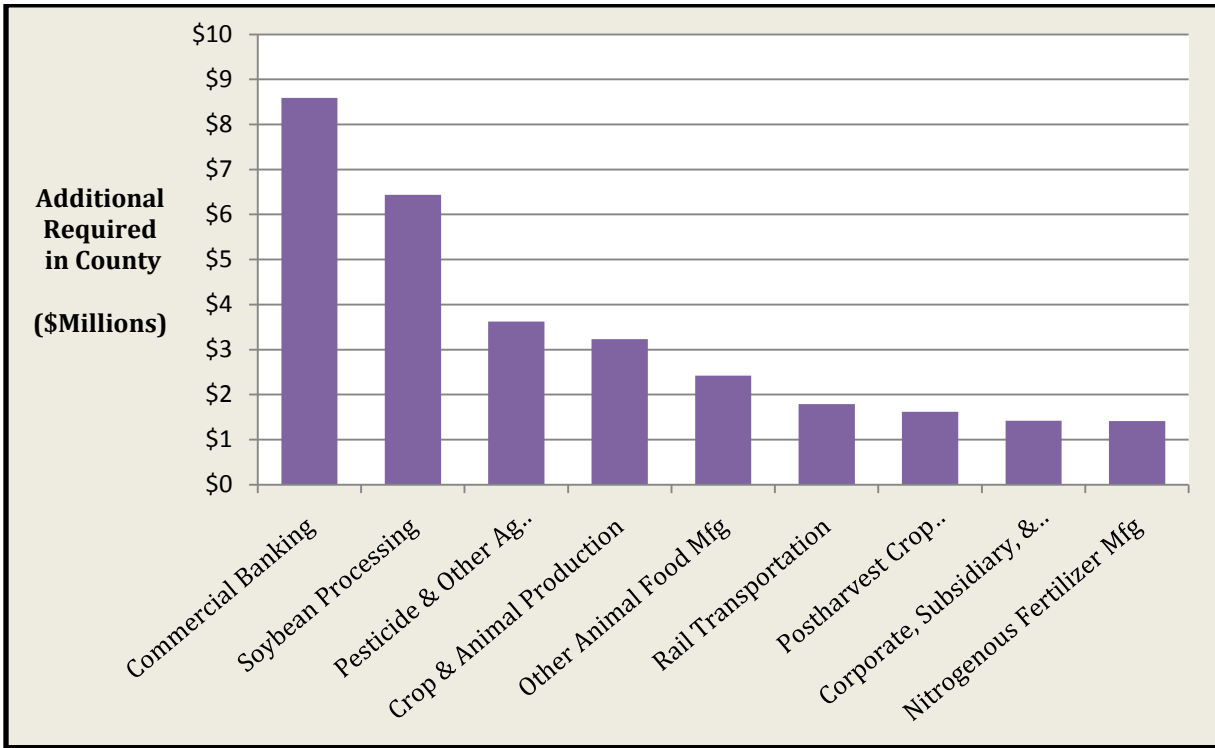
Table 10: Industry Requirements for Cluster Produced in County

NAICS Industry Description	Required ($Millions)	Produced in County ($Millions)	Difference ($Millions)
Commercial Banking	$9.605	$1.014	$8.591
Soybean Processing	$6.437	$0	$6.437
Pesticide and Other Agricultural Chemical Manufacturing	$3.62	$0	$3.62
Crop and animal production	$33.437	$30.207	$3.23
Other Animal Food Manufacturing	$13.245	$10.825	$2.419
Rail transportation	$1.858	$0.070	$1.788
Postharvest Crop Activities (except Cotton Ginning)	$1.621	$0	$1.621
Corporate, Subsidiary, and Regional Managing Offices	$1.418	$0	$1.417
Nitrogenous Fertilizer Manufacturing	$1.41	$0	$1.41

(Source: EMSI Complete Employment - 1st Quarter 2011)

Four industries experienced relatively moderate job gains from 2002 to 2010 (Table 11). Woodford County's most significant increase in agriculture jobs is in the other animal food manufacturing industry, increasing from 23 jobs in 2002 to 56 jobs in 2010.

Table 11: Cluster Industry Employment Growth, 2002-2010

NAICS Industry Description	2002 Jobs	2010 Jobs	Growth
Other Animal Food Manufacturing	23	56	33
Farm Management Services	<10	28	--
Commercial Bakeries	0	15	15
Other Farm Product Raw Material Merchant Wholesalers	0	11	11

(Source: EMSI Complete Employment - 1st Quarter 2011)

The most competitive agriculture cluster industries from 2002 to 2010 are other animal food manufacturing and farm management services by a wide margin, illustrated in Table 12. This expands upon the evidence in Table 11, showing that those two industries have not only grown, but the reason they have grown is because of the county's competitive effects. The other industries in the agriculture cluster had either zero or negative growth in employment caused by competitive effects, which may seem surprising, given Woodford County's agricultural industry strengths (see Figures 5 and 6). However this only suggests that the competitive effects have not grown since 2002—so the local advantages have likely been present in the county prior to 2002.

Table 12: Shift-Share Analysis of Most Competitive Industries in Cluster, 2002-2010

NAICS Industry Description	Job Change	Industrial Mix Effect	National Growth Effect	Competitive Effect
Other Animal Food Manufacturing	33	-2	1	34
Farm Management Services	27	0	0	27

(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 13 shows the industries that have the highest output multipliers in Woodford County, meaning that these are the **most successful industries at keeping money circulating inside Woodford County**. Consequently, for every $1 spent producing the good or service in the industry, an additional amount of money is added to the county's output as a result.

For example, if a business outside Woodford County had a $1 million contract with a soybean processing facility, $820,000 of additional output is produced locally so that the facility can successfully do the work it was contracted to do. The output multipliers in the chart are Type II effects, which include direct spending between industries, indirect spending of businesses buying and selling to one another, and induced household spending.

The results of Table 13 demonstrate that the output multipliers for the agriculture cluster are significantly higher than the other cluster multipliers. Processing and manufacturing industries are among the best agriculture industries that keep money within the county.

Table 13: Cluster Industries with Top Output Multiplier Effects

NAICS Industry Description	Output Multiplier
Soybean Processing	1.82
Other Oilseed Processing	1.8
Beet Sugar Manufacturing	1.66
Animal (except Poultry) Slaughtering	1.63
Meat Processed from Carcasses	1.63
Wet Corn Milling	1.62
Rendering and Meat Byproduct Processing	1.62
Fluid Milk Manufacturing	1.57
Flour Milling	1.57
Poultry Processing	1.56

(Source: EMSI Complete Employment - 1st Quarter 2011)

Arts, Entertainment, and Tourism Cluster

Woodford Tomorrow created two subcommittees relating to this cluster in their March 14, 2011 meeting: (1) arts and culture and (2) hospitality. This subsection's purpose is to provide the subcommittees quantitative analysis to aid the group in understanding the current strengths and weaknesses of the county's health cluster, as well as identifying potential growth opportunities. EMSI provide data on the "Arts, Entertainment, and Tourism" cluster, which includes data relevant for both arts and culture and hospitality. Discussion of amenities and their importance in economic development is included in Section F of this report.

Overall Assessment of Cluster

The data suggests that the arts, entertainment, and tourism cluster has not experienced much growth recently and does not have emerging industries. This information tracks the 2002 to 2010 economic cycle, and so does not include cluster strengths that are likely in the bourbon and equine tourism sectors that have been present since before 2002. Nonetheless, opportunities for potential economic growth in this cluster appear to be present. In particular, the hotel and motel industry has a significantly large gap between the national and state balance of industry jobs when compared to the county. This corresponds with the discussion in the Woodford Tomorrow March meeting, concerning the potential of a hotel or motel locating in Woodford County.

EMSI Data for Cluster and Discussion

Figure 9 represents the potential growth in certain industries if the county wanted to focus specifically on this cluster to be on par with the **best arts, entertainment, and tourism clusters in the United States**. The implication of this chart is that if the county wanted to have a top notch arts, tourism, and entertainment cluster, these industries are the ones that should be present in Woodford County. The "Additional Required in County" (*y*-axis) means that the industry would need to produce that additional amount of output in the county. Output is an economic term that means the quantity of goods or services produced, in a given time period, by an industry. Table 14 shows the numbers represented in Figure 9.

The viability of the industry with the most output needed—sports teams and clubs—is in question in relation to its applicability for Woodford County. A predominantly rural county, Woodford may not have the capacity for the type of sports teams and clubs that most people would typically think of (e.g. baseball or football team). However, the county **may** be able to support an equine club, gymnastics club, or others. This industry includes "Establishments primarily engaged in operating professional or semiprofessional sports clubs."[21] So the data suggests that over $1 million additional output in this industry could be produced.

Other industries like motion picture and video production and agents and managers for artists, athletes, entertainers, and other public figures, may not be realistic industries for the county to target. The motion picture industry may be a highly clustered industry, in places where support industries are in close proximity (e.g. Hollywood). Promoting this industry from its modest standing in the county currently ($3,000 output) may not achieve significant output gains. Nevertheless, the data suggests that there is room for growth in this type of industries.

Figure 9: Industries with Most Output Needed to Be Produced in Cluster
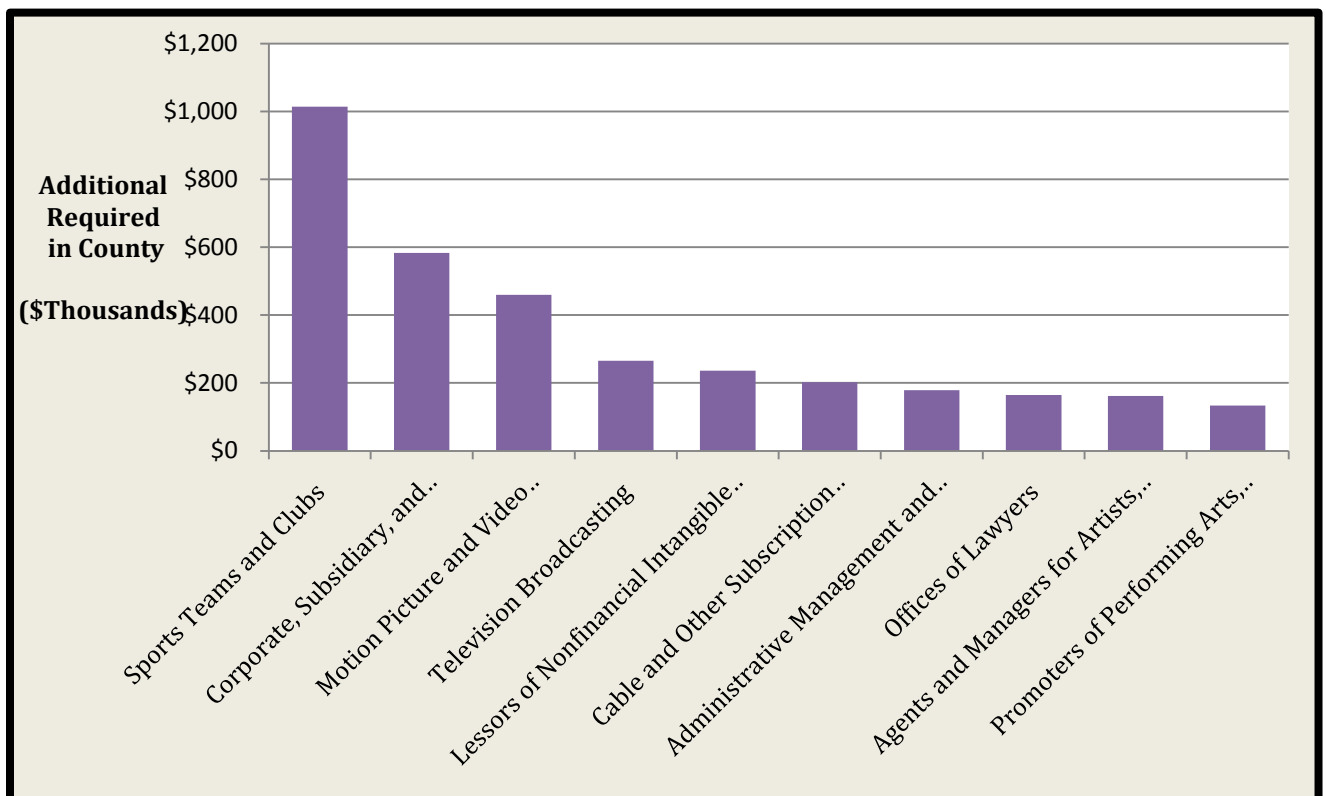
(Source: EMSI Complete Employment - 1st Quarter 2011))

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[21] U.S. Census Bureau http://www.census.gov/prod/ec97/97s71-nm.pdf

Table 14: Industry Requirements for Cluster Produced in County

NAICS Industry Description	Required ($K)	Produced in County ($K)	Difference ($K)
Sports Teams and Clubs	$1,442	$428	$1,014
Corporate, Subsidiary, and Regional Managing Offices	$583	$0	$583
Motion Picture and Video Production	$463	$3	$460
Television Broadcasting	$265	$0	$265
Lessors of Nonfinancial Intangible Assets (except Copyrighted Works)	$266	$30	$236
Cable and Other Subscription Programming	$202	$0	$202
Administrative Management and General Management Consulting Services	$180	$0	$179
Offices of Lawyers	$235	$70	$165
Agents and Managers for Artists, Athletes, Entertainers, and Other Public Figures	$162	$0	$162
Promoters of Performing Arts, Sports, and Similar Events with Facilities	$133	$0	$133

(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 15 indicates that there has been relatively small growth in employment in this cluster from 2002 to 2010.

Table 15: Industry Employment Growth in Cluster, 2002-2010

NAICS Industry Description	2002 Jobs	2010 Jobs
Other Spectator Sports	224	261
Bed-and-Breakfast Inns	<10	25
Fitness and Recreational Sports Centers	12	23

(Source: EMSI Complete Employment - 1st Quarter 2011)

The industries that have grown in jobs at a faster rate than the nation from 2002 to 2010 was bed-and-breakfast inns, illustrated in Table 16.

Table 16: Shift-Share Analysis of Competitive Cluster Industries, 2002-2010

NAICS Industry Description	Job Change	Industrial Mix Effect	National Growth Effect	Competitive Effect
Bed-and-Breakfast Inns	15	-1	0	16
Fitness and Recreational Sports Centers	11	2	1	8

(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 17 shows the cluster industries that have the highest output multipliers in Woodford County, meaning that these are the **most successful industries at keeping money circulating inside Woodford County**. Consequently, for every $1 spent producing the good or service in the industry, an additional amount of money is added to the county's output as a result.

For example, if someone from outside Woodford County bought a $1,000 golf club membership, $250 of additional output is produced locally so that the golf club can successfully run its golf course. The output multipliers in the chart are Type II effects, which include direct spending between industries, indirect spending of businesses buying and selling to one another, and induced household spending.

The results of Table 17 indicate that, similar to the health cluster, none of the tourism, arts, and entertainment industries have high output multipliers, greater than 25%. This is somewhat surprising, because the cluster likely relies on its local resources as aspects of the industries' attractions. The inputs into these industries must not be provided locally as often as it may seem.

Table 17: Cluster Industries with Top Output Multiplier Effects

NAICS Industry Description	Output Multiplier
Fitness and Recreational Sports Centers	1.25
Golf Courses and Country Clubs	1.25
All Other Amusement and Recreation Industries	1.25
Sports Teams and Clubs	1.24
Other Spectator Sports	1.24
Bed-and-Breakfast Inns	1.24
Racetracks	1.24
Hotels (except Casino Hotels) and Motels	1.22
Marinas	1.22
Sporting and Recreational Goods and Supplies Merchant Wholesalers	1.22

(Source: EMSI Complete Employment - 1st Quarter 2011)

Table 23 shows the industries have more than a 2% difference with national balance in terms of number of jobs. The greatest difference in employment when compared to the national balance is the hotel and motel industry, with a 20%. Table 24 indicates that this is the case when Woodford County is compared to state employment levels for the cluster.

Table 18: Cluster Industries Needed to Mimic National Balance

NAICS Industry Description	County Jobs	National Jobs	County Balance	National Balance	Difference
Hotels (except Casino Hotels) and Motels	<10	1,492,852	2%	21%	20%
Fitness and Recreational Sports Centers	26	692,164	5%	10%	5%
Independent Artists, Writers, and Performers	62	1,133,429	12%	16%	4%
Casino Hotels	<10	258,243	0%	4%	4%
Motion Picture and Video Production	<10	239,940	0%	3%	3%

Table 19: Cluster Industries Needed to Mimic State Balance

NAICS Industry Description	County Jobs	State Jobs	County Balance	State Balance	Difference
Hotels (except Casino Hotels) and Motels	<10	13,856	2%	23%	21%
Fitness and Recreational Sports Centers	26	7,757	5%	13%	8%
Racetracks	<10	1,977	0%	3%	3%
Motion Picture Theaters (except Drive-Ins)	<10	1,633	0%	3%	3%

(Source: EMSI Complete Employment - 1st Quarter 2011)

F. Discussion and Policy Recommendations

After delving into the various clusters provided in Section E, the issue confronting Woodford Tomorrow is what to do with the abundance of data and whether the county ought to pursue cluster development. Additionally, if cluster development is to be pursued, Woodford Tomorrow would likely decide how to incorporate the strategy into a unified comprehensive economic development plan and integrate it with other information available to the group. Examples of other types of information include other quantitative economic data, personal opinions and experiences of group members, and discussions with other citizens, employees and employers in the county, government officials, and other organizations.

Woodford Tomorrow's formation and mission statement indicate that the group is utilizing a form of a third wave economic development strategy as discussed in Section B of this report. The challenge the group faces is how to integrate the community development, consensus building that they are trying to achieve with the second wave cluster analysis and development strategy, which often implies that the county may "pick winners", or target specific industries to attract to the county. This is a possible clash in Woodford Tomorrow's values that the group will have to confront in order to achieve success in terms of planning for Woodford County's future—consensus building may come into direct conflict with the goal of developing specific recommendations to governmental organizations for public policies that may benefit some county residents more than others.

The following discussion is meant to provide a few relevant sources in academic literature that may address some of the questions asked at previous Woodford Tomorrow meetings. In general, the group members often asked what "quality of life" means for a place like Woodford County, how they can capitalize on their amenity assets, and how to attract young educated people to move (or move back) to Woodford County.

Quality of Life and Economic Development

Doug Henton, the nationally recognized consultant who spoke at the Woodford County Economic Development Summit, asserted that the quality of life of a community is a driving factor to economic development in the 21st century.[22] Recognizing this assertion in relation to the rest of this report, it is clear that there are other factors to be considered when weighing the potential costs and benefits of economic development strategies. The cluster analyses performed in the Section E indicate which industries and jobs are needed to form a healthy tourism cluster, for example; however, this is merely the supply side of the

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[22] Henton's PowerPoint slides from November 12, 2010 summit.

equation for economic development. The demand side would be how to attract people to live, work, or visit Woodford County. Quality of life is often seen as influence by the amenities a community offers. Amenities are "qualities of a locality that make it an attractive place to live and work."[23]

<u>Effects of Local Amenities</u>

Gabriel and Rosenthal (2004) found that an inverse relationship existed between places that businesses are attracted to and places that households prefer. Many of the places in which industries find that there is a quality business environment are in geographic areas that people do not want to live. This study implies that both people and businesses weigh options between quality of life and quality of business environment to strike a balance and locate where labor supply equals industry demands.

The types of amenities a community offers can influence how they affect the local economy. One study researched five types of amenities—climate, land, water, winter recreation, and developed recreational infrastructure—and found that each produces statistically significant economic growth. Woodford County may benefit from the developed recreational infrastructure amenity, since the county already has this type of amenity, like parks and biking trails in place. The authors found that "developed recreational infrastructure is strongly associated with population, employment, and income growth rates." Types of developed recreational infrastructure measured in the study include numbers of playgrounds and recreation centers, tourist attractions, public swimming pools, and county parks, among others.[24]

One amenity that Woodford County citizens often emphasize is the prevalence of horse farms across the county. A study conducted in 1996 predicted that "a typical Kentucky household would…pay $0.43 each year to prevent the loss of one horse farm in its county of residence." Another model in the same study estimated $0.49 per household. This research suggests that horse farm land has positive externalities, or spillover effects, for its county's citizens and those employed in and around the county. This study used 1990 census data to predict the willingness-to-pay estimates, but nonetheless this study may be important to Woodford County, since it has the most horse farms in the Commonwealth of Kentucky. These estimates could be helpful starting points for policymakers in valuing horse farm land.[25]

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[23] Goe and Green (2005)
[24] Deller, Tsung-Hsiu, Marouiller, and English (2001)
[25] Ready, Berger, and Blomquist (1997)

Woodford County and Commuting to Work

The 2000 census indicated that 54% of Woodford County workers commute outside the county to their place of employment. The average commute time is 21 minutes.[26] Many of these commuters likely travel to the nearby cities of Lexington and Frankfort. Although there are arguments that high rates of commuting are unwanted developments (e.g. environmental impacts, increased traffic and congestion, etc.), it may also benefit the county.

Olfert and Partridge (2010) discuss the advantage of a rural community that allows many of its to belong in a workforce that commutes to urban areas to work. It allows for residents to live in Woodford County who prefer a rural lifestyle, while also having the employment opportunities that cities typically offer. Some of these types of amenities that make rural areas attractive to these kinds of citizens have been identified by scholars, such as high quality schools, parks, and broadband Internet investments. Woodford County residents have expressed these kinds of amenities as strengths in the county.

Attracting the Young and Educated to Woodford County

To help frame the changing demographics into the larger population changes that Woodford County faces, some statistics are provided in Table 20. Also, compared to the state average, new residents in Woodford County are more likely to be Kentuckians from outside Woodford County than people from other states.[27]

The results of Table 20 suggest that while Woodford County's retirement population may not be as high a concern as other communities, the young workforce may not be present in the county. This was an issue Woodford Tomorrow discussed in meetings: how to attract the young educated populations to Woodford County.

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[26] Commuting patterns from the 2010 census were currently unavailable.

[27] The American Community Survey data on 2007 to 2009 showed that Woodford County has a higher percentage of residents that moved from another county in Kentucky (6%) than the state average (4%), but lower rates of residents from out-of-state (1%) than the state average (3%) in the last year.

Table 20: Changing Populations and Demographics

Residents	Woodford County	Kentucky	U.S.
Population Change, 2000-2009	7.7%	6.7%	9.1%
65 Years or Older, Percent of Residents, 2007-2009 average	11.8%	13%	12.8%
20-44 Years of Age, Percent of Residents, 2007-2009 average	30.9%	34%	34.3%

(Source: U.S. Census Quick Facts and American Community Survey)

One study researched the distinguishing quality of life attributes that different groups are attracted, based on age, education level, and marriage and children status.

People who are educated with a bachelor's degree or higher are much more likely to move, and to move longer distances. Many scholars contend that amenities are major factors attracting this population in choosing where to locate. Ph.D. graduates are even more responsive to amenity offerings. The authors assert that an overall assessment of whether a community will be desirable based on quality of life attributes is useless, and that desirability is much more dependent on the life-course of the individual.

In researching what specific amenities recent college graduates desire, they prefer (1)affordable cost-of-living, and (2) recreational opportunities and a rich cultural environment.

Young and childless married individuals also value rich recreation and arts amenities, but are less affected by cost-of-living differences. They are, however, more responsive to poor job opportunities than the previous group.

The settled-down middle age group is much less likely to move (13% compared to 30% for the younger groups), and more inclined to value safety. They are not as responsive to the recreational opportunities and cost of living.[28]

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[28] Whisler, Waldorf, Mulligan, and Plane (2008)

Policy Recommendations

The last subsection demonstrates that there is much to consider when choosing whether a county should attempt to encourage cluster development; it is not just looking at the statistics that identify possible industries, but also knowing the community, what it stands for, and where it wants to go.

Potential Industries to Target Based on EMSI Data

Currently the county has strengths in industries such as agriculture, education, administrative services, and these industries are becoming bigger strengths in the 21st century (Figure 5, page 18). Manufacturing is an industry that is losing jobs, but is still a strength locally which provides the most jobs in the county (Figure 6, page 19).

Section D helps the reader recognize which industries have potential to develop clusters in the county. The health cluster does not have a large amount of need in any particular industry, but the research and development industries have gained in competitiveness locally. The agriculture cluster has many industries, specifically in the crop and animal production and manufacturing sectors, which appear to be potential industries to target. The output multipliers are significantly higher than industries in other clusters, so this is another reason to possibly look into developing the agriculture cluster more. The hotel and motel industry seems to be an opportunity to develop the arts, entertainment, and tourism cluster more fully. This corresponds with the March Woodford Tomorrow meeting, in which there was discussion of the lack of hotels and the potential for value to the county if a hotel was present.

The suitability of governments becoming involved in cluster development is an important step in the planning process that Woodford County will likely recognize. The potential benefits in each cluster should be considered in relation to the overall effects the county should expect, as discussed in Section B.

The next step that Woodford Tomorrow may focus on, once industries are targeted for attraction, is conducting a demand analysis. The purpose of this analysis would be to compare the "supply-side" information in this report by exploring whether the potential target industries are actually demanded in Woodford County. This type of research would be very helpful in complementing the analysis in this report, to provide quantitative data to county stakeholders and potential business investors the realistic opportunities of industries in the county.

Local Capitalism and Entrepreneurship

A relevant study of business attraction strategies by the Kentucky Cabinet of Economic Development was provided by professors in the Center for Business and Economic Research at the University of Kentucky in 2007. They found that although tax incentives and workforce training programs had positive long term effects on employment and income, financing programs had no effect. The workforce training programs, though, were the most effective, but least used by the Commonwealth.[29] This assertion emphasizes the fact that economic development strategies could be utilized better in Kentucky to be unique to the circumstances of the communities in the state, rather than utilizing mainly first wave strategies. Developing local capitalism and promoting entrepreneurship could be strategies Woodford County might employ to achieve sustained economic success.

Besser, Recker, and Parker (2009) took surveys and interviews of 99 small towns in Iowa. They found that attracting new employers to come to their town had positive economic benefits; however it did not cause gains in the quality of life of the residents. They suggest that the "growth of local capitalism was associated with more positive quality of life outcomes." The authors state that local capitalism, or communities that have a large amount of locally owned businesses, provides local economies with greater stability and a higher level of socioeconomic well-being when compared to places with large or absentee-owned business in the majority.

Feldman and Francis (2011) state cluster benefits for industries are real (including improved communication among suppliers and competing firms, simplified exchange of ideas, and proximity to service providers); however, governments providing incentives to businesses to create clusters has not been proven to be the driving force toward the creation of these clusters. This means that clusters often benefit businesses, but they are not successful because a local or state government attempted to promote it.

One possible solution that might fit well given Woodford Tomorrow's mission and interests is what the authors call "homegrown solutions." This concept of promoting knowledge-based entrepreneurial business start-ups serves as an alternative or complement to the focus on larger industrial targeting and business recruiting. In this way Woodford Tomorrow could attempt to couple second wave business retention and expansion while also conducting third wave community investment.

Feldman and Francis focus on small firms in helping to form "homegrown" clusters. They argue that knowledge-based local economies need innovative start-up companies that create new markets where there was no competition previously. The small firms are more likely to need local resources, helping create a local cluster.

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[29] Hoyt, Jepsen, and Troske (2007)

The role for local and state governments in fostering these "homegrown" clusters is to help develop the infrastructure needed to support the developing cluster. Additionally governments can adopt policy that further incentivizes investment, incubators, and other partnerships. So instead of picking winners, governments can help create an entrepreneurial atmosphere and allow for self-governed clusters. A possible drawback is that the benefits of this type of government policy accrue over a longer term than usual large industry recruitment efforts.[30]

Henderson and Weiler (2010) found that in counties, entrepreneurship and job growth increase in intensity over time. This means that the benefits of Woodford County investing in entrepreneurship are likely long-term effects. Furthermore, although entrepreneurship has positive spillovers for job growth in nearby counties, has the most impact in the county in which it occurs. Thus, even though Fayette County may have entrepreneurship programs, they are going to enjoy the benefits that are not going to be as significant in Woodford County.

<u>Community Development</u>

A third wave development strategy Woodford Tomorrow can engage in is to '**keep doing what you're doing.**' To explain, the group's mission is attempting to identify what the community needs to change, often by bringing people together from different backgrounds and representing various interests. This effort can be seen as a strategy of building social capital, and is seen by some community developers as the critical method toward influencing development across the county. Social capital is built because relationships are both bonded and bridged within a group like Woodford Tomorrow. The people participating often feel not only more involved in their community, but also have a fuller understanding of the different assets the place possesses. The other forms of capital, such as financial, political, human, and cultural, are able to build off the social capital momentum when these groups are sustained and developed.[31]

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[30] Feldman and Francis (2011)
[31] Emery and Flora (2006)

G. Limitations

There are several limitations to this report that are worth considering. First, cluster analysis is likely most useful as an economic development tool when viewing industries across a larger scale than the individual county level. It is very likely that industries that are lacking in Woodford County are present in nearby Franklin or Fayette counties, since Woodford is in the geographic metropolitan statistical area (MSA) of the greater Lexington area. A wider purview of clusters in the Bluegrass Region, possibly the area encompassed by the Bluegrass Area Development District, may yield significantly different results as to what clusters are present regionally, and where industry strengths and weaknesses are. When Doug Henton spoke at the Woodford County Economic Development Summit, he pointed out that clusters should be "large enough to achieve a critical mass of companies, institutions, infrastructure, and talent—yet small enough to allow for the close interactions among people, firms, and organizations."[32] The critical mass may not be achieved solely by considering clustering in Woodford County.

Another limitation involves the EMSI data and its direct relevance to Woodford County's unique situation. The data often indicates what industries need to grow in order to more closely mirror the United States or Kentucky—however this may not be the best policy for the county to adopt if it truly intends to develop competitive advantages in key industries. Section D is more helpful for the county to acknowledge what industries are local strengths, while the EMSI data often points out what other industries should be present to have a strong cluster.

Finally, even if Woodford Tomorrow can pinpoint specific industries found in the EMSI data to attract to Woodford County, although the data and analysis may tell <u>what</u> the industry is and how much is needed, this report does not accurately detail <u>how</u> to exactly attract firms in the industry. The discussion in Section F is meant to offer some relevant information relating to quality of life factors influencing economic development, however this is an issue that continues to be discussed in Woodford Tomorrow meetings in understanding the county's amenities and whether they can be marketed more effectively.

Woodford Tomorrow, as a community development organization, has many aspects to consider in researching clusters and their viability in the county. Hopefully this report assists the county in forming public policy, yet there is still a great amount of research that remains to be done.

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[32] Doug Henton, PowerPoint slides, November 12, 2010 summit

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Appendix A

Woodford Tomorrow Subcommittee Agenda—March 14, 2011

❖ Conduct an analysis on where the community stands now with respect to that cluster
- o Perform a SWOT (strengths, weaknesses, opportunities, threats) analysis for that cluster
- o Identify internal factors including resources (inputs), current strategies (process), and performance (outputs). The internal factors should be analyzed in terms of strengths and weaknesses
- o External factors are things the organization does not control but, nevertheless, have an impact on the organization. These factors should be documented as opportunities or threats to the organization.

❖ Define a vision and goals for where the community should be in 10 years.
- o This step involves developing an overall vision for that cluster in Woodford County. The vision should clearly describe what that cluster will be like in 10 years.
- o Based on the vision, identify three to five goals that must be completed to make the vision a reality

❖ Identify specific strategic actions that will implement each goal.
- o This involves a detailed description of how goals and objectives will be implemented.
- o An action plan specifies who (individuals and units) will be involved, the time frame for accomplishment, needed resources (personnel, money, equipment or other resources), key milestones, and the expected result(s) or product.
- o The more detailed, and action-oriented, the implementation plan, the better. The action plan turns strategic planning into strategic management.

❖ Define measures of progress so that change can be benchmarked
- o Each strategic issue should have an associated set of benchmarks or measures to evaluate accomplishment and correct implementation problems.

Appendix B

Economic Modeling Specialists Inc. Data

The following text is the EMSI's own description of the data used in this report, used to form their economic statistics and projections:

Industry Data

In order to capture a complete picture of industry employment, EMSI basically combines covered employment data from Quarterly Census of Employment and Wages (QCEW) produced by the Department of Labor with total employment data in Regional Economic Information System (REIS) published by the Bureau of Economic Analysis (BEA), augmented with County Business Patterns (CBP) and Nonemployer Statistics (NES) published by the U.S. Census Bureau. Projections are based on the latest available EMSI industry data, 15-year past local trends in each industry, growth rates in statewide and (where available) sub-state area industry projections published by individual state agencies, and (in part) growth rates in national projections from the Bureau of Labor Statistics.

Shift Share

Shift share is a standard regional analysis method that attempts to determine how much of regional job growth can be attributed to national trends and how much is due to unique regional factors.

Input-Output Data

The input-output model in this report is created using the national Input-Output matrix provided by the federal Bureau of Economic Analysis. This is combined with the national Total Gross Output, the regional Total Gross Output, the land area of the subject region, regional DIRT data and regional in/out commuter patterns in order to calculate regional requirements, imports and exports. After using matrix algebra to calculate the regional multiplier, the resulting matrix is multiplied by the sales vector and converted back to jobs or earnings. Specifically, this data comes from the U.S. Department of Commerce, Bureau of Economic Analysis, Industry Economic Accounts: Benchmark & Annual Input-Output (I-O) Accounts.