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## Management Development

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Prepared for

*Conference on Integrated  
Learning: The School-to-  
Career Connection*

Penn State  
University Park  
Pennsylvania

## IDENTIFYING AND OBTAINING ONLINE INFORMATION ABOUT LOCAL EMPLOYMENT DYNAMICS

Rose M. Baker & David L. Passmore

New information useful for planning local workforce development is available using data from a partnership between the U.S. Census Bureau and Pennsylvania. The *Local Employment Dynamics* (LED) program provides new information that describes the dynamic interaction between workers and employers. This information about jobs and workers is important to economic developers and workforce investment boards and planners, just to name a few potential users.

The LED program produces measures about employment and workers that are available for states, counties, Metropolitan Statistical Areas, and workforce investment areas. Employment information is available by age and gender, by industry (offering SIC or NAICS 2- and 3- digit detail) and includes information on earnings. The LED data sets are dynamic, showing job gains and losses, new hires, and separations over time.

The Pennsylvania Department of Labor and Industry supplies key data from unemployment wage records and from businesses each quarter. The U.S. Census Bureau merges Pennsylvania data with current demographic data. By combining data from different administrative sources, censuses and surveys, the Census Bureau produces local employment information that was not available previously.

For Workforce Investment Boards, the LED program helps answer questions about where the jobs are, what workers are paid, and who needs what kind of training. For employers, the data might be used to show where the workers are located and how much they earn. Economic development agencies might use the indicators to determine what the high growth industries in their area are or where more businesses might be located. And transportation planners will find this to be a great new resource to decide how to improve the ways workers get to and from their jobs.

Three reports currently are available from the LED website at <http://lehd.dsd.census.gov>: *Quarterly Workforce Indicators*, *Local Workforce*, and *Top Industries*. In the remainder of this document, procedures are outlined for identifying local LED information and obtaining these three reports for the locality specified. Another report, *On the Map*, soon is available for GIS mapping of employment information.

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*Baker and Passmore are leading Penn State Management Development's new effort in industry cluster analysis and forecasting.*

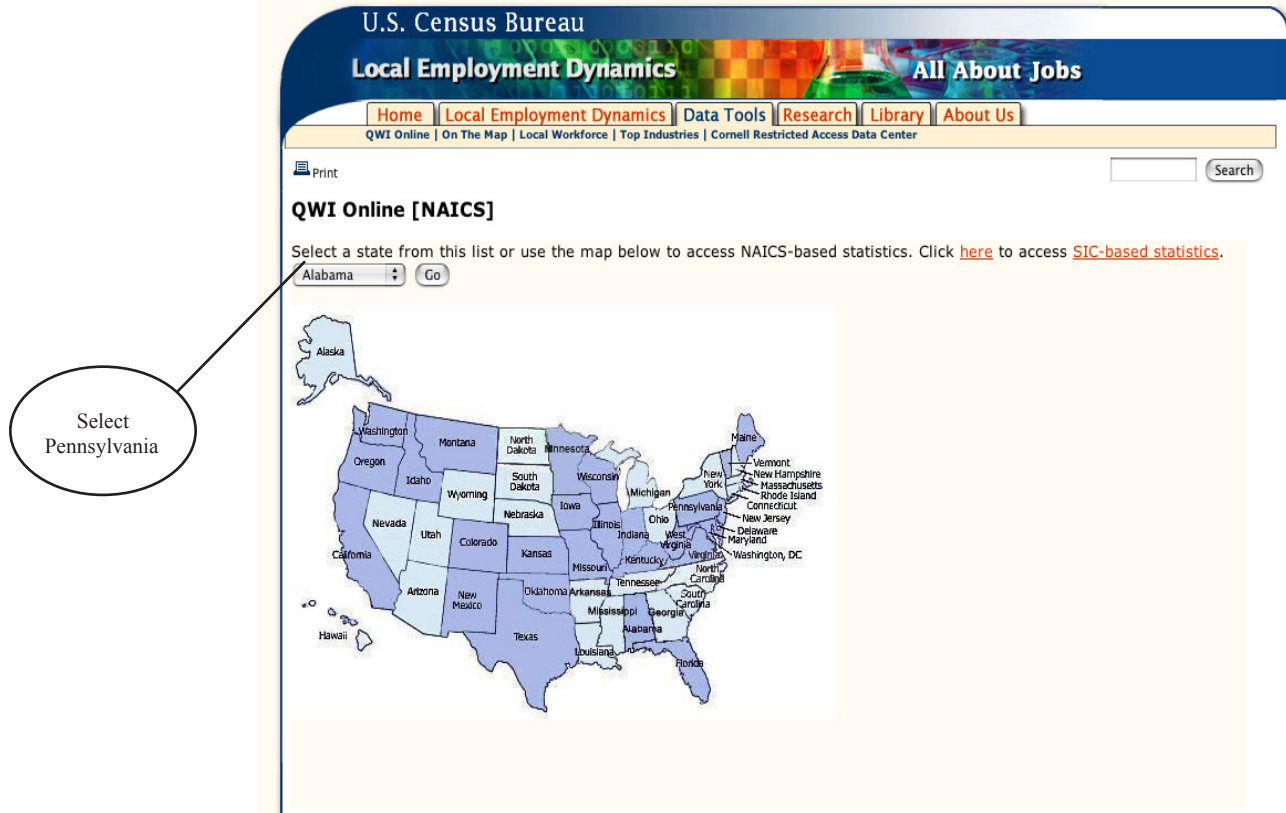


## State selection

The LED website served by the U.S. Bureau of the Census is located at:  
<http://lehd.dsd.census.gov/>

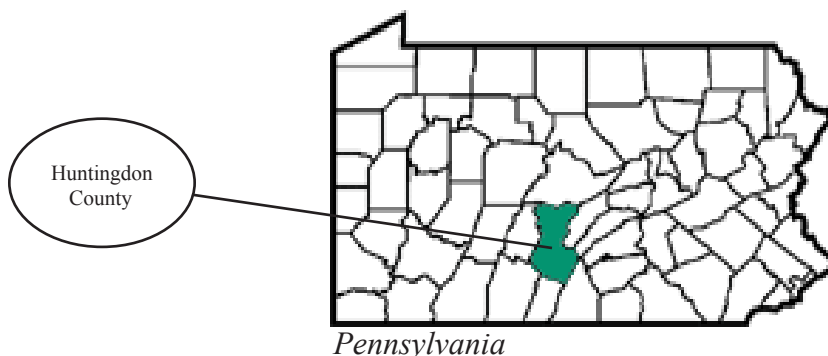
Before creating the three local reports (*Quarterly Workforce Indicators*, *Local Workforce*, and *Top Industries*) from the LED website, designate the state from which local employment information is extracted. Select the state from the drop-down menu at:  
<http://lehd.dsd.census.gov/led/datatools/qwiapp.html>

Pointing to and clicking on the “Go” button opens a form for creating a *Quality Workforce Indicators* report.



State selection form at <http://lehd.dsd.census.gov/led/datatools/qwiapp.html>

In the examples of *Quarterly Workforce Indicators*, *Local Workforce*, and *Top Industries* reports shown in the remainder of this document, employment information is extracted for the manufacturing industry in Huntingdon County in central Pennsylvania, for workers of both sexes between 14 and 99 years of age, for the first quarter of 2004. Other slices of LED data for Pennsylvania are possible in these reports by detailed sex, age, industry, and geographic classifications and by other quarterly periods since the first quarter of 2001.



# Quality Workforce Indicators report

The *Quarterly Workforce Indicators* report is derived from state administrative records and basic demographic information from the U.S. Bureau of the Census. The *Quarterly Workforce Indicators* measure the performance of the local economy: where jobs are, for what kind of workers, and how much workers can expect to make and employers expect to pay.

Pointing to and clicking on the “Go” button on the state selection page opens a form for creating a *Quality Workforce Indicators* report. In this example, the target of the *Quality Workforce Indicators* report is employment of both sexes, 14 through 99 years old, in Huntingdon County manufacturing. Entries into the form include:

**LEHD Pennsylvania County Reports - Quarterly Workforce Indicators**  
 Select Criteria below. A new report will be created below as selections change.

Year: 2004      Geographic Grouping: County or [Information by Detailed Industry](#)  
 Quarter: Q1      County: 061 Huntingdon  
 Sex: Male and Female      Industry: 31-33 Manufacturing  
 AgeGroup: 14-99      Ownership: All (1-5)

Entries into this form produce a report containing eight *Quarterly Workforce Indicators*:

 [Download Dataset](#)     [Print Table](#)

QWI Quick Facts	Huntingdon (Q1)	Huntingdon (Avg:Selected + 3 Prior qtrs)	Pennsylvania (Q1)	Pennsylvania (Avg:Selected + 3 Prior qtrs)
Total Employment	2,526	2,338	695,910	730,612
Net Job Flows	-97	-41	1,800	-163
Job Creation	51	79	37,303	36,796
New Hires	262	146	49,180	55,019
Separations	399	250	76,900	84,504
Turnover	7.0%	7.1%	7.2%	7.3%
Avg Monthly Earnings	\$3,255.00	\$3,133.50	\$3,664.00	\$3,653.75
Avg New Hire Earnings	\$1,890.00	\$2,180.00	\$2,939.00	\$3,218.25

The analyst can print the report or download it as a *Microsoft Excel* file. Column headings display the indicator tabulated, a particular quarter’s local data for the indicator, a four-quarter average for the local data, a particular quarter’s data for Pennsylvania for the indicator, and a four-quarter average for Pennsylvania data.

Because the data are updated every quarter to reflect new information, the numbers on the website might differ from published reports (which reflected the best information available on the date of publication). Generally, coverage and definitions differ between the *Quarterly Workforce Indicators* including data about establishments from administrative records (e.g., the Quarterly Census of Employment and Wages) and about workers from surveys (e.g., the decennial census, the American Community Survey, and the Current Population Survey). Detailed information is available in a paper by David Stevens “Employment that is not covered by state unemployment insurance laws” (see <http://lehd.dsd.census.gov/led/library/techpapers/tp-2002-16.pdf>).

**Quality  
Workforce  
Indicators  
report  
(cont.)**

The title, definition, and explanation of each element of the *Quality Workforce Indicators* report:

Indicator	Definition	Explanation
Total Employment	Total number of workers who were employed by the same employer in both the current and previous quarter	Who is filling what jobs? What industries are biggest employers? What industries employ the largest numbers of particular types of worker?
Net Job Flows	The difference between current and previous employment at each business.	Which industries are expanding employment? Which industries are contracting employment?
Job Creation	The number of new jobs that are created by either new area businesses or the expansion of employment by existing firms.	What industries are creating the most jobs?
New Hires	Total number of accessions that were also not employed by that employer during the previous four quarters.	What industries are hiring the most workers? Which industries are hiring older workers? Which industries are hiring young workers? What geographic areas are doing the most hiring?
Separations	Total number of workers who were employed by a business in the previous quarter, but not in the current quarter.	What workers are leaving jobs? What industries are workers leaving?
Turnover	Turnover Rate = $(1/2) * (\text{accessions} + \text{separations}) / \text{employment}$  (All Full Quarter Measures)	What proportion of workers are new to the job?
Average Monthly Earnings	Total quarterly earnings of all full-quarter employees divided by the number of full-quarter employees, divided by 3.	What are the average earnings of core employees?
Average New Hire Earnings	Total quarterly earnings of all full-quarter new hires divided by the number of full-quarter new hires, divided by 3.	What are new hires earning?

The *Local Workforce* report primarily is designed for businesses. This report provides timely and pertinent answers to key questions about the local workforce, all by industry, age, and sex.

# Local Workforce report

Navigate to the form necessary to obtain a variety of *Local Workforce* reports by pointing to and clicking on the “Local Employment” tab in the LED website menu:



This example shows completion of the form for an employee distribution by sex and age for firms in the Huntingdon County, Pennsylvania, manufacturing sector:

**Local Workforce**

**What do you want to find out about the workforce?**

- Employee Distribution by Age and Sex ?
- Employee Turnover by Age and Sex ?
- Employee Retention Rates by Age and Sex ?
- Employee Average Monthly Earnings ?
- New Employee Average Monthly Earnings ?
- Trends In Average Monthly Earnings ?

**What geographic area?**

State:



County:

**What industry?**

Sector:

Detailed Industry:

**How do you want to display the results?**

Tabular and graphic reports are requested by pointing to and clicking on the “Submit” button. The graphic report:



**Local  
Workforce  
report  
(cont.)**

The tabular version of the *Local Workforce* report:

	Age							
	14-18	19-21	22-24	25-34	35-44	45-54	55-64	65-99
Female	0.1 %*	0.7 %*	0.8 %	4.7 %	9.8 %	11.2 %	5.9 %	0.5 %
Male	0.3 %	1.0 %	1.7 %	12.2 %	17.6 %	20.7 %	11.3 %	0.7 %

\* = Value significantly distorted to protect confidentiality

The title, definition, and explanation of each of the six types of the *Local Workforce* report:

Type	Definition	Explanation
Employee Distribution by Age and Sex	Proportion age/sex cell to total employment	Percentage of workers by age and sex. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Employee Turnover by Age and Sex	Turnover, as defined in <i>Quality Workforce Indicators</i> report, by age and sex.	A turnover rate close to 1 means that most of the workers in stable jobs are new and likely to leave their job in the next quarter. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Employee Retention Rates by Age and Sex	$((\text{EmpS}(\text{last qtr}-1) - \text{EmpS}(\text{last qtr})) / \text{EmpS}(\text{last qtr}-1))$ , where EmpS is Employees Stable Jobs: Average Monthly Earnings	A retention rate close to 1 means that most of the workers in stable jobs will remain in the same job next quarter. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Employee Average Monthly Earnings	Average monthly earnings as defined in <i>Quality Workforce Indicators</i> report.	Average monthly earnings for all workers in stable jobs. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
New Employee Average Monthly Earnings	Average monthly earnings of new hires as defined in <i>Quality Workforce Indicators</i> report.	Average monthly earnings for newly hired workers in stable jobs. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Trends in Average Monthly Earnings	Historical average monthly earnings as defined in <i>Quality Workforce Indicators</i> report.	Average monthly earnings over time for all workers in stable jobs. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.

The *Top Industries* report is designed for Workforce Investment Boards. The data contained in this tool helps find top industries based on a variety of pertinent measures, all by age and sex of employees. Measures include: current employment, growth in employment, growth in hiring, numbers of new hires, jobs added by new and expanding businesses, average monthly earnings for all workers, growth in average monthly earnings for all workers, and average monthly earnings for new hires.

The Workforce Investment Area is the unit of analysis for the *Top Industries* report. Huntingdon County, the focus of examples in this document, is, along with Bedford, Blair, Cambria, Fulton, and Somerset counties, within the Southern Alleghenies Workforce Investment Area.

Navigate to the form necessary to obtain a variety of *Top Industries* reports by pointing to and clicking on the “Top Industries” tab in the LED website menu. This example shows completion of the form to obtain the top five industries with jobs added by new and expanding businesses in the Southern Alleghenies Workforce Investment Area:

List the top  Industries ranked by the greatest:

- Total Employment ⓘ
- Growth in Employment ⓘ
- Growth in hiring ⓘ
- Number of new hires ⓘ
- Jobs added by new and expanding businesses ⓘ
- Average monthly earnings for all workers ⓘ
- Growth in average monthly earnings for all workers ⓘ
- Average monthly earnings for new hires ⓘ

**What geographic area?**

State:

WIB:

**What age and sex?**

Age:

Sex:

Output produced by this report request:

**Top 5 industries ranked on the greatest jobs added by new and expanding businesses**

Industry	Average Quarterly Job Creation
722 Food Services and Drinking Places	334
522 Credit Intermediation and Related Activities	266
452 General Merchandise Stores	258
541 Professional, Scientific, and Technical Services	226
621 Ambulatory Health Care Services	221
<i>All Industries Average Quarterly Job Creation = 2,418</i>	

**Top  
Industries  
report  
(cont.)**

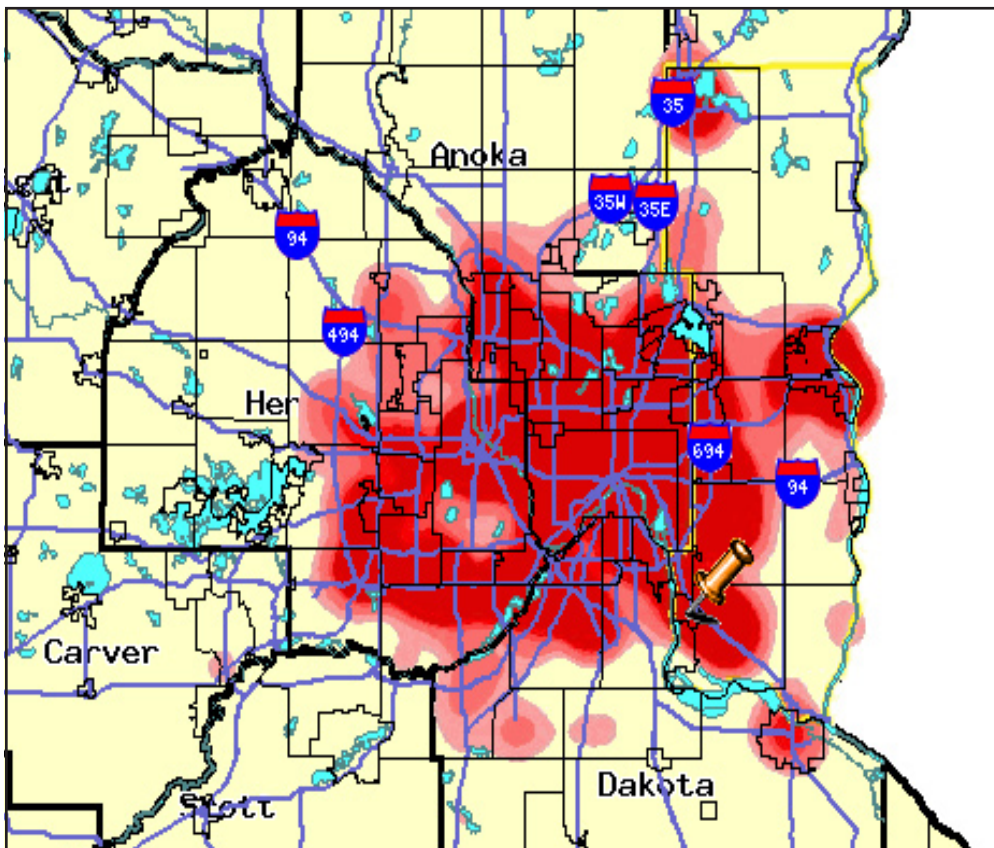
The title, definition, and explanation of each of the eight types of the *Top Industries* report:

Type	Definition	Explanation
Total Employment	Total number of workers who were employed by the same employer in both the current and previous quarter.	Who is filling what jobs? What industries are biggest employers? What industries employ the largest numbers of particular types of workers?
Growth in Employment	$\text{Emp}(\text{last qtr}) - \text{Emp}(\text{year ago}) / 0.5 * (\text{Emp}(\text{year ago}) + \text{Emp}(\text{last qtr}))$ , where Emp is employment	Industries with the highest growth rate in number of workers in the last year. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Growth in Hiring	$(\text{HirNS}(\text{last qtr}) + \text{HirNS}(t-1) \dots (t-2) \dots (t-3)) / 4$ , where HirNS are hires in new stable jobs and $t$ is current month	Industries with the highest average of new hires in stable jobs during the last year. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Number of New Hires	$\text{HirNS}(\text{last qtr}) - \text{HirNS}(\text{year ago}) / 0.5 * (\text{HirNS}(\text{year ago}) + \text{HirNS}(\text{last qtr}))$ , where HirNS are hires in new stable jobs	Industries with the highest growth rate in number of new hires in stable jobs during the last year. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Jobs Added by New and Expanding Businesses	$\text{FrmJbCS}(\text{last qtr}) + \text{FrmJbCS}(t-1) \dots (t-2) \dots (t-3) / 4$ , where FrmJbCS is Firm Change Stable Jobs	Industries with the highest expansion of stable jobs during the last year. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Average Monthly Earnings for All Workers	$\text{EarnS}(\text{last qtr}) + \text{EarnS}(t-1) \dots (t-2) \dots (t-3) / 4$ , where EarnS is Employees Stable Jobs: Average Monthly Earnings and $t$ is current month	Industries with the highest average monthly earnings for workers in stable jobs during the last year. If no information appears for an age/sex category, then either no workers exist or the information is suppressed for confidentiality.
Growth in Average Monthly Earnings for All Workers	$\text{EarnS}(\text{last qtr}) - \text{EarnS}(\text{year ago}) / 0.5 * (\text{EarnS}(\text{year ago}) + \text{EarnS}(\text{last qtr}))$ , where EarnS is Employees Stable Jobs: Average Monthly Earnings	Industries with the highest growth rate in average earnings for workers in stable jobs during the last year.
Average Monthly Earnings for New Hires	$\text{EarnHirNS}(\text{last qtr}) + \text{EarnHirNS}(t-1) \dots (t-2) \dots (t-3) / 4$ , where EarnHirNS is Hires New Stable Jobs: Average Monthly Earnings	Industries with the highest average monthly earnings for new hires in stable jobs during the last year.

The geographic relationships between where people live and where they work are critical to local and regional transportation planning, economic development, the deployment of a needs-based employment services, and the design of a wide range of family and community service programs. Up until now, no agency or organization has been able to reliably piece together information about worker origins and destinations and deliver it in a database suitable for both regional planning and neighborhood-level analysis.

In 2003, the Longitudinal Employer-Household Dynamics program succeeded in developing a highly detailed, labor workflow database. The Worker Origins & Destinations (O/D) data file summarizes these home-to-work commuting patterns at a census block level while also providing a breakout of workers and employment by wages earned and industries served. A website is developed at <http://lehd.excensonline.com/> that contains a prototype application, called *On The Map*, limited in coverage to the state of Minnesota. Currently this website employs thermal mapping to display a “labor shed” map (a map showing the home locations of workers employed in an identified geographic area) and a “commute shed” map (a map showing the employment destinations of workers living in an identified residential area).

Pennsylvania is a partner in the development of the *On The Map* product, which will help define labor market areas and needs with much greater flexibility and accuracy than previously possible.



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## Management Development

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**PENN STATE** Making Life Better®



## Watch for it!

During 2005–2006, Penn State Management Development will offer one-day seminars on the *Nuts & Bolts of Your Regional Economy*. Seminars will occur in University Park (November 18, 2005), Harrisburg (January 20, 2006), Pittsburgh (February 24, 2006), and Philadelphia (March 17, 2006). This one-day “boot camp” takes participants on a whirlwind tour of economic and demographic information about their regions. Participants completing the program receive an electronic compendium of authoritative sources of information about their region, glossaries of economic and demographic terms, and a briefing book about their region.

### You Can Learn:

- to discover economic and demographic information about your region
- to interpret complex economic and demographic information that you find about your region
- to define economic and demographic terms and concepts
- to locate government and other agencies that have responsibility for disseminating economic and demographic information for your region

### Population

- Basic life table concepts
- Working life tables
- Migration in and out of the region

### Income

- Sources of income
- Wages
- Transfer payments to households
- Disposable income

### Prices, costs, productivity, competitiveness

- Consumer prices
- Producer prices
- Inflation
- Cost of living indexes
- Labor productivity and other productivity rates
- Consumer confidence
- Competitiveness measures

### Trade

- Exports
- Imports
- Market shares
- Globalization

### Multipliers

- Type I and Type II multipliers
- Employment, income, output multipliers
- Multiplier effects in economic growth and development

## OUTLINE

### How your regional economy works

- Creating final products and services by making and using intermediate products and services among industries
- Selling products and services made by industries directly to consumer households, governments, inventories, and exports
- Making jobs and income for workers and their families
- Generating income for governments in the form of tax payments

### Jobs

- Labor force statistics—employment rate, unemployment rate, employment-population ratio, labor force participation rate, underemployment
- Why don't we know how many jobs there are?
- Labor force and occupational employment projections

