A Social Utility Index: Developing a Method to Measure Non-Economic Occupational Returns for College Graduates

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CUNY Office of Policy Research's Higher Education Policy Seminar
New York, NY
November 18, 2016
Postsecondary/Employment Data Matches

Institution Records
- Completions
- Level of Award (Certificate, Associates, Bachelor’s Masters, Doctorate, Professional)
- CIP Code of Award – Field of Study
- Origin of Student
- Continued Enrollment

Employment/Wage Records
- Employed – record in the database (excludes self employed, military, and employed out-of-state)
- Earnings
- Industry of Employment
- Region of Employment

Data Available by Term

Link SSN

Data Available Quarterly
What are Their Median Annual Wages One Year After Completion?

Median Annual Wages of 2007-08 Completers the Following Year

Median Annual Wages of Working Adults with Just a High School Diploma ($16,122)
What are Their Median Annual Wages Five Years After Completion?

Median Annual Wages of 2007-08 Completers Five Years After Completion

<table>
<thead>
<tr>
<th>Field</th>
<th>Certificates</th>
<th>Diplomas</th>
<th>Associate Degrees</th>
</tr>
</thead>
<tbody>
<tr>
<td>Business/Comm.</td>
<td>$31,024</td>
<td>$16,426</td>
<td>$29,234</td>
</tr>
<tr>
<td>Health</td>
<td>$22,814</td>
<td>$36,311</td>
<td>$32,477</td>
</tr>
<tr>
<td>Social/Behavioral Sci.</td>
<td>$20,522</td>
<td>$36,511</td>
<td>$31,024</td>
</tr>
<tr>
<td>STEM</td>
<td>$48,343</td>
<td>$40,055</td>
<td>$46,055</td>
</tr>
<tr>
<td>Trades</td>
<td>$34,856</td>
<td>$40,555</td>
<td>$51,512</td>
</tr>
<tr>
<td>Arts and Humanities</td>
<td>$32,477</td>
<td>$37,628</td>
<td>$51,268</td>
</tr>
<tr>
<td>Business/Comm.</td>
<td>$29,234</td>
<td>$37,628</td>
<td></td>
</tr>
<tr>
<td>GOTS</td>
<td>$37,628</td>
<td></td>
<td>$51,268</td>
</tr>
<tr>
<td>Health</td>
<td>$36,311</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Social/Behavioral Sci.</td>
<td>$23,413</td>
<td></td>
<td></td>
</tr>
<tr>
<td>STEM</td>
<td>$46,055</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Trades</td>
<td>$51,512</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Median Annual Wages of Working Adults with Just a High School Diploma ($16,122)
Program Alignment Tool

- Sources of Information:
  - Occupational Outlook
  - Burning Glass
  - EMSI
  - KCTCS Unemployment Insurance Match

- Tests:
  - Projected Growth and Annual Openings
  - Median Wages
  - Job Postings
  - Graduates’ Earnings

- Supply and Demand
This tool provides a single place to analyze various labor market data and KCTCS data related to both academic programs being offered at KCTCS Colleges and occupational data related to occupations (SOC Codes) that KCTCS currently does not have an active program in that specific Area Development District.

KCTCS Programs and occupational SOC Codes are evaluated based on various labor market indicators.

These indicators include:

- Kentucky Occupational Outlook & Wages
- EMIS Employment Data
- Burning Glass Real-time Job Posting Data
- KCTCS Wage Match of Graduates

Additionally, each program and occupational SOC Code is also evaluated based on:

- Supply & Demand of Non-KCTCS Graduates vs. Job Openings

For more information please contact: casu@kctcs.edu
http://www.kctcs.edu/about_KCTCS/institutional_Research.aspx
46.0302, Electrician.

<table>
<thead>
<tr>
<th>SOC Code &amp; Occupation (Combined)</th>
<th>LMI Outlook</th>
<th>Supply/Demand</th>
<th>Social Utility</th>
<th>Occupational Outlook Estimated Employment</th>
<th>Outlook Annual Opennings Growth</th>
<th>Outlook Annual Opennings Replace</th>
<th>Occupational Outlook Total Annual Opennings</th>
<th>Occupational Percent Change</th>
</tr>
</thead>
<tbody>
<tr>
<td>47-2111, Electricians</td>
<td>Strong</td>
<td>MWH/HD</td>
<td>Under supplied</td>
<td>8,114</td>
<td>123</td>
<td>219</td>
<td>342</td>
<td>5.1%</td>
</tr>
<tr>
<td>47-3013, Helpers--Electricians</td>
<td>Weak</td>
<td>LW/HD</td>
<td>Under supplied</td>
<td>160</td>
<td>24</td>
<td>25</td>
<td>50</td>
<td>24.6%</td>
</tr>
<tr>
<td>49-9052, Telecommunications Line Installers and Related</td>
<td>Moderate</td>
<td>MWH/HD</td>
<td>Under supplied</td>
<td>1,536</td>
<td>26</td>
<td>28</td>
<td>54</td>
<td>16.6%</td>
</tr>
</tbody>
</table>

**KENTUCKY OCCUPATIONAL WAGES (for occupations that crosswalk to the program)**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>Entry Wage</th>
<th>Median Wage</th>
</tr>
</thead>
<tbody>
<tr>
<td>47-2111, Electricians</td>
<td>$14,904</td>
<td>$19,000</td>
</tr>
<tr>
<td>47-3013, Helpers--Electricians</td>
<td>$22,037</td>
<td>$25,000</td>
</tr>
<tr>
<td>49-9052, Telecommunications Line Installers and Related</td>
<td>$25,088</td>
<td>$41,556</td>
</tr>
</tbody>
</table>

**Academic Year Headcount & Graduate Trends**

**Burning Glass Job Postings**

<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>47-2111, Electricians</td>
<td>192</td>
<td>274</td>
<td>329</td>
<td>402</td>
<td>467</td>
<td>466</td>
<td>0.26%</td>
</tr>
<tr>
<td>47-3013, Helpers--Electricians</td>
<td>14</td>
<td>16</td>
<td>15</td>
<td>33</td>
<td>19</td>
<td>36</td>
<td>0.02%</td>
</tr>
<tr>
<td>49-9052, Telecommunications Line Installers and Related</td>
<td>81</td>
<td>114</td>
<td>125</td>
<td>198</td>
<td>139</td>
<td>149</td>
<td>0.07%</td>
</tr>
</tbody>
</table>

**KCTCS UI Data Match**

Graduates 2007-08 through 2011-12

<table>
<thead>
<tr>
<th>Total Graduates</th>
<th>1,603</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Transfer to Eyr</td>
<td>45</td>
</tr>
<tr>
<td>Transfer-Out Rate</td>
<td>3.0%</td>
</tr>
<tr>
<td>Assoc - Median Wage</td>
<td>$33,497</td>
</tr>
<tr>
<td>Assoc - Wage Match</td>
<td>$25,727</td>
</tr>
<tr>
<td>Diploma - Median Wage</td>
<td>$27,872</td>
</tr>
<tr>
<td>Diploma - Wage Match</td>
<td>71.6%</td>
</tr>
<tr>
<td>Certs - Median Wage</td>
<td>$26,505</td>
</tr>
<tr>
<td>Certs - Wage Match</td>
<td>76.3%</td>
</tr>
</tbody>
</table>

**% EDUCATION LEVEL OF INCUMBENTS (BLS)**

<table>
<thead>
<tr>
<th>Occupation</th>
<th>&lt; High School</th>
<th>B.S. Diploma</th>
<th>Some College, no degree</th>
<th>Associate’s</th>
<th>Bachelor’s</th>
</tr>
</thead>
<tbody>
<tr>
<td>47-2111, Electricians</td>
<td>7.2</td>
<td>35.5</td>
<td>32.5</td>
<td>13.8</td>
<td>5.2</td>
</tr>
<tr>
<td>47-3013, Helpers--Electricians</td>
<td>35.8</td>
<td>35.1</td>
<td>15.4</td>
<td>2.9</td>
<td>2.9</td>
</tr>
<tr>
<td>49-9052, Telecommunications Line Installers and Related</td>
<td>9.0</td>
<td>37.8</td>
<td>34.3</td>
<td>17.8</td>
<td>5.2</td>
</tr>
</tbody>
</table>

Source: KCTCS UI Data as of June 2012. IPEDS; Economic Modeling Specialist Inc.: Burning Glass Technologies; Labor Insight Master Analyst; KY Occupational Outlook to 2020. 2013 KY Occcupational Wages; KCTCS Unemployment insurance Wage Match
Active programs for the KCTCS college in the selected Area Development District that currently have a Strong to Very Strong labor market indicator (LMI Score) based on the occupations tied to those programs through the KCTCS crosswalk.

### Purchase ADD

<table>
<thead>
<tr>
<th>CIP Code &amp; Title</th>
<th>Year of Program Start</th>
<th>LMI Score</th>
<th>3 yr. Enroll Average</th>
<th>Enroll % Change 07-08 to 13-14</th>
<th>3 yr. Average # of Grads</th>
<th>% Change of Grads 07-08 to 13-14</th>
</tr>
</thead>
<tbody>
<tr>
<td>30.9999, Multi-/Interdisciplinary Studies, Other.</td>
<td>Null</td>
<td>Very Strong</td>
<td>110</td>
<td>63%</td>
<td>51</td>
<td>-1%</td>
</tr>
<tr>
<td>43.0103, Criminal Justice/Law Enforcement Administration.</td>
<td>Null</td>
<td>Strong</td>
<td>191</td>
<td>22</td>
<td></td>
<td></td>
</tr>
<tr>
<td>46.0302, Electrician.</td>
<td>Null</td>
<td>Strong</td>
<td>103</td>
<td>20%</td>
<td>32</td>
<td>15%</td>
</tr>
<tr>
<td>47.0303, Industrial Mechanics and Maintenance Technology.</td>
<td>Null</td>
<td>Strong</td>
<td>98</td>
<td>85%</td>
<td>37</td>
<td>57%</td>
</tr>
<tr>
<td>47.0605, Diesel Mechanics Technology/Technician.</td>
<td>Null</td>
<td>Strong</td>
<td>22</td>
<td>18%</td>
<td>18</td>
<td>62%</td>
</tr>
<tr>
<td>49.0399, Marine Transportation, Other.</td>
<td>Null</td>
<td>Strong</td>
<td>53</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.0716, Medical Administrative/Executive Assistant and Medical Secretary.</td>
<td>Null</td>
<td>Strong</td>
<td>136</td>
<td>5400%</td>
<td>34</td>
<td></td>
</tr>
<tr>
<td>51.0806, Physical Therapy Technician/Assistant.</td>
<td>Null</td>
<td>Very Strong</td>
<td>76</td>
<td>-51%</td>
<td>14</td>
<td>-17%</td>
</tr>
<tr>
<td>51.0907, Medical Radiologic Technology/Science - Radiation Therapist.</td>
<td>Null</td>
<td>Very Strong</td>
<td>44</td>
<td>-65%</td>
<td>13</td>
<td>-7%</td>
</tr>
<tr>
<td>51.0911, Radiologic Technology/Science - Radiographer.</td>
<td>Null</td>
<td>Strong</td>
<td>89</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>51.3801, Registered Nursing/Registered Nurse.</td>
<td>Null</td>
<td>Very Strong</td>
<td>400</td>
<td>-55%</td>
<td>89</td>
<td>9%</td>
</tr>
<tr>
<td>51.3901, Licensed Practical/Vocational Nurse Training.</td>
<td>Null</td>
<td>Strong</td>
<td>136</td>
<td>-28%</td>
<td>450</td>
<td>-6%</td>
</tr>
<tr>
<td>52.0201, Business Administration and Management, General.</td>
<td>Null</td>
<td>Strong</td>
<td>156</td>
<td>81%</td>
<td>43</td>
<td>43%</td>
</tr>
</tbody>
</table>

### KCTCS UI Data Match - Purchase ADD

Graduates 2007-08 through 2011-12
Selected Results: Kentucky River ADD

**Strong LMI Scores**
- Registered Nurse
- Computer Sciences
- Commercial Vehicle Operator
- Physical Therapy Assistant
- Radiation Therapist
- Licensed Practical Nurse

**Weak LMI Scores**
- Cosmetology
- Drafting
- Child Care Provider
- Liberal Arts
- Criminal Justice
- Social Work
- Carpentry
- Electrician
Non-Monetary Returns on Investment

- Higher rates of civic participation
- Lower crime and incarceration rates
- Lower smoking and obesity rates
- Better health, fitness, and nutrition

Importance of Considering Social Utility

• Lower-paying fields may play a critical role in the community
• Exclusive reliance on wage and demand data may underestimate the value of particular programs to students and communities
• Because of their mission, community colleges cannot ignore the importance of these fields
Defining Social Utility

• Measurable at the Institution and Program Level
• Quantify the Qualitative
• Multiple criteria:
  – Career Pathways
  – Job Meaning
  – Location Quotient
  – Minority Representation
  – Gender Representation
• Calculated Index
Career Clusters

• Correction Services
• Counseling and Mental Health Services
• Diagnostic Services
• Early Childhood Development and Services
• Emergency and Fire Management Services
• Environmental Service Systems
• Family and Community Service
• Health Informatics
• Law Enforcement Service
• Security and Protective Services
• Therapeutic Services

Source: Compiled by ORPA, O*Netonline.org
Job Meaning

• Does your work make the world a better place?
• Percentage of incumbent workers answering “yes”
• “High Meaning” occupations: clergy, surgeons, radiation therapists
• “Low Meaning” occupations: production occupations, installers, sales jobs

Source: Compiled by ORPA; Payscale
Location Quotient

- How concentrated is a particular industry or occupation in a region as compared to the nation?
- High LQ industries, Kentucky:
  - Support Activities for Coal Mining
  - Distilleries
  - Household Refrigerator and Freezer Manufacturing
- Low LQ industries, Kentucky:
  - Media Agencies
  - Commodity Dealing
  - Apparel Manufacturing

LQ ≥ 3.5, 1 Point

Source: EMSI
Minority Representation

• Does the program enroll a greater percentage of minorities than the percentage of minorities in the region?

• High Minority Representation:
  – Criminal Justice
  – Radiologic Technicians
  – Computer Network Support

• Low Minority Representation:
  – Real Estate
  – HVAC
  – Electrical Technicians

Source: KCTCS Student Records, American Community Survey

2 Points
Gender Representation

- Is the occupation considered “non-traditional” for the gender? Does the program exceed the average non-traditional enrollment?
- Target Programs:
  - Women: Heavy Equipment Maintenance, Industrial Mechanics, Warehousing
  - Men: Early Childhood Education, Teacher Assistant, Dental Hygienist

Source: KCTCS Student Records, Perkins Guidelines

2 Points
Calculating Social Utility Index

<table>
<thead>
<tr>
<th>Metric</th>
<th>Maximum Points</th>
<th>Weight</th>
</tr>
</thead>
<tbody>
<tr>
<td>Career Clusters</td>
<td>4</td>
<td>30%</td>
</tr>
<tr>
<td>Meaning</td>
<td>4</td>
<td>20%</td>
</tr>
<tr>
<td>LQ</td>
<td>1</td>
<td>10%</td>
</tr>
<tr>
<td>Minority</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Non-Traditional</td>
<td>2</td>
<td>20%</td>
</tr>
<tr>
<td>Weighted Score</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Low LMI, High Social Utility Occupations

- Firefighters
- Medical Records Technicians
- Cardiovascular Technicians
- Childcare Workers
- Emergency Medical Technicians
- Home Health Aides
Next Steps

- Conversations in Florida, Illinois, and Pennsylvania
- Refine and validate model
- Design version appropriate for liberal arts, baccalaureate and above
- Develop public policy framework