West Kentucky Workforce Investment Board (WKWIB) Plan Attachments

WKWIB Plan
Attachment A

ATTACHMENT A

Performance

Workforce Investment Act and Wagner Peyser

WIA	Negotiated	Proposed
Adult Measures	**PY 2011**	**PY 2012**
Entered Employment Rate	73	TBD
Employment Retention Rate	84	TBD
Avg. Six Month Earnings	12000	TBD
Dislocated Worker		
Entered Employment Rate	80	TBD
Employment Retention Rate	87	TBD
Avg. Six Month Earnings	12000	TBD
Youth		
Placement in Employment or Education	65	TBD
Attainment of a Degree or Certificate	68	TBD
Literacy and Numeracy Gains	40	TBD

Wagner-Peyser	PY 2011	PY 2012
Entered Employment Rate	60	TBD
Employment Retention Rate	75	TBD
Avg. Six Month Earnings	$11,400	TBD

Local Area: Purchase/Pennyrile

WKWIB Plan
Attachment B

ATTACHMENT B

Workforce Investment Board/Council Membership List

Program Years 2011 and 2012

WIB: West Kentucky Workforce Investment Board

Date Submitted: _____

LWIA: Purchase/Pennyrile

Indicate any vacant positions or other constituency represented as well.
(*To add a row, highlight entire row, copy and paste. To delete a row, highlight entire row, and cut)*

Name/Address/Email Phone/Fax	Organization	Position	Business/Industry Represented (Private Sector Only)	Business Representation From Targeted Industry/ Occupation? (Yes/No)	Term Start and Term End
A. PRIVATE SECTOR					
Clyde Elrod PO Box 186 Kevil, KY 42053 (270) 462-2146 cme@brtc.net	Central Services	Owner	Telecommunication Services, Telephone Repair Services	Yes	7/1/2010-6/30/2012
Betsy Hudson-Flynn PO Box 467 Benton, KY 42025 (270) 527-4611	Community Financial Service Bank	President	Financial Services	Yes	7/1/2010-6/30/2012

betsyf@cfsvcs.com					
Dennis Courtney 104 S. 15th St. PO Box 150 Murray, KY 42071 (270) 759-3175 dcourtney@murray-ky.net	Attorney-at-Law	Attorney	Lawyer	Yes	7/1/2011- 6/30/2013
Phillip Bean PO Box 506 Bardwell, KY 42033 (270) 853-5556 pbeano@windstream.net	Self-Employed	Farmer	Agricultural/Food Industry	Yes	7/1/2011- 6/30/2013
Jeanna Tucker 112 Industrial Park Drive Mayfield, KY 42066 (270) 251-2888 jeanna.tucker@mvpgroupint.co m	MVP	Human Resource Manager	Assembly & Manufacturing	Yes	7/1/2010- 6/30/2012
Jackie Herndon 2653 State Route 1241 Hickory, KY 42051 (270) 251-7740 needline- foodpantry@hotmail.com	Pilgrim's Pride	Continuing Improvement Manager	Agricultural/Food Industry	Yes	7/1/2011- 6/30/2013
Kreg Denton PO Box 80 Fancy Farm, KY 42031 (270) 623-6900 kreg@fcbwky.com	First Community Bank	Vice President	Financial Services	Yes	7/1/2011- 6/30/2013
John Anderson Temps Plus, Inc. 819 Broadway St.	Temps Plus, Inc.	President	Business Services	Yes	7/1/2010- 6/30/2012

Paducah, KY 42009 (270) 444-0030 john.anderson@tempsplus.net					
Crystal Balentine 630 Jefferson St. Paducah, KY 42001 (270) 556-6506	FNB Bank	HR Director, Branch Coordinator	Financial Services	Yes	7/1/2011- 6/30/2013
David Puckett 1022 Main Street Benton, KY 42025 (270) 703-2594 puckettsjewelry@gmail.com	Puckett's Jewelry	Owner	Entrepreneurship	Yes	7/1/2010- 6/30/2012
Glenda Harper 56 Martin Drive Princeton, KY 42445 (270) 836-9371 cbr@kih.net	Harper's Consulting	Owner	Accounting Services Computer Systems Design Services	Yes	7/1/2010- 6/30/2012
Jackie Jones 935 Skyline Drive Hopkinsville, KY 42240 (270) 886-6274 Jackie@tjstoragetrailers.com	TJ's Storage Trailers	Vice President/Owner	Distribution/Logistics	Yes	7/1/2011- 6/30/2013
Donnie Holland PO Box 474 Cadiz, KY 42211 (270) 350-0369 Donnie.Holland@wabashnational.com	Wabash National	Business Development	Assembly & Manufacturing	Yes	7/1/2010- 6/30/2012
Phil Dunn 210 Bill Bryan Blvd. Hopkinsville, KY 42240 (270) 885-9116 phil.dunn@tradna.com	T-Rad	HR Director	Assembly & Manufacturing	Yes	7/1/2011- 6/30/2013

Jeremy Wheeler PO Box 381 200 Industrial Drive Marion, KY 42064 (270) 965-2302	Crittenden County Education/EDC	Director	Business Services Economic Development	Yes	7/1/2011- 6/30/2013
Mike Brown 3325 State Route 1099 Hickman, KY 42050 (270) 236-2325	Insteel Wire Company	General Manager	Assembly & Manufacturing	Yes	7/1/2010- 6/30/2012
Ben Spears 2268 Hwy 120E Providence, KY 42450 (270) 871-6855 ben.spears@arlp.com	Alliance Coal, LLC	Manager of HR	Coal/Energy	Yes	7/1/2010- 6/30/2012
Bryan Blount 409 East Main Street Elkton, KY 42220 (270) 265-2368	Real Estate	Agent	Buys/Sells/Rents Real Estate Services	Yes	7/1/2011- 6/30/2013
Jim Greer PO Box 46 Smithland, KY 42081 (270) 928-2844 jwallacegreer@windstream.net	Trade Water Development Corporation	Owner	Management Consulting Service	Yes	7/1/2010- 6/30/2012
Richard Gorbett 711 Gull Harbor Lane Grand Rivers, KY 42045 (270) 362-3377 dgorbett@bellsouth.net	Grand Rivers Chamber of Commerce	President	Tourism	Yes	7/1/2010- 6/30/2012
Barbara Williams PO Box 636 Greenville, KY 42345 (270) 338-4102 BarbaraU.Williams@ky.gov	Muhlenberg Economic Enterprises	Economic Development Director	Business Services Economic Development	Yes	7/1/2010- 6/30/2012

William (Scott) Smith 110 Cedar Street Kuttawa, KY 42055 (270) 388-4004	Technical Welding Inspection, Inc.	President	Assembly & Manufacturing	Yes	7/1/2011-5/30/2013
Christopher Wooldridge 926 N. 16th Street, Suite 105 Murray, KY 42071 (270) 889-2495 cwooldridge@murraystate.edu	Murray State University	District Director, Business	Business Training	Yes	7/1/2011-6/30/2012
B. PUBLIC ASSISTANCE AGENCY					
Don Howerton 2000 College Drive Madisonville, KY 42431 (270) 824-8596 don.howerton@ky.gov	Madisonville Community College-Adult Education	Associate for Workforce Education			7/1/2011-6/30/2013
Chad Hunt 400 E. Main, Suite 302 Bowling Green, KY 42101 (270) 746-7479 Chad.Hunt@ky.gov	Department for the Blind	Counselor			7/1/2011-6/30/2013
Nancy Henley PO Box 483 Bardwell, KY 42023 (270) 628-3536 jhenley1@windstream.net	Purchase Aging Committee	Member			7/1/2010-6/30/2012
John Tedder PO Box 549 Hopkinsville, KY 42241 (270) 886-6341 pacsjt@apex.net	Pennyrile Allied Community Services	Director			7/1/2010-6/30/2012
C. ORGANIZED LABOR					
Benny Adair 5658 US Hwy 62	West KY AFL-CIO, Local IAMAW 154	Vice President			7/1/2010-6/30/2012

Calvert City, KY 42029 (270) 572-1780 adairfarms@bellsouth.net					
Bruce Taylor 205 Sunset Park Greenville, KY 42345 (270) 338-3265 rbpataylor0187@att.net	Local 1905 UMWA COMPAC, Peabody Coal	Chairman			7/1/2011- 6/30/2013
D. VOCATIONAL REHABILITATION					
Jan Offutt 1071 Thornberry Drive Madisonville, KY 42431 (270) 824-7549 JanC.Offutt@ky.gov	Vocational Rehabilitation	District Branch Manager, Office of Vocational Rehabilitation			7/1/2010- 6/30/2012
E. COMMUNITY-BASED ORGANIZATION					
Lee Ann Jarvis 1900 South 10th St. Mayfield, KY 42066 (270) 247-5396 ljarvis@jukevil.com	JU Kevil Memorial Foundation	Executive Director			7/1/2011- 6/30/2013
Renee Buckingham 333 Charles Dr. Mayfield, KY 42066 (270) 247-5126 Renee.Buckingham@ky.gov	SRA-DCBS	Regional Administrator			7/1/2010- 6/30/2012
Torey Earle 4810 Alben Barkley Drive PO Box 7380 Paducah, KY 42002 (270) 534-3105 tearle@email.uky.edu	UK Cooperative Extension Services	Youth Extension Services Purchase Director			7/1/2011- 6/30/2013
F. ECONOMIC DEVELOPMENT AGENCY					
Mark Manning	Murray/Calloway	Director			7/1/2010-

PO Box 1911 Murray, KY 42071 (270) 762-3784 markmanning@murray-ky.net	County Economic Development				6/30/2012
Dan Bozarth 3911 Hopkinsville Road Cadiz, KY 42211 (270) 522-6100 dgbozarth@gmail.com	Trigg County Economic Development	Chair			7/1/2011-6/30/2013
G. PUBLIC EMPLOYMENT AGENCY					
Gina Triplett-Johnston 416 South Sixth Street Paducah, KY 42003 (270) 575-7000 Gina.Triplett@ky.gov	Office of Employment & Training	Regional Program Manager			7/1/2010-6/30/2012
Vickie Hutcheson PO Box 51146 Bowling Green, KY 42102-4446 (270) 782-2330 vphofmtown@bellsouth.net	Kentucky Farm Workers Program, Inc.	Executive Director			7/1/2011-6/30/2013
Mary Jo Sims PO Box 50200 Bowling Green, KY 42101 (270) 843-8127	Experience Works, Inc.	Manager, Workforce Services			7/1/2010-6/30/2012
Gary Jones 3875 St. Rt. Hwy 181N Greenville, KY 42345 (270) 377-3269 jones.gary@jobcorps.org	Job Corps	Business Relations Director			7/1/2011-6/30/2012
Jennifer Beck-Walker 1002 Medical Drive Mayfield, KY 42066 (270) 251-6132	Purchase Area Development District	Executive Director			7/1/2011-6/30/2013

jennifer.beckwalker@purchaseadd.org					
Dr. Brian VanHorn PO Box 9 Murray, KY 42071 (270) 809-3282 brian.vanhorn@murraystate.edu	Murray State University Continuing Education	Interim Dean, Continuing Education			7/1/201- 6/30/2012
Dr. James E. Selbe PO Box 2100 Hopkinsville, KY 42241 (270) 707-3706 James.Selbe@kctcs.edu	Hopkinsville Community College	President			7/1/2011- 6/30/2013
I. LOCAL ELECTED OFFICIAL (list contact information even if CEO is not a member of the WIB)					
Larry Elkins Calloway County Courthouse 101 S. 5th St. Murray, KY 42071 (270) 753-2920 judgelarry@murray-ky.net	Calloway County	Judge Executive			7/1/2010- 6/30/2012
Chris Lasher PO Box 70 Smithland, KY 42081 (270) 928-2105 clasher@livingstonco.ky.gov	Livingston County	Judge Executive			7/1/2010- 6/30-2012
J. OTHER CATEGORY					
K. YOUTH COUNCIL CHAIRPERSON (list contact information even if YCC is not a member of the WIB)		*The WKWIB has Co-Chairpersons			
*Jim Greer	Trade Water	Owner			7/1/2010-

PO Box 46 Smithland, KY 42081 (270) 928-2844 jwallacegreer@windstream.net	Development Corporation				6/30/2012
*David Puckett 1022 Main Street Benton, KY 42025 (270) 703-2594 puckettsjewelry@gmail.com	Puckett's Jewelry	Owner			7/1/2010- 6/30/2012

WKWIB Plan
Attachment C

ATTACHMENT C

Workforce Investment Board Subcommittee List

Program Years 2011 and 2012

WIB: West Kentucky Workforce Investment Board

Date Submitted: _____

LWIA: Purchase/Pennyrile

If applicable, provide a current lit of the Board's committees and/or task forces along with a summary of the committee's objectives.
(*To add a row, highlight entire row, copy and paste. To delete a row, highlight entire row, and cut)*

Name of Committee or Task Force	Objective / Purpose of Committee or Task Force
Executive Committee	The Executive Committee may exercise the full powers of the Board in the management of the Board's business between the Board's regular meetings to address emergency business, as needed. The Executive Committee shall make regular reports to the full Board of its actions.
Youth Council	The Youth Council meets and discusses the needs of the region's youth, discusses pending legislation, best practices and helps guide the direction of the WKWIB youth programs for the upcoming year. The Youth Council also reviews the Request for Proposal (RFP) for youth services and makes a report to the executive committee or full Board regarding the RFP and recommends its release.
Program Review Committee	The Program Review committee accepts and reviews proposals received by the WKWIB for funding during pre-established meetings. The committee meets and discusses the proposals received based on WKWIB target groups, needs analysis, occupational and sector priorities, aggregate staff reviews, cost, recommendations from staff, performance standards and monitoring of programs. The Program Review makes a recommendation of action to the Executive Committee or full WKWIB Board regarding the selection of programs and funding as a motion for their approval.

Nominating Committee	The Nominating Committee meets and secures nominations for the officers of the WKWIB for the upcoming year. The Nominating Committee makes a report to the full Board of its slate of officers for the Board's consideration and/or any other nominations as presented from the floor for action by the board members.
Pennyrile "LEED" Team	The "LEED" (Leadership, Education and Economic Development) team for the Pennyrile was formed as part of the Regional Innovation Grant. Members of the team participated in the planning activities for the "Pennyrile Future", as well as meetings, conference call, focus groups, and review the Request for Proposals (RFP) for the consultants applying for the "Workforce Analysis & Emerging Sector Strategic Analysis & Action Plan".
Purchase "LEED" Team	The "LEED" (Leadership, Education and Economic Development) team for the Purchase was formed as part of the Regional Innovation Grant. Members of the team participated in the planning activities for the "Purchase Future", as well as meetings, conference calls, and focus groups.
Energy Project Team	The WKWIB Energy Project team was formed to assist the WKWIB in applying for a State Energy Sector Partnership (SESP) & Training Grant. The team worked closely with the WKWIB staff in addressing the needs and opportunities of the SESP. A "Google" group was formed which listed all the proposals, timelines and other important information pertaining to the grant. The Energy Project Team discussed and reviewed the proposals submitted to the WKWIB and made a recommendation to the WKWIB Executive Committee for selected proposals to be submitted to the State for consideration.

WKWIB Plan
Attachment D

ATTACHMENT D

Workforce Investment Area Sub-Grantee List

Program Years 2011 and 2012

WIB: West Kentucky Workforce Investment Board

Date Submitted: _____

LWIA: Purchase/Pennyrile

(To add a row, highlight entire row, copy and paste. To delete a row, highlight entire row, and cut)

Name of Sub-Grantee	Services Provided	Funding Source	Provider Location
Douglas Autotech	On-the-Job Training	WIA National Emergency Grant-ARRA	Hopkinsville, KY
Bremner Food Group	On-The-Job Training	WIA National Emergency Grant-ARRA	Princeton, KY
FP International	On-The Job Training	WIA National Emergency Grant-ARRA	Hopkinsville, KY
Hopkins County Coal, LLC Elk Creek Mine	On-The-Job Training	WIA National Emergency Grant-ARRA	Providence, KY
MSSC	On-The Job Training	WIA National Emergency Grant-ARRA, WIA Adult, WIA Dislocated Worker, WIA	Hopkinsville, KY
City of Cadiz	On-The-Job Training	Youth, Trade	Cadiz, KY

Christian County Board of Education	Youth Services	WIA Youth	Hopkinsville, KY
Graves County Board of Education	Youth Services	WIA Youth	Mayfield, KY
KCTCS-Hopkinsville Community College	Youth Services Occupational Skills Training	WIA Youth, Program of Competitive Grants for Worker Training & Placement in High Growth & Emergency Industry Sectors,-ARRA	Hopkinsville, KY
KCTCS-Madisonville Community College	Youth Services	WIA Youth	Madisonville, KY
West Kentucky Educational Co-Op	Youth Services	WIA Youth	Murray, KY
KCTCS West Kentucky Community & Technical College	Occupational Skills Training	Program of Competitive Grants for Worker Training & Placement in High Growth & Emergency Industry Sectors,-ARRA	Paducah, KY
Pennyrile Area Development District	Administration, program oversight, core, intensive and case management services.	WIA Adult, WIA Dislocated Worker, WIA Youth, WIA National Emergency Grant-ARRA, Program of Competitive Grants for Worker Training & Placement in High Growth & Emerging Industry Sectors-ARRA	Hopkinsville, KY
Purchase Area Development District	Administration, program oversight, core, intensive and case management services	WIA Adult, WIA Dislocated Worker, WIA Youth, WIA National Emergency Grant	

WKWIB Plan
Attachment 1

Sector Analysis Report

Regional Economic Growth Strategy for the Pennyrile Region

Prepared for the:

West Kentucky Workforce Investment Board and the
Pennyrile Area Development District

avalanche
CONSULTING

July 2010

TABLE OF CONTENTS

INTRODUCTION 1
- This Report's Methodology 2

INDUSTRY CLUSTERS IN THE REGION 5

ANALYSIS OF MAJOR SECTORS AND SUBSECTORS 12
- Agriculture 14
- Construction 15
- Manufacturing 16
- Retail 17
- Transportation & Warehousing 19
- Information 20
- Professional Services 21
- Administrative Services 22
- Health Care 23
- Accommodation and Food Services 24
- Other Services 25

COMPETITIVE ASSET INVENTORY
- Physical Assets 27
- Financial Assets 35
- Business & Innovation Assets 38
- Workforce Assets 40
- Quality of Life Assets 43

POTENTIAL TARGET SECTORS 46

APPENDIX: AVAILABLE INCENTIVES 47

APPENDIX: HIGH TECH FUNDING ASSETS 60

INTRODUCTION

This report, *Sector Analysis*, is the second of several analytical reports that will be delivered as part of the *Regional Economic Growth Strategy*. This report provides a more in-depth analysis of the industries found in the region, the forces that are driving them, and the specific niche sectors that may prove to be growth targets for the region.

As a part of this report, we include a chapter "Competitive Asset Inventory" that summarizes the assets found in the region to support industry growth, our observations and feedback from our interviews in the region. At the end of the report, we provide a list of potential target opportunities from the region, which will be further evaluated and prioritized in the subsequent report *Target Selection*. We will present these potential targets to the Steering Committee with the intention of conducting a facilitation session to refine which should be actual targets and which should be placed in a "for future consideration" category.

This report will be supplemented by a report on the *Workforce Conditions* in the region, which will include an assessment of the workforce skills and competencies based on research and employer interviews/surveys, as well as an inventory of the region's educational and training programs. This analysis will yield an additional set of assets for target industry development and will identify the skills and occupations needed to support future job creation.

For more information on the project and our research process, visit the project website: www.PennyrileFuture.com

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The WKWIB, PADD, and consulting team thank the U.S. Department of Commerce's Economic Development Administration and the U.S. Department of Labor for providing funding for this project.

Methodology

The focus of this report is on clusters in the Pennyrile, KY region, as these counties will be the focus of our strategic recommendations. Montgomery County's economy is selectively referenced as required by the industry being examined. Other reports, including the *Economic Brief* and *Workforce Conditions,* look at the "Pennyrile Plus Montgomery" region since strong labor commute patterns between Montgomery and Christian counties require that we define the labor shed to include Tennessee workers in Montgomery county.

This report, *Sector Analysis*, is the first step in a three step process to identify appropriate target sectors for the Pennyrile, KY region. This report fundamentally seeks to:

1) Examine the region's established sectors,
2) Identify emerging growth sectors that may need to be nurtured,
3) Conduct an asset inventory and analysis, and
4) Identify "long-list" of potential targets.

After we look at the full range of sectors in the region and drill down to a "long-list" of targets, we will complete the *Target Selection* report, rating each potential target against the asset base, identifying local gaps or challenges for the target, and finalizing a "best list" of regional targets.

How do we define a "target"?

Targets are typically defined as the industries which should be recruited or nurtured in a region, such as "distribution" or "tourism". For this project, we will take our targeting to a much deeper level when possible, defining subsector "niche targets" that are unique to region, or which are particularly suited to the region's asset base. Furthermore, a target may not be an industry, but rather, a specific "project". Just like the ethanol plant in Hopkinsville is an example of a project that was conceived, defined, and built by local partners, other target "projects" should be considered. Some of our research will examine a specific project, campaign, or activity – both small and large – which can deliver a revenue and job creation opportunity for the region. Future research and discussions with the Steering Committee will prioritize the project within the entire target strategy.

Targets will be further qualified as recruitment, expansion, or startup targets (or any combination of these), which will help us develop more precise strategies tailored to the targets. It is important to underscore that targets are not only for recruitment. In fact, trends in startup growth and local expansion indicate that a majority of new jobs in the Pennyrile region will be created from within, not from attracting new companies to the region. Furthermore, our report will explain how each target should be nurtured and supported. We will also indicate whether we believe the target is a near, medium, or long-term opportunity for the region.

As a third and final step, we will compile our national research on the targets into a separate report: *Target Profiles*. This report will contain research on national market trends, location trends within the U.S., and the assets and conditions that the industries require. We will lay out the opportunity for the Pennyrile region for each target as we see it.

These three reports – *Sector Analysis*, *Target Selection*, and *Target Profiles* – will comprise the bulk of our research for the *Economic Development Strategy*, which will include detailed recommendations in the area of marketing, community development, entrepreneurship, workforce development, as well as others. A parallel research and input process is delivering a *Workforce Development Strategy*, which will contain more detailed recommendations on how the region's education and workforce system can better prepare its workers for the future and the industries that will be targeted.

This report utilizes primarily data from the private-sector forecasting firm EMSI. EMSI provides detailed industry employment estimates for every county in the U.S., with estimates down to the 6-digit NAICS level. This detail is a tremendous improvement on the data released by state and federal workforce agencies, which typically release data at the 2-digit (major sector) level. However, some small counties may not even have major sector data released.

EMSI offers two versions of its data: Covered and Complete. The Covered Employment dataset estimates employment at firms that submit quarterly Unemployment Insurance (UI) filings with the state, which is the data that is released by the state for the major sectors. The "Complete" Employment dataset seeks to estimate all jobs by sector, including the self-employed, unincorporated businesses, and military; none of which are included in the standard UI estimates. Some industries are highly influenced by the unincorporated employment – including the Agriculture, Construction, and Retail sectors. We aim to offer a complete picture of employment in the region, and utilize the Complete Employment dataset from EMSI for all subsequent charts and tables.

The following diagram shows our research process and how this report and future reports within the *Economic Development Strategy* connect to each other:

INDUSTRY CLUSTERS IN THE REGION

To begin the *Sector Analysis*, we present a complete picture of the conditions of industry clusters in the region. The industry cluster analysis presented below examines the relative strength of the major industries with greater employment in the region by comparing their Location Quotient, growth rates preceding the recession, and relative employment base.

What is a Location Quotient?

Location quotients measure the relative share of employment in a particular industry compared to national averages. For example, a 3.6 LQ (location quotient) for Energy says that the region enjoys 3.6 times more jobs per capita than seen on average across the U.S. Typically, when an industry has a location quotient greater than 1.0 (the U.S. average), it means that the industry is more clustered or concentrated in the region and is more competitive at a national level, i.e. it has more of its "fair share" in the region and draws in new money from outside the region. By definition, a "primary industry" (or "primary job") is one that exports a significant share of its product and services to a national or global customer base, which provides a large upside opportunity to expand market share and create new jobs. Communities across the U.S. compete aggressively to recruit or retain these primary jobs.

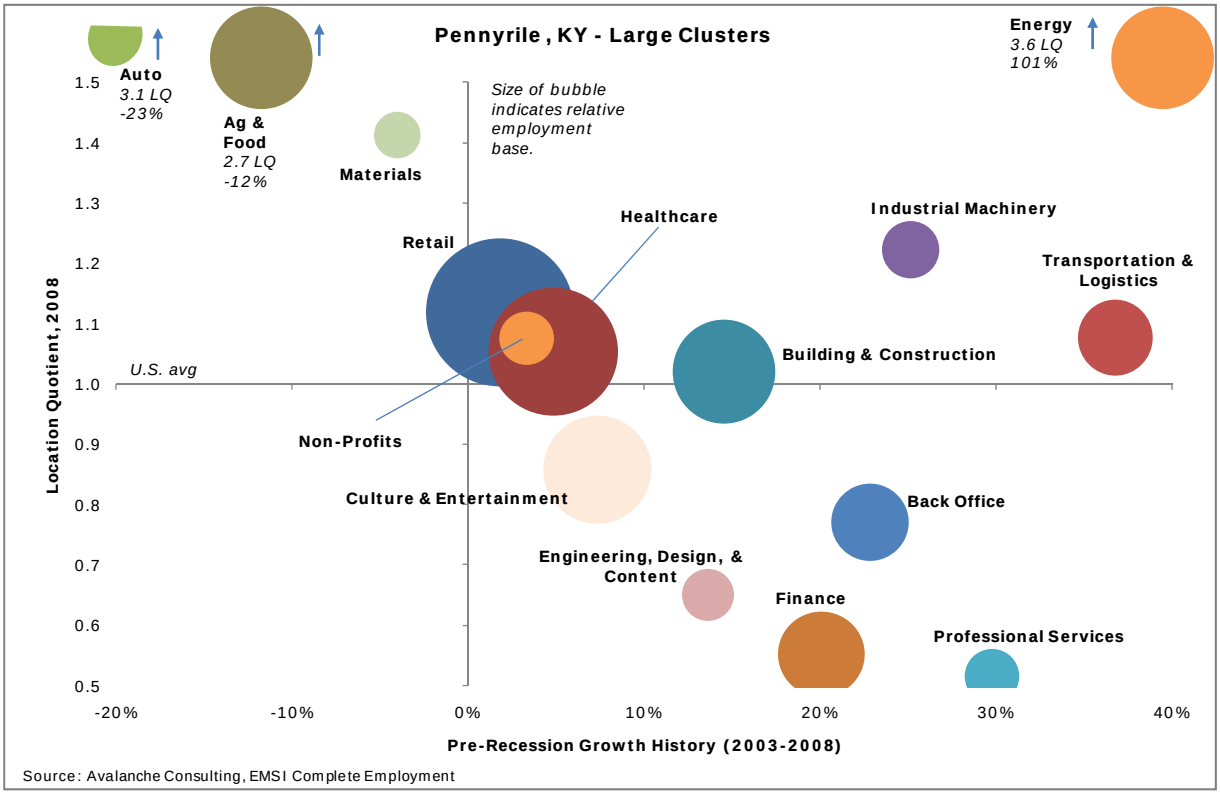
Why are "primary" jobs important? Simply put, without primary jobs, the economy will remain limited by the size of the local population – that is most of the jobs will be in retail, healthcare, and other traditionally population-serving industries. Primary jobs bring new money into the region and create a large multiplier effect on the economy instead of just repeatedly recirculating local money. Parts of locally-serving industries can be primary, such as retailers that serve tourists or hospitals that provide tertiary care to out-of-town patients. Consequently, local dollars tend to leave a region when residents leave to shop in neighboring regions or get healthcare at hospitals in major cities. These industries can act as a negative drain on the economy (sometimes referred to as "retail leakage").

Large Cluster Review

Our initial review of clusters in the Pennyrile region found large (and for some high-growth) clusters in **Agriculture & Food, Healthcare**, **Energy**, **Transportation & Logistics**, **Industrial Machinery,** and **Retail**.

All of these sectors have high concentrations in the region and were expanding before the recession began in 2008. For example in **Transportation & Logistics**, the Pennyrile region has seen significant employment growth of its warehousing and distribution industry in recent years. From 2003-2008,

employment grew 450% to reach nearly 800 warehousing jobs in the region, led by the Wal-Mart Distribution Center in Hopkinsville.

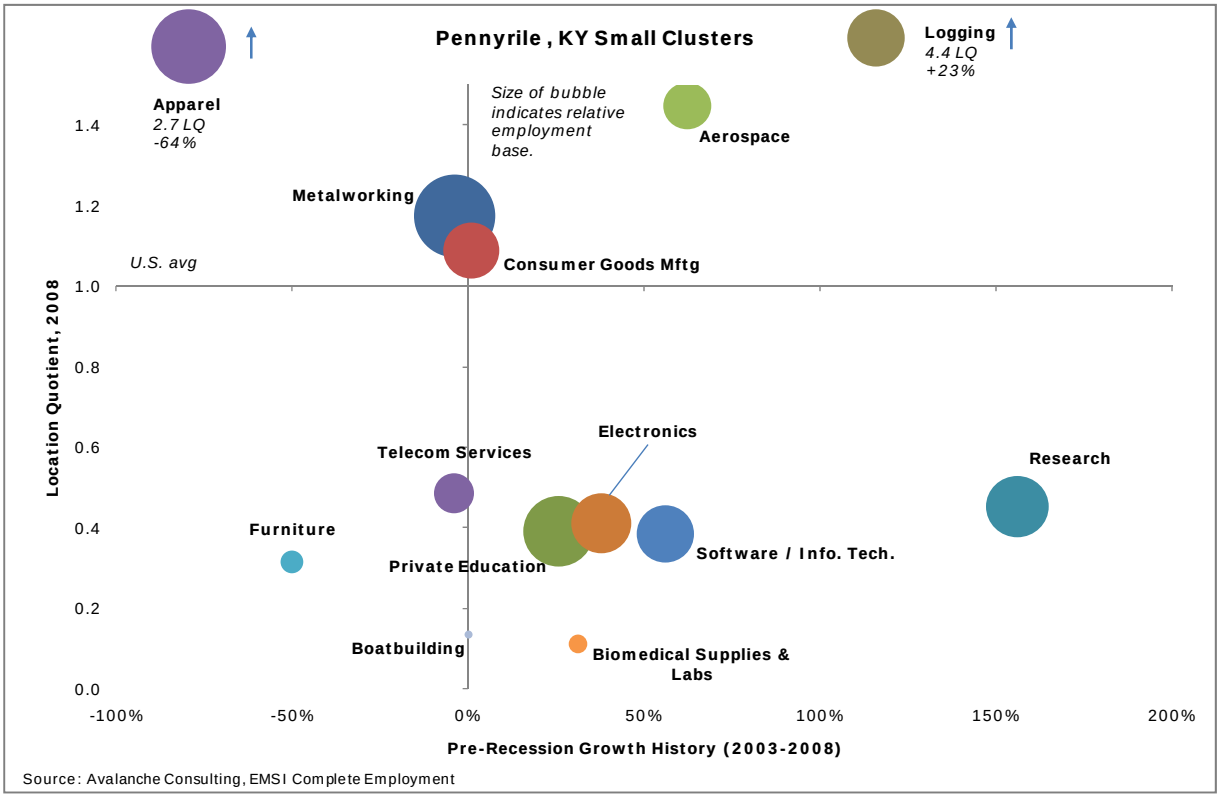


Industrial Machinery, primarily a supplier cluster, exhibits a high location quotient and high pre-recession growth. The recent decision by Hemlock Semiconductor to invest over $1 billion in Montgomery County, Tennessee in a facility to manufacture polycrystalline silicon for solar panels should give a further boost to this supplier sector.

Additionally, the **Agriculture & Food**, **Automotive**, and **Materials** sectors all have high relative concentrations in the Pennyrile Region, despite job losses in these industries in the five years preceding the recession. A return to growth at the national level would likely mean growth in the local sectors. Other regionally strong sectors such as **Healthcare** and **Energy** (which includes coal mining) are projected to continue rapid growth around the globe, offering opportunity for the Pennyrile region to carve a place in these expanding markets.

Emerging Sectors

Alongside existing large industry clusters in the region, Pennyrile hosts a number of promising emerging sectors. Although currently existing in low relative concentrations in the region, these underdeveloped industries are often some of the fastest growing on a national scale. Examples of these industry clusters include **Back Office**, **Engineering**, and **Professional Services**. These industries provide crucial support to a wide variety of high growth fields including healthcare, insurance, biotechnology, and energy.



Several clusters have such a small base of employment and low location quotients in the region that they are hard to pinpoint: **Biomedical Supplies & Labs**, **Software/Information Technology**, and **Research**. However, they grew more than 50% in the five years leading up to the recession – a clear sign of their emergence into the region. Given their small size, adding just a few companies and jobs per year to these sectors has a dramatic effect on the percentage growth.

Logging (which includes mineral mining and quarries) and **Aerospace** have high location quotients but still employ low numbers of workers.

The table on the following page shows the actual values for the cluster bubble charts.

Pennyrile, KY Cluster Composition

Cluster	2009 Jobs	2009 Location Quotient	Pre-recession, '03-'08 Growth		Pre-recession, '03-'08 New Jobs
Aerospace	375	1.45	62.2%		295
Agribusiness & Food	8,920	2.67	-12.4%		-1,237
Apparel & Textiles	1,008	2.71	-64.2%		-2,004
Automotive	1,823	3.07	-23.0%		-752
Back Office	3,905	0.77	22.8%		815
Biomedical Supplies & Labs	65	0.11	31.1%		14
Building & Construction	6,903	1.02	14.5%		1,037
Consumer Goods Mftg	540	1.09	1.0%		6
Culture & Entertainment	7,552	0.86	7.3%		501
Education	858	0.39	25.6%		160
Electronics	616	0.41	37.9%		161
Energy	3,447	3.46	100.7%		1,608
Engineering, Design, & Content	1,718	0.65	13.6%		219
Finance	4,761	0.55	20.0%		827
Furniture	93	0.32	-50.0%		-113
Government	50,411	3.77	16.8%		7,107
Healthcare	10,822	1.05	4.8%		498
Industrial Machinery	2,198	1.22	25.1%		550
Logging & Metal/Mineral Mining	783	4.35	23.2%		153
Materials	1,446	1.41	-4.0%		-72
Metalworking	1,151	1.17	-4.0%		-51
Non-Profits	1,889	1.07	3.3%		60
Professional Services	1,899	0.52	29.8%		464
Research	663	0.45	155.9%		382
Retail	14,153	1.12	1.8%		254
Shipbuilding	10	0.14	n/a	n/a	20
Software / Info. Tech.	576	0.38	56.0%		197
Telecom Services	280	0.49	-3.9%		-11
Transportation & Logistics	3,704	1.08	36.8%		1,060
Total	132,347	1.39	9.8%		12,128

Source: Avalanche Consulting, EMSI Complete

Growth Forecasts

According to forecasts from EMSI, many of the region's well established and emerging industry clusters have high forecasted growth in relation to national trends. (See the introduction of this report for an explanation of this data source). For example, the **Biomedical Supplies & Labs** cluster, while relatively small in the region, is forecasted to grow 41% between 2009 and 2019, compared to 19% growth nationally (though this will only translate to 28 new jobs). Larger clusters such as **Energy** are projected to grow 33% over the next decade compared to a -3.5% loss of jobs nationally.

Pennyrile, KY Cluster Composition

Cluster	10-year Forecast, '09-'19 Growth	New Jobs	US Forecast, '09-'19 Growth
Aerospace	-47.7%	-179	0.2%
Agribusiness & Food	-9.2%	-824	0.0%
Apparel & Textiles	-62.9%	-634	-34.7%
Automotive	-28.3%	-515	-13.6%
Back Office	31.8%	1,240	24.7%
Biomedical Supplies & Labs	43.1%	28	19.2%
Building & Construction	20.4%	1,409	15.9%
Consumer Goods Mftg	-7.0%	-38	8.3%
Culture & Entertainment	10.7%	805	11.5%
Education	28.4%	244	22.4%
Electronics	3.9%	24	0.2%
Energy	33.3%	1,149	-3.5%
Engineering, Design, & Content	35.4%	609	11.2%
Finance	26.1%	1,241	26.2%
Furniture	-25.8%	-24	5.3%
Government	1.5%	764	7.1%
Healthcare	16.2%	1,748	24.1%
Industrial Machinery	5.2%	114	-3.4%
Logging & Metal/Mineral Mining	4.1%	32	9.9%
Materials	10.2%	147	-12.5%
Metalworking	5.2%	60	-10.2%
Non-Profits	12.3%	232	12.0%
Professional Services	22.2%	421	13.3%
Research	106.0%	703	47.2%
Retail	5.2%	729	6.8%
Shipbuilding	0.0%	0	-12.7%
Software / Info. Tech.	77.1%	444	37.0%
Telecom Services	-12.9%	-36	-5.2%
Transportation & Logistics	12.0%	444	10.2%
Total	7.8%	10,352	13.2%

Source: Avalanche Consulting, EMSI Complete

A comparison of those clusters with regional high growth projections to national forecasts solidifies existing understanding of industry cluster strengths in the region and reveals a few additional areas of potential growth. EMSI forecasts that growth in the Pennyrile, KY region is expected to outpace the nation in these industry clusters: **Back Office**; **Biomedical Supplies & Labs**; **Culture & Entertainment** (Tourism); **Education**; **Energy**; **Engineering, Design & Content**; **Healthcare**; **Materials**; **Metalworking**; **Professional Services**; **Research**; **Retail**; **Software/Information Technology**; and **Transportation & Logistics**. Of these clusters, emerging regional industries such as Research and Software/Information Technology show some of the highest potential, with forecasted growth in Research above 100% over the next decade and Software/Information Technology at 77%. While not

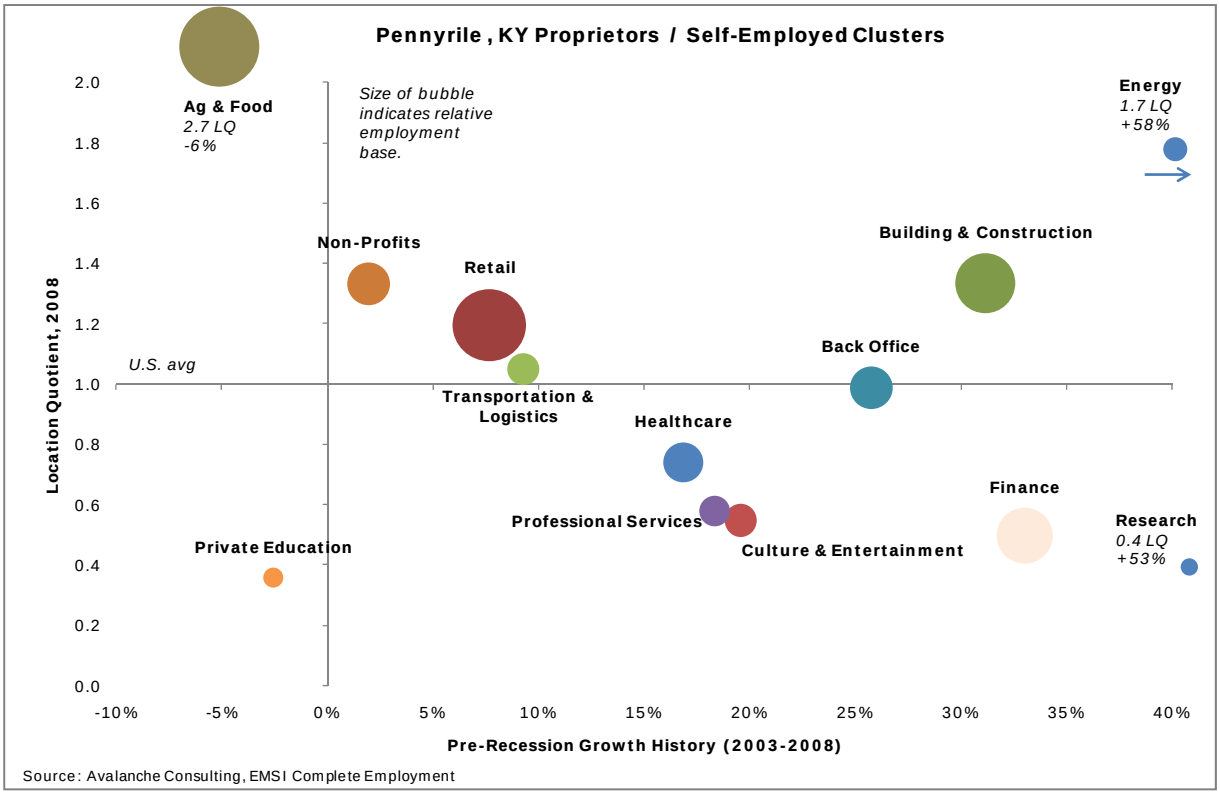
as relatively concentrated in the region as traditional industry clusters such as **Energy** and **Agriculture & Food**, these projections reveal the enormous potential and significance of these emerging industries, particularly through their ties to the national economy.

The Self-Employment Economy

Approximately 30% of all jobs in the regional economy are "proprietor" jobs, including the self-employed, independent contractors, and unincorporated business. These unincorporated businesses are not required to file quarterly employment reports to state or federal agencies, and therefore are not included in the "Wage and Salary" employment data that are commonly quoted in the media and research papers.

These types of jobs are increasingly important to the economy, as workers of all ages and educational backgrounds are starting their own businesses in response to a soft job market. As shown in the Economic Brief, over 2,000 self-employed positions were created in the Pennyrile-Montgomery County area in 2008 alone. The self-employment portion of the economy grew **three times** faster than the corporate economy from 2003-2008.

While state and federal agencies only release an estimate of self-employment by county, we utilize the EMSI dataset to pull out the self-employed economy by industry.



Pennyrile, KY Self-Employment Clusters

Cluster	2009 Jobs	2009 Location Quotient	Pre-recession, '03-'08 Growth	Pre-recession, '03-'08 New Jobs	10-year Forecast, '09-'19 Growth	10-year Forecast, '09-'19 New Jobs
Aerospace	4	0.99	0.0%	0	-25.0%	-1
Agribusiness & Food	5,631	3.82	-5.7%	-331	-15.3%	-860
Apparel & Textiles	40	0.83	5.1%	2	-20.0%	-8
Automotive	12	0.80	36.4%	4	8.3%	1
Back Office	1,537	0.99	25.7%	337	38.5%	591
Biomedical Supplies & Labs	17	0.55	54.5%	6	52.9%	9
Building & Construction	3,012	1.34	31.2%	866	18.1%	544
Consumer Goods Mftg	90	0.70	36.1%	26	31.1%	28
Culture & Entertainment	893	0.55	19.6%	145	34.0%	304
Education	351	0.36	-2.6%	-9	1.4%	5
Electronics	61	0.59	35.6%	16	27.9%	17
Energy	396	1.71	58.1%	133	42.2%	167
Engineering, Design, & Conten	251	0.38	18.5%	43	38.2%	96
Finance	2,643	0.50	33.0%	691	39.9%	1,055
Furniture	12	0.43	-45.5%	-10	16.7%	2
Government	17	0.73	-50.0%	-16	23.5%	4
Healthcare	1,341	0.74	16.9%	195	21.6%	289
Industrial Machinery	165	0.87	20.8%	31	23.6%	39
Logging & Metal/Mineral Min	214	2.86	52.5%	74	-1.9%	-4
Materials	39	1.09	85.7%	18	25.6%	10
Metalworking	28	0.91	78.3%	18	42.9%	12
Non-Profits	1,506	1.33	2.0%	29	9.5%	143
Professional Services	794	0.58	18.3%	126	5.3%	42
Research	254	0.41	53.3%	88	41.7%	106
Retail	4,461	1.20	7.7%	320	6.5%	289
Shipbuilding	0	0.00	n/a	0	0.0%	0
Software / Info. Tech.	104	0.29	6.0%	6	43.3%	45
Telecom Services	54	0.58	-6.9%	-4	25.9%	14
Transportation & Logistics	875	1.05	9.3%	79	5.9%	52
Total	132,347	1.00	12.5%	2,853	12.2%	3,033

Source: Avalanche Consulting calculations from EMSI Complete and EMSI Covered Employment

As shown in the charts above, nearly 25,000 people are considered self-employed in the region. The self-employed are concentrated in **Agriculture & Food**, **Retail**, and **Construction**. The self-employed economy is expected to grow 12% over the next 10years.

ANALYSIS OF MAJOR SECTORS AND SUBSECTORS

In the following pages, we provide more information on the major sectors in the region. Major sectors are defined by the U.S. Bureau of Labor Statistics and are typically reported on by the BLS with quarterly employment and payroll estimates. As mentioned in the introduction to this report, we utilize another dataset from EMSI, which provides a higher level of detail on the subsectors to the major sectors.

These one-page profiles on major sectors show how the sector is performing, and which subsectors are forecasted to have the most growth over the next 10 years.

The consulting team believes that these one-page profiles on major sectors and their subsectors can be reproduced as Information Sheets for distribution by the PADD, West Kentucky WIB, local chambers of commerce, and colleges. These sheets will serve students and local businesses to better understand where job growth and revenue growth can be found in the regional economy.

For each sector, we provide the following components:

- Key Sector Dynamics – This table rates the sector's:
    - Local Relative Concentration
    - Local Job Growth, Historical
    - Local Job Growth, Forecast
    - U.S. Job Growth, Forecast

- Shift-Share Analysis – This chart presents a different perspective on job creation trends for each major sector. Shift-share analysis breaks a growth rate into three components:
    - National Share – How much local growth is due to an improvement in the U.S. economy
    - Industry Shift – How much local growth is due to the sector's overall growth at the national level
    - Regional Share – How much growth is actually being created at the local level

  By examining these three components, we can see if the "Regional Share" is positive – indicating that the sector is growing more competitive (advancing) against the U.S. economy.

- Sector Breakdown Table – All subsectors are provided that comprise the major sector. Subsectors are provided at the 4-digit NAICS level. Data includes:
    - Total Jobs, 2004/2009/2019
    - Annual Growth Rates, 2004-2009, 2009-2019 (Note: annualized growth is the rate at which the subsector grows per year on average)
    - Net New Jobs over each time period, 2004-2009 and 2009-2019

The charts and tables utilize data and forecasts from EMSI. Refer to this report's introduction for more information on this data source.

We provide a synopsis of data for the major sectors here before discussing select sector individually:

Major Sectors

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annual Job Growth		Net New Jobs		LQ*	US %
NAICS	**Description**	**2004**	**2009**	**2019**	**'04-'09**	**'09-'19**	**'04-'09**	**'09-'19**	**2009**	**'09-'19**
11	Agriculture, Forestry, Fishing, Hunting	7,628	7,076	5,909	-1.5%	-1.8%	(552)	(1,167)	3.5	-0.3%
21	Mining, Quarrying, and Oil and Gas	1,857	3,527	4,827	13.7%	3.2%	1,670	1,300	5.4	0.8%
22	Utilities	259	285	230	1.9%	-2.1%	26	(55)	0.8	-0.7%
23	Construction	5,098	5,800	6,872	2.6%	1.7%	702	1,072	1.0	1.0%
31-33	Manufacturing	14,974	10,029	8,897	-7.7%	-1.2%	(4,945)	(1,132)	1.3	-0.9%
42	Wholesale Trade	2,196	2,227	2,214	0.3%	-0.1%	31	(13)	0.6	0.3%
44-45	Retail Trade	11,584	11,154	11,594	-0.8%	0.4%	(430)	440	1.1	0.4%
48-49	Transportation and Warehousing	2,835	3,845	4,323	6.3%	1.2%	1,010	478	1.0	0.7%
51	Information	787	802	807	0.4%	0.1%	15	5	0.4	0.4%
52	Finance and Insurance	2,575	2,629	2,939	0.4%	1.1%	54	310	0.5	1.4%
53	Real Estate and Rental and Leasing	2,115	2,560	3,431	3.9%	3.0%	445	871	0.5	2.5%
54	Professional, Scientific, and Tech Svcs	3,370	4,345	6,467	5.2%	4.1%	975	2,122	0.6	2.3%
55	Management of Companies	240	161	163	-7.7%	0.1%	(79)	2	0.1	0.2%
56	Administrative, Waste Mgmt Services	4,466	3,952	5,486	-2.4%	3.3%	(514)	1,534	0.7	2.0%
61	Educational Services	681	805	1,017	3.4%	2.4%	124	212	0.3	1.9%
62	Health Care and Social Assistance	10,294	10,828	12,181	1.0%	1.2%	534	1,353	1.0	2.1%
71	Arts, Entertainment, and Recreation	1,074	1,027	1,259	-0.9%	2.1%	(47)	232	0.5	1.6%
72	Accommodation and Food Services	5,836	6,288	6,761	1.5%	0.7%	452	473	0.9	0.7%
81	Other Services	5,469	5,901	6,645	1.5%	1.2%	432	744	1.1	1.1%
90	Government	41,861	49,200	49,592	3.3%	0.1%	7,339	392	3.5	0.6%
TOT	**Total**	**125,200**	**132,440**	**141,614**	**1.1%**	**0.7%**	**7,240**	**9,174**		**1.1%**

Source: EMSI Complete Employment, 2Q 2010

*Note: Calculated without Military employment

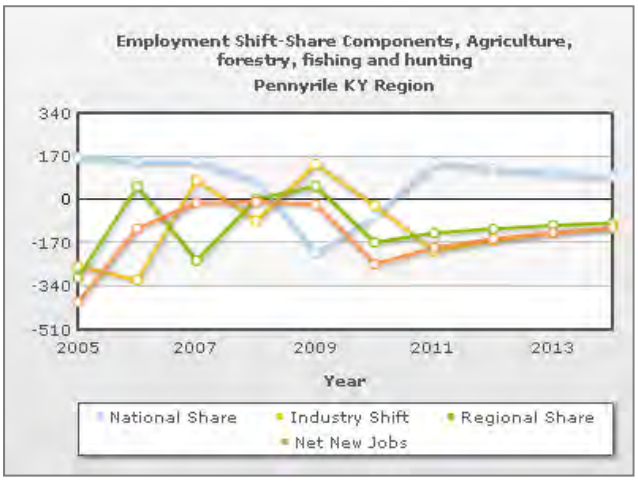
Agriculture

The agriculture sector in the Pennyrile region has experienced job loss in recent years, though job losses slowed leading up to the start of the recession in 2008.

Key Sector Dynamics

Local Relative Concentration:	Very High
Local Job Growth, Historical:	Negative
Local Job Growth, Forecast:	Negative
US Job Growth, Forecast:	Slightly Negative
Local Competitiveness Trend:	Advancing

Crop and animal production employs the vast majority of workers in this sector, but has experience job growth rates at high negative levels. Support activities employ small numbers of workers but haveperformed better than the overall sector – creating jobs in recent years and forecasted to continue its positive growth over the next 10 years.



Mineral mining (including limestone quarries) is part of the mining sector, which is dominated by coal mining, but is shown here as part of agriculture. Mineral mining has also been losing jobs in the region and is expected to continue to lose jobs at the local and national level.

Sector Breakdown: Agriculture & Mineral Mining

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
11	Agriculture, Forestry, Fishing and Hunting	7,628	7,076	5,909	-1.5%	-1.8%	(552)	(1,167)
1141	Fishing	72	68	141	-1.1%	7.6%	(4)	73
1152	Support Activities for Animal Production	54	79	110	7.9%	3.4%	25	31
1153	Support Activities for Forestry	15	16	21	1.3%	2.8%	1	5
1142	Hunting and Trapping	20	29	30	7.7%	0.3%	9	1
1151	Support Activities for Crop Production	415	401	384	-0.7%	-0.4%	(14)	(17)
1133	Logging	205	195	163	-1.0%	-1.8%	(10)	(32)
11A0	Crop and animal production	6,846	6,287	5,059	-1.7%	-2.1%	(559)	(1,228)
1131	Timber Tract Operations	0	0	0	n/a	n/a	0	0
1132	Forest Nurseries and Gathering of Forest Products	0	0	0	n/a	n/a	0	0
11+	Agriculture & Mineral Mining	8,104	7,657	6,569	-1.1%	-1.5%	(447)	(1,088)
2123	Nonmetallic Mineral Mining and Quarrying	476	581	660	4.1%	1.3%	105	79

Source: EMSI Complete Employment, 2Q 2010

Construction

The construction industry in the Pennyrile region experienced moderate to highgrowth leading up to the recession. The subsectors that grew the fastest included: utility construction, specialty trade contractors, structural construction, civil engineering construction, building finishing contractors, and residential construction. This high growth reflected an improving competitive situation against national trends, as the "regional share" of local job creation counter-balanced a declining "industry shift" that began in 2007.

Over the next 10years, forecasts point to positive job creation, though at slower rates than seen before the recession. The top three fastest growing subsectors in future years will be commercial construction, road construction, and foundation/structural construction.

Key Sector Dynamics

Local Relative Concentration:	Average
Local Job Growth, Historical:	Moderate
Local Job Growth, Forecast:	Moderate
US Job Growth, Forecast:	Low-Moderate
Local Competitiveness Trend:	Advancing

Sector Breakdown: Construction

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
23	Construction	5,098	5,800	6,872	2.6%	1.7%	702	1,072
2362	Nonresidential Building Construction	672	538	749	-4.4%	3.4%	(134)	211
2373	Highway, Street, and Bridge Construction	373	298	381	-4.4%	2.5%	(75)	83
2381	Foundation, Structure, and Building Exterior Contract	564	730	906	5.3%	2.2%	166	176
2383	Building Finishing Contractors	1,009	1,171	1,427	3.0%	2.0%	162	256
2389	Other Specialty Trade Contractors	716	1,000	1,209	6.9%	1.9%	284	209
2382	Building Equipment Contractors	826	867	989	1.0%	1.3%	41	122
2379	Other Heavy and Civil Engineering Construction	95	118	132	4.4%	1.1%	23	14
2361	Residential Building Construction	649	794	815	4.1%	0.3%	145	21
2372	Land Subdivision	52	64	65	4.2%	0.2%	12	1
2371	Utility System Construction	143	220	200	9.0%	-0.9%	77	(20)

Source: EMSI Complete Employment, 2Q 2010

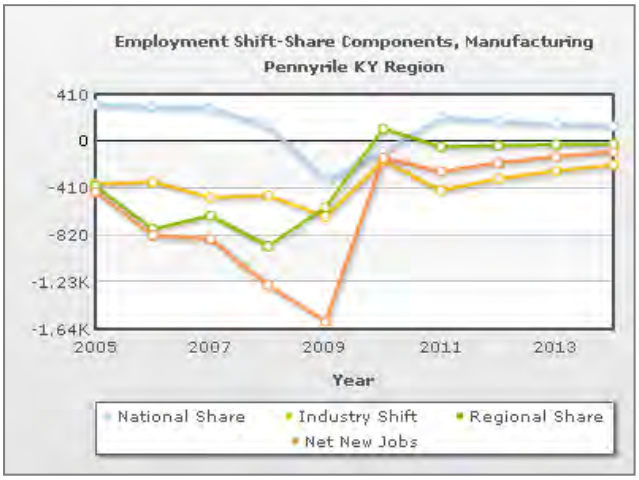
Manufacturing

The manufacturing sector in the Pennyrile, KY region has suffered large job losses in recent years – nearly 5,000 over 2004-2009, about one-third of the region's manufacturing job base. Job losses are expected to moderate substantially after the recession, although the downward trend in manufacturing jobs is a likely scenario.

Some manufacturing sectors have performed well: food manufacturing, chemicals, and textiles (though quite small). Manufacturing for beverages, tobacco, primary metal and mineral products, is expected to rebound into positive territory over the span of the next 10 years in the Pennyrile region.

Key Sector Dynamics

Local Relative Concentration:	Above Average
Local Job Growth, Historical:	Very Negative
Local Job Growth, Forecast:	Negative
US Job Growth, Forecast:	Negative
Local Competitiveness Trend:	Lagging



Sector Breakdown: Manufacturing

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
31-33	Manufacturing	14,974	10,029	8,897	-7.7%	-1.2%	(4,945)	(1,132)
312	Beverage and Tobacco Product Mftg	370	185	336	-12.9%	6.1%	(185)	151
331	Primary Metal Mftg	359	215	303	-9.7%	3.5%	(144)	88
325	Chemical Mftg	273	411	564	8.5%	3.2%	138	153
327	Nonmetallic Mineral Product Mftg	261	257	337	-0.3%	2.7%	(4)	80
311	Food Mftg	1,128	1,315	1,377	3.1%	0.5%	187	62
314	Textile Product Mills	10	10	10	0.0%	0.0%	0	0
335	Electrical Equipment, Appliance, and Component Mftg	51	10	10	-27.8%	0.0%	(41)	0
332	Fabricated Metal Product Mftg	948	864	863	-1.8%	0.0%	(84)	(1)
321	Wood Product Mftg	820	774	762	-1.1%	-0.2%	(46)	(12)
326	Plastics and Rubber Products Mftg	1,239	751	737	-9.5%	-0.2%	(488)	(14)
333	Machinery Mftg	1,217	1,175	1,110	-0.7%	-0.6%	(42)	(65)
322	Paper Mftg	339	328	303	-0.7%	-0.8%	(11)	(25)
323	Printing and Related Support Activities	89	91	84	0.4%	-0.8%	2	(7)
339	Miscellaneous Mftg	331	263	212	-4.5%	-2.1%	(68)	(51)
313	Textile Mills	134	148	108	2.0%	-3.1%	14	(40)
336	Transportation Equipment Mftg	4,089	2,359	1,435	-10.4%	-4.8%	(1,730)	(924)
316	Leather and Allied Product Mftg	49	22	10	-14.8%	-7.6%	(27)	(12)
315	Apparel Mftg	2,981	785	331	-23.4%	-8.3%	(2,196)	(454)
337	Furniture and Related Product Mftg	188	75	27	-16.8%	-9.7%	(113)	(48)

Source: EMSI Complete Employment, 2Q 2010

Retail

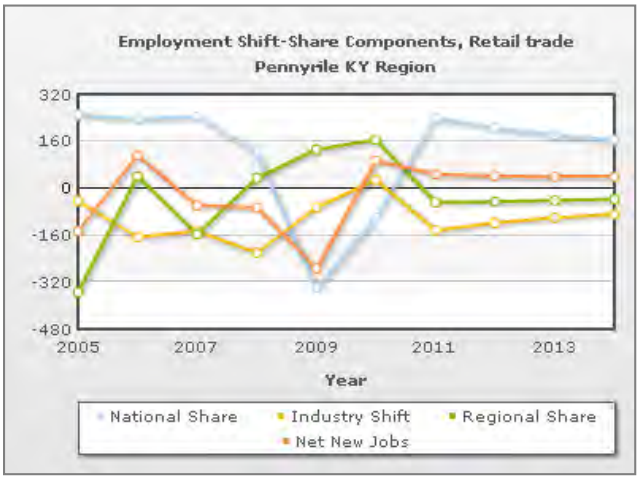
The retail employment base has been shedding jobs at a slow pace in recent years – worsening into the recession. The 10year forecast for the region calls for a slight improvement back into positive growth territory, comparable to the annual rate expected for the U.S.

The highest job growth is expected in the following sectors: Electronic Shopping and Mail-Order Houses; Sporting Goods, Hobby, and Musical Instrument Stores; Home Furnishings Stores; Used Merchandise Stores; and Office Supplies, Stationery, and Gift Stores.

Several retail subsectors are expected to bounce from a negative trend to positive future growth: automotive, furniture, clothing, florists, building materials, and shoes.

Key Sector Dynamics

Local Relative Concentration:	Above Average
Local Job Growth, Historical:	Slightly Negative
Local Job Growth, Forecast:	Slightly Positive
US Job Growth, Forecast:	Slightly Positive
Local Competitiveness Trend:	Lagging



Sector Breakdown: Retail

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
44-45	Retail Trade	11,584	11,154	11,594	-0.8%	0.4%	(430)	440
4541	Electronic Shopping and Mail-Order Houses	52	91	143	11.8%	4.6%	39	52
4511	Sporting Goods, Hobby, and Musical Instrument Store	195	239	349	4.2%	3.9%	44	110
4422	Home Furnishings Stores	113	127	164	2.4%	2.6%	14	37
4533	Used Merchandise Stores	197	216	276	1.9%	2.5%	19	60
4532	Office Supplies, Stationery, and Gift Stores	260	307	380	3.4%	2.2%	47	73
4412	Other Motor Vehicle Dealers	116	111	133	-0.9%	1.8%	(5)	22
4539	Other Miscellaneous Store Retailers	481	487	581	0.2%	1.8%	6	94
4521	Department Stores	366	384	450	1.0%	1.6%	18	66
4529	Other General Merchandise Stores	1,827	2,019	2,360	2.0%	1.6%	192	341
4421	Furniture Stores	214	191	220	-2.2%	1.4%	(23)	29
4481	Clothing Stores	394	371	415	-1.2%	1.1%	(23)	44
4461	Health and Personal Care Stores	743	769	860	0.7%	1.1%	26	91
4531	Florists	132	125	137	-1.1%	0.9%	(7)	12
4441	Building Material and Supplies Dealers	746	671	729	-2.1%	0.8%	(75)	58

Sector Breakdown: Retail

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
4482	Shoe Stores	75	59	64	-4.7%	0.8%	(16)	5
4452	Specialty Food Stores	198	114	114	-10.5%	0.0%	(84)	0
4471	Gasoline Stations	1,405	1,205	1,198	-3.0%	-0.1%	(200)	(7)
4512	Book, Periodical, and Music Stores	70	54	53	-5.1%	-0.2%	(16)	(1)
4453	Beer, Wine, and Liquor Stores	109	116	111	1.3%	-0.4%	7	(5)
4413	Automotive Parts, Accessories, and Tire Stores	436	439	414	0.1%	-0.6%	3	(25)
4431	Electronics and Appliance Stores	189	149	140	-4.6%	-0.6%	(40)	(9)
4483	Jewelry, Luggage, and Leather Goods Stores	87	52	45	-9.8%	-1.4%	(35)	(7)
4542	Vending Machine Operators	58	43	37	-5.8%	-1.5%	(15)	(6)
4411	Automobile Dealers	748	619	506	-3.7%	-2.0%	(129)	(113)
4451	Grocery Stores	1,349	1,265	1,008	-1.3%	-2.2%	(84)	(257)
4543	Direct Selling Establishments	795	801	635	0.2%	-2.3%	6	(166)
4442	Lawn and Garden Equipment and Supplies Stores	226	131	72	-10.3%	-5.8%	(95)	(59)

Source: EMSI Complete Employment, 2Q 2010

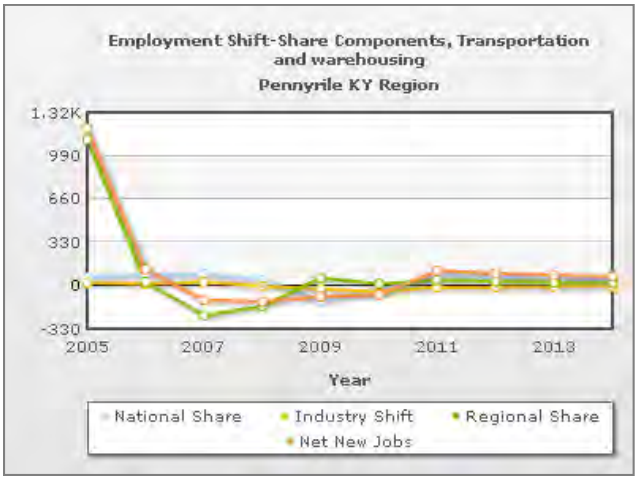
Transportation & Warehousing

The Transportation and Warehousing sector experienced strong job growth in the region in recent years, but forecasts point to a moderate growth of 1.2% per year. By comparison, the U.S. sector is expected to grow less than 1% annually over the next 10 years.

The warehousing subsector is expected to create the most jobs going forward for the region – about 300 over 10 years. Trucking is projected to experience no net job creation.

Key Sector Dynamics

Local Relative Concentration:	Average
Local Job Growth, Historical:	Very High
Local Job Growth, Forecast:	Moderate
US Job Growth, Forecast:	Slightly Positive
Local Competitiveness Trend:	Advancing



Sector Breakdown: Transportation & Warehousing

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
48-49	Transportation and Warehousing	2,835	3,845	4,323	6.3%	1.2%	1,010	478
485	Transit and Ground Passenger Transportation	147	205	340	6.9%	5.2%	58	135
492	Couriers and Messengers	188	332	472	12.0%	3.6%	144	140
493	Warehousing and Storage	121	781	1,075	45.2%	3.2%	660	294
482	Rail Transportation	286	274	305	-0.9%	1.1%	(12)	31
484	Truck Transportation	1,413	1,504	1,507	1.3%	0.0%	91	3
488	Support Activities for Transportation	183	299	242	10.3%	-2.1%	116	(57)
483	Water Transportation	55	16	10	-21.9%	-4.6%	(39)	(6)
486	Pipeline Transportation	29	25	15	-2.9%	-5.0%	(4)	(10)

Source: EMSI Complete Employment, 2Q 2010

Information

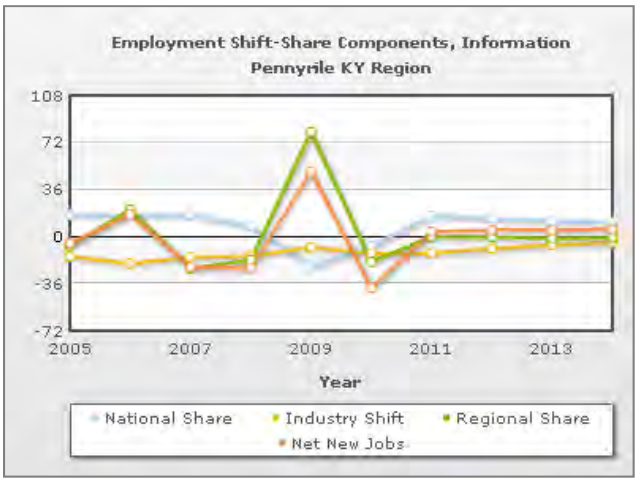
This sector includes diverse information products and services, comprised of datacenters, software publishers, telecomunications and television Job growth in the region has been slightly positive and expected to remain so over the next 10 years.

Most of the traditional telecommunications sectors have been losing jobs.However, local newspaper publishers have bucked negative national trends and created jobs over the 2004-2009 period (which is expected to turn negative going forward). Data processing/hosting and video industries are projected to create jobs in future years.

Overall, the local sector is expected to outperform the national sector.

Key Sector Dynamics

Local Relative Concentration:	Very Low
Local Job Growth, Historical:	Slightly Positive
Local Job Growth, Forecast:	Slightly Positive
US Job Growth, Forecast:	Slightly Positive
Local Competitiveness Trend:	Flat



Sector Breakdown: Information (incl. Telecommunications)

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
51	Information	787	802	807	0.4%	0.1%	15	5
5182	Data Processing, Hosting, and Related Services	79	62	129	-4.7%	7.6%	(17)	67
5179	Other Telecommunications	11	25	31	17.8%	2.2%	14	6
5121	Motion Picture and Video Industries	58	61	75	1.0%	2.1%	3	14
5172	Wireless Telecommunications Carriers (except Satelli	39	78	81	14.9%	0.4%	39	3
5112	Software Publishers	0	10	10	na	0.0%	10	0
5122	Sound Recording Industries	14	10	10	-6.5%	0.0%	(4)	0
5174	Satellite Telecommunications	0	10	10	na	0.0%	10	0
5191	Other Information Services	10	10	10	0.0%	0.0%	0	0
5152	Cable and Other Subscription Programming	41	34	31	-3.7%	-0.9%	(7)	(3)
5111	Newspaper, Periodical, Book, and Directory Publisher	210	262	236	4.5%	-1.0%	52	(26)
5151	Radio and Television Broadcasting	120	100	81	-3.6%	-2.1%	(20)	(19)
5171	Wired Telecommunications Carriers	211	167	124	-4.6%	-2.9%	(44)	(43)

Source: EMSI Complete Employment, 2Q 2010

Professional Services

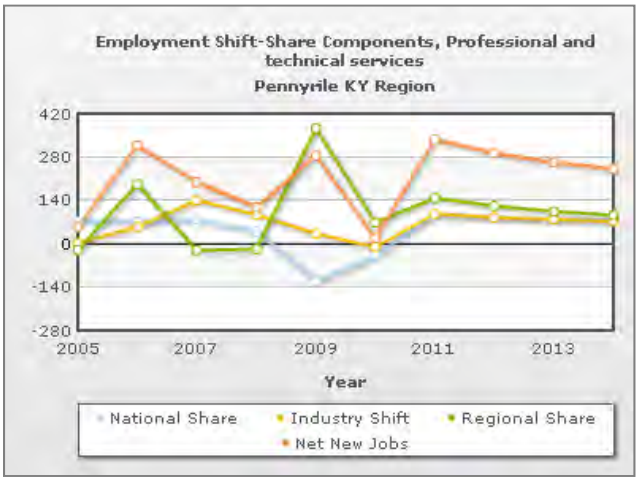
Professional services have a low relative concentration in the Pennyrile region, yet growth rates have been high in recent years and are forecasted to remain high over the next 10 years. This high growth reflects an improvement in competitiveness as shown by the shift-share chart, where the "regional share" of jobs is more positive than the "industry shift" seen at the national level. This sector is working hard to bridge the gap in availability of services in the local economy.

Management and technical consulting services have experienced the highest rate of growth in the region and will continue to be the fastest-growing sector over the next 10 years. Scientific R&D will grow quickly, as well as software development.

Advertising and Public Relations is expected to bounce from negative to positive growth, as is Specialized Design Services. In total, about 2,000 jobs are expected to be created in Professional Services over the next 10 years.

Key Sector Dynamics

Local Relative Concentration:	Low
Local Job Growth, Historical:	Very High
Local Job Growth, Forecast:	Very High
US Job Growth, Forecast:	High
Local Competitiveness Trend:	Advancing



Sector Breakdown: Professional Services

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
54	Professional, Scientific, and Technical Services	3,370	4,345	6,467	5.2%	4.1%	975	2,122
5416	Management, Scientific, and Technical Consulting Ser	208	703	1,413	27.6%	7.2%	495	710
5417	Scientific Research and Development Services	28	36	61	5.2%	5.4%	8	25
5415	Computer Systems Design and Related Services	203	520	843	20.7%	4.9%	317	323
5413	Architectural, Engineering, and Related Services	1,189	1,284	1,932	1.5%	4.2%	95	648
5418	Advertising, Public Relations, and Related Services	155	84	115	-11.5%	3.2%	(71)	31
5419	Other Professional, Scientific, and Technical Services	500	729	969	7.8%	2.9%	229	240
5414	Specialized Design Services	94	40	52	-15.7%	2.7%	(54)	12
5412	Accounting, Tax Preparation, Bookkeeping, and Payro	580	575	672	-0.2%	1.6%	(5)	97
5411	Legal Services	412	374	409	-1.9%	0.9%	(38)	35

Source: EMSI Complete Employment, 2Q 2010

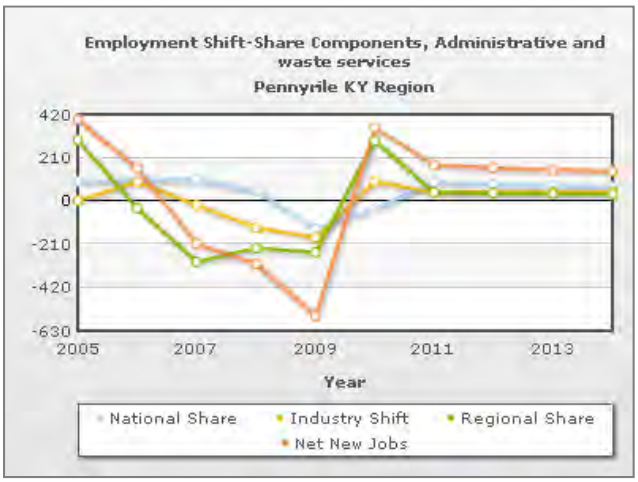
Administrative Services

The Administrative Services sector is comprised of the "back office" and administrative jobs that keep buildings operational. Temporary employment services are also included in this sector.

Key Sector Dynamics

Local Relative Concentration:	Low
Local Job Growth, Historical:	Negative
Local Job Growth, Forecast:	Very High
US Job Growth, Forecast:	High
Local Competitiveness Trend:	Advancing

This sector experienced negative job growth from 2004-2009, however, it is forecast to grow 3.3% per year over the next 10 years, faster than the 2% forecast for the U.S.



Employment services will create nearly 1,000 new jobs over the next 10 years. In addition, office administration services and services to buildings will create another 600 jobs during this time.

Administrative services shows the largest rebound of any major sector, improving from -2.4% annual growth during the 2004 to2009, time period, to showing an increase to 3.3% annual growth from 2009 to 2019.

Sector Breakdown: Administrative Services

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
56	Administrative and Support and Waste Management a	4,466	3,952	5,486	-2.4%	3.3%	(514)	1,534
5622	Waste Treatment and Disposal	57	63	124	2.0%	7.0%	6	61
5613	Employment Services	1,173	1,072	1,985	-1.8%	6.4%	(101)	913
5612	Facilities Support Services	89	119	191	6.0%	4.8%	30	72
5611	Office Administrative Services	206	229	338	2.1%	4.0%	23	109
5617	Services to Buildings and Dwellings	1,495	1,630	2,117	1.7%	2.6%	135	487
5621	Waste Collection	23	16	20	-7.0%	2.3%	(7)	4
5614	Business Support Services	280	200	243	-6.5%	2.0%	(80)	43
5619	Other Support Services	164	89	101	-11.5%	1.3%	(75)	12
5629	Remediation and Other Waste Management Services	33	29	30	-2.6%	0.3%	(4)	1
5615	Travel Arrangement and Reservation Services	26	20	15	-5.1%	-2.8%	(6)	(5)
5616	Investigation and Security Services	920	485	322	-12.0%	-4.0%	(435)	(163)

Source: EMSI Complete Employment, 2Q 2010

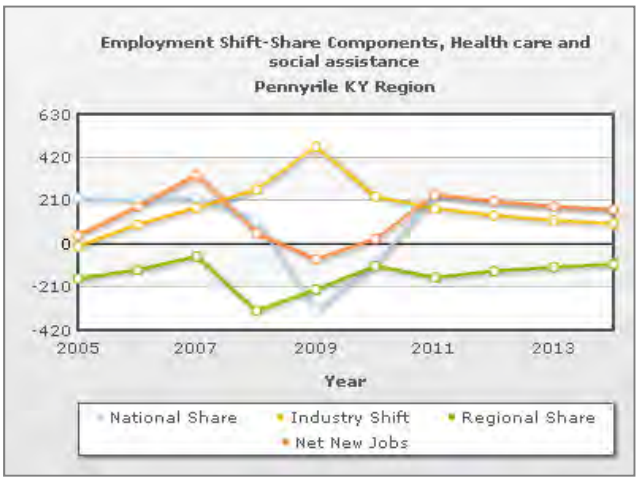
Health Care

The health care sector has grown at a steady, moderate pace in recent years with a slight job loss projected in 2009. Growth is forecasted to speed up over the next 10 years to an average of 1.2% per year.

Key Sector Dynamics

Local Relative Concentration:	Average
Local Job Growth, Historical:	Moderate
Local Job Growth, Forecast:	Moderate
US Job Growth, Forecast:	High
Local Competitiveness Trend:	Lagging

Despite these positive trends, the region's health care sector has been lagging behind national trends. When being examined in the shift-share analysis, the "regional share" of job growth has been negative – an indication that local job growth in this sector has been driven by a strong national economy and growing share of the economy devoted to health care.



Within the sector, Medical and Diagnostic Laboratories are expected to grow faster than another other subsector.

Sector Breakdown: Health Care Services

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
62	Health Care and Social Assistance	10,294	10,828	12,181	1.0%	1.2%	534	1,353
6215	Medical and Diagnostic Laboratories	13	36	65	22.6%	6.1%	23	29
6241	Individual and Family Services	187	341	542	12.8%	4.7%	154	201
6242	Community Food and Housing, and Emergency and Otl	15	17	25	2.5%	3.9%	2	8
6213	Offices of Other Health Practitioners	341	465	678	6.4%	3.8%	124	213
6222	Psychiatric and Substance Abuse Hospitals	137	196	283	7.4%	3.7%	59	87
6214	Outpatient Care Centers	486	596	831	4.2%	3.4%	110	235
6233	Community Care Facilities for the Elderly	129	178	230	6.7%	2.6%	49	52
6216	Home Health Care Services	359	375	465	0.9%	2.2%	16	90
6212	Offices of Dentists	301	322	374	1.4%	1.5%	21	52
6219	Other Ambulatory Health Care Services	129	125	140	-0.6%	1.1%	(4)	15
6244	Child Day Care Services	1,130	1,182	1,322	0.9%	1.1%	52	140
6231	Nursing Care Facilities	1,967	2,013	2,189	0.5%	0.8%	46	176
6221	General Medical and Surgical Hospitals	3,137	3,192	3,311	0.3%	0.4%	55	119
6211	Offices of Physicians	1,533	1,338	1,333	-2.7%	0.0%	(195)	(5)
6239	Other Residential Care Facilities	103	54	49	-12.1%	-1.0%	(49)	(5)
6243	Vocational Rehabilitation Services	181	168	149	-1.5%	-1.2%	(13)	(19)
6232	Residential Mental Retardation, Mental Health and Su	143	230	194	10.0%	-1.7%	87	(36)

Source: EMSI Complete Employment, 2Q 2010

Accommodation and Food Services

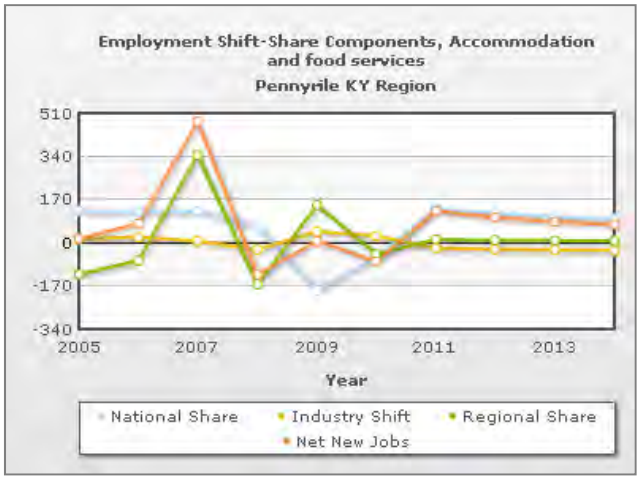
The Accommodation and Food Services sector (including hotels, restaurants, and bars) experienced positive growth during 2007 followed by several years of moderate to negative growth since. Despite this trend, the sector is forecasted to return to increased growth in 2011 and remain positive.

The sector is under-represented in the region, with just 0.7 jobs per capita (LQ) per 1 job per capita seen at the U.S. level. When looking at location quotients (LQs) for individual subsectors, we see that hotels have just a 0.33 LQ (i.e. "We have just 30% of the hotels that a population our size can typically support") and bars have just a 0.09 LQ. Full-service restaurants have just a 0.63 LQ, while fast food restaurants are over-represented in the region.

Growth has been positive in recent years, led by fast-food restaurants. Hotel employment is expected to continue to decline – similar to U.S. trends.

Key Sector Dynamics

Local Relative Concentration:	Below Average
Local Job Growth, Historical:	Moderate
Local Job Growth, Forecast:	Low
US Job Growth, Forecast:	Low
Local Competitiveness Trend:	Flat



Sector Breakdown: Accommodation and Food Services

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs		LQ
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19	2009
72	Accommodation and Food Services	5,836	6,288	6,761	1.5%	0.7%	452	473	0.70
7212	RV (Recreational Vehicle) Parks	25	43	55	11.5%	2.5%	18	12	0.80
7224	Drinking Places (Alcoholic Beverages)	23	27	33	3.3%	2.0%	4	6	0.09
7223	Special Food Services	212	263	304	4.4%	1.5%	51	41	0.41
7222	Limited-Service Eating Places	2,912	3,319	3,798	2.7%	1.4%	407	479	1.05
7213	Rooming and Boarding Houses	16	13	14	-4.1%	0.7%	(3)	1	0.39
7221	Full-Service Restaurants	2,141	2,174	2,137	0.3%	-0.2%	33	(37)	0.63
7211	Traveler Accommodation	506	450	420	-2.3%	-0.7%	(56)	(30)	0.33

Source: EMSI Complete Employment, 2Q 2010

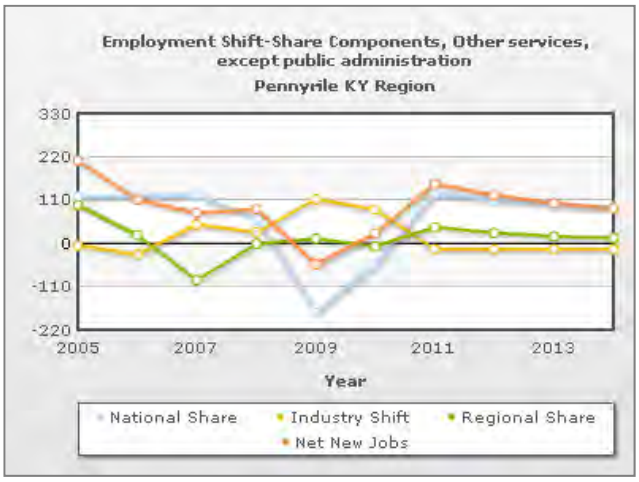
Other Services

This sector captures a variety of miscellaneous services to both households and businesses: automotive repair, equipment repair, churches, funeral services, and dry cleaners. The sector has experienced moderate growth in recent years and is expected to maintain this positive trend in the future. The forecasted growth rate of 1.1% is on par with the national forecasted rate.

Nonprofits and repair companies are expected to exhibit the fastest growth over the next 10 years, followed by funeral services and automotive repair. Employment at churches is predicted to grow at a moderate pace, while employment at dry cleaners is expected to fall.

Key Sector Dynamics

Local Relative Concentration:	Average
Local Job Growth, Historical:	Moderate
Local Job Growth, Forecast:	Moderate
US Job Growth, Forecast:	Moderate
Local Competitiveness Trend:	Advancing



Sector Breakdown: Other Services

Pennyrile, KY Region

Sorted by Forecasted % Growth, 2009-2019

		Total Jobs			Annualized Growth		Net New Jobs	
NAICS	Description	2004	2009	2019	'04-'09	'09-'19	'04-'09	'09-'19
81	Other Services (except Public Administration)	5,469	5,901	6,645	1.5%	1.2%	432	744
8133	Social Advocacy Organizations	30	96	131	26.2%	3.2%	66	35
8113	Commercial and Industrial Machinery Repair	315	599	771	13.7%	2.6%	284	172
8139	Business, Professional, Labor, Political Organizations	177	157	200	-2.4%	2.5%	(20)	43
8112	Electronic, Precision Equipment Repair	84	111	140	5.7%	2.3%	27	29
8122	Death Care Services	169	161	196	-1.0%	2.0%	(8)	35
8111	Automotive Repair and Maintenance	968	943	1,138	-0.5%	1.9%	(25)	195
8114	Personal and Household Goods Repair	256	312	374	4.0%	1.8%	56	62
8134	Civic and Social Organizations	185	185	207	0.0%	1.1%	0	22
8131	Religious Organizations	1,494	1,508	1,645	0.2%	0.9%	14	137
8121	Personal Care Services	355	410	429	2.9%	0.5%	55	19
8132	Grantmaking and Giving Services	10	10	10	0.0%	0.0%	0	0
8129	Other Personal Services	196	233	204	3.5%	-1.3%	37	(29)
8123	Drycleaning and Laundry Services	181	123	71	-7.4%	-5.3%	(58)	(52)

Source: EMSI Complete Employment, 2Q 2010

COMPETITIVE ASSET INVENTORY

To arrive at the selection of the region's target sectors for economic development, we evaluate and highlight the assets in the region that will support their development. Regional assets are assessed in the following categories:

Physical Assets

- Air Transportation
- Highway Transportation
- Rail Transportation
- Port Access
- Industrial Parks
- Power
- Water

Financial Assets

- State and Local Financial Incentives
- Local Grants and Loan Programs
- Available Venture Capital
- Local Banking Sector

Business & Innovation Assets

- Tax Burden
- Incubators
- Research and Development / Universities

Workforce Assets

- Educational Attainment
- Educational and Training Infrastructure
- K-12 Education

Quality of Life Assets

- Cost of Living
- Public Safety
- Healthcare
- Recreation/Entertainment

Physical Assets

Physical assets include air, rail, highway, and other transportation and cargo access along with utility and real estate infrastructure that are necessary for successful economic growth. Due to its abundant natural and energy resources and central location, the Pennyrile region has much strength in this area.

Air Transportation

The Pennyrile Region has a significant asset in the nearby Nashville International Airport (BNA). Fifteen airlines provide service into Nashville: American Airlines, Continental, Delta, Northwest, Southwest, United, and US Airways. Nashville provides 471 weekly direct flights to their top 15 destinations alone, with 89 domestic and 40 international destinations.

Air Service: Direct Flight Availability (Top 15 Destinations)

June 2010

Destination	Nashville Daily Flights During Week In/Out
Chicago	62
Baltimore	42
Houston	41
Orlando	36
Denver	34
Atlanta	31
Atlanta	31
Tampa	29
Detroit	27
Washington, DC	25
Las Vegas	24
Fort Lauderdale	23
Los Angeles	22
Philadelphia	22
Raleigh/Durham	22
Total Flights	**471**
# of Domestic Destinations	**89**
# of International Destinations	**40**

Source: Nashville International Airport

Located about an hour outside the Pennyrile region, BNA provides more competitive cargo and passenger flight access than smaller regional airports such as Evansville and Paducah. A comparative analysis of advance tickets to Chicago found that a flight from Nashville cost approximately $140, which is comparable to the St. Louis prices. This price is significantly low when compared to a similar flight from Evansville that was found to cost $320 and a flight from Paducah that was $255.Not only were flight fares found to be more expensive in these areas but also direct flights to the west coast and most larger metros were unavailable from these smaller airports as well.

The presence of Southwest Airlines' regional hub in Nashville is a major economic development asset for the Pennyrile region.

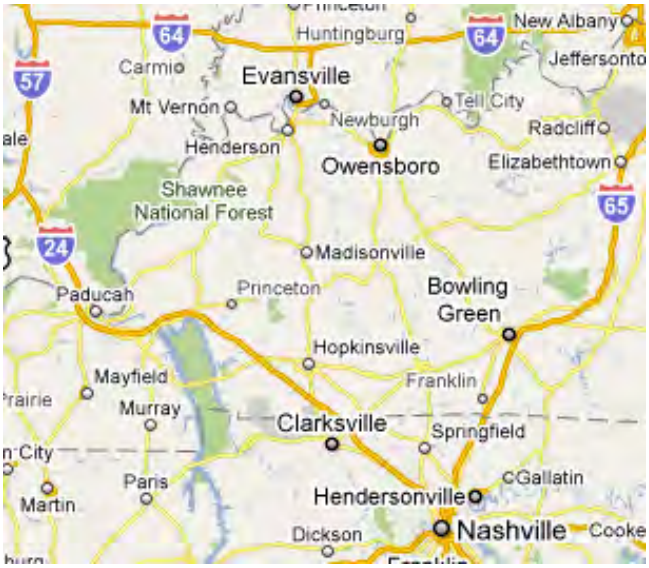
Highway Transportation

The Pennyrile region is conveniently located in a triangular area formed by three interstate highways: I-64, I-65, and I-24. These corridors offer connections to major interstates running to all corners of the country. Additionally, the proposed I-69 extension will directly connect the region to Indianapolis through Evansville to the north, and create a corridor through Memphis to Texas and Mexico in the south. These interstates combined with intraregional highways provide easy access to greater regional markets and long-distance destinations.

Over 15 million people live in metropolitan areas within 200 miles of the Pennyrile region, including the major metropolitan areas in St. Louis, Indianapolis, Nashville, Lexington, Memphis, Cincinnati, and Knoxville.

Surrounding Cities

	Distance	Population
West:		
Paducah	30 mi.	978,895
St. Louis	184 mi.	3,173,275
North:		
Evansville	5 mi.	720,646
Indianapolis	185 mi.	2,866,515
South:		
Nashville	49 mi.	2,712,352
East:		
Bowling Green	46 mi.	204,247
Lexington	175 mi.	1,255,739
Pennyrile Region		417,903



Rail Transportation

Several Class I Railroads, defined as the largest railroads with the highest revenue in the county, are located in Kentucky. CSX Transportation operates the majority of Class I railroads in Kentucky, including the North-South line running directly through the Pennyrile region. The Chicago to Nashville and Detroit to Atlanta mainlines run through Kentucky. In addition, CSX has a partnership with the Paducah & Louisville Railroad, which operates a Short Line railway running East-West through the region, connecting Paducah and Louisville. CSX operates major terminals in Nashville, Louisville, and Evansville, has extensive networks throughout the Midwest and East Coast, and offers competitive rates for cargo shipment. Another intermodal railway is the Norfolk Southern Railroad, which connects Louisville and Georgetown through its Cincinnati to Atlanta and New Orleans mainlines. Canadian National runs through Kentucky with its Chicago to New Orleans mainline. It connects Canada, Mexico, and the United States, and provides access to the ports on the Atlantic, Pacific, and the Gulf of Mexico.

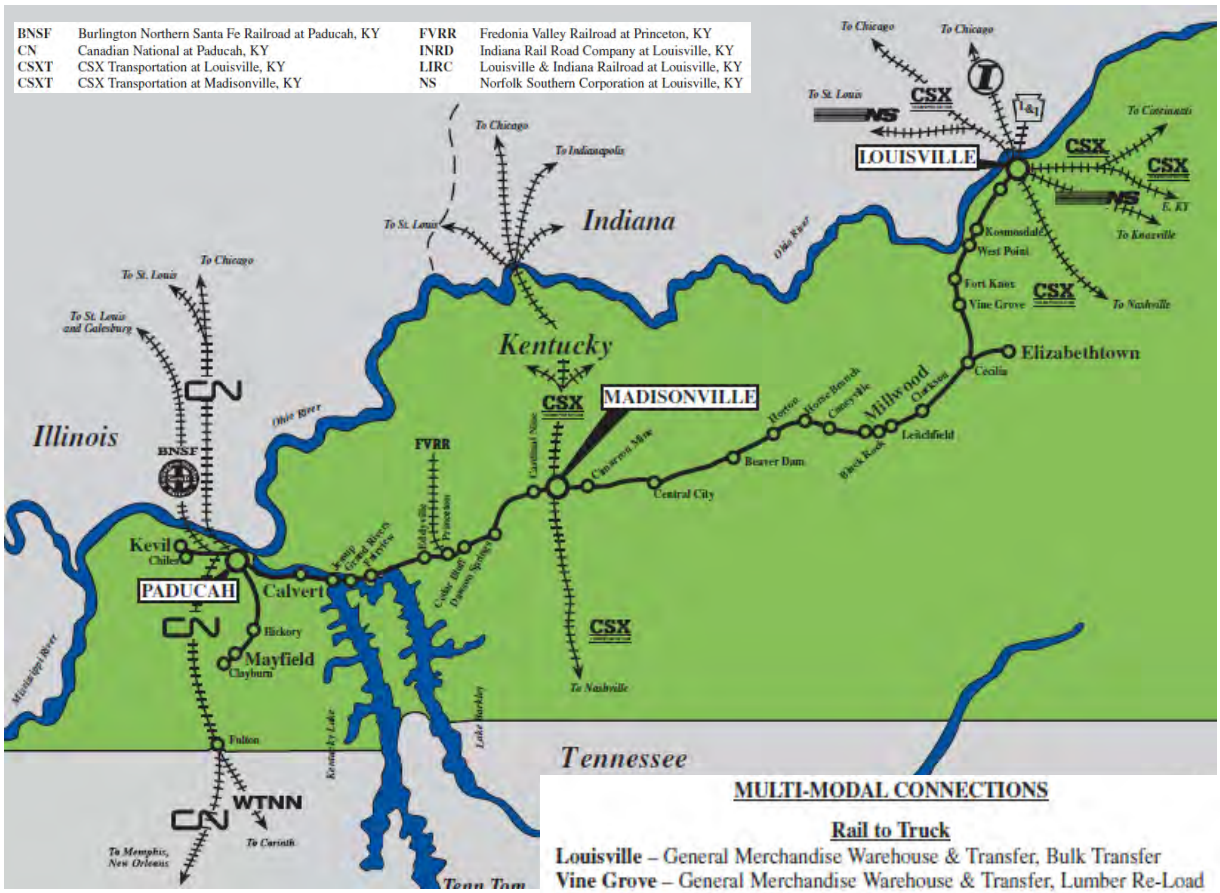
Kentucky's Rail Network

Rail network based upon 2006 National Transportation Atlas Database published by the U.S. DOT, Bureau of Transportation Statistics.

The Paducah and Louisville Railway

The Paducah and Louisville Railway (PAL), although only 265 miles, runs through Louisville, Madisonville, Paducah, and Princeton. It connects with Class I railroads in the various cities: CP Rail System, CSX, and Norfolk Southern in Louisville; CSX in Madisonville; and Burlington Northern Santa Fe and Canadian National in Paducah. The map on the following page shows the extent of its reach and the junctions where it connects to other rail systems. The PAL operates near the Ohio and Tennessee Rivers, which provides access to the Louisville-Jefferson Riverport and the Paducah-McCracken County Riverport. Its cargo consists of 73.5% coal, 12.5% chemical, 6% minerals, and 8% other.

Paducah-Louisville Railway



MULTI-MODAL CONNECTIONS

Rail to Truck

Louisville – General Merchandise Warehouse & Transfer, Bulk Transfer
Vine Grove – General Merchandise Warehouse & Transfer, Lumber Re-Load
Elizabethtown – General Merchandise Warehouse & Transfer, Bulk Transfer
Millwood – General Merchandise Warehouse & Transfer
Beaver Dam – Bulk Transfer
Paducah – General Merchandise Warehouse & Transfer, Lumber Re-Load
Mayfield – General Merchandise Warehouse & Transfer, Lumber Re-Load

Rail to Barge

Louisville – Jefferson Riverport Terminals
Jessup – Grand Rivers Terminal (Kinder Morgan)
Calvert City – Calvert City Terminal (Southern Coal Handling)
Paducah – Paducah-McCracken County Riverport

Highway Connections

Louisville – I-64, I-65 and I-71
Vine Grove – Kentucky Parkway System
Elizabethtown – I-65 and Kentucky Parkway System
Millwood – Kentucky Parkway System
Paducah – I-24

http://www.palrr.com/generalinfo/Printer_P&L_map.pdf

Port Access

The Pennyrile region benefits from immediate proximity to numerous riverports on the Ohio River, providing shipping access to destinations throughout the country including St. Louis, Minneapolis, Chicago, Pittsburgh, Memphis, and New Orleans. The major Kentucky river terminals of Paducah, Owensboro, and Louisville conduct a significant amount of trade with Latin America, and although port facilities likely require upgrading to meet expanded demand in the future, these close outlets offer significant Latin American and world trade assets to the Pennyrile region. The transported cargo is largely made up of petroleum products (32%), coal (24%), crude materials, such as lumber, gravel, and metals, and grain products. On the national level, inland waterways transport 20% of America's coal and 60% of grain exports.

In 2005, the major commodity shipped from Kentucky to Texas was limestone, and from Texas to Kentucky was petroleum coke. Texas utilizes the Gulf Intracoastal Waterway, which connects ports along the Gulf of Mexico to the inland ports: Memphis, St. Louis, Chicago, St. Paul, Cincinnati, and Pittsburgh. The main commodity shipped to Kentucky from Mississippi is petroleum, and from Kentucky to Mississippi are aggregates. Mississippi has three ports along the Gulf of Mexico. By using the Tennessee-Tombigbee Waterway, which connects the Tennessee River to the Black Warrior-Tombigbee river system, cargo can be shipped directly from the Gulf of Mexico to the Ohio River Basin. In 2008, the states with the highest imports from Kentucky, by barge, were Louisiana (aggregates), Tennessee (coal), Ohio (coal), and Alabama (coal, and West Virginia (aggregates)). The states with the highest exports to Kentucky were Louisiana (petroleum), West Virginia (coal), Ohio (coal), Indiana (aggregates), and Illinois (coal). These transports rely on the waterways of the Ohio River, Tennessee River, Cumberland River, and the Green River. Connecting to the Lower Mississippi River, cargo can be imported and exported from foreign countries.

A Closer Look at Paducah's Port Economy

The Paducah-McCracken County Riverport is located in Paducah, between miles 1.3 and 2.1 on the Tennessee River, as well as an intersection of the Ohio River. It also serves as a connection point to highways US-60, US-62, and I-24; and is easily accessible to 65% of the U.S. population within one day with ground transportation Furthermore, the Riverport transfers cargo through the PAL Railway, which connects to more extensive, Class I railroads. Previously, there has been a lack of available property for potential tenants at the port.

However, a new opportunity for expansion was presented when Paducah-McCracken County obtained Riverport West a 242 acre port.

This riverport handles transportation logistics and storage on a variety of cargo at its 48 acres for operations and storage. U.S. inland waterways mainly transport bulky cargo, such as coal and petroleum products, which in 2005 made up more than half of the cargo volume, food, and chemical products. In 2003, coal made up 38% and crude materials made up 34% of the cargo along the Tennessee River. Other commodities include food products and chemicals.

Although coal makes up a large percentage of the cargo, the PAL railway, which is the freight connection to the Paducah-McCracken Riverport for Kentucky, only lists the following riverports: Grand Rivers Terminal, Jefferson Riverport, and Calvert City Terminal as rail-to-water options for coal cargo.

Several headquarters and company facilities are located in Paducah. Ingram Barge, which is headquartered in Paducah, services Mississippi, Ohio, Tennessee, and the Cumberland River areas. Crounse Corporation is another barge company headquartered in Paducah. Its top commodity is coal, which makes up 90% of its cargo. James Marine and Marquette Transportation are additional barge companies in the area as well. In total, 23 barge companies have either operating or corporate headquarters stationed in Paducah. In addition to this, AEP, the second largest carrier transport company, plans to base their operating headquarters in Paducah by 2012.

Industrial Parks

The region has numerous industrial parks shovel-ready for development. The Kentucky Cabinet for Economic Development provides an industrial site searchable database, which yields 209 sites across the state, 23 of which are located in the Pennyrile region. Sixteen of these regional sites have over 100 acres of land; the largest being the Interstate 24 Industrial park in Hopkinsville with over 2,000 acres. Additionally, the state provides an incentive for development of industrial sites through the Regional Business Park Program, which allows counties to form regional agreements to develop competitive tracts of land. Although the region has plentiful sites for corporate expansions, the state and local websites could be better designed to highlight these assets.

Available Regional Industrial Sites, 2010

Site Name	City	Acres	Largest Tract	Rail?	Hwy Dist (mi.)	Air Dist (mi.)
Interstate 24 Industrial Park (047-012)	Hopkinsville	2,098	2,098	Possible	Adj	55
Guthrie -- KY & TN Stateline Site (219-013)	Guthrie	1,062	849	No	1.5	65
Pennyrile WestPark (143-003)	Eddyville	805	805	No	0.5	35
Guthrie -- Site 219-012	Guthrie	800	800	Possible	8	65
Interstate 24 Business Park (221-003)	Cadiz	592	472	No	0.7	93
Hopkinsville -- Commerce Industrial Park #2 (047-026)	Hopkinsville	507	383	Possible	4.2	71
Oak Grove Site (047-018)	Oak Grove	400	400	No	Adj	55
Commerce Industrial Park (047-005)	Hopkinsville	316	86	No	4.2	71
Hopkins County North Industrial Recreational Park (107-009)	Hanson	274	274	No	0.5	51
Lyon County Riverport (143-002)	Eddyville	175	175	No	2.6	41
South Park (047-010)	Hopkinsville	157	103	No	2	60
Grand Rivers Site (139-005)	Grand Rivers	146	103	Possible	Adj	118
Princeton Industrial Park (033-001)	Princeton	138	49	No	2	56
Greater Madisonville Industrial Park (107-002)	Madisonville	114	65	Possible	3.2	51
Eddyville Industrial Park (143-001)	Eddyville	106	70	Possible	0.5	35
Industrial Park North (055-005)	Marion	105	105	No	21.4	67
Muhlenberg County Industrial Park (177-001)	Greenville	65	65	No	3.8	32
Island Ford Industrial Park (107-005)	Madisonville	49	49	Possible	0.5	51
Hopkinsville AgPark (047-013)	Hopkinsville	40	40	No	3.2	72
Crittenden Industrial Park -- Site 081-001	Crittenden	38	38	Possible	0.6	21
West Hopkins Industrial Park (107-001)	Dawson Springs	29	29	Possible	1.5	69
Marion-Crittenden County Industrial Center (055-001)	Marion	28	14	No	18.6	63
Hopkinsville Industrial Park (047-001)	Hopkinsville	15	15	No	1.6	75

Source: Kentucky Cabinet for Economic Development

Power

The Pennyrile region is served by several electric providers (see table to the right), with Tennessee Valley Authority (TVA) serving as the primary wholesaler of electricity. Blessed with abundant water resources that power a hydroelectric generation facility and a coal plant near Hopkinsville, the TVA provides electricity at some of the lowest rates in the nation; only to be surpassed regionally by rates in St. Louis. A 2008 study, commissioned by the governor of Kentucky, found the electric rates to be the 8th lowest in the nation. The same study found the industrial electric power rates to be the 3rd lowest among states east of the Mississippi.

Power Provider	Counties Served
Kentucky Utilities Company	Caldwell, Christian, Crittenden, Hopkins, Lyon, Muhlenberg
Pennyrile Rural Electric Cooperative	Caldwell, Christian, Muhlenberg, Todd, Trigg
Princeton Electric Plant Board	Caldwell
Hopkinsville Electric System	Christian
Kenergy	Crittenden, Hopkins, Lyon
Green River Electric	Hopkins
Jackson Purchase Energy	Livingston
Tennessee Valley Authority (Wholesale)	Caldwell, Christian, Lyon, Muhlenberg, Todd, Trigg

Energy Price Comparisons
March 2010

	Natural Gas		Electricity		
State	**City Gate**	**Residential**	**Residential**	**Commercial**	**Industrial**
Kentucky	**$6.19**	**$8.58**	**$8.19**	**$7.68**	**$4.85**
Tennessee	$6.00	$9.88	$9.61	$10.08	$7.23
Illinois	$6.01	$9.29	$10.36	$7.99	$7.39
Indiana	$5.84	$8.61	$8.53	$7.97	$5.60
Ohio	$7.65	$10.20	$10.38	$9.80	$5.79
Missouri	$5.90	$10.14	$7.24	$6.23	$4.66
Michigan	$8.01	$11.14	$11.55	$9.60	$6.80
US	**$6.36**	**$10.92**	**$10.86**	**$9.83**	**$6.53**

Note: Natural gas prices are in thousands cc ft; Electricity prices in cents/kwh; prices are averages across all customers in each category.
Source: Energy Information Agency

Power is delivered to the Pennyrile Region by a combination of investor owned utilities, municipal electric systems and rural electric cooperatives, including Kentucky Utilities Company, Kenergy, and Pennyrile Rural Electric Cooperative. All utilities in the Pennyrile Region provide electricity at relatively low rates and high reliability.

Although not as low as electric rates, natural gas rates in the state are competitive for the region and less expensive than the national average. In general, the region can boast of reliable power supply and rates for industrial and residential users. Additionally, the state provides incentives for the utilization of Kentucky coal, fuels consumed in manufacturing processes, and the utilization of alternative energy sources.

Water

Kentucky has significant water resources provided by extensive river systems and abundant rainfall. Water and wastewater capacity are critical components for many potential industry targets, and the Pennyrile region appears to have plentiful capacity to supply necessary infrastructure. The region already has a step up in the formation of the Pennyrile Water Management Council and the regional Management Plan with millions of dollars committed to numerous water and wastewater projects throughout the regional counties. Along with a power infrastructure and with current capacity and management structures in place, the Pennyrile region has a competitive advantage in this area.

Financial Assets

This section reviews the region's financial assets for supporting current and future businesses, which include state and local incentive availability, the availability of funding through venture capital, and the local banking sector.

State and Local Financial Incentives

Key State and Local Incentive Programs
Kentucky Business Investment Program
Kentucky Environmetal Stewardship Act
Kentucky Investment Fund Act
Kentucky Enterprise Initiative Act
Kentucky Tourism Development Act
Research Faclities State Income Tax Credit
Kentucky Industrial Revitalization Act
Incentives for Energy Independence Act
Regional Business Park Program
PADD Revolving Loan Fund Program

The State of Kentucky and local authorities offer a wide variety of financial incentives to companies relocating, expanding, or investing in Kentucky. Incentives include corporate tax credits and abatements for investments in activities and facilities related to specific industries such as manufacturing, tourism, agribusiness, and research and development. Credits are additionally available for reinvestment in deteriorating facilities and land, as well as for the training of workers. Another incentive includes sales, which uses tax exemptions for approved purchases (such as new manufacturing equipment). Tax Incremental Financing options are also available for development projects as well as Industrial Revenue Bonds.

Although there are numerous incentives available in the Pennyrile region, state and local authorities have not developed an effective methodology for disseminating information regarding these incentives and promoting their use. The Kentucky Cabinet for Economic Development's website presents available incentives in a disorganized manner; there is significant overlap between many incentives, creating confusion as to their specific purpose, qualifications for use, and benefits. Additionally, the state appears to lack a high level closing fund, similar to those available in other states throughout the Midwest. This shortcoming hinders Kentucky from aggressively pursuing premier targets.

A complete list of state and local incentives and grant and loan programs can be found in the report's Appendix.

Local Grants and Loan Programs

The state and local authorities offer a variety of loan and grant programs that encourage economic development, infrastructure development, small business growth, job training, as well as focusing on assistance with investment in qualifying programs and industries.. The Kentucky Direct Loan Program offers low rate loans to companies and individuals investing in approved fixed assets, and the PADD Revolving Loan Fund Program offers similar loans at a fixed 4% rate to assist with investments already receiving private funding. Development grants are available through the Delta Regional Authority and Economic Development Administration but administered locally in the Pennyrile region. Additional grants are available through the Local Government Economic Development Fund to assist in a wide variety of development programs but are only available in eligible coal producing counties.

Available Venture Capital

Although venture capital investment has been lower in Kentucky the past two years, national investment rates have dropped as well. Additionally, VC investment has not followed a consistent pattern in Kentucky, with investment reaching a high of $50 million in 2000 and a low of $1 million in 2003. The Fort Washington study commissioned in 2006 found that between 2001 and 2005, Kentucky ranked 32nd in the nation for venture capital investment, coming in lower than all other regional states except South Carolina. During this period 51% of investment went to Biotechnology deals, with the next largest share at 29 for consumer products.

Venture Capital Funding

Into Kentucky Companies (in millions)

Year	Investment ($millions)
1999	$28
2000	$50
2001	$12
2002	$6
2003	$1
2004	$24
2005	$16
2006	$7
2007	$18
2008	$7
2009	$4

Source: PriceWaterhouseCooper/ NVCA MoneyTree Survey

Nonetheless, the state has additional resources to assist companies with raising funding for product development. Programs designed to support high-tech business growth include:

High-Tech Investment / Construction Pools. The Department of Commercialization and Innovation (DCI), in the Cabinet for Economic Development, administers two pools of funds:

- The High-Tech Construction Pool is used for projects with special emphasis on the creation of high-tech jobs and knowledge-based companies. The commissioner recommends funding of companies to KEDFA for approval; and
- The High-Tech Investment Pool is used to build and promote technology-driven industries and research-intensive industries with the goal of creating clusters of innovation-driven industries in

Kentucky. The commissioner recommends funds to be used to support loans and grants, or secure an equity or related position to KEDFA for approval.

Commonwealth Seed Capital. The Commonwealth Seed Capital LLC (CSC) invests state funds to provide early-stage seed funding to facilitate the commercialization of innovative ideas and technologies developed in Kentucky.

Kentucky New Energy Ventures Fund. The Kentucky New Energy Ventures Fund (KNEV) provides seed stage capital to support the development and commercialization of alternative fuel and renewable energy products, processes, and services in Kentucky. The KNEV fund makes grants of $30,000 and investments ranging from $250,000 to over $750,000. Qualified companies must be Kentucky-based and funds are to be used for business development activities.

Innovation and Commercialization Center Program. The Kentucky Innovation and Commercialization Center Program is a statewide network of regional Innovation and Commercialization Centers (ICCs) and local Innovation Centers (ICs) that together provide a cohesive resource offering business-building services and assistance in obtaining funding. The cabinet manages the state's network of six regional ICCs and seven local ICs. See www.startupkentucky.com to locate the offices serving each region.

Kentucky Commercialization Fund Program. The Foundation also administers the Kentucky Commercialization Fund program, which provides seed funds to Kentucky university's faculty members for commercializing products, processes, or services developed through research and development work undertaken at a Kentucky university, with awards not exceeding $75,000 each year (up to a maximum of $150,000 over two years).

A complete list of funding programs can be found in the Appendix.

Local Banking Sector

The Pennyrile region is well served by numerous community and regional banks. In total, 14 banks are present throughout the Pennyrile, KY region. The top 3 banks by deposits are: Heritage Bank, First Southern National, and Planters Bank. All of these banks play an important role in the economy, including providing critical loans to start-up companies that currently cannot find venture or angel investment. Having community-focused banks that understand and know local business leadership and entrepreneurs helps to remedy concerns of a lack of startup capital.

Pennyrile Banking Sector *Sorted by Size of Deposits*
Heritage Bank
First Southern National
Planters Bank, Inc.
First Kentucky Bank, Inc.
Hancock Bank & Trust Company
United Southern Bank
Farmers Bank and Trust Company
First United Bank and Trust Company
Commonwealth Community Bank, Inc.
First National Bank of Muhlenberg County, Kentucky
Elkton Bank & Trust Company
Bank of Cadiz and Trust Company
Fredonia Valley Bank
The Peoples Bank

Business & Innovation Assets

Business assets are characteristics of the Pennyrile region that relate to the tax burden on industry and the availability of startup and university-based services.

Tax Burden

Kentucky enjoys a relatively competitive overall state tax climate. In an examination of five areas of taxation that impact business : corporate taxes, individual income taxes, sales tax, unemployment insurance, and property taxes. Kentucky came in above Ohio, Illinois, and Tennessee but slightly below Missouri, Michigan, and Indiana. Similarly the combined state and local tax burden places the Pennyrile region right in the middle of regional competitors, slightly above St. Louis and Nashville, but below the US average and significantly below Ohio.

State and Local Tax Burden

Combined State and Local Tax Burden, 1999-2008

	State and Local Tax Burden									
State	**1999**	**2000**	**2001**	**2002**	**2003**	**2004**	**2005**	**2006**	**2007**	**2008**
KY	9.8%	9.8%	9.6%	9.7%	9.9%	9.7%	9.8%	9.7%	9.6%	9.4%
TN	7.9%	7.8%	7.8%	7.9%	8.2%	8.2%	8.3%	8.5%	8.4%	8.3%
IL	9.0%	8.9%	8.8%	9.1%	9.2%	9.3%	9.3%	9.5%	9.4%	9.3%
IN	8.9%	8.9%	8.8%	8.8%	9.1%	9.1%	9.2%	9.4%	9.5%	9.4%
OH	9.8%	9.9%	9.9%	10.1%	10.2%	10.3%	10.3%	10.5%	10.5%	10.4%
MO	9.4%	9.2%	9.2%	9.2%	9.2%	9.4%	9.5%	9.5%	9.4%	9.2%
MI	9.4%	9.4%	9.3%	9.3%	9.6%	9.6%	9.7%	9.6%	9.5%	9.4%
US	**9.6%**	**9.5%**	**9.5%**	**9.5%**	**9.7%**	**9.8%**	**9.8%**	**9.9%**	**9.9%**	**9.7%**

Source: Tax Foundation

State Business Tax Climate Index, 2008

Higher Scores Indicate a More Favorable Tax System

State	Business Tax Index
KY	5.2
TN	5.1
IL	5.0
IN	5.7
OH	4.0
MO	5.4
MI	5.4
US	**5.0**

Source: Tax Foundation

*Note: The Index compares the states in five areas of taxation that impact business corporate taxes, Individual income taxes, sales taxes, unemployment insurance taxes, and taxes on property, including residential and commercial property.

Incubators

Entrepreneurs are served by two small business centers in the region: the Small Business Development Center (SBDC) and the Minority Economic Development Initiative of Western Kentucky, Inc. (MEDI). The SBDC serves local businesses seeking assistance with their business plans or finding funding. The SBDC is located in the Hopkinsville Chamber of Commerce. The SBDC has subscriptions to several data sources that can assist in financial analysis, including industry data from First Research. Training sessions are provided and businesses are directed to local banks when they have completed their proper plans. The SBDC is operated by Murray State University, which has other SBDCs in Owensboro and Murray.

MEDI is an assistance center that focuses on small and minority businesses. According to their website, the center provides: Business Plan Development, Financial Plan Packaging (Business Loans), Technical Assistance, Mentoring, Resources and Referral, Feasibility Assessments, Training, Education, Procurement and Certification Assistance, and more. Small and Minority owned businesses are listed in the Movers and Shakers Minority Directory and have opportunities to network together at social functions and business seminars.

The Regional Business and Innovation Center is in neighboring Murray, which provides assistance to entrepreneurs and technology developers in the region. This incubator works to form a partnership between state government, local business, and Murray State University. This program also serves as the state Innovation & Commercialization Center (ICC), administered through the Kentucky Science and Technology Corporation. The region also benefits from the nearby Paducah Innovation and Small Business Center, which serves as a one-stop resource for small business development needs. This includes assistance with locating capital investors.

Research and Development at Universities

Murray State's Breathitt Veterinary Clinic (BVC) in Hopkinsville provides diagnostic laboratory service to a broad effort promoting the efficient production of safe animal products in Kentucky and serves as a vital research and training center. About 30 people are employed at Breathitt. The University of Kentucky's College of Agriculture operates Cooperative Extension Service offices in every county in the state. These centers have several staff on site that provide a variety of economic and community assistance, including youth development, agricultural technical assistance, and family services.

Beyond technical assistance, Murray State University provides the region with graduate level programs in a wide variety of areas, including agriculture, environmental science, biology, business, and chemistry. Their Office of Sponsored Programs helps develop research programs, assists in technology transfer, and works with the Office of Development to create projects that have a regional impact and can positively affect Western Kentucky.

Workforce Assets

This section highlights some of the regional conditions of the workforce and the educational/training institutions. Several subsequent reports will examine these and other workforce issues in much greater detail.

Educational Attainment

The educational attainment of the region's adult population is below the U.S. average. Of the counties for which data is available from the U.S. Census, only Montgomery County has a high school degree attainment rate higher than the U.S. All counties have below-average attainment rates for higher education.

Educational Attainment, 2008

	Percent with a Degree or Higher		
County	High School	Bachelor's	Graduate
Christian County	82.2	14.2	4.5
Hopkins County	76.8	13.4	5.8
Muhlenberg County	73.6	7.7	3.5
Montgomery County	90.8	22.8	7.1
United States	84.5	27.4	10.1

Source: American Community Survey

Educational and Training Infrastructure

The Pennyrile region contains an array of educational offerings within a limited number of institutions. Contained in the region are two community colleges, Hopkinsville and Madisonville, both with diverse curriculum and programming that have a substantial capacity to serve the adult and non-traditional student in the region. The community colleges interact with local industry to help with student outreach and program development, overall providing supports for skill development in the priority competency areas. Additionally there seems to be significant involvement between the two community colleges and each of their respective communities.

To get a better picture of how the educational system works within the area beyond the boundary of the Pennyrile region, our educational infrastructure review observed regional institutions in Tennessee just across the state line, and in Kentucky just beyond the development district. Included in this expanded area are two career and technical community colleges (Daymar Institute and Miller-Motte, both in TN) and two 4-year institutions (Austin Peay State University in TN and Murray State University in KY). Through this scan it was revealed that the Tennessee institutions have increased capabilities within their policies to work with the non-traditional and adult student as well as a myriad of programming that provide a talent pipeline into the targeted industries. Moreover, Murray State University, the only in-state 4-year institution examined, has a large swath of programming and curriculum, including areas focused on entrepreneurship, but does not have significant policies in place that are targeted toward the non-traditional student.

While we see moderate capacity within Murray State University on entrepreneurial curriculum, the remaining educational institutions do not exhibit similar programming. There is an entrepreneurship focus prevalent through the eastern and southern regions of the Kentucky. While the Pennyrile region may lack these educational aspects, there are models within the state for the region to emulate.

K-12 Education

For each student enrolled in a public school, Kentucky spends approximately $9,900 per year. This amount exceeds Tennessee by $2,000, Indiana by $1,000, and Missouri by $400. However, Kentucky's expenditures are about on par with Illinois, Ohio, and Michigan, as well as slightly below the U.S. average of $10,300.

Public Education Expenditures

Per Student, 2008

State	Expenditures Per Student
Kentucky	$9,883
Tennessee	$7,820
Illinois	$10,353
Indiana	$8,867
Ohio	$10,340
Missouri	$9,532
Michigan	$10,075
U.S.	**$10,297**

Source: U.S. Department of Education

On average, Kentucky students do not perform well on the American College Test (ACT), performing under all regional peers as well as the U.S. average. In 2009, the average composite score for Kentucky students was 19.4 compared to a 21.1 average nationally. This number is lowered, however, by the high number of students taking the test in Kentucky, 100%. In general, as the proportion of students taking a college entrance exam rise, average test scores decline. As a result, Kentucky's relatively low score can be misleading, especially considering that this average is comparable to Michigan; the only other regional state to have 100% of students testing.

ACT Scores

Average Statewide ACT Scores, 2009

State	Composite	English	Math	Reading	Science	Student %*
Kentucky	19.4	18.8	19.0	19.8	19.7	100%
Tennessee	20.6	20.7	19.8	21.0	20.4	92%
Illinois	20.8	20.5	20.7	20.8	20.7	97%
Indiana	22.2	21.6	22.4	22.6	21.6	24%
Ohio	21.7	21.1	21.4	22.2	21.7	64%
Missouri	21.6	21.5	20.9	22.1	21.5	67%
Michigan	19.6	18.6	19.6	19.6	20.1	100%
U.S.	**21.1**	**20.6**	**21.0**	**21.4**	**20.9**	**45%**

*Percent of students taking the ACT test

Source: ACT

When examining ACT test scores by county within the region, some variations in performance appear. Hopkins County has the highest composite test scores, followed by Todd, Muhlenberg, Crittenden, Caldwell, and Lyon – all of which have scores 20 or higher. Some of this variation can be attributed to how many graduates take the ACT test. Trigg has the highest percentage of test-takers (74%), which will pull down the average. Lyon County has one of the highest percentages of test-takers, as well as one of the highest composite scores. The county also had a graduation rate of 100% in 2008.

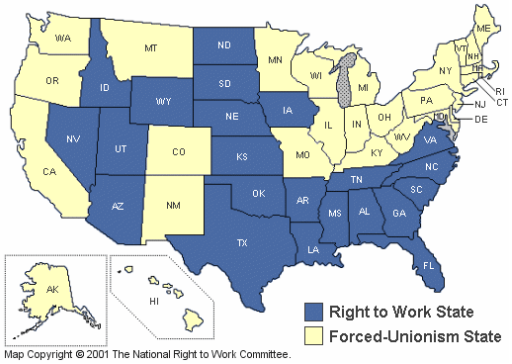
ACT Test Scores by County, 2008

School District	English	Math	Reading	Science	Composite	Students Tested	% Taking Test	Graduates	Graduation Rate
Caldwell	19.5	19.9	20.9	20.9	20.4	82	61%	135	88%
Christian	18.9	19.2	20.3	20.0	19.7	283	57%	496	82%
Crittenden	19.4	20.0	21.6	20.9	20.6	54	61%	88	83%
Hopkins	21.1	19.7	22.0	20.8	21.0	309	67%	459	87%
Livingston	17.6	17.8	19.2	18.6	18.4	53	56%	94	90%
Lyon	20.2	18.9	20.9	20.2	20.2	54	71%	76	100%
Muhlenberg	20.3	20.1	21.2	20.5	20.6	176	50%	354	88%
Todd	20.1	20.6	21.1	20.5	20.7	93	66%	140	92%
Trigg	18.4	18.5	19.9	19.1	19.1	99	74%	134	86%

Source: Kentucky Office of Education Accountability

Right-to-Work

Kentucky is *not* a right-to-work state, which is a strong flag against any future manufacturing project that would consider relocating to the Pennyrile region. Most manufacturing jobs have been created in right-to-work states in the southern U.S. (Texas, Georgia, the Carolinas). Right-to-work statutes prevent the formation of forced unions, in which all employees must be a member in order to be employed at that facility.



Unions got their start in the Pennyrile region due to the coal industry, though coal has since been de-unionized. Unions are now present in the region in both manufacturing and distribution industries, including United Auto Workers, United Steel Workers, and United Garment Workers.

Quality of Life Assets

This section examines the cost of living, public safety, and the availability of healthcare and entertainment in the region.

Cost of Living

Kentucky and the Pennyrile region generally enjoy a very low cost of living in comparison to U.S. averages and most major cities, but are generally on par with other regional cities. Hopkinsville, Clarksville, and Louisville all have about the same cost of living: around 78 compared to a national base level of 100. While Evansville, Paducah and Memphis are slightly less expensive, Nashville, and St. Louis are slightly more; however the cost is still relatively low when compared to national levels.

Traffic is of little concern in the Pennyrile region. The average commute time in Hopkinsville runs less than 20 minutes, which is low when compared to a US average of 27 minutes. Among regional cities, those located in Kentucky have some of the shortest commute times.

Home prices in the region typically mirror the overall cost of living index. At $95,590, the median home price in Hopkinsville is significantly less than the U.S. average price of $202,300. Median home prices throughout Kentucky and other regional cities are about half the national average, with the exception of Nashville.

The cost of living conditions, combined with the natural beauty of Kentucky and the recreational opportunities, continue to make the Pennyrile region a highly attractive area for potential employers.

Cost of Living Index

City	COLI
Hopkinsville, KY	77
Clarksville, TN	78
Nashville, TN	89
Louisville, KY	78
Evansville, IN	71
Paducah, KY	75
Memphis, TN	72
St. Louis, MO	80
US	**100**

Source: Sperling's

Average Commute Time

City	Avg Commute Time
Hopkinsville, KY	18.7
Clarksville, TN	26.4
Nashville, TN	25.4
Louisville, KY	22.5
Evansville, IN	20.1
Paducah, KY	17.4
Memphis, TN	24.6
St. Louis, MO	26.4
US	**27.4**

Source: Sperling's

Median Home Prices

City	Median Home Prices
Hopkinsville, KY	$95,590
Clarksville, TN	$114,370
Nashville, TN	$158,310
Louisville, KY	$108,470
Evansville, IN	$80,160
Paducah, KY	$80,980
Memphis, TN	$88,280
St. Louis, MO	$99,940
US	**$202,300**

Source: Sperling's

Public Safety

Violent crime, as defined by the FBI, includes murder & non-negligent manslaughter, forcible rape, robbery, and aggravated assault. In 2008, the latest year for which there is complete data, there were 5.9 incidents of violent crime in Hopkinsville per 1,000 residents, 7.9 in nearby Clarksville, and only 0.6 in Paducah. Although these figures are comparable to the U.S. average of 4.5 per 1,000 residents, the crime rate in Pennyrile is still significantly less than in the larger metro areas of Memphis and St. Louis. Comprising the majority of all violent crimes that take place in the region, aggravated assault represents the vast majority of the infractions.

In contrast to violent crime, Hopkinsville and Clarksville have a much greater incidence of property crime per 1,000 residents than other regional cities -except Nashville- and the U.S. on average. With 52.1 incidents per 1,000 residents, Hopkinsville is only below Nashville by 1.6 incidents; however, this rate is well above the U.S. average of 32.1 incidents per 1,000. The bulk of property crime in Hopkinsville consists of larceny-theft.

Property Crime

Incidents of Property Crime per 1,000 Residents, 2008

City	Incidents per 1,000
Hopkinsville, KY	52
Clarksville, TN	39
Nashville, TN	54
Louisville, KY	12
Evansville, IN	4
Paducah, KY	9
Memphis, TN	19
St. Louis, MO	21
US	**32.1**

Source: FBI

Violent Crime

Incidents of Violent Crime per 1,000 Residents, 2008

City	Incidents per 1,000
Hopkinsville, KY	6
Clarksville, TN	8
Nashville, TN	14
Louisville, KY	7
Evansville, IN	47
Paducah, KY	1
Memphis, TN	80
St. Louis, MO	85
US	**5**

Source: FBI

This data has the potential to be misleading through its compilation from local reporting methodologies and due to the researcher's ability to mistakenly distort the differences between cities and counties.

Healthcare

On a per capita basis, the Pennyrile region has a relatively low number of physicians when compared to regional cities. The number of physicians per capita in Hopkinsville is 147; however, this is only slightly below the US average of 170. Other surrounding cities such as St. Louis, Nashville, and Evansville have a much higher concentration of medical facilities and serve as regional hubs for medical care, particularly tertiary care.

Physicians Per Capita

Location	Physicians per capita
Hopkinsville, KY	147
Clarksville, TN	147
Nashville, TN	504
Louisville, KY	398
Evansville, IN	304
Paducah, KY	309
Memphis, TN	332
St. Louis, MO	553
US	**170**

Source: Sperling's

The region is served primarily by 7 local hospitals- Jennie Stuart Medical Center and Trover Clinic Foundation being the largest. In addition, several established nursing homes are distributed throughout the region that provide quality care to the elderly population.

Pennyrile Hospital Sector
Sorted by Revenue Size

Jennie Stuart Medical Center, Inc.	Hopkinsville
Trover Clinic Foundation Inc	Madisonville
Muhlenberg Community Hospital Inc	Greenville
Caldwell County Hospital, Inc.	Princeton
Crittenden County Hospital, Inc.	Marion
Western State Hospital	Hopkinsville
Trigg County Hospital, Inc.	Cadiz

Recreation/Entertainment

The region has a high level of recreation available to its citizens. The "Land Between the Lakes" offers tremendous water activities as well as thousands of miles of waterfront. Numerous cities produce festivals and some are even investing in bike paths to boost recreational cycling.

Discussions with local residents, particularly young professionals, point to gaps in entertainment. It is apparent that the region has a shortage of restaurants due in part to past alcohol sales restrictions. Previous industry analysis shows that the region currently has 30-60% of the hotels, restaurants, and bars that it can potentially support. Nearby Nashville, Owensboro, and Evansville offer shopping and entertainment that fill the gaps that the local offerings neglect.

POTENTIAL TARGET SECTORS

Based on the above data for clusters in the region, and our scan of the region's assets, we have identified the following clusters as potential growth opportunities for the region:

Established Industry Clusters in the Region
Agribusiness & Food
Manufacturing: Automotive, Industrial Machinery
Energy / Clean Energy
Health Care
Logging & Metal/Mineral Mining
Retail & Tourism
Transportation & Logistics

Clusters that are underdeveloped or emerging present a different kind of opportunity for the region:

Underdeveloped/Emerging Clusters in the Region
Back Office
Biomedical Supplies & Labs
Research
Software / Information Technology

We will examine each of these clusters in more detail in a subsequent report: *Target Selection*. This report will look at the global forces affecting each cluster, the assets and strengths for the cluster found in the region, and the niche sectors within each that may provide job creation opportunities for the Pennyrile region.

Ultimately, not all of these clusters will be selected as targets and additional targets will likely be uncovered in future research and discussions.

APPENDIX: AVAILABLE INCENTIVES

State and Local Financial Incentives

Kentucky Business Investment (KBI) Program

- Eligibility: Any business entity engaged in one or more of the following activities: Manufacturing; Agribusiness; Regional and national headquarters (regardless of the underlying business activity); Nonretail service or technology activities must be: designed to serve a multistate, national or international market; provided to a customer base that includes more than 50% non-residents; and may Include, but are not limited to, call centers, centralized administrative or processing centers, telephone or internet sales order or processing centers, distribution or fulfillment centers, data processing centers, research and development facilities and other similar activities.

- Enhanced Incentive Counties**:** Kentucky counties are designated "enhanced incentive" eligible by meeting at least one of the three following criteria: (1) counties with an average annual unemployment rate exceeding the state average annual unemployment rate in the five preceding calendar years; (2) counties with an unemployment rate greater than 200 percent of the statewide unemployment rate for the preceding year; and (3) counties meeting a three part test (three-year unemployment, education attainment and road quality). Once a company enters into a tax incentive agreement, the company maintains its enhanced benefits for the term of the agreement regardless of any change in the county's status. Any project located in an enhanced incentive county that has been decertified shall have until July 1 of the third year following the decertification to obtain final approval.

- Requirements to qualify for the incentives:
    - Employment minimum requirement
        - Create a minimum of 10 new, full-time jobs for Kentucky residents.
        - Maintain an annual average of at least 10 new, full-time jobs for Kentucky residents.
    - Investment minimum requirement
        - Incur eligible costs of at least $100,000.
    - Wage minimum requirement
        - For enhanced incentive counties, at least 90% of the new, full-time, Kentucky resident employees must receive base hourly wages of at least $9.06 (125% of the federal minimum wage).
        - For other counties, at least 90% of the new, full-time Kentucky resident employees must receive base hourly wages of at least $10.88 (150% of the federal minimum wage).
    - Employee benefit minimum requirement
        - The term "employee benefits" is defined as "non-mandated payments by an approved company for its full-time employees for health insurance, life insurance, dental insurance, vision insurance, defined benefits, 401(k), or

similar plans." Nonguaranteed payments, such as bonuses, commissions and incentive pay, are not considered employee benefits.

- Any company participating in this program is required to provide its new, full-time Kentucky resident employees with employee benefits equal to 15% of the required minimum hourly wage.
- If employee benefits are less than 15% of the required minimum hourly wage, a company may utilize a combination of wages and employee benefits equivalent to 115% of the required minimum hourly wage. At least one company paid benefit is required.
    - For enhanced incentive counties, at least 90% of the new, full-time, Kentucky resident employees must receive total hourly compensation (base hourly wages plus employee benefits) of at least $10.42

    - For other counties, at least 90% of the new, full-time Kentucky resident employees must receive total hourly compensation (base hourly wages plus employee benefits) of at least $12.51.

- Eligible costs will only include costs incurred after the date of preliminary approval.
    - For a project to be considered an "owned" project, the approved company or an affiliate either owns the project in fee simple or possesses the project pursuant to a capital lease. Eligible costs for owned projects include 100% of the land, building, site development and start- up costs.

    - For a project to be considered a "leased" project, the approved company occupies the site of the project pursuant to an operating lease agreement with an unrelated entity that reflects an arms' length transaction. Eligible costs for leased projects include 100% of the start-up costs and 50% of the estimated annual rent payments for each year of the tax incentive agreement.

- Benefit: Tax incentives are available for up to 15 years in enhanced incentive counties or up to 10 years in other counties via:

    - Tax Credits up to 100% of corporate income or limited liability entity tax liability arising from the project.
    - Wage Assessment incentives up to five percent of gross wages of each employee in enhanced incentive counties or up to four percent (including up to one percent required local participation) of gross wages of each employee in other counties. If the local community does not have a local occupational fee, then an alternative form of participation should be provided.
    - The employees recoup the wage assessment through a state income tax credit equal to the amount of the wage assessment withheld. The tax incentives remain in place until the authorized recovery amount (approved cost) is realized or for the term of the tax incentive agreement, whichever occurs first. Unused credits that have been authorized for the project may be carried forward for the term of the tax incentive

agreement, however, unused credits expire at the maturity of the agreement.

Kentucky Reinvestment Act (KRA)

- Eligibility: Any Kentucky company engaged in manufacturing and related functions at a location operating within the Commonwealth on a permanent basis for a reasonable period of time preceding the request for assistance.

- Qualifying Expenditures:
    - Incur eligible equipment and related costs of at least $2,500,000.
        - Eligible equipment and related costs must be related to a qualifying Reinvestment Project which includes the acquisition, construction and installation of new equipment and the construction, rehabilitation and installation of improvements to facilities necessary to house the new equipment.
        - Eligible equipment and related costs does not include costs related to the replacement or repair of existing machinery or equipment resulting from normal wear and usage.
    - Agree to maintain a full-time employment base of at least 85% of employment at the facility as of the date of preliminary approval.
    - Has not been awarded incentives under the Kentucky Industrial Revitalization Act (KIRA) within the previous five years.
    - Applicant must certify that the project would not be economically feasible without the incentives.
    - Approved costs include the eligible equipment and related costs and eligible skills upgrade training costs that are approved by KEDFA for recovery, are incurred after the date of preliminary approval through the date of final approval and may be up to:
        - 50% of the eligible equipment and related cost.
        - 100% of the eligible skills upgrade training costs
- Benefit: A tax incentive is available for up to 10 years from the date of final approval via:

    - Tax Credits up to 100% of corporate income or limited liability entity tax liability generated by or arising from the project.

Kentucky Environmental Stewardship Act (KESA)

- Eligibility: Any business entity that manufactures an environmental stewardship product which is a unique product that has a substantial positive impact on the environment.

- Qualifying Expenditures: A project must have at least $5,000,000 in eligible costs to participate in the program. Approved companies can potentially recover up to 25% of the project's fixed asset cost and 100% of employee skills training through the KESA tax incentives.

- Benefit: A KESA approved company is eligible to receive a 100% credit against the Kentucky tax liability generated by the project. The tax liability associated with the project is determined by subtracting the base year tax liability from each year's tax liability after the project is activated. The tax incentive is available for recovery over a ten-year period or until the authorized incentive is realized. In addition, the company is limited to a maximum of 25% of the authorized incentive in any single tax year. Any unused incentives remaining after the incentive agreement has expired are not accessible.

Kentucky Investment Fund Act - KIFA

- Eligibility: Personal and corporate investors in approved investment funds. Each qualified investment must be in a business that is actively and principally engaged in a "qualified activity" within Kentucky, or will be actively and principally engaged in a "qualified activity" within Kentucky after the receipt of a qualified investment.

    - "Qualified activity" means any industrial, manufacturing, mining, mining reclamation for economic development, commercial, health care, agricultural enterprise, or agribusiness activity.

- Qualifying Expenditures:
    - Minimum fund size: $500,000
        - $500,000 in committed cash contributions to the fund must be made prior to any allocation of credits.
        - A certified investment fund must have no less than four (4) unaffiliated investors.
        - No investor may have a capital interest in more than 40% of the investment fund's total capitalization

- "Qualified investments" eligible for this tax credit are investments in Kentucky-based small businesses that meet the following criteria at the time an investment is made:
    - 50% of the company's assets, operations and employees are located in Kentucky;
    - The company's net worth is less than $5 million (or $10 million, if it is a knowledge-based business) or its net income in each of the prior two years is less than $3 million; and
    - The company has no more than 100 employees.
    - Total qualified investments made by an investment fund in any single business shall not exceed 30% of the committed cash contributions to the investment fund.

- Benefit: 40% tax credit, although the total amount of tax credits available to any single investment fund shall not exceed, in aggregate, $8,000,000 for all investors and all taxable years.

Kentucky Enterprise Initiative Act (KEIA)

- Eligibility: Any business entity primarily engaged in manufacturing or service or technology activities, or in operating or developing a tourism attraction in Kentucky.

- Qualifying Expenditures: An eligible company must make a minimum investment of $500,000 in an economic development project. Eligible investment costs include expenditures for building and construction materials, research and development equipment, and acquisition of real property that is owned, used or occupied by the approved company. Effective June 26, 2009, "electronic processing equipment", which is defined as the use of technology having electronic, digital, magnetic, wireless, optical, electromagnetic, or similar capabilities, now in existence or later developed to perform a service or technology activity, is also an eligible cost.

- Benefit: The KEIA provides a sales and use tax refund on eligible investment costs. The maximum sales and use tax refund incentive available for commitment by KEDFA in each fiscal year for all projects is limited to $20,000,000 for building and construction materials and $5,000,000 for equipment used for research and development or electronic processing.

Research Facilities State Income Tax Credit

- A state income tax credit is provided for investment in facilities used to pursue research. The income tax credit is equal to 5% of the qualified cost for "construction of research facilities" for "qualified research" as defined in Internal Revenue Code Section 41. The credit is available to new and existing businesses that construct, remodel, expand, or equip research facilities, but does not include replacement property. Any unused credit may be carried forward for 10 years.

Kentucky Tourism Development Act - KTDA

- Eligibility: An individual or company investing in a tourism development project.

- Qualifying Expenditures: Investment must be towards expansion of a tourism attraction, which can include:

    - cultural or historical sites;
    - recreation or entertainment facilities;
    - areas of scenic beauty or distinctive natural phenomena;
    - Entertainment Destination Centers;
    - Kentucky Crafts and Products Centers;
    - Theme Restaurant Destinations; and,
    - Lodging, when:
        - built in conjunction with a tourism attraction and the tourism attraction cost more than the lodging facility; or

- built on state or federal parks and recreational lands**;** or
- involves restoration or rehabilitation of a historic structure; or
- involves the restoration or renovation of a lodging facility having no less that 500 rooms with project costs exceeding $10,000,000; or
- Involves the construction, restoration, or renovation of a full service lodging facility which is or will be a part of a major convention or sports facility with project cost exceeding $6,000,000; or
- Involves the construction, restoration, or renovation of a facility which is or will be located:
    - In the Commonwealth within a 50 mile radius of a property located on the National Register of Historic Places with a current function of recreation and culture; **and**
    - Located within any of the 100 least populated counties in terms of population density.

- Benefit: The incentive for developers of approved new or expanding tourism projects is the ability to recover up to 25% of the project's development costs over a ten year term. Projects including, but not limited to lodging facilities, that are constructed on state park, federal park and national forest lands are eligible to recover up to fifty percent (50%) of development costs over a twenty year term. An expanding attraction receives the incentive on increased sales tax due to the expansion.

Kentucky Industrial Revitalization Act (KIRA)

- Eligibility: Companies or individuals investing in revitalization of existing approved facilities that have closed or are in danger of closing.

- Qualifying Expenditures:

    - Investments in the rehabilitation of manufacturing or agribusiness operations that are in imminent danger of permanently closing or that have closed temporarily may qualify for tax incentives, where 25 jobs are created or maintained.

    - Investments in the rehabilitation of coal mining and processing facilities that have closed, been temporarily suspended, or severely reduced that employ, or intend to employ, a minimum of 500 persons and have a raw production of at least three million tons from the economic revitalization project facility may qualify for tax incentives.

- Benefit: Companies approved under the Kentucky Industrial Revitalization Act (KIRA) may receive state income tax credits, Kentucky Corporation License Fee credits, and job assessment fees for up to ten (10) years limited to seventy-five percent (75%) of the costs of the rehabilitation or construction of buildings and the refurbishing or purchasing of machinery and equipment.

Incentives for Energy Independence Act - IEIA

- Eligibility: Any company that constructs, retrofits, or upgrades a facility to:
    - Increase the production and sale of alternative transportation fuels
    - Increase the production and sale of synthetic natural gas, chemicals, chemical feed stocks, or liquid fuels, from coal, biomass resources, or waste coal through a gasification process
    - Generate electricity for sale through alternative methods such as solar power, wind power, biomass resources, landfill methane gas, hydropower, or other renewable resources.
- Qualifying Expenditures: Requirements to qualify for the incentives:
    - Alternative fuel facility or gasification facility that is carbon capture ready and uses coal as the primary feedstock: the minimum capital investment is $100,000,000
    - Alternative fuel facility or gasification facility that is carbon capture ready and uses biomass resources as the primary feedstock: the minimum capital investment is $25,000,000
    - Renewable energy facility that meets the minimum electrical output requirement of at least one megawatt of power for: wind, hydro, biomass, landfill methane; or generation of 50 kilowatts for solar. The minimum capital investment is $1,000,000.
- Benefit: Tax incentives available for up to 25 years, up to a maximum of 50% of the capital investment, via:
    - **Sales and Use Tax** refunds up to 100% of tax paid on tangible personal property made to construct, retrofit or upgrade a facility.
    - **Severance Tax** incentives up to 80% of taxes paid on the purchase or severance of coal.
    - **Tax Credits** up to 100% of tax paid on corporate income or Limited Liability Entity Tax arising from the project.
    - **Wage Assessment** incentives up to 4% of gross wages of each employee.

Regional Business Park Program

- The Regional Business Park Program is funded under the LGEDF program and designed to develop large blocks of available, accessible, and marketable land as regional business parks. The participating counties share in the tax revenues, and all other proceeds generated from the project, through interlocal agreements between the participating counties and the formation of regional authorities. These legally established authorities own, maintain, and market the available acreage with guidance from the Cabinet for Economic Development.

Bluegrass State Skills Corporation - Skills Training Investment Credit (STIC)

- Eligibility: Company engaged within the state in one of the qualified activities for over 3 consecutive years: manufacturing including the processing, assembly, production or warehousing of any property; processing of agricultural and forestry products; telecommunications; health care; product research and engineering; tool and die and machine technology; mining; tourism and operation of facilities to be used in the entertainment, recreation and convention industry; transportation in support of manufacturing. Participants in the program must be Kentucky residents who are full-time employees of the applying company and they must make a minimum of $10.88 per hour plus 15% benefits.

- Qualifying Expenditures: The company must invest in Skills Upgrade Training for employees.

- Benefit: The BSSC provides tax credits for 50% of customized training programs. This training can be provided in-house, by a consultant, or by an educational institution. BSSC will provide credits up to $25 per hour ($50 p/h total training) for all in-house training.

Sales Tax Incentive for the purchase of communications systems or computer systems

- Eligibility: Companies in the following businesses: software publishers; data processing, hosting, and related services; internet publishing, broadcasting, and web search portal businesses; or custom computer programming services.

- Qualifying Expenditures:

    - Expenditure of at least $100,000,000 or more

    - Installation of the qualifying system at a single location within the Commonwealth within 18 months of purchase

    - System must be used at the location for the full period of depreciation under the Internal Revenue Code

- System must be used for the business purposes listed under "companies that qualify"

- Benefit: Sales and use taxes paid on qualifying purchases

Recycling Equipment Credit

- Income tax credits are allowed for up to 50% of the installed costs of equipment used exclusively to recycle or compost postconsumer waste (*excluding secondary and demolition wastes*) and for machinery used exclusively to manufacture products composed substantially of postconsumer waste materials.

Corporate Income Tax Credit for Use of Kentucky Coal

- A corporation income tax credit is allowed for up to 4.5% of the value of Kentucky coal (*excluding transportation costs*) used for industrial heating or processing. The credit is allowed for 10 years following either the installation or conversion to coal burning units. The credit in any year cannot exceed the corporation's income tax liability minus other credits. Unused credits cannot be carried forward.

Biodiesel Fuel Tax Credit

- A state income tax credit is allowed for producers or blenders of "biodiesel" fuel or "blended biodiesel" fuel with a blend of at least 2%. "Biodiesel" or "blended biodiesel" producers receive a $1 credit per gallon produced or blended. Unused credits cannot be carried forward.

Kentucky Clean Coal Incentive

- The "Kentucky Clean Coal Incentive Act" provides for an income, or public service corporation property tax credit for new clean coal facilities constructed at a cost exceeding $150 million and used for purposes of generating electricity. Before the credit is given, the Environmental and Public Protection Cabinet must certify that a facility is reducing emissions of pollutants released during electric generation through the use of clean coal equipment and technologies. The amount of credit will be $2.00 per ton of coal mined in Kentucky and used in the facility and not already receiving tax credit. Any unused portions of this credit shall not be carried forward.

Voluntary Environmental Remediation Property Income Tax Credit

- An income tax credit of up to $150,000 per taxpayer shall be granted for expenditures to remediate contamination on qualifying voluntary environmental remediation property. The amount of the allowable credit for any tax year is limited to 25% of the maximum credit approved. The credit may be carried forward for up to 10 years.

Machinery and Equipment Tax Exemptions

- Property Taxes: Exemption of manufacturing machinery from all local property taxes. The state rate is only 15 cents per $100 of assessed value.

- Sales and Use Taxes: Machinery for new and expanded industry (manufacturing, extraction of minerals, ores, coal, clay, stone, and natural gas). Replacement machinery for manufacturing is exempt when it increases consumption of recycled materials not less than 10%, performs a different function, manufactures a different product, or has a greater productive capacity. Repair parts, replacement parts, and spare parts are taxable.
- Additional sales and use tax exemptions for related business expenses including:
    - Raw materials which enter into and become a part of the manufactured product.
    - Supplies used directly in manufacturing which have a useful life of less than one year (lubricating and compounding oils, grease, machine waste, abrasives, chemicals, solvents, fluxes, anodes, filtering materials, fire brick, catalysts, dyes, refrigerants, explosives, etc.), excluding repair, replacement, or spare parts of any kind.
    - Industrial tools that have a useful life of less than one year, limited to hand tools (such as jigs, dies, drills, cutters, rolls, reamers, chucks, saws, spray guns, etc.) and tools attached to a machine (such as molds, grinding balls, grinding wheels, dies, bits, cutting blades, etc.), excluding repair, replacement, or spare parts of any kind.
    - Materials and supplies that are not reusable after one manufacturing cycle, excluding repair, replacement, or spare parts of any kind.
    - Energy and energy-producing fuels used in manufacturing, industrial processing, mining, or refining to the extent that they exceed 3% of the cost of production.
    - Pollution control equipment and facilities approved by the Kentucky Department of Revenue.

<u>Grants and Loan Programs</u>

Direct Loan Program (KEDFA)

- Eligibility: Companies or individuals investing in approved fixed assets (land, building, and equipment).

- Qualifying Projects: Projects financed must be agribusiness, tourism, industrial ventures, or service industry. Projects must create new jobs or have a significant impact on the economic growth of a community.

- Benefit: KEDFA offers a low-rate mortgage loan program to work in conjunction with private financing.

PADD Revolving Loan Fund Program

- Eligibility: Companies or individuals investing in approved fixed assets (land, building, and equipment).

- Qualifying Projects: Projects financed may include manufacturing, service, or tourism related businesses. PADD is not a primary lender and will require other lender's participation in a project to equal or exceed the PADD loan amount. The maximum loan amount cannot exceed $250,000. Project owners must inject a minimum of 10% toward the project cost.

- Benefit: PADD offers a 4% fixed rate loan program to work in conjunction with private financing. Loan terms will match the life of the asset financed, but not exceed twenty years.

Delta Regional Authority (DRA)

- The Delta Regional Authority (DRA) is a federal agency serving the eight-state Missisippi Delta Region. All nine of the Pennyrile counties are part of the Delta. The DRA, along with the Local Development Districts, are charged with making improvements to the infrastructure, transportation, and overall economy of the region.

- DRA funds are available to assist in projects that will create jobs and support economic development activities in the Delta Region. All Pennyrile counties are eligible to participate.

Economic Development Administration (EDA)

- The PADD staff assists City and County governments with developing and administering projects that are funded through the Economic Development Administration. EDA targets its investments assistance on attracting private capital investment and creating higher-skill, higher-wage jobs in those communities and regions that are suffering from economic distress. EDA investments are focused on locally developed initiatives that achieve the highest return on the taxpayers' investment and directly contribute to economic growth.

Local Government Economic Development Fund

- The program is funded through an allocation of coal severance tax receipts. Grants are provided to eligible coal producing counties to assist in diversifying local economies beyond a dependence on coal. Funds may be used to support nonrecurring investments in public health and safety, economic development, public infrastructure, information technology development and access, and public water and wastewater development.

Small Business Loan Program

- Eligibility: A small business (50 or fewer employees) engaged in manufacturing, agribusiness, or service and technology.

- Qualifying Conditions: At least one new full time job must be created by the business within one year of the loan closing date.

- Benefit: KEDFA can fund up to 100% of the project costs, or the loan can be used in conjunction with other lenders, with a minimum loan amount of $15,000 and a maximum loan amount of $100,000. Loan terms will range from 3-10 years, depending upon the useful life of the asset financed. Interest rates will be fixed for the term of the loan, and will be tied to the Wall Street Journal Prime Rate at the time of the closing, plus a spread based on the risk of the loan, as determined by KEDFA.

Community Development Block Grants Loans – CDBG

- The Community Development Block Grant Program, administered through the Governor's Office for Local development, is a federally-funded program where communities work through city and county governments to receive funding for economic development opportunities which specifically address the creation or retention of jobs for persons of low and moderate income.

Linked Deposit Program

- Under the Kentucky Linked Deposit Investment Loan Program, the State Investment Commission invests funds from the state's Abandoned Property Cash Account at a set rate with eligible lenders. In turn, the financial institution agrees to lend the proceeds of the funds to eligible small-business borrowers at an attractive rate. The maximum loan rate charged by the lender will be the current Wall Street Journal prime rate, but not less than 5%. The maximum loan amount is $100,000 per business and the maximum loan term is 7 years. Prepayment and early payoff of the loan is available without penalty. Loan proceeds may be used for working capital, interest costs, capital expenses, or debt refinancing. Eligible borrowers must meet the following criteria:
    - Must be established as a for-profit entity
    - Must be headquartered and maintain offices and operate facilities in Kentucky
    - Must employ fewer than 50 full-time employees, the majority of whom must be from Kentucky
    - Must have gross earnings of $1 million or less per year
    - Business principals can't be officers or directors of eligible lending institutions

Bluegrass State Skills Corporation – Grant-in-Aid (GIA) & Competitive Grant-in-Aid (Consortia)

- Eligibility: Firms engaged in the following activities may apply: manufacturing, non-manufacturing (majority of income for services provided must be generated outside of Kentucky), headquarter operations (majority of services provided must be for facilities located outside of Kentucky), public or non-profit hospitals, and training consortia. The BSSC's Grant-in-Aid program for Consortia promotes collaborative training initiatives for companies that have common training needs. The eligible consortia shall include three or more BSSC eligible companies that maintain an industry driven board or committee, a mission statement, bylaws, bank account, and a federal identification number. Participants in these programs must be Kentucky residents who are full-time employees of the applying company and they must make a minimum of $10.88 per hour plus 15% benefits.

- Qualifying Expenditures: The following training types are allowed under BSSC guidelines: Pre-Employment Skills Training, Entry Level Skills Training, & Skills Upgrade Training. The following are examples of eligible training activities and methods: classroom & OJT training, innovative training techniques, individual assessment, train-the-trainer travel, tuition, and certification. Stand-alone safety, mandated training, trainee wages, retroactive training, and pro/con union training are not eligible.

- Benefit: The BSSC provides up to 50% reimbursement for eligible training activities. This training can be provided by an in-house trainer, a consultant, or an educational institution. BSSC will reimburse $25 per hour ($50 p/h total training) for all in-house training.

APPENDIX: HIGH TECH FUNDING ASSETS

High-Tech Investment / Construction Pools

- The Department of Commercialization and Innovation (DCI), in the Cabinet for Economic Development, administers two pools of funds:
    - The High-Tech Construction Pool is used for projects with special emphasis on the creation of high-tech jobs and knowledge-based companies. The commissioner recommends funding of companies to KEDFA for approval; and
    - The High-Tech Investment Pool is used to build and promote technology-driven industries and research-intensive industries with the goal of creating clusters of innovation-driven industries in Kentucky. The commissioner recommends funds to be used to support loans and grants, or secure an equity or related position to KEDFA for approval.

Commonwealth Seed Capital

- The Commonwealth Seed Capital LLC (CSC) invests state funds to provide early-stage seed funding to facilitate the commercialization of innovative ideas and technologies developed in Kentucky.

SBIR-STTR Matching Funds Program

- The Cabinet will match, on a competitive basis, Phase 1 and Phase 2 federal Small Business Innovation Research (SBIR) and Small Business Technology Transfer (STTR) awards received by Kentucky high-tech small businesses and those willing to become Kentucky-based businesses. This includes matching Phase 1 federal awards up to $100,000 to support the exploration of the technical merit or feasibility of an idea or technology, and up to $500,000 of federal Phase 2 awards, which support full-scale research and development.

Kentucky New Energy Ventures Fund

- The Kentucky New Energy Ventures Fund (KNEV) provides seed stage capital to support the development and commercialization of alternative fuel and renewable energy products, processes, and services in Kentucky. The KNEV fund makes grants of $30,000 and investments ranging from $250,000 to over $750,000. Qualified companies must be Kentucky-based and funds are to be used for business development activities. For more information and funding guidelines, please visit www.StartupKentucky.com.

Innovation and Commercialization Center Program

- The Kentucky Innovation and Commercialization Center Program is a statewide network of regional Innovation and Commercialization Centers (ICCs) and local Innovation Centers (ICs) that together provide a cohesive resource offering business-building services and assistance in obtaining funding. The Cabinet manages the state's network of six regional ICCs and seven local ICs. See www.startupkentucky.com to locate the offices serving each region.

Kentucky Enterprise Fund

- The Kentucky Enterprise Fund provides seed-stage capital to Kentucky-based companies that are commercializing a technology-based product or process. There are two types of awards designed to stimulate private investment in Kentucky-based technology companies with high growth potential. www.startupkentucky.com
    - *Kentucky Enterprise Fund* awards involve grants of $30,000 and investments up to $750,000 in small and medium-sized Kentucky-based companies for business development activities.
    - *Rural Innovation Fund* awards involve grants of $30,000 and investments up to $100,000 in small, rural (outside of Fayette and Jefferson Counties), Kentucky-based companies working in partnership with a Kentucky postsecondary institution or unaffiliated third party.

Kentucky Science and Engineering Foundation Awards

- Small companies having their principal place of business located in Kentucky are eligible to apply for the Foundation's R&D Excellence program awards under the "emerging technologies" category, with awards ranging from $20,000 to $50,000 per year (up to $100,000 for two years). Emerging technologies are the subject of research and development activities, which are conducted to help the company further define and develop a new product or process technology. For more information and funding guidelines, please visit ksef.kstc.com.

Kentucky Commercialization Fund Program

- The Foundation also administers the Kentucky Commercialization Fund program, which provides seed funds to Kentucky university's faculty members for commercializing products, processes, or services developed through research and development work undertaken at a Kentucky university, with awards not exceeding $75,000 each year (up to a maximum of $150,000 over two years). For more information and funding guidelines, please visit ksef.kstc.com.

TARGET PROFILES

Target Sector Profiles

Regional Economic Growth Strategy for the Pennyrile Region

Prepared for the:

West Kentucky Workforce Investment Board and the Pennyrile Area Development District

avalanche CONSULTING

TABLE OF CONTENTS

Introduction	1
Target Profiles	
Agriculture & Food	3
Niche target: Crop Production	3
Niche Target: Aquaculture	12
Niche Target: Plant Nurseries	14
Niche Sector: Food Manufacturing (Baked Goods, Chips)	17
Energy	19
Niche Sector: Coal and Biomass Gasification	19
Niche Sector: Ethanol Production	23
Distribution	24
Niche Sector: Distribution Centers	24
Niche Sector: E-Commerce Fulfillment Centers	30
Assembly	32
Market Niche Sector: Automotive Manufacturing	32
Market Niche Sector: Fabricated Metal Products Manufacturing	34
Niche Sector: Solar Manufacturing	38
Niche Sector: Specialty/Custom Manufacturing	42
Tourism	43
Niche Sector: Competitive Fishing	44
Niche Sector: Softball Tournaments	46
Niche Sector: ATV Park / Jeep Jamborees	48
Niche Sector: Resort Hotels	50
Niche Sector: Camping, Recreational Fishing, and Boating	52

INTRODUCTION

This report, *Target Profiles*, is a supplement to the *Target Selection* report and prior *Sector Analysis*. In this report, we provide detailed profiles of potential target sectors and subsectors for the Pennyrile region. Profiling sectors is an important component to selecting and prioritizing targets. We seek to go beyond a traditional economic and cluster analysis to identify the market opportunities presented by a potential target, what makes the Pennyrile region particularly suited to the target, and competitive realities that would impact the pursuit of the target.

Each target profile follows the same general format:

- Market Overview – A review of national conditions, growth trends, and characteristics of the target sector.

- Location Trends – An examination of where the target is located (and why) within the U.S., with a focus on the areas surrounding the Pennyrile region. We also examine the requirements of companies in the target sector to locate in a particular area.

- The Pennyrile Opportunity – A summary of the local assets and conditions which make the target suitable to the Pennyrile region.

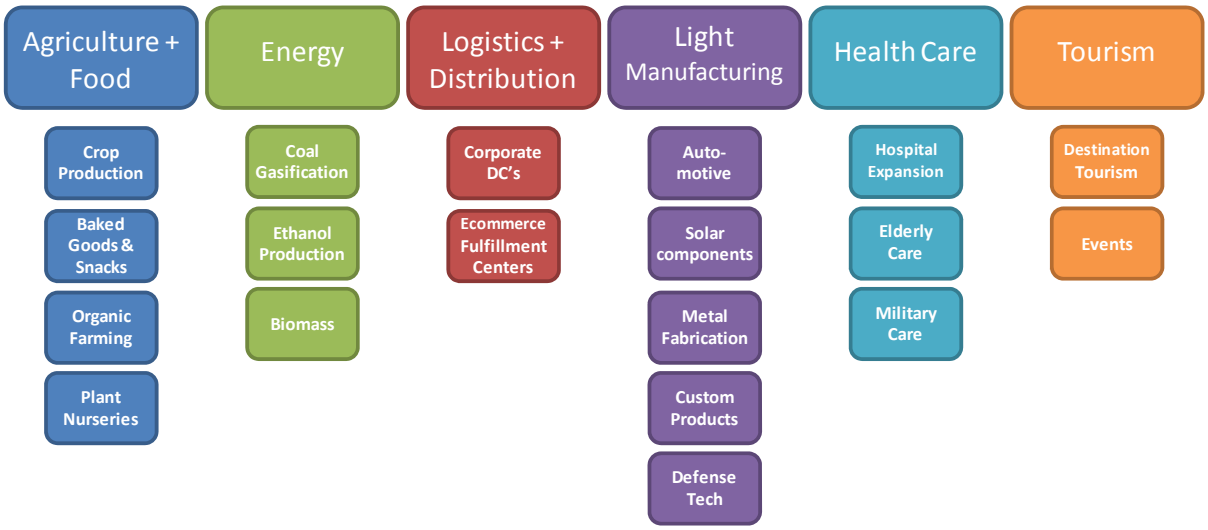
Some targets are profiled in more detail than others, depending on the complexity of the target. Each target has its own "niche targets" which are profiled individually.

This research is intended to both inform the target selection process and to be used as a guide to local leadership as they pursue the development of these targets. For this reason, this *Target Profiles* report should be distributed within the region and not be posted on the public website in order to keep it private from competitor regions.

Sectors Profiled in This Report

The following sectors and niche sectors are profiled in this report:

PENNYRILE TARGET SECTORS:



TARGET SECTOR: AGRICULTURE & FOOD

Target Evaluation:
Agriculture & Food

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Crop Production	
Largescale Nurseries	
Bakeries (Tortilla, Chips, Cookies)	
Organic Dairy farms	
Aquaculture	

Niche target: Crop Production

Market Overview

The agriculture industry has gone through several changes in the past decade: efforts towards farming more profitable crops, farms going organic, and a growing number of commodities being imported into the U.S.

Some crops are being planted and harvested more often than others. For example, 2010 had the highest rate of soybean growth in the National Agricultural Statistics Service's history. Corn also had an above average peak. The acreage planted this year is the second largest on record since 1946. Cotton has also seen its first peak since 2006. These peaks in acreage can be attributed to good weather and environmental conditions.

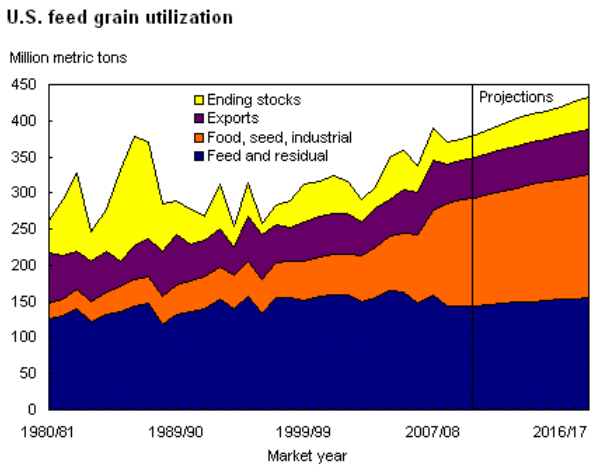
The Census of Agriculture in 2007 reported that corn was still the highest produced crop nationwide. This was followed by peanuts (for nuts), soybeans (for beans), sunflower seed (all uses and oil varieties), wheat (for grain), and winter wheat (for grain). The Census also shows that the market value of agricultural products sold in the U.S. increased by 50% between 2002 and 2007 – from $200 billion in market value to $297 billion in 2007. This is a tremendous confidence boost for the agriculture sector because it shows that farm products sold in the U.S. are increasing in value and also demand from new markets such as ethanol.

Although the U.S. continues to export far more agriculture than it imports, it still imports a large amount of food and food products each year. Imports range from fish, vegetables, spices, and candy. The amount of imported foods had a dramatic increase during the years from 1998 to 2007. The prepackaged consumer-ready foods had the largest increase by far. The foods we import and what countries we import them from is very diverse. The USDA put together a publication following food import trends over a period of ten years which breaks down each food sector individually. According to the report, the amount of fruits and nuts the U.S. imports has more than doubled since 1998, peaking at $14 billion in 2007. While the majority of these imports come from Mexico, a large quantity comes from Chile as well. The same can be said for vegetable imports except that the second largest quantity comes from Canada.

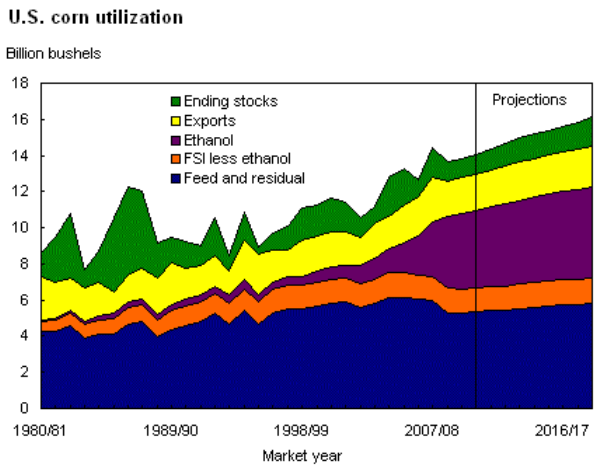
The amount of imported grain products also increased from 1998 to 2007; however the increase was mainly seen in processed, ready-to-eat grains. Other imported food items that at least doubled from 1998 to 2007 were: meat and poultry, dairy products, albumin, spices, sugar candies, and vegetable oils. More growth was seen in semi-processed and processed products than in raw commodities.

The report also indicated that consumer-ready products had an import increase of over 100 percent. The majority of the imports were from Canada and Mexico, most likely due to NAFTA (North American Free Trade Agreement).

The USDA's Economic Research Service (ERS) predicts that in the next decade the demand for meat products will greatly increase. This in turn will mean an increase in the grains used to feed them (see chart below), but most demand for grains will come from food and industrial/energy uses. The ERS reports that the amount of corn acres planted will grow dramatically, as it is expected to have the highest return to variable cost. The expected utilization for the corn forecasted for use in ethanol is expected to continue to increase (see chart to the right). As far as other grains are concerned, sorghum is expected to decrease, barley is predicted to slightly increase, and oat will remain unchanged.



Source: *USDA Agricultural Projections to 2018,* February 2009.
USDA, Economic Research Service.



Source: *USDA Agricultural Projections to 2018,* February 2009.
USDA, Economic Research Service.

Based on the ERA's predictions, corn will be the most valuable crops for farmers for the next decade. Soybeans also have a profitable future as they are used in rotations with corn crops. In contrast to these two, the production of wheat is expected to decrease over the next decade as many farmers are switching to crops such as corn and soybeans.

The Pennyrile Opportunity

The Pennyrile region has enjoyed strong growth in its agriculture sector in recent years. Detailed data is only available every five years through the U.S. Census, mostly recently conducted in 2007.

Nearly $450 million worth of agricultural products were shipped in 2007 in the Pennyrile, KY region, led by poultry and eggs ($153M), corn ($97M), cattle and calves ($38M), soybeans ($33M), tobacco ($23M) and wheat ($19M). Agricultural sales grew 57% for the region from 2002-2007, faster than the U.S. which grew just 48%. The largest increases in revenue were in poultry and eggs ($133M in new sales), grains ($47M in new sales) and milk production ($10M in new sales).

Large expansions in poultry production occurred in Todd and Hopkins counties. Due to this high volume of new poultry and egg production, Todd and Hopkins counties saw their agricultural sector grow the most in the region (+$68M and +$$39M respectively), followed by Christian county (+$12M) due to higher corn and milk production.

Value of New Agricultural Shipments, 2002-2007	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrile KY
Total sales ($1,000)	**$5,326**	**$25,970**	**$6,894**	**$38,812**	**$1,539**	**$1,964**	**$7,376**	**$67,937**	**$6,965**	**$162,783**
Sales directly to individuals for human consumption ($1,000)	**$22**	**-$101**	**-$2**	**$59**	**$98**	**-$13**	**$39**	**$294**	**$98**	**$494**
Crops, including nursery and greenhouse ($1,000)	**$3,842**	**$12,071**	**$4,295**	**$12,857**	**$1,625**	**$2,285**	**$5,915**	**$8,029**	**$3,543**	**$54,462**
Cotton and cottonseed ($1,000)										
Cut christmas trees and short-rotation woody crops ($1,000)						-$18				-$18
Fruits, tree nuts, and berries ($1,000)	-$7	-$167	$92	-$14	-$9		-$145		$3	-$247
Grains, oilseeds, dry beans, and dry peas ($1,000)	$4,234	$9,913	$3,481	$12,341	$1,441	$2,023	$6,322	$4,217	$2,627	$46,599
Barley ($1,000)										
Corn ($1,000)										
Other grains, oilseeds, dry beans, and dry peas ($1,000)										
Rice ($1,000)										
Sorghum ($1,000)										
Soybeans ($1,000)										
Wheat ($1,000)										
Nursery, greenhouse, floriculture, and sod ($1,000)	$59	$124	$200	$40	$6	-$22	-$97	$716	$325	$1,351
Other crops and hay ($1,000)	$497	$539	$333	$588	$235	$57		$582	$182	$3,013
Tobacco ($1,000)	-$1,091	$1,271		$912		$295		-$7,403	$244	-$5,772
Vegetables, melons, potatoes, and sweet potatoes ($1,000)	$122	$321	$426	-$34			-$92	$344	$162	$1,249
Livestock, poultry, and their products ($1,000)	**$1,484**	**$13,899**	**$2,598**	**$25,955**	**-$85**	**-$321**	**$1,460**	**$59,908**	**$3,422**	**$108,320**
Aquaculture ($1,000)										
Cattle and calves ($1,000)	$1,083	$3,019	$1,193	$323	$607	$106	-$3,648	-$6,718	$3,446	-$589
Hogs and pigs ($1,000)	-$515	-$485	-$87	$505	-$16	$4		$2,404	-$202	$1,608
Horses, ponies, mules, burros, and donkeys ($1,000)	-$347	-$245	-$242	$147	-$179	$18	-$54	$217	$92	-$593
Milk and other dairy products from cows ($1,000)	$1,243	$6,229	$375	$60	$30	-$154	-$265	$2,893	$405	$10,816
Other animals and other animal products ($1,000)		$15	$3	$1	-$36	-$1	-$10		$245	$217
Poultry and eggs ($1,000)	$4	$5,314		n/a	-$393	$5	n/a	$54,560	$34	$132,570
Sheep, goats, and their products ($1,000)	$17	$53	-$53	-$16	$17	$1	$11	$18	-$10	$38

Source: U.S. Department of Agriculture, Census of Agriculture (2007)

Sales, Inventory, and Land, 2007	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrile KY
Total sales ($1,000)	$23,271	$103,001	$19,162	$77,199	$12,849	$6,668	$49,182	$130,409	$26,960	$448,701
Sales directly to individuals for human consumption ($1,000)	$55	$170	$128	$96	$131		$76	$387	$146	$1,189
Crops, including nursery and greenhouse ($1,000)	$16,061	$65,798	$8,813	$26,249	$5,435	$5,252	$15,121	$40,301	$17,854	$200,884
Cotton and cottonseed ($1,000)										
Cut christmas trees and short-rotation woody crops ($1,000)										
Fruits, tree nuts, and berries ($1,000)			$92		$85				$21	$198
Grains, oilseeds, dry beans, and dry peas ($1,000)	$13,109	$45,818	$6,747	$24,184	$4,642	$3,775	$11,392	$28,096	$12,128	$149,891
Barley ($1,000)								$49		$49
Corn ($1,000)	$9,316	$27,824	$4,465	$14,857	$3,043	$3,026	$7,608	$18,238	$8,533	$96,910
Other grains, oilseeds, dry beans, and dry peas ($1,000)				$556					$1	$557
Rice ($1,000)										
Sorghum ($1,000)			$123	$51						$174
Soybeans ($1,000)	$2,733	$7,469	$1,781	$8,345	$1,460	$636	$3,319	$5,830	$1,227	$32,800
Wheat ($1,000)	$1,060	$10,457	$378	$375			$317	$3,958	$2,369	$18,914
Nursery, greenhouse, floriculture, and sod ($1,000)	$295	$2,145	$547	$489	$6		$257	$1,069	$339	$5,147
Other crops and hay ($1,000)	$998	$1,465	$1,001	$588	$659	$222		$836	$337	$6,106
Tobacco ($1,000)	$1,446	$15,215		$912		$1,199			$4,763	$23,535
Vegetables, melons, potatoes, and sweet potatoes ($1,000)	$185	$1,085	$426				$54	$683	$266	$2,699
Livestock, poultry, and their products ($1,000)	$7,211	$37,203	$10,349	$50,950	$7,415	$1,416	$34,060	$90,108	$9,106	$247,818
Aquaculture ($1,000)										
Cattle and calves ($1,000)	$4,253	$12,355	$5,470	$2,686	$4,210	$1,363			$7,873	$38,210
Hogs and pigs ($1,000)	$670	$2,262		$505	$5	$4		$6,022	$161	$9,629
Horses, ponies, mules, burros, and donkeys ($1,000)	$28	$274	$87	$249	$210	$18	$51	$217	$92	$1,226
Milk and other dairy products from cows ($1,000)	$2,216	$12,547	$375	$60	$30			$9,418	$690	$25,336
Other animals and other animal products ($1,000)		$25	$8	$1	$14				$245	$293
Poultry and eggs ($1,000)	$4	$9,662		$47,306	$2,929	$7	$25,740	$67,701	$34	$153,383
Sheep, goats, and their products ($1,000)	$39	$78			$17	$17	$62	$19	$12	$244
INVENTORY:										
Broilers and other meat-type chickens (number)		523,576		2,953,512			1,146,400	349,800	9	4,973,297
Poultry Layers for Eggs (number)	218	104,654	2,273			380		2,452,404	1,279	2,561,208
Cattle and calves (number)	12,158	33,071	17,392	8,754	12,280	5,537	13,246	21,130	18,821	142,389
Cows and heifers that had calved \ Beef cows (number)	6,686	14,127	10,139	5,472	8,254			8,181	9,847	62,706
Milk cows (number)	742	3,953	129	20	10	3,472	8,511	3,405	228	
Other cattle (number)	4,730	14,991	7,124	3,262	4,016	2,065	4,735	9,544	8,746	59,213
Total hogs and pigs (number)		9,184		4,066	3			15,569	1,692	30,514
ACRES IN FARMS ACCORDING TO USE:										
Land in farmsteads, buildings, livestock facilities, ponds, roads, w	6,525	14,118	9,289	11,225	9,241	3,327	8,745	8,104	6,194	76,768
Pastureland, all types (acres)	33,966	63,019	50,813	29,329	46,210	15,458	35,504	35,431	37,143	346,873
Permanent pasture and rangeland, other than cropland and woo	16,148	31,064	27,164	17,200	22,318	10,480	19,887	18,235	23,060	185,556
Total cropland (acres)	86,512	239,355	84,407	101,796	61,253	29,365	74,483	136,214	74,014	887,399
Cropland used only for pasture or grazing (acres)	13,881	24,013	16,897	7,804	17,987	3,283	8,479	11,043	8,496	111,883
Harvested cropland (acres)	55,285	181,882	43,970	79,835	32,240	20,117	55,467	111,567	57,775	638,138
Other cropland (acres)	17,346	33,460	23,540	14,157	11,026	5,965	10,537	13,604	7,743	137,378
Cropland idle or used for cover crops or soil improvemen	14,343	27,355	20,649	11,887	9,942	5,354	9,735	11,741	6,448	117,454
Cropland in cultivated summer fallow (acres)	549	1,163	470		300	242	438	494	228	3,884
Cropland on which all crops failed (acres)	2,454	4,942	2,421		784	369	364	1,369	1,067	13,770
Total woodland (acres)	33,585	61,913	39,256	29,145	24,199	10,980	37,719	35,423	32,417	304,637
Woodland not pastured (acres)	29,648	53,971	32,504	24,820	18,294	9,285	30,581	29,270	26,830	255,203
Woodland pastured (acres)	3,937	7,942	6,752	4,325	5,905	1,695	7,138	6,153	5,587	49,434

Source: U.S. Department of Agriculture, Census of Agriculture (2007)

Sales, Inventory, and Land, Growth 2002-7	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrile KY	Montgomery	United States
Total sales	30%	34%	56%	101%	14%	42%	18%	109%	35%	57%	0%	48%
Sales directly to individuals for human consumption	67%	-37%	-2%	159%	297%		105%	316%	204%	71%	-20%	49%
Crops, including nursery and greenhouse	31%	22%	95%	96%	43%	77%	64%	25%	25%	37%	-5%	51%
Cotton and cottonseed												22%
Cut christmas trees and short-rotation woody crops												-4%
Fruits, tree nuts, and berries					-10%				17%	-56%		35%
Grains, oilseeds, dry beans, and dry peas	48%	28%	107%	104%	45%	115%	125%	18%	28%	45%	17%	93%
Nursery, greenhouse, floriculture, and sod	25%	6%	58%	9%			-27%	203%	2321%	36%	10%	13%
Other crops and hay	99%	58%	50%		55%	35%		229%	117%	97%	-22%	25%
Tobacco	-43%	9%				33%			5%	-20%		-22%
Vegetables, melons, potatoes, and sweet potatoes	194%	42%					-63%	101%	156%	86%		15%
Livestock, poultry, and their products	26%	60%	34%	104%	-1%	-18%	4%	198%	60%	78%	10%	46%
Aquaculture												25%
Cattle and calves	34%	32%	28%	14%	17%	8%			78%	-2%	15%	36%
Hogs and pigs	-43%	-18%			-76%			66%	-56%	20%	-60%	46%
Horses, ponies, mules, burros, and donkeys	-93%	-47%	-74%	144%	-46%		-51%			-33%	56%	55%
Milk and other dairy products from cows	128%	99%						44%	142%	74%	-57%	57%
Other animals and other animal products		150%	60%		-72%					286%	-60%	66%
Poultry and eggs		122%		n/a	-12%	250%	n/a	415%		637%		55%
Sheep, goats, and their products		212%				6%	22%	1800%	-45%	18%		30%
INVENTORY:												
Broilers and other meat-type chickens		45%		81%			-4%	85217%		56%		15%
Poultry Layers for Eggs	-62%	5%	111%			57%			71%	2380%		5%
Cattle and calves	-21%	-13%	-11%	-34%	-27%	-9%	-15%	-12%	15%	-14%	-6%	1%
Cows and heifers that had calved \ Beef cows	-20%	-7%	-3%		-14%			-3%	13%	-15%	4%	-2%
Milk cows	39%	28%	-41%		-81%	4529%	8006%	-2%	78%		-68%	2%
Other cattle	-27%	-23%	-21%	-42%	-44%	-3%	-30%	-22%	17%	-22%	-17%	2%
Total hogs and pigs		-26%			-99%			-1%	-39%	-25%	-67%	12%
ACRES IN FARMS ACCORDING TO USE:												
Land in farmsteads, buildings, livestock facilities, ponds, roads, wa	-16%	-5%	37%	9%	-5%	-18%	4%	27%	52%	6%	-7%	-4%
Pastureland, all types	4%	0%	-4%	-25%	-9%	-15%	-10%	3%	2%	-5%	-17%	-3%
Permanent pasture and rangeland, other than cropland and woo	57%	46%	38%	23%	12%	114%	38%	60%	73%	44%	47%	3%
Total cropland	-12%	0%	-6%	-6%	-30%	-18%	-12%	1%	-1%	-7%	-14%	-6%
Cropland used only for pasture or grazing	-19%	-23%	-35%	-42%	-24%	-68%	-50%	-33%	-50%	-35%	-47%	-41%
Harvested cropland	-13%	8%	12%	1%	-26%	19%	1%	6%	16%	3%	8%	2%
Other cropland	-2%	-13%	-2%	-6%	-44%	-29%	-18%	-1%	-6%	-13%	-18%	-14%
Cropland idle or used for cover crops or soil improvemen	-14%	-26%	-8%	-11%	-47%	-31%	-18%	-11%	-14%	-21%	-42%	2%
Cropland in cultivated summer fallow	64%	37%	62%		270%	505%	106%	75%	-30%	43%	-92%	-5%
Cropland on which all crops failed	274%	424%	86%		-14%	-34%	-47%	452%	147%	94%	242%	-57%
Total woodland	8%	-8%	-4%	-9%	-17%	-7%	22%	15%	6%	0%	-29%	-1%
Woodland not pastured	15%	-6%	-3%	20%	-15%	5%	33%	20%	9%	6%	-25%	4%
Woodland pastured	-25%	-24%	-5%	-62%	-21%	-42%	-9%	-5%	-6%	-24%	-37%	-8%

Source: U.S. Department of Agriculture, Census of Agriculture (2007)

According to the University of Kentucky, the organic market sector has grown roughly 20% each year over the past ten years nationwide. This is also true in Kentucky, which has seen an increase in organic farm acreage. Now that there are stricter laws and regulations guarding the integrity of organic products, the market has become much more profitable.

Kentucky State University is also looking into organic farming. The students there have formed a group called Organic Agriculture Working Group. This group's mission is to research the best ways to farm organically and let the local farmers adopt the successful methods and techniques used in their research.

There is a transition process for farmers who choose to switch to organic farming. The soil the organic crops are to be grown on cannot have been treated with prohibited substances, pesticides for example, for at least three years. All farmers must also follow the regulations made by the National Organic Program and in Kentucky they must register with the Kentucky Department of Agriculture. Overall the process of switching to organic farming can take longer than three years and the crops may not be sold as organic until all the certification requirements are met.

While some farmers have found that their crop yield decreases during the three year transition period, it typically increases after this period. In fact, crop yields may even be 90 to 95% of what was previously produced. However, the type of cropping system used does play a large factor in this. Regardless of the set-backs, the University Of Kentucky College Of Agriculture believes that Kentucky could prosper from converting more of its farms to organic crops. This will also create more jobs, as it has been shown that organic farms can require up to an 11% employment increase, and a higher revenue increase due to larger price premiums.

The Pennyrile region could significantly increase its economic status by using its grain and wheat products to produce higher-value food products in mills and bakeries. Other options for putting Kentucky crops into higher value products: beverages. While corn syrup-based drinks are declining, alcohol sales continue to rise. Kentucky Bourbon uses grains and is made up of at least 51% corn.

The region's agricultural industry should continue to ensure that farmers produce the most profitable crops in high growth areas – compared within the region and to the U.S. As shown by the table below, the region earns lower value per acre of crops in corn, soybeans, and tobacco compared with the U.S., but higher values for wheat. Within the region, large variations are found between counties in value per acre for key crops. And today, the region has little presence in high growth areas for the U.S. such as sales to individuals (agritourism, farmers markets, local distribution), dairies, and "other animal products". Aquaculture, while growing at half the rate of the rest of the agriculture industry, is an emerging industry that is expected to see accelerating growth, but has no presence in the Pennyrile region.

Agricultural Value per Planted Acre	Caldwell	Christian	Crittenden	Hopkins	Livingston	Lyon	Muhlenberg	Todd	Trigg	Pennyrile KY	Montgomery	United States
Corn	$412	$306	$411	$431	$390	$409	$333	$377	$326	$357	$338	$463
Soybeans	$180	$153	$196	$270	$200	$109	$214	$136	$87	$173	$136	$317
Tobacco	$3,846	$4,215		$4,364		$5,475	$0	$0	$4,145	$2,867	$5,095	$3,524
Wheat	$263	$296	$272	$260	$0		$245	$264	$232	$274	$178	$209

Source: U.S. Department of Agriculture, Census of Agriculture (2007)

Sales, Inventory, and Land *United States*	U.S. Growth 2002-2007
Total sales ($1,000)	48%
Sales directly to individuals for human consumption ($1,000)	49%
Crops, including nursery and greenhouse ($1,000)	51%
Cotton and cottonseed ($1,000)	22%
Cut christmas trees and short-rotation woody crops ($1,000)	-4%
Fruits, tree nuts, and berries ($1,000)	35%
Grains, oilseeds, dry beans, and dry peas ($1,000)	93%
Nursery, greenhouse, floriculture, and sod ($1,000)	13%
Other crops and hay ($1,000)	25%
Tobacco ($1,000)	-22%
Vegetables, melons, potatoes, and sweet potatoes ($1,000)	15%
Livestock, poultry, and their products ($1,000)	46%
Aquaculture ($1,000)	25%
Cattle and calves ($1,000)	36%
Hogs and pigs ($1,000)	46%
Horses, ponies, mules, burros, and donkeys ($1,000)	55%
Milk and other dairy products from cows ($1,000)	57%
Other animals and other animal products ($1,000)	66%
Poultry and eggs ($1,000)	55%
Sheep, goats, and their products ($1,000)	30%
INVENTORY:	
Broilers and other meat-type chickens (number)	15%
Poultry Layers for Eggs (number)	5%
Cattle and calves (number)	1%
Cows and heifers that had calved \ Beef cows (number)	-2%
Milk cows (number)	2%
Other cattle (number)	2%
Total hogs and pigs (number)	12%
LAND IN FARMS ACCORDING TO USE:	
Land in farmsteads, buildings, livestock facilities, ponds, roads, wasteland, etc. (acres)	-4%
Pastureland, all types (acres)	-3%
Permanent pasture and rangeland, other than cropland and woodland pastured (acres)	3%
Total cropland (acres)	-6%
Cropland used only for pasture or grazing (acres)	-41%
Harvested cropland (acres)	2%
Other cropland (acres)	-14%
Cropland idle or used for cover crops or soil improvement, but not harvested and	2%
Cropland in cultivated summer fallow (acres)	-5%
Cropland on which all crops failed (acres)	-57%
Total woodland (acres)	-1%
Woodland not pastured (acres)	4%
Woodland pastured (acres)	-8%

Source: U.S. Department of Agriculture

Target Sector: Organic Dairies

Market Overview

Dairy products are an important part of American food production. Consumer demand for dairy has steadily increased over the years and in 2009 alone the dairy industry generated $23 billion. This was a severe decrease for the industry: in 2008 the industry generated 36% more in revenue. Many experts believe that this decrease is simply a byproduct of the current recession as many consumers simply gave up certain dairy products in order to save money. Throughout the 20th century, dairy farms have transitioned from small local farms to large farms controlled by corporations. Furthermore, these corporations are driving smaller dairies out of business. Currently, the industry is dominated by a handful of corporations though more than 60,000 dairy farms are still in the U.S.

Before the recession, a trend in the dairy industry was growing consumer demand for **organic products**. Between 2000 and 2005 the number of organic dairy farms and cows increased at an annual rate of 25%. This rate of growth far exceeds the growth rate for regular milk and other dairy products. The number of USDA-certified organic milk cows in the U.S. increased from 38,000 to 86,000 during this time. The recession has hindered the growth of the organic dairy industry as it peaked at $1.3 billion in 2008 before experiencing a decrease in 2009. However, many dairy farmers believe this is simply a minor setback and that organic dairy products are here to stay. They point to the growth in other organic food industries as proof. Many economists and associations, including Monett, Missouri's, believe this to be true as well, but are more pessimistic as they are unsure if the industry will bounce back right away.

Location Trends

Thus far organic dairies have been most successful in the Northeast, Midwest, and West Coast. These areas, which have traditionally been large producers of dairy products in the past, offer rich pasture land that helps lower costs for farmers. Farms in the Northeast and Midwest tend to be smaller operations as they average 53 and 64 milk cows per farm respectively. The West Coast tends to harbor larger dairy farms for a variety reasons including larger pastures and more favorable temperatures for larger herds of cattle. West Coast organic farms average 381 milk cows, which allow the area to produce more dairy products per organic farm.

California farms are struggling to survive due to the economic downturn and stiff regulations put forth by the state. California dairy farmers have to comply with yearly water and air-quality tests that do not affect other states. These tests cost farmers in the vicinity of $35,000 to $40,000 each year. Also, the state has more expensive feed, labor, and electricity costs than other states in the U.S. From 2008 to 2009, these unfavorable conditions caused California to experience its first production decline since 1956. The state also lost more than 250 dairies and 1800 operations

between 2004 and 2008. The U.S. has experienced relatively modest growth in dairy production over the last five years; however this loss means there is room for expansion in other states. States such as Missouri, Wisconsin, and Kansas have seen some of this growth due to their favorable growing seasons, cheaper feed, vast land, and low electricity costs. Also, a growing trend for Midwestern and Southern states is the desire to buy local, fresh milk. The dairies seeing the most success are those who produce all products in house and sell locally to their consumers. By purchasing local dairy products, consumers are not only paying lower prices and enjoying fresh products; they are also helping their local economies.

Recently, Northeast farms have faced a tougher slate that has affected individual farms as well as the dairy industry as a whole. The USDA mandates that organic milk cows must not be exposed to any pastureland that uses pesticides or fertilizer, even in trace amounts. This presents a problem for areas in the Northeast that have poor climate for growing suitable, large portions of land without pesticides. As a result of the land shortage, Northeastern farmers have begun limiting milk cows' exposure to pastureland by keeping the herd in windowed barns that allow the animals to receive sunlight to stay healthy. Consequently these farmers spend more on organic feed, increasing the overall cost of producing organic dairy products. It is a widespread belief that these unfavorable conditions played a hand in escalating the drawback in the industry, and that the only way to offset the rising price is to launch new organic dairies in more favorable locations such as the Midwest or the West Coast.

The Pennyrile Opportunity

The Pennyrile region has an excellent opportunity regarding the possibility of **organic dairy farming**. The organic dairy farming industry goes against the norm with respect to farm size and corporations. This is caused by the fact that it is difficult to maintain the strict USDA sanctions for mega farms and mass producers. As a result, 87% of the organic dairy farming industry operates with less than 100 milk cows. The Pennyrile region has several large tracts of acreage, including those previously used for coal mining; however, this land is often incapable of being developed due to years of mining, and could be used for agriculture. Farmers in the area can potentially designate areas to be developed for organic farming which will elevate the lifestyle of existing dairy farmers or individuals wishing to enter into the industry.

The region currently has few dairies in the area, with small dairies located in Hopkinsville and Madisonville. These dairies are not yet embarking into organic dairy production, leaving the opportunity open for other farmers. Also, the region has great infrastructure that will allow for distribution to larger urban markets where organic food consumption is more popular and time-to-market is important. The Pennyrile region is located inside the Midwest, where organic dairy farming is typically more successful than the Northeast. In comparison, the Midwest has a more suitable climate, which allows for more serviceable pastureland. This extra usable land makes the Midwest dairy process more ideal than the organic feeding process that is popular in the Northeast.

Niche Target: Aquaculture

Market Overview

Another area of food production showing increased growth is **aquaculture**, the farming of seafood in a controlled environment for consumption. These farms, which can manipulate environments to cater to specific species' needs, allow for the production of saltwater or freshwater fish regardless of location. Aquaculture is very popular internationally; however it remains a relatively young industry in the United States. According to the National Oceanic and Atmospheric Administration over one-half of the fish products consumed globally come from fish farms – of this, only 5% is from the U.S. Currently, the **U.S. imports 84% of its seafood – half of this imported seafood is from aquaculture**. As a result, the U.S. is experiencing an annual $9 billion trade deficit in seafood trade. To reduce this trade deficit, the federal government has been prompted to appropriate grants for individuals to enter into or study aquaculture.

Fish farmers can raise their fish crop in two ways. The first is by use of a natural pond that can be controlled easily. The second is through manmade tanks. Either way can be used to successfully harvest fish. Virtually any species of fish may be harvested as long as the pond or tank is managed to satisfy that particular specie's needs.

Location Trends

Aquaculture in the United States has been located predominantly along the coast and in the southern states. According to NOAA, Maine leads the U.S. in seafood aquaculture. Southern states such as Alabama, Mississippi, Louisiana, and Georgia use aquaculture to raise freshwater species such as catfish and crawfish. Most states have some sort of aquaculture, but the industry can expand exponentially in the United States. For example, Alabama produces over 100 million pounds of catfish each year. However, biologists say that the state can supply 10 times that number if more waters are opened to aquaculture.

By comparison, Kentucky aquaculture farms are disorganized. The state has an aquaculture association, but information is not easily available for those interested in pursuing an aquaculture farm. Kentucky State University currently has an aquaculture program promoting the industry for the region. The program offers training in all aspects of seafood harvesting. Few seafood farms exist in the state and Aquaculture of Kentucky seems to be the largest freshwater fish farm in the state. Aquaculture of Kentucky was founded in 2000 with a simple 5-acre pond. Since that time, the farm has incurred several expansions as the domestic demand for fish is ever growing. The area has ample freshwater at its disposal and has the potential to become a large producer of both freshwater and saltwater fish if investments are made in the industry.

Many states are finally embracing aquaculture as a result of severe trade deficits and incentives that are being awarded by the federal government. However, the expansions being made around the country seem to have little correlation with any particular region. States such as Alabama that have embraced aquaculture and begun farms reap the benefits of economic success. Demand for fresh and saltwater fish is not diminishing and will only increase even more in the years to come.

The Pennyrile Opportunity

Pennyrile has the land and water resources not only to support aquaculture but also for the industry to thrive. Currently, Kentucky has very few fish farms that produce fish for consumption. The only farms close to Pennyrile are two farms in Bowling Green and another just west of the Kentucky Lake.

The sparseness of farms in the region favors Pennyrile. Pennyrile also has an advantage other states may not have: Hopkinsville's ethanol factory produces a byproduct which can be used to substitute certain fish feeds. This byproduct is not only less expensive, but its high nutrition content produces a higher quality of fish. The ethanol byproduct helps endangered natural baitfish and will allow Pennyrile farms to have lower costs that other farms will not be able to enjoy. Drawbacks to the industry include maintenance and constant monitoring for disease and predators. However, these concerns seem to be minimal and can be addressed through assistance from the Breathitt Veterinary Center of Murray State University in Hopkinsville.

Kentucky State has a strong aquaculture program (http://www.ksuaquaculture.org) and the state's Aquaculture Plan identifies seven species of fish that have the highest degree of opportunity for production within the state: freshwater shrimp, trout, catfish, largemouth bass, paddlefish, hybrid striped bass, and baitfish. (http://www.kyagr.com/marketing/aquaculture/documents/plan.pdf)

Niche Target: Plant Nurseries

Market Overview

Today, many Americans strive to keep their lawns well maintained and their yards filled with landscape plants. In recent years, the importance of maintaining a landscaped lawn has grown, putting professional landscaping jobs and supplies on high demand. Until the late 1990s, the franchise landscaping industry was growing exceptionally well, creating a demand for new nurseries to produce the plants used by landscapers. A lull existed in the landscaping industry from the late 1990s to the mid 2000s as "Do It Yourself" stores such as, Home Depot and Lowes, offered an alternative to landscaping crews. However, the lull didn't affect nurseries because these superstores still needed suppliers to sell plants at retail. The U.S. Census reveals that the demand for plants has averaged a 3% growth rate since 2003. In 2007, a survey conducted by the American Nursery and Landscape Association revealed that 48% of Americans participated in regular lawn care. The entire 48% did not contract out their work to landscapers, although nurseries did directly benefit as the vast majority of plants used came from domestic nurseries.

The nursery industry accounts for roughly 2% of the U.S. workforce, with nearly 50,000 nurseries across the U.S. employing over 215,000 American workers. Many of the workers in the nursery industry have low skill sets and earn low wages. Although projections for the industry are still growing, the job growth rate will be somewhat less than revenue growth for the industry, due to the introduction of new technologies that make plant cultivation more efficient and less demanding of man-hours. It should be noted that the overall success of the nursery industry hinges on new construction and many nurseries have suffered recently as a result of a drop in demand for new house and commercial building construction.

Location Trends

Warmer states such as Florida, California, Arizona, and Texas have consistently been home to more nurseries per capita than other states in the United States. They also tend to have the lowest average wages per worker in the industry. Factors contributing to this include: Immigrant workers willing to work for low wages and the competition between companies that drive down service prices. Northern and Midwestern states that have fewer competing companies often employ fewer workers, but pay higher wages.

The state of Tennessee has enjoyed success in the nursery industry due in part to its good road infrastructure that allows shipping to many parts of the U.S., favorable weather conditions, and its large supply of water to sustain a large quantity of plants. Tennessee is currently ranked 17th in the U.S. for nursery establishments, while Kentucky ranks 32nd. The success in Tennessee suggests that neighboring regions in Kentucky such as the Pennyrile region should be able to be successful in this industry due to the fact that they both have many of the same resources.

Local nurseries provide plants for customers that can be landscaped by the consumer or through another company. Nurseries can provide exotic or domestic plants, depending on preference, that will not otherwise be available; however, the products in highest demand are trees and shrubs. Kentucky is still prone to sporadic freezing conditions but trees and shrubs are more hardy than most types of nursery plants. Oftentimes it takes years for trees to grow to maturity and provide the scenery desired by businesses or homeowners. Fortunately, nurseries can provide mature trees at fairly low prices that allow consumers to enjoy them years in advance. In addition to specializing in trees indigenous to the area, nurseries also offer trees that are not native to their region, providing a variety of choices for customers.

One large wholesale nursery company exists in the region: Wofford's Nursery and Landscaping. Wofford's was founded in Clarksville, Tenn., in 1999 and has grown to be quite successful during its 11 years of operation. The company has been successful due to its large tree farm that allows customers to purchase 8 to 10 year-old trees. Many consumers now prefer to purchase these full-grown trees instead of waiting years to grow their own. Other than homeowners, buyers of aged trees include: government, wildlife reserves, environmental groups and landowners with large acreage that plant several varieties of hardwood in their wooded areas. For the environmental group, tree demand has grown drastically in the last 20 years. These groups spend a great deal on tree saplings from nurseries for areas that have seen large acreages cut for lumber. To rebuild these areas, environmentalists buy trees in large quantities, ultimately helping boost the industry. Mature tree costs are also more affected by distribution time and costs than other plants due to the difficulty in packing them tightly. Also producing revenue, local retail centers prefer nursery providers that are regional to their location. At the moment, Wofford's is the only wholesale nursery that is within the region. Neighboring Bowling Green has two wholesale nurseries.

The Pennyrile Opportunity

The Pennyrile region is already home to Wofford's Nursery, which has been very successful in its 10+ years of operation. While the industry does have a limit on the number of companies that can be in one area without saturating the market, Pennyrile is a region that still has room for expansion, particularly for companies that aim to export outside the region. Many factors will support additional nursery companies. First of all, Wofford's is not in close proximity to many of the communities in Pennyrile. Paducah also has two nurseries, but again, the proximity of the nurseries does not suit the region well. Another reason for more nurseries in the area is its abundance of coal resources. The region has been blessed with coal for many years but after mines quit production, the land must be dressed up in some manner to prevent land erosion. Oftentimes trees are planted to prevent this erosion. If a nursery were present in the region, there would not be a need to ship in these trees and therefore local businesses would be utilized in the region, helping stimulate economic growth. More importantly, as a local nursery develops its local business, it would naturally have large opportunities to distribute within the Midwest.

Other supporting assets in the Pennyrile region include the Land Between the Lakes Park, Lake Barkley State Resort Park, and the Pennyrile State Forest. These forested areas are constantly maintained and are allowed to be replanted, unlike National Parks. Having local nurseries and tree farms in the region will be ideal when replenishing these forests. Finally, the Pennyrile region has several different species of trees indigenous to the area that are uncommon in other regions of the country. These indigenous trees (including various oaks and other hardwood species) can potentially be grown in nurseries and exported to consumers in other areas of the country. Since these plants are an exported item, they can be sold for higher prices. (See below for a complete list of native Kentucky trees.)

List of Native Trees in Kentucky

Allegheny serviceberry
American beech
American holly
American hophornbeam
American hornbeam
American linden
Bald cypress
Bigleaf magnolia
Black cherry
Black locust
Black oak
Black walnut
Blackgum
Blue ash
Bur oak
Chestnut oak
Chinkapin oak
Cockspur hawthorn
Common witchhazel
Cucumbertree magnolia
Downy serviceberry
Eastern hemlock
Eastern redbud
Eastern white pine
Flowering dogwood
Fringetree
Green hawthorn
Green ash
Honeylocust
Kentucky coffeetree
Mountain silverbell
Mountain stewartia
Northern catalpa
Northern red oak
Ohio buckeye
Pagoda dogwood
Pawpaw
Pecan
Persimmon
Pignut
Pin oak
Red buckeye
Red maple
River birch
Sassafras
Scarlet oak
Shagbark hickory
Shadblow serviceberry
Shellbark hickory
Shingle oak
Sourwood
Sugar hackberry
Sugar maple
Sweet birch
Sweetgum
Sycamore
Tulip poplar
Umbrella magnolia
Virginia pine
White ash
White oak
Willow oak
Yellow buckeye
Yellowwood

Furthermore, planted trees have the potential to become future biomass materials, which can be collected and used in on-site boilers at local manufacturing plants or government/educational offices. See the subsequent section for more on how “woody crops” would support a biomass industry in the Pennyrile region.

Niche Sector: Food Manufacturing (Baked Goods, Chips)

Market Overview

Presently, the national picture for food production and manufacturing is mixed. The outlook for job growth in this industry looks flat to negative for the next 10 years as jobs in the field are expected to be replaced through greater automation. Manufacturers are downsizing employee numbers and replacing them with technological advancements and automation. Manufacturers are in fierce competition with each other and are searching for ways to decrease costs while maintaining current production levels, causing a downsize in production workers and an increase in technological improvements.

The food market is constantly expanding as the U.S. population grows. Trade in food plays a smaller role for this industry than other manufacturing sectors, as most of the crops and livestock consumed in the U.S. are produced domestically. However, the top 15 processed food imports accounted for $33 billion in 2009. Most of these foods reflect the consumer's demand for foreign wine and beer, coffee, beverages, cheese and beef.

Imports of Processed Foods into the U.S.
(in $billions)

Processed Food	Imports in $billions
Coffee Incl Prods	$4.15
Wine	$4.07
Malt Beverages	$3.44
Cocoa and Prods	$3.34
Beef and Veal Fr or Froz	$2.53
Biscuits and Wafers	$2.17
Other Grains and Preps	$2.03
Essential Oils	$2.00
Other Beverages	$1.89
Misc Hort Products	$1.67
Other Fruits Prep/pres	$1.36
Confectionery Prods	$1.17
Drugs Crude Natural	$1.09
Cheese	$1.04
Other Dairy Products	$0.94

Source: U.S. Department of Agriculture, U.S. Department of Commerce

High growth sub-sectors in food manufacturing include meat, poultry, and fish processing, as these jobs remain labor-intensive. According to the Bureau of Labor, these sectors' growth depends solely on consumer demand and can be affected by further unfavorable economic conditions. Other areas of growth include healthy snack foods and organic products.

Healthy snack foods are a particularly high-growth segment of the market. Nabisco and Kraft have been the key players in producing low calorie snack packs. These snack packs offer consumers their favorite cookies with fewer calories. In 2008, 100-calorie snack pack sales totaled $400 million. Before 2003, these snack packs were non-existent. Many critics argue that these snack packs are merely a fad. However, advocates proclaim these snack packs as innovative and project further market growth as Americans attempt to curb unhealthy eating habits and battle obesity.

Location Trends

The food industry is located in all 50 states. Most producers are regionally based and are located close in proximity to the areas in which they buy crops. Several large food manufactures are expanding, leaving less known brand names behind. These companies are increasing factory sizes so that production levels and productivity will rise.

Examples of recent expansions in the central U.S. include Kellogg's, Kraft, and Bremner in Georgia, Missouri, and Kentucky respectively. Kraft expanded their location in Springfield, Missouri. The expansion resulted in 50 additional jobs on location and increased production levels. Frito Lay just expanded for the third time in March at its location in Topeka, Kansas. Bremner expanded at their Princeton, Kentucky location within Pennyrile. The expansion resulted in 111 additional jobs as well as increased production.

Food manufacturers typically receive state and local incentives when undergoing expansion, including the projects highlighted above. For some low-cost manufacturers, incentives play a critical role in the companies' decision and location of their expansion. Other reasons for expansion include: strength in roadway infrastructures, availability of agricultural inputs, low cost and abundant water and wastewater, and community fit.

The Pennyrile Opportunity

The Pennyrile region has opportunities to attract new manufacturers of **baked goods** and **snack chips** (wheat and corn). The region produces large quantities of corn, wheat, and soybeans, some of which are already used in food products. Food producers in the region include Seimer Milling, Bremner Food Group, Land O'Frost, U.S. Smokeless Tobacco, and Swisher International. More opportunities can be found for the region's agriculture sector to move up the value chain into food production. Local crops can be inputs to various chip, cereal, and bread products. Strong highways and the future expansion of I-69 will further enhance the locational benefits of food manufacturing in the Pennyrile region.

Chip factories use large amounts of corn to produce their product. Pennyrile's main crop is corn and farmers have searched for ways to increase demand for their crops in the past. Pursuing a company such as Frito Lay will be beneficial for the region, as it will add another large consumer of corn to the area. Pennyrile has a strong road system which will be ideal for a company looking to expand as they use large fleets of trucks to distribute their product to retailers. Companies such as Frito Lay have expanded many times during the last decade. Pennyrile has large, affordable tracts of land and the resources and inputs to support chip manufacturing. Frito Lay plants average 300,000-500,000 sq. ft. and 250-500 employees. Many are centrally located to distribution regions and close to many different roadway systems.

TARGET SECTOR: ENERGY

Target Evaluation:
Energy

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Biomass	
Coal Gasification	
Ethanol	

Considering the Pennyrile region's strong coal, agriculture, and forestry sectors, and its successful ethanol production plant, we profile three areas of opportunity for the region: gasification (both coal and biomass) and ethanol production.

Niche Sector: Coal and Biomass Gasification

Market Overview

Gasification takes carbon-rich products, such as coal or biomass, and converts them into a gaseous intermediate known as syngas. Once the syngas is made it can be used to produce many different energy resources. Although it can be used as a source of gas itself, it has about half the density that natural gas does, and is therefore more suitable as an intermediate to transportation fuels and other chemical products. Furthermore, if the gasification process is carried out correctly, it is a much more efficient way of disposing waste byproducts, as compared to a waste stream disposal system.

The Pennyrile region is currently a prospective site for a large gasification plant. In December 2008 Peabody Energy announced its plans to construct a $2 billion coal gasification plant in Muhlenberg County by filing an air permit with the Commonwealth of Kentucky – now called the Kentucky NewGas project. If the permit is granted the plant will produce "pipeline-quality natural gas for sale on the open market…and carbon dioxide to companies that inject it into oil and gas wells to increase production," according to an article in Clean Coal. CoalGasificationNews reports that "[once the plant is complete] it will process about 3.5 million tons of coal per year and produce 50 to 70 billion cubic square feet of substitute natural gas (SNG)." SNG can be shipped through natural gas pipelines without harming the pipes. This plant will provide the region with more jobs, a local source of clean energy, and a competitive product on the market.

It is important to note that gasification plants do not have to be multi-billion-dollar plants. In fact, a majority of plants are much smaller. For example, a commercial plant under construction in Alaska requires an investment of only $20-45 million. A gasification plant in Georgia is expected to be producing energy by 2014 and is estimated to cost between $450 to $500 million dollars. It is also possible to turn a coal-fired plant into one that is run solely on biomass inputs. For example, a plant at the University of Wisconsin-Madison is planning to invest $250 million to do just this. The University of Minnesota at Morris is in the process of building better biomass reactors to create syngas to heat their campus. This project is a scaled pilot to learn how to create syngas on a much larger level to be able to fuel larger areas than just one campus.

There are other biomass plants being used around the U.S. as well. A $300 million plant was built in

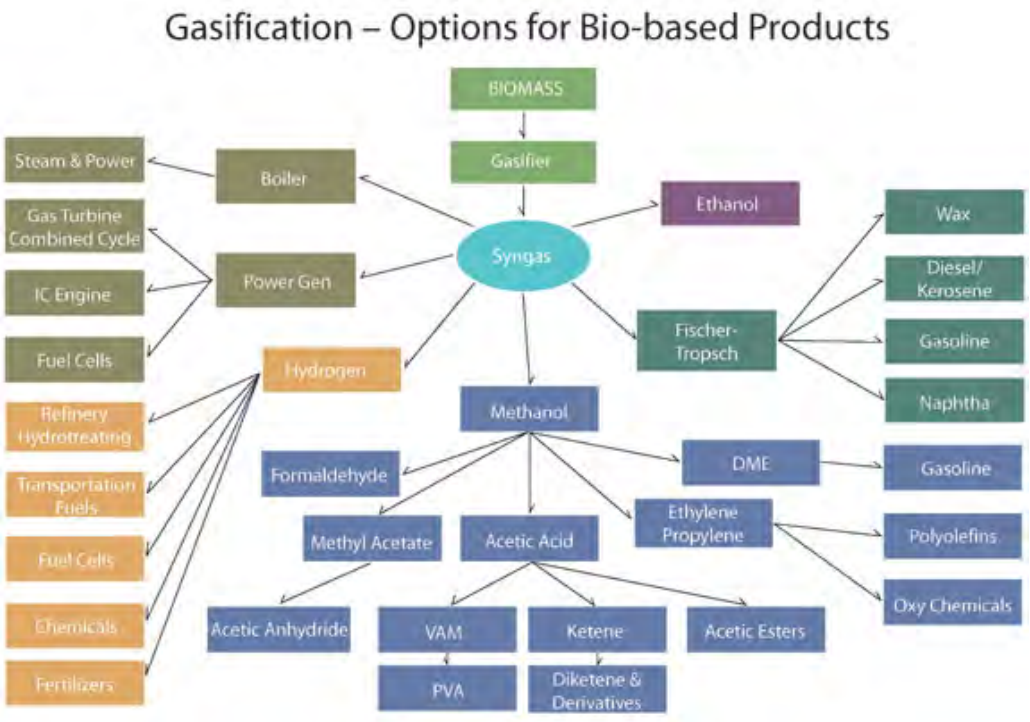
Creating Coal-Based Syngas from Inside the Mines?

An Alaska mining company is currently developing a $20-45 million underground coal gasification project near Beluga, about 50 miles west of Anchorage. The firm is working with Laurus Energy, a Houston-based technology firm. The project is designed to produce syngas from coal combustion underground: "A controlled combustion would be ignited and through a reaction that occurs, using a proprietary process owned by Laurus, results in forming of synthethis gas, which is then produced to the surface through a production well." The firms hope to have the plant operational by 2015.

http://www.alaskajournal.com/stories/060410/oil_11_001.shtml

Polk County, Florida in the mid-nineties. Half of the expenses were taken care of by the Department of Energy. Another plant in Snowflake, Arizona opened its doors in June of 2008 and is selling its electrical outputs to the two largest electric companies in Arizona. A plant near Franklin, Georgia is supposed to be ready for operation sometime this year. This facility is sponsored by a Georgia electric company which will buy 100 percent of the outputs for the first 15 years.

As shown by the diagram below from Biomass Magazine, biomass gasification can use numerous inputs to produce syngas – not just coal – which can then be converted to numerous energy products and technologies, including on-site generation, ethanol, hydrogen, and even gasoline:



Source: Biomass Magazine

The gasification of coal is not a new idea and was used as early as 1792. The process was patented in 1921, and used by the Germans during WWII. There are already coal gasification plants throughout the world that have been successful in producing fuel, energy and other products as needed. Sasol in South Africa has the largest concentration of gasifiers and uses them to produce over 40 percent of the region's fuel and chemicals. China, Japan, and India all have gasification plants which they mainly use to produce methanol and ammonia. Europe has five gasification projects: three are located in Italy, one in Spain, and the other in the Netherlands. There are currently only four sites in the U.S. that use coal gasification plants. According to Clean-Energy.us, over the course of the next five years, the first large-scale power plants will be built in the U.S. to convince investors, regulators, and lenders that these projects are technically and financially viable. After the initial five are built, the industry hopes that it will be evident that there is a need for these plants and they will continue to be developed.

According to Clean-Energy.us, the U.S. contains more coal than any other country worldwide. Studies have shown that the U.S. is capable of continuing to meet domestic needs for coal for more than 250 years, if consumption continues at the same level. Kentucky is one of the top coal-producing states in the U.S. The Pennyrile region has it large coal mining industry and is further supported by large supplies of wood and crops, which can all be used in the production of syngas.

Coal, wood, and crops all have the potential to be made into some sort of gas product. While the technology to transform the syngas into renewable fuel sources already exists, the technology to effectively renew the syngas sources is still somewhat ambiguous. A study presented at the 2nd World Conference and Technology Exhibition on Biomass for Energy, Industry, and Climate Protection suggested that wood and grass make up 70-90% of the total biomass that is available and that efforts should be focused here. Studies also show that short rotation woody crops will be the most important source of the biomass. The result of harvesting woody crops will be millions of acres of unirrigated land that will need to be irrigated and taken care of so the land can once more be productive. This will create many new jobs in the rural areas.

Like gasification, ethanol production takes a bio-based input and converts it to several energy products and byproducts. The future of ethanol is highly dependent on federal policies. In 2005 the federal government passed the EPACT2005 which created tax cuts and incentives for businesses, as well as set new standards. Some of the incentives that relate to the Pennyrile region are: extension of tax credits for small ethanol, agri-biodiesel, and biodiesel producers, and an investment tax credit for the construction and development of new or repowered coal-fired generating projects to list a few.

The Pennyrile Opportunity

The Pennyrile region has a thriving coal industry, one of the world's most productive corn economies, and a bountiful supply of biomass forests. These resources can be further expanded to create a more diversified clean energy production economy by expanding its ethanol industry into biomass sources, supporting the proposed Kentucky NewGas gasification plant, and exploring opportunities to build new, smaller gasification plants.

The federal government has also put aside millions of dollars in grants for states that establish programs for research, development, and production of alternative energy sources. Murray State University's Breathitt research center in Hopkinsville could partner with future biomass plants on research projects centered on alternative energy sources from agriculture and forestry.

Niche Sector: Ethanol Production

Market Overview

The ethanol industry is exploring other sources for inputs beyond corn. One Illinois-based company, Coskata, uses other forms of biomass, solid waste, forest residuals, and other carbon containing materials to make syngas to convert into a renewable form of ethanol that they call Flexethanol. This company focuses on taking waste that is no longer of use to the environment, and essentially recycling it by turning it into a renewable fuel source. The Pennyrile region could use the same procedure and create their own form of ethanol using the solid waste and tree and crop residuals available naturally.

The Pennyrile region currently has one ethanol plant that produces about 15 million gallons of ethanol each year. Corn yields have increased in recent years, which would support further growth in ethanol production. The Pennyrile region could also use their corn crop waste to create ethanol or other new energy outputs. According to the University of Minnesota at Morris, corn produces a large amount of waste biomass from left over corn stover when it is harvested. The majority of the corn stover is tilled back into the soil to help replenish the nutrients and prevent degradation but studies have shown that not all the corn stover is necessary to protect the soil. In fact, up to 50% of it could be removed and put to use in other ways, such as being burnt for electricity or used to make green fuels. They have also found that if the stover was converted to fuel, it could generate roughly 300 to 400 million gallons of environmentally safe fuel, which could replace up to 15% of our country's current gasoline intake. Any other biomass source in combination with the corn stover would further increase this number.

Furthermore, Kentucky is actively pursuing biomass as a source for creating non-corn-based ethanol. The Kentucky Rural Energy Consortium (KREC) developed the "Kentucky 25x'25 Roadmap" in 2008 to recommend and support an ambitious energy goal for the Commonwealth: "By the year 2025, Kentucky will use renewable energy and energy efficiency as means to get at least 25 percent of its total energy from improved technologies and renewable resources such as solar, wind, biomass and biofuels." The report identifies biomass – in the form of switchgrass and corn stover – as the largest potential source for ethanol production in the state, not corn.

Potential Ethanol and Biodiesel Produced in Kentucky from Biomass Fuels

	Million Gal/yr	tBtu/yr
Corn	186	14.1
Switchgrass	361	27.4
Corn Stover + Residues	121	9.2
Vegetable Oil to Biodiesel	107	14.9
Total	775	65.6

Source: Kentucky 25x'25 Roadmap

TARGET SECTOR: DISTRIBUTION

Target Evaluation:
Distribution

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Distribution Centers	
Customer Fulfillment	
Online Retail/Fulfillment	
Logistics providers	

Niche Sector: Distribution Centers

Market Overview

The Warehousing and Distribution industry is comprised primarily of third-party logistics firms, corporate-owned warehousing facilities, and freight carriers (trucking, air, rail, and water).

In 2008, the third-party logistics industry within the United States was a $127 billion market. The industry saw continuous growth and expansion as retail and manufacturing companies increasingly relied on distribution centers. In 2009, there was a dip, but the outlook for 2010 remains positive as companies again started constructing and leasing warehouses. Some large retail companies own their own warehouses because they have the capital and need the special attention. Some brick and mortar companies and online companies devote warehouses to fulfill online orders. Other retail and manufacturing companies seek to reduce expenses and increase efficiency in their operations by outsourcing their inventory management and shipping to third-party logistics providers (3PL).

Third- party logistics providers can be divided into non-asset and asset firms. The non-asset 3PL providers schedule and quote delivery options. They do not own warehouses or property other than offices but instead find the best prices for customers. Asset 3PL providers can own warehouses, equipment, transportation fleets to house and deliver the inventory of their clients. Asset 3PL providers include those solely based on delivery, such as UPS and DHL, outsourced warehouses, and outsourced warehouses with their own truck fleet.

The asset 3PL industry involves a close relationship between warehouses and transportation. The warehousing companies can be differentiated into general warehousing and storage, farm product warehousing, refrigerated warehousing, special warehousing, and household goods. Originally specializing in storage, warehouse operators have become third-party logistics providers by including value-added services to their storage facilities. According to Armstrong & Associates, providing basic warehousing services accounted for 19% of revenues and logistics services generated 40% of third party logistics providers' revenues.

The distribution industry is highly dependent on the economic condition of manufacturing and production, which in turn depends on consumer spending. In 2009, revenue was $108 billion, because demand for goods decreased. This reflects a 15% decrease in gross revenue year-over-year. Revenues are growing again as the economy rebounds. Reflective of the downturn in the overall logistics industry, truck companies also faced slowing business in 2009. As demand for client

products increase in 2010, (according to the American Trucking Association) the April 2010 truck tonnage index grew 9.4% from April 2009.

Technology plays a vital role as customers expect warehouse operators to accommodate frequent and smaller shipments through Just-In-Time inventory management. The logistics industry relies on technology to increase the efficiency of tracking and moving shipments. Customized Warehouse Management Systems and Transportation Management Systems software track inventory as it moves through the warehouse and shipping. Radio Frequency Identification tags automatically update the status of inventory items to the warehouse databases. New technologies require a workforce with strong computer and analytical skills.

In order to combat volatile fuel prices, it is vital for warehousing companies to maintain access to the other modes of transportation: rail, airplanes, and ships. Inventory can be grouped into larger shipments to cut costs.

Location Trends

Given the presence of trucking and warehousing in the Pennyrile transportation sector, we focus this profile on land-based freight-forwarding, though the role of water freight may play a larger role for the region as Paducah expands its port capacity to accept containers.

Location is the top requirement for logistics companies. The large size of warehouses requires regions with empty plains. In order to increase efficiency, warehouse facilities must have access to various means of transportation and be centrally located to consumer markets. Warehouses are concentrated around airport hubs, which also connect to highways and rails.

Kentucky and its surrounding states are favorites among warehousing companies because of proximity to various modes of transportation and customer markets. According to Chicago Consulting, central Kentucky has the lowest lead-time for transit to the end customer market, which is a major consideration for efficiency and reducing costs. The main cities in the area that have seen rapid growth in the industry are Louisville, Memphis, St. Louis, and Nashville. We provide short profiles of each region's distribution industry:

Louisville, Kentucky

Louisville is located in Jefferson County in Northern Kentucky. Highway I-64 connects Louisville to the Louisville International Airport and the Louisville-Jefferson County Riverport in addition to the cities St. Louis, Evansville, and Lexington. Other highways that cross into Louisville include I-65, which connects to Nashville, Atlanta, and Indianapolis, and I-71, which connects to Cincinnati. According to NREI, the United Parcel Services hub near Louisville International Airport is Louisville's largest private employer. In addition, UPS expanded its internationally-focused operation, Worldport, which is located in the same area. A DHL International hub is located at the Northern Kentucky Cincinnati International Airport as well. Transportation around Louisville is further enhanced by the extensive rail network, which also connects to the Port of Indiana-Jeffersonville on the Inland Waterway System.

As the U.S. warehousing industry grew, Louisville saw major expansion in recent years. However, in the fourth quarter of 2009, there was a mix of growth and recession in the region. Retailer Linens 'N Things Inc. went bankrupt and closed its 611,000 sq ft distribution center. Circuit City withdrew from two warehouses at Jefferson Riverport International. Several deals were made from 2009 and into 2010, such as Kentucky Trailer's newly acquired 240,000 sq ft building at Riverport. Genpak LLC, a food service packaging company, moved into one of Circuit City's old warehouses. U.S. Lock, a security products company, closed two of their warehouses and moved to a consolidated distribution center. This is a common pattern that retail companies with their own warehouses take to reduce supply chain costs. CEVA Logistics, a third-party logistics contractor, followed Ford from Michigan when it moved the Navigator and Expedition production plants from Michigan to Louisville. Ohio Logistics, who owns their own fleet of trucks, expanded into a 200,000 sq ft warehouse in Louisville.

Memphis, Tennessee

Memphis, known as "America's Distribution Center," has extensive transportation access required by warehouse and distribution centers. The Memphis International Airport, the world's largest air cargo airport, houses the FedEx headquarters. In addition, they have the third largest rail center and fourth largest inland port in the country.

The warehouse market slowed in line with the economic recession. Barnes and Noble closed its online-fulfillment distribution center in 2007 after a seven year operation. In July 2009, Fry's Electronics Inc. purchased a 120,640 sq ft warehouse in Memphis. The factors in their decision included the highway infrastructure, the FedEx hub, and the available workforce. Orgill Inc., a warehouse wholesaler, consolidated its Memphis operations into a new location in Missouri. It leased a smaller warehouse in Memphis because the warehouse was free-standing, single-tenant, and had low- lease rates. Although the warehousing and distribution industry experienced a national drop in 2009, business began improving at the end of 2009 and into 2010. Medtronic, a supplier of medical equipment, finished construction on a $65 million distribution center. Several property firms in Memphis expect an increase in lease activity, although lower than pre-recession, in 2010. Fiskars Corporation, a garden, home and office manufacturer, relocated from Wisconsin to a 260,000 sq ft warehouse in Memphis.

St. Louis, Missouri

St. Louis has a strong geographic advantage because of its transportation infrastructure. It has four interstate highways, the Lambert-St. Louis International Airport, a strong rail system, and the second-largest inland port in the U.S. Missouri utilizes 19 railroads to transport goods to other states. According to the Missouri Economic Research and Information Center, St. Louis is the third largest rail hub in the U.S., placing after Kansas City.

St. Louis also experienced a mix of growth and reduction in the warehouse market. At the end of 2009, Macy's sold a 1 million sq ft distribution center, which it put on the market in 2007 and finally sold for $10 million under the asking. St. Louis serves as a hub for the Procter & Gamble manufacturing plant. From 2008 to 2010, Procter & Gamble invested $80 million to improve its operations and plan to invest $150 million in this location in the next five years. This in turn means that it will increase its distribution centers in the area, already demonstrated by its new distribution center for Home Care products which was acquired in April. Caterpillar Logistics Services Inc. opened its newly built distribution center in Clayton, which was located near St. Louis, because of tax incentives and favorable property value. In addition, this distribution site will consolidate the work from Indianapolis and some of its parts distribution from Morton, Illinois.

Nashville, Tennessee

According to the Nashville Area Chamber of Commerce, Nashville "is within 600 miles to 50% of the U.S. population." There are three major interstate highways, I-40, I-24, and I-65. In addition, the Nashville International Airport is a major attraction for warehouse placement. The rail system provides access to 23 states, the District of Columbia, and two Canadian provinces. The unemployment rate of Nashville and Davidson County in 2008 was 5.5%, noticeably under the national average, according to the Metropolitan Government of Nashville and Davidson County. Compared to the other major distribution cities in the region, Nashville has a tighter labor market.

Several of the largest third-party logistics providers have headquarters or warehouses in Nashville and the surrounding region, such as CEVA Logistics, APL, and OHL. However, the Nashville warehouse sector continued to lag in 2010, and there were no new warehouses constructed in the first quarter. Small projects and expansion plans occurred, such as OHM International's new warehouse construction plans, which will be a combination of a warehouse and showroom.

The Pennyrile Opportunity

Several companies have pre-existing warehouses in the Pennyrile region. In 2002, Wal-Mart opened a 1.2 million square foot distribution center in Hopkinsville. This location provides access to Interstate 24, a qualified workforce, and proximity to 92 Wal-Mart retail stores within a 200-mile radius. According to Good Jobs First, the Kentucky Jobs Development Act gave Wal-Mart $15 million in incentives for its Hopkinsville distribution center and $13 million for another distribution center located in London, Kentucky. Continental Mills, a manufacturer of baking goods, moved a distribution center to Hopkinsville in 2008 to take advantage of efficient transportation to U.S. markets. Carhartt distributes its outdoor apparel from a large distribution in Madisonville.

Warehousing & Transport in Pennyrile, KY Region		Pennyrile, KY			United States	
		Jobs	Annual Growth (CAGR)		Annual Growth (CAGR)	
		2010	'03-'08	'09-'19	'03-'08	'09-'19
481	Air transportation	10	0.0%	1.8%	-1.3%	0.8%
482	Rail transportation	247	1.8%	1.2%	0.5%	0.5%
483	Water transportation	13	-30.5%	-3.3%	4.8%	0.4%
484	Truck transportation	1,459	0.8%	0.1%	2.8%	1.5%
4883	Support activities for water transportation	136	31.8%	-0.9%	1.9%	0.5%
4885	Freight transportation arrangement	19	-0.8%	-0.5%	3.0%	1.3%
493	Warehousing and storage	835	40.9%	2.8%	5.6%	1.3%
49311	General warehousing and storage	773	42.2%	3.0%	5.9%	1.5%
49312	Refrigerated warehousing and storage	0	0.0%	0.0%	3.3%	0.6%
49313	Farm product warehousing and storage	10	0.0%	0.0%	2.0%	-0.9%
49319	Other warehousing and storage	61	11.2%	0.2%	4.5%	0.9%

Source: EMSI Complete Employment

The Pennyrile region has about 2,700 jobs in its combined warehousing and transportation sector. Warehousing and storage has proven to be the highest-growth segment in recent years, primarily at the Wal-Mart Distribution Center. Forecasts from EMSI for the next 10 years suggest that the region's warehousing sector will continue to see above-average growth: about 3% per year. This amount is more than twice the growth expected at the national level.

The geography and highway infrastructure are strengths of the Pennyrile region. Continuous highway improvements on Interstate 24, Breathitt Pennyrile Parkway, Highway 68/80, and Highway 41 created safe and efficient transportation means for distribution centers. The recently proposed Interstate 66 and Interstate 69 will span across the Pennyrile region and connect to the neighboring states of Tennessee and Indiana. Pennyrile is centrally located between several airports in the surrounding regions, which include the Louisville International Airport, McGhee Tyson Airport, Memphis International Airport, and Nashville International Airport.

The fluctuation of fuel prices brings attention to the importance of combining shipments and taking advantage of various modes of transportation. Water ports provide access to other state and

international trade, while bundling mass shipments to lower fuel costs. According to Bruce Lambert, executive director of the Institute for Trade and Transportation Studies, the "emerging hubs are Mobile, Memphis, Savannah, and Kansas City." Louisville, Nashville, and St. Louis are being considered for a 2020 infrastructure project to connect ports in the U.S. with the Port of Montréal.

Availability of skilled, affordable labor can fulfill the expected national job growth of the logistics industry. Kentucky is taking initiatives to improve education standards. Within the transportation industry, more people are attaining secondary education.

Avalanche Consulting believes that traditional distribution centers will continue to find the region attractive, particularly along existing and future interstates. While many of these centers still do not provide high-wage jobs, increasing automation in the industry will require a higher skilled worker and result in higher salaries.

Niche Sector: E-Commerce Fulfillment Centers

Market Overview

The continued expansion of online retail in the U.S. is redefining how fulfillment occurs. Jobs at these centers can be diverse and offer more of a multi-tasking environment for its workers, better career opportunities and pay.

The most important element of online distribution centers is efficiency in operations within the warehouse and shipping. This process includes optimizing inventory tracking, returns, shipping, and limiting product damage. In addition, maximizing storage space is vital for keeping costs low. According to J. Michael Vargo, president of a software company, increasing efficiency requires three phases. Phase one is to create a strategy for procurement and shipments that addresses market demands. Phase two is geared toward designing the facility to match the strategy and inventory needs. This includes acquiring the proper software to track items and handle the distribution process. An Adaptive Warehouse Control System is a software solution that adapts to the constantly changing environment in the distribution center and provides updates and solutions accordingly. Phase three is the actual implementation of the plan. Constant reevaluation of the strategy and software systems are needed to stay up-to-date and efficiently fulfill market needs.

Technology plays a major role in retail sales, which created the growth of distribution centers for online retailers and brick-and-mortar retailers that also sell online. Online retailers, such as Amazon.com Inc., constantly expand their operations by adding more warehouses to their network to increase logistic efficiencies. In 2008, Amazon opened a fulfillment center in Goodyear, Arizona, which was an addition to its Phoenix warehouse. Amazon.com also built a distribution center in Pennsylvania, which in total was its fifth distribution center in Pennsylvania. Because Amazon.com heavily relies on efficient logistics, it needs to constantly revise its operations and reduce redundancy. In 2009, Amazon.com closed three distribution centers, located in Indiana, Nevada, and Pennsylvania, to make way for larger warehouses in better locations. It continues to grow, even crossing national borders into Canada, with plans of another online fulfillment center.

Target operates its own online fulfillment center for Target.com in Woodbury, Minnesota and Tucson, Arizona, which opened in 2007. In addition, it also outsources some fulfillment operations to Amazon. Macy's Inc. also increased investment in its online sales by opening two fulfillment centers, located in Portland, Tennessee and Goodyear, Arizona, which will service orders in the Western states. Its strategy for this new era is to grow a "direct-to-consumer business" plan, which involves the Websites: macys.com, bloomingdales.com, Bloomingdale's By Mail, macysweddingchannel.com, and bloomingdalesweddingchannel.com.

Some companies that sell through online websites even outsource the orders to third parties who already have extensive distribution networks. Third parties also provide customer service for

retailers. Although retailers can increase their logistics and lower costs, the major trade-off is the loss of control over customer relations. While Amazon.com Inc. has its own retail business, it also provides fulfillment services and manages the website for retailers, such as Toys 'R' Us. Another example is Best Buy.com, which uses a third-party, IM Logistics, and owns seven warehouses in the U.S.

The Pennyrile Opportunity

Small online retailers may only operate a single fulfillment center. For those seeking a single, central location in the U.S., the greater Pennyrile region is ideal. According to Chicago Consulting, the single best location for a company with just one distribution center is in Henderson, Ky., a few miles north of the Pennyrile region.

The Pennyrile region has a small, but growing handful of companies conducting online retail sales. Uncle Lee's in Muhlenberg County conducts a strong and growing business of selling to consumers nationally. Several smaller online retailers have been noted in the region, including Red Essentials, an online distributor of Case-branded products. Supporting existing online retailers during company expansion will be important for the region, and creating a base of software engineers to support these companies will be a necessary step. Successful retailers must deploy the best in technologies without affecting their overhead in order to ensure that they can continue to deliver low cost products to their customers. A base of software engineers and firms to provide this critical infrastructure is currently a gap in the region that must be addressed.

TARGET SECTOR: ASSEMBLY

Target Evaluation:
Assembly

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Automotive	
Metal Fabrication	
Solar	
Custom Products	

Niche Sector: Automotive Manufacturing

Market Overview

The automotive industry has been devastated by the recession—its sales have slumped by 35%. While there is an expected boost in 2010, many analysts feel recovery to pre-recession levels will not occur until 2012. Among automotive suppliers, there is a necessity to consistently obtain more efficient processes and designs; the automotive suppliers who survived 2009 were those able to cut their fixed costs.

Internationally, the automotive supplier industry faces stiff foreign competition for inputs. The prices of rubber, steel, and other necessary raw materials have increased significantly, increasing costs for automotive suppliers. These increases have forced many automotive suppliers to restructure or even stop supplying to automobile dealers and instead investigate supplying to the military and alternative energy industries. This problem is expected to just get worse, so automotive suppliers will have to restructure or find a way to pass the cost to their customers.

Before the recession and projected to occur after it, the industry is experiencing higher profits, but fewer workers are employed and less firms operate. This is expected to continue as firms specialize and are constantly pressured to innovate and increase efficiency.

Location Trends

Automotive suppliers are reflexive in their location—they typically go where there are key automotive plants. This has been the case in the recent expansion of an automotive supplier to Alabama. There is also a trend for expansion in the South. One key reason is that blue collar workers in the South are less likely to vote for union representation. Currently, the automotive industry is concentrated in 3 main states (Michigan, Ohio, Indiana), but plays a significant role in 7 (Michigan, Indiana, Kentucky, Missouri, Ohio, South Carolina and Tennessee).

A recent automotive parts plastic supplier stated key standards for a North Carolina expansion including proximity to customers and room for expansion; the governor of North Carolina cited a highly skilled workforce and a top education program as driving incentives for the expansion. In another expansion to Alabama, an executive attributed the move to the proximity to major automotive manufacturers and the $400 million incentive package offered by the state.

Most of the recent expansions of supplier firms have just been modifications or add-ons to existing factories. SL Tennessee LLC and Southern Tool are two companies that have demonstrated this trend. With the presence of so many closed former factories, many companies are looking to remodel and reuse these factories versus making the larger investment to build an entirely new one. Pennyrile has already experienced this with the reopening of an aluminum welding factory in mid-2008. Many of these expansions have been driven by foreign-owned manufacturers who view this time as optimal to expand operations in the U.S. due to low interest rates and a favorable currency exchange rate.

The Pennyrile Opportunity

The Pennyrile region's location is one of its key benefits to becoming a more robust automotive supplier region. Located near many huge automotive manufacturing plants, the Pennyrile region can leverage its existing highway infrastructure to achieve timely deliveries. Another intrinsic feature of the region is its expansive land to allow factories to expand. This allows companies to consider long-term growth options while benefitting from the existing technology of these factories.

The region currently has several automotive suppliers, many of whom are foreign firms (see side table).

The Pennyrile region's labor force also has benefits for an automotive supplier. The region is saturated with a skilled, manufacturing workforce, and is against unions. Kentucky also has a low cost of living and low overall taxation.

Select Automotive/Vehicle Manufacturers *Pennyrile Region*	
Transcraft	Trigg
Hydro-Gear	Caldwell
Bodycote	Caldwell
Internat'l Automotive Components	Hopkins
Mid Continent Spring Company	Christian
T-Rad North America, Inc.	Christian
Pennyrile Machine Company Inc.	Christian
Douglas Autotech	Christian
MSSC	Christian
Metokote	Christian
Par 4 Plastics Inc.	Crittenden

Niche Sector: Fabricated Metal Products Manufacturing

Market Overview

The fabricated metal product industry refers to production of a variety of products composed primarily of metal other than completed vehicles and complex machinery. Fabricated metal products include tools, cans, structural metal products, and stamped metal parts.

The fabricated metal parts industry is a huge industry in the United States with annual revenue of $340 billion. Most consumers are businesses, purchasing components to use in various industries including automotives, airplanes, appliances, computers, and machinery, but the industry also provides finished products like cans, containers and tools. The product composition of this industry is very diverse because it is driven by many other industries. According to Hoovers, industrial revenue is spread across diverse subsectors including machine shops (10%), metal valves and fittings (10%), ornamental and structured metals (10%), forging and stamping (5%), and sheet metal work (5%); the rest is captured by smaller companies catering to many different sectors.

The structural fabricated metal product industry (primarily construction materials for buildings) brought in $28.9 billion in 2009 despite a 10% decrease from the previous year. This subsector of fabricated metal manufacturing can be further divided into 5 key components: fabricated structural metal bar joist and concrete reinforcing bars (65%), structural metal for bridges (3.2%), fabricated structural iron for ships, boats, and barges (1.9%), other fabricated structural metal products (20.5%), fabricated, unspecified structural metal (9%).

Like other industries, change has been accelerated by the recession. While efficiency and output were increasing steadily, the recession has spurred further labor reduction—making existing production centers even more lean and efficient. This trend is expected to continue, as the Bureau of Labor Statistics projects a further 8% decline in employment. This labor reduction is also driven by the increasingly capital intensive direction of the industry. Although displacing many employees, automation has increased the production value of many factories and helped them increase efficiency.

As shown in the following table, the fabricated metal subsectors that are expected to see positive employment growth in the U.S. over the next ten years include: fabricated structural products, architectural metal products, heavy metal tanks, springs, and ordnance.

Job Forecast: Metal Products Manufacturing *United States*		Annual Growth (CAGR)	
		'03-'08	'09-'19
332116	Metal stamping	-0.2%	-2.9%
3322	Cutlery and handtool manufacturing	-3.6%	-3.4%
332211	Cutlery and flatware, except precious, mfg.	-5.4%	-5.1%
332212	Hand and edge tool manufacturing	-3.3%	-3.1%
332213	Saw blade and handsaw manufacturing	-2.4%	-0.2%
332214	Kitchen utensil, pot, and pan manufacturing	-4.7%	-12.8%
3323	Architectural and structural metals mfg.	1.5%	0.5%
33231	Plate work and fabricated structural products	3.1%	1.3%
332311	Prefabricated metal buildings and components	3.5%	1.6%
332312	Fabricated structural metal manufacturing	2.7%	1.4%
332313	Plate work manufacturing	3.7%	0.8%
33232	Ornamental and architectural metal products	0.3%	-0.2%
332321	Metal window and door manufacturing	-3.6%	-3.4%
332322	Sheet metal work manufacturing	2.5%	0.9%
332323	Ornamental and architectural metal work mfg.	2.2%	1.0%
3324	Boiler, tank, and shipping container mfg.	1.4%	-0.8%
33241	Power boiler and heat exchanger manufacturing	3.7%	0.5%
33242	Metal tank, heavy gauge, manufacturing	7.0%	1.6%
33243	Metal can, box, and other container mfg.	-3.0%	-4.2%
332431	Metal can manufacturing	-2.4%	-2.8%
332439	Other metal container manufacturing	-3.6%	-6.2%
3325	Hardware manufacturing	-4.9%	-2.2%
3326	Spring and wire product manufacturing	-4.1%	-2.3%
332611	Spring, heavy gauge, manufacturing	2.1%	3.4%
332612	Spring, light gauge, manufacturing	-1.4%	1.5%
332618	Other fabricated wire product manufacturing	-5.5%	-5.0%
3327	Machine shops and threaded product mfg.	3.4%	-1.4%
33271	Machine shops	4.7%	-1.3%
33272	Turned product and screw, nut, and bolt mfg.	-0.1%	-1.6%
332721	Precision turned product manufacturing	-0.6%	-2.1%
332722	Bolt, nut, screw, rivet, and washer mfg.	0.4%	-1.2%
3328	Coating, engraving, and heat treating metals	0.5%	-1.6%
332811	Metal heat treating	1.2%	-0.3%
332812	Metal coating and nonprecious engraving	3.1%	0.3%
332813	Electroplating, anodizing, and coloring metal	-1.4%	-4.1%
3329	Other fabricated metal product manufacturing	0.2%	-1.3%
33291	Metal valve manufacturing	-1.1%	-2.3%
332911	Industrial valve manufacturing	1.7%	0.2%
332912	Fluid power valve and hose fitting mfg.	0.2%	-1.6%
332913	Plumbing fixture fitting and trim mfg.	-7.1%	-9.8%
332919	Other metal valve and pipe fitting mfg.	-2.6%	-4.9%
33299	All other fabricated metal product mfg.	0.9%	-0.8%
332991	Ball and roller bearing manufacturing	-1.3%	-2.4%
332992	Small arms ammunition manufacturing	4.1%	0.5%
332993	Ammunition, except small arms, manufacturing	-2.3%	-2.8%
332994	Small arms manufacturing	2.3%	0.2%
332995	Other ordnance and accessories manufacturing	6.9%	2.6%
332996	Fabricated pipe and pipe fitting mfg.	3.0%	0.5%
332997	Industrial pattern manufacturing	-3.5%	-6.6%
332998	Enameled iron and metal sanitary ware mfg.	0.2%	-1.1%
332999	Miscellaneous fabricated metal product mfg.	1.5%	-0.6%

Source: EMSI Complete Employment Forecast

Location Trends

The majority of fabricated metal producers are in California, Texas, Ohio, Pennsylvania, and Illinois. While some of these are established manufacturing powerhouses, all of these states have great access to ports and other forms of transportation. The distribution throughout the country is largely fragmented, with fabricated metal manufacturers located closer to the industry to which they cater.

KCC International, a fabricator of high-end HVAC ventilation systems, has announced a 20,000 expansion to its factory in Louisville. State incentives, a skilled workforce, and room for expansion were driving factors for this expansion. Abby Manufacturing expanded to Benton, Mississippi recently. This company fabricates motor parts and other high-end freight material. This was an instate expansion of its former plant that was subsidized by the state. Carlisle Co., based in Charlotte, North Carolina, announced an expansion to Jacksonville, Tennessee in mid-2009. A strong wheel manufacturer for non-automotive sources, Carlisle explained its choice of Tennessee for its educated workforce and state-incentive package.

The Angell-Demmel plant in Marion County, east of the Pennyrile region, has also recently experienced a large spurt, being fueled by a contract with Mercedes-Benz to create aluminum trim for doors and instrument panels; this high end, decorative line is expected to bring from 52-110 jobs at the facility. This has cost the Kentucky government $2.5 million in an incentive, with additional financing for the necessary capital investment.

The Pennyrile Opportunity

The Pennyrile region has an opportunity to play a role in the growing **metal building products** industry. This industry has huge growth potential due to two driving trends. The environmental benefits include saving energy costs due to the reflective material's reduction of energy needed to cool a building. After the aluminum roofs or walls with aluminum components are worn out, they are also recyclable, which reduces the additional waste that many used out shingle or asphalt roofs produce. Another trend that will drive this industry in the future is the long-term cost savings at a higher initial investment. Aluminum roofs last longer, approximately 50 years, and require less maintenance. Additionally, many insurers offer discounts of up to 30% on buildings with aluminum roofs, due to the reduced fire threat.

The region may also have an opportunity to recruit **additional HVAC manufacturers** to the region. The presence of Trane in neighboring Montgomery County has produced a skilled workforce and put the region on the map for this industry. Close proximity of competitors is not uncommon: in Tyler, Texas (with a county population of just under 100,000) both Trane and Carrier manufacture air conditioners. Furthermore, continued growth of the industry is driven by new technological advancements in efficiency as well as federal incentives to upgrade existing air conditioners. While

the market for residential homes has been decreasing, non-residential growth markets include education, healthcare, and power-related industries.

Finally, the region is well-positioned to attract manufacturers of **large metal tanks and boxes**. These items require the stamping of metal/aluminum, which is available from nearby foundries, and are bulky enough that shorter distribution distances greatly affected the competitiveness of companies.

Overall, the region's central location and strong infrastructure in rail, highways, and water will assist metal manufacturing companies to get large metal inputs into the region and exported out to customers across a multi-state area. Low power rates will further attract these types of companies.

Niche Sector: Solar Manufacturing

Market Overview

The United States has been a key player in the solar industry's early years, but since the mid-1980s the industry has been dominated by Europe and Japan. Although having limited involvement today, companies such as Boeing and Kodak were some of the first to start manufacturing and researching new technology in order for cells to become more efficient in capturing the sun's energy.
The solar industry is now a multi-billion dollar industry showing $38.5 billion in revenues for 2009 worldwide – just in the photovoltaic (PV) market. Countries and economic developers are pursuing this industry aggressively as a way to replace old manufacturing jobs with new clean energy jobs. Government incentives are boosting the adoption of solar energy: in 2009 alone, the MW generated by solar grew by 36%.

There are three primary types of solar modules:

- Concentrated solar – concentrates the sun's heat
- Solar thermal – uses thousands of mirrors to heat liquids to create steam in turbines that works like an engine to generate electricity
- Photovoltaic cells – the solar panels that are typically placed on rooftops

Photovoltaic panels are the fastest growing market in the world today, and efficiencies are increasing dramatically which improves the ROI on new investments. Photovoltaic manufacturing is dominated by China, U.S., Germany, and Japan. Most of the large solar manufacturing companies contain production facilities in the US. China may not have the highest adoption rate of solar energy right now; however, the country recognizes the market potential of European countries such as Spain, Italy, and Czech Republic who have a strong focus on providing incentives and growth for their nations to install solar facilities. Companies such as Kyocera and Sharp from Japan who entered the U.S. market in the 1970s to manufacture TVs and other electronics, began to invest at the same time in solar research and manufacturing in Japan and now are leaders in solar manufacturing with facilities in the U.S. Sharp had the first foreign billion dollar investment into solar manufacturing in the U.S. with its facility in Memphis, Tennessee.

Location Trends within the U.S.

Inside the U.S., the solar manufacturing is led by California, but states such as Massachusetts, Michigan, Arizona, Ohio, Oregon, New Mexico, and Texas are now some of the new markets that solar manufacturers have selected for new facilities. We profile some of these leading states individually:

California

California has significant solar research at universities and good state incentives to entice consumers to install solar panels, including their "Million Solar Roofs" Initiative. Just in 2009, $1.4 billion was invested by venture capitalists in the state's solar industry. The state is a popular location for headquarters of major solar companies and research because of the energy policy of the state and the high technology industry. California has struggled to retain its solar manufacturing companies, losing to states with low transportation costs, cheap land, more industrial workforce, and good incentives. However, with examples like Kyocera who recently decided to open up a new manufacturing facility in San Diego after opening its first Mexico solar manufacturing facility, the state remains in play for manufacturing facilities.

Michigan

Hemlock Semiconductor, LLC, a joint venture between Dow Corning and two Japanese firms, has its headquarters and world's largest polycrystalline silicon production in Saginaw County, Michigan. The Great Lakes Bay region has been hit hard with the decline of the American automotive industry, but they began looking for a new source of growth and provided support to Hemlock, Dow Corning Solar, Clairvoyant Energy and United Solar Ovonic, along with more investment in research and education in solar. With the fall of the auto industry in Michigan suppliers have gone out of business and large manufacturing facilities are sitting unused on the land. The solar industry has created new uses for the suppliers and manufacturing facilities. A company called Infinia takes the simple idea of using a Stirling engine in order to generate energy from a solar dish at a rate of 24% conversion. The automotive suppliers do not need to learn a new technology, but continue to do what they excel at which is building engines, plastic, and metal parts. For Infinia, the two main parts of their solar modules are the dish and the engine, which are manufactured by two of the largest auto suppliers, Autoliv and Cosmia. A quote from a professor at Duke University explains how similar the relationship between the automotive and solar industry can be: "All of this technology is made up of regular parts that manufacturing companies are making all the time," he says. "The difference between our economy and a green economy is not as substantial as people think."

What was once a 320 acre campus for Ford where the company would manufacture cars such as the Thunderbird discontinued its operations in 2007. However in 2009, reuse of the facility is occurring from a partnership between three renewable energy companies to build parts for solar and wind projects. Solar energy is the main focus of this facility. Clairvoyant Energy which will use Oerlikon Solar thin-film cells and with X-treme Power, a Texas based company, will aid in creating energy storage and power management for large scale projects. The whole project costs over $750 million and has received $100 million from the Michigan legislature in tax credits.

New Mexico

New Mexico positions itself as ideal for the solar industry because of the recognition of being a great location to capitalize on the significant amount of sunlight. In fact, its state logo showcases the sun and connects it to its business brand. With the foundation of solar research at Sandia National Labs, a growing base of solar companies, and a large state recruitment fund, New Mexico now competes

aggressively for new investment by solar companies. New Mexico has proven to even take projects from other states such as Solar Array Ventures from Texas planned on creating a 225,000 sq ft manufacturing facility, but has had trouble gathering enough debt financing to finish the project. Solar entrepreneurship is a focus: Noribachi, a private equity company, works to develop companies that utilize clean energy such as solar. The company's executives include leaders from Sandia Labs. One of the companies, Solar Distinction, in February of 2010 announced that they will build a manufacturing plant in Albuquerque.

Oregon

Often overlooked because of its proximity to California, Oregon has been successful in attracting manufacturers to move their facilities to the state. In 2009, Sanyo Electric Company finished a solar manufacturing facility in Salem, Oregon. In 2008, SolarWorld AG started construction on their manufacturing facility in Hillsboro, Oregon. SolarWorld AG expects to be fully operational by 2011 and generate 500 MW of power each year.

Texas

With the support of a strong university community, competitive salaries, and educated community, Texas has created a base of small solar companies. In Austin, HelioVolt produces solar panels. While smaller than Sharp and FirstSolar, Heliovolt is staking a position based on its new technology using thin films of copper indium gallium selenide, or CIGS. The technology created won awards such as the Top 100 R&D, and the Editor's Choice as the most revolutionary technology in 2008. Entech Solar in Fort Worth is another great example of a thriving solar company. Focused originally in concentrated photovoltaic, the business has expanded to offer services such as designing and building solar energy systems. The company develops their own concentrated solar modules and skylights to provide daylight as lighting, which increases productivity while reducing the need for incandescent light. Texas overall has the foundation to become a leader in the solar industry and will continue to move to attract bigger projects. The essential building blocks of solar energy are the wafers and Texas has a significant amount of semiconductor companies; therefore, the solar industry is very attractive to local semiconductor companies and government leaders. MEMC-Southwest division, which is based in Sherman, TX, has acquired a multi-billion multi-year deal to supply wafers to Suntech. Cypress Semiconductor has a large manufacturing facility in Austin and was a majority owner of SunPower before it went public.

The Pennyrile Opportunity

The Pennyrile region is in an excellent position right now to get a piece of solar manufacturing industry. The Hemlock Semiconductor provides good leverage to bring in new investment and solar equipment suppliers. Education in the region is focused towards solar development with the new Solar Institute of Tennessee created by a partnership between Oak Ridge National Laboratory, University of Tennessee, and Tennessee Valley Authority, and a Department of Energy grant for $62 million. The institute will have a main location in Knoxville and a western location in Brownsville very

close to Montgomery County and the rest of the Pennyrile region. Throughout the region there are many community colleges to willingly support and educate people in the area to properly accommodate to the needs of the solar manufactures. In early 2010, Confluence Solar decided to move their solar manufacturing to Clinton, Tennessee. Confluence is a great example of the larger region's ability to continue to attract quality solar projects. Confluence Solar comes from Convexa, an alternative energy venture capitalist firm, which has many projects in solar, but the only project to move outside of California and specifically Tennessee.

A strong educational system is important, but when companies chose to move to a region the bottom line of cost of doing business is crucial and often the final decision maker. Electricity rates have been a driving factor for the power-intensive manufacture of silicon. The Pennyrile region can reduce transportation costs to customers in the U.S., provide cheap electricity, and provide incentives that allow the company to save money on their earnings through lower taxes and cash disbursements per the amount of jobs that the solar manufacturer will create. Communities within the Tennessee Valley Authority service area can provide very low cost of electricity. On average the cost per kilowatt hour in Tennessee is 9.7 cents compared to the national average which is 11.6 cents. Relocating companies can get a $6 per KW incentive by TVA. Wacker Semiconductor, a German company, decided in 2009 to open a polysilicon manufacturing plant in Bradley County, Tennessee for these reasons: "extension of our natural hedge via production outside the euro zone; minimizing transportation cost and lead times for our U.S. customers; abundant and low energy cost; excellent infrastructure / transportation network; and, support of local government, business and agencies." A crucial and deal-breaking piece of the puzzle is the incentives and through incentives and tax breaks, solar manufacturing companies will come to the region.

Niche Sector: Specialty/Custom Manufacturing

Market Overview

Small manufacturers in the U.S. are finding that they can be successful if their products have high degrees of customization or specialization, i.e. are not commodities that can be reproduced in China. Typically, products are produced by a small number of individuals, for a small set of customers, at a premium price in the marketplace.

These "specialty manufacturers" can:

- Offer a final product customization step for the customer before shipping;
- Combine unique elements or ingredients to make a product that doesn't exist in the marketplace;
- Use a green manufacturing process or recycled materials that consumers are willing to pay a large premium for;
- Provide "after-market" products that provide customization to a common household item or purchase;

Specialty manufacturing is the natural response to a massive competition and the inevitable question, "how can I be more unique in the marketplace?" Many new products are started by individual entrepreneurs with a new idea. New foods (such as teas, cookies, etc.) are usually invented in the home, then batch-processed in the garage or a community kitchen as the market is established and customers are lined up.

The Pennyrile Opportunity

Avalanche Consulting believes that the Pennyrile region has the opportunity to nurture fledgling entrepreneurs in manufacturing. The region's core strengths – central location, strong transportation network, agricultural resources, and a low cost of doing business – will be just as beneficial to manufacturing startups as relocating companies. We believe the following product areas should offer opportunities to entrepreneurs: foods (connecting to local agriculture resources), automotive/motorcycle products (several small manufacturers exist today in the region), agricultural implements (one local company was acquired by John Deere), large furniture or construction materials (bulky and expensive to ship), etc.

Today, there are 95 manufacturers in the Pennyrile region that employ less than 10 workers. There are likely to be hundreds of additional self-employed individuals that are making products in their homes for sale at local markets.

TARGET SECTOR: TOURISM

Target Evaluation:
Tourism

Local Asset Fit	
National Growth	
Relative Competitiveness	
Job Impact	
Wage Improvement	
Strategic Value	
Pursue as a Target?	

Niche Targets:

Events:
Fishing, softball, ATV parks

Destination Tourism:
Agritourism, adventure tourism, hotels, thrift shopping

Americans spend billions each year in travel and entertainment. A recent study by the U.S. Department of Labor and U.S. Bureau of Labor Statistics revealed that the average American spends roughly $6,400 on recreation and leisure. When considering over 300 million people in the United States, the annual figure spent on such activities is steep. Americans choose to spend their leisure time in many different ways. Sports, traveling, music, and outdoor recreation lead the industry in the United States, and all are activities currently present in the Pennyrile region.

The Pennyrile region has the potential to attract more events and tourists, but the region has some significant shortcomings that will hinder their chances. The cities of Hopkinsville and Clarksville both have ample lodging to accommodate visitors of events. However, the other towns in the region only have a couple quality hotels to offer to tourists. Given the lack of hotel rooms and entertainment, we have identified three types of **Event Tourism** for the region to target where people choose to camp or bring their recreational vehicles:

Events

1) **Competitive Fishing Tournaments**
2) **Softball Tournaments**
3) **ATV Park / Jeep Jamborees**

Other events such as music festivals, sporting events, and trade shows are opportunities for the region, but will have to be scaled to a size where overnight guests can be accommodated.

In addition, we believe that destination tourism – geared toward attracting individuals and families to recreation and resorts – is an untapped opportunity for the region surrounding the Land Between the Lakes. We see several areas for new or expanded "destination" tourism:

Destination Tourism

4) **AgriTourism and Adventure Tourism: Farm Visits and Markets, Thrift Shopping, Camping, Recreational Fishing, and Boating**
5) **Resort Hotels**

We profile these niche targets individually in the following pages.

Niche Sector: Competitive Fishing

Market Overview

Americans have enjoyed fishing recreationally for many years. However, since the early '70s a new trend has emerged amongst anglers: competitive tournament fishing. Many elite tournament trails associations have emerged and have shaped fishing into an individual sport. Professional anglers travel around the country fishing different lakes and reservoirs in hopes of catching the largest limit of fish. For our purposes this report will focus on bass fishing, as it is the most prominent to the Pennyrile region.

Some of the larger tournament trails and associations now generate enough interest so that spectators now travel to watch these anglers fish just like any other spectator sport. As a result, weigh-in sites have become a haven for vendors and other entertainment venues. A recent study conducted by the Wisconsin Department of Natural Resources recorded the expenditures by boaters, non-boaters, and staff/sponsors for 7 different large tournaments in the state of Wisconsin. The breakdown of these tournaments included 1 Bassmaster Elite 50 Series, 2 FLW Series, and 4 other smaller national association tournaments. The Bassmaster Elite Series generated the most interest as it drew and estimated 14,000 spectators who spent $1.32 million in Chippewa Falls, Wisconsin. The professional anglers also spent $135,000 over a seven-day period for a grand total of $1.45 million in direct economic impact. The two FLW and the Sturgeon Bay events resulted in less spectator support but still generated an average of $450,000 of direct economic impact for the local lakes and host towns. The remaining 3 tournaments generated an average of $65,000 in direct benefits for the local communities.

Location Trends

Competitive bass fishing is virtually located throughout the lower 48 states. Generally, states with warmer climates have more favorable fisheries than colder states. Texas, Florida, California, Alabama, and Arkansas are the most popular states for bass fishing. However, the remaining Southern states including Mississippi, the Carolinas, Tennessee, Kentucky, and Louisiana also have excellent track records in bass fishing. In the past 10 years, states that use large hatcheries to repopulate their bass populations have distanced themselves from other states. Texas and California have implemented programs which help repopulate fished reservoirs. As a result, these states are producing larger bass than ever before and generating more interest from fisherman regardless of skill set. These two states have hosted 12 Bassmaster Elite Series tournaments since 2006. This fact alone solidifies that these two states' repopulation program has maintained large bass populations and sparked interest on a national level.

In 1996 a new tournament trail, the FLW series, emerged and in recent years has begun to rival Bassmaster and the premiere tournament trail. The FLW series concentrates on a regional basis as

most of its tournaments are held in Arkansas, Tennessee, Alabama, Kentucky, Missouri, and Georgia. The trail consists of 6-7 regular tournaments starting in February and a National Championship held in August. Much like Bassmaster the trail has a limit as to how many anglers can fish any particular tournament. However, it differs from Bassmaster in the fact that most of the tournaments are held in the Southeast part of the country. This regionalization seems to have helped the association in its quick rise to the top. Anglers can concentrate on one kind of fishing style on the FLW series whereas Bassmaster Anglers fish many different types of fisheries.

The Pennyrile Opportunity

The Pennyrile region has a unique opportunity of having two large lakes in its region in Kentucky Lake and Lake Barkley. These lakes offer large bass, which intrigue professional anglers and their tournament trails. In the past, Kentucky Lake/Lake Barkley has hosted 4 FLW tournaments and 4 Bassmaster Elites. The 4 FLW tournaments were held in Kentucky Lake Dam Park and directly benefited the region. However, the Bassmaster Elites have been hosted on the Tennessee portions of the lakes and as a result the Pennyrile region has received no direct benefit of these tournaments.

Pennyrile currently has the resources to host all of these tournaments. As stated earlier, the FLW generates a great deal of income for communities, but the Bassmaster Elites generate far more. Pennyrile has the hotels to entice further FLWs and Bassmaster Elites. Grand Rivers, Calvert City, Kuttawa, and Gilbertsville are all located within a 10-mile radius and have adequate hotels between them to satisfy the lodging need during these large tournaments. Also, the area has ample restaurants to satisfy anglers and spectators' appetites. Paducah is also located roughly 30 minutes west of the area and offers many more choices regarding restaurants and more lodging. Finally, the lakes have two large marinas and the area is easily accessible which should entice these large tournaments. Interstate 24 runs parallel to the lakes and offers quick traveling to and from the site. The two marinas in which they have are Kentucky Lake Dam and Mineral Mounds Marina. All in all, Pennyrile has the ample assets to entice and host these large tournaments, especially the Bassmaster Elites. The addition of more, larger tournaments not only would spark tourism but would also provide the need for more motels, restaurants, and jobs- building a larger asset base to help draw in more tourists and events.

Niche Sector: Softball Tournaments

Market Overview

Softball is a very popular sport in the United States of America. Men and women alike enjoy playing softball competitively. Large associations such as the NSA and ASA have large membership numbers with ASA's totaling over 3 million in the United States. The ASA has over 250,000 teams today, which play in tournaments virtually all year round. The sport is differentiated into age groups for Youth members and by skill level for adults. Youth members often have aspirations of playing collegiately or for their country in the Olympics. Most states have at least one association, which directs tournaments for members and assists qualifying members in advancing through playoffs, or up in skill set classification.

Location Trends

Kentucky is slated to host over 70 softball tournaments for all age groups in 2010. Many of these tournaments are multi-day events, which force participants to stay overnight. Roughly 80% of the tournaments are held in three locations throughout the state. These locations include Louisville, Owensboro, and Hopkinsville. These cities host qualifiers, state, national, and leisure tournaments. They have at least one complex with multiple fields in order to manage multiple games at once. Tournaments in these locations can generate anywhere from $10,000 to $500,000 or more depending on the length of the tournament. Short daylong tournaments do not help local economies as much as multi-day events do. Multi-day tournaments force participants to stay overnight, which generates far more money for local municipalities.

The areas in Kentucky receiving increasingly more tournaments include Louisville and Owensboro. Owensboro has a new facility with four lighted fields that has attracted several NSA and ASA tournaments. While Louisville has a couple of facilities it seems to be chosen more for its size than for the facilities it offers players. Another, smaller community, Logansport, Indiana, has recently opened a new facility and earned the right to host tournaments. Logansport has incorporated a strategy that favors the community and maximizes the amount of money it will receive during a tournament. The community did not install lights at the newly founded complex. Most complexes have lighting to attract more teams and tournaments. This strategy works for the most part since more games can be played each day. However, Logansport's strategy does not allow for games to be started after 6 pm. On the flip side, the community has begun hosting festivals, fairs, firework shows and concerts during the same time as these tournaments. Logansport has found that players and their families enjoy having other forms of entertainment instead of simply playing softball or baseball all weekend long.

The Pennyrile Opportunity

The Pennyrile region has the opportunity of investing in additional softball/baseball complexes in order to help spark economic growth. The region already has tournaments that are hosted in Hopkinsville, but the opportunity to host more is available. Madisonville recently broke ground on a new sport complex in 2006. The town now can submit its name as a potential candidate to host a tournament with the NSA, ASA, and other associations. Madisonville has multiple hotels and restaurants, which offer lodging and meals for participants. On top of developing new facilities and trying to obtain new tournaments, Pennyrile needs to be proactive in maintaining the events it already hosts. Every year Hopkinsville hosts the high school softball state championships. Per "The State Journal" in Frankfort, Kentucky, Frankfort just finished developing a new sport complex and has submitted a bid for the 2010 and 2011 tournaments. Hopkinsville officials have stated publicly that the tournament generates roughly $400,000 for the city over the tournament weekend each year.

Finally, every community has youth that participate in sports. Investing in ballparks not only offers a chance for economic growth, but also provides quality facilities for their youth to play. Other sports offer economic benefits as well. Baseball is much like softball. Many individuals travel to participate in tournaments, which stimulate local economies. However, at this time, the Pennyrile region does not have the field quantities to host large baseball tournaments. The complex in Hopkinsville only has one baseball field compared to 5 softball fields. While Madisonville has two baseball fields and may be able to host smaller tournaments, additional fields will be necessary to host more baseball tournaments for both areas. Volleyball and basketball tournaments also would be alternatives for the area, however; the lack of gymnasiums and hotels will deter larger associations from hosting events in this area.

Niche Sector: ATV Park / Jeep Jamborees

Market Overview

Many Americans enjoy spending their recreational time enjoying the outdoors. Off-road vehicle rides are growing in popularity as a way for people to spend their time and money in leisure play. Two of the most popular types of rides include ATV (All-Terrain Vehicles) and Jeep Jamborees. Both types of off-road riding have grown from modest starts. According to Jeep Jamboree USA, the first trail ride was in 1953 in the Sierra Nevada Mountains. In 2010, Jeep Jamboree USA plans on hosting 28 different rides across the United States. These different rides last 2-3 days and allow Americans a quick, fun weekend getaway while enjoying the outdoors. Jamborees on average attract 230 participants and 1000 jeeps. Also, Jeep Jamboree USA claims that 65% of participants have ridden in a jamboree before, indicating that their participants are committed to traveling to multiple jamborees across the country.

ATV parks are growing very rapidly across the East Coast and the southern United States. According to the ATV Association, ATV parks are growing in popularity because they offer a different kind of riding experience. ATV rides allow riders to be exposed to the elements whereas Jeep riders can be protected from the elements to an extent. Over the last 10-15 years, confrontations between landowners and ATV riders have been on the rise. ATV riders often cross property lines without permission and damaged landowner's properties. The emergence of ATV parks has helped decrease the number of confrontations between riders and landowners as well as create job growth and help local economies. ATV Parks also allow for horseback riding, hiking, and camping.

Location Trends

Jeep Jamborees often are held in rocky, steep, and/or muddy terrain. Jeep riders want to experience challenges when driving off-road. Many rides are held in Nevada, Colorado, California, Western Texas, Wyoming, and other western states. The jamboree was originally designed to spark local economies. Since 1953, Georgetown, California, has generated over $30 million, since 1953 by holding annual jamborees. Most locations must lobby to Jeep Jamboree USA to prove the site can sustain and attract a large group of people. In most recent years, locations east of the Mississippi have been able to entice the association to host more events than western locations. The ability to host the events has been a result of larger population numbers and greater demand for a ride. New York, West Virginia, Michigan, Wisconsin, Indiana, and Kentucky have all hosted or will host a jamboree in 2010.

ATV parks have grown particularly in the southeastern United States and California. Large wooded tracts of land and rural landscape areas seem to have the most demand for ATV parks. Gilbertsville, West Virginia and eastern Kentucky in Harlan County (on the Virginia state-line) have both established large ATV parks within the last year. These parks offer permits by the week or annually

to cater to riders who choose to ride multiple times a year. These parks both host biannual rides, which attract hundreds of riders for a weekend ATV festivals. These festivals can generate anywhere from $250,000 to $1 million for local economies. Gilbertsville, West Virginia, established its park with over 200 miles of trails on 43,000 acres. This land is in an old coal-mining field and most of the land could not be used for building of infrastructure or buildings. Since the land could not be developed, it was left in its natural state and made into these recreational parks. The park also allows for horseback riding and other small off-road motorized vehicles. Maysville, Kentucky (southeast of Cincinnati along the Ohio state-line) and Harrisburg, Illinois (near the Kentucky state-line) also have large ATV parks that offer wooded and challenging terrain. The demand for riding ATVs and other off-road vehicles continues to grow especially east of the Mississippi River and associations such as ATVA think this trend will continue for the foreseeable future.

The Pennyrile Opportunity

Pennyrile has the unique opportunity of developing an ATV park in their area. The region has large areas which are currently being used for mining. Eventually these mines will run out of reserves and the land will ultimately be deemed unfit for building development. When this happens, the region will have few options of what to do with the land. An ATV park would be a perfect use of this land. It would allow the region to use its land to stimulate its local economy and generate jobs. A park would be a valuable bargaining chip in terms of negotiating for future Jeep Jamborees as well as the opportunity to host annual ATV festivals, which can provide large economic boosts.

A new park location in Benson, Minnesota (100 miles west of Minneapolis/St. Paul) opened in late 2003. The area was once used for mining activities before being transformed by the city of Benson's economic growth plan. The town as well as many other cities and states have stated ATV parks actually help preserve National Forest areas. Their main arguments proclaim that parks allow riders the opportunity to ride in forested areas without damaging private property or National Forests. The park was created through the issuance of bonds by the municipality and state. The state designated the land for Off-Road Vehicle purposes due to its past history of mining. The state requires all ATV owners to register their vehicle and obtain a permit to ride in these areas. The money generated by these permits and registrations is reinvested in maintaining ATV parks in order to encourage riders to continually use these existing parks instead of riding illegally in undesignated areas. According to the Kentucky Department of Motor Vehicles, owners are not required to register ATVs and riders are generally free to ride ATVs anywhere where permission is granted.

Niche Sector: Resort Hotels

Market Overview

Each year many Americans travel for various reasons. According to the U.S. Travel Association, Americans with families take on average 4.5 trips each year. The same study shows that business travelers spent $246 billion in 2008. Demand for all aspects of traveling decreased in 2009 as a result of the severe recession the U.S. economy is experiencing. Forecasting numbers increased modestly for 2010 as the nation is still reeling from this economic downturn. The decrease in business traveler's expenditures has been traced to job losses and corporations finding ways to cut expenses. Also, the decrease in leisure travel can be linked to job insecurity. Many Americans simply canceled their vacation plans over the last couple of years or visited locations closer to home. However, even amongst the trying times, the hospitality industry is projecting growth through 2013.

Hotels and resorts accounted for 1.9 million jobs in 2008 according to the U.S. Department of Labor. Most hotels are located in densely populated areas. The hospitality industry often provides first jobs to many new entrants to the labor force. Also, 19% of hospitality employees are under the age of 25 compared to 13% across all other industries. Education requirements often are minimal, but advancement opportunities into management often favor candidates with college training. Employment is expected to increase by 5% between 2008 and 2018.

Location Trends

Location expansions are predominantly taking place in suburban areas where new businesses are being established and in areas where tourism is growing. Another trend in the industry is the combining of resorts with other forms of entertainment and spas. Many resorts are seeking either the partnership of spa companies or simply adding their own spa. The International Spa Association proclaims that resorts with spas make up the second highest market segment behind day spas.

Recently, a new resort spa combination was opened in White Springs Virginia. The resort is in a fairly remote area with respect to population, but the resort is easily accessible to potential visitors. The resort is located roughly 100 miles Southwest of Charleston, Virginia, and 80 miles Northwest of Roanoke, Virginia. The location is located on 6,500 acres of land that allows visitors to be isolated from all other distractions and offers a traditional southern feel. The resort spa offers a variety of massage treatments, pampering, and mineral water therapy. However, much like the successful resorts in Florida, Arkansas, and Colorado, the resort offers a variety of other entertainment/recreation activities for their visitors. The resort offers fly fishing, pheasant or quail hunting, white water rafting, and horseback riding to name a few. The Greenbrier has packaged many different recreational activities into one location to attract many different types of visitors no matter what activities they enjoy. The availability of many different activities has become more

common for destination/resort spas over the last 10-15 years, thus suggesting that resort spas are transitioning to an ultimate vacation experience and not solely a spa treatment destination.

Another location in Branson, The Chateau, has followed a similar model. This location was opened in 2008 and offers many of the same amenities that the Greenbrier does. The Branson, Missouri, location does not follow the remote location trend many new resorts are following. However, one can see why it is an exception to the rule, as the resort was built in a very popular tourist destination. The fact that the surrounding areas are very popular for tourists suggests that tourism is a driving factor for resort companies when choosing locations for expansion.

The Pennyrile Opportunity

The Pennyrile region has both the need for additional hotels and the luxury opportunity of adding a large resort/spa combination. In order for the region to experience growth more hotels and lodging will be necessary. With the exception of Hopkinsville, many communities have very few quality hotel options for tourists and business travelers. The region is home to the very popular Land Between the Lakes. The park is the central location of a $600 million tourism industry. By adding more hotels/resorts not only could the region spark further tourism, but also the need for additional jobs and businesses. Also, the recent repeal of prohibition in Trigg County will help the area in drawing new restaurants, hotels, and resorts.

Areas around Kentucky Lake and Lake Barkley offer miles of lakefront property. Resorts recently have tended to locate themselves in locations in which they can offer a variety of services and recreational activities to their visitors. Also, these resorts prefer to locate in areas which are more secluded from urban areas so visitors can relax and enjoy Mother Nature. The Pennyrile region especially Kentucky Lake and Lake Barkley would be ideal locations for a resort to expand. The areas around the lake offer boating, hiking, fishing, and hunting. All of these activities would appeal to resort owners, as they would allow them to offer a variety of options to visitors. Also, both lakes are located near Interstate 24 which would allow visitors to easily reach the resort. The easy access to major roadways is extremely important for areas wishing to attract resort spas and visitors. Another asset the lakes have is being located near Paducah. Paducah is located roughly 30 miles from the northern most part of Kentucky Lake. Even more important, Paducah owns the nearest airport to the Land Between the Lakes. The close proximity of this airport would also be a drawing point for resort owners as visitors would be able to fly into the area and not be forced to drive the entire distance to a potential resort. Thus, the Pennyrile region would have a larger potential market than resorts not located near an airport. All in all, a resort spa seems to be a good fit for Pennyrile.

Niche Sector: Camping, Recreational Fishing, and Boating

Market Overview

For many years, Americans have enjoyed the outdoors as an affordable means of entertainment. Three of the major activities include camping, fishing, and boating. According to the Recreational Boating and Fishing Foundation over 25 million Americans spent 427 million days boating in 2009, an average of 15 days per participant. These boaters spent the majority of their time fishing, cruising, nature observing, swimming, and sunbathing. The states seeing the most boating days include Florida, California, Wisconsin, Michigan, Minnesota, and Texas. Kentucky currently ranks 28th in boater registration and participation.

Recreational fishing is another popular activity for Americans. In another study performed by the Recreational Boating and Fishing Foundation, respondents indicated their reasons for enjoying fishing. The two most preeminent responses included: enjoying the outdoors 67% and spending time with family and friends accounted for 46%. Rural areas have acknowledged that their large bodies of water can be promoted for family oriented purposes and enjoyment through fishing. Large lakes, which have a rich history of producing large bass, have been successful in generating large amounts of revenue simply from anglers who visit their lakes. Lake Fork in Mineola, Texas (40 miles Northwest of Tyler, Texas), Lake Guntersville, Alabama (10 miles Southwest of Huntsville, Alabama) and Lake Okeechobee, Florida (100 miles Northwest of Miami) have all successfully promoted their lakes as fishing havens. Also, evidence seems to suggest that fishing is recession proof. A recent article by Trout Underground revealed that more people are fishing during trying economic times. The article cited two reasons 1) Fishing allows anglers to escape the stresses of work or unemployment. 2) Fishing helps lower grocery bills for those needing to save a little extra.

Camping has remained very popular amongst Americans as well in recent years. In 2009 the National Parks and Wildlife Service reported over 12 million visitors who stayed overnight. The breakdown of these visitors follows: 3.1 million tent campers, 2.1 RV campers, 2.3 miscellaneous overnight stays, 3.5 concessionaire lodging, 1.3 concessionaire campers, and 1.8 backcountry campers. These numbers represent a bounce back from a decrease in campers in 2008. However, camping growth rates have been stagnate or even decreased since 2000. These numbers can most likely be explained by a weak national economy. A March 2010 Gallup Poll showed that 27% of Americans will be traveling less in 2010 than last year and 2008. These numbers suggest that Americans still are uneasy about the state of the American economy and that camping growth will remain near its current levels or decrease.

Location Trends

Areas seeing the most growth in boating and fishing include the lakes most visited by popular tournament trails such as Bassmaster and FLW. Many anglers want to fish the same areas their

favorite professionals do in hopes of catching similar large bass. These lakes include Lake Falcon, Texas (along the Texas/Mexico border 100 miles west of Corpus Christi) and Lake Guntersville, Alabama. Boating growth is taking place in areas where several different forms of entertainment exist in one location. An example of a growth area would be the Chateau Resort in Branson on Lake Tahoe. The Resort is located on Table Rock Lake, which allows for easy access to the lake and is close to the popular town of Branson, Table Rock State Park and Mark Twain National Forest.

The Pennyrile Opportunity

The Pennyrile region is blessed in the fact that it can promote all three of these activities in order to grow economically. The region is home to the popular Land Between the Lakes State Park, Kentucky Lake, and Lake Barkley. Due to the fact the region has a state park and two large fisheries, many patrons will more than likely choose to visit Pennyrile since it has multiple forms of outdoor recreation. The state park has 5 campgrounds but due to the parks vast size more could be added. Many modern campers do not want to leave modern living completely behind and camp in the backcountry. Therefore, designated campgrounds with tent pads and slots for campers are becoming very popular. Investing in additional modern campgrounds could pay dividends for the area in the future as more and more Americans seek cheaper recreation.

Also, with the recent successful bass tournaments held on Kentucky Lake and Lake Barkley, more recreational anglers will want to visit these fisheries much like Lake Falcon and Guntersville respectively. Anglers often do not want the inconvience of camping and wish to stay in hotels. In 2006, 141,000 anglers visited Kentucky and on average spent $600. The recent success of Bassmaster and FLW anglers usually spark out of state interest following successful tournaments per their websites. However, the area around the Land Between the Lakes has few hotels to mention and this undoubtedly will hinder their ability to attract visiting anglers from areas other than Pennyrile. New hotels will more than likely be needed if the area wants to attract more anglers from Missouri, Tennessee, and Indiana.

Finally, as stated in previous section, the expansion of a large resort combining multiple recreational activities would benefit the region. The east side of Lake Barkley has few lodging choices for visitors to the region. The addition of a location offering boating, hiking, fishing, golf, spa treatment, and more would undoubtedly attract new visitors to the region. The recent repeal of prohibition in Trigg County should help in the attracting of such an establishment to the area. A resort would offer all forms of recreation for families no matter their recreational preference and provide a much-needed spark to the region's economy.

TARGET SELECTION

Target Sector Selection

Regional Economic Growth Strategy for the Pennyrile Region

Prepared for the:

West Kentucky Workforce Investment Board and the Pennyrile Area Development District

avalanche CONSULTING

TABLE OF CONTENTS

Introduction	1
Why Target?	2
Balancing Targets	3
Selection Process	6
Prospect Target Evaluation	14
Target Finalists and Niche Segments	15
Appendix: Additional Charts	17

INTRODUCTION

This report, *Target Selection*, is part of a process to develop an Economic Development Strategy for the Pennyrile, Kentucky region. It identifies 5 target sectors that should serve as the focus of future economic development efforts in the region. An accompanying document, Target Profiles, provides detailed research and background information to assist community leaders as they pursue these targets.

The evaluation of target sectors builds off of prior research conducted as part of the strategic planning process including consultant tours of the region, industry and stakeholder interviews, economic and workforce analysis, and our own knowledge of national trends in industry development. The report will serve as the launching point for developing specific strategies for the region for community asset building, branding and marketing, and organizational coordination. A supporting document, *Target Profiles*, provides detailed information on each target's growth trends, competitive considerations, and a summary of the opportunity for the Pennyrile region.

The WKWIB, PADD, and consulting team thank the U.S. Department of Commerce's Economic Development Administration and the U.S. Department of Labor for providing funding for this project:

About the Regional Economic Growth Strategy

In April 2010, the Pennyrile Area Development District (PADD) and West Kentucky Workforce Investment Board (WKWIB) began a process to create a *Regional Economic Growth Strategy*, consisting of a workforce analysis and an emerging sector analysis and plan. National consultants Avalanche Consulting, Inc. and the Council for Adult and Experiential Learning (CAEL) were hired to complete this Strategy. The focus of the project is to competitively position and sustainably grow the Pennyrile region's economy through the next 10 years and beyond. Working closely with PADD and the WKWIB, the consulting team will provide a fresh approach to job creation and prosperity by aligning workforce and economic development activities across the region.

The Pennyrile region consists of nine counties located in the western area of Kentucky: Caldwell, Christian, Crittenden, Hopkins, Livingston, Lyon, Muhlenberg, Todd and Trigg. Since a significant part of the region's economy is linked to the Clarksville-Hopkinsville metro, some of our research also includes Montgomery County, TN.

For more information on the project, visit www.PennyrileFuture.com

WHY TARGET?

Targeting economic development and workforce development initiatives on specific sectors of the economy has become a proven technique for generating economic growth. It helps communities concentrate their resources on a handful of audiences that promise the highest return on investment and job creation. Targeting has been a central tenet for many of the world's most successful economies and continues to be at the root of many rapidly emerging economic powerhouse regions.

The reasons are two-fold. **First, focusing growth efforts around a specific set of industry sectors allows a community to develop clusters of interrelated businesses.** Clusters form among businesses with similar end-consumers, supply chains, workforce needs, operations, and technology. It is only through focused effort and attention that clusters of similar economic activity begin to develop. Cluster development is attractive because once a cluster begins to establish itself, it tends to be a self-fueling growth engine. Companies within clusters are more profitable and efficient due to their ability to cross-pollinate their organizations with the best talent, proven processes and innovation. This attracts other leading firms, which help the region to retain its best and brightest companies and workers. Eventually, these innovative companies and talent workers discover new breakthroughs or make new advancements, and completely new industry sectors are spawned.

Second, targeting is critical because resources available for economic development are scarce. The communities that make the most efficient use of staff time and budget are often the most successful. Each year, thousands of communities compete for a limited number of company expansions and relocations. Success takes time, money, and manpower. Creating a targeted economic development program involves identifying sectors that best fit the community, developing a deep understanding of those industries, investing in local infrastructure to support their needs, aligning workforce training, and engaging in a custom tailored marketing campaign. To develop the expertise necessary to attract a large number of sectors would be a difficult proposition and would ultimately dilute the region's impact. In trying to be everything to everyone, the community will fall short.

What this boils down to is simple: **successful regions have a good understanding of what they have that sets them apart and continually strive to maintain a leadership position in these areas**. New economic development does not occur in a region by chance. To spur growth and develop true economic clusters takes proper planning and a good deal of hard work.

The communities that succeed in generating economic growth will be those that take a diligent and deliberate approach to their future. **With a concerted effort, strong collaboration, and determined leadership, the Pennyrile region will be well-positioned to grow the target sectors identified in this report.**

BALANCING TARGETS

A target list should consider that each audience will require a different mix of organizational efforts. Recruiting manufacturing companies may focus on an external marketing campaign, for example, while entrepreneurial targets require program development focused on the local community.

Avalanche presents the following categories of targets for the Pennyrile region:

1) **Recruitment**: These targets are typically the focus of economic developers, who conduct marketing campaigns, attend industry conferences, and respond to state information requests for their prospects.
2) **Retention**: Most communities have a "BEAR" program (Business Expansion and Retention), which puts local ambassadors in front of a community's larger employers to hear their needs and identify companies at risk of closure.
3) **Expansion**: Avalanche considers an expansion target to be different from retention activities. Providing expansion services includes helping a local company to identify new hires for their growth plan, identify and pursue new markets for their goods/services, or innovate new products. Expansion activities are revenue-oriented.
4) **Startup**: Some industry sectors are ideally suited for entrepreneurship. Traditionally, incubators and SBDCs are the service providers that assist small businesses to expand. These companies sometimes need expansion services as described above, but also need structural assistance (corporate formation, partnership development, funding assistance) which requires a different set of services than traditional economic development organizations are prepared to deliver. And quite often, entrepreneurs benefit the most from organized (but informal) interactions with their peers and experienced mentors.
5) **Community Ventures**: This type of target requires a high level of participation from local government agencies, non-profits, and/or industry associations. Each contributor has varying levels of "stake" in the success of the project. Stakeholders can include local, state, and federal agencies, funders, and advisors. See the diagram below for additional explanation:

The Community Ventures Concept

"Ready, Aim, Fire"

Ready Team:
ED/WD partners
Local companies/stakeholders

+ Aim Team:
Advisors/Experts (local/national)
Local investors
State university technical assist.

+ Fire Team
Federal/state grants
Local implementers

Public-private partnerships are not new, but have not been considered a formal component of economic development strategies. Typically, projects are conceived and pursued on an ad hoc basis and are announced to the surprise of the community when they are completed or funded.

The "Community Ventures" concept calls for a more formalized approach to the identification, evaluation, and implementation of stakeholder-driven projects. The Commonwealth Agri-Energy Ethanol Plant is an excellent example of private and public investors coming around an opportunity and securing the financing to make it happen. Downtown reinvestment programs such as TIFs or management districts use property owner-approved tax increases to fund investments that benefit all businesses in the district, or to market events to outside tourists. The repurposing of empty buildings brings public and private interests together to create a business incubator, community kitchen, or an activity/conference center. More radical efforts include the investment of public and investor dollars into production facilities to retrain workers to manufacture and sell new products.

Large levels of federal and state grant dollars for innovative concepts and projects means that "community ventures" should be considered more purposefully by community economic development organizations, particularly those that struggle to create or attract jobs. In fact, the next decade's motto for the next-

Too often, communities focus their resources on recruitment – a long-standing focus for economic development agencies across the U.S. – even when startup activity and local business expansions may be creating more jobs. Due to this changing landscape, many communities are starting to create new "innovation intermediaries" to fill needs that don't fall within traditional economic development priorities:

New Priorities for Generating Growth

	Traditional ED		Innovation-based ED
Competitive Basis	Natural resources Highways / Rail Proximity Costs	→	Specialized talent Networks, information University support Market understanding
	i.e. PHYSICAL		i.e. KNOWLEDGE
Key values / offerings	Business parks Incentives	→	Access to research Workforce competencies Lifestyle
Lead Organization	**Chambers / EDCs**	→	**"Innovation Intermediaries"**

Innovation intermediaries come in various shapes and sizes: business accelerators, research parks, entrepreneur associations, research institutes, and issue-focused economic development non-profits.

The rest of this report provides a detailed explanation of Avalanche's recommended target sectors for the Pennyrile region in the areas of recruitment, expansion, startup, and community ventures. The *Economic Development Strategy* will contain recommendations for aligning resources, improving infrastructure, and marketing to these target audiences.

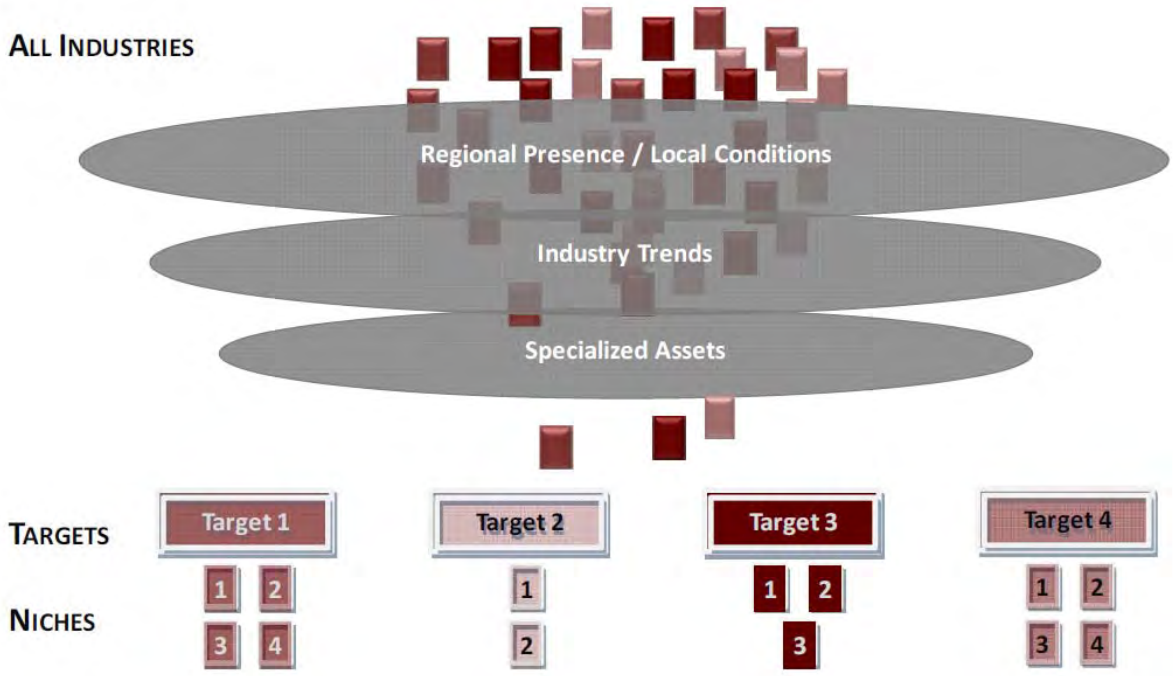
SELECTION PROCESS

The selection of the target sectors for the Pennyrile region follows an iterative process. Individual sectors are examined through research:

- Does the local asset base match the needs of the industry? Avalanche considers physical infrastructure, current businesses, workforce skills, and cost conditions.
- Is the industry growing at the national level and offer opportunities for communities to participate?
- Does the local community exhibit areas of relative competitiveness, which would compel an industry to relocate or expand locally versus elsewhere in the U.S.?
- Does the industry's "ROI" match the community's vision? We consider the impact on job creation and increasing the average salary.
- Does the target provide some type of "strategic" value to the community, such as creating synergies with assets or industries already found in the region?

Research and a stakeholder/employer input process is conducted and the broader list of potential targets is narrowed down to a final "best list" for the region. "Niche" targets are identified under a smaller set of macro targets, as shown by the following diagram:

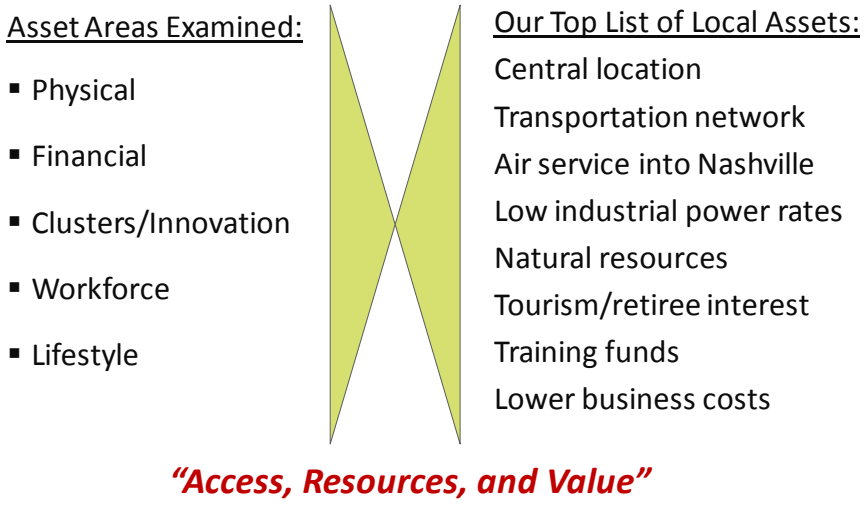
Target Selection Process



To provide an understanding of how target sectors were identified, this report begins with a review of several key findings from earlier studies in the Pennyrile region's *Economic Development Strategic Planning Process.*

Summary of Sector Analysis Findings

The table below illustrates the findings of an Asset Map that critically evaluates the strengths and challenges of the region.



Assets were examined across five core topics: physical infrastructure, financial climate, industry clusters and innovation, workforce, and quality of life. From this evaluation, the region's top assets were identified.

The region's core competitive assets can be fit within three categories: "Access, Resources, and Value". The region is strong from a transportation and access perspective, as most stakeholders, companies, and citizens recognized in our input process. Abundant natural resources serve strong agricultural, ethanol, and food industries. Industrial parks serve as resources for manufacturers and distribution. Tourism amenities, particularly parks, lakes and picturesque farm land, have attracted retirees to the region and provide workers with a high quality of life environment as a low cost. A history of manufacturing and workforce development training programs have yielded a workforce that gets the job done at a good price (though employers say recruiting higher-skill workers is difficult).

After identifying the region's assets, the consulting team examined the region's competitiveness trends across major industry sectors and in comparison to the U.S. The following table summarizes those findings:

Summary of Competitiveness Trends

Pennyrile, KY Region

Major Industry Sector	Local Relative Concentration	Local Job Growth, Historical	Local Job Growth, Forecast	US Job Growth, Forecast	Local Competitiveness Trend
Agriculture	**Very High**	Negative	Negative	Slightly Negative	Advancing
Construction	Average	Moderate	Moderate	Low-Moderate	Advancing
Manufacturing	Above Average	**Very Negative**	Negative	Negative	Lagging
Retail	Above Average	Slightly Negative	Slightly Positive	Slightly Positive	Lagging
Transportation & Warehousing	Average	**Very High**	Moderate	Slightly Positive	Advancing
Information	Very Low	Slightly Positive	Slightly Positive	Slightly Positive	Flat
Professional Services	Low	**Very High**	**Very High**	**High**	Advancing
Administrative Services	Low	Negative	**Very High**	**High**	Advancing
Health Care	Average	Moderate	Moderate	**High**	Lagging
Accommodation and Food	Below Average	Moderate	Low	Low	Flat
Other Services	Average	Moderate	Moderate	Moderate	Advancing

Source: Avalanche Consulting analysis

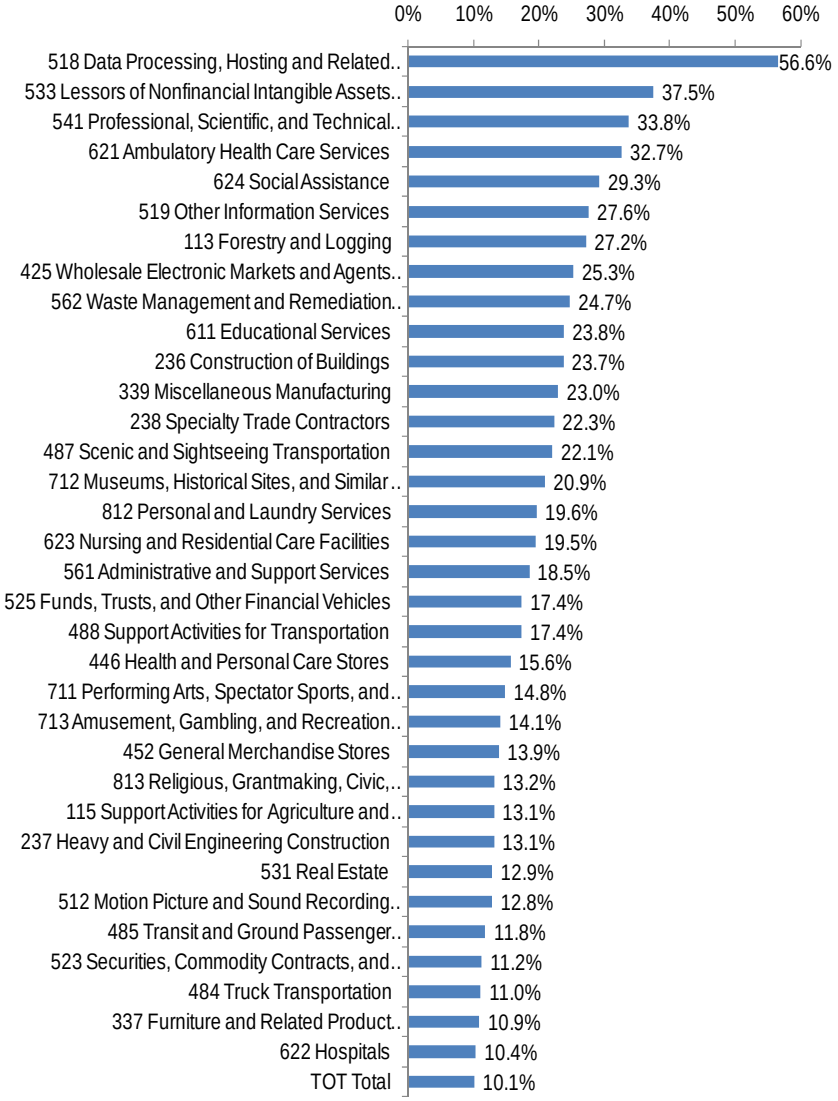
The Pennyrile region has been historically defined by its agricultural roots and transition to a manufacturing economy. More recently, the economy has benefited from the location of large distribution centers and the health care economy has performed reasonably well.

Today, trends point to yet another “rebalancing” of the economy. Traditional sectors in agriculture and manufacturing still have high concentrations (location quotients greater than 1) but are losing jobs, which is also seen at the national level. Small sectors are emerging in professional services and back office operations, which are playing catch-up locally to national trends. Health care is increasing its share of the local economy and creating jobs, but at a slower rate than seen nationally. Warehousing achieved strong growth in recent years and all signs point to continued growth at the local and national level. Local growth in retail (which is connected to tourism) is negative and lagging the rest of the local economy despite positive national growth trends.

Overall, the region's industry composition is turning upside down: previously large, growing industries have reversed their growth trend (at least on a jobs basis for the agricultural industry) and under-developed sectors are emerging as high growth.

An evaluation of the region's assets must be balanced with an eye on what is happening within the national and global marketplace. Part of the sector analysis included a look at the industries forecasted to experience the highest annual growth rates over the next 10 years in the United States:

Employment Growth Forecast: 2010-2020
United States
Above-average growth industries



Source: EMSI

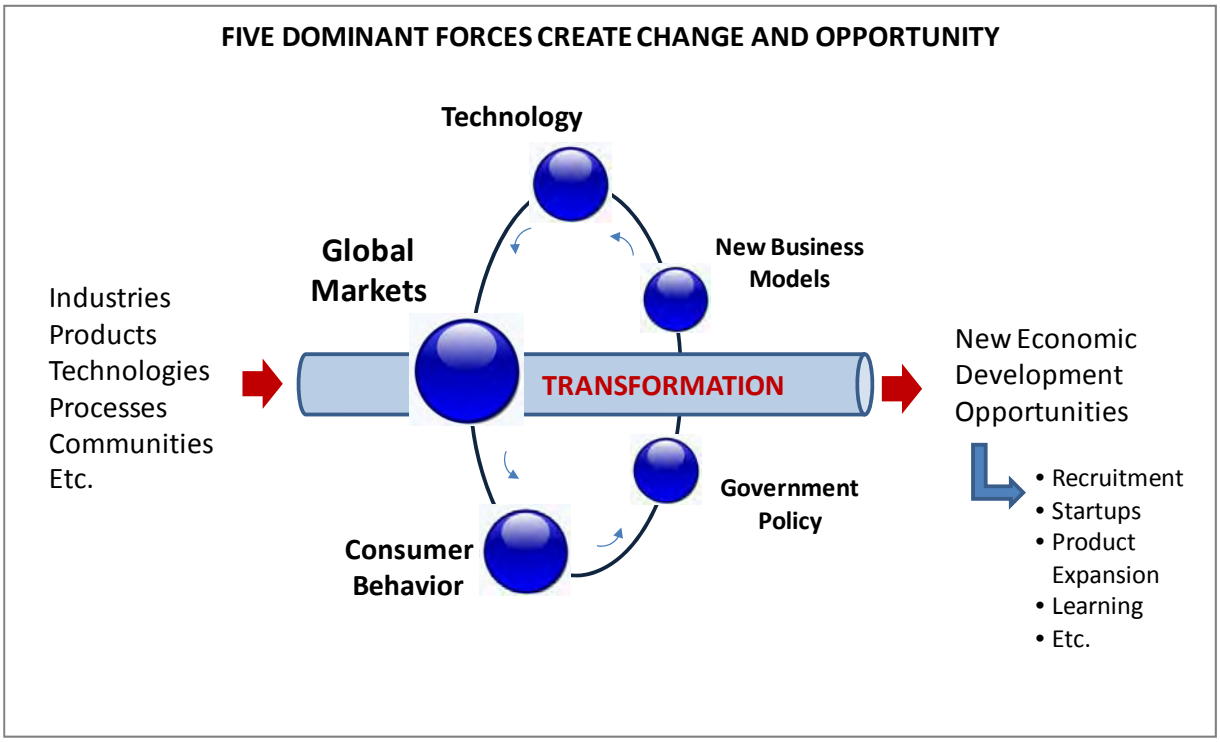
Currently, many of these fast growing industry sectors at the U.S. level have little to no presence in the Pennyrile region. If the region is to keep pace with the nation, some of these fast growing sectors must be nurtured, or at least kept "in mind" as the community moves forward. (See the end of this report for a list of low-growth industries and negative growth industries.)

Finally, to grow the Pennyrile region's economy, one must also examine the "Global Forces" that create change and opportunities in prospective target sectors. Avalanche Consulting continually monitors trends in technology, industry, and globalization to assist clients with anticipating where the economy is moving. Understanding the drivers of growth, or at least the change-agents at play, will help position the Pennyrile region to participate in future economic growth and opportunity.

Through extensive research, Avalanche Consulting organizes Global Forces within the following five topic areas:

- **Technology**
- **Global Markets**
- **Consumer Behavior**
- **New Business Models**
- **Government Policy**

These topics, and the Global Forces within each, will affect every company, industry, organization, and individual in the Pennyrile region. The ability to anticipate how Global Forces are changing the world will separate the winners from losers in the future economy. In following pages, we highlight the Top 10 Global Forces that the Pennyrile region should monitor and consider how they will impact the region's current and future industries.



TOP 10 GLOBAL FORCES TO MONITOR

Topic	Top Global Forces	Opportunities for the Pennyrile Region
Technology	**The Mobile Economy**: Smart phones will change how we consume information, connect with our peers and conduct marketing.	As the PC-centric world wanes, the region's companies and communities can leap ahead of competitors by creating lower-cost mobile web applications to market and sell themselves, or mobile applications to replace competitors' existing web products.
	Open Source and The Cloud: A decade of open-source volunteer communities has yielded free software that anyone can use to run their business or website: Apache server software, MySQL databases, and content management systems. Web hosting providers now manage more virtual servers (the Cloud) than physical machines, which are distributed across the Internet and provider lower costs and limitless, on-demand scalability.	It has never been easier to start a Web services company, or a web-based retail store. Lower barriers to entry means that Pennyrile companies can quickly catch up to their larger competitors. However, knowledge within the local technical workforce must be developed, so that opportunities can be seized and executed quickly.
	New Materials: Biomaterials are being developed to provide alternatives to petroleum-based plastics and coatings. Carbon fiber composites are replacing metal structures to provide greater efficiency and strength. Boeing's future Dreamliner will consist of a fuselage built out of composites, not aluminum, and will enjoy a 25% improvement in fuel efficiency.	As with ethanol, the bioplastics industry will provide new opportunities for corn producers to sell into a new market. Carbon fiber technology may soon impact the region's automotive suppliers, requiring a new set of skills and technologies.
Consumer Behavior	**Social Networking:** New social media such as Facebook, Twitter, and LinkedIn will impact the way companies market to their customers (particularly Gen Y), workers collaborate with each other, and social agendas are pursued. Social networking is not a fad: Facebook members grew from 100M to 500M this past year, and over 50M people use facebook every data to stay connected.	Every entrepreneur, business marketer, and economic developer should be a member of LinkedIn, which primarily serves the business community. Discussion boards allow business people to share ideas, promote business opportunities, or look for a job. The strength of a community in the future will be defined by how well-connected its business leaders are, and how well they work together to solve social problems and capture new business opportunities.

Topic	Top Global Forces	Opportunities for the Pennyrile Region
	Retiring Baby Boomers and Longevity: The demographics of the U.S. show that 79 million baby boomers are entering retirement. Many are reconsidering the standard plan of moving to beach locations (higher insurance costs, poor perceived investment potential). Some are choosing to continue to work to compensate for poor returns on their investments. Others dream of starting their own business for the first time, known as "encore entrepreneurs." Boomers' wealth will be a significant driver in the communities that the relocate to, either for early retirement or permanent retirement. Longer life spans mean a larger impact, both in spending but as potential entrepreneurs.	The Pennyrile's central U.S. location should make it an attractive location for many who hope to leave their children with the option of driving for visits. Baby Boomers have high expectations for their vacations and quality of retirement. While the Pennyrile region has been able to attract individuals looking for a more rustic experience, the vast majority of retirees and older vacationers want comfort, quality, and community. Activity-oriented resorts and retirement communities are the norm, and many retirees feel that a quality meal and bottle of wine is their reward for their hard work. Making the Pennyrile region a destination to the next generation will require a clear vision, coordination, and community investment.
New Business Models	**Virtual Incubators and Bootstrapping:** After years of subsidizing incubator facilities, governments and investors alike are considering new models for helping the next generation of startups. Virtual incubators promise all of the services without the centralized location. "Virtual tenants" are still hand-picked, and services are provided by members of the business community, not the incubator staff. Demand for high-cost incubator space is also down, as more startups are trying to "bootstrap" their development stage, rather than accept money at lower valuations so that they can afford incubator space and salaried workers.	Rural communities continue to struggle with creating and supporting its base of entrepreneurs. Often, long distances and low population densities mean that incubated companies are less-than-ready, or simply too far to relocate their critical staff. Virtual services can be provided to a higher number of companies than those in a traditional incubator, without forcing companies to relocate. Virtual services can also be provided by people outside the community, which can fill local shortages of ideas and expertise.
Government Policy	**Food Safety and Security:** Concerns have grown that the U.S. faces a future where much of our food production is done outside of the U.S., or in far-flung locations not near the major population centers. The safety of the food supply that crosses U.S. borders is increasingly a national security issue.	The Pennyrile region's central location will become even more valuable if food production is desired to be closer to the end consumer. Ft. Campell is already considering its contingency plan if its food supply is disrupted. Manufacturing more food products from the region's agricultural sector will benefit local consumers and farmers.

Topic	Top Global Forces	Opportunities for the Pennyrile Region
	Energy Management, Efficiency, and Alternatives: Concerns for the environment and global politics has led the U.S. government to promote and fund the development of new energy technologies. Businesses and consumers are also seeking more energy efficiency in their products, automobiles, and buildings to save money and shield themselves from future energy price spikes. Some analysts believe that energy-efficient technologies will result in a replacement phase for our existing infrastructure: Replacing florescent lightbulbs with LED lights will be the quickest (low cost, quick return), but replacing the car fleet with electric, natural-gas, or other power sources will clearly take more time.	Producing ethanol from corn has been a large revenue generator for Pennyrile farmers. New energy production from bio-based products are growing, including biomass plants, wood pellets for export, and new forms of ethanol. Coal gasification is a large opportunity for Muhlenberg county if the plant is approved and funded. Smaller coal gasification plants may prove technically and financially viable soon.
Global Markets	**A Growing Middle Class in China, India, and the Developing World:** While the story of China and India for the past decade has been one of exporting goods and call center services to the U.S., the new story will be about the growing consumption by their middle class. This will affect all aspects of the economy, from agricultural commodities, energy products, and technology products. Today, most global companies are being judged by stock investors on their ability to tap into these large developing markets. Furthermore, growing global demand will like cause energy and commodity prices to fall, requiring the U.S. to shift its own consumption patterns.	The Pennyrile region currently has a port in Eddyville that is available for future expansion as the market dictates. Expansion of the Panama Canal will now enable more traffic to pass to/from the Midwest on barges via the Gulf of Mexico, rather than on congested train tracks to the West Coast. More commodities will be demanded from the Midwest for shipment to China, and feedstocks from the Pennyrile region will support growing meat exports from the South.
	Foreign Direct Investment into the U.S.: For the past several decades, global investments have been made across borders as corporations seek to access new markets. Examples abound of foreign companies investing in the U.S.: German and Japanese automakers, Italian fashion designers, Korean semiconductor companies, British oil companies, and Swiss drug companies. Now, Chinese companies are poised to invest. Trillions of dollars have been shipped to China to finance our trade imbalance and the attractiveness of U.S. bonds have diminished for governments and companies alike (low rates, currency devaluation risk). China is awash in dollars (as are Middle Eastern countries) and investing in U.S. assets through M&A or investment will be a growing trend.	Kentucky has successfully attracted numerous Japanese and European manufacturers. The region's topography and climate is reminiscent for many of their home states (particularly the Europeans). The manufacturing heritage creates a easy cultural connection. Chinese manufacturers will increasingly seek a foothold for U.S. distribution and production. Indian software firms are already making acquisition of U.S. companies so that they can provide service from local employees (think "on-shoring" of call center jobs back to the U.S.).

PROSPECT TARGET EVALUATION

As mentioned in the previous section, industries with strong forecasted growth nationally are considered to be attractive prospects. Those that align with current or possible Pennyrile assets warrant further examination. Avalanche Consulting developed a 6-point evaluation system to aid in the selection, but also prioritization, of target sectors for the region. We evaluated potential industries across the following:

1. Local Asset Fit: Does the region have the assets needed to support the industry?
2. National Growth: Is the industry growing nationally and/or represent a growth opportunity for the Pennyrile region?
3. Relative Competitiveness: Does the Pennyrile region offer a stronger value proposition to the industry than its regional competitors?
4. Job Impact: Will the successful growth of the industry create a large number of jobs?
5. Wage Improvement: Will the wage level of these jobs be high enough to increase the overall average wage of the region or county?
6. Strategic Value: Does the industry connect to other industries in the region, thereby strengthening both in the process (e.g. energy connecting to agriculture)?

In the table to the right, the six target selection criteria are evaluated for select industries that were considered. Green indicates a "go" for pursuing the industry; yellow represents a warning sign; red denotes a serious problem and reason not to target. **Although, it is rare to find an industry in which all selection criteria are met, there are several on the list that are stong finalists in our opinion: agriculture, food, manufacturing, energy, distribution, and tourism.**

Target Decision Matrix

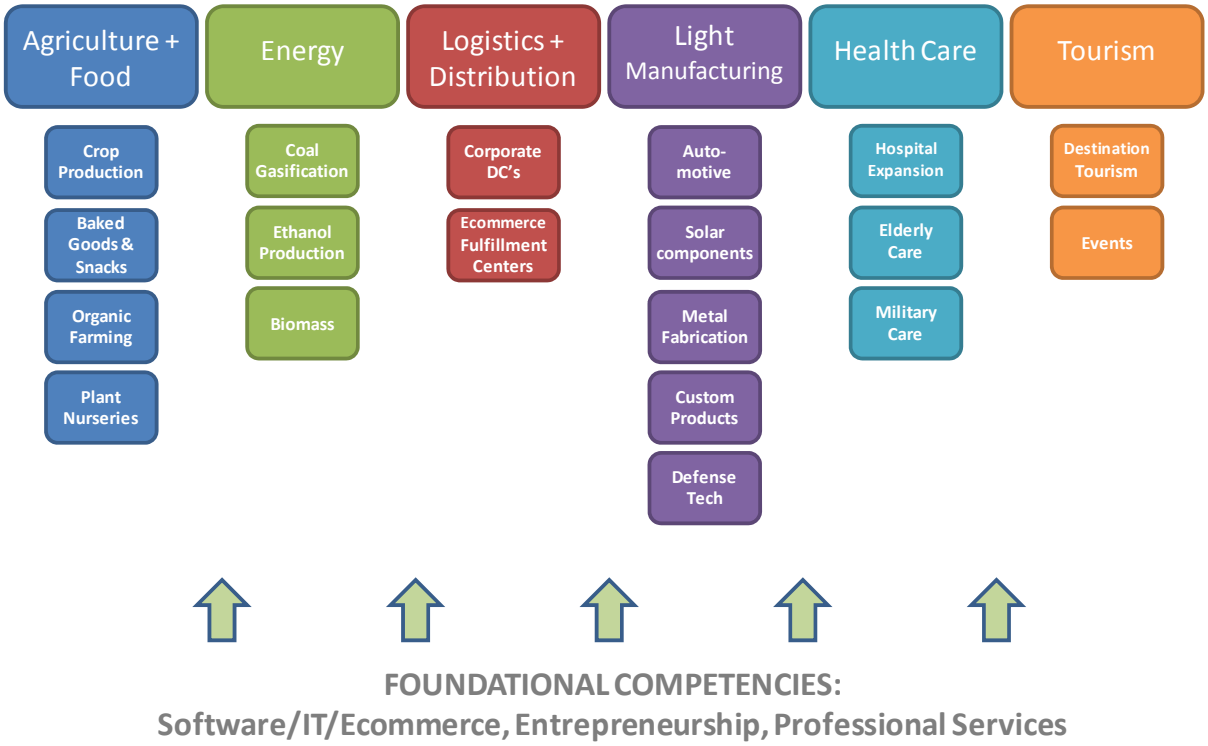
	Local Asset Fit	National Growth	Relative Competitiveness	Job Impact	Wage Improvement	Strategic Value	Score
Agriculture							
Biomass							
Coal Gasification							
Food Manufacturing							
Component Assembly							
Distribution							
Online Retail/Fulfillment							
Tourism							
Call Centers							
Datacenters							
Software/IT Services							
Limestone-related							

We believe that **software/IT services** is such an important part of today's economy, that it deserves to be a target, but not in the traditional sense.

TARGET FINALISTS AND NICHE SEGMENTS

Based on the above analysis, we recommend the following macro targets with their corresponding niche targets:

PENNYRILE TARGET SECTORS:



Drilling into niche segments allows the Pennyrile region to further distinguish itself. While numerous other regions may be pursuing software and IT services, few are targeting agriculture-related software and even fewer have the breadth of agriculture activity and workforce needed to form an ideal climate for these specialized businesses.

We also offer "foundational competencies" as targets for the region. These include the skills and technologies which are gaining some traction in the local region, but must be **forcefully developed** by local workforce, education, and economic development institutions. Simply put, the success and profitability of creating the next generation of industries in the Pennyrile region will require these skills.

It is interesting to notice how agriculture pervades all target sectors. Biomass and agriculture are closely if not often entirely connected to one another. Within Distribution, the logistics of storing and transporting agricultural products and food is a major niche segment. Agritourism is an exciting

niche wihtin tourism that has terrific potential. Finally, as mentioned above, agriculture-related software is a special opportunity that isn't found in many other regions. **In a sense, agriculture is the umbrella of the Pennyrile region's economic development initiative.** It is in large part the foundation of the local economy and will continue to be so well into the future.

A detailed description of each target audience and the core selling points for the Pennyrile region is contained within the *Target Profiles* report.

As we have said before, not all targets should be treated the same. Each target should be approached with a different mix of community investments, collaboration, and marketing. This not only depends on the locational needs of the industry sector but also on the nature of the sector itself. Some niches are more likely to be recruited into the region, while others will need new resources to expand from within. In addition, several niche sectors lend themselves to entrepreneurship and community ventures. The following table illustrates the niches in terms of the type of economic development activity that is required to pursue it:

Niche Targets' Primary "Type"

Recruitment	Expansion/Retention	Community Ventures	Startups/Entrepreneurs
Event Tourism	Crop Production	Biomass	Ecommerce/Fulfillment
Destination Tourism	Automotive Mftg	Aquaculture	Custom Product Mftg
Food Manufacturing	Ethanol	Organic Dairies	Professional Services
Coal Gasification	Health Care		
Solar Components	Defense		
Distribution			
Nurseries			
Metal Fabrication			

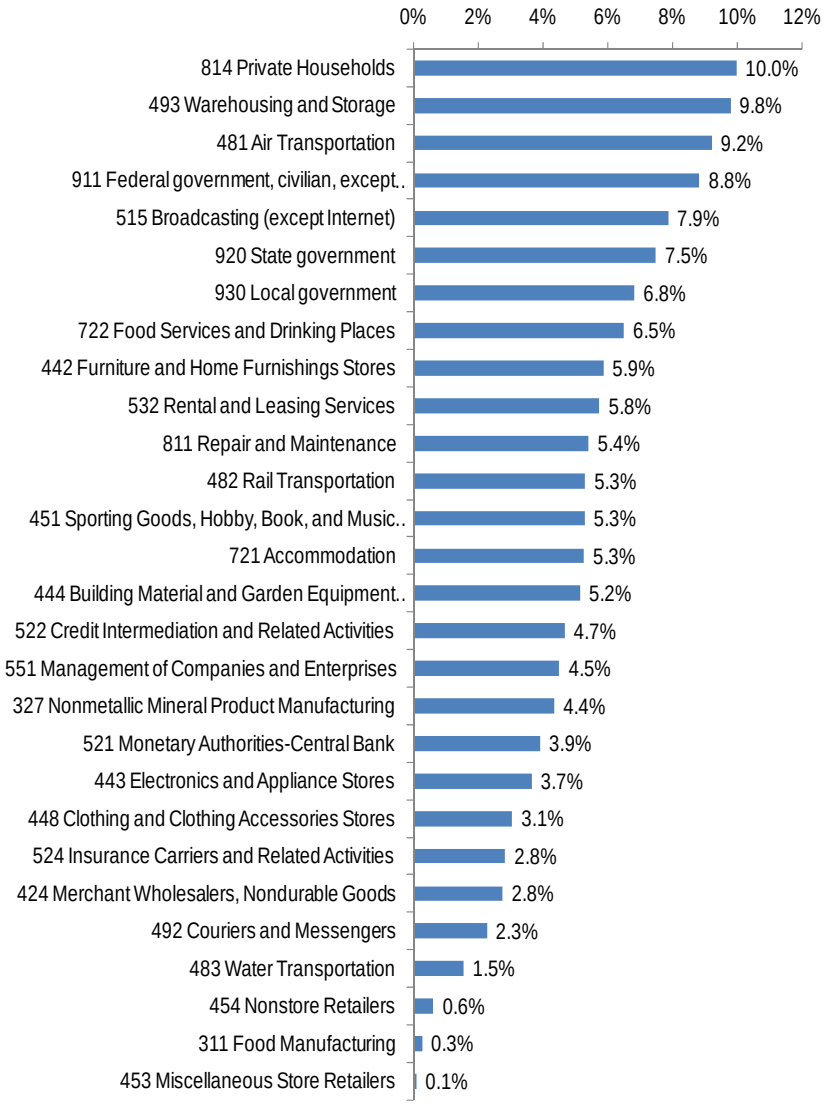
In the accompanying report, Target Profiles, we provide detailed research on the targets and their niche sectors.

APPENDIX: ADDITIONAL CHARTS

Employment Growth Forecast: 2010-2020

United States

Low growth industries: Positive, but less than the average

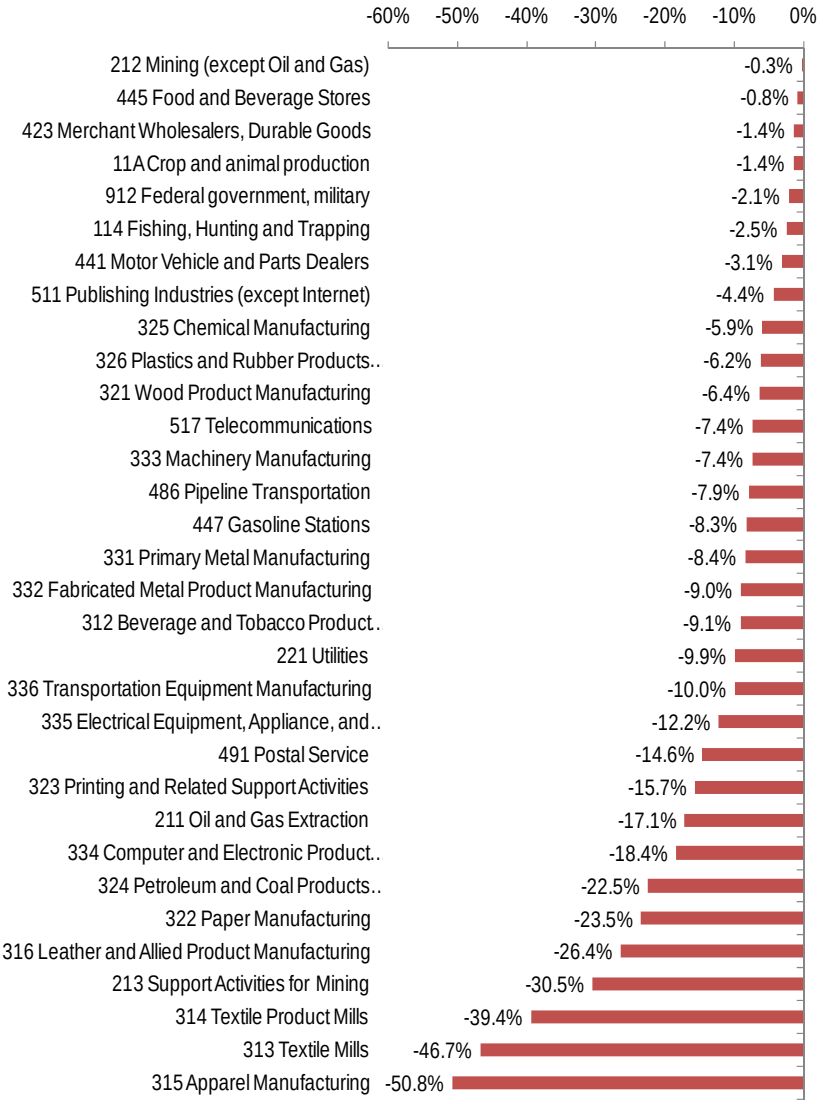


Source: EMSI

Employment Growth Forecast: 2010-2020

United States

Negative growth industries

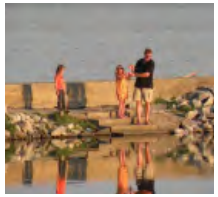


Source: EMSI

WKWIB Plan
Attachment 2

Purchase Future

An Economic Strategy for the Purchase Region of Western Kentucky



Prepared for the Western Kentucky Workforce Investment Board and the Purchase Area Development District | **June 2010**

TIP strategies

This study has been 100% funded with federal funds under the US Department of Labor Regional Innovation Grant as awarded to the West Kentucky Workforce Investment Board.

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Contents

1: Executive Summary 1
Purpose 1
Assets.....1
Key Projects.....3
Moving Forward.....5

2: Existing Strengths 7
Manufacturing 7
Chemicals 7
Food processing.....9
Metals & metalworking 11
Transportation equipment.....12
Transportation & warehousing 13
Maritime.....13
Truck transportation.....15
Freight rail.....16
Agriculture.....17
Healthcare.....20

3: Emerging Opportunities 23
Energy 23
Intelligent choices 23
Site Bank.....24
Coal-related technologies.....25
Biomass 26
Shale gas.....28
Carbon sequestration 29
Nuclear.....29
Hydrokinetic.....30
Energy efficiency.....31
Environmental sciences 31
Tourism 31
Regional Inventory 32
Linking Strategies 33
Entrepreneurship 36
Resources 36
Strengthening Connections 38

4: Building Blocks..... 43
Talent.....43
Key occupations.....43
Pipeline 45
Talent management 47
Innovation.....51
Tax comparisons.....51
Manufacturing & business priorities ..52
Infrastructure.....54
Interstate 69.....55
Highway 80 Bridges 56
Inland waterways 57
Air service 59
Industrial sites.....60

APPENDIX A: Regional Data Profile... 63
About the data 63
Demographics 64
Economy.....78
Workforce.....90

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First and foremost, we would like to thank the Commonwealth of Kentucky, the West Kentucky Workforce Investment Board, and the Purchase Area Development District for their trust and support.

In addition, significant input was provided by individuals throughout the region – from each of the eight counties – in personal interviews and opportunities workshops. The time and effort on the part of many to provide this input is appreciated.

THE PURCHASE FUTURE TEAM

The WEST KENTUCKY WORKFORCE INVESTMENT BOARD (WKWIB) is a nonprofit organization responsible for responding to training needs, economic development, and workforce development programs throughout the Purchase and Pennyrile regions. The WKWIB oversees the One-Step Career Center System in the region in conjunction with local elected officials.

The PURCHASE AREA DEVELOPMENT DISTRICT is an eight-county regional planning and economic development group. The Purchase ADD has been an active and supportive partner with the WKWIB by providing staff and assistance for WKWIB activities/contracts throughout the region. Its collaboration with and support of workforce development serves to enhance economic development initiatives in the region.

TIP STRATEGIES, INC. (TIP) is a privately held Austin-based economic development consulting firm committed to providing quality solutions for public and private-sector clients. Established in 1995, the firm's primary focus is strategic economic development planning. In addition, TIP has experience with entrepreneurship, target industry analysis, workforce, and redevelopment. Our methods establish a clear vision for economic growth. Community leaders across the country have embraced the TIP model of Talent, Innovation, and Place to achieve successful and sustainable economies.

1: Executive Summary

Bordered by rivers on three sides and the Tennessee state line on the fourth, the Purchase Region stands apart. While its geography could tend to have an isolating effect, these very same features have long provided a mechanism for reaching out to the world. Historically, the region's fortunes were closely tied to the flow of goods along the inland waterways. This remains true today. However, in addition to these physical pathways, businesses and residents of the Purchase Region have the means to connect with markets and ideas around the world. Uncovering these connections and using them as the basis for a regional economic strategy is at the heart of this work.

This plan is intended to provide the leadership of the Purchase Region with the tools needed to maximize its opportunities. The strategies outlined are reflective of our view that economic vitality must be built on a skilled workforce, a climate of innovation, and a quality of place that attracts and retains talented individuals and companies. While we are committed to a realistic evaluation of the region, we have tried in this work to focus on the region's strengths and opportunities, rather than cataloging weaknesses and challenges.

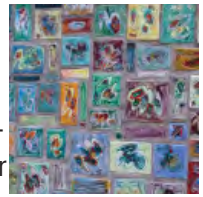
Purpose

To help position the region for the future, the West Kentucky Workforce Investment Board (WKWIB) and the Purchase Area Development District (Purchase ADD) commissioned the Purchase Future Project. Funded with support from the US Department of Labor, the WKWIB and the Purchase ADD engaged Austin-based TIP Strategies (TIP) to identify those sectors of the region's economy with the most promise for economic growth and to prepare an action plan for economic recovery.

To accomplish this task, TIP compiled demographic and economic data for the region and for individual counties. In addition, we held opportunity workshops in each of the eight counties. These tasks were supplemented by interviews with local employers, area institutions of higher education, state government officials, and others familiar with the region. Findings from these tasks were informed by our understanding of trends affecting economic development and workforce, as well as our experience conducting consulting projects across the US.

Assets

Manufacturing in the region is more robust than in many parts of the country. However, continued shifts in production away from the US, coupled with the effects of the recession, has taken its toll. More than 4,000 manufacturing jobs have been lost in the region since the beginning of the decade. As manufacturing technology continues to advance, the number of production workers is likely to hold steady or



"The Purchase Area is a land of contrasts. The peace and tranquility of rural life as opposed to the bustling activity of our larger cities; spacious vistas of cropland are set against the steel outcrop of industries; and the comforts of tradition are complimented by the excitement of innovation – all these are part of what makes the Purchase a special place in which to live and work."

Purchase Area Development District
1988 Annual Report

decline, while the required skill levels will continue to rise. Education and training must continue to be an integral part of the equation for the Purchase Region's economic future.

The Purchase Region also has a strong **agricultural** tradition. While development is sometimes at odds with this way of life, Purchase-area communities have largely been able to balance these oft-competing interests. The flexibility of local growers has the potential to open up a range of new products, as well as new uses for old ones. Tapping into consumer trends, such as organic and heirloom products, could expand market share. Although it has not kept pace with expectations, the potential for biomass production in the region remains high. Opportunities could include energy crops, such as switchgrass and sorghum, as well as waste-to-energy.

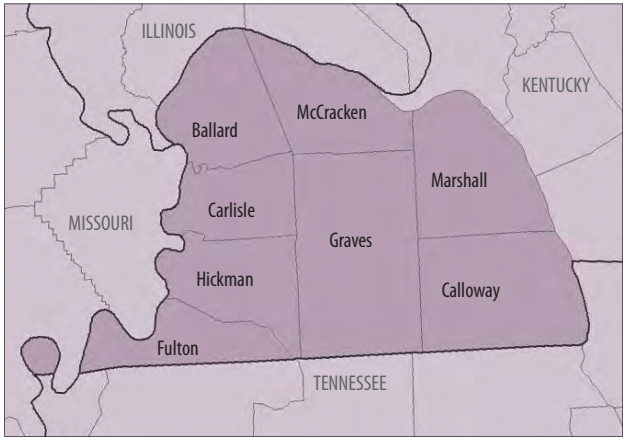
There can be little doubt of the region's **freight-related** strengths. With all but one of the eight counties bordered by rivers, a large share of the regional workforce is connected to maritime industries. The region's unique geography also offers the promise of connecting with other states, though this opportunity remains largely unrealized. With six states within easy reach – Tennessee, Arkansas, Missouri, Indiana, Illinois, and Ohio – Purchase Region residents can take advantage of a wealth of cultural and recreational amenities and businesses can readily access multiple metropolitan markets. Roughly two-thirds of the US population is within a day's drive, making the Purchase an ideal spot for small- to mid-scale logistics and distribution activity. However, with only one interstate highway in the region (I-24), the potential of this sector may be more limited.

The region's **higher education** network, anchored by Murray State University and Western Kentucky Community & Technical College, is a critical asset for moving the region forward. Construction of the new Emerging Technology Center, located on WKCTC's Paducah campus, and the Skilled Craft Training Center in Graves County represent significant accomplishments. WKCTC and its partners have made great strides in bringing partners together to make these facilities a reality. Ensuring that employers are maximizing these resources should be a focus of the region's economic strategy.

The Purchase Region has an abundance of **industrial sites** to offer prospective employers. Inexpensive power (relative to the nation), abundant water in most locations, and a strong network of regional roads that connect with I-24 could make the area appealing to employers. However, individual marketing efforts may fail to reach decision-makers in relevant industries. Marketing properties on a regional basis can help increase awareness of the opportunities in the region. A regional approach could also help place individual sites within a context for those outside the Purchase Region.

From the New Madrid Bend in the far southwestern portion of the region to Kentucky Dam in the north, water features are an essential part of the region's **recreation and tourism** assets. Walking trails, water sports, fishing and hunting all spring from the region's rivers or the lakes they helped to spawn. Capitalizing on the area's long maritime history and its important role in the Civil War offer additional opportunities for drawing in visitors, as do nationally recognized events such as the annual

Figure 1.1 | The Purchase Region



American Quilters Society Festival and the 130 year-old Fancy Farm picnic.

Finally, the region's **people** must be listed among its greatest assets. Purchase Region employers interviewed during the planning process cited workers' dedication, loyalty, and work ethic as a regional strength. Workforce has become a critical piece of the economic competitiveness puzzle and can be the deciding factor in a location or expansion decision. As a result, honing your workforce must be at the core of an economic strategy. As former Hewlitt-Packard CEO, Carly Fiorina, famously stated it several years ago: "Keep your tax incentives and highway intersections. We will go where the highly skilled people are."

Key Projects

Preparing a regional strategy begins with the identification of a broad range of assets and opportunities. These potential options are then narrowed down to those with the best chance of implementation and the highest potential for impacting a broad segment of the regional economy. The Purchase Region has a number of opportunities, many of which are identified in these pages. From this list, we recommend the following projects as priorities for the region.

- ***Talent***. Nurturing and attracting talent is perhaps the most fundamental issue for creating long-term, sustainable economic vitality in the 21st Century. Advancing technology, global and regional demographic shifts, and changes in attitudes among the "next generation" workforce are but a few of the factors that require communities and regions to think and act differently about workforce. Implementing a talent management program should be the foundation of any economic strategy. The concept of talent management goes beyond traditional workforce development to include the retention and attraction of workers. The purpose of a talent management strategy is to bring regional organizations together around the task of building a talent pool that meets the needs of local companies, as well as those that are targeted for the future.

- ***Pipeline***. The concept of "pipelines" is simple. Workers are not like inputs in a manufacturing process – they cannot be scheduled to arrive in "just-in-time" fashion. On the contrary, the worker required for today's job must be "ordered" years ahead of time. They must move through a pipeline of education and training that, in the best of all possible worlds, provides the requisite skills for the jobs that will be available to them at the other end. Unlike an actual pipeline, however, workforce pipelines are not closed systems. Typically, workers can enter a workforce pipeline at different points in time and from different parts of the country and, increasingly, the world. This fluidity means that workforce development boards must pay attention to both understanding and maintaining their regional pipeline, as well as assessing the factors that draw workers into the region and documenting any barriers to entry into key occupations. It means that it is not enough to understand what occupations are currently in demand in the region, but what occupations are likely to be in demand in the future. Continued investments in the region's training and education infrastructure will be needed to ensure an adequate supply of labor and a healthy economy.

- ***Energy***. Concerns about the downsides of oil production (security concerns, environmental degradation, price volatility) continue to drive interest in identifying alternative sources of energy. As a result, public and private investment in the energy sector will continue to increase for the foreseeable future. The Purchase Region has opportunities associated with cultivating new sources (biomass, hydrokinetics), as well as leveraging continued advances in existing fuels (shale gas, coal-to-liquid, nuclear). Along with opportunities for business growth and capital investment, a focus on energy can help moderate costs for existing industry, many of which have extensive energy inputs. In addition, energy

I started out thinking of America as highways and state lines. As I got to know it better, I began to think of it as rivers. Most of what I love about the country is a gift of the rivers.

Charles Kuralt, A Life On the Road

technology has been identified as a significant source of "middle skills" jobs — those requiring some level of training but less than a college degree.

- ***Infrastructure***. Continued improvements to the region's transportation linkages will present a significant advantage from an economic standpoint. Completion of the Interstate 69 corridor offers the possibility of dramatic expansion in the flow of goods and people through the region. Support of this effort should be a priority, although the massive scale of the project means that much of it is outside of the region's control. Closer to home, improvements to the Highway 80 bridges will have a similar effect on access, albeit on a smaller scale. Widening of the bridges will provide a more feasible option for eastbound travel for much of the region, improving access to other areas of Kentucky and to key transportation routes, like Interstate 24 and the Nashville area. Likewise, the Kentucky Lock Addition project, which will replace the existing 600-foot lock with a 1200-foot lock, will increase capacity and speed transit times along this important maritime route. The availability of technology infrastructure has become critical for both residents and businesses. News that West Kentucky and Tennessee Telecommunications Cooperative (WK&T) has been selected to receive more than $123 million in loan and grant funding to build a fiber optic network can contribute greatly to the success of many of the strategies outlined in this document.

- ***Entrepreneurship***. Across the nation, economic developers and workforce professionals have embraced entrepreneurship as a means of promoting economic diversification and stimulating economic growth. The reason for this interest in entrepreneurs is two-fold: 1) an economic transition in the US that has created more market opportunities for entrepreneurs and 2) the recognition that entrepreneurs can be more deeply rooted in their communities, which increases both their economic and social impacts. The rising interest in entrepreneurship also reflects certain realities about our changing relationship to work. Driven by a range of factors including widespread access to information technology and the loss of job security due to globalization and automation, we have seen the rise of a generation that no longer defines themselves in terms of corporate employment. This view has only been reinforced by the current economic downturn. Workers are less bound to a specific place or job than prior generations – functioning almost as an "economy of one." Location decisions are made based on the ability to connect with and access a network of people and ideas. Harnessing this wave should not be overlooked.

- ***Tourism***. While the region has a number of tourism-related assets, they are not well linked with each other or with the broader region. Taking steps to publicize assets and events and to establish connections among them will make tourism efforts more successful. Tourism promotion is an opportunity that is common to all counties in the region. However, without additional investments in related areas, such as lodging, transportation, and quality of place attributes, a tourism strategy will not deliver on its full potential.

- ***Sector-based approach***. Implementing a sector-based strategy to support key industries should be considered. Sector-based strategies are regional, industry-specific approaches to workforce needs, implemented by an employer-driven partnership of relevant systems and stakeholders. These efforts should tie in with existing initiatives, such as the State Energy Sector Partnership. In addition, strategies should incorporate "lessons learned" from other sector-based models. The National Governors Association Center for Best Practices' June 2010 report on the Automotive Manufacturing Technical Education Collaborative (AMTEC) — originated as a partnership between Toyota and the Kentucky Community & Technical College System — can provide a starting point.

- ***International strategy***. A number of strategies outlined in this plan will benefit from an international approach. As the recent economic crisis clearly illustrated, today's markets are truly global. It is no longer sufficient for an economic development strategy to rely on domestic markets. An international focus would help position the region to benefit from rising income levels and corresponding growth in worldwide consumer markets. Along with expanding traditional international trade (export) activities, bringing a more global outlook to the Purchase Region could take the form of targeting countries for foreign direct investment and tailoring tourism opportunities to priority markets.

- ***Marketing***. A common thread underlying many of the ideas discussed above is that of enhancing the regional image. For any economic and workforce development strategy to be successful, a concerted effort must be made to communicate a new image of the Purchase Region to those within Kentucky and outside its borders. This effort should begin with traditional recruitment targets, such as real estate developers, corporate executives, and other decisionmakers in key industry sectors. However, equally important to this effort will be raising the profile of the region with federal and state officials. Networking and relationship building will be a critical element of this strategy. Current residents of the Purchase Region, who are often your best ambassadors, should be the focus of an internal marketing campaign.

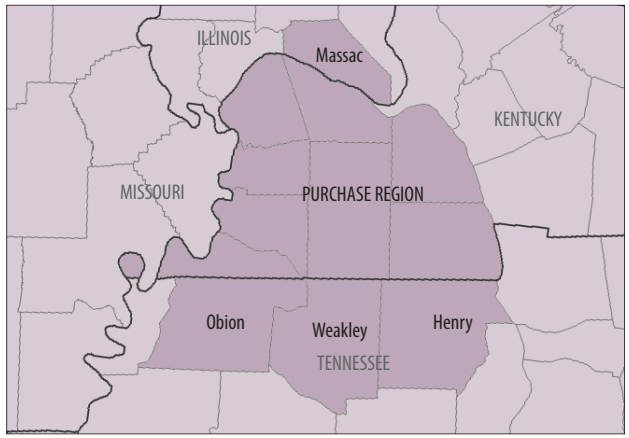
- ***Regional outlook.*** The Purchase Region has taken a significant step in commissioning this regional strategy. The many assets and opportunities outlined in this work will benefit from a shared vision for economic growth. In addition, the data analysis and discussions with area leaders point to increasing connections with counties to the north (particularly Massac County, Illinois) and the south (including Henry, Obion, and Weakley Counties in Tennessee). In the development of the strategies outlined in the report, consideration was given to the assets of these neighboring counties. We recommend that regional leaders from these counties be incorporated in the implementation of these strategies.

Moving Forward

The first stop on the region's forward path is to enhance the things that it already does well. **Chapter 2** provides an overview of existing strengths in four sectors: manufacturing, transportation (including maritime), agriculture, and healthcare. Understanding the challenges faced by firms in these sectors and providing resources to address them should be an essential element of a regional strategy.

Figure 1.2 | Regional Connections

Growing connections with neighboring counties



The next stop on the route to economic growth is to explore new options for the region. **Chapter 3** describes emerging opportunities related to energy, tourism and entrepreneurship. While success in these arenas will require a coordinated approach, the potential for them to re-invigorate the Purchase area economy makes them valuable additions to the region's economic strategy.

Chapter 4 provides an overview of fundamental building blocks that will need to be strengthened if the region is to be successful. These include implementation of a talent management strategy, support for proposed infrastruc-

The Great River Road in Kentucky begs to be billed as the place to unwind, relax and enjoy the scenery. A place close to the city but decades away. … Indeed, it is the contrast between the urban centers of St. Louis upstream and Memphis downstream that give this area its special appeal.

Great River Road Corridor Management Plan, prepared for the Purchase Area Development District, December 2008

ture projects, and continued attention paid to business climate concerns. Finally, a regional data profile, including an occupational analysis, is provided as an appendix.

Regional plans face a number of challenges to implementation — establishing a common vision, gaining consensus on priorities, identifying a champion, and obtaining commitments for resources for implementation. The strategies outlined in these pages provide a roadmap for navigating these challenges. ■

2: Existing Strengths

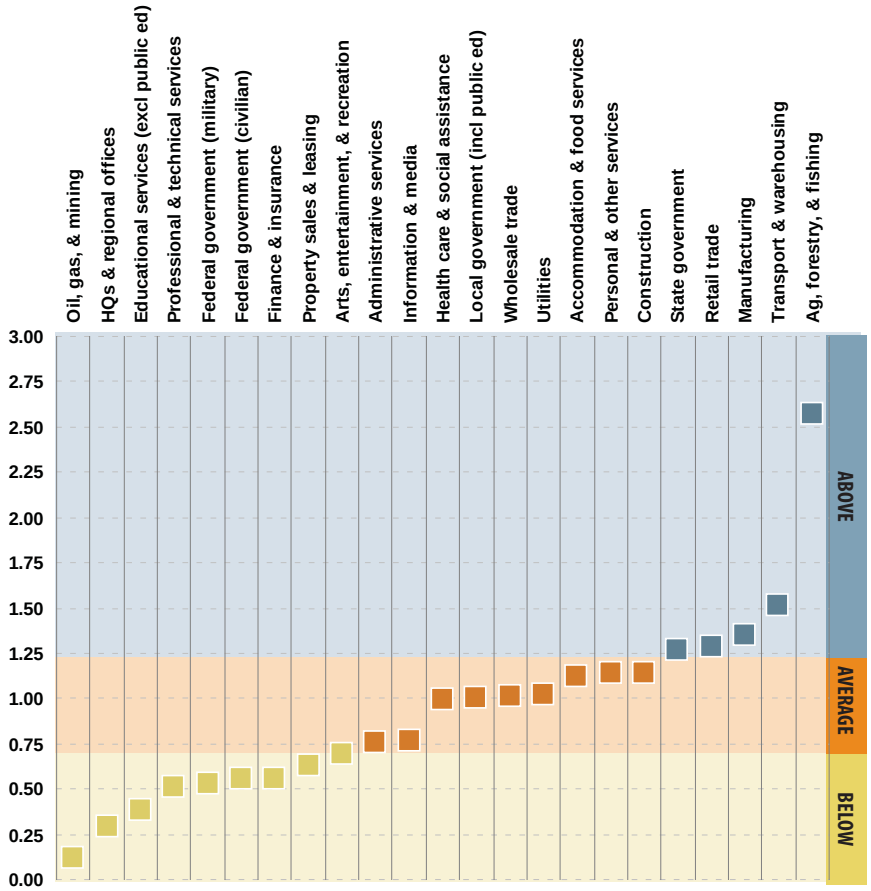
In preparing an economic strategy for the Purchase Region, we begin by documenting existing strengths. In terms of its employment base, the Purchase economy is tied to a number of traditional sectors. Providing support to these existing sectors should be the fundamental step of a sector-based strategy.

An analysis of location quotients (LQs), reveals the region's strengths in farming, transportation and warehousing, and manufacturing. The region's lowest LQs are in industries often associated more with urban areas. These include professional services, finance/insurance, real estate, and corporate headquarters.

A location quotient (LQ) is calculated as a local industry's share of total local employment divided by the same industry's share of employment at the national level. If the local industry and national industry are perfectly proportional, the location quotient will be 1.00. If an industry is heavily concentrated at the local level (the automotive industry in Detroit, technology in Silicon Valley, gambling in Las Vegas are some examples), then the location quotient will be higher than 1.00. Conversely, if the industry is sparsely concentrated at the local level (for example, farming in New York City, convention tourism in North Dakota), then the location quotient will be lower than 1.00.

Figure 2.1 | Purchase Region industry sector concentrations

US average = 1.00



Source: EMSI, Spring 2010 forecast

Manufacturing

Manufacturing has been a key driver of Western Kentucky's economy. Like much of the nation, however, the region has seen significant declines in this sector, with nearly 3,000 jobs lost in the last 5 years alone. Supporting regional manufacturing and related activities should continue to be a priority for workforce and economic professionals.

Chemicals

The region is home to a number of major chemical operations, including ISP Chemicals, Westlake Chemicals, Wacker Polymer, Sekisui Specialty Chemical, and Arkema. With roughly 2,700 workers across the eight-county

region in 2009, chemical production is the largest segment of the Purchase's manufacturing employment.

Challenges:

- ✓ Economic conditions. The products of this sector are used to make a wide range of industrial and consumer products. As a result, demand is tightly connected to the performance of the national and global economy. Local firms report growing optimism about the future as consumers and businesses begin buying again. Any slowdowns to the recovery (real or perceived) could dampen confidence and slow purchasing.

- ✓ Aging workforce. Discussions with local employers point to the approaching retirement of the baby boom generation as one of the most critical issues facing the industry. Representatives from one plant indicated that 50 percent of their existing workforce was expected to retire within the next five years. Employers also listed working with younger workers and balancing the needs of multiple generations among their workforce challenges.

- ✓ Engineering & instrumentation. Due to the nature of the industry — processes involving often complex chemical reactions that must be carefully monitored and controlled — there is a large demand for engineers and skilled technicians in this industry. The need for chemical engineers and instrumentation-related occupations was cited across multiple industries. Chemical industry representatives expressed the need for a stronger marketing strategy, including tourism, to attract people to the region.

- ✓ Energy volatility. Energy inputs to the chemical industry are often high. Kentucky's low rates have been an important factor in drawing these operations to the state. Costs are particularly important to the chemical industry, since natural gas and petroleum often serve as feedstocks. Energy-related inputs (direct energy requirements and feedstocks) can account for as much as 50 percent of production costs. Maintaining the state's existing energy advantage, while balancing environmental and regulatory concerns, will be essential to the health of the industry in the region.

- ✓ Regulation. There is growing concern about the potential impact of federal regulations on the industry's competitiveness. Like virtually all employers, concern about the impacts of health care reform are cited as challenge for chemical manufacturers in the region. However, because of the industry's energy-related demands, the prospect of tightening regulations around clean air and other environmental issues, including cap and trade, is viewed as a significant factor affecting future growth.

- ✓ Foreign competition. Chemical companies in the Purchase Region and elsewhere cite growing foreign competition as a challenge to growth. While the industry looks to emerging markets, such as Brazil, China, India, and Eastern Europe for future growth, US chemical manufacturers also face increased competition from Asian producers.

Opportunities:

- ✓ Specialty chemicals. This industry includes a variety of chemicals, such as resins, coatings, plastics, cleaners, and synthetic fibers, that are used in a broad range of consumer products. Continued improvement in the economy, coupled with demand for new products (see advanced materials/plastics below) should translate to continued growth in this sector.

- ✓ Advanced materials/plastics. Demand for energy efficient and eco-friendly products is creating a market for new materials. Examples include lightweight plastics used in fuel-efficient vehicles, films used in solar cells, and emerging products such as bioplastics. Industrial chemicals are the base from which most advanced materials are made.

- ✓ Industrial gases. The region's manufacturing base, chemical expertise, and relatively low energy costs suggest an advantage for the production of industrial gases, such as liquid nitrogen. Aqueous hydrogen fluoride will be a product of the conversion of depleted uranium at the Paducah Gaseous Diffusion Plant. While it is not clear what regulations might apply, the

company in charge of the project, Uranium Disposition Services (UDS) states the hydrogen fluoride will have commercial value. However, additional growth in chemical-related industries could exacerbate shortages in key occupations.

Food processing

Anchored by Pilgrims Pride, the region has a cluster of food processors. The food processing industry includes establishments that prepare livestock and other agricultural goods for use as an input into another product or for sale to consumers. Nationally, food processing accounts for 12 percent of manufacturing employment. For the Purchase Region, the industry accounts for 21 percent of manufacturing jobs.

Challenges:

- ✓ Corn prices. Feed is the largest direct cost for livestock production, typically accounting for 30-40 percent of sales. Corn prices are affected by a complex set of variables, including the amount of acreage planted, crop yield (which is affected by factors such as weather, pests, and disease), government subsidy programs, and market demand. As a result, pricing can vary up to 50 percent within a year. Continued global population growth, along with the expansion of corn as a feedstock for products ranging from consumer goods to fuel, is likely to contribute to rising costs in the coming months.

- ✓ Talent retention. The vast majority of jobs in the food processing and livestock production require minimal skill levels. As a result, wages are low and turnover is typically high. As the level of automation in agricultural production rises, these workers often need training to operate and maintain increasingly sophisticated equipment. As these investments in training are made, retaining workers may be more of a priority. Retention of management positions can also be challenging for these operations, particularly in non-metropolitan areas.

- ✓ Regulation. Food processors are subject to a variety of local, state and federal government regulations that focus on worker safety, food safety, and the proper disposal of processing wastes. Manure disposal is a significant issue for livestock operations. Wastewater treatment — the by-product of extensive washing operations to remove pesticide residues— is a concern for processors of fruit and vegetable crops. Worker safety is improving, however, the annual rate of injury and disease for workers in poultry production is nearly 60 percent higher than the average for all US workers.

- ✓ Consumer preference. Changing consumer preferences are a significant factor for food processors. Public concern about the use of hormones and antibiotics are forcing changes in livestock production, as are concerns about the conditions in which animals are raised and processed. Debate over the safety of genetically modified foods affects crop production and the use of genetically modified seeds limits export potential. Consumption patterns can be affected by incidences of diseases such as avian flu,

Bioplastics

Bioplastics are plastics in which all carbon is derived from renewable feedstocks. They may or may not be biodegradable. Biobased plastics contain both renewable and fossil-fuel-based carbon. The percentage of biobased ingredients and the conditions under which the biobased product may biodegrade, if at all, vary widely.

Products on the market are made from a variety of natural feedstocks including corn, potatoes, rice, tapioca, palm fiber, wood cellulose, wheat fiber and bagasse. Products are available for a wide range of applications such as cups, bottles, cutlery, plates, bags, bedding, furnishings, carpets, film, textiles and packaging materials. In the US, the percentage of biobased ingredients required for a product to be referred to as biobased, is defined by the US Department of Agriculture on a product-by-product basis.

SOURCE: Institute for Local Self-Reliance

"The idea of producing polymers from renewable biomass has attracted much attention due to the increasing concerns of environmental problems and the limited nature of fossil resources. [Bio-based polymer, polylactic acid or PLA], is considered a good alternative to petroleum-based plastics, as it is both biodegradable and has a low toxicity to humans"

SOURCE: "Scientists crack sustainable plastics puzzle," Businessgreen.com, November 24, 2009

Figure 2.2 | Acres of soybean crops by county

2007 Census of Agriculture

County	Acres	State Rank
Ballard	32,602	12
Calloway	34,121	11
Carlisle	27,794	16
Fulton	48,150	7
Graves	53,964	3
Hickman	45,868	8
Marshall	10,114	30
McCracken	19,998	19
TOTAL	272,611	—

SOURCE: US Department of Agriculture, National Agricultural Statistics Service. County's rank out of 100 Kentucky counties that produce soybeans.

As Kentucky producers look at ways to increase returns, non-GMO and specialty soybean production should be considered along with ways to improve the value of all production, such as selecting varieties with end use characteristics like higher protein and oil content, and working to obtain premiums for the added value.

SOURCE: "Market Opportunities for Food Uses of Kentucky Soybeans," Market Solutions LLC, 2002

swine flu, and "mad cow" disease (bovine spongiform encephalopathy), or bacterial outbreaks such as E. coli or salmonella. Diet fads, health-related news stories, and consumer-driven campaigns, like the local food movement, can also have a significant impact on product demand. Specialty processing operations are often driven by national demographic trends, including smaller household sizes, aging populations, and increasing demand for ethnic foods.

Opportunities:

- ✓ Soybeans. Value-added processing of soybeans was identified as an opportunity for Kentucky growers in a 2002 report produced by the Kentucky Soybean Promotion Board and the Kentucky Agricultural Development Board. Soybeans rank among the top three agricultural products in terms of acreage for all eight of the Purchase Region counties. Two counties — Graves (#3) and Fulton (#7) — rank among the state's top 10 counties for soybean acreage. Opportunities identified range from providing non-genetically modified, food-grade beans for export to value-added processing (including flaking, milling, pressing) to producing consumer products using Kentucky soybeans as an ingredient. For producers that can meet strict requirements of end-users, the report indicates that international markets, particularly Japan, are expected to see continued growth.

- ✓ Edible oils. The manufacture of edible oils is performed using a range of ingredients and processes. The industry includes wet-milling corn (separating corn into its basic components); processing soybeans, tree nuts, and vegetables into oil; refining vegetable fats; and blending vegetable fats with animal fats. The Purchase Region's strengths in grain and livestock production, coupled with access to the Mississippi River (the primary means of transport for these products is by barge) and low energy costs relative to other states, could provide an advantage in this area. However, finding the technical workers required by this industry could be a challenge.

- ✓ Pet food. Growth in the US pet food manufacturing industry as a whole is expected to be modest with continued competition from abroad. However, the premium segment is expected to continue to expand, particularly once the economy rebounds. This segment includes products containing higher quality or organic ingredients and those marketed as having specific health benefits. Growing concern about pet obesity and disease, as well as incidents of contamination have raised awareness about the quality of ingredients in pet food and bolstered prospects for the specialty pet food market. While the pet food market is highly competitive, small manufacturers can be successful by serving a local market and distinguishing themselves with specialized offering. The variety of processing and agricultural operations in the region could be an asset for this industry.

- ✓ Specialty foods. National trends continue to point towards growth in specialty foods. Consumer preferences for healthy options (low fat, organic, special diet), demand for convenience foods (pre-cut, single-

serving portions) and growth in ethnic and gourmet segments are examples.

- ✓ International. Growing economies such as China, India, and Brazil have fueled demand for US products. Helping food processors access existing initiatives such as the federally funded Market Access Program (MAP), should be part of this strategy. The Southern United States Trade Association, a non-profit agricultural export trade development association of which Kentucky is a member, works with state agriculture agencies to facilitate trade events under this program.

Metals & metalworking

The Purchase Region has a concentration of employment in primary metals relative to the nation as a whole, with nearly 600 workers in the industry. The majority of this total is accounted for by three Marshall County companies: CC Metals & Alloys, Gerdau Ameristeel, and Alcan Composites (now 3A Composites). The industry includes companies engaged in smelting and/or refining ferrous and nonferrous metals, such as iron and steel mills, rolled steel shape manufacturers, aluminum producers, and copper foundries. End users of products in this industry include construction, transportation, and other firms in the primary metals industry.

The region has more workers employed in fabricated metals, with roughly 630 jobs in this industry in the eight counties. However, this level of employment is slightly below the level expected based on national patterns, suggesting an opportunity for additional growth. Unlike primary metals, employment in this industry is more widely distributed across the region. With a few exceptions, like firearms manufacturer Remington Arms, firms in this industry are likely to be machine shops employing 50 people or fewer. Demand for products in both primary metals and metal fabrication is driven by the manufacturing sector, particularly industries related transportation and equipment manufacturing. The construction industry represents another significant driver of demand.

Challenges:

- ✓ Economic conditions. Products for metals and metalworking establishments are highly affected by consumer demand. In addition to sluggish demand, competition from imported materials, particularly steel, continues to depress prices further affecting profits. Aluminium prices have been suppressed by worldwide aluminium inventories, which exceeded 4 million metric tonnes in June of this year.

- ✓ Energy. Energy is a significant cost for metals-related manufacturing, particularly for primary metals producers. As a result, companies in this industry are very vulnerable to fluctuations in energy costs.

- ✓ Environment. While modern production processes have significantly improved the industry's environmental footprint, metal working can produce negative impacts for air, water, and soils. In addition to mitigating current emissions, many firms also have costs associated with the clean-up of past contamination.

- ✓ Alternate materials. Ironically, the growth in advanced materials that is expanding opportunities for the chemical industry presents a challenge for metal producers as these alternatives continue to replace traditional materials in applications such as automobiles and consumer goods.

- ✓ Scrap costs. Mini-mills transform scrap iron into semi-finished products such as sheets, bars, or wire. As more steel is produced from scrap (rather than ore) in the US and elsewhere, costs for scrap metals have spiked.

Opportunities:

- ✓ Recycling. In addition to providing a source of scrap metals, growth in the recycling industry presents opportunities for area companies. A 2008 study by the Kentucky Cabinet for Economic Development points to opportunities for the recycling of materials in state, as well as capitalizing on the growing electronics recycling market, or "e-cycling."

- ✓ Automotive. Both steel and aluminum are important inputs to the automotive industry. While steel is still

the largest component by weight, aluminum usage has increased dramatically. Marketing the region's assets to automotive manufacturers and suppliers would benefit these industry segments.

- ✓ Green building. The US Green Building Council predicts the green building products and services market will reach $60 billion this year. This growth presents opportunities for local companies to increase their share of the market for high-performance architectural products.

Kentucky has the potential to be not only a leader, but also on the cutting edge of [the electronics recycling] industry. Most of today's recycling is in the areas of aluminum, steel and plastics, but electronic recycling or "e-cycling" has the potential to create revolutionary growth for those states that take the necessary steps to catch this wave of growth.

Profile of Kentucky's Recycling Industry, October 2008 prepared by the Kentucky Cabinet for Economic Development

Transportation equipment

Employment in transportation equipment manufacturing in the Purchase Region is slightly above the national average and is spread across the industry's major segments — automotive parts suppliers, shipbuilding, and rolling stock (rail). This diversity reflects the region's strong ties to the rivers, the presence of Progress Rail, and the fact that the region lies within a multi-state area with significant strengths in the automotive industry. While the industry was hard hit by the recession, growth is expected in some segments.

Growth in automotive-related manufacturing is likely to be the result of pent-up demand (as people are forced to replace vehicles they have "limped through" the recession) and government policy (as new federal regulations come into effect).

Challenges:

- ✓ Economic conditions. Like most manufacturing industries, demand for transportation equipment is heavily influenced by consumer confidence. Given the uncertainty surrounding recent signs of economic recovery — with some analysts still fearing the "double-dip" recession — consumer spending on large-ticket items remains sluggish. In addition, car sales have dropped dramatically as large-dollar incentives that had been offered to entice consumers into dealerships during the recession's peak have come to an end.
- ✓ Workforce. Despite layoffs and high levels of unemployment, occupations in this industry are in short supply nationally. Many automotive production workers are aging out of the workforce and those that remain are not likely to have skills that match new technologies that will be required by the industry. Industry employment is trending away from union membership, complicating the ability of a new operation to find workers in the region or in neighboring states without right-to-work laws.

Opportunities:

- ✓ "Green" transportation. Concerns about global warming and national security issues associated with gasoline consumption, together with increasing fuel costs will continue to drive interest among consumers and lawmakers in sustainable or green transportation options. While no one can say exactly what this means for the transportation equipment industry as a whole, there is little doubt that companies will be looking to advances in energy storage (batteries), as well as the production of advanced materials (lighter, easier to recycle) and instrumentation.
- ✓ Heavy rail. Federal investments in passenger rail, are likely to translate into a significant level of spending on rolling stock, which American manufacturers have largely abandoned. Although the primary players in this industry are European and Asian firms, increasing orders from the US have

led them to build or expand their manufacturing capacity here. A strong push by the US Department of Transportation for freight rail over trucking should also spur expansion of activity in this arena (which could translate to logistics, manufacturing, or maintenance depots). The Purchase Region's talent pool in transportation and industrial engine maintenance is a plus.

- ✓ International. Opportunities for international investment in transportation equipment manufacturing are likely to increase as carmakers in China and India begin to look outside their domestic markets. Growth in China is also fueling exports of automotive parts and accessories. According to the Motor and Equipment Manufacturers Association, US exports of auto parts to China increased almost 300 percent between 2000 and 2009.

Transportation & Warehousing

The Purchase Region has a strong concentration of employment related to the transportation of freight, much of it driven by the presence of the four rivers. In addition, the region's geographic location in the Greater Ohio Valley places it at ground zero for logistics operations, with two-thirds of the US population within a day's drive (500 miles).

A review of location quotients (**Figure 2.4**) reveals the area's high concentration of transportation and materials moving occupations. The supply of workers in this category suggests an advantage for logistics and transport-related industries. The development of a strong logistics sector in the region is hampered, at least in part, by the absence of a strong road network in parts of the region.

Maritime

Kentucky plays a vital role in the nation's inland waterways connecting southern ports with middle America, Canada, and points beyond. With two existing riverports and two more under consideration, marine industries will continue to be a key component of the Purchase Region economy.

Aspects of the industry present in the region include barge transport, repair and maintenance, and fueling and stocking services. In addition, Paducah is home to the Center for Maritime Education, a state-of-the-art towing training center that has trained more than 7,000 marine industry professionals since it was established in 1997.

Challenges:

- ✓ Competition. A search of US Army Corps of Engineer port data lists hundreds of facilities along the Mississippi River alone. In addition, barge operators compete with other modes of transporting bulk materials and liquids, including rail, trucks, and pipeline. The consolidation of the inland barge industry in recent decades has concentrated ownership of a large portion of the nation's barge fleet among a relatively small number of companies.

- ✓ Economic conditions. Like a number of other industries discussed in this chapter, economic conditions have a tremendous impact on demand

Figure 2.3 | Inland waterway system

SOURCE: Image courtesy of Hanson Professional Services, Inc., as published in Kentucky Riverport Improvement Project, prepared for the Kentucky Transportation Cabinet, January 2008.

Containing nearly 1,600 navigable inland waterway miles, Kentucky is the waterway link between the Great Lakes, Canada, Mexico and the deep-draft ports of New Orleans and Mobile for shipments overseas.

Kentucky Riverport Improvement Project, 2008

for this industry. Fuel costs are also clearly a significant factor in transport costs.

- ✓ Regulation. Barge operators are subject to a number of federal regulations concerning environmental impacts, ownership, and safety. While some regulations have resulted in positive changes in the industry — the mandated double-hull tanker design is credited with achieving enormous reductions in the rate of oil spills — they can translate into significant costs.

- ✓ Lockage fee. The proposal to institute a lockage fee as a means to supplement the Inland Waterways Trust Fund would have a significant impact on the industry. Current versions of the Water Resources Development Act of 2010 have replaced this proposal with an increase on the existing diesel fuel tax.

- ✓ Asian carp. Fears this invasive species could soon reach the Great Lakes have prompted calls for lock closings and re-routing of inbound traffic. So far these threats have not been realized, however, legislation continues to be proposed that could have direct consequences for maritime industries.

Opportunities:

- ✓ Panama Canal. The installation of new locks in the Panama Canal is predicted to have a dramatic impact on worldwide trade patterns. However, this change is not viewed by some as a significant op-

portunity for the Purchase because of limitations of Mississippi River "gateway" ports with regard to handling of container traffic. The Mississippi Department of Transportation has formed the Mississippi Container-on-Barge Marine Highway Intermodal Supply Chain (MsCoBMHISC). Tracking investments at these ports should be part of this strategy.

- ✓ Ethanol industry. Growth in ethanol use presents a dual opportunity for the inland barge industry. First, production of ethanol relies on corn as a feedstock, driving higher corn shipments via barges. Second, ethanol is highly corrosive and cannot be transported by pipeline. Tank barges can be a cost-effective way to transport the additive from plant to market.

- ✓ Talent. The Center for Maritime Education trains hundreds of mariners each year. Capitalizing on the presence of this unique institution should be a focus of a maritime strategy. Actions could include leveraging the center as part of a talent management strategy *(see Chapter 4)* and continuing to align training opportunities with business needs, including safety training which is an ongoing focus of the industry.

- ✓ Other studies. Recommendations from the port-related studies conducted in conjunction with this work should be incorporated into the economic strategies of regional organizations.

Truck transportation

The Purchase Region has a strong concentration of truck drivers relative to national average. Even with the growth in freight rail (*next page*) and the sluggish economy, demand for truck drivers at the national level is expected to increase.

Challenges:

- ✓ Fuel. Fuel costs are a tremendous factor for this industry, although they are sometimes passed to customers via a fuel surcharge. Small carriers are most vulnerable to volatility as they are less likely to be able to negotiate bulk contracts. Federal targets related to the use of alternative fuels are also problematic for the industry as they are not yet comparable to diesel in terms of cost and efficiency.

- ✓ Information technology. Sophisticated information technology tools are used industry-wide to analyze routes, track freight movement, and meet extensive record-keeping requirements. These tools have resulted in savings due to increased productivity and improved inventory control. However, their use requires specialized training for workers and continued investment in the latest technology, both of which can translate to significant up-front costs.

Opportunities:

- ✓ Transportation improvements. The completion of I-69 would change the landscape for truck transportation in the region. The completion of the bridge redevelopment project will have a significant impact as well by facilitating access to other parts of the state. Tracking progress on these projects should be part of a transportation & warehousing strategy. *(Both projects are discussed in greater detail in Chapter 4.)*

- ✓ Port capacity. As the capacity of the regional ports expands, demand for trucking and logistics services will increase.

- ✓ Refrigerated storage. Energy costs are an important input for cold storage facilities. Kentucky's relative advantage could make the state and the Purchase Region an attractive location for this industry. The region's access to multiple states could be an advantage.

- ✓ Records storage. This is an important and growing segment of the logistics industry. The Purchase Region's experience handling data transactions for the banking industry suggests the region could be a fit for this type of activity.

Freight rail

Dubbed the "rail renaissance," the US has seen strong growth in freight rail despite the economic slow-down. This growth has been prompted by a number of factors, including rising fuel costs, increasing demand for commodities, increasing container traffic, and technological improvements. According to the Federal Railroad Administration, freight rail transportation is expected to increase nearly 90 percent by 2035 over 2007 levels.

Challenges:

- ✓ Population. While the region has access to a number of major metropolitan areas, lack of a large population concentration within the region itself makes it less attractive for major logistics developments. This is particularly true for intermodal facilities. These mega-projects, which are designed to handle the transfer of goods between two or more modes of transport, have been experiencing significant growth in recent years. However, much of this growth is occurring on the outskirts of major metropolitan areas like Chicago, Dallas, San Antonio, Memphis, and Columbus, Ohio.

- ✓ Few development opportunities. The railroad freight industry is highly concentrated. The nation's seven Class I railroads account for 90 percent of the industry's revenue. As a result, major developments are infrequent, creating stiff competition.

- ✓ Rail capacity. As the economy rebounds and the volume of freight picks up, rail lines are expected to be operating at or near capacity. Growing interest in commuter rail lines and renewed calls for high-speed rail could create additional capacity issues.

Opportunities:

- ✓ Fuel costs. Although gas prices have held fairly steady in recent months, costs are expected to rise slowly as the supply tightens over time. Rising prices may be unwelcome from the perspective of the consumer. However, for the rail industry, rising gas costs help drive demand for the movement of freight by means other than trucking. Rail freight is a prime beneficiary of this demand.

- ✓ Congestion. There are signs that railroads are looking to bypass highly congested areas, most notably Chicago. In early 2011, CSX will open an intermodal facility in Baltimore, Ohio (approximately 30 miles outside Columbus). The move is expected to improve reliability and reduce transit times.

- ✓ Multi-modal access. While the region does not have a concentrated population base, it is readily

accessible to multiple transportation modes — the Mississippi River system (which includes the Mississippi River and connecting waterways such as the Tennessee-Tombigbee Waterway, the Illinois Waterway, and the Gulf Intracoastal Waterway), the interstate highway system (via I-24), and the nation's Class I railroads. On the latter point, Western Kentucky is proximate to every one of the seven Class I lines operating in the US.

Agriculture

While the agriculture, forestry, and fishing sector makes up a relatively small share of the region's total employment, it has a long-standing part in the regional economy. Crops grown in the region include corn, soy, wheat, and tobacco. The Purchase Region also has a significant number of poultry operations due to the presence Pilgrims Pride in Mayfield and Tyson in nearby Union, Tennessee.

Challenges:

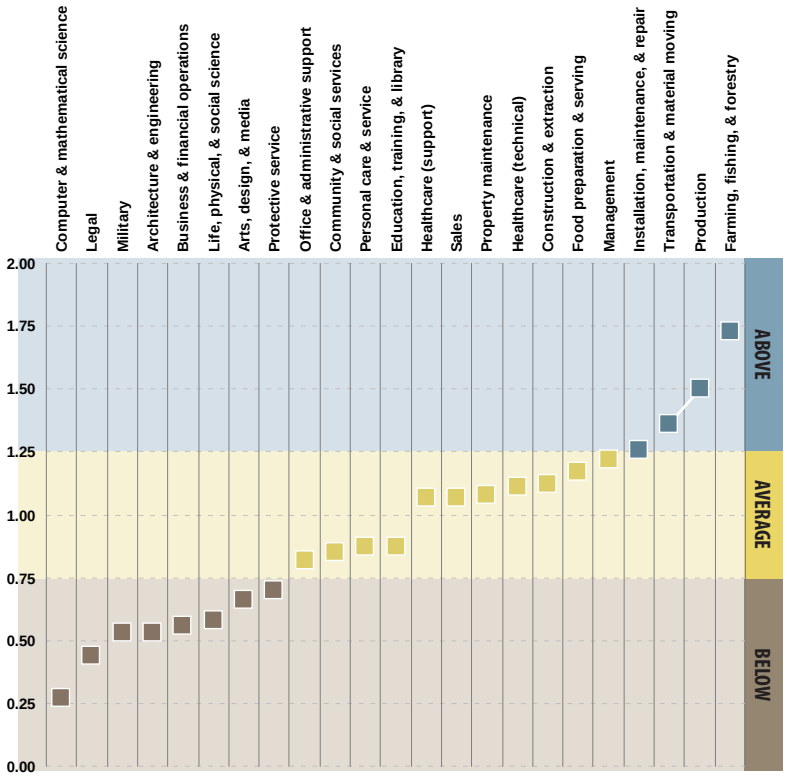
- ✓ Volatility. Two of the primary inputs for the agriculture industry — energy and corn — are among the most volatile components of the national economy. While the price of crude oil has remained fairly steady in recent months, any rise in costs can have a dramatic effect for crop producers since petroleum products are both a source of fuel for farm equipment and an important feedstock for things like fertilizer and pesticides. Corn prices can have similar impacts on the bottom line for animal producers since animal feed is among the largest costs for this industry.
- ✓ Regulation. Agricultural producers are subject to a number of regulations at the federal, state, and local level. These include environmental regulations relating to the control of waste products (manure), food safety and labeling regulations, and worker safety.
- ✓ Land planning. Despite the fact that much of the region remains rural in nature, agricultural uses can still complicate land use planning. These complications can arise in the form of competing uses (as communities seek additional land for housing or industrial development) and conflicting uses (as residential and commercial development moves closer to agricultural operations).
- ✓ Global trade. Agricultural producers are highly impacted by global markets. Competition from imports can affect prices and US and foreign trade policies (including tariffs, quotas, and bans, such as the European Union ban on genetically modified foods) can dramatically impact access to markets.

Opportunities:

- ✓ Consumer trends. There are significant trends in consumer preferences that are driving the market for agricultural products. These include

Figure 2.4 | Purchase Region occupation concentrations (LQs*)

US average = 1.00



*Source: EMSI, Spring 2010 forecast. *See Figure 2.1 for explanation of location quotients.*

Figure 2.5 | Value of sales by commodity group ($1,000)

2007 Census of Agriculture

	Ballard	Calloway	Carlisle	Fulton	Graves	Hickman	Marshall	McCracken
Grains, oilseeds, dry beans, and dry peas	24,003	19,966	21,938	26,057	39,881	37,576	6,116	11,448
Tobacco	606	12,662	2,211	-	14,457	261	925	395
Cotton and cottonseed	-	-	-	-	-	-	-	-
Vegetables, melons, potatoes, and sweet potatoes	29	(D)	(D)	(D)	(D)	-	111	869
Fruits, tree nuts, and berries	9	(D)	(D)	40	(D)	(D)	13	(D)
Nursery, greenhouse, floriculture, and sod	47	631	61	-	355	(D)	739	1,831
Cut Christmas trees and short rotation woody crops	-	-	-	-	(D)	-	-	(D)
Other crops and hay	420	(D)	249	(D)	1,034	77	523	313
Poultry and eggs	31,527	30,512	16,595	11,035	173,036	93,414	13,548	3,351
Cattle and calves	1,979	3,451	1,306	230	11,218	936	6,477	1,712
Milk and other dairy products from cows	737	373	1,145	-	1,837	(D)	237	(D)
Hogs and pigs	837	218	4,739	24	(D)	(D)	(D)	(D)
Sheep, goats, and their products	24	(D)	70	(D)	32	9	60	21
Horses, ponies, mules, burros, and donkeys	185	688	(D)	(D)	637	69	(D)	379
Aquaculture	-	(D)	(D)	-	(D)	39	-	-
Other animals and other animal products	1	(D)	1	-	18	(D)	(D)	2

SOURCE: US Department of Agriculture, National Agricultural Statistics Service. (D) Cannot be disclosed.

consumer interest in foods that are prepared naturally (organic produce, free-range chickens, antibiotic-free meats and dairy products), as well as those that meet certain health or dietary needs (gluten-free products, low-fat foods). Capitalizing on these trends can help local producers increase their market share.

- ✓ International. As the standard of living around the world rises, global demand for US agricultural products has increased. The US is currently a net exporter of chicken, pork, and beef, although beef sales are continually threatened by fears of bovine spongiform encephalopathy (BSE). Helping connect producers with export markets should be part of this strategy.

- ✓ Energy efficiency. Farm and ranch operations are the target of a number of energy efficiency initiatives, such as the 2010 ARRA On-farm Energy Efficiency & Production Incentives Program which will make more than $600,000 available to reimburse farmers for eligible costs. Although this program is no longer accepting applications, it illustrates state and federal interest in meeting energy goals by working with agricultural producers, benefitting both parties.

- ✓ Energy crops. While growth in the biofuels industry has not kept up with expectations, the potential for commercial energy crops remains. Opportunities include switchgrass and sorghum, as well as woody crops, such as poplar and willow. *(See energy discussion in Chapter 3.)*

- ✓ Waste-to-energy. Waste-to-energy plants use manure and other agricultural by-products in the production of energy. These systems have the potential for meeting on-site energy needs while addressing an environmental challenge at the same time. Bioenergy pilot- and demonstration-scale projects recently funded by the Department of Energy include initiatives that use agricultural residues, such as plant and animal oils to produce biofuels. If successful, these projects could create commercial markets for agricultural waste in the future.

- ✓ Sustainable farming. Driven by changing consumer preferences and concern about environmental degradation, there is a growing interest in sustainable farming. This concept is built on the idea that growing genetically diverse agricultural products helps reduce vulnerability of the food supply and contributes to more varied diet. Though it still represents only a small fraction of agricultural production, heirloom crops and heritage livestock are experiencing a resurgence. Also included in this idea is the breeding and marketing of alternative or unusual livestock (such as bison or emu) and growth in related fields, such as the sale of heirloom or organic seeds.

- ✓ Local food movement. As consumers search for ways to lessen their environmental footprint and support local economies, interest has grown in the local food or "locavore" movement. Impacts of this trend nationally can be seen in the explosion of farmers markets, the prevalence of "buy local" campaigns, and the number of restaurants featuring locally grown products. Even major retailers have positioned themselves to take advantage of this wave. Wal-Mart's Heritage Agriculture program, which seeks to purchase crops from farmers within one-day's drive of the company's warehouses, is an example. Linking local producers with these opportunities should be considered.

- ✓ Tobacco. Tobacco, particularly dark tobacco, continues to be an important crop for Western Kentucky. Although the US has seen a decrease in cigarette smoking, overseas markets have grown steadily. In addition, domestic sales of smokeless tobacco and cigars are increasing. As a result, this traditional crop is likely to continue to be part of the regional landscape.

- ✓ Aquaculture. Kentucky aquaculture products range from freshwater shrimp (prawns) and crayfish to aquatic plants to a wide range of fish species, including trout, bass, and tilapia. Associated opportunities that can help diversify income streams include recreational fishing (opening ponds to the public for fee-based fishing) and converting wastes to energy. Kentucky's cooperative extension system has aquaculture specialists that should be consulted as part of the formulation of an agricultural strategy for the region.

- ✓ Agritourism. Agritourism can take a number of forms from the most basic "pick-your-own" approach to more complex operations involving lodging and historical re-enactments. For some producers, agritourism represents a source of supplementary income, while others have seen this side of the business completely supplant their original operation. Helping interested producers leverage available agritourism programs and marketing resources should be consid-

Figure 2.6 | US healthcare employment

Employment by industry segment

2008 and projected change, 2008-18

Industry segment	2008 Employment	2008-18 % change
Healthcare, total	**14,336.0**	**22.5**
Hospitals, public and private	5,667.2	10.1
Nursing and residential care facilities	3,008.0	21.2
Offices of physicians	2,265.7	34.1
Home healthcare services	958.0	46.1
Offices of dentists	818.8	28.5
Offices of other health practitioners	628.8	41.3
Outpatient care centers	532.5	38.6
Other ambulatory health-care services	238.5	6.8
Medical and diagnostic laboratories	218.5	39.8

SOURCE: US Bureau of Labor Statistics, National Employment Matrix, 2008-18

ered as part of an agriculture strategy. For example, the "Farms Are Fun" website operated by the Kentucky Department of Agriculture lists only three agritourism sites in the eight-county Purchase Region.

Healthcare

With the continued loss of jobs in traditional sectors like manufacturing, communities are becoming more reliant on the healthcare industry as a source of employment and tax revenue. In addition, the industry includes many occupations that offer relatively high wages and abundant career-ladder opportunities. Along with its direct economic benefits, access to healthcare has become an important quality of life asset. The presence of medical facilities, both primary care and emergency care, has become a factor in location decisions for companies, workers, and retirees.

The dramatic growth of the US healthcare industry has been driven by long-term demographic and economic trends, most notably the aging of the baby boomers. We are only at the beginning of a trend that will continue to play out over the next several decades as the last of the boomers will reach retirement age in 2030.

Other factors behind the expansion of healthcare-related industries include:

- long-term use of prescription drugs, such as statins and antidepressants,
- growing reliance on medical testing, like MRIs and CT scans,
- increasing rates of chronic disease, such as heart disease and diabetes,
- advances in biotech and genetic research (personalized medicine),
- and the impact of federal policies, such as tying the use of electronic medical records to Medicaid requirements.

Challenges:

- ✓ Aging population. The share of the Purchase Region's population that is over 65 years of age is expected to increase significantly in the coming decades. Keeping service levels in line with this growth could be a challenge for area service providers.
- ✓ Talent. Professionals interviewed in connection with this work listed recruiting healthcare workers to the region as a challenge. In addition, the aging of workers has been cited as a challenge nationally. This has been particularly true of nursing as a large share of the profession nears retirement age. According to the 2008 National Sample Survey of Registered Nurses released in September 2010 by the federal Division of Nursing, the average age of the registered nurse population in 2008 was 46 years of age, up from 45.2 in 2000.
- ✓ Healthcare reform. Passage of the Patient Protection and Affordable Care Act of 2010 will result in significant changes to the way healthcare is deliv-

ered in the US. Major elements of the bill include health insurance mandates for individuals and employers, changes to Medicaid eligibility standards, and greater emphasis on tracking patient outcomes to name a few. Implementing the law's many provisions will present both challenges and opportunities for related industry sectors.

Opportunities:

- ✓ Medical devices and supplies. The US market for medical devices and supplies is approximately $75 billion. This sector comprises a range of products, including medical and surgical instruments (such as syringes and catheters) and surgical appliances and supplies (such as sutures and orthopedic devices), as well as ophthalmological and dental equipment and supplies. With the aging of the baby boomers, the demographics are favorable for long-term growth. Technological and scientific advances are also expected to spur continued expansion in the sector. Furthermore, the sector is somewhat less affected by economic cycles due the fact that consumers' use of the products are typically dictated by medical necessity. Firms in this sector are typically highly regulated, which could be a good fit with the Purchase Region's experienced production and nuclear workers.

- ✓ Electronic medical records. Like many sectors, healthcare is undergoing a profound transition through the increased use of information technology to improve efficiencies in services and treatment of disease. The US lags behind other countries in the use of health information technology, or HIT, which encompasses a range of products and services from patient records to scheduling to managing imaging and testing results. Recent efforts to curtail rising expenses (including the health insurance reform bill) are expected to increase the demand for HIT-related products and services, particularly electronic medical records (EMR). The region's experience providing back office functions for the banking industry could be an advantage.

- ✓ Pharmaceutical manufacturing and distribution. Despite job losses in the industry, the market for prescription drugs is likely to expand. In addition to factors that affect healthcare generally (such as aging population and a increasing incidence of chronic diseases), pharmaceutical manufacturing growth will be fueled by rapid expansion in the use of generic drugs, rising international demand, and the growing overlap between pharmaceutical preparations and biotech. The initial phases of drug development require access to research facilities and venture capital funding. As a result, these activities tend to cluster around major research universities and population centers. Once a drug is through the long development phase, however, factors affecting location decisions tend to be more in-line with traditional criteria, such as lower costs, quality workforce, and access to markets. The Purchase Region offers experience working in regulated

environments, as well as logistics experience which may be an advantage for this industry.

- ✓ Nuclear medicine. In addition to the area's seven hospitals, one significant asset that should be considered when thinking about healthcare and medical-related opportunities for the region is the presence of the Paducah Gaseous Diffusion Plant and the Honeywell Uranium Conversion Facility in nearby Metropolis, Illinois. At first glance, the connection may be less than obvious, however, the presence of these facilities brings several advantages. First, PGDP and Honeywell workers have direct experience handling radiologic materials. Isotopes are used in an increasing number of medical procedures as well as being used to irradiate medical supplies to reduce bacterial levels. In addition to their direct experience handling nuclear materials, the PGDP/Honeywell workforce brings an understanding of what it means to work in a highly regulated environment. This could present an advantage for fields like pharmaceutical manufacturing or medical device manufacturing which must conform with Food & Drug Administration regulations. ■

3: Emerging Opportunities

An economic sector strategy must go beyond reinforcing existing industries. National trends, coupled with existing assets, suggest a number of opportunities for growth in the region.

We do not suggest these strategies lightly, however. Pursuit of the opportunities outlined here will require a level of effort beyond that needed to strengthen and enhance current sectors. Some targets are aspirational, in that they would help push the region beyond its current capacities (energy). Others are more readily achievable with existing assets, but will require a coordinated approach in order to achieve significant impact (tourism).

While the level of effort is high, so is the potential payoff. Progress in each of these areas has the potential to have a transformational effect on the Purchase Region economy.

Energy

Many of the region's manufacturers are reliant on abundant sources of low cost energy. As a result, the pursuit of energy-related opportunities offers both a potential source of new employment and a path for helping to keep the region's energy cost low for existing employers. While Kentucky has limited potential for many renewable energy technologies — wind, solar, and geothermal — there are a number of other energy-related options for the Purchase Region to pursue, including coal-related technologies, biomass and biofuels production, and nuclear.

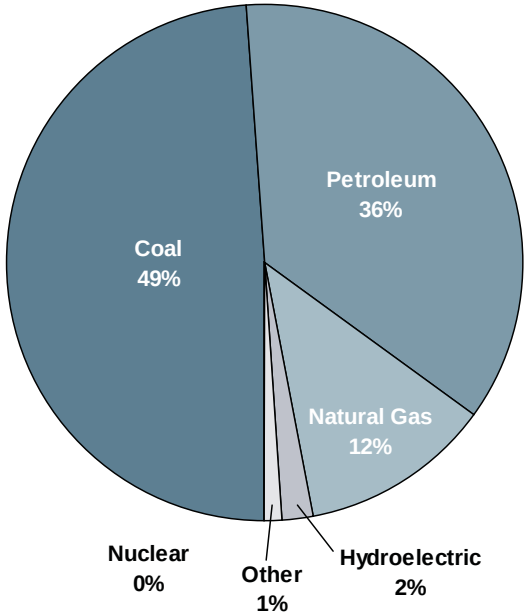
Growing concern about the negative externalities associated with oil production, including climate change, environmental degradation and national security, have made energy a topic of increasing interest to federal authorities. As a result, federal investments in alternative energy and government mandates, such as Renewable Fuels Standards (RFS), are likely to continue to drive energy-related developments in the near term.

Intelligent choices

States are also taking a more active role, and Kentucky is no exception. Governor Beshear's has made energy independence an important piece of his agenda. The Governor's November 2008 energy strategy, *Intelligent Energy Choices for Kentucky's Future*, identified seven strategies that are helping to shape the direction of state policies and incentives:

- Strategy 1: Improve the energy efficiency of Kentucky's homes, buildings, industries, and transportation fleet.
- Strategy 2: Increase Kentucky's use of renewable energy.
- Strategy 3: Sustainably grow Kentucky's production of biofuels.

Figure 3.1 | Kentucky's Energy Consumption by Source, 2005



Non-renewables dominate Kentucky's energy consumption and production. Coal, natural gas, and petroleum currently account for 97 percent of the state's total energy consumption

SOURCE: Energy Information Administration, as published in Intelligent Energy Choices for Kentucky's Future, November 2008

Relying on coal-fired power generation in the state will not be sufficient to support Kentucky's coal industry if other states cease purchase of Kentucky coal. By diversifying the coal industry's product line into transportation fuels and synthetic natural gas, we support our efforts to become less vulnerable to imports and ensure a continued market for Kentucky coal, sustaining the 17,000 plus jobs in the coal industry, as well as the industry's other economic effects.

Intelligent Energy Choices for Kentucky's Future
Governor Steven L. Beshear, November 2008

- Strategy 4: Develop a coal-to-liquids industry in Kentucky to replace petroleum-based liquids.
- Strategy 5: Implement a major and comprehensive effort to increase gas supplies, including coal-to-gas in Kentucky.
- Strategy 6: Initiate aggressive carbon capture/sequestration (CCS) projects for coal-generated electricity in Kentucky.
- Strategy 7: Examine the use of nuclear power for electricity generation in Kentucky.

Site Bank

In response to state legislation, including the Kentucky Energy Security and National Leadership Act (HB 299), the state's Office of Energy Policy was directed to "develop and implement a strategy for production of transportation fuels and synthetic natural gas from fossil energy and biomass resources" As part of its work, state officials developed a site evaluation process, known as the "Site Bank." The site bank process was intended to identify potential sites for coal-to-liquids/coal-to-gas (CTL/CTG) facilities. Over a two-year period, 41 sites throughout the state were evaluated to determine if they could meet minimum daily level of output, (established at 10,000 barrels per day in liquid fuels, or the equivalent of thousands of cubic feet per day of pipeline quality synthetic natural gas) and whether the sites exhibited any "fatal flaws" for energy production. Several of the sites identified in the process have attracted the interest of developers.

Results for 40 sites were summarized in *Kentucky Alternative Energy Site Bank Evaluation*, a report released by the Kentucky Department of Energy Development and Independence in June 2009. Results for an additional site, the Paducah Area Community Reuse Organization (PACRO) site, were not included in the summary report, but were published separately and are available on the website created for the site bank process.

In addition to evaluating CTL/CTG opportunities, sites were also scored on their suitability for biomass, nuclear, wind, and solar projects. A number of sites received favorable scores on CTL/CTG and biomass criteria, which are similar. Of the 40 sites, thirteen scored above 85 percent of the maximum possible score for CTG/CTL production; nearly half of the sites received scores of 75 percent or better for biomass.

Because of the state's climate and weather patterns which tend to diffuse solar rays, commercial-scale solar facilities were not deemed a viable option for any of the sites. None of the sites received the required level of solar insolation (at least 6.75 kWh/m^2/day) to make its use cost-effective. The evaluation process found similar issues with wind power. None of the sites passed the "fatal flaw" test of an average wind speed of 5.6 meters per second resulting in a zero score for suitability for wind projects. While technological advances may make commercial applications of wind and solar more viable in the future, neither was seen as a cost-effective option for the evaluated sites at this time.

Five Purchase Region sites were evaluated under the site bank process. **Figure 3.2** provides an overview of the scores received by each site on the various technologies. Generally speaking the region's sites fared well, however, lack of an adequate surface water supply negatively impacted the Purchase Region Industrial Park's (PRP) suitability for energy projects, which frequently have major water needs. Seismic risks were associated with each property, negatively impacting scores for all five sites, particularly with regard to prospects for nuclear power facilities. The two Marshall County sites were one of a handful of sites in the state mentioned as possibilities for "energy farms" — sites that could support development of more than one technology.

Additional information about potential energy options for the region are discussed below.

Coal-related technologies

Although the technologies are not new, current trends are heightening interest in coal-to-liquids (CTL) and coal-to-gas (CTG) technologies. Kentucky's long history of investment in coal production make these technologies a natural starting point for discussion of energy alternatives. As the nation's third largest coal-producing state (behind Wyoming and West Virginia), the Commonwealth also has an interest in maintaining market share.

The state plan sets a goal of creating a CTL industry that consumes 50 million tons of coal per year in the production of four billion gallons of liquid fuel per year by 2025. For CTG, the goal is to produce a sufficient volume of synthetic natural gas (SNG) that when combined with in-state production would meet all of the state's natural gas needs; Kentucky currently imports 56 percent of its annual requirements.

However, the state faces some challenges to moving forward with either CTG or CTL facilities. Both industries are vulnerable to fluctuating prices for oil and natural gas (which make the added cost less attractive) and to the prospect of increased regulation of carbon emissions. According to a June 2009 report by the Mountain Association for Community Economic Development (*The Economics of Coal in Kentucky: Current Impacts and Future Prospects*), even with the use of available carbon capture and storage technologies, the process of converting coal to liquid fuels would produce more pollution than gasoline. The report points to lower costs for production associated with CTG compared with CTL, but cites lack of experience (the US has only one CTG plant) and understated carbon storage costs as potential problems. In addition, the authors point out that a long lead time — an estimated seven years before a plant could be brought online — make it likely that there would be additional regulation of carbon emissions prior to production.

According to the Site Bank evaluation process, factors affecting the siting of CTL/CTG plants include access to feedstocks, the availability of sufficient acreage, and potential for on-site carbon storage. Water availability is also critical, with facilities requiring a minimum of 2,500 gallons per minute consistently available. With the exception of the Purchase Region Industrial Park, the region's sites were deemed "ideally suited" for development of CTG/CTL facilities, with the other four sites receiving 79 percent or

Figure 3.2 | Energy project suitability scores

Evaluations of selected Purchase Region sites

Figure represents % of total points awarded

Site *County*	Acres	Score (%)			
		Biomass	Nuclear	CTG/CTL	Solar
Bailey Port *Marshall*	650	76	55	82	55
Marshall County Industrial Park *Marshall*	736	75	59	80	50
PACRO site *McCracken*	562	83	70	79	59
Purchase Region Industrial Park *Graves*	2,000	66	0	69	39
TVA Hickman *Fulton*	841	75	51	80	46

SOURCE: Results for sites in Fulton, Graves, and Marshall Counties are from Kentucky Alternative Energy Site Bank Evaluation, June 2009. Results for the Paducah Area Community Reuse Organization (PACRO) site in McCracken County were published separately. All site bank evaluations were prepared by Smith Management Group of Lexington, Kentucky for the Kentucky Energy and Environment Cabinet, Department of Energy Development and Independence. Additional details about each site are available at http://www.emcilink.com/sitebank/

NOTE: Sites were also evaluated for wind, but were awarded zero points, since none passed the "fatal flaw" test of having an average wind speed of 5.6 meters/second.

Figure 3.4 | The Wide World of Biofuels

Published in August 2006, this table provides a solid overview of the industry

Fuel	Source	Benefits
Grain/Sugar Ethanol	Corn, sorghum, and sugarcane	▪ Produces a high-octane fuel for gasoline blends ▪ Made from a widely available renewable re-source
Biodiesel	Vegetable oils, fats, and greases	▪ Reduces emissions ▪ Increases diesel fuel lubricity
Green Diesel and Gasoline	Oils and fats, blended with crude oil	▪ Offer a superior feedstock for refineries ▪ Are low-sulfur fuels
Cellulosic Ethanol	Grasses, wood chips, and agricultural residues	▪ Produces a high-octane fuel for gasoline blends ▪ Is the only viable scenario to replace 30% of US petroleum use
Butanol	Corn, sorghum, wheat, and sugarcane	▪ Offers a low-volatility, high energy-density, water-tolerant alternate fuel
Pyrolysis Liquids	Any lignocellulosic biomass	▪ Offer refinery feedstocks, fuel oils, and a future source of aromatics or phenols
Syngas Liquids	Various biomass as well as fossil fuel sources	▪ Can integrate biomass sources with fossil fuel sources ▪ Produce high-quality diesel or gasoline
Diesel/Jet Fuel From Algae	Microalgae grown in aquaculture systems	▪ Offer a high yield per acre and an aquaculture source of biofuels ▪ Could be employed for CO2 capture and reuse
Hydrocarbons From Biomass	Biomass carbohy-drates	▪ Could generate synthetic gasoline, diesel fuel, and other petroleum products

Most Mature

Least Mature

Source: "From Biomass to Biofuels," National Renewable Energy Laboratory, August 2006

more of the available score. Proximity to coal supplies, an ample supply of surface water (rivers), the lack of a non-attainment area in the Purchase Region, and transportation access, including barge and rail transport, were identified as positives for the region with regard to this technology. The Bailey Port site scored slightly higher presumably due to coal-related activities already present on the site.

Biomass

Growth of biomass and biofuels production in the US has been dogged by concerns about costs and emissions associated with production, geopolitical issues created by the conversion of food sources to fuel, fluctuating prices for gasoline (in the case of biofuels production), and competition from cheaper sources of electric power generation (for biomass). The Purchase Region is well aware of the industry's changing fortunes. In 2007, the Calvert City Riverport was announced as the site of a planned $319 million ethanol-biodiesel plant. However, like such plants around the country, this project and others planned for the region, has yet to materialize.

As defined in Kentucky statute, biomass resources refers to a range of organic materials, including agricultural products (such as switchgrass and miscantheus), wood and wood products, aquatic plants, fats and oils, animal by-products, manure, and some municipal wastes.

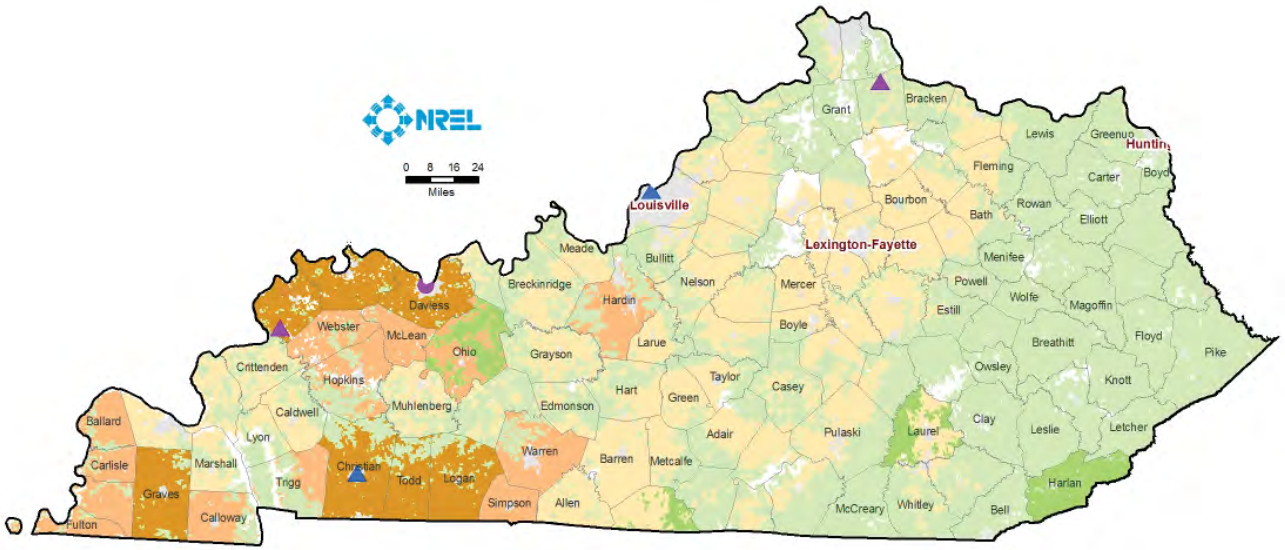
To understand the issues affecting the production and use of biomass resources, the Governor's Office of Agricultural Policy and the Energy and Environment Cabinet formed the Executive Task Force on Biomass and Biofuels Development in Kentucky. Charged with facilitating

the development of "a sustainable biomass and biofuels industry in Kentucky that will generate prosperity in a carbon-constrained environment, and revitalize rural Kentucky by creating new jobs and strengthening local economies," the task force issued a report in December 2009 on the state of the industry. Their report points to a number of factors that are likely to change the equation for bioenergy moving forward.

These factors include expansion of the federally mandated Renewable Fuels Standard (RFS) and similar standards set by states. Kentuckians already use fuel containing 10 percent biofuels as a result of the RFS, although only about one-quarter of these fuels are produced in-state. Over roughly the next decade, rising thresholds mandated by the RFS will raise the state's demand for biofuels from 150 million gallons to 775 million gallons per year, requiring 14 new biofuels plants to be built in the state, according to the task force. Additional production will have to be derived from sources other than food, since current usage already meets federal limits for production from food crops. Developing non-food sources must be a priority for the state or Kentucky will be forced to import fuels to meet the RFS.

Federal mandates are also expected to spur demand for biomass generation. Renewable Portfolio Standards (RPS), which establish renewable goals for electric power generation, have been adopted by a number of states and the federal government. Given the state's limitation for other renewables like solar and wind power, biomass is likely to be an important focus of efforts to meet the standards. As with biofuels, if the state is unable to meet renewable energy targets using state-produced sources,

Figure 3.5 | Kentucky Biomass Potential by County



LEGEND

Biomass (Thousand T/year/county)	0	1-100	100-250	250-500	>500
Crops and Crop Residues					
Forest and Primary Mill Residues					
Urban Wood and Secondary Mill Residues					

Facilities	Active	Under Construction
Ethanol Biorefinery	▲	●
Biodiesel Production Facility	▲	●

States
Counties
Urban Areas

SOURCE: State Assessment for Biomass Resources: Kentucky Potential Biofuel Production, an interactive website developed by the US Department of Energy's Alternative Fuels & Advanced Vehicles Data Center (http://www.afdc.energy.gov/afdc/sabre/sabre.php?state=kentucky)

energy demands will have to be met by out-of-state resources. In addition to lost opportunities for economic growth, competition for external renewable sources is likely to drive up the cost of electricity in the state.

One factor that hampers the growth of bioenergy industries is the low mass-to-volume ratio of inputs. In other words, transportation of biomass feedstocks take up a large amount of space relative to the density of energy they provide. Pelletization — a process that transforms feedstocks by shredding, drying, or otherwise "densifying" the material — would make transportation less costly, increasing the competitiveness of biomass and biofuels facilities.

Fifteen to twenty trucks of chopped switchgrass or logging residue are needed to deliver as much f eedstock energy to a power plant as a single truckload of coal. Baling, chipping, or pelleting biomass increases its density two to eight-fold, but even in its most concentrated forms, biomass has half the energy density of the fossil fuels that currently supply most of our energy.

Final Report From the Executive Task Force on Biomass and Biofuels Development in Kentucky, December 10, 2009

The Purchase Region is relatively well-positioned for biomass production. In the Site Bank evaluation process, the quantity of available biomass boosted scores for the potential for a biomass facility in the region. The region's strong industrial base (representing potential feedstocks), variety of transportation options (highway, rail, and barge), and available land were identified as potential assets for biomass. Of the five sites, the PACRO site scored the highest with 83 percent of the maximum available points.

Shale gas

Countries around the globe are looking to largely untapped supplies of "unconventional" natural gas as the solution to future energy needs. Unlike conventional gas supplies, which are typically found in pockets making recovery relatively easy, unconventional gas deposits are trapped within impermeable or semipermeable structures and dispersed across wide basins. Until very recently, drilling technology was inadequate to make pursuit of unconventional supplies financially feasible. Improvements in drilling techniques, most notably the use of hydraulic fracturing (or fracing) and horizontal drilling, have made recovery of unconventional supplies more attractive. Fracing uses water or a mixture of sand and water to create artificial fractures in the rock, releasing the trapped gas.

In the US these unconventional supplies, often contained in shale formations, are thought to be sufficient to provide cheap and abundant power for nearly a century at current rates of gas consumption. Unconventional gas offers other advantages beyond being plentiful. These include the potential to significantly reduce carbon emissions relative to other fossil fuels and the ability to avoid the political turmoil and security issues associated with much of the world's conventional supplies.

Pursuit of unconventional or shale gas is not without its problems, however. The fracing technique commonly used to extract unconventional gas deposits requires large quantities of water and creates similar volumes of wastewater. In addition to concerns about demands that shale gas extraction would place on water supplies, the number of chemicals used in the drilling process (including bactericides and surfactants) has raised fears about the potential for groundwater contamination. Proponents counter that drilling takes place well below the water table making contamination unlikely. The Environmental Protection Agency is scheduled to complete a study on the impact of hydraulic fracturing in 2012.

The Kentucky Geological Survey estimates the state's conventional natural gas deposits total roughly 12 trillion cubic feet (tcf). Unconventional or "speculative" deposits, are estimated to be as much as 114 tcf, with the potential for another 0.848 tcf in methane coal beds. While production levels of conventional gas have typically been low, the state saw significant increases in production between 2001 and 2006 in response to rising natural gas prices.

The bulk of Kentucky's deposits are located in the Devonian Shale formation covering much of Eastern Kentucky and parts of Tennessee, Ohio, and West Virginia. However, there is growing interest in the New Albany Shale formation, which includes portions of Western Kentucky. Evaluations conducted as part of the Site Bank process suggest the region's geologic assets may not currently warrant explora-

tion. However, price increases and continued advancement in drilling and recovery techniques could change this situation in the future.

Carbon Sequestration

Carbon capture and storage (CCS), or carbon sequestration, is being looked at as a possible means for both decreasing carbon emissions and increasing gas yields. CCS plays a complementary role in the production of a number of the energy sources discussed here, including CTG/CTL, shale gas, and potentially, biomass.

The Kentucky Consortium for Carbon Storage (KCCS) is a research group formed to investigate and demonstrate carbon sequestration opportunities in Kentucky. As part of a pilot project, the KCCS evaluated the potential for carbon storage at a well in Hancock County. Preliminary findings from this work suggest that portions of Western Kentucky offer excellent opportunities for CCS facilities.

Findings from the Site Bank process suggest more information will be needed to evaluate the Purchase Region's opportunity for CCS. As part of the Site Bank review sites were evaluated on geologic criteria affecting CCS potential, including:

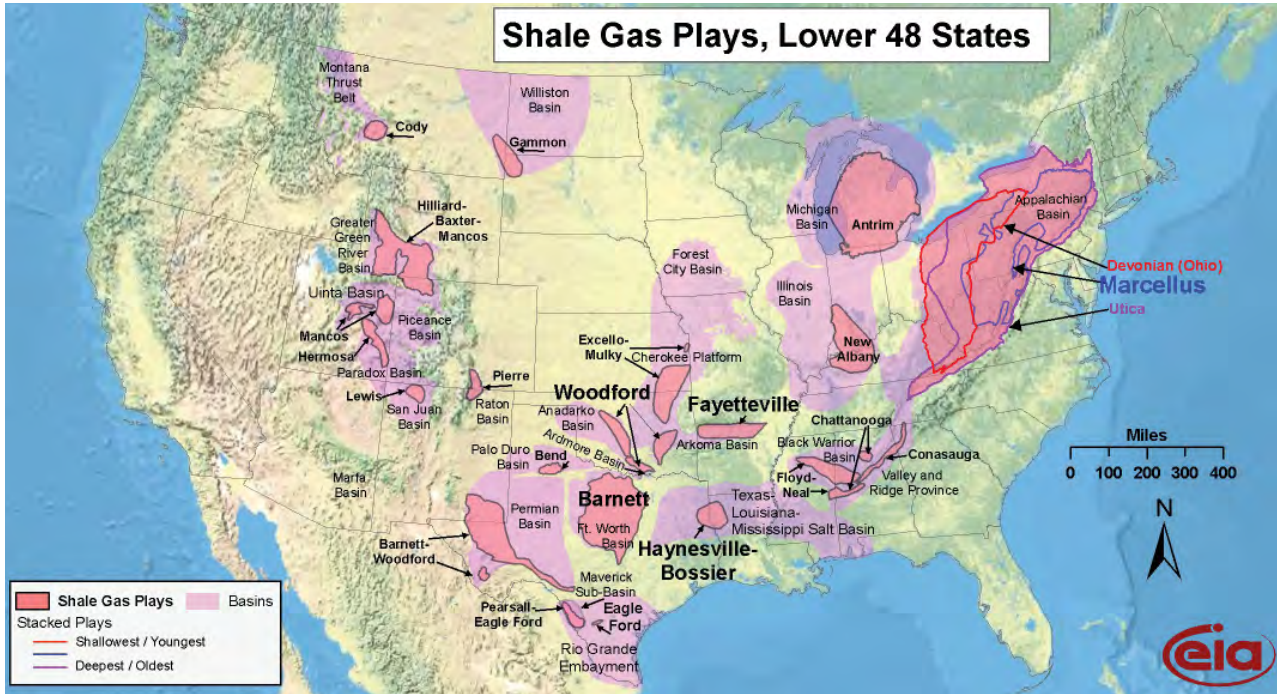
- Proximity to "target" geologic formations, such as active oil fields, deep saline formations, underground coal mines, and limestone quarries.
- Potential negative aspects of these target formations, including their structure, depth, and level of penetration from oil and gas exploration (the number of boreholes, seismic lines and other drilling -related activity).
- Location in an area with a higher than average earthquake potential.

The five Purchase Region sites did not score favorably relative to other sites in the state on these criteria, making prospects for CCS less clear. Lack of strong prospects for carbon storage may hamper efforts to site energy projects in the region. However, the Site Bank evaluations were limited to the five sites and the area within a 5-, 10-, 15-, or 20-mile radius depending upon the aspect being evaluated. Discussions with the Kentucky Geological Survey should be undertaken to determine if other locations within the Purchase Region might be suitable for this use.

Nuclear

Concerns about the environmental and geopolitical implications of our dependence on fossil fuel have reignited America's nuclear debate. These factors, along with recent volatility in energy prices and passage of the federal

Figure 3.6 | Shale Gas Plays in the Continental US



SOURCE Energy Information Agency based on data from various published studies. Updated March 10, 2010.

Energy Policy Act of 2005, (which included provisions favorable to nuclear power generation), have prompted a flood of commercial nuclear reactor permitting activity after nearly three decades without a single application. According to the US Energy Information Administration, 20 projects at various stages of permitting were on file with the Nuclear Regulatory Commission as of February 17, 2009.

Nuclear power currently supplies one-fifth of the total US electric power market. While there are a myriad of issues associated with its use, supporters point to its relatively low cost, reliability, and positive impact on carbon emissions (nuclear generation is considered emission-free). Despite Kentucky's decades-old moratorium on the construction of nuclear power plants, *Intelligent Energy Choices* calls for the state to examine the use of nuclear power in meeting the state's future energy needs.

Even if the state moratorium were lifted, existing fault lines, most notably the New Madrid Fault, appear to be a limiting factor for siting a nuclear reactor in the Purchase Region. However, the presence of a uranium enrichment facility in Paducah (the Paducah Gaseous Diffusion Plant or PGDP) and a uranium conversion facility in Metropolis, Illinois (Honeywell), helps mitigate this concern to some extent.

With both facilities having been in operation since the 1950s, the region's workforce has more than a half century of experience in meeting stringent federal requirements for handling nuclear materials. In addition to creating a workforce experienced in working with radiological materials, the presence of these plants reflects a demonstrated ability to work in the highly regulated environment these facilities entail, and perhaps most importantly, a population that is comfortable with nuclear issues.

While a nuclear reactor may not be a feasible target, activities associated with the growth of nuclear power in the US could represent an opportunity for the Purchase Region, particularly the PACRO site. The region's experiences with the PGDP and Honeywell could provide a competitive advantage for activities such as spent fuel recycling. Monitoring state and federal progress on this issue should be part of a regional energy strategy, along with establishing partnerships with relevant organizations.

Hydrokinetic

Hydroelectric sources supplied approximately 6 percent of the nation's energy needs in 2008. Existing projects are concentrated in a handful of states and typically generate power from water flowing through turbines in man-made dams. It is also possible to create hydroelectric power by harnessing the flow of waterways with strong natural currents, such as the Mississippi River. The availability of inexpensive and abundant power from other sources (namely coal), combined with an prohibitively expensive application process, has meant little or no exploration of hydrokinetic power on a commercial scale.

One company currently exploring this form of energy is Massachusetts-based Free Flow Power. The company is studying the feasibility of hydrokinetic generation at a number of sites in the Mississippi River Basin, including three sites in the Purchase Region. Its proprietary turbine technology is designed to be attached to bridge abutments to generate power from the river's current as it flows through. The company is currently pursuing licensing and study requirements with the Federal Energy Regulatory Commission and the Army Corps of Engineers licenses, according to the company's Proposed Study Plan dated August 28, 2009.

There are concerns with this technology, including the potential for negative effects on the river's fish and plant life. Furthermore, hydrokinetic generation is not likely to replace coal or even to compete with other alternatives. However, regional leaders should monitor progress on the work of Free Flow Power and other similar initiatives as part of a regional energy strategy.

Energy Efficiency

Energy efficiency continues to be an important focus of federal, state, and local initiatives and plays a major role in decreasing energy demand. The focus of these efforts has primarily been retrofitting existing homes, creating more efficient products and construction techniques for new buildings, and modernizing the nation's energy transmission systems (using smart-grid technology).

While these activities are likely to spur demand for more energy-efficient products nationwide, the Purchase Region's existing manufacturing base does not suggest immediate opportunities for capturing investment in this area. However, federal investment in particular will create employment opportunities for people with skills related to home energy installation and maintenance, green building techniques, and electrical maintenance and engineering. Ensuring that workers are prepared to capitalize on green jobs should be part of the regional energy strategy. Current initiatives, such as the State Energy Sector Partnership (SESP), a $4.7 million dollar grant to train displaced workers that includes Fulton County and the regional energy sector training grants relating to energy efficiency *(see box)*, should be leveraged.

Environmental Sciences

While not strictly limited to energy, the presence of the PGDP and Honeywell has provided the region with a pool of specialists in technical and regulatory issues surrounding natural resource management, pollution control, and waste management and remediation.

This field includes a range of services, such as

- ✓ assessing the environmental condition of a particular site,
- ✓ cleaning up polluted sites or dealing with hazardous spills,
- ✓ preparing management strategies for a particular natural resource, such as a wetlands area,
- ✓ conducting an audit of an organization's environmental impact, such as its carbon emissions, and
- ✓ addressing waste management needs.

Demand for these services is largely driven by government policy. As a result, work flow tends to be highly impacted by changes to existing regulations. Although federal climate-change and alternative energy legislation is currently stalled, public pressure (spurred in part by this summer's massive Gulf oil spill) is expected to continue to keep the subject in the spotlight. International demand for waste management and environmental impact work is also increasing as countries like China address environmental concerns.

Tourism

Tourism has become an important strategy for economies faced with the decline of manufacturing and other traditional industries. Despite the prevalence of low-wage jobs, tourism can provide a number of economic benefits. In addition to drawing dollars into the region, a well-coordinated tourism strategy can raise the profile of a region, change perceptions of an area (both internal and external),

State Energy Sector Partnership Training Grants

Strong partnerships between the West Kentucky Workforce Investment Board (WKWIB), the West Kentucky Community & Technical College (WKCTC), and local labor organizations have resulted in the award of two major training grants that will support energy efficiency activities in the region.

Energy Sector Training. In cooperation with the Plumbers & Steamfitters Local Union 184, WKWIB will partner with WKCTC to provide training focused on green awareness, sustainable technologies installation, and energy efficiency in residential, business, and industry construction. The project aligns with the Kentucky Energy Plan goal of initiating strong education and outreach programs in support of energy efficiency. Participants will be drawn from Plumbers & Steamfitters's apprenticeship program and existing membership, as well as a limited number of students enrolled in WKCTC's heating, air conditioning, and ventilation (HVAC) program. The project also includes funding for two "coaches" to assist green entrepreneurs.

Green Systems Awareness Program. This program, developed by the United Association of Journeymen and Apprentices, has achieved certification from the US Green Building Council. Under the initiative, WKCTC will offer training on the installation of the following green systems: basic wind power; plumbing systems (e.g., low water, grey water, solar water heaters, pressure assisted); and HVAC systems (e.g., solar heating, solar photovoltaic, geothermal, high efficient gas). Training will be provided to existing union members and a limited number of HVAC students using equipment funded through this grant. The training will prepare students to take a national union certification exam.

"I can see Kentucky doing something with bourbon the way Scotland has played off scotch—or any wine region for that matter. Kentucky has charm, bourbon, and horses. What more does it need? Good marketing."

"133 Places Rated: North America"
National Geographic Traveler,

and introduce people to the region who may later become residents or business owners.

The Purchase Region has a number of tourism assets which have been largely underutilized. These assets cover a broad spectrum from outdoor and recreational activities to heritage tourism opportunities; from arts and cultural attractions to family and educational assets. A regional approach to tourism could draw on the natural beauty, history and culture of each Purchase-area community to create a destination that appeals to a wide range of visitors. However, a successful tourism strategy will require a concerted effort.

Regional Inventory

Documenting regional assets and devising a strategy for marketing them is the first step in leveraging tourism for economic development. This step should include cataloging existing tourism sites and organizations, as well as identifying potential target audiences and marketing channels. Where possible, the inventory should include visitor data or other indicators of economic impact. For example, according to an August 2007 study conducted by the University of Tennessee, more than 900,000 people visited the Reelfoot Lake area in 2005, spending an estimated $21.8 million within 30 miles of the lake. While these figures are not specific to Kentucky, it helps document the value of the asset to the area.

The state's tourism marketing website provides a starting point for this strategy. However, this effort should also extend to identifying special interest sites where particular categories of assets could be marketed. Examples of categories to be considered in this strategy are provided below.

- ***Outdoor recreation***. A number of counties in the region offer exceptional outdoor recreation activities. Visitors to the Purchase Region can enjoy camping and a variety of outdoor sports at the Land Between the Lakes Recreational Area (Calloway County) and Kenlake State Resort Park (Marshall County); plan cycling routes along the Great River Road (Fulton, Carlisle, and Hickman counties); as well as take advantage of numerous locations for hunting and fishing including the region's many wildlife management areas. While these sites are well promoted on state agency sites, ensuring they are featured by national associations for outdoor sports enthusiasts could draw a new set of visitors to the region.

- ***Birding***. Within the category of outdoor activities, bird watching merits special attention because of its avid following. According to an analysis of the economics of birdwatching prepared by the US Fish & Wildlife Service, 18 million Americans participated in birdwatching away from home in 2000. The Reelfoot National Wildlife Refuge ranks among the top spots in the nation for birding. Ensuring that visitors are aware of other opportunities within the region could help extend their stay.

- ***Historic tourism.*** The Purchase Region has played a unique role in American history, starting with the actual land purchase for which it is named. As a result, there are numerous opportunities for heritage tourism in the region. From the Indian burial site at Wickliffe Mounds (Ballard County), to Columbus-Belmont State Park, the

site of a Civil War battle known as the "Gibraltar of the West" (Hickman County), to unusual sites like the Woolridge Monuments in Mayfield (Graves County) and the historic architecture of the region, visitors who want to learn more about Kentucky's role in the nation's history can find many sites to enjoy in the Purchase Region. Working with historical societies to designate historic sites or have them listed on the National Register of Historic Places and designated as a Kentucky Archaeological Landmark would make them easier for history-minded tourists to find. Capitalizing on public interest surrounding the anniversaries of pivotal dates in history should be part of this strategy. Examples include the Civil War sesquicentennial (2011) and the 200-year anniversaries of the New Madrid earthquakes (2011-2012) and the Jackson Purchase itself (2016-2018).

- ***Arts and literature.*** In addition to its historical figures, Western Kentucky has links to art and literature. Paducah's Artist Relocation Program has become a national model for using the arts for economic development. Leveraging the city's reputation as a destination for artists could bring visitors to the region. Building on historical figures with ties to the area should be part of this strategy as well. For example, the river counties could capitalize on the association of Mark Twain with the Mississippi River more than they currently do, as his work is so strongly associated with that landscape.

- ***Quilting***. Like birders, quilting enthusiasts are a segment of the population worth targeting individually. The presence of the National Quilt Society Museum in Paducah has put the region on the map for this group. The American Quilters Society (AQS) Quilt Show & Contest is an international quilting event that draws at least 37,000 people to town, with an estimate impact of $20 million according to the AQS. "Quilt Trails" provide another mechanism for drawing this group to the area. Originated in 1989 with the painting of an 8' by 8' quilt square on the side of an Ohio barn, these geo-based trails have gained interest as a means for promoting rural tourism. The National Quilt Museum has added a square to the outside of its building as part of a quilt trail project. In addition, the Kentucky Geography Network lists two "quilt barns" in Marshall County. Making sure these and other quilt-related resources can be easily identified by a web search could help extend the reach of quilting tourism throughout the year and the region.

- ***Festivals and events.*** Unique cultural events also shape the fabric of the counties of Western Kentucky. The Big Singing, an all-day sing-along program of gospel music (Marshall County), the Hot August Blues and Barbecue Festival, and the Kentucky Lake Bluegrass Festival held at Kenlake State Resort Park (Marshall County), as well as the well-known Fancy Farm Picnic all showcase local food and culture and could be promoted to encourage visitors to come to Kentucky during certain times of the year. Fulton County will soon have the Jamieson distillery to link the west to the rest of the 'Bourbon Trail," as well. Partnering with hotels and restaurants in the region (and beyond it) to showcase local culture will engage residents of the Purchase Region, as well as visitors from outside the area.

Linking Strategies

Tourism programs that design and market a series of sights connected to one another as an integrated route, part of a larger trip, or thematically are excellent opportunities to highlight lesser-known destinations in an area. By linking destinations to one another, visitors are presented with a menu of options—rather than a set itinerary—and are more likely to be drawn to the area. Rather than branding the region with a single identity, marketing strategies should help potential tourists envision themselves enjoying a range of hobbies and interests in the Purchase Region.

The Purchase Region has an opportunity to build upon existing tourism assets related to hunting, watersport, and quilting. The region is well-poised to attract adventure travelers by highlighting the variety of outdoor sports opportunities in the region, lure RV tourists with maps of scenic driving routes and camping locations, and engage families and retirees interested in American history. The following are examples for marketing tourism holistically with a wide range of audiences in mind.

- ***Road Trips & Tourism Routes***. Road trips appeal to retirees, RV enthusiasts, families, and adventure travelers equally, if for different reasons. Scenic drives through the Kentucky countryside

Figure 3.7 | Top 10 International Markets (US)

2009 Visitation (Arrivals) and Spending

Country	Rank	Arrivals	Rank	Spending
Canada	1	17.96 M	1	$16.2 B
Mexico	2	13.16 M	4	$8.3 B
United Kingdom	3	3.90 M	3	$12.1 B
Japan	4	2.92 M	2	$12.9 B
Germany	5	1.69 M	5	$5.6 B
France	6	1.20 M	7	$4.2 B
Brazil	7	893,000	6	$4.2 B
Italy	8	753,000	—	—
South Korea	9	744,000	—	—
Australia	10	724,000	10	$3.3 B
India	—	—	8	$3.6 B
China	—	—	9	$3.5 B

SOURCE: US Department of Commerce, International Trade Administration Office of Travel and Tourism Industries.

present a unique opportunity to showcase the region's physical beauty, as well as highlight many sites of interest along the way.

The Great River Road, as designated by the National Scenic Byways Program, runs through the ten states that border the Mississippi, including Kentucky. The program's website (www.byways.org) highlights a variety of routes and thematic tours along the Great River Road, including a day trip through western Kentucky that links Paducah, Wickliffe Mounds State Park, Fort Jefferson, and Columbus-Belmont State Park to one another.

Companies like All Getaways also market and sell route maps such as "The Land Between the Lakes: The Best of the Western Water Lands" and other scenic drives. National Geographic Traveler creates routes for travelers and can serve as an example for future local marketing efforts. Expanding on their bourbon trail guide or creating a similar guide with features unique to western Kentucky could provide a significant marketing opportunity.

Tying the region to well-known images of Kentucky can also raise awareness. In a ranking of "133 Places Rated: North America" by the same publication, Kentucky Bluegrass Country scored 66. One quote from this article demonstrates Kentucky's draw and highlights the importance of marketing:

> *"I can see Kentucky doing something with bourbon the way Scotland has played off scotch—or any wine region for that matter. Kentucky has charm, bourbon, and horses. What more does it need? Good marketing."*

In addition to its travel routes and best places rankings, National Geographic also offers a family vacation planner of Kentucky and walking tours of many cities, such as Chicago's Magnificent Mile.

Free, well-designed driving and walking tours will make the region more accessible to visitors and will give them a wide range of activities to sample. The Kentucky state tourism website currently lists three 'tours, trails, and byways' in the Western Waterways region. These selections should be expanded to better highlight the unique attractions of the western part of the state.

- ***Day and Weekend Trips***. Big cities in the region will always draw tourists more easily than lesser-known rural communities. The unique assets offered by the Kentucky countryside, however, can provide a short-term reprieve for locals or tourists in neighboring cities. The Purchase area should market itself in Chicago, St. Louis, Indianapolis, Nashville, Memphis, Louisville, and Lexington. The proximity of these cities make them convenient sources of potential tourists and could lead to repeat visitors who find a favorite hiking trail, hunting spot, or state park resort in the area.

- ***Travel by Theme***. The "travel by theme" trend is evident in recent travel profiles in the *New York Times* and other publications. Articles such as: "Twisting Roads Take You To the Heart of Appalachia," "Bourbon and Bluegrass," and "Louisville Weekend" demonstrate the rugged appeal of the state for tourists, all drawn to the area for different activities. "My Old Kentucky Ham," an article detailing the culinary traditions of Tennessee and

Kentucky, was published in *T Magazine* in May 2010. The Purchase Region can highlight its own offerings thematically, thus connecting itself to well-known routes through the state and giving visitors a chance to stumble upon experiences they weren't seeking-out, but were happy to 'discover.'

Adventure travel lends itself well to day or weekend excursions. Western Kentucky is particularly well-suited for a variety of outdoor adventures. Tours like Kentucky's Bluegrass Country Biker on Adventure Finder are an excellent example of how an interest like cycling can introduce a tourist to other regional assets. Creating and marketing similar trails in western Kentucky could attract new visitors to the area who otherwise might not have considered a trip to Kentucky. The map of trails available on the state tourism site is a helpful starting point for visitors interested in equine, ATV, motorcycle, bicycle, and hiking trails across the state. Expanding upon this map to include information about water sports, rock climbing, and camping sites would appeal to a wider range of visitors. Highlighting recreation opportunities at local and regional parks would also create more opportunities for tourism in western Kentucky.

Historical tours are a natural fit for the Purchase Region, with its many historic Indian sites, deep Civil War heritage, and proliferation of historic settlements and railroad towns. The state map of historic sites, parks, and resort parks is a good starting point for tourists, but does not suggest specific places to eat, routes to follow, trails to hike, or routes to structure a visit. The Civil War Heritage Map available on the state tourism site is very detailed, but could enhance its story-telling through historic routes, and could connect Civil War attractions to other local offerings, such as fantastic bar-b-que, a unique music venue, or a fun cycling trail. By contextualizing each site, visitors are drawn to the area by their initial interest (cycling, Indian history, or the Civil War) and linger to sample other offerings.

- ***International tourists.*** One group worth considering in the preparation of a regional tourism strategy are international tourists. Rates of international travel have seen double-digit growth in 2010 over prior years according to the International Trade Administration's Office of Travel and Tourism Industries. Efforts like "Visit Kentucky USA," a cooperative marketing initiative comprised of representatives from the Kentucky Department of Travel and convention and visitors bureaus from the northern part of the state, can help raise awareness about Kentucky as a destination for international visitors. Focusing outreach efforts on key countries, such as Canada could be part of this strategy.

Along with documenting assets and linking marketing strategies, communities must make an honest appraisal of potential challenges and liabilities. Local alcohol access laws are one example of an issue that could impact tourism. Another issue already mentioned is the lack of lodging facilities in the region. While this represents somewhat of a "chicken or the egg" situation — you need lodging to have visitors and visitors to have lodging — continuing to draw attention to the issue and to promote available facilities will be a necessary element of success.

Infrastructure is also intricately linked to the success of a tourism strategy; inaccessible communities are not attractive destinations. Communities should consider signage, gateways to the community, retail mix and critical mass, as well as building facades and streetscapes when developing a tourism strategy. Tourists are drawn to communities that offer a mix of attractions and quality amenities. They need quick and easy access to visitor information when planning their trip and a welcoming atmosphere during their stay to ensure that they enjoy their visit and recommend the destination to other travelers.

Entrepreneurship

Entrepreneurship has become an essential tool in the economic development toolbox. Especially in rural areas, communities are recognizing that a "grow your own" strategy has a higher probability of success than recruiting a major employer to the area. In addition, entrepreneurship strategies that foster new business and job creation are often more cost effective than incentives paid to recruit businesses to a community. An April 2008 study by the Appalachian Regional Commission's Entrepreneurship Initiative found the public cost of the initiative per job created ranged from $579 to $3,994, well below similar per job statistics for large-scale business attraction efforts.

A review of the region's establishments by firm size reveals that the vast majority of companies in the area are small and micro businesses (**Figure 3.8**). Stabilizing and supporting these small businesses' growth can greatly enhance a region's economic growth and job creation.

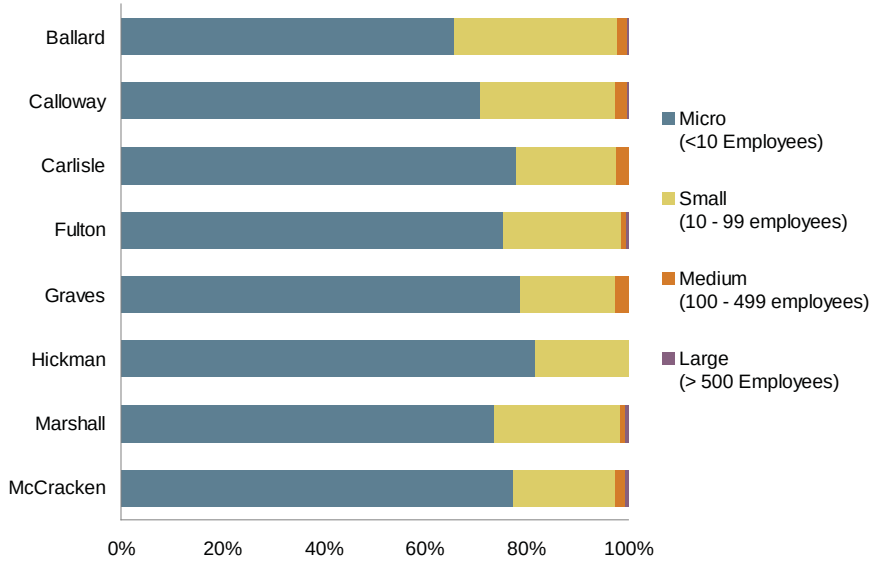
Understanding business churn — the rate of company births, deaths, expansions, and contractions — is also a factor in understanding the region's entrepreneurial climate. **Figure 3.9** shows a snapshot of business churn in the region. Over 10 percent of the total number of establishments in the period analyzed were new businesses. Continuing to enhance the region's small business support system can help strengthen start-ups, reduce the number of deaths and contractions, and help position the region for stronger economic growth.

Resources

The Purchase Region has access to a fairly comprehensive set of support services for entrepreneurs and small business owners. This support network provides services to meet the needs of a range of entrepreneurial talent, from mom and pop business to high-growth, technology based companies. **Figure 3.10** illustrates the entrepreneurship resources active in each of the region's eight counties. **Figure 3.11** provides a map of the region's entrepreneurial ecosystem by the type of service rendered.

Figure 3.8 | Business Type by Firm Size

Number of Employees, 2007



The majority of Purchase Region establishments fall into the micro category, with fewer than 10 employees.

Only a very small percentage of firms employ 100 or more people.

Stabilizing and supporting these small businesses' growth can greatly enhance a region's economic growth and job creation.

SOURCE: US Census Bureau, County Business Patterns

The state of Kentucky has embraced an entrepreneurship strategy and has set up a statewide network of services aimed at supporting entrepreneurs with technology-based businesses. State-level support is provided through the Kentucky Science and Technology Corporation's network of Innovation and Commercialization Centers (ICCs). The Western Region ICC is headquartered in Murray at Murray State University's Regional Business and Innovation Center (MSRBIC) and has a satellite office in Paducah that is run by EntrePaducah.

The service area of the Western Region ICC covers all eight counties in the Purchase Region. The ICC offices in the Purchase Region support technology-based entrepreneurs by providing one-on-one counseling tailored to the needs of each client. This assistance can include such services as prototype development, intellectual property planning, market research, business and financial planning, and capital assistance. In addition, the Western Region ICC in partnership with Murray State manages a 23,000 square foot business incubator to provide entrepreneurs with access to affordable, quality office space.

The state has also set up funds to provide access to capital for innovative businesses across the state. These funds include:

- The Kentucky Enterprise Fund
- The Rural Innovation Fund
- Kentucky New Energy Ventures
- High-Tech Investment Pools
- Common Wealth Seed Capital

These funding sources provide entrepreneurs in the region with equity capital and non-bank financing, which can be crucial to the survival of early stage companies.

The Murray / Paducah Small Business Development Center (SBDC) is part of the US Small Business Administration's national network of technical assistance providers. The Murray SBDC is housed in the MSBRIC's business incubator. Most of the assistance the SBDC provides is in the form of one-on-one counseling for topics including business planning, market research, feasibility studies, and market development. It also specializes in turn-around management. The SBDC offers training programs as well, including a 12-week business planning course and topical seminars. In addition, it partners with local chambers to offer a small business academy that consists of six to ten different sessions.

Purchase Area SCORE (Service Core of Retired Executives) is the local chapter of a national association that is a resource partner of the US Small Business Administration. SCORE volunteers provide free business counseling and teach workshops targeted to start-up and existing businesses. However, the Purchase Area chapter is currently not very active and struggling to find volunteers to staff its office.

Figure 3.9 | A Snapshot of Purchase Region Business Churn

Establishment Births, Deaths, Expansions, Contractions, and Constants, 2005-2006

County	Births	Deaths	Expansions	Contractions	Constants
Ballard	17	26	33	39	55
Calloway	76	67	231	186	261
Carlisle	7	7	15	18	26
Fulton	13	29	37	41	55
Graves	68	71	205	156	245
Hickman	3	6	17	21	32
Marshall	49	51	171	152	224
McCracken	158	169	586	581	689
Region Total	**624**	**683**	**2,004**	**1,807**	**2,485**

SOURCE: US Census Bureau, Business Information Tracking Series.

The Purchase Area Development District's Business Lending and Development Services Department also provides businesses in the region with access to non-bank financing. The department provides direct loans and loan packaging assistance to small business owners in the eight-county region.

EntrePaducah is a non-profit organization that provides technical assistance to small business owners and entrepreneurs in McCracken County. It employs three "concierges" that provide one-on-one counseling to clients. It also hosts educational and networking workshops for entrepreneurs. In addition to providing direct assistance to entrepreneurs and small business owners, EntrePaducah has created working groups to address barriers to entrepreneurship in the area and foster a more entrepreneurial climate in general.

These small business resources are supported by the region's higher education institutions which provide existing and aspiring business owners with formal and more-intensive training in business administration and management.

Figure 3.10 | Purchase Region Entrepreneurship Resources

Service Area (County)	Murray/Paducah SBDC	Western Region ICC	PADD Business Lending & Development Services	EntrePaducah
Ballard	✓	✓	✓	
Calloway	✓	✓	✓	
Carlisle	✓	✓	✓	
Fulton	✓	✓	✓	
Graves	✓	✓	✓	
Hickman	✓	✓	✓	
Marshall	✓	✓	✓	
McCracken	✓	✓	✓	✓
Locations	Murray, Paducah, Hopkinsville, Owensboro	Murray, Paducah	Mayfield	Paducah

SOURCE: Compiled by TIP Strategies

During the 2007-2008 academic year, these institutions graduated just over 1,000 students in business-related fields (**Figure 3.12**).

Strengthening Connections

Continuing to improve the region's entrepreneurship resources should be part of the economic sector strategy.

- ***Extend the "no-wrong-door" support system for business owners across the region.*** The ICC, SBDC, and EntrePaducah have been working closely to define their niches and reduce the duplication of services offered in the region. Because of their efforts, an entrepreneur that seeks assistance from any one of these small business resources can be referred to the provider that best meets his or her needs. This creates a "no-wrong-door" system among the three principal small business resources in the region.

  Working closely with bankers, non-bank lenders such as the PADD, chambers, and economic development organizations in addition to the small business resources can extend the reach of the entrepreneurial support system and can ensure the referral network is active and accurate. Holding regular meetings among these participants can facilitate more collaboration on entrepreneurial initiatives and the region. These meetings can be forums for identifying entrepreneurs' needs, planning workshops and other events, developing outreach strategies, and educating each other on the programs and services each offers.

- ***Enhance access to business support services.*** Entrepreneurs often must seek specialized services such as patent attorneys, prototype design and development, marketing, branding, and advertising assistance, payroll support, etc. However, many of these services are not offered in the Purchase area and entrepreneurs must travel to Louisville or Nashville.

  Creating a directory of business service providers within the region and in nearby metropolitan areas can greatly assist entrepreneurs in locating and choosing a quality service provider to meet their needs. Building relationships with service providers in nearby metropolitan areas can help fill in gaps for high-demand programs that are not offered locally. In addition to linking businesses with the services they need, this kind of effort can demonstrate demand for a particular service and provide enough evidence to support the opening of a new office in the region. This idea could be supported further by offer meeting space (donated by a local chamber or other organization) to outside firms who hold regular office hours in the region to encourage their expansion and increase access to those services in the region.

- ***Provide more training opportunities targeted specifically for aspiring entrepreneurs.*** Currently, the majority of the assistance offered to entrepreneurs and small business owners in the region is one-on-one counseling. All three service providers offer some workshops and training series, but no one is currently offering a business "boot camp." These boot camps,

Figure 3.11 | Purchase Region Entrepreneurship "Ecosystem"

SOURCE: TIP Strategies, Inc.

Figure 3.12 | Purchase Region Business-Related Offerings

Total Awards/Degrees by CIP Code (2000), Institution and Award Level for First and Second Majors, July 1, 2007 to June 30, 2009

		Murray State University				West Kentucky Community and Technical College				Mid-Continent University	
CIP Code (2000)	Description	Associate's degree	Bachelor's degree	Master's degree	Murray State University Total	Less than 1 year	At least 1, but < 2 years	Associate's degree	West Kentucky Community and Technical College Total	Bachelor's degree	Mid-Continent University Total
52.0101	Business/Commerce, General	3	115	58	176						
52.0201	Business Administration and Management, General		15		15	120	5	16	141	266	266
52.0301	Accounting		48	10	58						
52.0302	Accounting Technology/Technician and Bookkeeping					25	3		28		
52.0401	Administrative Assistant and Secretarial Science, General	2			2						
52.0402	Executive Assistant/Executive Secretary					226	62	26	314		
52.0801	Finance, General		21		21						
52.1003	Organizational Behavior Studies									4	4
52.1101	International Business/Trade/Commerce		5		5						
52.1201	Management Information Systems, General		5		5						
52.1401	Marketing/Marketing Management, General		34		34						
	TOTAL BUSINESS-RELATED COMPLETIONS	**5**	**243**	**68**	**316**	**371**	**70**	**42**	**483**	**270**	**270**

SOURCE: National Center for Education Statistics.

NOTE: Daymar College (Paducah Main) reported one completion during this period —an associates degree in Business Administration and Management, General (CIP 52.0201).

such as FastTrac (created by the Kauffman Foundation) or NxLevel (developed by the University of Colorado at Denver), help entrepreneurs develop their business idea, research and test the market, and better understand how to manage a business. In general, these boot camps better prepare entrepreneurs for starting a business and can improve their chances of success through better business planning.

- ***Enhance access to capital.*** One need common to entrepreneurs regardless of location is better access to capital. In the Purchase Region, debt financing is readily available for qualified borrowers. However, there is no local source of venture funding. Although there was an informal angel investor network, there has never been a formal angel network created to provide capital for seed stage companies in the region. The ICC is working on formalizing an angel network and is planning to put together a venture fund specifically for local companies. These initiatives will greatly improve local entrepreneurs' access to equity capital.

- ***Help foster an entrepreneurial spirit in the region.*** Entrepreneurship breeds more entrepreneurship by creating a culture that encourages people to take risks and start their own business ventures. Raising awareness of entrepreneurship and fostering an entrepreneurial spirit from an early age can help encourage a more supportive culture. Profiling successful business owners in local media sources, holding entrepreneurship expos, and encouraging citizens to support local businesses are all actions that can help foster a more entrepreneurial culture. Youth entrepreneurship programs such as Junior Achievement (www.ja.org) or Lemonade Day (www.lemonadeday.org) teach kids entrepreneurial skills from an early age. Such initiatives can be instrumental in building a strong entrepreneurial spirit in a region.

- ***Expand availability of entrepreneurial coaches.*** As part of the State Energy Sector Partnership training grants described earlier in this chapter, the Purchase Region will receive funding for two entrepreneurial coaches. These coaches will provide technical assistance to "green" entrepreneurs who are looking to start or expand an existing business.

  In addition to leveraging this opportunity, regional groups should explore the potential to expand the Kentucky Entrepreneurial Coaches Institute (KECI). This innovative program, founded in 2003 by the College of Agriculture at the University of Kentucky, is designed to promote economic diversification in northeast Kentucky. Since then, the program has expanded into South Central Kentucky as well. Based on discussions with KECI, the Purchase Region leadership should explore the possibility of expanding the program to the region.

  Potential steps would include:

  - ✓ Organizing a class of 30 interested individuals. Under the KECI program, individuals participate in a predetermined number of seminars, as well as travel to observe best practices. Participants in

CASE STUDY: Kentucky Entrepreneurial Coaches Institute (KECI)

In 2003, the College of Agriculture at the University of Kentucky founded the Kentucky Entrepreneurial Coaches Institute to promote economic diversification in Northeastern Kentucky. Since then, the program has expanded into South Central Kentucky as well.

The program trains coaches through an intensive series of seminars and a national education tour. Thirty participants are selected from the pool of applicants to receive a fellowship to attend the institute. These fellowships are funded through the Kentucky Agricultural Development Board.

The Entrepreneurial Coaches are volunteers who work with entrepreneurs. Rather than providing technical assistance, they serve as a resource for entrepreneurs, help them assess their businesses, and assist them in finding the technical support that they need.

The program was named one of the top programs in the nation by the Small Business Administration.

For more information, visit: http://www.uky.edu/Ag/CLD/KECI/

the program make a two-year commitment back to the region.

- ✓ Offering a four-day seminar to train entrepreneurial coaches. Scaled-down versions of KECI's model are currently being developed for entities outside the organization's service area. Organizing this type of event, coupled with clear expectations and an opportunity for follow-up, could help kick-start entrepreneurship efforts in the region.

- ✓ Integrating KECI's seminars into existing leadership programs. Examples could include working with local chambers and groups such as Leadership Paducah. ■

OTHER RELEVANT CASE STUDIES

Case Study: Central Texas Angel Network

The Central Texas Angel Network (CTAN) was founded in 2006 under the leadership of local entrepreneur Jamie Rhodes with support from the Greater Austin Chamber of Commerce. CTAN provides funding from $200,000 to $2 million through its network of SEC accredited investors. Each of its investors pay a membership fee to encourage only serious investors to join. The executive director of CTAN carefully screens deals to ensure that high quality, investment-ready deals are presented to the network. In addition, CTAN has created a larger network of other angel investment networks in the state of Texas that it can syndicate its deals to.

For more information, visit: www.centraltexasangelnetwork.com

Case Study: Sam Swope JA BizTown™

This Junior Achievement park in Louisville, Kentucky, is designed to teach upper elementary students the basics of financial literacy and entrepreneurship through a real-world simulation. In BizTown, students create marketing plans, raise capital, and operate businesses selling products to their classmates. The facility hosts up to 12,000 students annually, helping to promote entrepreneurship among youth in the region at a very early age.

For more information, visit: www.jaky.org

4: Building Blocks

At its most basic level, economic vitality can be boiled down to three essential ingredients:

- the availability of a **talented** workforce,
- a climate that fosters **innovation** and encourages business growth, and
- a quality of **place** that attracts and retains businesses and individuals alike.

The Purchase Region's success in building on existing strengths and capitalizing on emerging opportunities will depend upon the ability of local leaders to strengthen these fundamentals.

Talent

As waves of the baby boom generation continue to move towards retirement age, the attraction and retention of talent remains a high priority for workforce and economic development professionals. The current economic slowdown may have softened the blow by delaying retirement plans for a share of the workforce. However, the loss of the baby boomers will ultimately be felt not only as loss in numbers, but a loss of knowledge and skill sets.

This issue will be particularly important for the Purchase Region given its age structure (*see Appendix A*). While the number of seniors rises, those under the age of 20 are projected to comprise a decreasing share of the population. As a result, the region's working- age population — those between the ages of 20 and 64 — is unlikely to increase significantly in the coming decades, if at all.

Key occupations

Purchase Region employers generally praised the region's strong work ethic and low turnover rates. However, the aging of the workforce, difficulties finding and holding on to skilled workers, and a resistance to change were among the workforce challenges cited by firms. Focusing on the development, retention, and attraction of talent will be a critical piece of the region's future economic vitality.

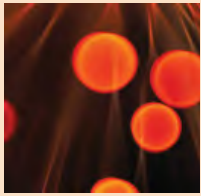
Interviews with local employers identified a number of occupational shortages in the region. While some reported difficulty filling unskilled positions, virtually all reported challenges in the attraction and retention of skilled workers.

Occupations that were identified as "hard to fill" and for which demand is expected to increase in the future include:

- Industrial maintenance and repair
- Engineers, particularly chemical engineers

The Purchase Region's youth — those under the age of 20 — represent a shrinking share of the population.

In 1970, one in every three residents was in this age group. By 2030, they will represent barely one in five.



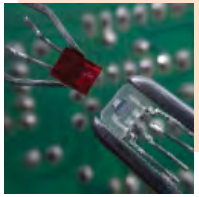


Figure 4.1 | Overview of Selected Manufacturing Occupations

SOC Code	Description	2009 Jobs	Median Hourly Earnings: Purchase Region	Median Hourly Earnings: US	Relative wages *(US = 1.0)*	Education Level
41-4012	Sales representatives, wholesale and mfg., except technical and scientific products	856	$20.24	$24.93	0.81	Moderate-term on-the-job training
51-1011	First-line supervisors/managers of production and operating workers	590	$24.71	$24.07	1.03	Work experience in a related field
47-2111	Electricians	571	$20.76	$21.91	0.95	Long-term on-the-job training
49-9041	Industrial machinery mechanics	487	$20.65	$20.93	0.99	Long-term on-the-job training
51-9061	Inspectors, testers, sorters, samplers, and weighers	259	$15.41	$15.13	1.02	Moderate-term on-the-job training
51-8091	Chemical plant and system operators	241	$28.16	$25.23	1.12	Long-term on-the-job training
11-3051	Industrial production managers	137	$42.95	$39.59	1.08	Work experience in a related field
17-2112	Industrial engineers	104	$35.07	$35.37	0.99	Bachelor's degree
17-2041	Chemical engineers	88	$41.35	$40.57	1.02	Bachelor's degree
19-4031	Chemical technicians	80	$29.89	$20.20	1.48	Associate's degree
51-4011	Computer-controlled machine tool operators, metal and plastic	66	$14.96	$16.02	0.93	Moderate-term on-the-job training
49-9043	Maintenance workers, machinery	52	$17.69	$17.68	1.00	Short-term on-the-job training
43-5111	Weighers, measurers, checkers, and samplers, recordkeeping	32	$11.83	$12.96	0.91	Short-term on-the-job training
17-3026	Industrial engineering technicians	22	$20.99	$22.59	0.93	Associate's degree
17-3027	Mechanical engineering technicians	12	$23.47	$22.99	1.02	Associate's degree

SOURCES: EMSI, Spring 2010 Forecast; TIP Strategies, Inc.

- Process control workers, instrument technicians
- Supervisors and managers
- Experienced salespeople
- Electricians, including those with locomotive experience
- Diesel mechanics

In addition, basic skills, such as communication skills, leadership qualities, analytical skills, and computer proficiency, continue to be a concern for employers in the region and elsewhere.

Employers have tried to be proactive in addressing these shortages. Several firms reported working with West Kentucky Community & Technical College (WKCTC) to address their recruiting needs. Others actions include designing in-house mentoring programs, expanding the geographic area for recruiting, increasing compensation, establishing relationships with college recruitment offices, using temporary workers, and employing professional recruitment firms ("headhunters").

With a few exceptions, a comparison of median hourly wages paid in these "hard-to-fill" occupational groups (**Figure 4.1**) does not show large discrepancies between Purchase Region wages and national pay levels. In fact, some occupations pay far better in the region than they do nationally. According to some employers interviewed for this work, it can be difficult to recruit workers from outside the region because of people's pre-conceived

notions of the area. Working with local employers and economic developers on strategies for enhancing the image of the region could be an important area of focus for the Purchase Region Area Development District's (Purchase ADD's) economic development initiative.

WKCTC's newly dedicated Emerging Technology Center in Paducah and the Skilled Craft Training Center in Hickory reflect the region's commitment to employer-driven training. The Purchase ADD could continue to support the WKCTC and other postsecondary institutions in this effort by:

1. helping to promote training and education offerings to employers and workers in the region,

2. working with local economic developers to create a formal mechanism for gathering input from employers about workforce needs,

3. providing current data to help create and expand formal career pathways that link workers with high-growth, high-wage occupations, and

4. helping employers identify and access training funds and tax credits at the state and federal level.

Pipeline

A critical piece of the talent puzzle is understanding the regional "pipeline." The pipeline concept is at the heart of P-16 or P-20 initiatives, which focus on creating a seamless system from pre-school ("P") through postsecondary education (with "P-16" systems including completion of a four-year degree and "P-20" systems extended through graduate work). A core element of these initiatives is identifying those points at which students are at risk of dropping out of the system. These transition points occur at a number of junctures — middle school to high school, high school to postsecondary education or work, work to continuing education. Smoothing these transitions has been the focus of education and workforce professionals in recent years.

Like most states in the nation, Kentucky's graduation rate calculations have been criticized for overstating performance. A 2006 report by the state auditor's office points to serious concerns about Kentucky's method reporting drop-outs and points to the link between this statistic and published graduation rates:

> *In recent years, the education world has been focusing and publicizing the issue of raising the graduation rate instead of discussing lowering the dropout rate. Regardless of the perspective on education goal setting, the two statistics are related, in that dropout numbers are factors for both. If dropouts are generally underreported, then the denominator [of the graduation rate formula] will be smaller than it should be, causing the graduation rate to be higher than it should be.*

The report included an analysis in the decline of membership by grade for selected school years, which is included here as **Figure 4.2** *This analysis cannot be interpreted as a proxy for the state's dropout rate*; class membership can decline for a variety of reasons that would not be captured even by a state-level analysis. Some students are retained, others may transfer to a private school or to a public school outside the state, or withdraw to be home-schooled or to obtain a GED, or leave the school rolls due to a serious illness or other causes.

However, such data do support the idea that graduation rates must take into account the decline in class size that occurs over a four-year period. A back-of-the-envelope calculation for the Purchase Region's 12 public school districts suggests similar rates of attrition (**Figure 4.3**).

The state's move to the "Transitional Averaged Freshman Graduation Rate" calculation for the 2010-2011 school year should help address this issue. An analysis statewide high school graduation rates prepared by an education policy group found approximately 6 percentage points dif-

"'I liken N.C.L.B. [No Child Left Behind] to a mile race,' said Bob Wise, a former West Virginia governor who is president of the Alliance for Excellent Education, a group that seeks to improve schools. 'Under N.C.L.B., students are tested rigorously every tenth of a mile. But nobody keeps track as to whether they cross the finish line.'"

SOURCE: "States' Data Obscure How Few Finish High School," New York Times, March 20, 2008.

Figure 4.2 | Kentucky Public Schools

Membership Decline Analysis

Year of Graduation	Class Membership by Grade				Overall Decrease in Membership Over 4 Years
	9th	10th	11th	12th	
2005	53,878	47,743	42,361	39,075	14,803 (27%)
2004	53,687	47,077	42,303	39,025	14,662 (27%)
2003	55,354	47,776	42,278	38,901	16,453 (30%)
2002	54,455	46,783	41,230	37,290	17,165 (32%)

SOURCE: Auditor of Public Accounts, based on information provided by the Kentucky Department of Education, as published in "Kentucky's Dropout Rate: October 2006- Performance Audit"

Because Kentucky's formula for calculating the graduation rate is currently dependent upon the dropout numbers reported by the districts for grades 9-12, the graduation rate has been overstated.

Kentucky's Dropout Rate: October 2006- Performance Audit, Auditor of Public Accounts

ference between the current rates and rates calculated under the new method. In the most recent year (2007-2008) the state's published graduation rate was 84.5 percent; using the Transitional AFGR method the policy group's calculations place the graduation rate at 78.5 percent.

Improving high school graduation rates has been a focus of Governor Beshear's administration. In September, 2009, the Governor's office hosted the first Graduate Kentucky Summit. Funded through private sponsors, including America's Promise Alliance, this statewide summit focused on identifying factors affecting the state's dropout rate and generating ideas for improving it. The event is being followed up by a series of regional summits, including the West Kentucky Region summit, held in Murray in February 2010. Resources from the Graduate Kentucky initiative are available online at www.graduate.ky.gov.

High school dropout rates have also been the focus of numerous initiatives across the country. A September 2008 *Practice Guide* published by the US Department of Education's Institute of Education Sciences grouped dropout prevention strategies into six broad recommendations:

- Utilize **data systems** that support a realistic diagnosis of the number of students who drop out and that help identify individual students at high risk of dropping out *(diagnostic)*.
- Assign **adult advocates** to students at risk of dropping out *(targeted intervention)*.
- Provide academic **support and enrichment** to improve academic performance *(targeted intervention)*.
- Implement programs to improve students' classroom **behavior and social skills** *(targeted intervention)*.
- Personalize the **learning environment** and instructional process *(schoolwide intervention)*.
- Provide **rigorous and relevant instruction** to better engage students in learning and provide the skills needed to graduate and to serve them after they leave school *(schoolwide intervention)*.

One consistent finding of the dropout prevention literature is the importance of early identification of at-risk students. Red flags identified in recent studies include:

- ***Behavior***. A 2008 study by the Public Policy Institute of California found passage rates for the state's exit exam (introduced as a graduation requirement in the state in 2006) could be predicted effectively by the fourth grade. High on the list of indicators of success were elementary math scores and classroom behaviors such as beginning promptly and following instructions. The study's authors used behavior grades on elementary school report cards to create a "Behavior GPA," which correlated strongly with passage rates on the exit exam.
- ***Attendance***. A July 2007 report published by the Consortium on Chicago School Research at the University

of Chicago (*What Matters for Staying On-Track and Graduating in Chicago Public High Schools)* found a direct correlation between ninth grade attendance rates and high school graduation rates. The study found that students who missed as little as one or two weeks of school per semester faced a "substantially reduced" chance of graduating.

- ***General performance***. Researchers from a 2005 study by the Philadelphia Education Fund and Johns Hopkins University found that similar indicators – failing scores in math or English, being flagged for bad behavior, and poor attendance – could be used to identify potential dropouts by the sixth grade.

Because of these and other findings, growing emphasis has been placed on easing the transition from elementary to middle school, as this is the point at which a number of these early warning signs come in to play. Strategies for addressing middle school challenges include:

- ***Accelerated Middle Schools***. A 2008 topic report by the US Department of Education's What Works Clearinghouse identified Accelerated Middle Schools as one of only a handful of programs that had an impact on selected outcome measures (specifically, staying in school and progressing in school). These programs are designed to help middle school students who are behind grade level catch up with peers in their age group.

- ***Best practices.*** Graduate Kentucky provides a source of best practice research related to improving graduation rates, including a number of initiatives directed at middle-schoolers.

Talent management

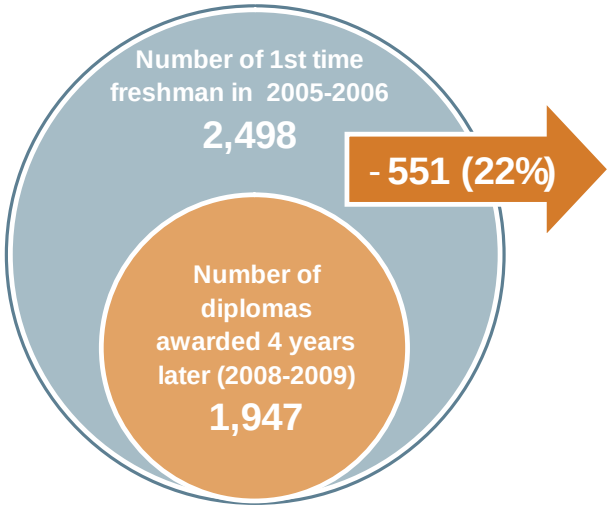
In recent years, human resource practices have shifted from a focus on employee attraction and recruitment strategies to a more comprehensive "talent management" approach. These integrated strategies recognize that the success of organizations is driven by the talent and skills of its employees. As a result, they focus not only on attraction and recruitment, but also on the development and retention of talent. Moreover, talent management strategies are structured around future organizational needs as well as current needs.

Talent management strategies for communities or regions can be approached in much the same way. As in organizations, the talent and skills of residents and workers drive the success of their communities. In broad terms, strategies for the attraction, development, and retention of talent fall into two categories:

- ***Leveraging existing assets and organizations***. Regional agencies and organizations involved in education and workforce should be actively engaged in attracting new residents to the area and facilitating the integration of these residents to the region. These efforts will ensure a growing talent pool to sustain regional employers and attract new employers. A formalized effort will also stabilize the talent pool by improving the region's retention rate. In addition, a focus on talent by multiple organizations will help ensure the local labor pool has

Figure 4.3 | Purchase Region Public Schools

One segment of the region's education pipeline



SOURCES: Calculations by TIP Strategies based on Non-academic Data published by the Kentucky Department of Education (KDOE). Figures include the 12 public school districts located in the eight-county region.

Number of first-time freshman was calculated by applying the published retention rate to the number of 9th grade students reported by KDOE in 2005-06 Growth Factor Ethnic Membership [filename = Growth Factor Ethnic Membership Report 2005-2006 2.2.06.xls]. The retention rate for 2005-2009 was obtained from Retention Rates by School and District (Five year trend, 2009)) [filename = RET0509.xls].

Number of diplomas awarded was calculated from KDOE Graduation Rates by District and High School (Five year trend, 2009) [filename = GradRate2005_2009.xls]. Figures include graduates who received a diploma in 4 years and those with an Individualized Education Program (IEP) that allows for more than 4 years.

Talent trends

A number of significant trends influence talent management:

Demographic trends, most notably the aging of the baby boomers, suggest demand for workers may soon outstrip supply. As a result, competition for labor is expected to increase among companies as well as communities. Many industrialized nations (Japan, the United Kingdom, Russia, and Germany) are experiencing a decline in working age population, only exacerbating the issue in the US.

The "next generation" workforce has different expectations for work than previous generations. Often cited attributes of this younger workforce include (1) facility with technology, (2) a desire to do work of social importance, (3) an interest in having "fun" at work, (4) increased interest in work-life balance, and (5) choosing the place they live first, then looking for work.

Rapid advances in communications technology are changing the patterns of how and where people work, creating new opportunities for business startups, and offering new ways to communicate and collaborate. Interactive media tools, such as Linked-in, Facebook, and Twitter are enhancing and creating new opportunities for both business and social networking.

Globalization, most significantly the growth in the BRIC countries (Brazil, Russia, India, and China), is fueling unprecedented demand for resources and talent. The impact of global demand on consumption patterns, commuting patterns, and overall business structures is likely to require communities to re-think how they attract and retain for employers and talent.

access to education programs to develop skills needed to pursue employment in the region.

- ***Supporting the efforts of local employers.*** Increased support for employers is the second part of the talent management framework. This can be accomplished through programs and initiatives designed to foster collaboration among employers, train human resource professionals on effective talent management strategies, and enhance employers' efforts to recruit, develop, and retain their talent pools. These efforts will help to ensure regional employers' access to an adequate labor supply, which will in turn, be a powerful business retention tool.

The strategies outlined below will help the Purchase Region more effectively attract, develop, and retain the talent to meet the needs current and future employers. The proposed talent management strategy draws on regional assets including promoting existing initiatives, leveraging regional institutions of higher education, increasing ties to former residents, and capitalizing on tourism flows to the region.

- ***Workforce***. Forming partnerships among workforce, business, and education should be the focus of a talent management strategy. The Purchase ADD's Community & Economic Development Committee could provide a forum for discussion. Issues for consideration include:

  - ✓ Resources. Helping employers and residents learn about and access state and federal workforce resources should be at the core of any talent management strategy. A web-based map of the region's education and workforce assets was created as part of the Purchase Future planning process. This mapping process could be extended to other areas of interest based on input from local employers and economic development professionals.

  - ✓ Marketing. The Purchase ADD could serve as the focal point for a talent recruitment campaign. This effort would be designed to 1) help improve the image of the Purchase both inside the state and externally, 2) keep potential employees informed about opportunities in high growth careers in the region, and 3) change attitudes about certain career choices, including manufacturing. Publicizing key assets, such as the Emerging Technology Center, could form the core of this strategy.

  - ✓ Industry-focused groups. Organizing around key industry sectors can help align area resources and provide focus to existing initiatives. This effort should be carried out through existing structures where possible (rather than forming new groups). Work plans would encompass areas such as *training* (e.g., leveraging West Kentucky Community and Technical College in the provision of industry-specific curriculum) and *skills certification* (e.g., creation of a certified skills talent bank to connect companies with prospective employees and vice versa), as well as identifying and monitoring industry-specific *business climate* issues.

- ✓ Talent magnets. Innovative programs can raise the profile of a region and help attract and retain talent. Examples of these "magnets" include providing stipends to promising students in engineering and other high-demand fields, creating "forgivable" student loan programs, and hosting design competitions underwritten by local companies. A competition which engages students, engineers, and industrial designers to show how products can be improved can be of immediate value to the companies participating, as well as to those submitting their work.

- ✓ "Soft skills." In addition to the specific occupations listed earlier in this chapter, local employers cited a lack of "soft skills." While industry-specific skills can sometimes be taught on the job, employers are looking to hire workers who are already proficient in standard skills, such as the ability to understand directions, solve problems, and communicate effectively with others.

- ***Higher education.*** Local colleges and universities with a presence in the region can participate in a talent management strategy in the following ways:

  - ✓ Alumni ties. Maintaining contact with graduates who have left the region is an invaluable part of a talent attraction strategy. Collaborative outreach efforts involving local workforce and economic development professionals should focus on building a network of individuals with connections to the region (see *Extended network*, below).

  - ✓ Articulation/reciprocity. Facilitating the transfer of credits between institutions of higher education can bring talent into the region and help advance the skills of existing workers. Cross-state agreements should be considered. Institutions with degree programs in occupations for which the region has shortages (such as engineering) should be a priority.

  - ✓ Internships and apprenticeships. These tools have long been vital components of workforce development activities. When incorporated into a larger talent management strategy, internships and apprenticeships can provide other benefits. For example, in addition to providing real-world work experience, connecting students with local companies can help establish ties to the region whether or not the individual remains with the employer. These programs can also provide a mechanism for feedback from local employers about education and training programs. The continued expansion of internship and apprenticeship opportunities in the region should be supported.

  - ✓ Volunteer opportunities. Like internships, volunteering can help ensure students have a positive perception of the region and increase loyalty to the area.

  - ✓ Continuing education. The ability to access lifelong learning opportunities has been identified as an important factor in retirement decisions.

  - ✓ Conferences & events. Higher education events can strengthen connections between the institution and the community and — if actively promoted — draw others to the region. Where possible events should be tied to target sectors and occupations.

- ***Communities, regional organizations.*** The following strategies relate to city and county leaders, economic development practitioners, workforce professionals, and others.

- ✓ Former residents. "Come Home" campaigns can help re-establish ties to former residents. Creating databases of area high school and college alumni is a starting point for marketing efforts (either through traditional channels, such as direct mail, or using social media tools such as Facebook or LinkedIn). Regardless of the channel, marketing messages should focus on opportunities (e.g. job postings, business expansions, investment opportunities, planning initiatives).

- ✓ Extended network. Establishing a network of people who have ties to the Purchase Region — former students, grown children of current residents, business travelers, tourists — provides a way for people who have positive feelings about the area to stay connected. Louisville's Friends of Lou is an example of this approach. This strategy goes beyond talent attraction and can play an essential role in building support for projects and initiatives, facilitating investment in the region, and supporting entrepreneurship and small business growth.

- ✓ Networking. Providing opportunities for area residents to interact professionally and socially is a significant element of talent retention. Helping people develop and maintain relationships increases a sense of investment in the region and can make it more likely they will remain. Popular business networking events include card exchanges, regular breakfast meetings on topics of concern and "speed" networking.

- ✓ Employers. Frequent contact with local employers aids with the retention of both businesses and workers. Outreach efforts should focus on ensuring that area training programs continue to match business needs and that businesses are making full use of available workforce development incentives (e.g., customized training incentives, tuition reimburse tax credits, etc.).

- ✓ Current residents. Gathering information from current residents about quality-of-place issues, like transportation access, housing options, and the availability and quality of local amenities, provides an important tool for identifying gaps and weaknesses likely to affect talent retention and attraction. Annual community surveys can provide a mechanism for this task.

- ✓ Higher education offerings. Information about the region's educational offerings should be incorporated into talent-related marketing. Elements to emphasize include specific programs that support target industries, niche programs that help differentiate the region, university-sponsored events, and continuing education and professional development opportunities.

- ✓ Current students. Market area events to regional colleges and universities to engage current students. Promote "young professionals" events and leadership opportunities to help create a sense of belonging to the area.

- ***Tourism***. Tourism initiatives can also play a role in talent management strategies. Increasing the number of visitors to the region increases the pool of people who have an association with the area.

  - ✓ Online tools. The availability of interactive media makes far-reaching marketing strategies possible. Creative use of sites such as YouTube and Facebook can bring the Purchase Region to a mass audience for much lower cost than traditional media. However, to be successful, social media campaigns require a sustained and engaging effort.

  - ✓ Regional approach. Tying individual tourism assets and initiatives helps to expand the reach of tourism

dollars. Drawing visitors from neighboring states presents the most immediate opportunity.

- ✓ Conventions & meetings. Implementing a convention and meeting strategy focused on targeted occupations, groups, or industries helps bring in people who fit the region's talent needs and exposes them to the area's amenities.

Innovation

One critical component of innovation is the presence of a responsive and flexible business climate. Kentucky has made a number of strides in addressing issues related to education, taxes, and the availability of incentives. Its success in this respect can be seen in the number of high profile recruitment projects that have landed in the state in recent years. However, Kentucky still does not compare favorably with surrounding states on a number of factors — a situation which affects the competitive position of Purchase-area businesses and economic development organizations.

Tax comparisons

While workforce nears the top of the list of factors affecting business expansion, recruitment, and retention decisions, cost-related concerns are often paramount. A review of publicly available rankings suggest Kentucky continues to lag the majority of states on a number of business tax indicators.

One of the most commonly cited tax comparisons is prepared by the Tax Foundation, a nonpartisan research group based in Washington, D.C. The organization's annual State Business Tax Climate Index (SBTCI) ranks the fifty states on five indices: corporate taxes, individual income taxes, sales taxes, unemployment insurance taxes, and property taxes. Each index is comprised of several factors.

A review of the 2010 SBTCI reveals significant improvements in Kentucky's overall ranking, which rose from 34 in 2009 to 20 in the 2010 edition, an increase of 14 points. Kentucky also fared well on the overall ranking relative to a number of its neighbors. However, much of the reason for Kentucky's relative advantage lies in its favorable rank with regard to sales and property taxes. On the remaining three indices – corporate taxes, individual income taxes, and unemployment insurance taxes – Kentucky's performance is considerably less impressive.

A quick summary of Kentucky's performance on each component of the 2010 SBTCI is provided below.

- ***Sales tax.*** Although Kentucky has a relatively high state sales tax (6 percent), lack of local taxes make the state's combined tax rate among the lowest in the country. The state's 7th place ranking on this factor placed it at the top among neighboring states. At 49, Tennessee ranked lowest.

- ***Property tax.*** Kentucky placed in the top half of the US (#20) and fared better than many of its neighbors on this index. The state received high marks for having consistently low property tax rates and per capita property tax collections (estimated at $611). However, Kentucky's ranking was negatively affected because it was one of a small number of state's that imposed certain taxes, including levies on corporate inventories, on the transfer of real estate, and on inheritance. Tennessee, Ohio, and North Carolina received poor marks on this sub-indicator as well.

- ***Unemployment insurance***. Kentucky fared significantly better on this index than in prior years, although at #36, it was still firmly in the bottom half of the rankings. At 10 percent, Kentucky's minimum unemployment insurance tax rate tied with four other states, including Tennessee, as being among the country's highest. Only Michigan had a higher rate, at 10.3 percent. Kentucky's charging method also negatively impacted ratings on this index.

American companies often function at a competitive disadvantage in the global economy. They pay one of the highest corporate tax rates of any of the industrialized countries. The top federal rate on corporate income is 35 percent, and states with punitive tax systems cause companies to be even less competitive globally.

2010 State Business Tax Climate Index (Seventh Edition), Tax Foundation

- ***Corporate tax***. At #42, Kentucky received its worst ranking for its corporate tax structure. Corporate income is generally defined as profit (gross receipts minus expenses). However, a growing number of states, including Kentucky, have enacted taxes on a business's gross receipts with few or no deductions. The state was also penalized for its corporate rate structure (with top rates kicking in at just $100,000 of income) and the fact that Kentucky is one of only 15 states that does not adjust corporate tax brackets for inflation (resulting in higher tax payments).

Kentucky rose through the ranks faster than any other state this year, up 14 spots from 34th best in the 2009 Index to 20th this year. That might be surprising to Kentuckians who have not seen much change in their tax system, but sometimes standing fast is a virtue. Many economically damaging changes were enacted in other states that previously ranked better than Kentucky. This was particularly true in the personal income tax, where Kentucky saw gains as other states added more brackets with higher rates.

2010 State Business Tax Climate Index (Seventh Edition), Tax Foundation

- ***Individual income tax.*** As with corporate income taxes, Kentucky ranks in the bottom half of all 50 states and does not compare favorably with neighboring states. The state's 32nd place ranking occurs largely because of structural issues, including a relatively large number of brackets and relatively low standard deductions and exemptions.

- ***Occupational taxes.*** Occupational taxes are worth noting in this discussion of tax burden because they are not evenly distributed throughout the region. The following findings are based on analysis of 2010 Local Occupational License Taxes published by the Kentucky Cabinet for Economic Development:

  - ✓ Of the eight Purchase Region counties, four levy a county occupational tax of 1.00 percent on employees (salaries and wages): Ballard, Graves, Marshall, and McCracken.

  - ✓ Marshall and McCracken Counties levy the tax on both employees (1.00% on salaries and wages) and employers, with a 1.00% levy on net profits/receipts.

  - ✓ Of the 15 cities for which data were provided, five cities levied an occupational tax on both profits and wages (Fulton, Hickman, Mayfield, Calvert City, and Paducah). The cities of Benton and Clinton levied the tax on wages only.

  - ✓ Of the region's 12 school districts, only one – Marshall County School District – levies the tax.

  - ✓ At a combined rate of 3.00%, residents of Paducah and Mayfield face the highest occupational tax rates.

  - ✓ Of neighboring Pennyrile Region counties (Livingston, Lyon, and Trigg), only Livingston County has an occupational tax which is levied at 1.00% on both employees and employers. At the city level Eddyville has a 1.50% tax on both salaries/wages and on profits/receipts. Cadiz taxes salaries and wages only at the same rate. None of the neighboring Pennyrile school districts impose an occupational tax.

Because of these disparities, occupational taxes can be viewed as an obstacle to competitiveness. Differences among Kentucky counties affect industry recruitment and expansion activities. The complicated structure of the tax — applied at different rates to business or workers or both — is confusing for many. Professionals and small businesses that operate across counties, such as real estate professionals, contractors, plumbers, electricians, and home health care workers, may be required to file in multiple counties creating a burden in terms of cost and paperwork.

Manufacturing & Business Priorities

The Kentucky Manufacturers Association (KMA) and the Kentucky Chamber (the Chamber) have each identified a number of issues affecting the competitiveness of businesses in the state. Priority items from the legislative agendas published by both groups include:

Figure 4.4 | Selected Findings from State Business Tax Climate Index (SBTCI), FY 2010 (7th Edition)

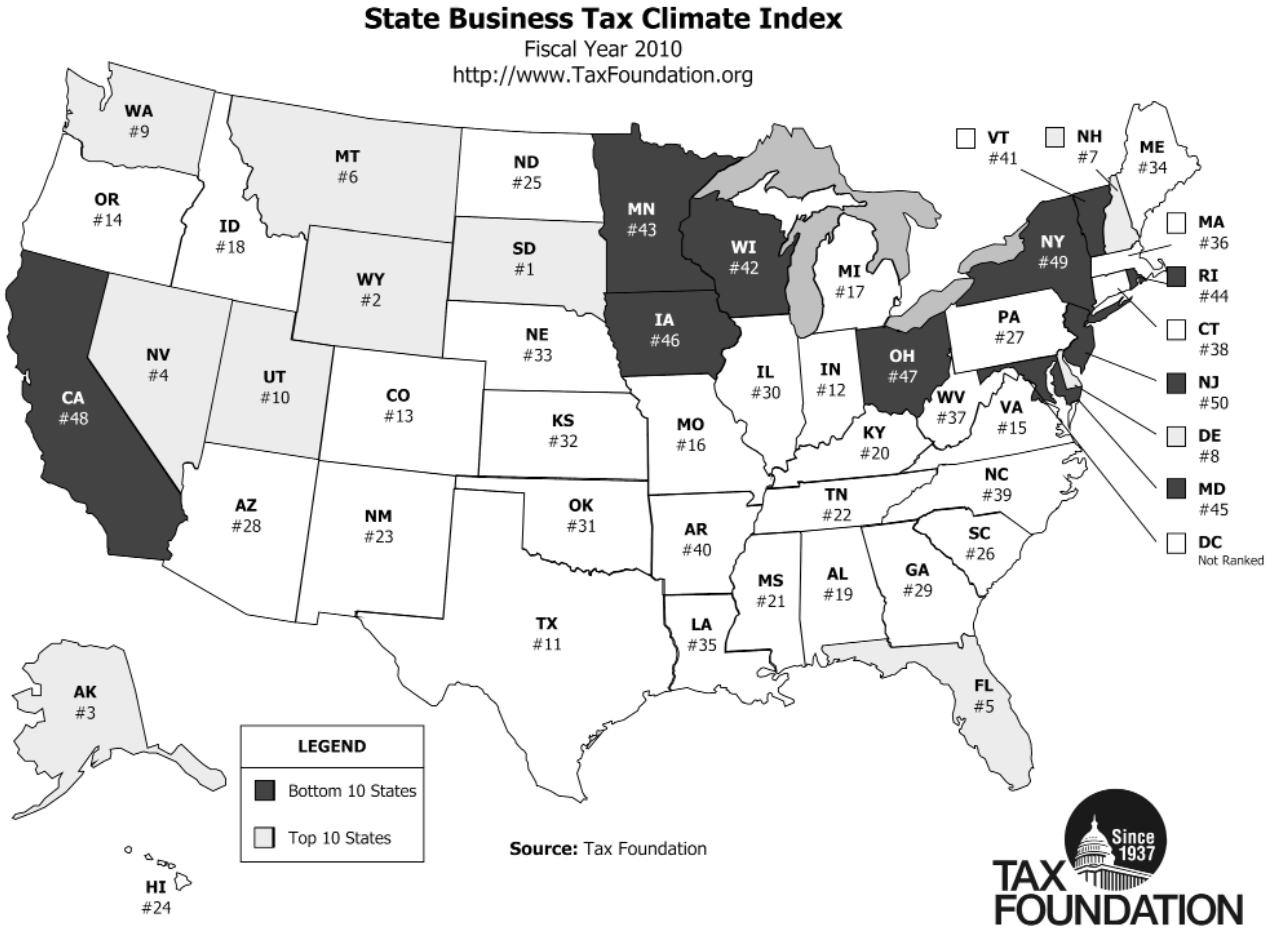
Table: Major SBTCI components

Kentucky and Neighboring States

State	Overall Rank	Corporate Tax Index Rank	Individual Income Tax Index Rank	Sales Tax Index Rank	Unemployment Insurance Tax Index Rank	Property Tax Index Rank
IN	12	21	11	20	11	12
VA	15	4	20	8	44	29
MO	16	5	27	16	7	18
KY	**20**	**42**	**32**	**7**	**36**	**19**
TN	22	11	8	49	32	46
IL	30	27	10	41	46	39
WV	37	24	39	22	31	28
NC	39	25	36	34	5	37
AR	40	39	34	43	17	20
OH	47	38	46	37	10	49

Map: SBTCI Overall Rank

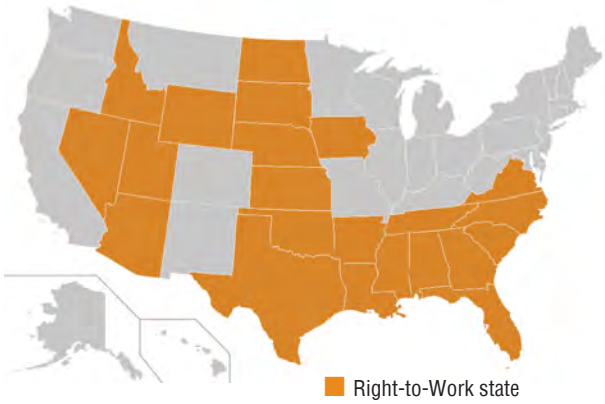
South Dakota, Wyoming and Alaska receive top marks



SOURCES: State Business Tax Climate Index, FY 2010 (7th Edition) prepared by the Tax Federation (Background Paper 59, September 2009).

Note: The higher the ranking, the more favorable a state's tax system is for business (i.e., #1 is the most favorable; #50 is the least). Overall rank does not represent an average of individual component rankings. States without a given tax rank equally as number 1. The 2010 SBTCI represents the tax climate of each state as of July 1, 2009, the first day of the standard 2010 fiscal year. Rankings for some state's Individual Income Tax Index were not consistent between the printed report and summary data files available for download. The figures reported here are consistent with the published report.

Figure 4.5 | Right to Work States



SOURCE: Based on National Right to Work Legal Defense Foundation

- ✓ ***Energy***. Uncertainty regarding fuel prices, consumer interest in "green" products, federal renewable portfolio standards, and the potentially game-changing implications arising from federal regulation of carbon emissions have combined to place energy among the top priorities for both groups.

- ✓ ***Education & training.*** The majority of jobs that will be added to the economy in the coming decade will require some form of training beyond high school. Both KMA and the Chamber include improving education at all levels as part of their legislative agendas. In *A New Agenda for Kentucky*, the Chamber calls for the Commonwealth's school districts to embrace the restructuring strategies outlined in *Tough Choices or Tough Times: The Report of the New Commission on the Skills of the American Workforce*, a 2006 report by the National Center on Education and the Economy (NCEE). According to a February 17, 2010, NCEE press release, Kentucky is one of eight states that will implement a pilot program funded by the Bill and Melinda Gates Foundation using the Board Examination Systems approach introduced in the Tough Choices/Tough Times report.

- ✓ ***Taxes***. With passage of the Alternative Minimum Calculation (AMC) tax in 2005 and its successor, the Minimum Limited Liability Entity Tax (LLET), Kentucky has joined a growing number of states with a tax on gross receipts or profits. Business groups, including KMA and the Chamber have expressed concern about the impact of the tax on economic competitiveness. The Tax Foundation points to flaws in the design of such taxes, most notably the unavoidable tax pyramiding that results from their use as goods are taxed at each stage of production: "This repeated taxing at each link in the production chain results in punitively high effective tax rates on complex products produced in stages by more than one company, and low rates on products with few production stages or that are produced entirely in-house." (*Special Report No. 147*, page 6)

- ✓ ***Incentives***. Passed in 2009, House Bill 3 marks an important step in revising Kentucky's business incentive programs. Incentives for the New Kentucky or INK is noteworthy because it extends the use of incentives to existing businesses. In addition to expanding eligible costs and reimbursement levels for manufacturing reinvestment credits, HB 3 combined a number of existing tax credits into a streamlined tax incentive program for new and expanding businesses and authorized sales and use tax refunds for communications and computer equipment purchases under certain circumstances. Continuing to improve available incentives is part of the agenda for both the Chamber and KMA.

- ✓ ***Right-to-work (RTW) laws.*** The *perception* of labor relations in the Purchase Region was identified as an obstacle to development by multiple sources, despite the fact that employers interviewed for this work did not raise it as an issue. Nationally publicized struggles, such as the lockout of workers at the Honeywell facility in nearby Metropolis, Illinois, may help to perpetuate this view. While a number of neighboring states do not have RTW laws, the entire southeastern US — a region with which Kentucky competes heavily for business location and expansion projects — are all right-to-work states.

Infrastructure

A number of factors affect quality of place ranging from recreational and cultural amenities to educational opportunities and housing options. In the context of this report, we focus on significant infrastructure projects in the works that have the potential to expand access to the Purchase Region for residents, visitors, and businesses.

Improving transportation infrastructure throughout the Purchase Area Development District will be critical for the long-term success of the region. The Interstate 69 corridor, when completed, will facilitate trade for existing companies in the area, attract new investment to sites that the region hopes to develop, and link western Kentucky to other popular tourist destinations. Completion of the US-68/KY-80 project will also enhance trade within the state and encourage tourism west of the Land between the Lakes Park. The Kentucky Dam Lock Project is expected to provide hundreds of local construction jobs over the life of the project. Once completed, the 1,200-foot lock will significantly increase capacity and reduce waiting time.

Interstate 69

The proposed I-69 corridor, often referred to as the NAFTA Superhighway, spans 2,680 miles from Mexico to Canada. Completion of this project has the potential to shift cargo patterns and to relieve congestion along existing routes (such as, I-40, I-65, I-81). Based on projected traffic volume, infrastructure improvements over the next two decades will be increasingly necessary.

According to a profile of the seven-state I-69 corridor (Texas to Michigan) posted on a US Department of Transportation's Federal Highway Administration website:

> *Without any further improvement to the corridor (no future widening of existing roadway and no new segments are constructed to lengthen the existing highway), the projected 2035 average daily traffic on the current existing highway will be over 90,000 which includes over 19,000 trucks. By 2035, 84 percent urban segments will be under heavy congestion. Congestion for non-urban segments will increase from the current under 1 percent to over 70 percent.*

There is significant support for the project: Congress has identified I-69 corridor as a high priority; the project list is clearly defined; and there is political support of all of the states involved. The project has secured Corridors of the Future Funding, including $800,000 in Transportation, Community, and System Preservation (TCSP) for an I-69 innovative financing study.

- ***Overall I-69 status:*** Work on the corridor is completed from Port Huron, Michigan, to Indianapolis, Indiana, as well as a small section in Mississippi. The remaining 2,000 miles—divided into 32 separate sections—of the project are in various stages of development. Texas has identified its portion as part of the TransTexas Corridor and Indiana has undertaken environmental clearance work.

- ***I-69 in Kentucky:*** The proposed route for I-69 through Kentucky consists of approximately 156 miles divided into three segments:

  - ✓ ***SIU4***. Consisting primarily of the new Ohio River Bridge and six miles of new highway to connect to the Pennyrile Parkway south of Henderson, the approximate cost of this segment is $1.4 billion. Environmental work is needed on SIU4 to move it forward.

Figure 4.6 | Interstate 69 in Kentucky

Segments of Independent Utility (SIU)

SOURCE: Buildi-69.ky.com

Figure 4.7 | Land-Between-the-Lakes

Highway 80 as a vital link

SOURCE: Photo by Michael Baker, Inc., used by permission of the Kentucky Transportation Cabinet

- ✓ ***SIU5***. This section involves upgrading the Pennryile and Western Kentucky parkways from Henderson to Eddyville. A scoping study completed in 2006 found the price for upgrades to be $145-$450 million, depending on the level of upgrades eventually required by the US DOT.

- ✓ ***SIU6***. This section runs from Eddyville south to Fulton at the TN border. The state is currently conducting a scoping study to determine the upgrade costs to the Purchase Parkway.

- ***I-69 Benefits:*** Interstate access greatly improves a community's economic development prospects. In Kentucky, 2003 figures from Kentuckians for Better Transportation show that counties with single or multiple Interstate access points had a per capita income of $30,122. Counties with parkway and/or single Interstate access had a per capita income of $22,328. Counties with no high quality road—which includes much of western Kentucky—had a per capita income of $19,277. When the project is completed, seventeen of the nation's top 25 seaports will be directly connected to I-69 and fifteen of the nation's top 25 air cargo airports will be directly accessible to I-69.

Highway 80 Bridges

US 68/KY 80 is the only east-west gateway into the Land Between the Lakes park area, serving as the primary connection between Murray and Cadiz. Transportation officials have labeled the Eggner's Ferry Bridge over Kentucky Lake (Tennessee River) and the Lawrence Memorial Bridge over Lake Barkley (Cumberland River) as "functionally obsolete." Residents of Murray point out that the bridges "might as well be walls." The lack of functional east-west connectivity inhibits intrastate commerce and further isolates western Kentucky from the rest of the state.

The bridges, built in 1932, are insufficient to meet contemporary transportation demands, have ongoing maintenance issues, and are too narrow. In addition to replacing the bridges, redevelopment plans call for the four-lane reconstruction of the route from Mayfield through the Land Between The Lakes to Cadiz. On July 14, 2009, Governor Beshear unveiled the new basket handle, tied-arch design for the two new bridges. According to the design, the new 550-foot, four-lane spans will include 11-foot lanes, 4-foot shoulders and an 8-foot sidewalk and bike path. The bridges will tie in with the reconstructed US 68/KY 80 corridor. Including design costs, each bridge is estimated at $178 million and construction is scheduled to begin in 2011. The entire project, including bridge reconstruction, is scheduled for completion in 2017.

Inland Waterways

Given the importance of the river to the Purchase Region economy, a coordinated and aggressive strategy should be considered. With two existing ports and two developing ports in the region, the potential exists for expansion of maritime activities if properly supported. This section identifies infrastructure and other considerations that relate to this strategy.

- ***Current studies***. At the time of this study, port-related planning projects were being undertaken by at least two of the area's four port authorities:

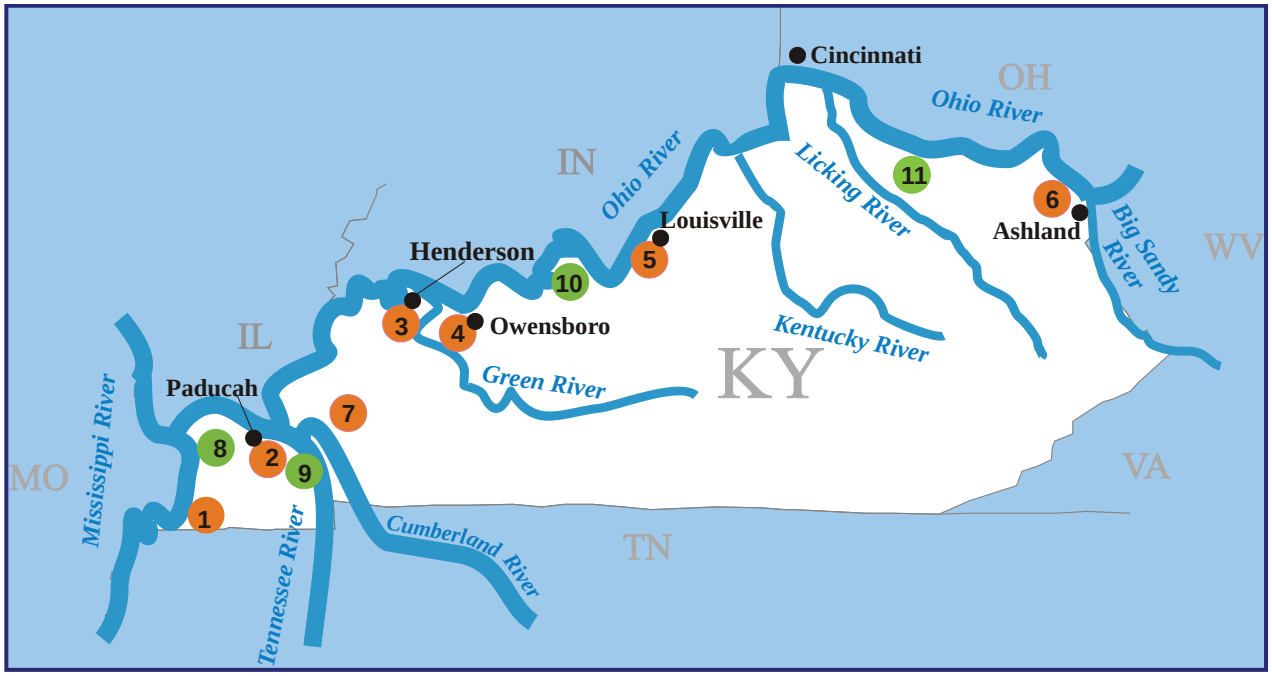
  - ✓ The Greater Paducah Economic Development Council (GPEDC) is conducting master planning activities in connection with its Riverport West site. Located approximately 10 miles from the Paducah-McCracken County Riverport, the site contains approximately 1,650 acres, of which roughly 1,300 acres are currently believed to be developable. When completed, Riverport West is expected to capture future expansion of facilities and services from the existing port.

  - ✓ Opportunities surrounding the Wickliffe-Ballard County Riverport are being evaluated as part of a larger planning effort for Ballard County.

  The results of these studies, as well as any other relevant work ongoing at the state or federal level, should be used to create a strategy for marketing the ports and funding needed investments to accommodate expansion of activities.

- ***Panama Canal***. As part of a regional maritime strategy, emphasis should be placed on tracking the expansion of the Panama Canal. The ability to expand container-on-barge (COB) traffic will be limited without substantial improvements to "gateway" ports, such as the Port of New Orleans and the Port of Gulfport, as well as to existing Purchase Region ports. Monitoring the status of improvements through groups such as

Figure 4.8 | Kentucky Riverports



Operating Ports

1. Hickman-Fulton County Riverport Authority
2. Paducah-McCracken County Riverport Authority
3. Henderson County Riverport
4. Owensboro Riverport Authority
5. Louisville-Jefferson County Riverport Authority
6. Greenup-Boyd County Riverport Authority
7. Eddyville Riverport & Industrial Development Authority

Developing Ports

8. Wickliffe-Ballard County Port Authority
9. Marshall County-Calvert City Riverport Authority
10. Meade County Riverport
11. Maysville-Mason County Port Authority

SOURCE: Image courtesy of Hanson Professional Services, Inc., as published in Kentucky Riverport Improvement Project, prepared for the Kentucky Transportation Cabinet, January 2008.

Figure 4.9 | Estimated costs of rehabilitation and needed infrastructure improvements

Ports	Capital Needs	Estimated Costs* 0-5 Years	Estimated Costs* 6-15 Years
Operating			
Paducah-McCracken County	Master plan, surveys, geotech., preliminary engineering	$350,000	
	General cargo dock expansion and surfacing	$5,000,000	
	Heavy lift crane - replacement for tower crane	$5,000,000	
	Preliminary development of Riverport West	$1,000,000	$5,000,000
Hickman-Fulton County	Land acquisition - 10 acres	$2,000,000	
	New warehousing	$3,000,000	
	New general cargo dock	$7,500,000	
	Improvements to site, access, and storage		$5,000,000
Developing			
Wickliffe-Ballard County	Engineering studies to determine acreage for development (master plan), surveys, geotech	$400,000	
	New road to proposed port site	$100,000	$1,000,000
	Infrastructure to develop terminal operations		$5,000,000
Marshall County-Calvert City	Acquisition of property	$1,000,000	
	Infrastructure to develop industrial sites and terminal		$5,000,000
	Roadway for better connection to US-62 and I-24		$3,000,000
Regional Total		**$25,350,000**	**$24,000,000**

*SOURCE: Kentucky Riverport Improvement Project, Hanson Professional Services Inc, 1/22/08. *The opinions of cost were provided by the ports and are not based on data developed by Hanson.*

state departments of transportation and the US Army Corps of Engineers should be part of a regional infrastructure strategy.

- ***Kentucky Lock Addition Project.*** Funding received under the American Recovery and Reinvestment Act has jump-started this long-standing project which will ultimately increase capacity of the existing lock and speed transit time. The central element of the project is the expansion of the existing lock from 600 feet to 1200 feet. The expansion is needed to better accommodate barge traffic, most of which exceeds the length of the current lock. According to the US Army Corps of Engineers, most of traffic transiting the lock is required to perform a "double lockage" procedure, which has resulted in average wait times of 6 hours to transit the lock. In addition to upgrading the lock facilities, the project will add amenities to the area including a new 2-lane boat ramp, a public visitor center, improved access to fishing areas, and a pedestrian/bicyle bridge. It is listed as a priority project of the West Kentucky Regional Chamber Alliance.

- ***Lockage fee***. The lockage fee currently under consideration by the federal government as a means of replenishing the Inland Waterways Trust Fund could have a serious impact on the feasibility of COB traffic in the Tenn-Tom corridor. Under this proposal, a toll would be levied on a per barge basis when the barge transits a lock. With 12 locks along its length, such a fee would create a financial disadvantage for barge traffic in this corridor. This issue has been identified as a priority project by the West Kentucky Regional Chamber

Alliance and the proposed passage of the fee has been noted as "ill-conceived" by the Inland Waterways Users Board. Monitoring the status of the proposal should be part of a regional infrastructure strategy.

- ***Capital needs***. A 2008 study of Kentucky's riverports sponsored by the Kentucky Transportation Cabinet identified nearly $50 billion dollars of needed investment in the region's existing and developing ports. **Figure 4.10** provides an overview of the needs and estimated costs as identified by the ports at the time of the study. The following is a brief summary of the profile of each port prepared as part of the 2008 evaluation:

Operating ports

- ✓ Paducah-McCracken County Riverport. Located near the confluence of the Tennessee and Ohio Rivers, Paducah-McCracken is the nation's northernmost ice-free riverport facility. Proximity to US Highways 60 and 62 and Interstate 24 allow access to markets outside the region. At the time of the 2008 study, port officials reported handling as much as 1 million net tons. Primary tonnage commodities include sand, gravel, fertilizer, rubber, and graphite. The port offers a range of services including barge discharge to truck or conveyor, barge loading by crane or conveyor, and storage from truck or rail. The potential for handling container-on-barge traffic was being evaluated.

- ✓ Hickman-Fulton County Riverport Authority. Currently the only Kentucky port operating on the Mississippi River, Hickman-Fulton lies adjacent to a natural slack water harbor ensuring a steady level of water that facilitates loading and unloading. The port offers a similar range of services for commodity and break bulk as does Paducah-McCracken. Lack of highway access and some configuration issues may affect the port's competitive position, but the biggest threat to the port is Cates Landing, a major intermodal port under development 18 miles south. An inability to secure federal funding has delayed the Tennessee port's progress.

Developing ports

- ✓ Marshall County-Calvert City Riverport Authority. With roughly 1,800 acres of available land, the Marshall-Calvert site has attracted the interest of alternative fuels ventures since shortly after the Authority was established in 2003. However, problems with the ethanol/biodiesel industry in the US have, as yet, kept these plans from becoming a reality. Issues with land acquisition, proximity to other ports, and limited interest among existing companies were cited as weaknesses of the proposed port in the 2008 study. The completion of Interstate-69 would provide an important boost to the site.

- ✓ Wickliffe-Ballard County Riverport Authority. According to the 2008 evaluation, the Wickliffe-Ballard County site faces some challenges in the creation of a deep water port. These include a relatively small amount of developable land and the lack of an industrial client base. However, grain handling was identified as an opportunity, as was the expansion of Economy Boat Store. The Authority has requested funding for master planning and engineering studies from the Delta Regional Authority.

Air Service

Purchase Region residents have a number of options for air travel, including the region's own Barkley Regional Airport (Paducah), and international airports in both Nashville and Memphis. This variety serves as both an asset and a challenge. On the one hand, having access

multiple airports may provide additional flight options for travelers. On the other hand, spreading air travel among multiple location can dilute the strength of a market, making it harder for smaller airports to attract and retain national carriers.

With two daily roundtrips to Chicago, the addition of United Express service at Barkley Regional in February 2010 was an important milestone for the region. Enhancing air service at Barkley should be a priority among the regional leadership. Creating a sense of regional ownership is an important first step. This could be accomplished through a regional marketing campaign that promotes the airport's relative convenience and the worldwide access that Chicago provides. A more aggressive approach could include changing the name of the facility to something more widely recognizable, such as the Greater Paducah Regional Airport. This strategy would help "place" the airport in the minds of people outside the region.

Strong general aviation facilities can also play a part in economic development of a region. Although they do not draw significant passenger traffic, general aviation facilities can serve as a catalyst for the development of support services, create a draw for aviation-related tourism, and a provide a tool for the recruitment of corporate executives.

Industrial sites

The Purchase Region boasts a number of available industrial sites. The largest of these, at more than 2,000 acres, is the Purchase Region Industrial Park (PRP) located in Graves County. The PRP is a certified "megasite" designed to attract large-scale industrial projects to the area. The site is managed by the Purchase Area Regional Industrial Authority, a 501(c)(3) corporation created through an interlocal agreement between all eight Purchase Region counties. Final acquisition of property was completed in 2008. The majority of engineering and environmental assessments have also been completed.

Other tracts of 1,000 acres or more are the Marshall County- Calvert City Industrial Park (approximately 1,800 acres) and the Riverport West site (1,700 acres) located near at the Paducah-McCracken County Riverport. Both sites are listed as "secondary" sites by the Kentucky Cabinet for Economic Development. This designation indicates that the sites are available, but have not met all criteria set by the Cabinet. These include ownership control, transportation access, and utility availability.

The presence of a state-level database of available sites and buildings is an asset for Kentucky communities. However, ensuring that the Purchase Region's sites are top of mind must be part of an economic strategy. This means cross-marketing of regional sites where possible, as well as working to raise the profile of the Purchase Region with economic development officials and others at the state level. ■

Figure 4.10 | Distance of selected commercial airports from Purchase Region*

Airport	City	State	Distance
Barkley Regional Airport	West Paducah	KY	29
Owensboro-Daviess County Regional Airport	Owensboro	KY	136
Evansville Regional Airport	Evansville	IN	147
Nashville International Airport	Nashville	TN	152
Memphis International Airport	Memphis	TN	159
Lambert-St. Louis International Airport	St. Louis	MO	207
Louisville International Airport	Louisville	KY	225

**Distance calculated from Mayfield, Kentucky as approximate center of region using Google maps.*

Figure 4.11 | Purchase Region Industrial Site, ranked by total acreage

Site (ID)	County	Total Acreage	Largest Possible Tract
PRIMARY SITES			
Purchase Area Regional Industrial Park (083-012)	Graves	2,109.3	1,127.3
Fulton Site (075-005)	Fulton	309.0	295.0
Information Age Park (145-001)	McCracken	268.8	42.7
Industrial Park West (145-002)	McCracken	136.6	76.6
Murray West Industrial Park (035-012)	Calloway	133.6	133.6
Hickory Industrial Park (083-001)	Graves	131.0	101.0
South Mayfield Park #2 (083-006)	Graves	121.0	121.0
Denton Site (145-005)	McCracken	104.7	104.7
Ballard Industrial Park (007-003)	Ballard	72.0	72.0
Wickliffe Site (007-001)	Ballard	30.0	30.0
Arlington Site (039-001)	Carlisle	13.6	13.6
Fulton Industrial Park (075-001)	Fulton	10.0	10.0
Murray-Calloway County Industrial Park (035-001)	Calloway	10.0	10.0
SECONDARY SITES			
Marshall County- Calvert City Industrial Park (157-007)	Marshall	1,854.8	1,156.5
Riverport West Site (145-008)	McCracken	1,782.0	1,782.0
Barkley Regional Airpark (145-006)	McCracken	678.2	292.0
Paducah Site (145-017)	McCracken	226.0	226.0
Bardwell Site (039-002)	Carlisle	160.0	127.0
Paducah Site (145-015)	McCracken	104.0	104.0
Murray Site (035-011)	Calloway	100.0	100.0
Paducah Site (145-020)	McCracken	90.0	90.0
Paducah Site (145-019)	McCracken	56.0	56.0
West Kentucky Technology Park (007-002)	Ballard	16.3	10.5
Bardwell Site (039-003)	Carlisle	10.0	10.0

SOURCE: Kentucky Cabinet for Economic Development, accessed summer 2010. Primary sites must have at least 10 contiguous, buildable acres that are free of known environmental impediments and meet specific criteria related to infrastructure availability. Secondary sites do not meet the Cabinet's criteria for primary sites, but are available for business location and expansion projects

A: Regional Data Profile

To provide a common framework for our recommendations, we began by compiling demographic and economic data on the region. This section includes a profile of the eight-county Purchase Region (comprised of Ballard, Calloway, Carlisle, Fulton, Graves, Hickman, McCracken, and Marshall Counties in Kentucky). It is divided into three areas: demographic factors, economic trends, and workforce characteristics.

About the data

A number of data sources were used to prepare this analysis.

- ***Population.*** Historical estimates of population by county are from the US Census Bureau; projections were prepared by Moody's Analytics.

- ***Educational attainment***. At the time of this analysis, educational attainment data from the US Census Bureau's American Community Survey (ACS) were available for only four of the eight counties (Calloway, Graves, Marshall, and McCracken). For these counties, educational attainment ratios were calculated using 2006-2008 ACS averages. Data from the 2000 Census were used to calculate ratios for the four remaining counties.

- ***Income***. Annual estimates of median household income at the county level were prepared by Moody's Analytics.

- ***Unemployment rate.*** Data are from the US Bureau of Labor Statistics' household survey (obtained via Moody's Analytics).

- ***Employment & occupation***. Employment and occupational analyses were performed using Strategic Advantage, a suite of web-based analysis tools created by EMSI.

Except as otherwise noted, figures represent "complete" employment, rather than the "covered" employment typically produced by state and federal workforce agencies. Unlike covered employment, which includes only those industries covered by unemployment insurance, complete employment includes estimates of all industries.

Employment data are presented in accordance with the North American Industry Classification System (NAICS, pronounced "nakes"). The system was developed under the direction and guidance of the Office of Management and Budget as the standard for use by Federal statistical agencies in classifying business establishments for the collection, tabulation, presentation, and analysis of statistical data describing the US economy.

DEMOGRAPHICS

The Purchase Region has grown slowly relative to the state and the nation. The eight counties reached a combined population of 175,000 in the late 1970s.

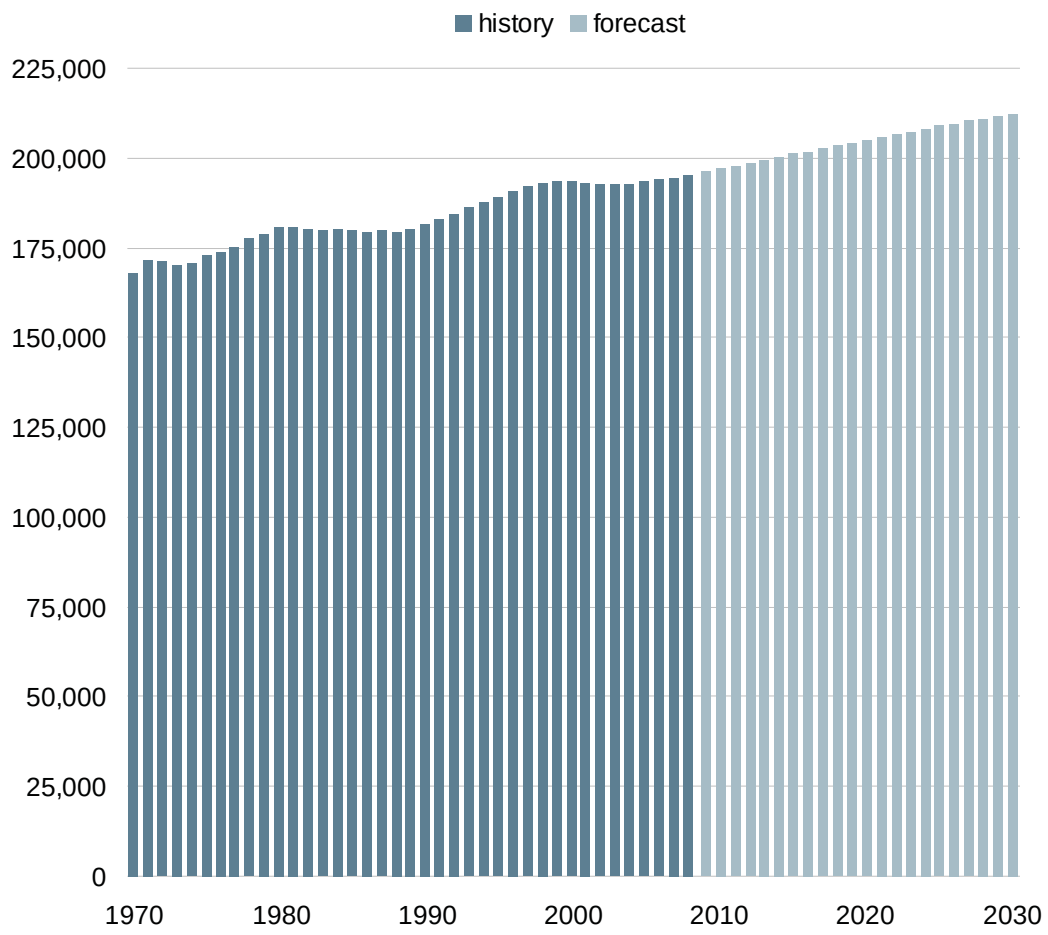
Population growth in the region has occurred in fits and starts, with short periods of expansion in the late 1970s and 1990s, both followed by a decade or so with little growth at all.

Current projections show the region is on track to pass 200,000 within the next five years. While this is an important milestone for the region, it cannot be overlooked that **it has taken more than 3 decades to add 25,000 new residents**.

One in three Purchase Region residents (or 33 percent of the population) lives in McCracken County. Calloway, Graves and Marshall Counties each have between 15 and 20 percent of the region's population. The combined population of the remaining four counties (Ballard, Carlisle, Fulton, and Hickman) comprises just 13 percent of the total. This distribution has changed little over nearly four decades.

Figure A.1 | Purchase Region population

Moving steadily upward



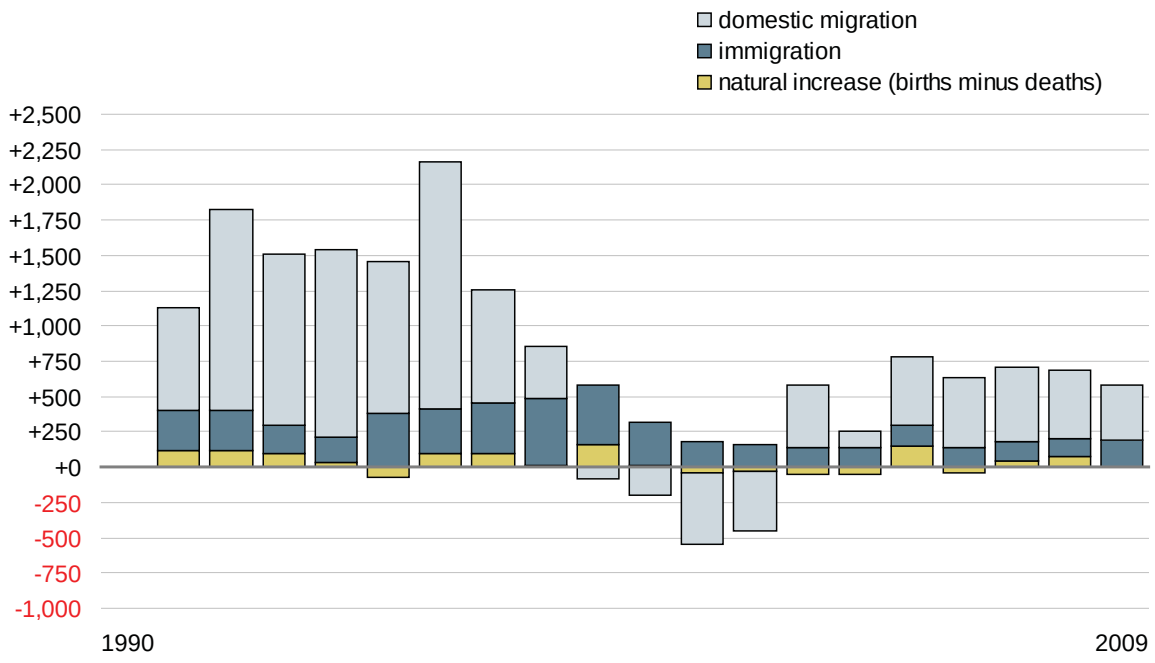
SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)

DEMOGRAPHICS

Figure A.2 | Purchase Region sources of growth

Population growth comes mostly from domestic in-migration

Annual net population increase (decrease)



SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)

The Purchase Region's natural population increase (the difference between births and deaths) accounts for a relatively small percentage of growth.

The most significant driver of growth in the region is domestic migration (the flow of people between the Purchase and other parts of the US). It is also the most volatile component.

The region saw relatively large gains from domestic migration in the 1990s, adding 1,000 or more residents each year for much of the decade. After peaking in 1996 with a net gain of more than 1,700 residents, the flow of people began to reverse. After bottoming out in 2001, with a net loss of just over 500 people, migration in this decade has smoothed out, adding 400 to 500 new residents each of the last five years.

Though it makes up a smaller share than domestic migration, immigration (the influx of people from outside the US) has been the most stable component of growth.

DEMOGRAPHICS

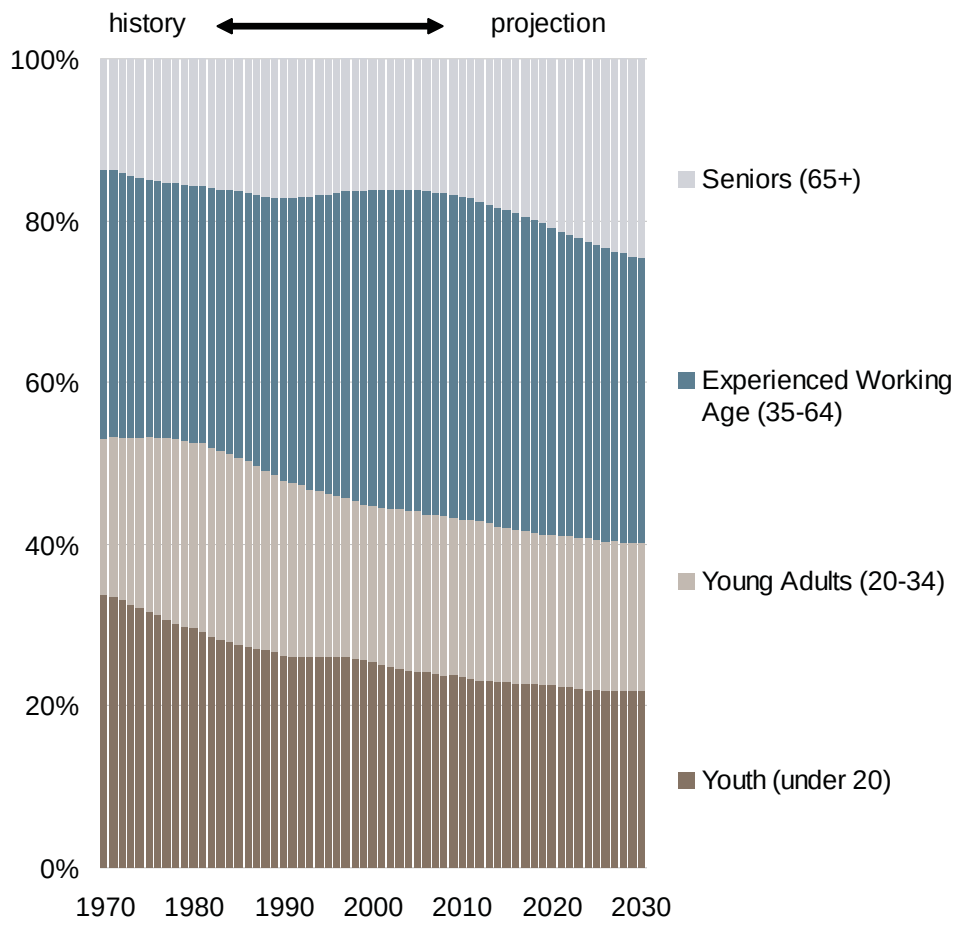
The age structure of the nation is changing and the Purchase Region reflects these changes as well. Retirement of the baby boomers will significantly increase the number of seniors.

As the senior population rises, the region's working age population — those between the ages of 20 and 64 — will be squeezed. This means that the Purchase Region labor force is unlikely to increase significantly, if at all.

The region's youth — those under the age of 20 — represent a shrinking share of the population. **In 1970, one in every three residents was in this age group. By 2030, they will represent barely one in five.**

Figure A.3 | Purchase Region population by age cohort

A mirror of national patterns

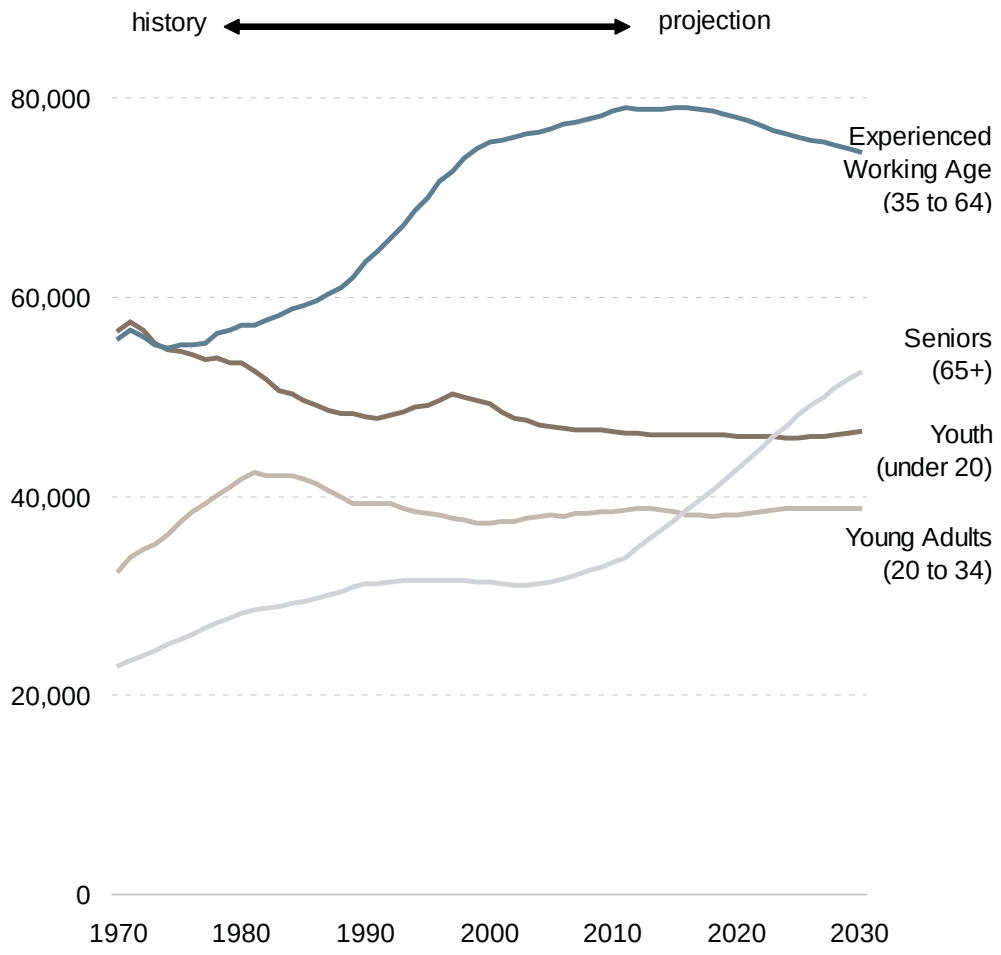


SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)

DEMOGRAPHICS

Figure A.4 | Purchase Region net population change by age cohort

As seniors grow in number, other cohorts hold relatively steady



SOURCES: US Bureau of the Census (history); Moody's Analytics (projections)

A look at absolute numbers of people further illustrates the region's changing age structure. As the senior population in the Purchase Region grows in number, the rest of the population will maintain relatively steady or declining absolute levels across cohorts.

- The experienced working age population (age 35 to 64) will hold between 75,000 and 80,000 in the region over the next generation.
- The number of young adults (age 20 to 34) will hold steady at below 40,000 in the region over the next 20 years.

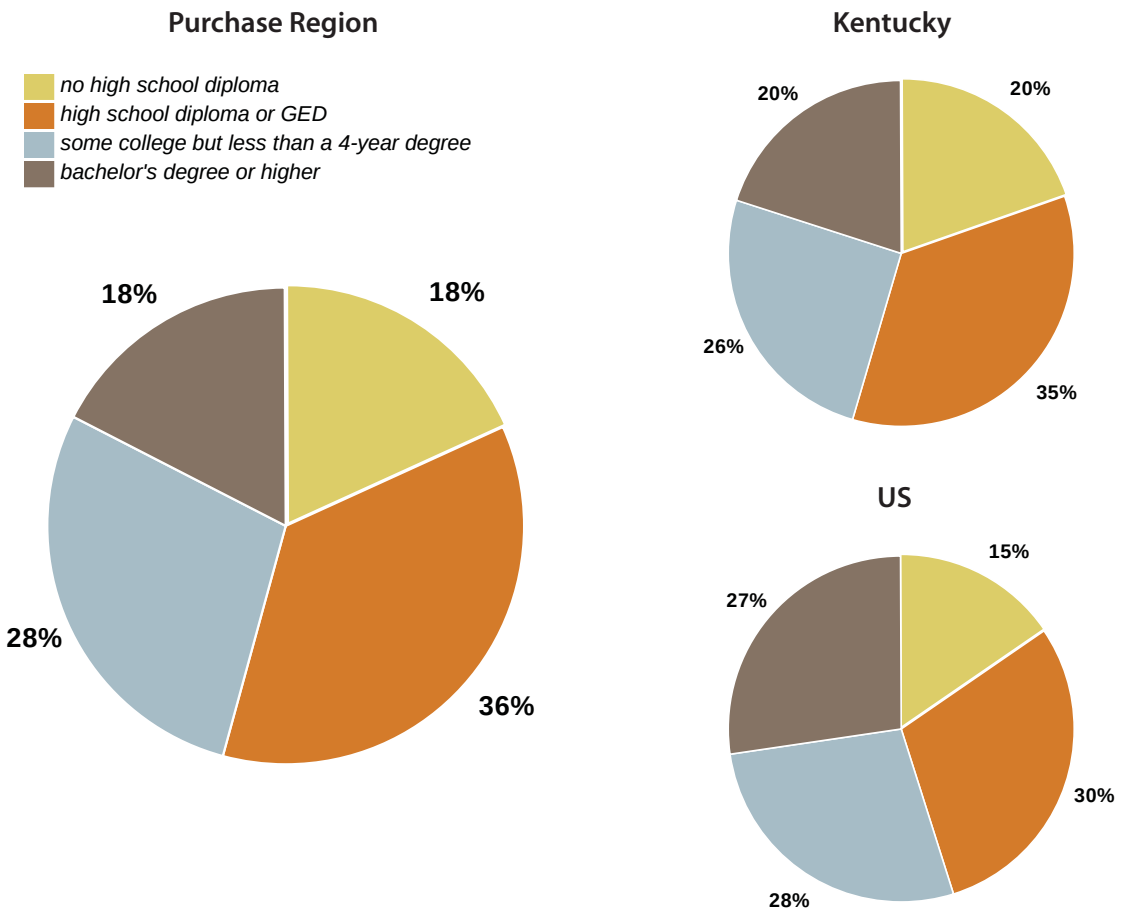
DEMOGRAPHICS

At first glance, educational attainment in the Purchase Region looks remarkably similar to state and national averages. In fact, however, there are nuanced differences:

- Purchase Region adults are slightly more likely to have completed high school than the statewide average, with only 18 percent of residents lacking a high school diploma versus 20 percent statewide.
- But, they are less likely to have completed a four-year college degree than their fellow Kentuckians or than the US as a whole. Only 18 percent of Purchase Region residents age 25 years or older are estimated to have completed a bachelor's degree or higher. In contrast, this figure is 20 percent for Kentucky and 27 percent for the US.

Figure A.5 | Educational attainment

Highest level of education achieved by the population age 25 or older

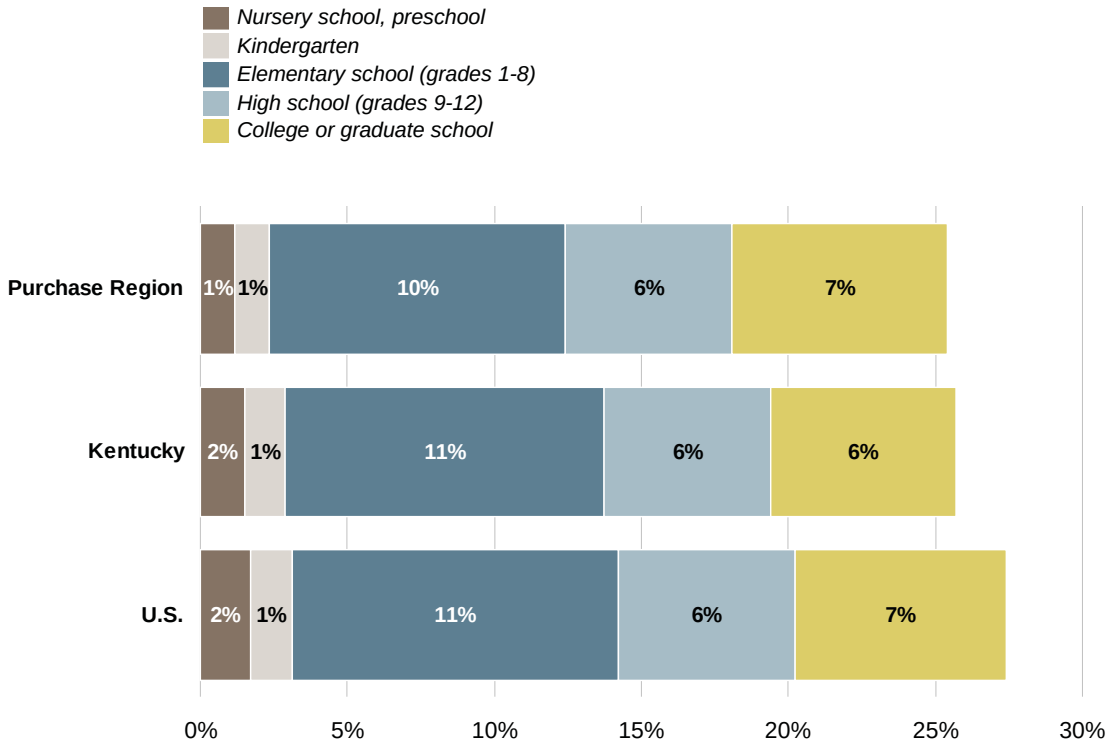


SOURCES: US Census Bureau (decennial census & American Community Survey, 2006-2008 average) NOTE: For Ballard, Carlisle, Fulton, and Hickman counties, only Census 2000 averages were available; all other ratios are calculated from 2006-2008 ACS averages.

DEMOGRAPHICS

Figure A.6 | Current enrollment status of the population

Share of residents enrolled in some type of educational program



At any given time, about 25 percent of the Purchase Region's residents are enrolled in some kind of educational program, whether it's nursery school or college or a vocational course.

The density of enrollment in the region (25 percent overall) falls only slightly below the state level (26 percent) and the US level (27 percent).

SOURCES: US Census Bureau (American Community Survey, 2006-2008 average)

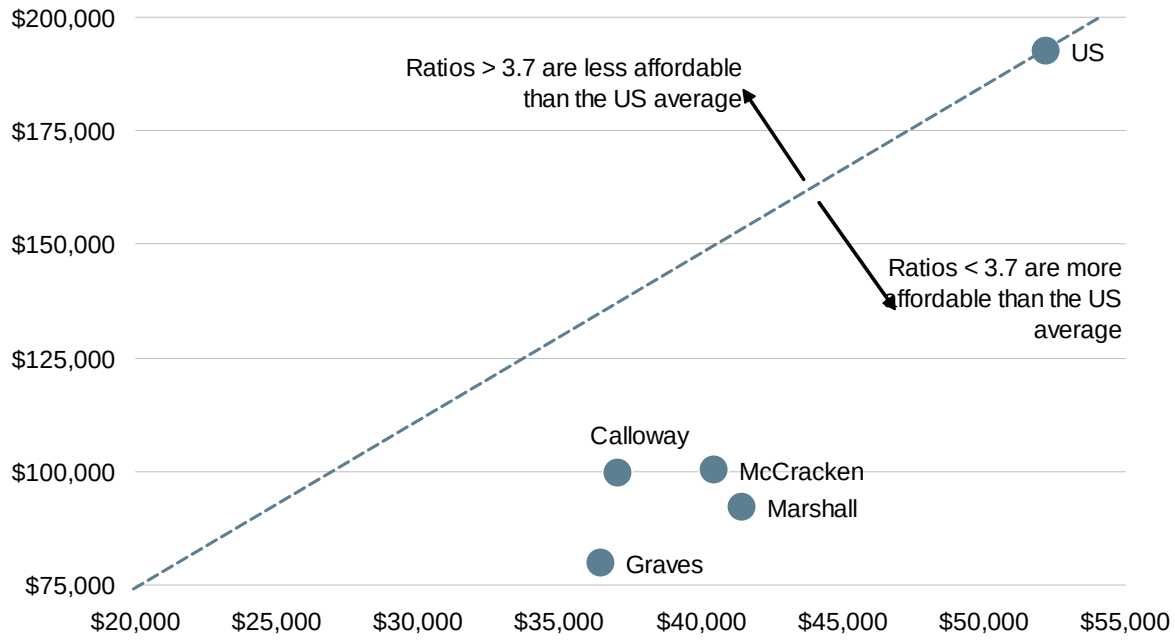
DEMOGRAPHICS

While incomes are lower in the Purchase Region than the US median, a dollar buys more. The median home value in the eight-county region is roughly 2.2 to 2.7 times the median household income. That's significantly less than the US average of 3.7 and reflects the region's high affordability.

After housing costs are taken into account, Purchase-area residents effectively have a larger share of their incomes available for other uses.

Figure A.7 | Housing affordability ratios

Beating the US average by a wide margin



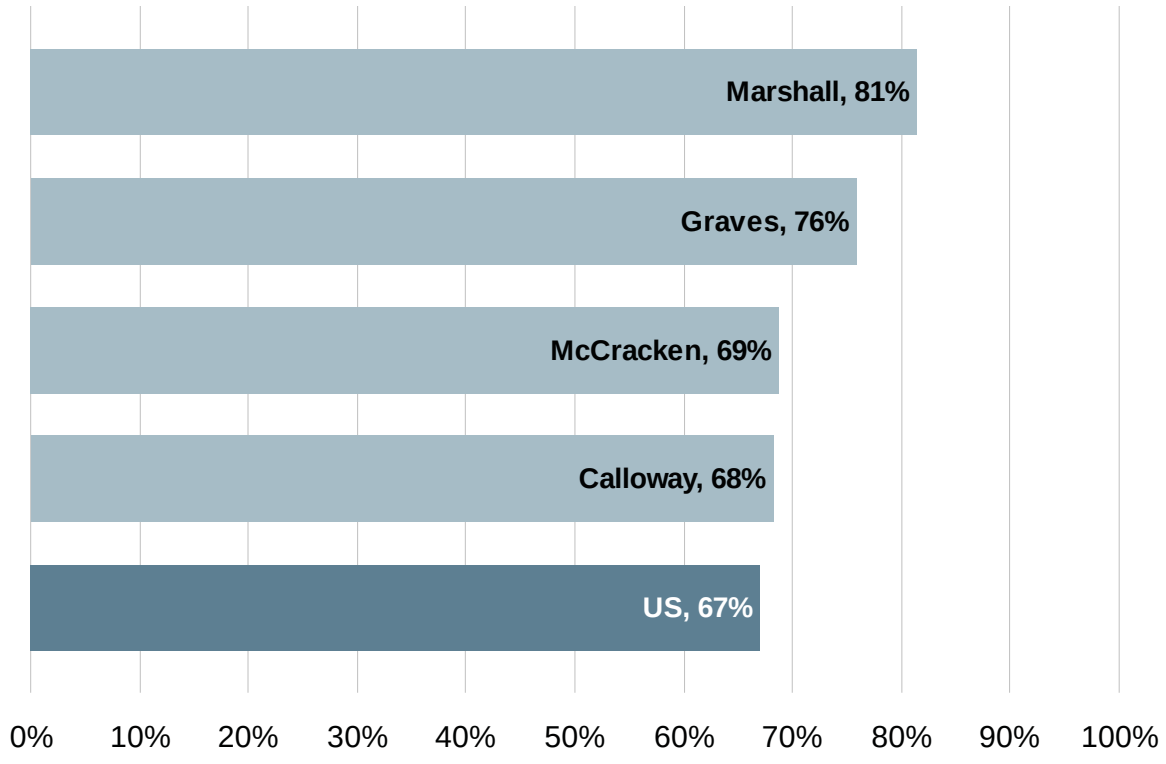
SOURCES: US Bureau of the Census, American Community Survey, 2006-2008 averages

NOTE: ACS data available for only four of the PADD region's eight counties

DEMOGRAPHICS

Figure A.8 | Homeownership rates for selected counties (%)

Good affordability goes hand in hand with high levels of owner occupancy



SOURCES: US Bureau of the Census, American Community Survey, 2006-2008 averages

NOTE: ACS data available for only four of the PADD region's eight counties

Owner-occupancy rates (homeownership) from the most recent American Community Survey show that counties in the Purchase exceed the US average of 67 percent.

A high level of housing affordability in the region makes homeownership a more realistic goal for the area residents.

Data were available for only four of the region's eight counties in the most recent American Community Survey. Owner-occupancy in those four counties ranged from 68 percent to 81 percent.

DEMOGRAPHICS

McCracken County draws the region's largest share of inbound commuters. Calloway County also attracts a large surplus of inbound commuters.

The region's other six counties tend to produce a net outbound commuter flow, or at least parity between inbound and outbound workers.

Marshall and Graves counties both send about 3,000 daily commuters into McCracken and another 1,200 or so into Calloway.

The heaviest two-way commuting in the Purchase Region is between McCracken and Marshall counties.

Figure A.9 | Commuting patterns within the Purchase Region counties, 2008

An inter-connected region and workforce

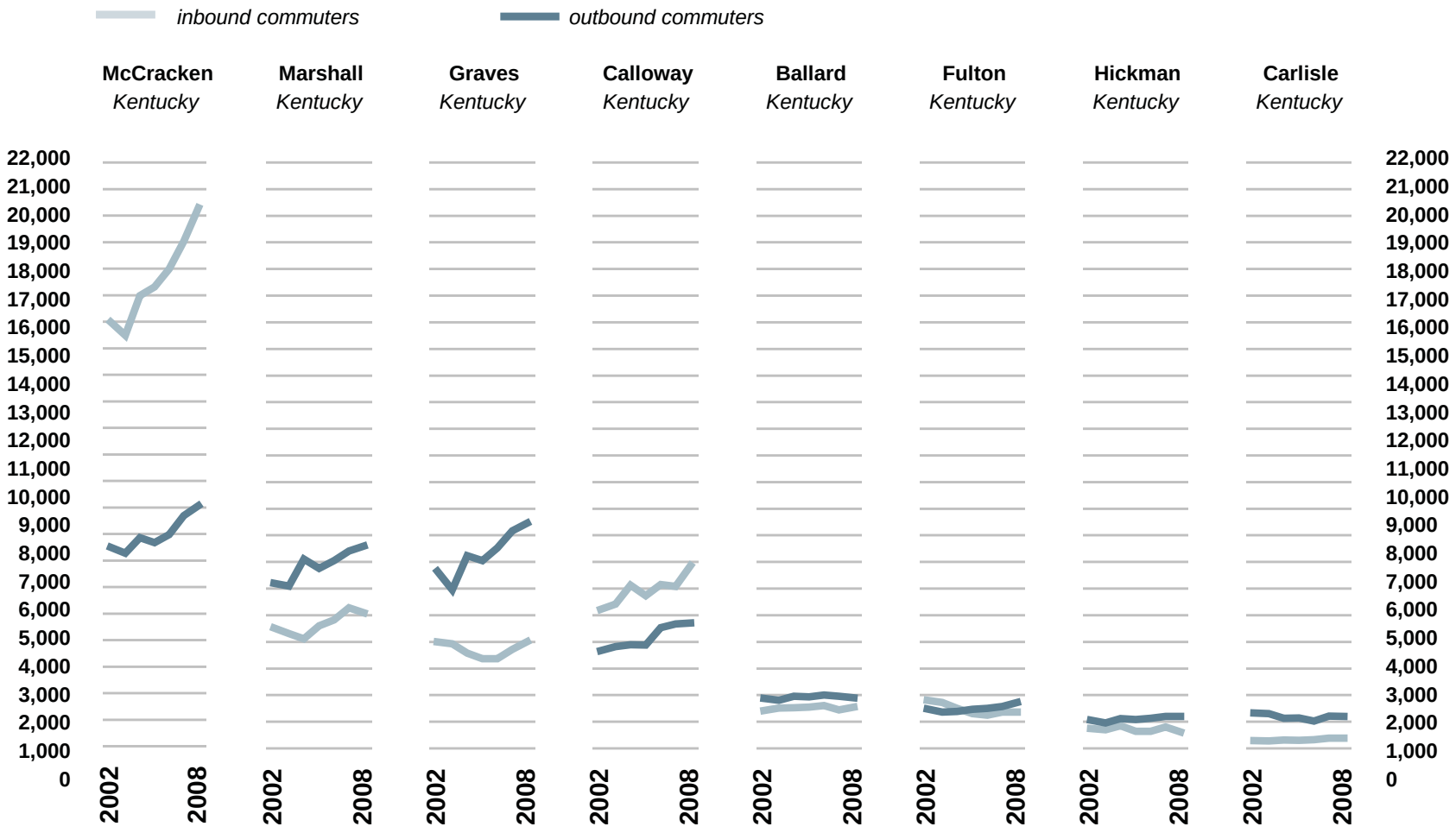
number living and working in the same county

Commuting from…	Commuting to… McCracken	Calloway	Graves	Marshall	Ballard	Fulton	Hickman	Carlisle
McCracken	**19,340**	532	827	1,443	769	66	40	44
Calloway	860	**9,497**	551	604	32	44	25	10
Graves	2,932	1,123	**7,400**	609	186	190	153	92
Marshall	3,149	1,215	442	**5,718**	72	36	21	27
Ballard	1,096	63	76	93	**910**	—	10	70
Fulton	114	83	148	—	—	**852**	158	—
Hickman	157	59	159	30	28	172	**653**	48
Carlisle	393	32	159	41	134	—	49	**302**

SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

Figure A.10 | Purchase Region commuter flows by county

McCracken County draws the most inbound commuters



SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

DEMOGRAPHICS

Household locations of the region's workers (left) are more dispersed than the region's employer locations (right).

Major employment sites are located heavily near either interstate highways or railroad lines.

Figure A.12 provides county-by-county detail regarding commuting patterns. The region has drawn an increasing number of workers from outside its borders.

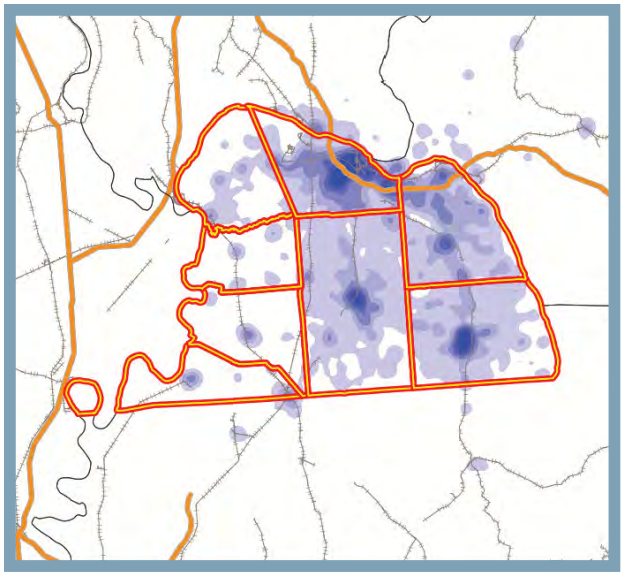
In terms of out-of-state workers, the northern Purchase Region counties (Ballard, McCracken, and Marshall) have connections with Illinois counties, particularly Massac County.

The remaining Purchase counties of draw more heavily from Tennessee counties to the south — Henry, Weakley, and Obion.

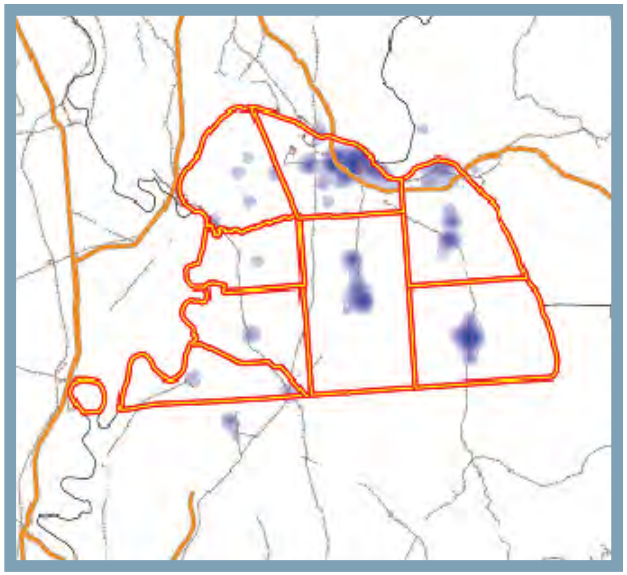
Figure A.11 | The Purchase Region labor shed

Map includes location of interstate highways and railroads

Where **employees** of Purchase Region businesses **live**



Where **residents** of Purchase Region counties **work**



SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

Figure A.12 | Top 10 sources of workers in Purchase Region counties, 2006-2008

County of residence for people who work in …

BALLARD COUNTY	2006	2007	2008
Ballard Co. (KY)	918	956	910
McCracken Co. (KY)	754	685	769
Graves Co. (KY)	190	190	186
Carlisle Co. (KY)	120	130	134
Marshall Co. (KY)	63	85	72
Massac Co. (IL)	46	47	67
Alexander Co. (IL)	58	49	44
Calloway Co. (KY)	10	22	32
Hickman Co. (KY)	37	46	28
Pulaski Co. (IL)	23	23	23

CALLOWAY COUNTY	2006	2007	2008
Calloway Co. (KY)	10322	9461	9497
Marshall Co. (KY)	1225	1074	1215
Graves Co. (KY)	1085	1087	1123
Henry Co. (TN)	758	598	724
McCracken Co. (KY)	421	488	532
Christian Co. (KY)	215	266	290
Jefferson Co. (KY)	131	131	171
Hopkins Co. (KY)	150	143	137
Daviess Co. (KY)	105	97	109
Warren Co. (KY)	129	92	99

CARLISLE COUNTY	2006	2007	2008
Carlisle Co. (KY)	317	348	302
Graves Co. (KY)	77	80	92
Ballard Co. (KY)	41	58	70
Hickman Co. (KY)	53	63	48
McCracken Co. (KY)	40	61	44
Marshall Co. (KY)	19	21	27
Calloway Co. (KY)	1	5	10
Dyer Co. (TN)	0	1	9
Hopkins Co. (KY)	3	5	7
Gibson Co. (TN)	2	7	7

FULTON COUNTY	2006	2007	2008
Fulton Co. (KY)	937	842	852
Obion Co. (TN)	442	494	523
Graves Co. (KY)	220	233	190
Hickman Co. (KY)	152	149	172
Weakley Co. (TN)	121	119	104
McCracken Co. (KY)	36	44	66
Calloway Co. (KY)	40	36	44
Marshall Co. (KY)	38	34	36
Warren Co. (KY)	3	9	12
Henry Co. (TN)	11	3	11

GRAVES COUNTY	2006	2007	2008
Graves Co. (KY)	7555	7370	7400
McCracken Co. (KY)	759	816	827
Calloway Co. (KY)	429	516	551
Marshall Co. (KY)	426	477	442
Jefferson Co. (KY)	71	135	160
Hickman Co. (KY)	164	164	159
Carlisle Co. (KY)	145	138	159
Fulton Co. (KY)	96	87	148
Hopkins Co. (KY)	114	88	84
Obion Co. (TN)	71	86	83

HICKMAN COUNTY	2006	2007	2008
Hickman Co. (KY)	678	617	653
Fulton Co. (KY)	129	160	158
Graves Co. (KY)	139	164	153
Obion Co. (TN)	83	86	57
Carlisle Co. (KY)	82	63	49
McCracken Co. (KY)	28	52	40
Calloway Co. (KY)	25	118	25
Marshall Co. (KY)	18	39	21
Weakley Co. (TN)	30	22	17
Ballard Co. (KY)	2	12	10

MARSHALL COUNTY	2006	2007	2008
Marshall Co. (KY)	6054	6082	5718
McCracken Co. (KY)	1382	1515	1443
Graves Co. (KY)	641	673	609
Calloway Co. (KY)	544	592	604
Livingston co. (KY)	342	389	331
Lyon Co. (KY)	196	184	211
Jefferson Co. (KY)	127	215	203
Caldwell Co. (KY)	150	155	157
Massac Co. (IL)	104	148	132
Hopkins Co. (KY)	87	85	99

MCCRACKEN COUNTY	2006	2007	2008
McCracken Co. (KY)	20782	19820	19340
Marshall Co. (KY)	2944	3098	3149
Graves Co. (KY)	2707	2806	2932
Massac Co. (IL)	1803	1900	1924
Livingston Co. (KY)	1259	1319	1258
Ballard Co. (KY)	1190	1030	1096
Jefferson Co. (KY)	869	1051	1063
Calloway Co. (KY)	727	814	860
Daviess Co. (KY)	422	403	429
Hopkins Co. (KY)	325	410	414

SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

DEMOGRAPHICS

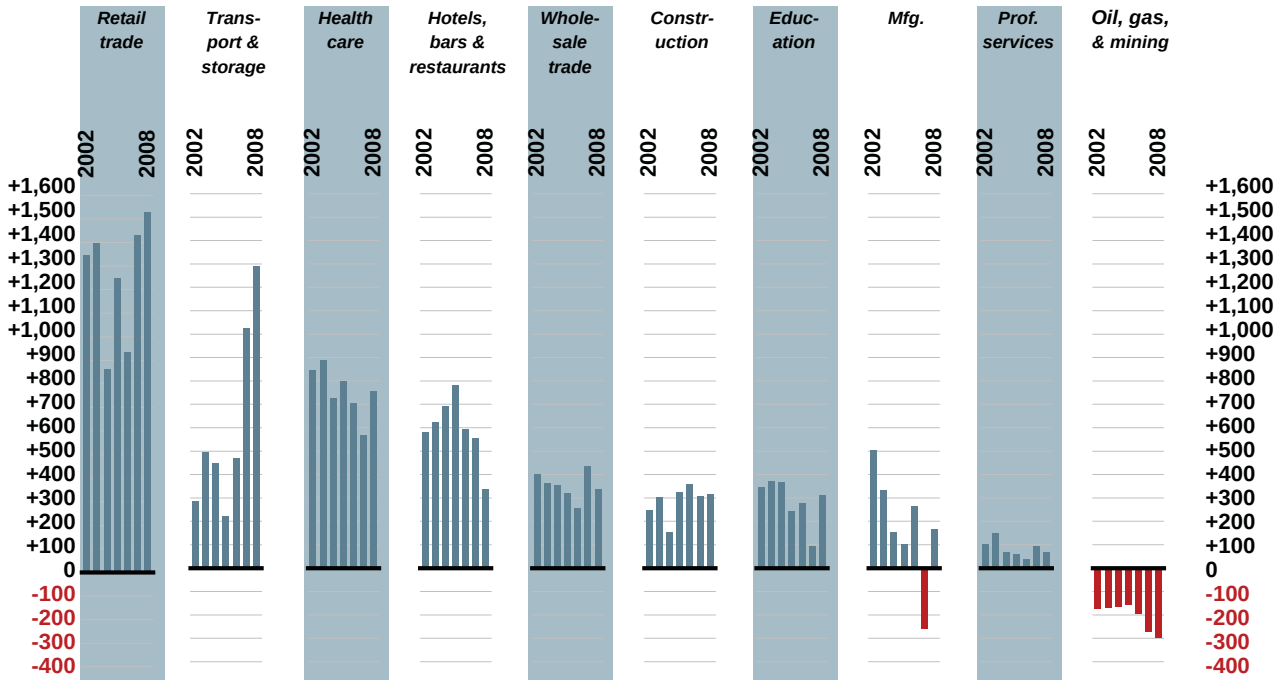
The net flow of commuters into the Purchase Region to work in manufacturing plants has declined in recent years as local manufacturing job losses in the region have mounted.

The region pulls in a significant net inflow of commuters who work in the retail and healthcare sectors. In recent years, inbound commuting for the transportation & warehousing sector has increased sharply as well.

The largest net outbound commuting flow is in the oil, gas, & mining sector.

Figure A.13 | Net commuter inflow to (outflow from) the Purchase Region by industry

Commuting balances for selected industries in the region, 2002-2008

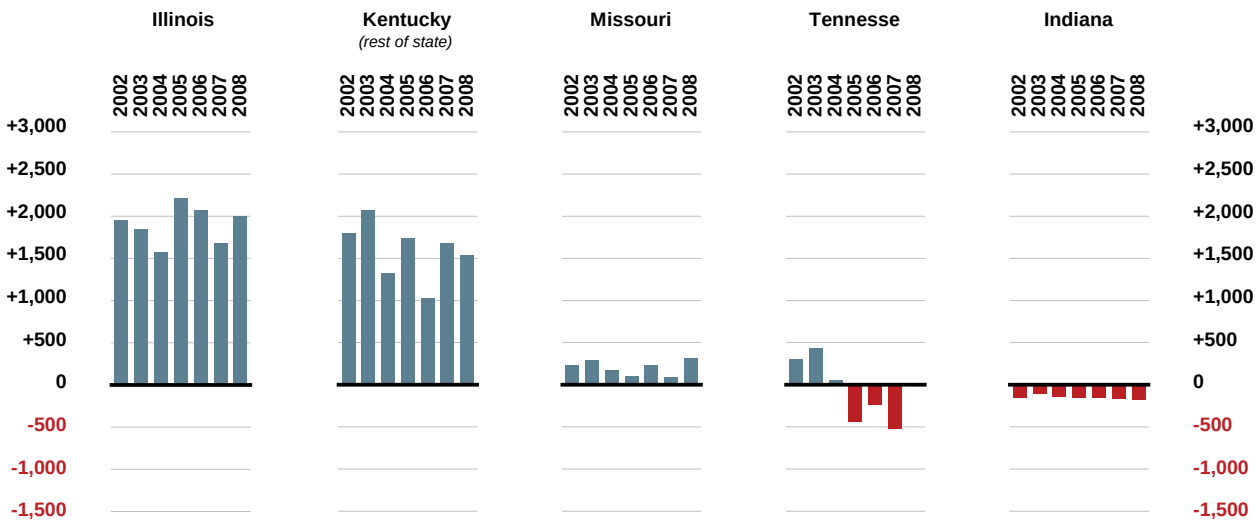


SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

DEMOGRAPHICS

Figure A.14 | Net commuter inflow to (outflow from) the Purchase Region by state

Commuting balances for selected states, 2002-2008



The Purchase Region pulls in a net inflow of workers from Illinois and other parts of Kentucky.

The net commuter flows between the eight-county region and other surrounding states (Missouri, Tennessee, and Indiana) are considerably smaller.

SOURCES: US Bureau of the Census, Local Employment Dynamics (LED) database, 2008

ECONOMY

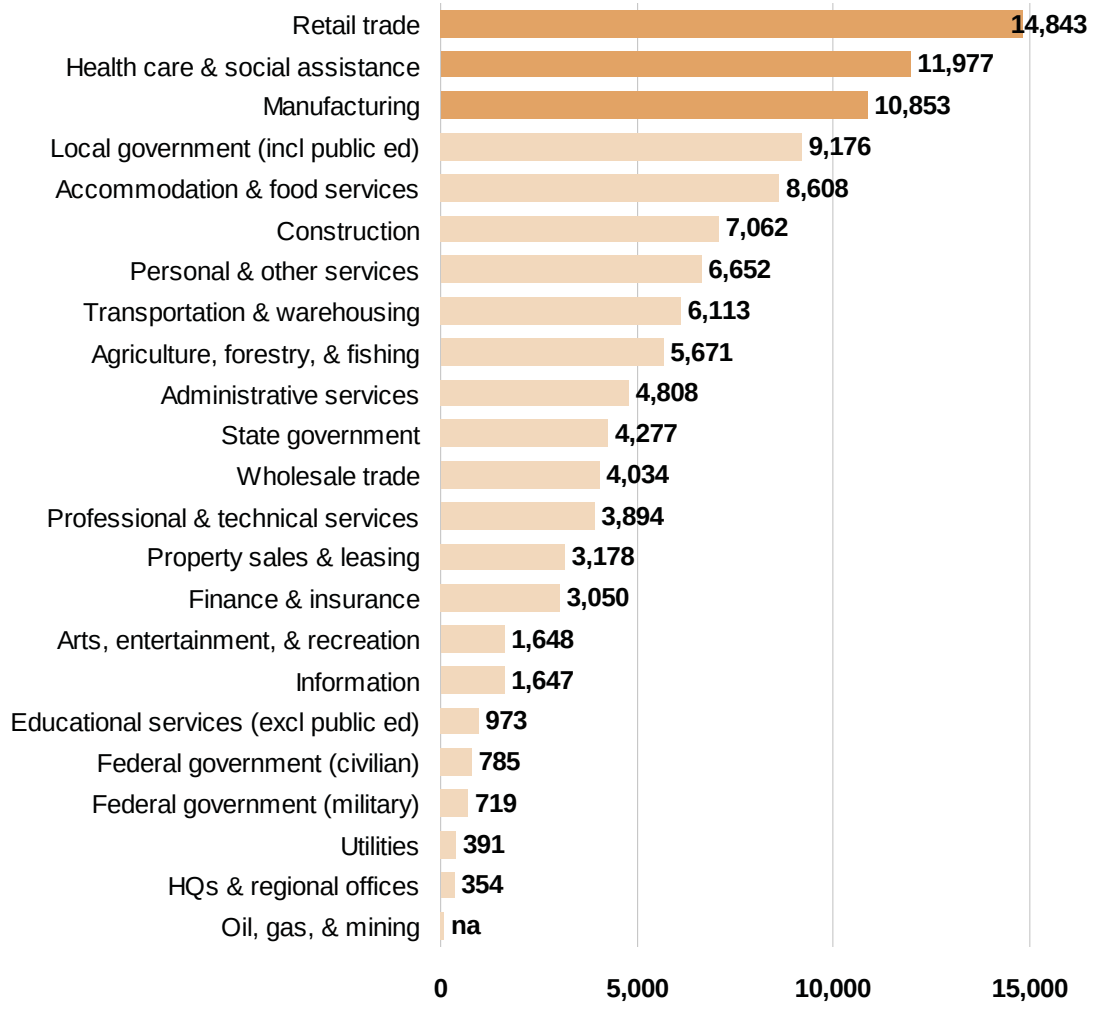
Manufacturing is one of only three industry sectors providing the Purchase Region with more than 10,000 jobs. (Note: The two largest sectors, healthcare and retail, are also the ones that are steadily "importing" commuters.)

The transportation & warehousing sector combined with wholesale trade contribute another 10,000 jobs to the region.

In total, the region supports more than 25,000 jobs in heavy industries like manufacturing, distribution and construction, implying the presence of an extensive labor force in production, building, and goods-moving activities.

Figure A.15 | Purchase Region's 2009 job base by industry sector

Manufacturing is one of only 3 sectors providing more than 10,000 jobs



SOURCES: EMSI, Spring 2010 forecast

ECONOMY

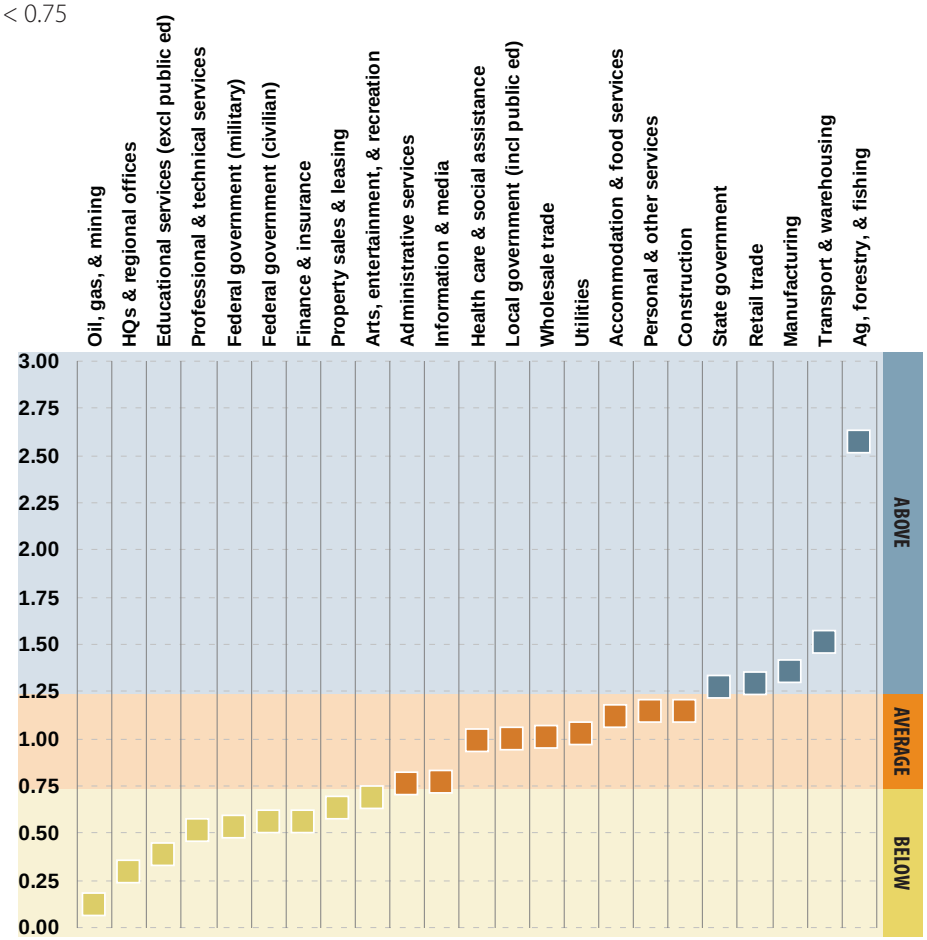
Figure A.16 | Industry sector concentrations

Location quotient analysis

US average for each industry = 1.00

Regional strength > 1.25

Regional weakness < 0.75



SOURCES: US Bureau of Labor Statistics

Farming, transportation & warehousing, and manufacturing all show very strong location quotients (see below) in the Purchase Region.

The lowest location quotients are in industries often associated more with urban areas. These include professional services, finance/insurance, real estate, and corporate headquarters.

A location quotient (LQ) is calculated as a local industry's share of total local employment divided by the same industry's share of employment at the national level. If the local industry and national industry are perfectly proportional, the location quotient will be 1.00. If an industry is heavily concentrated at the local level (the automotive industry in Detroit, technology in Silicon Valley, gambling in Las Vegas are some examples), then the location quotient will be higher than 1.00. Conversely, if the industry is sparsely concentrated at the local level (for example, farming in New York City, convention tourism in North Dakota), then the location quotient will be lower than 1.00.

ECONOMY

Figure A.17 | Purchase Region Counties at a Glance

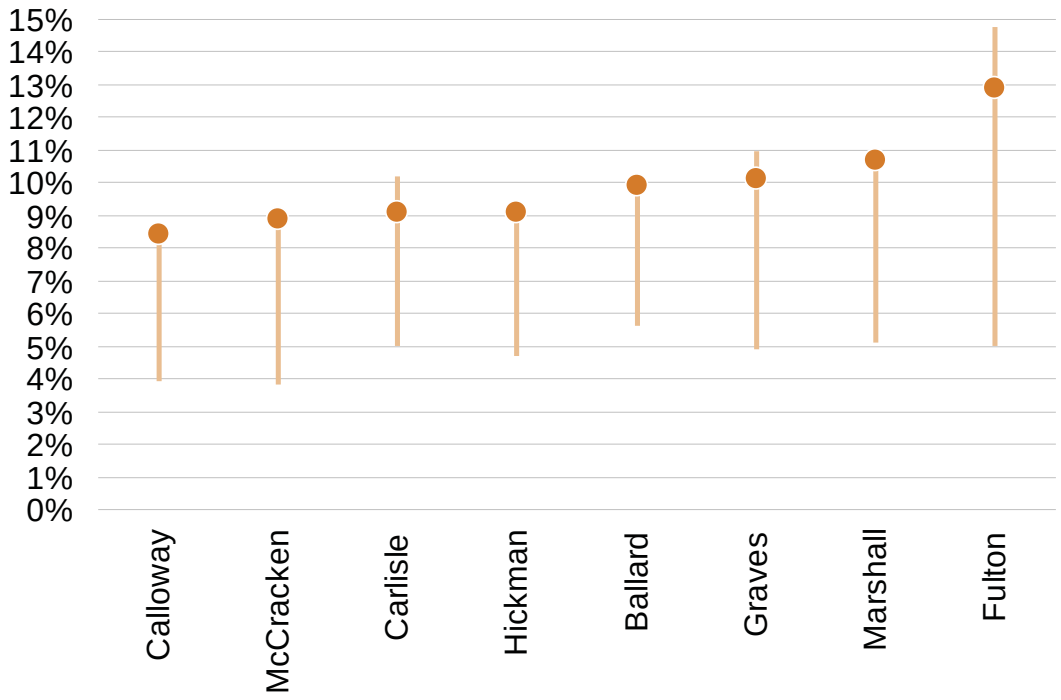
	BALLARD	CALLOWAY	CARLISLE	FULTON	GRAVES	HICKMAN	MARSHALL	MCCRACKEN
Population, 2009 estimate	8,161	36,348	5,209	6,814	37,719	4,851	31,200	65,880
Change from 2000 Census	▼ 1.5%	▲ 6.4%	▼ 2.7%	▼ 12.1%	▲ 1.9%	▼ 7.8%	▲ 3.6%	▲ 0.6%
Share of region's population, 2009	4.2%	18.5%	2.7%	3.5%	19.2%	2.5%	15.9%	33.6%
Age structure (projected net change, 2010-2030):	**+575**	+2,657	+326	+508	+2,802	+306	+2,449	+5,828
Youth (under 20)	-21	-32	-29	-15	-39	-34	-70	+213
Young adults (20 to 34)	-7	+105	-14	+1	+30	-18	-6	+242
Experienced working age (35 to 64)	-221	-632	-157	-167	-815	-162	-781	-1,110
Senior (65 and older)	+823	+3,215	+525	+688	+3,626	+519	+3,305	+6,482
Total employment (2009, complete)	4,329	21,439	1,921	3,417	16,873	1,825	15,180	45,814
Agriculture, natural resources, & mining	13.7%	5.1%	21.2%	6.5%	9.7%	25.4%	5.1%	1.2%
Construction	8.1%	5.7%	9.9%	2.8%	5.4%	4.8%	10.5%	5.7%
Education and health services	5.0%	5.4%	6.9%	9.7%	13.7%	9.8%	5.9%	16.9%
Financial activities	4.6%	4.8%	8.3%	6.3%	6.1%	5.8%	5.7%	5.7%
Government	10.2%	23.3%	12.3%	17.1%	12.1%	15.1%	12.4%	9.8%
Information	2.1%	1.1%	—	0.7%	1.1%	0.6%	1.0%	2.0%
Leisure and hospitality	2.7%	8.9%	2.8%	5.9%	5.7%	3.2%	11.2%	11.5%
Manufacturing	13.9%	10.7%	3.5%	9.1%	12.3%	6.4%	16.2%	6.4%
Other services	7.4%	5.4%	10.4%	5.1%	6.5%	6.9%	7.4%	5.3%
Professional and business services	15.6%	6.2%	8.2%	4.4%	7.4%	7.7%	6.5%	9.5%
Trade, transportation, and utilities	16.6%	23.2%	16.3%	32.3%	20.0%	14.2%	18.0%	26.0%
Unemployment rate								
Current (April 2010, preliminary)	8.9%	8.4%	9.1%	12.9%	10.1%	9.1%	10.7%	8.9%
Annual average (2009)	9.9%	8.2%	8.5%	13.5%	9.7%	8.9%	10.7%	8.7%

SOURCES: US Census Bureau, EMSI, US Bureau of Labor Statistics

ECONOMY

Figure A.18 | Average annual unemployment rate, 1990-2009 (%)

2009 unemployment rate in the context of the historical 20-year range



SOURCES: US Bureau of Labor Statistics

Average annual unemployment rates in the Purchase Region in 2009 ranged from 8.4 percent in Calloway County to 12.9 percent in Fulton County.

Across all counties in the region, unemployment was at or near the top of its 20-year historical range.

Above-average unemployment rates underscore the presence in the region of a surplus industrial labor force that is currently underutilized.

ECONOMY

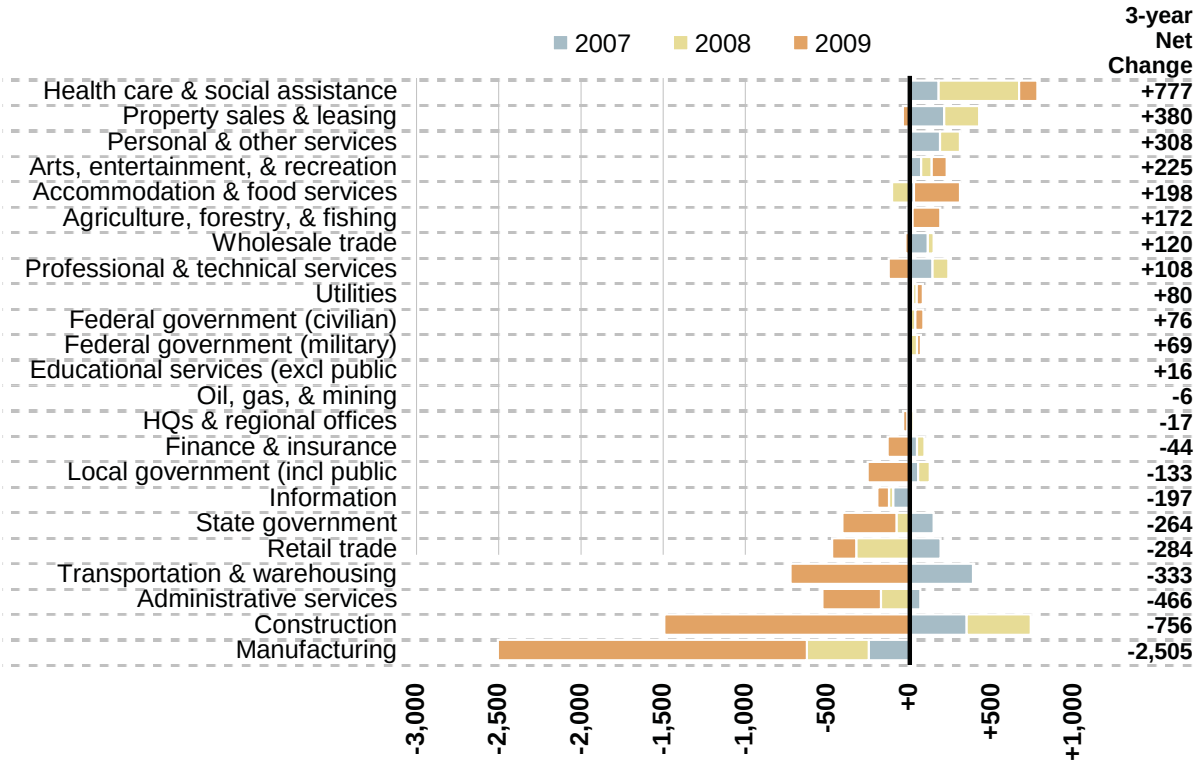
The recession that swept the country in 2008 and 2009 had its worst effects in the Purchase Region's blue-collar sectors like manufacturing, construction, and transportation/warehousing.

The manufacturing sector alone lost more than 2,500 jobs between 2007 and 2009.

Healthcare continues to be the region's most dependable growth sector, with a net of more than 750 jobs added since 2007.

Figure A.19 | Purchase Region industry job trends, 2007 through 2009

Local job losses weighed heaviest on blue-collar industries in 2009

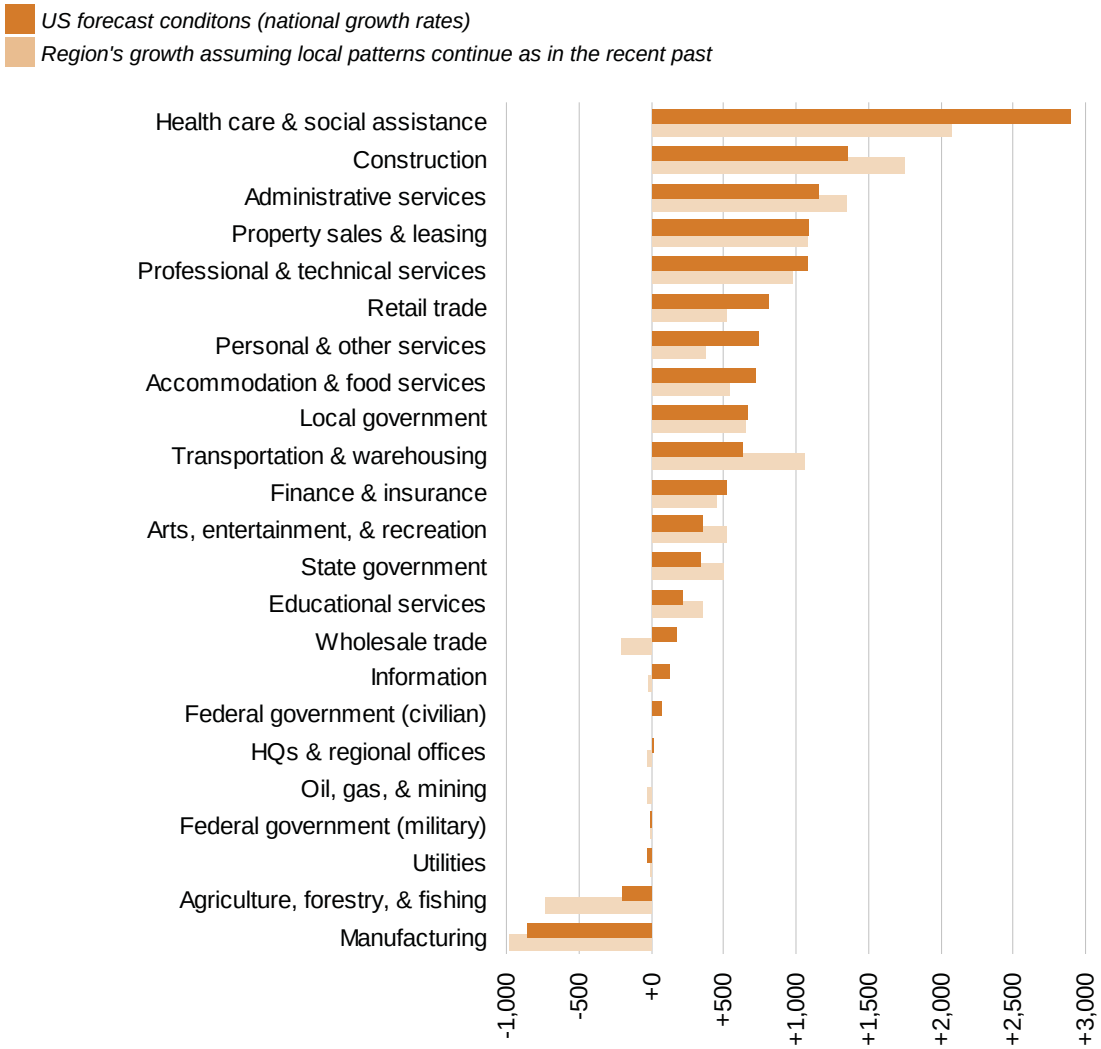


SOURCES: EMSI, Spring 2010 forecast

ECONOMY

Figure A.20 | Industry sector scenarios, 2009 to 2019

Purchase Region's growth under two different assumptions



SOURCES: US Bureau of Labor Statistics

Two scenarios are presented here. One assumes the region's growth over the next ten years will follow similar patterns as it has in past years. The other assumes the region will grow at rates more in line with the US forecast.

The differences in the two scenarios are notable. The Purchase Region is weighted heavily in declining industries like manufacturing and agricultural, but transportation, warehousing, and construction look poised for a comeback that is significantly stronger than the US.

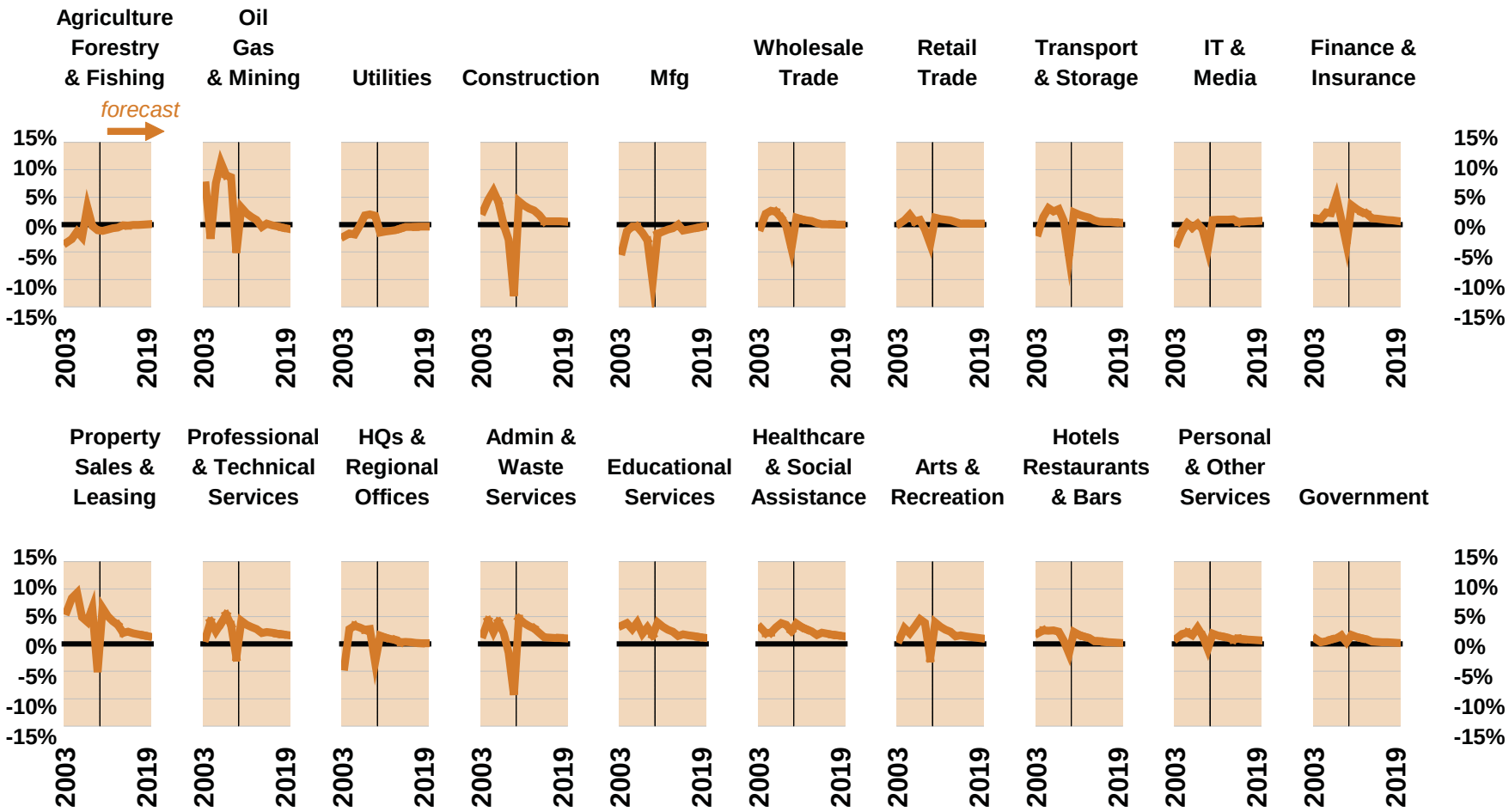
Under the US scenario, the healthcare sector would grow significantly faster.

Figure A.21 *(next page)* shows job growth forecasts and recent job growth histories for most major US industry sectors. Only a few sectors, like educational services and healthcare, squeak through the 2003-2019 period with consistent annual growth. Other sectors, like energy and construction, are highly volatile across economic cycles.

ECONOMY

Figure A.21 | US outlook by economic sector

National job growth history (2003-2009) and forecast (2010-2019)

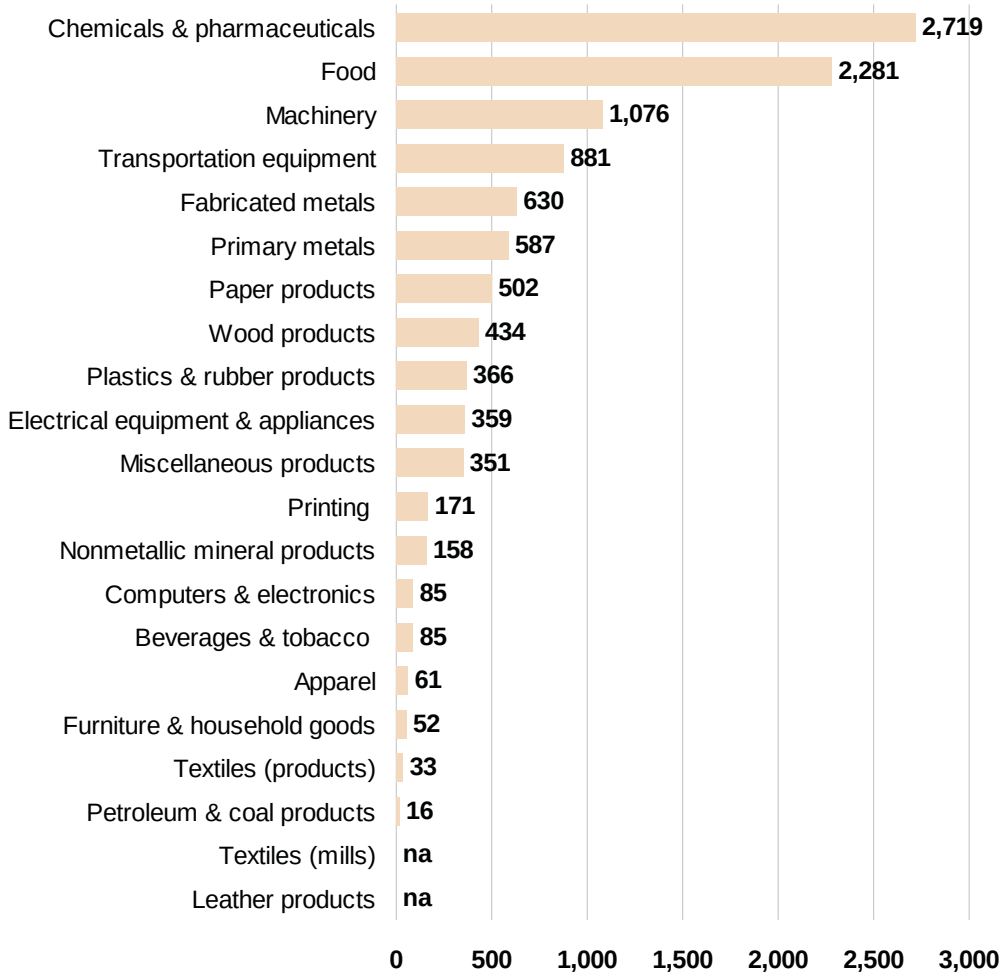


SOURCES: EMSI, Spring 2010 forecast

ECONOMY

Figure A.22 | 2009 manufacturing job base by industry

Chemical-related production is region's top manufacturing employer



SOURCES: US Bureau of Labor Statistics

Chemicals & pharmaceuticals and food processing are the only two manufacturing industries providing the Purchase Region with more than 2,000 total jobs. Machinery is the third largest manufacturing industry with over 1,000 jobs.

The eight-county region also supports several hundred more jobs in the production and fabrication of basic materials like metals, wood, paper, and plastics.

ECONOMY

Figure A.23 shows location quotients for individual industries within the manufacturing sector.

Not surprisingly, the manufacturing industries with the most jobs in the Purchase Region — chemicals, food processing, and machinery — all have above average LQs, as do some of the material processing sectors like primary metals, wood, and paper products.

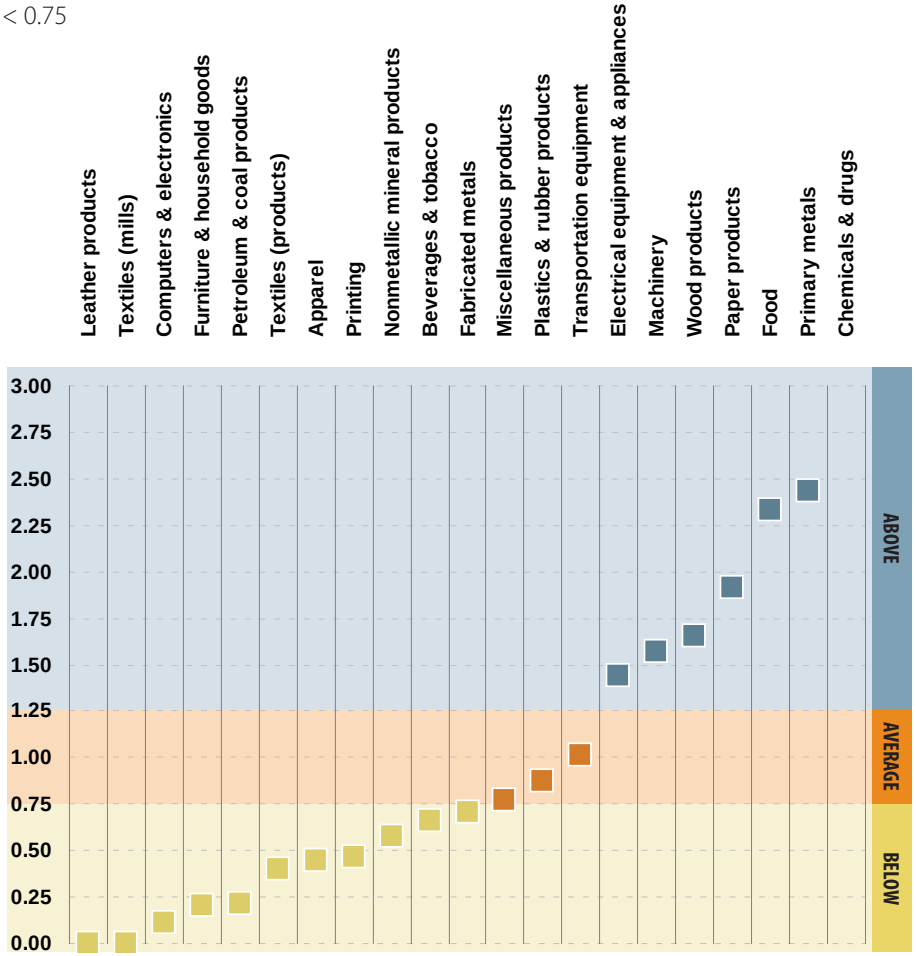
Figure A.23 | Manufacturing industry concentrations

Location quotient analysis

US average for each industry = 1.00

Regional strength > 1.25

Regional weakness < 0.75

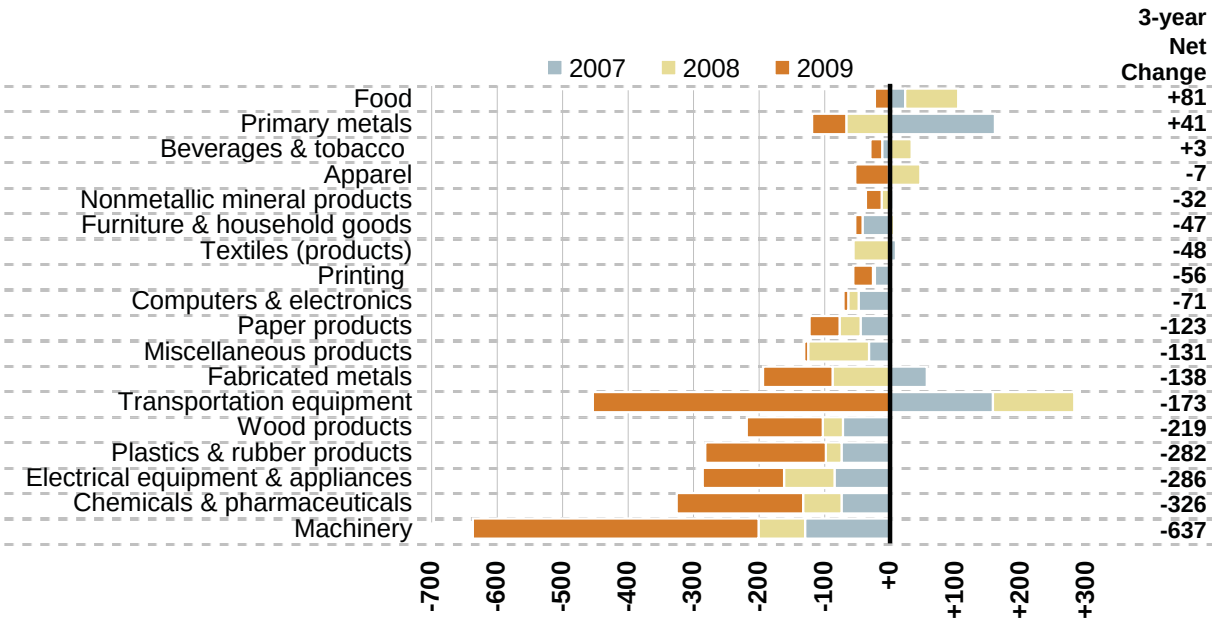


SOURCES: EMSI, Spring 2010 forecast

ECONOMY

Figure A.24 | Manufacturing industry job trends, 2007 through 2009

Local job losses fell hard on the chemical and transport equipment industries in 2009



The machinery industry has taken an especially strong hit to employment over the past three years, as have chemicals, electrical equipment & appliances, plastics, wood, and paper products.

The local transportation equipment industry (which includes auto parts production) had fared well in 2007 and 2008, but employment fell abruptly in 2009.

The Purchase Region's manufacturing downturn has been lightest for the food processing industry.

SOURCES: US Bureau of Labor Statistics

ECONOMY

Figure A.25 presents two scenarios of future growth for the region's manufacturing industries. One scenario is based on past local trends, the other is based on the ten-year US forecast growth rates by industry.

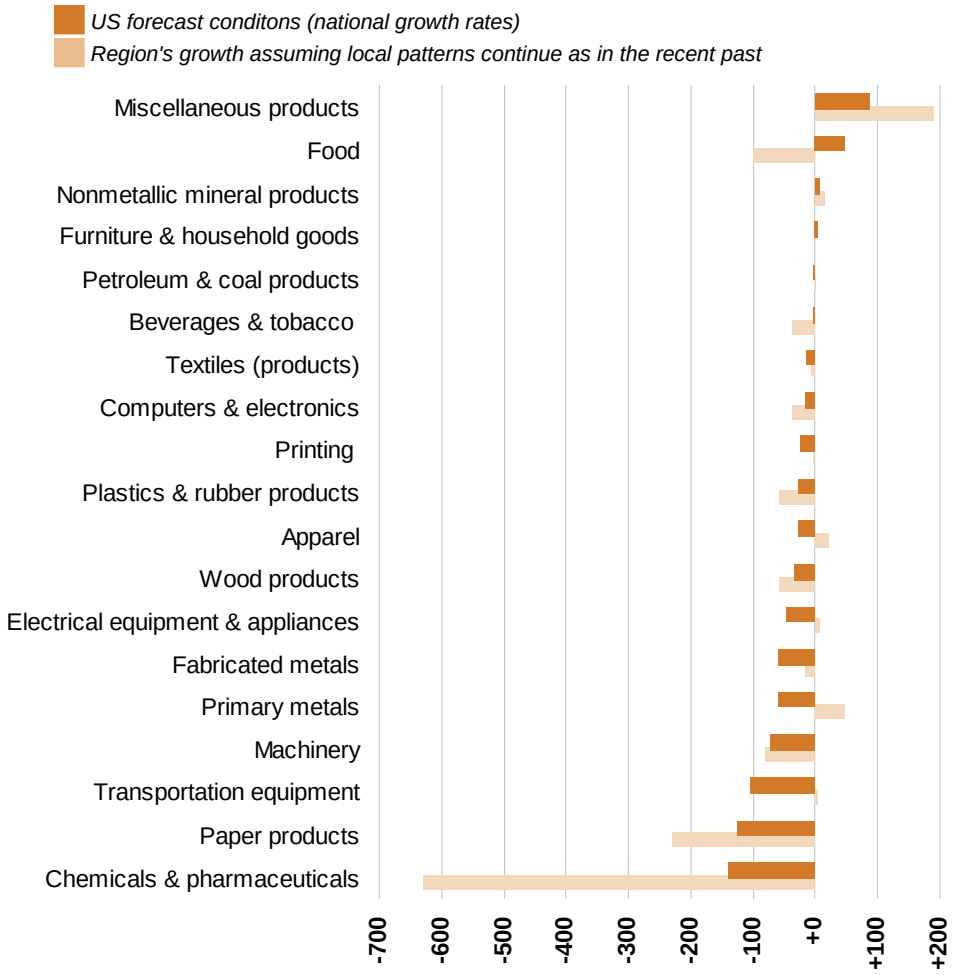
The national forecast suggests that job losses in the local chemical and paper products industries will be less severe in the next 10 years than past local patterns imply, but nonetheless, significant job losses are expected regardless of their intensity.

Often overlooked, miscellaneous manufactured products (which includes medical equipment and sporting goods, among other things) appears poised for growth under both scenarios.

Figure A.26 provides an overview of historic and projected growth patterns for manufacturing industries at the national level.

Figure A.25 | Manufacturing industry scenarios, 2009 to 2019

Purchase Region's growth under two different assumptions

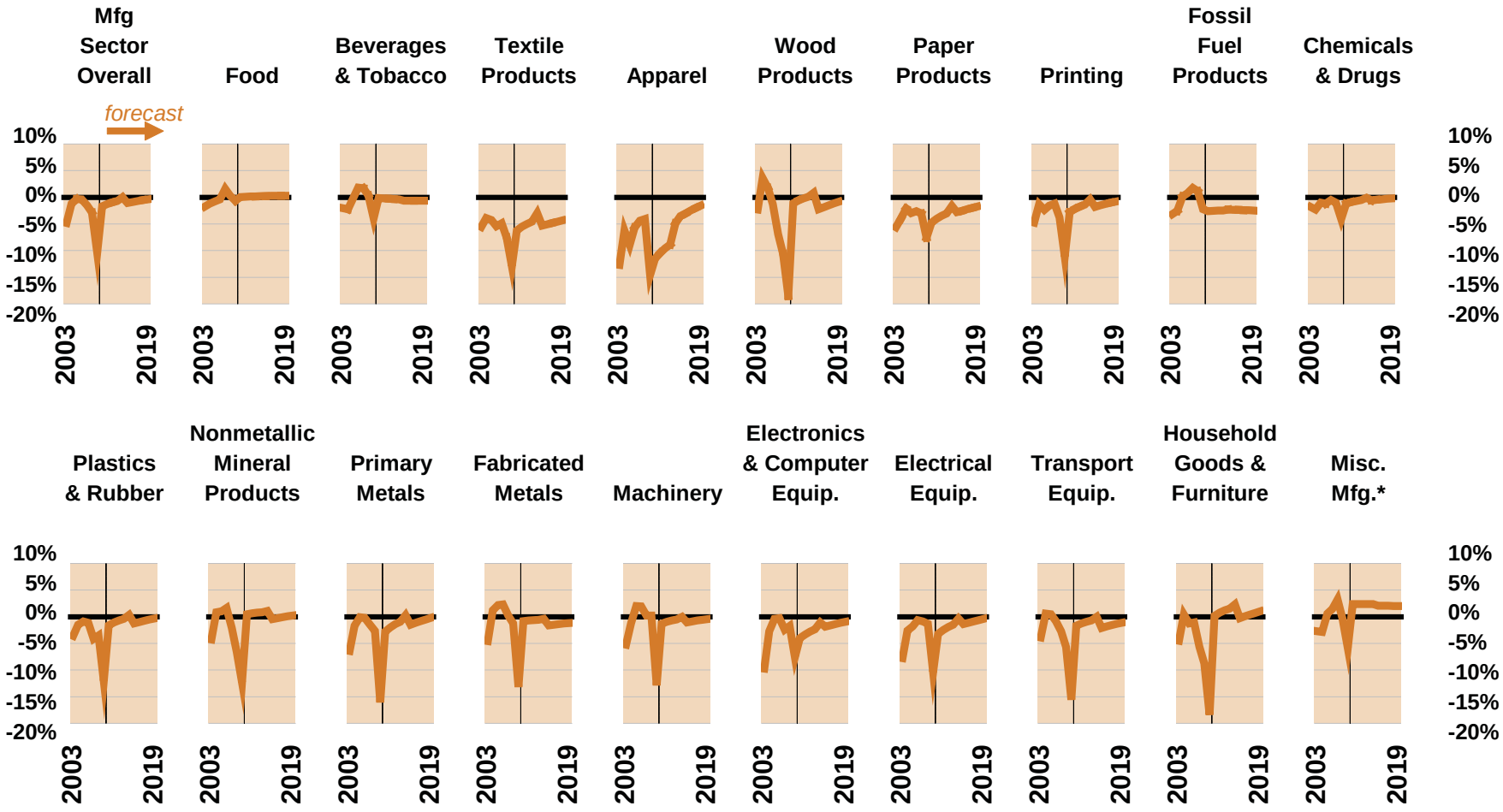


SOURCES: EMSI, Spring 2010 forecast. NOTE: Miscellaneous manufacturing includes medical equipment & supplies, sporting goods, jewelry, toys & games, non-paper office supplies, & caskets

ECONOMY

Figure A.26 | US manufacturing outlook by industry sector

National job growth history (2003-2009) and forecast (2010-2019)



SOURCES: US Bureau of Labor Statistics

WORKFORCE

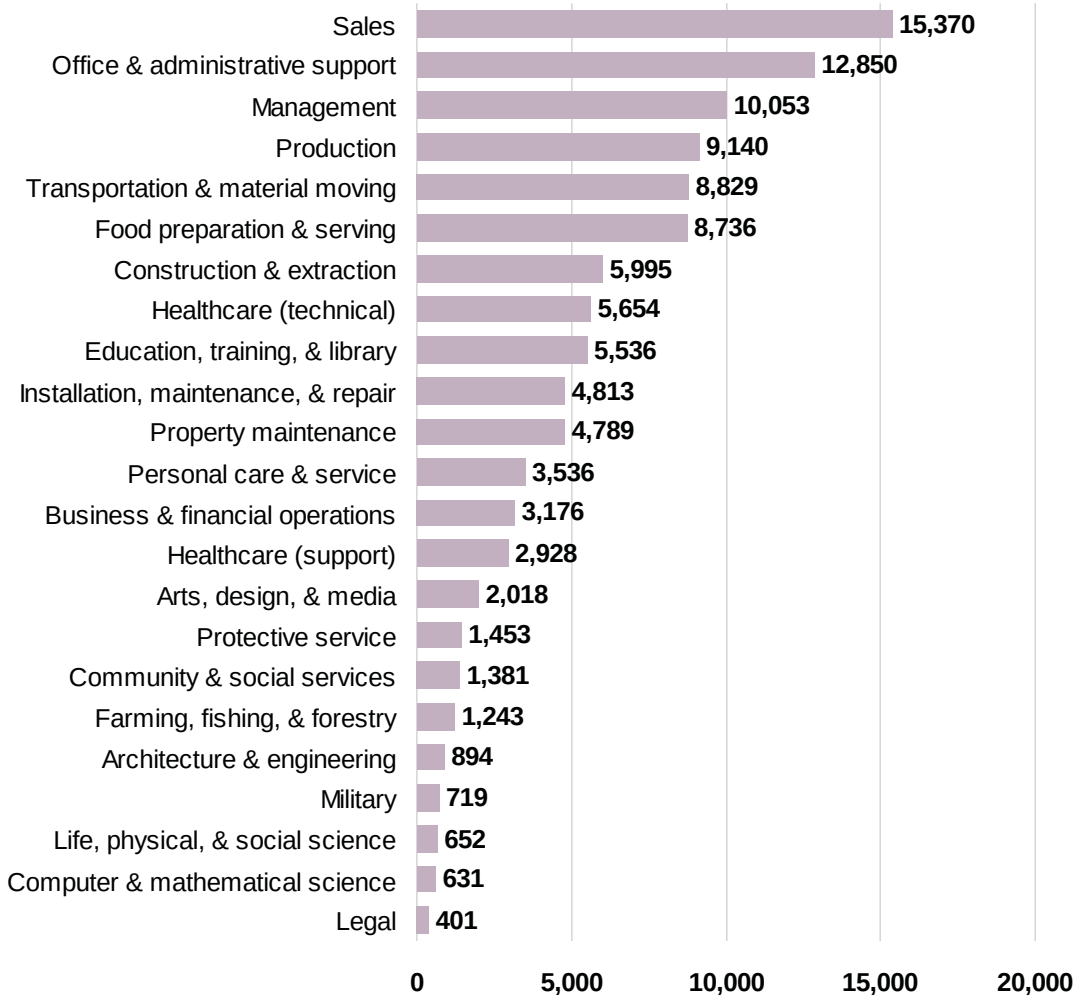
The Purchase Region's core blue-collar occupational groups — production and transportation & material moving — together comprise close to 20,000 workers.

One point of clarification: Self-employed farmers and ranchers are classified under management occupations rather than farming, thus the apparent discrepancies in the sizes of these two groups.

The high-paying, highly educated occupational groups like science, engineering, computers, and law, each have fewer than 1,000 jobs in the eight-county region.

Figure A.27 | Purchase Region 2009 job base by occupational group

Core blue-collar occupations total nearly 20,000 jobs



SOURCES: EMSI, Spring 2010 forecast

WORKFORCE

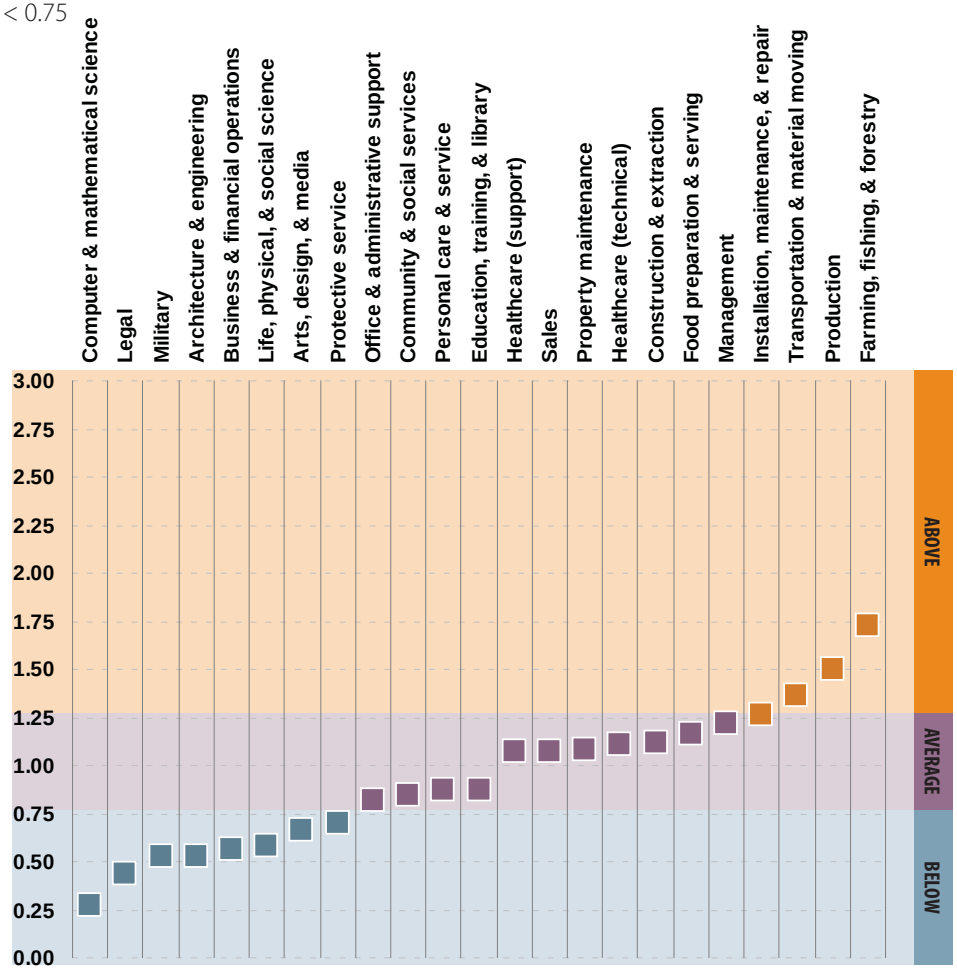
Figure A.28 | Industry sector concentrations

Location quotient analysis

US average for each industry = 1.00

Regional strength > 1.25

Regional weakness < 0.75



SOURCES: EMSI, Spring 2010 forecast

Figure A.28 provides location quotients for the region's major occupational groups.

Farming, production, transport & material moving, and installation & repair rank among the region's highest occupational location quotients.

Below average LQs, however, characterize occupations in computer technology, law, engineering, finance, science, and design.

WORKFORCE

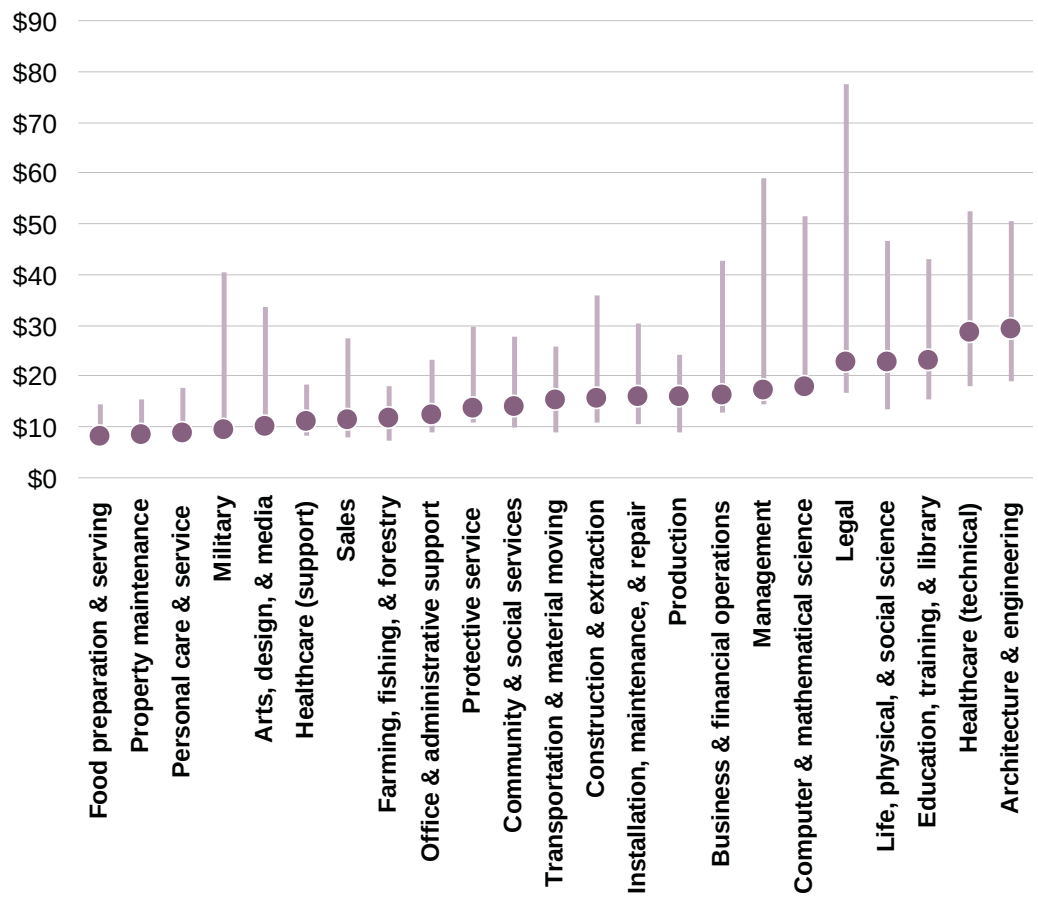
Figure A.29 presents the local median wage for each occupational group within the context of the national pay range. Those employed in transportation and material moving occupations in the region tend to earn a median of about $15 per hour. Nationwide, however, the range is from a low (10th percentile) of $9 per hour to a high (90th percentile) of about $25 per hour.

For the Purchase Region overall, median wages fall near the bottom of the national range. An exception lies in some of the skilled professions like science, engineering, and healthcare, which appear to command a higher local premium than other occupations.

Figure A.29 | Median hourly wage rate by occupational group

Local median wage presented in the context of the national wage range

Dot represents the local median; line represents the national range between the 10th and 90th percentiles

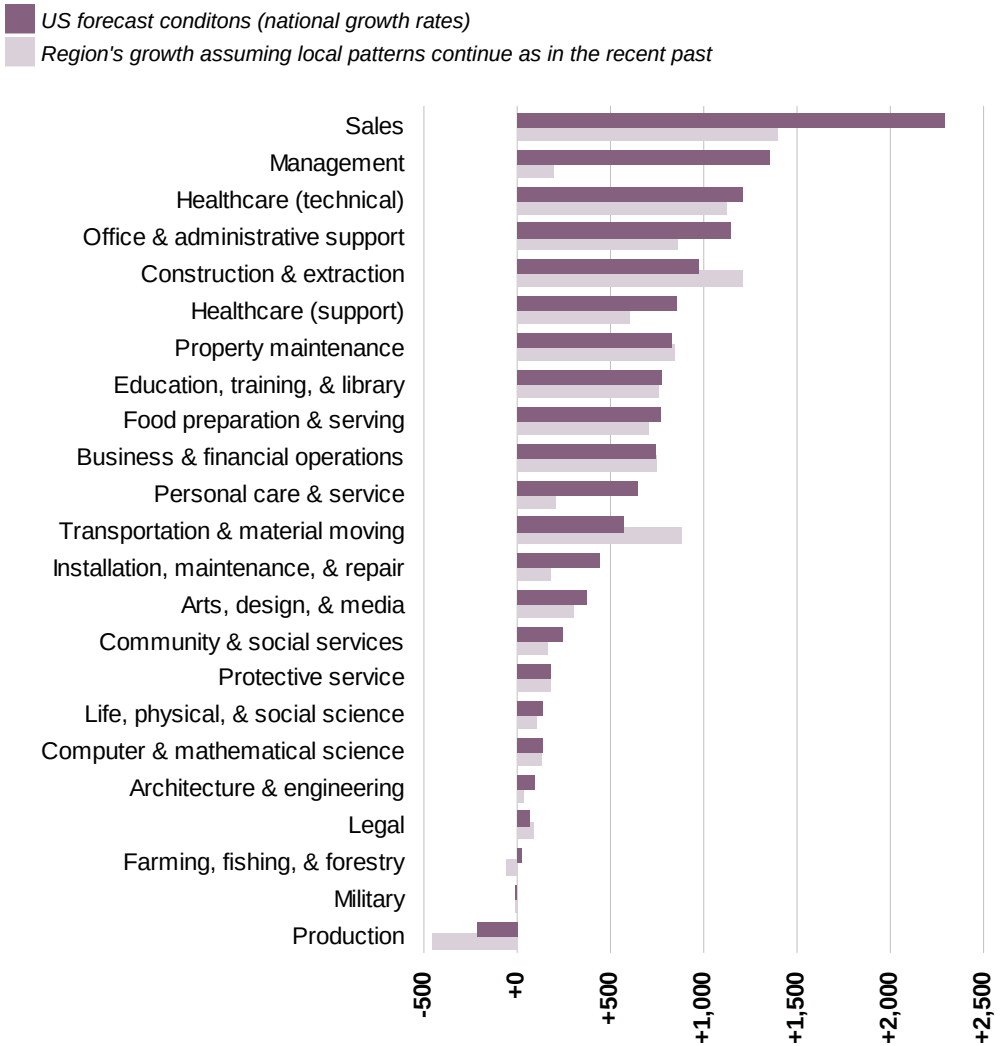


SOURCES: EMSI, Spring 2010 forecast

WORKFORCE

Figure A.30 | Occupational group scenarios, 2009 to 2019

Purchase Region's growth under two different assumptions



SOURCES: EMSI, Spring 2010 forecast

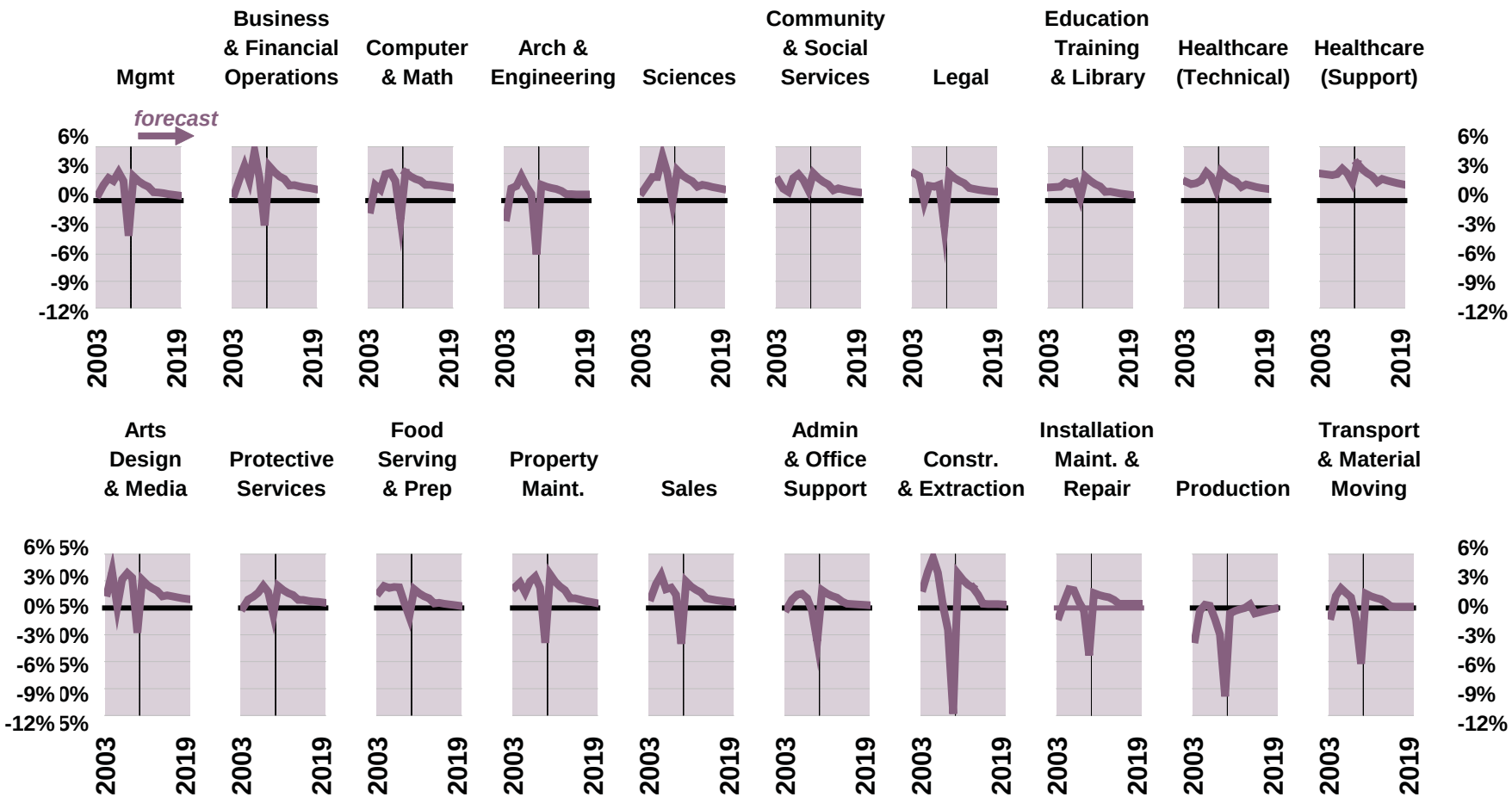
The two scenarios for occupational growth presented in **Figure A.30** look remarkably different. With the exception of construction and transportation, most occupational groups fare better under the US-growth rate scenario than under the one that assumes past local patterns.

The forecast decline for production occupations (approaching 500 jobs) implies that the region's already existing surplus of trained production workers will increase further.

WORKFORCE

Figure A.31 | US outlook by occupational group

National job growth history (2003-2009) and forecast (2010-2019)

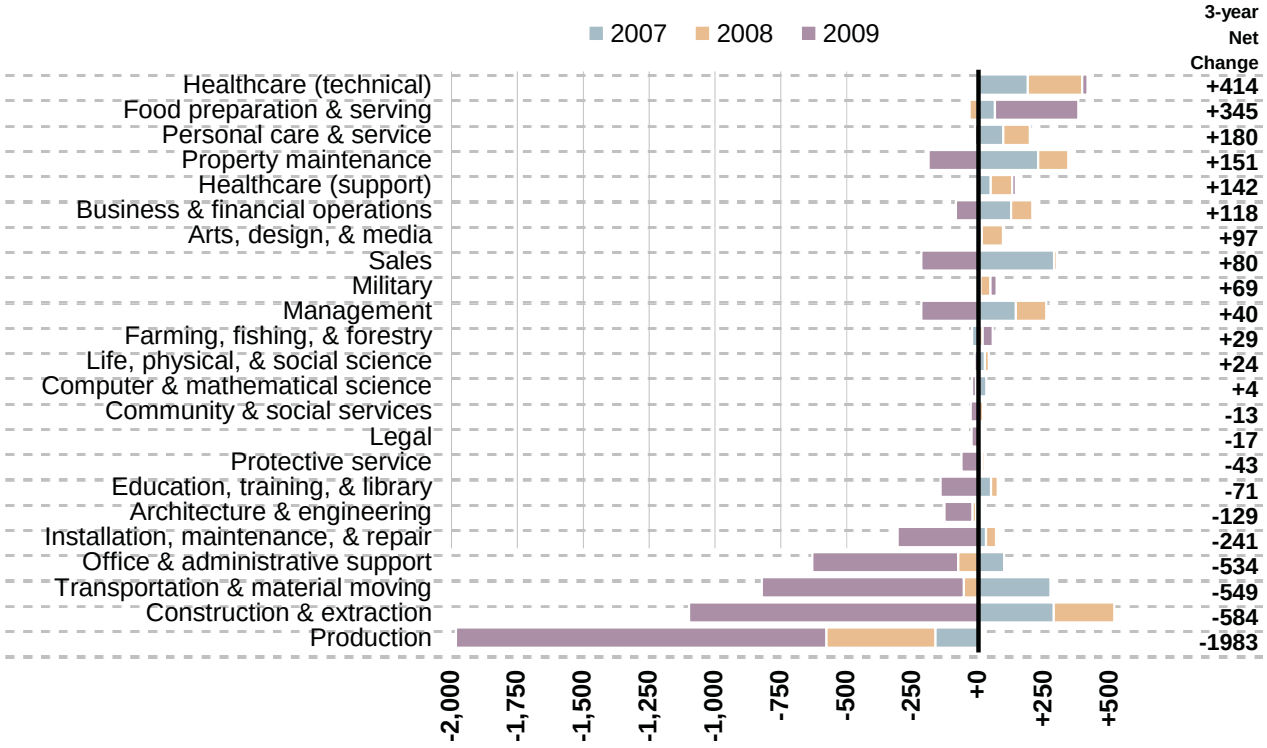


SOURCES: EMSI, Spring 2010 forecast

WORKFORCE

Figure A.32 | Purchase Region occupational job trends, 2007 through 2009

Blue-collar occupations have suffered disproportionately heavy job losses in recent years



SOURCES: EMSI, Spring 2010 forecast

Figure A.31 *(previous page)* shows the US outlook by occupation.

- Construction and production occupations have suffered the most volatility in this economic cycle.
- Prospects for national job growth in the decade ahead will be steadiest in skilled fields like computers, science, and healthcare.
- After an initial rebound, some of the occupational groups with the heaviest job losses will see growth taper off again.

Figure A.32 shows recent trends for the Purchase Region by occupation:

- Service-oriented occupations have fared best through the recession years, especially healthcare workers.
- Job losses in blue collar sectors like production, construction, transportation, and maintenance mounted rapidly in 2009.

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Figures A.33 through **A.36** provide an analysis of the six occupational groups with the greatest job losses

From these six groups we focus on the 32 individual occupations in which at least 30 local jobs had been lost in the past year. We then sorted these into two groups. The first group includes 23 occupations in which jobs lost in 2009 are not expected to be regained within a five-year time-frame.

The second group includes the remaining nine occupations which should be better positioned for recovery in five years or less.

Figure A.33 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 1

Most are not expected to recover quickly

Code	Occupations unlikely to recover in 5 years	Jobs lost in 2009 in the 8-county region
51-2092	Team assemblers	-358
51-4121	Welders, cutters, solderers, & brazers	-166
47-2031	Carpenters	-161
51-4041	Machinists	-121
47-2111	Electricians	-118
53-5011	Sailors & marine oilers	-114
53-7062	Freight, stock, & material movers	-96
47-2152	Plumbers, pipefitters, & steamfitters	-96
53-5021	Captains, mates, & pilots of water vessels	-87
43-6014	Secretaries, except legal, medical, & executive	-83
51-1011	Supervisors of production & operating workers	-82
47-2141	Painters, construction & maintenance	-82
51-6031	Sewing machine operators	-63
49-9042	Maintenance & repair workers, general	-52
53-7051	Industrial truck & tractor operators	-48
53-3033	Truck drivers, light or delivery services	-48
51-9011	Chemical equipment operators & tenders	-47
51-9061	Inspectors, testers, sorters, & weighers	-43
51-9198	Helpers--Production workers	-42
49-9041	Industrial machinery mechanics	-36
51-2099	Assemblers & fabricators, all other	-35
49-3023	Automotive service technicians & mechanics	-31
51-9041	Extruding machine setters & operators	-30

Code	Modest chance of recovery within 5 years	Jobs lost in 2009 in the 8-county region
53-3032	Truck drivers, heavy & tractor-trailer	-159
47-1011	Supervisors of construction & extraction workers	-133
47-2061	Construction laborers	-133
49-9021	Heating, A/C, & refrigeration mechanics	-60
43-3031	Bookkeeping, accounting, & auditing clerks	-58
43-6011	Executive secretaries & administrative assistants	-54
43-9061	Office clerks, general	-48
47-3015	Assistant pipelayers, plumbers, & pipefitters	-30
43-1011	Supervisors of office & admin support workers	-30

SOURCES: EMSI, Spring 2010 forecast

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Figure A.34 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 2

Several are highly concentrated in the region relative to the US

Code	Occupations unlikely to recover in 5 years	LQ
53-5011	Sailors & marine oilers	23.90
51-9011	Chemical equipment operators & tenders	23.21
53-5021	Captains, mates, & pilots of water vessels	16.37
51-4121	Welders, cutters, solderers, & brazers	2.93
49-9041	Industrial machinery mechanics	2.83
51-9041	Extruding machine setters & operators	2.80
51-2092	Team assemblers	2.34
51-4041	Machinists	1.94
51-6031	Sewing machine operators	1.63
49-3023	Automotive service technicians & mechanics	1.55
53-7051	Industrial truck & tractor operators	1.52
51-1011	Supervisors of production & operating workers	1.46
53-3033	Truck drivers, light or delivery services	1.40
47-2111	Electricians	1.31
47-2141	Painters, construction & maintenance	1.14
43-6014	Secretaries, except legal, medical, & executive	1.12
51-2099	Assemblers & fabricators, all other	1.12
47-2031	Carpenters	1.09
47-2152	Plumbers, pipefitters, & steamfitters	1.04
51-9198	Helpers--Production workers	1.02
49-9042	Maintenance & repair workers, general	0.99
53-7062	Freight, stock, & material movers	0.97
51-9061	Inspectors, testers, sorters, & weighers	0.93

Code	Modest chance of recovery within 5 years	LQ
53-3032	Truck drivers, heavy & tractor-trailer	2.12
47-3015	Assistant pipelayers, plumbers, & pipefitters	1.78
47-1011	Supervisors of construction & extraction workers	1.34
49-9021	Heating, A/C, & refrigeration mechanics	1.10
47-2061	Construction laborers	1.01
43-6011	Executive secretaries & administrative assistants	1.00
43-3031	Bookkeeping, accounting, & auditing clerks	0.97
43-1011	Supervisors of office & admin support workers	0.84
43-9061	Office clerks, general	0.51

SOURCES: EMSI, Spring 2010 forecast

Of the total 32 at-risk occupations we identified in the Purchase Region, most have average or above-average location quotients.

Three occupations have exceptionally high location quotients. These include captains and marine workers involved in river transportation as well as chemical equipment operators.

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Of the 32 at-risk occupations, most have median local wages of between $10 and $20 per hour. A few — including two of the three occupations with the highest location quotients — command even higher wages.

Across most of the at-risk occupations, local median wages fall near the middle or in the lower half of the national wage range.

There is less correlation than might be expected between wage rates (**Figure A.35**) and education and training levels (**Figure A.36**, *next page*).

Figure A.35 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 3

Local median wage presented in the context of the national wage range

Dark shading represents local median; light-shaded bar represents US range between the 10th & 90th percentiles

Code	Occupations unlikely to recover in 5 years	Median Hourly
53-5021	Captains, mates, & pilots of water vessels	32.83
51-9011	Chemical equipment operators & tenders	24.97
51-1011	Supervisors of production & operating workers	24.71
47-2152	Plumbers, pipefitters, & steamfitters	24.63
51-4041	Machinists	22.08
47-2111	Electricians	20.76
49-9041	Industrial machinery mechanics	20.65
51-4121	Welders, cutters, solderers, & brazers	17.63
51-9041	Extruding machine setters & operators	17.48
53-5011	Sailors & marine oilers	17.01
51-9198	Helpers--Production workers	15.44
51-9061	Inspectors, testers, sorters, & weighers	15.41
49-9042	Maintenance & repair workers, general	14.95
47-2031	Carpenters	13.9
47-2141	Painters, construction & maintenance	13.57
53-7051	Industrial truck & tractor operators	13.54
53-3033	Truck drivers, light or delivery services	12.72
49-3023	Automotive service technicians & mechanics	12.7
51-2092	Team assemblers	12.27
43-6014	Secretaries, except legal, medical, & executive	10.64
51-2099	Assemblers & fabricators, all other	9.46
51-6031	Sewing machine operators	9.15
53-7062	Freight, stock, & material movers	8.93
Code	**Modest chance of recovery within 5 years**	
43-1011	Supervisors of office & admin support workers	16.75
47-1011	Supervisors of construction & extraction workers	16.64
53-3032	Truck drivers, heavy & tractor-trailer	15.2
49-9021	Heating, A/C, & refrigeration mechanics	14.91
47-2061	Construction laborers	14.08
43-6011	Executive secretaries & administrative assistants	14.06
47-3015	Assistant pipelayers, plumbers, & pipefitters	12.97
43-3031	Bookkeeping, accounting, & auditing clerks	12.6
43-9061	Office clerks, general	9.94

SOURCES: EMSI, Spring 2010 forecast

Figure A.36 | Purchase Region occupations that lost ≥30 jobs in 2009, Part 4

The identified occupations typically rely on work experience and on the job training

Colored squares represent the 11 levels of standard skills/training as defined by the US Bureau of Labor Statistics

Code	Occupation name	Minimum required Training/skill level (Low ⟷ High)	
49-3023	Automotive service technicians & mechanics	■■■■□□□□□□□	Postsecondary vocational award
53-5021	Captains, mates, & pilots of water vessels	■■■■□□□□□□□	Work experience in a related field
51-1011	Supervisors of production & operating workers	■■■■□□□□□□□	Work experience in a related field
47-1011	Supervisors of construction & extraction workers	■■■■□□□□□□□	Work experience in a related field
43-1011	Supervisors of office & admin support workers	■■■■□□□□□□□	Work experience in a related field
51-4121	Welders, cutters, solderers, & brazers	■■■□□□□□□□□	Long-term on-the-job training
47-2031	Carpenters	■■■□□□□□□□□	Long-term on-the-job training
51-4041	Machinists	■■■□□□□□□□□	Long-term on-the-job training
47-2111	Electricians	■■■□□□□□□□□	Long-term on-the-job training
47-2152	Plumbers, pipefitters, & steamfitters	■■■□□□□□□□□	Long-term on-the-job training
49-9041	Industrial machinery mechanics	■■■□□□□□□□□	Long-term on-the-job training
49-9021	Heating, A/C, & refrigeration mechanics	■■■□□□□□□□□	Long-term on-the-job training
51-2092	Team assemblers	■■□□□□□□□□□	Moderate-term on-the-job training
43-6014	Secretaries, except legal, medical, & executive	■■□□□□□□□□□	Moderate-term on-the-job training
47-2141	Painters, construction & maintenance	■■□□□□□□□□□	Moderate-term on-the-job training
51-6031	Sewing machine operators	■■□□□□□□□□□	Moderate-term on-the-job training
49-9042	Maintenance & repair workers, general	■■□□□□□□□□□	Moderate-term on-the-job training
51-9011	Chemical equipment operators & tenders	■■□□□□□□□□□	Moderate-term on-the-job training
51-9061	Inspectors, testers, sorters, & weighers	■■□□□□□□□□□	Moderate-term on-the-job training
51-2099	Assemblers & fabricators, all other	■■□□□□□□□□□	Moderate-term on-the-job training
51-9041	Extruding machine setters & operators	■■□□□□□□□□□	Moderate-term on-the-job training
53-3032	Truck drivers, heavy & tractor-trailer	■■□□□□□□□□□	Moderate-term on-the-job training
47-2061	Construction laborers	■■□□□□□□□□□	Moderate-term on-the-job training
43-3031	Bookkeeping, accounting, & auditing clerks	■■□□□□□□□□□	Moderate-term on-the-job training
43-6011	Executive secretaries & administrative assistants	■■□□□□□□□□□	Moderate-term on-the-job training
53-5011	Sailors & marine oilers	■□□□□□□□□□□	Short-term on-the-job training
53-7062	Freight, stock, & material movers	■□□□□□□□□□□	Short-term on-the-job training
53-7051	Industrial truck & tractor operators	■□□□□□□□□□□	Short-term on-the-job training
53-3033	Truck drivers, light or delivery services	■□□□□□□□□□□	Short-term on-the-job training
51-9198	Helpers--Production workers	■□□□□□□□□□□	Short-term on-the-job training
43-9061	Office clerks, general	■□□□□□□□□□□	Short-term on-the-job training
47-3015	Assistant pipelayers, plumbers, & pipefitters	■□□□□□□□□□□	Short-term on-the-job training

SOURCES: EMSI, Spring 2010 forecast

The 32 occupations primarily rely on work experience or on-the-job training.

Only one of these occupations, automotive technicians, typically requires postsecondary training. Despite its training needs, this occupation is not among the highest wage rates of the group. Nationally, wage rates for this occupation extend up to as much as $30 per hour, however, Purchase Region workers in this occupation earn substantially less.

By the same token, the list includes some relatively high wage occupations that require only moderate on-the-job training. Chemical equipment operators and tenders is an example, along with plumbers, pipefitters and steamfitters.

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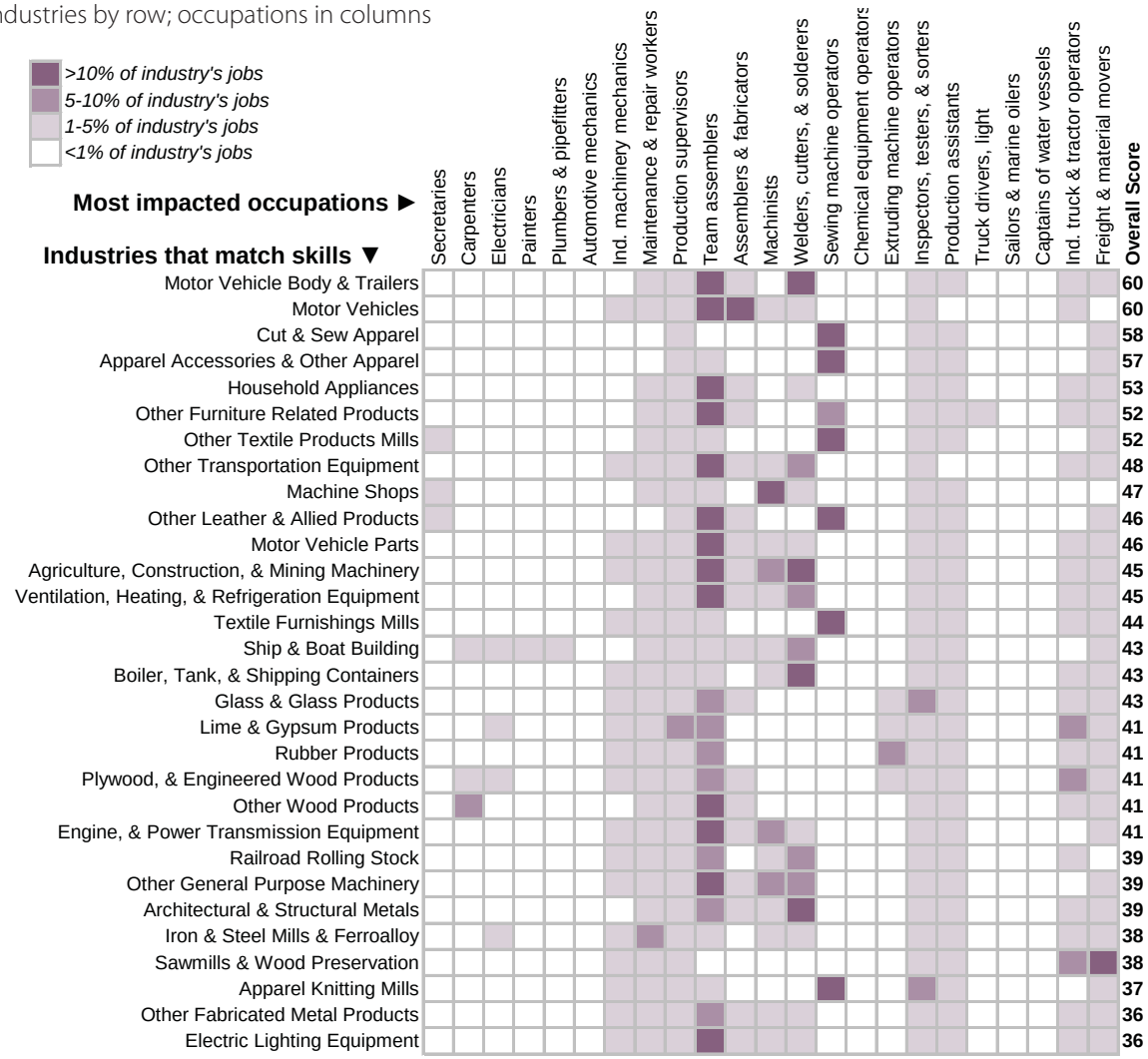
For those 23 most at-risk occupations, the opportunities are limited. For these occupations, we have identified the specific industries which most often employ them. We've separated this "best fit" analysis into two groups. The first looks at manufacturing industries only. The next focuses on non-manufacturing industries.

Some of these cross-referenced industries may seem redundant with existing or troubled industries. Others may offer some opportunities for hope. In some cases where direct replacement is unlikely, retraining or career counseling may prove a better option.

Figure A.37 | Connecting surplus labor to "best fit" industries

Manufacturing industries most likely to need region's surplus talent

Industries by row; occupations in columns



SOURCES: EMSI, Spring 2010 forecast

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Figure A.38 | Connecting surplus labor to "best fit" industries

Non-manufacturing industries most likely to need region's surplus talent

Industries by row; occupations in columns

- *>10% of industry's jobs*
- *5-10% of industry's jobs*
- *1-5% of industry's jobs*
- *<1% of industry's jobs*

Industries that match skills ? / Most impacted occupations ?	Secretaries	Carpenters	Electricians	Painters	Plumbers & pipefitters	Automotive mechanics	Ind. machinery mechanics	Maintenance & repair workers	Production supervisors	Team assemblers	Assemblers & fabricators	Machinists	Welders, cutters, & solderers	Sewing machine operators	Chemical equipment operators	Extruding machine operators	Inspectors, testers, & sorters	Production assistants	Truck drivers, light	Sailors & marine oilers	Captains of water vessels	Ind. truck & tractor operators	Freight & material movers	**Overall Score**
Inland Water Transportation																				5-10%	5-10%		1-5%	**62**
Couriers & Express Delivery Services																			>10%				>10%	**58**
Building Equipment Contractors	1-5%		>10%		>10%																			**43**
Commercial & Industrial Machinery Repair	1-5%				1-5%		>10%	1-5%	1-5%			1-5%	5-10%										1-5%	**42**
Support Activities for Water Transportation								1-5%					1-5%								5-10%	5-10%	>10%	**42**
Warehousing & Storage								1-5%											1-5%			>10%	>10%	**42**
Residential Building Construction	1-5%	>10%		1-5%																				**38**
Scenic & Sightseeing Transportation, Water	1-5%							1-5%												>10%	>10%		1-5%	**37**
Building Finishing Contractors	1-5%	>10%		>10%																				**37**
Water Transportation								1-5%												>10%	>10%		1-5%	**35**
Automotive Repair & Maintenance	1-5%					>10%																		**32**
Local Messengers & Local Delivery	1-5%																		>10%					**32**
Metal & Mineral Merchant Wholesalers	1-5%								1-5%	1-5%		1-5%	1-5%						1-5%			1-5%	>10%	**32**
Other Support Activities for Transportation										1-5%									1-5%			1-5%	>10%	**31**
Lumber & Construction Materials Wholesalers	1-5%	1-5%								1-5%									1-5%			5-10%	>10%	**30**
Employment Services	1-5%									1-5%	1-5%							1-5%				1-5%	>10%	**29**
General Rental Centers								1-5%											5-10%				>10%	**28**
Nonresidential Building Construction	1-5%	>10%	1-5%		1-5%								1-5%											**28**
Miscellaneous Durable Goods Wholesalers	1-5%							1-5%		1-5%							1-5%		1-5%			1-5%	>10%	**27**
Lessors of Real Estate	1-5%							>10%																**27**
Motor Vehicle & Parts Wholesalers	1-5%					1-5%													5-10%			1-5%	5-10%	**24**
Support Activities for Rail Transportation								1-5%					5-10%						1-5%			1-5%	5-10%	**24**
Automotive Parts, Accessories, & Tire Stores						>10%													5-10%				1-5%	**24**
Furniture & Home Furnishing Wholesalers	1-5%									1-5%	1-5%								1-5%			1-5%	5-10%	**23**
Automobile Dealers						>10%													1-5%					**22**
Miscellaneous Nondurable Goods Wholesalers	1-5%									1-5%									5-10%			1-5%	5-10%	**22**
Furniture Stores	1-5%																		5-10%				5-10%	**21**
Activities Related to Real Estate	1-5%							>10%																**21**
Grocery Wholesalers																			1-5%			1-5%	5-10%	**21**
Chemical Wholesalers	1-5%							1-5%	1-5%	1-5%					1-5%				1-5%			1-5%	5-10%	**20**

SOURCES: EMSI, Spring 2010 forecast

The analysis at-risk occupational opportunities continues here with non-manufacturing industries. While many of the occupations recently lost do not transfer as easily to non-manufacturing, there are in fact a better mix of growth industries where their skills may fit. ■

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WKWIB Plan
Attachment 3

West Kentucky Workforce Investment Board
Operation Workforce 2012

County	Project	Date	Total Requested	Total Expended
Christian	Western Kentucky's Entrepreneurs, Inventors & Innovation Conference	March 7, 2012 8:00am-2:00pm Hopkinsville Community College	$3,500.00	
Trigg	Trigg's Ultimate Youth "Creative Challenge Cup"	May 3, 2012 8:30am-2:00pm	$3,500.00	
Todd	Todd County Industrial Foundation Job Fair	TBA	$3,500.00	
Caldwell/Lyon	Junior Achievement Programming in Caldwell & Lyon Counties	On-going programs through May 12, 2012	$7,000.00	
Marshall	Leadership Luncheon Chamber Breakfast Plant Manager Luncheon Materials and Junior Achievement Workforce Student Booklets	April 18, 2012 April 18, 2012 March 14, 2012	$3,500.00	
Muhlenberg	Outreach and promotion of NCRC to employees and employers NCRC Employer Workshop	March 30 through May, 2012	$3,500.00	
Hopkins	Madisonville-Hopkins County Job & Career Expo	May 15, 2012 Madisonville Community College	$3,500.00	
Crittenden	Being Revised		$3,500.00	
Hickman	Economic Development Leadership Seminar	TBD	$3,500.00	
Graves	Operation Prepared Workforce	May 9, 2012 Skilled Craft Training Center Hickory, KY	$3,500.00	
McCracken	Business Education Partnership Kentucky Work Ready Community Luncheon	May 8, 2012 11:30 am-1:00 pm WKCTC Emerging Technology Center Paducah, KY	$3,500.00	
Fulton	Fulton County Area Technology Center Tour, Luncheon & Workshop	April 10, 2012 11:00 am– 1:00 pm Hickman, KY	$3,500.00	
TOTAL			**$45,500.00**	

March 15, 2012