Course Overview

- Overview of data and analytical tools used in economic development planning
- Purpose is using data and information as the basis for action—"actionable knowledge"
  - Deepen understanding of a region’s economic conditions, challenges & opportunities
  - Develop an agenda for change
  - Formulate strategies and action plans
Key Economic Analysis Tools

- Profiling a local economy
  - Provide core knowledge of economic composition, trends, strengths and weaknesses

- Industry and cluster analysis
  - Reveal ED potential/inter-relationships for key industries
  - Understand issues, challenges and needs for critical industries/clusters

- Market analysis
  - Determine market potential for retail and other real estate development

- Resource and asset base assessment
  - Understand character of resources that shape economic development potential
  - Define critical areas for improvement, action, investment
Analytical Tools and Strategies

GOALS

CHALLENGES & OPPORTUNITIES

ASSETS & RESOURCES TO LEVERAGE

Industry, Market, Resource, Analysis

Industry, market, resource analysis

ECON. DEVELOP. CAPABILITIES

Community Input, Economic Profile, Resource Analysis

Industry, Resource Analysis
Components of Local Economic Profile

- Define study area and comparison areas
  - reflects focus for intervention
  - relate to metropolitan area context
- Demographic analysis
  - Profile a key economic resource
  - Population trends
  - Characteristics inform ED needs and issues
- Economic performance analysis
  - Benchmarking and diagnostic tool
- Economic base analysis
  - Identify local economic structure & trends
  - Informs opportunities, needs, and assets
Economic Data Sources

- Relevance depends on data composition and methods
  - **Establishment or Household-Based**
    - Boston jobs vs. Boston labor force
  - Geographic Area Covered
  - Level of Industry Aggregation
  - Type of Information Provided
  - Frequency and Availability
  - Coverage and Methods
Household-Based Data

- Data collected at place of residence
  - Information on area population and workforce (not employers or businesses)
- Data on population, income, poverty rates, unemployment rates, & workforce characteristics are household-based
- Key household-based data sources
  - US Census of Population and Housing
  - US Census American Community Survey
  - Current Population Survey (CPS)
  - Population & poverty estimates
  - Local area unemployment statistics (LAUS)
  - Census data is detailed but quickly outdated
  - CPS and LAUS data is timely but with sampling errors; CPS covers limited geographies
  - Private companies supply data that can fill gaps in time or geography
Establishment-Based Data

- Collected at place of employment
  - Information on area employers and businesses (not population)
  - Data on number of businesses, employment, payrolls, wage levels, sales

- Key establishment-based data sources
  - ES-202 data series
  - Current employment statistics (CES)
  - US Economic Census
  - County Business Patterns
New Portals to Multiple Data Sources

- **www.econdata.net**
  - Portal that links most data sources by category or portal

- **www.dataplace.org**
  - Integrates data from many sources for a specific place, allows comparative analysis

- **State, city and regional data center**
  - Portal to many data sources for a smaller region
  - www.gnocdc.org
Local Profile: Demographic Analysis

- Population size, characteristics & trends
  - Composition by age, race, national origin
  - Stability of residency
  - Income levels and sources of income
  - Poverty rates

- Labor force characteristics
  - Participation rate and size
  - Educational attainment, occupation, industry
  - Location/journey to work
  - Unemployment rates
  - Extent of self-employment
  - Variations by age, race, gender

- Trends and comparison with other areas
Demographic Analysis: Data Sources

- Census Bureau is Critical Data Source
  - Decennial Census of Population & Housing
  - American Community Survey
  - Population Estimates
  - Small Area (County) Income & Poverty Estimates

- Bureau of Labor Statistics
  - Local Area Unemployment Statistics

- State and Local Data Sources
  - Population Census
  - School department statistics
  - Welfare caseloads
  - Local Plans and Studies
Local Profile: Economic Performance Analysis

- How is an area’s economy performing relative to the state, region and other communities?
- Is the area and its population benefiting from key growth industries and higher paying jobs?
- Common performance measures
  - Population and employment growth
  - Unemployment rate
  - Income levels and poverty rates
  - Earnings and wage levels
  - Labor force participation
  - Firm births, deaths, and relocations
  - New development and investment
  - Property values and tax revenues
- Analyze trends over time
- Compare to state, metro area, nearby cities
- Variation among demographic subgroups and sub-areas
- Link indicators to key goals & track over time
Economic Performance Analysis: Data Sources

- Household data on population, income, poverty rates:
  - Decennial census, ACS, pop. estimates, current population survey, small area income and poverty estimates
  - Regional economic information system (REIS)
    - State, county, metro-area levels
- Household data on unemployment and labor force
  - Decennial census and ACS
  - Bureau of Labor Statistics LAUS
- Place of work-based employment and earnings data:
  - REIS, CES for states, counties, MSAs
  - ES 202 data series
  - County business patterns
  - US Economic Census
- Investment and taxes from local government data
- Firm births, deaths, relocations from private data bases
Local Profile: Economic Base Analysis

- What is the local economic structure?
- What opportunities, issues & challenges does the local economic base present?
- Topics/Questions to Address
  - Composition of employment by sector & industry
  - Largest sources of jobs and payroll
  - Wage levels for major sectors and industries wages
  - What sectors and industries are growing, stable, declining?
  - How does composition and growth compare to the metro region and other areas
  - Occupational composition of largest and fast-growing industries sectors
  - Industry concentrations and clusters
  - Inter-industry relationships
Economic Base Analysis: Data Sources & Classification

- Firms, employment, wage levels:
  - ES-202 data series
  - US Economic Census
  - County Business Patterns
- BLS occupational data
- Focus groups and interviews
  - Help define clusters, inter-industry relationships and occupational structure
- NAICS industry classification system
  - Replaced SIC in late 1990s
  - Two-digit code denotes broad sector
    - 31 to 33 are manufacturing sectors
  - Three-digit denotes industries within broad sector:
    - 316 is leather and allied products
  - Four to six-digit denotes narrower industry segments
    - 3162 is footwear mfg;
    - 316211 is rubber and plastic footwear mfg
Economic Base Analysis:
Key Steps

- **Determine cross-sectional composition of economy by sector and compare to region, state, and nation**
  - Identifies major economic sectors and how they compare with other areas

- **Compare local growth in sectors to region, state and nation**
  - Identifies which local sectors are growing faster and slower than other areas

- **Look at cross-section composition, payrolls, and wage levels of largest sectors at three-digit level**
  - Identifies most important industries within key sectors
  - Shows how industry mix varies with that of region
  - Determines relative wages of locality’s major industries

- **Look at recent trends for key three-digit industries at local and regional level**
  - Determines which industries are fastest growing
  - Identifies declining and “at-risk” industries
  - Compares local and regional industry growth trends
Figure 1.
Employment Distribution By Sector: Ashland, Region and State

<table>
<thead>
<tr>
<th>Sector</th>
<th>Ashland</th>
<th>Metro South West SDA</th>
<th>Massachusetts</th>
</tr>
</thead>
<tbody>
<tr>
<td>Government</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Ag, For, Farming</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Construction</td>
<td></td>
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<td></td>
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<tr>
<td>Manufacturing</td>
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<td>TCPU</td>
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<td></td>
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<tr>
<td>Wholesale</td>
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<td></td>
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<tr>
<td>Retail</td>
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<td></td>
<td></td>
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<tr>
<td>FIRE</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Services</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Manufacturing Job Growth, 1995 to 2001

Index Value, 1.0 = 1995

Year


Index Value

0.8 0.9 1.0 1.1 1.2

- Ashland
- Metro
- South
- West
- SDA
- Massac
- husetts
Economic Base Analysis: Location Quotients

- **Location Quotient**
  - Ratio of the share of an industry's employment (or other measure) for a region to the share of that same industry's national employment (or other)

\[ LQ_i = \left( \frac{e_{i,r}}{e_r} \right) \div \left( \frac{E_{i,n}}{E_n} \right) \]

- \( e_{i,r} \) = share of region's employment in industry i
- \( E_{i,n} \) = share of national employment in industry i

- Alternative formula:
  - \( LQ_i = \left( \frac{e_{i,r}}{E_{i,n}} \right) \div \left( \frac{e_r}{E_n} \right) \)

- LQ indicates industry concentrations in a region and export industries
Interpreting Location Quotients

**Interpretation 1:**
- When LQ > 1, the industry is considered an export or base industry

**Interpretation 2:**
- Very high LQ indicates industry concentration. A regional comparative advantage may exist for that industry

**Interpretation 3:**
- When LQ < 1, may indicate opportunity for expansion in local-oriented retail and service industries where you'd expect LQ = 1. LQ < 1, suggests local population is buying these services outside the community and opportunity for growth in this business may exist
- LQ can be adapted to measure different types of relative concentrations: output, income, exports
Shift Share Analysis

- A descriptive tool to analyze the components of employment change in a region.
- Shift share decomposes employment growth in a region into three parts:
  \[(e_{i,t} - e_{I,T-1}) = N + I + R\]

  National Growth effect (N) – growth attributable to the national growth rate, i.e., how much growth would occur if every industry in the region grew at the national growth rate.

  Industry Mix effect (I) - growth attributable to the region's industry mix, i.e., to having a larger share or fast growing or slow growing industries

  Regional Shift effect (R) - growth attributable to shift in industry jobs from one region to another, i.e., are growth rates in the region's industries above the national industry growth rates
Shift Share Calculations

- Can be calculated by sector & industry, then aggregate to determine how each sector/industry impacts overall employment growth
- Calculate each component \((N,I,R)\) separately
- **National share effect:** \(N_{i,t} = e_{i,t-1} \times \left(\frac{E_t}{E_{t-1}} - 1\right)\)
  - \(N_{i,t}\) is employment growth in industry \(i\) during period \(t-1\) to \(t\) explained by national growth
  - \(e_{i,t-1}\) is region's employment in industry \(i\) at beginning of period
  - \(\frac{E_t}{E_{t-1}} - 1\) is overall national growth rate for all industries during period

<table>
<thead>
<tr>
<th>Sector</th>
<th>Beginning Employment</th>
<th>Nat Growth Rate</th>
<th>(N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>150</td>
<td>.50</td>
<td>75</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>50</td>
<td>.50</td>
<td>25</td>
</tr>
<tr>
<td>Services</td>
<td>50</td>
<td>.50</td>
<td>25</td>
</tr>
<tr>
<td>Government</td>
<td>10</td>
<td>.50</td>
<td>5</td>
</tr>
<tr>
<td><strong>Total</strong></td>
<td><strong>260</strong></td>
<td><strong>.50</strong></td>
<td><strong>130</strong></td>
</tr>
</tbody>
</table>
Shift Share Calculations

- Industry mix effect:
  \[ I_i = e_{i, t-1} \times [(E_{i,t} / E_{i,t-1} - 1) - (E_t / E_{t-1} - 1)] \]
  \[ I_i = \text{beginning employment for industry } I \times \text{the difference between industry } i \text{ national growth rate and national overall growth rate}, \text{i.e., is industry } i \text{ a high or low growth industry for the Nation} \]

<table>
<thead>
<tr>
<th>Sector</th>
<th>Beginning Employment</th>
<th>Nat Ind Growth</th>
<th>Difference fr Nat. Growth Rate (.5)</th>
<th>I</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>150</td>
<td>0</td>
<td>- .50</td>
<td>-75</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>50</td>
<td>1</td>
<td>+ .50</td>
<td>25</td>
</tr>
<tr>
<td>Services</td>
<td>50</td>
<td>.5</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>Government</td>
<td>10</td>
<td>1.33</td>
<td>+ .83</td>
<td>8</td>
</tr>
<tr>
<td>Total</td>
<td>260</td>
<td></td>
<td></td>
<td>-42</td>
</tr>
</tbody>
</table>
Shift Share Calculations

- R is the residual from the N and M.
  - \((e_{i,t} - e_{i,t-1}) = N + I + R\)
  - \(R = (e_{i,t} - e_{i,t-1}) - N - I;\)
  - \(R = 55 - 130 - (-42) = -33\)
- R can also be calculated directly:
  - \(R_I = e_{i,t-1} * [(e_{i,t} / e_{i,t-1} - 1) - (E_{i,t}/E_{i,t-1} - 1)]\)
  - Beginning employment for industry i times the difference between industry i regional growth rate and industry i national growth rate

<table>
<thead>
<tr>
<th>Sector</th>
<th>Beginning Employment</th>
<th>Reg Ind Growth</th>
<th>Difference from Nat. Ind. Rate</th>
<th>R</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture</td>
<td>150</td>
<td>-.2</td>
<td>-.20 - 0 = -.20</td>
<td>-30</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>50</td>
<td>.6</td>
<td>.60 - 1 = -.40</td>
<td>-20</td>
</tr>
<tr>
<td>Services</td>
<td>50</td>
<td>.9</td>
<td>.9 - .5 = .40</td>
<td>20</td>
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<tr>
<td>Government</td>
<td>10</td>
<td>1</td>
<td>1.0 - 1.33 = -.33</td>
<td>-3</td>
</tr>
<tr>
<td>Total</td>
<td>260</td>
<td></td>
<td></td>
<td>-33</td>
</tr>
</tbody>
</table>
Interpreting Shift Share

- Helps assess the basis for a region's performance by providing a way to look at the components of growth: separate out cyclical, industry and possible local competitive factors.
- Flags industries where performance is particularly good or bad, i.e., Where large regional shifts are occurring. Industries with a large positive R are performing better than the national industry while a negative R indicates regional industries that doing worse. Study these industries in more detail to understand the factors shaping their performance.
- Use shift-share analysis to target "at-risk" industries for potential help and industries to recruit based on regional competitive advantages.