UTK in a Rapidly Changing World

August 31, 2021

Bill Fox,
Randy and Jenny Boyd Professor
What did yesterday’s university look like?
What is on your list?

- Gold standard was to add a new building
- Classes met 2/3 times a week with 40 students and a professor
- Departments (and to some extent colleges) were structured around groups of people with comfortable alliances and very similar interests
- Classes offered only during regular semesters
- Faculty goal to get tenure, and then a professorship
- State government was counted on to send money to pay for what we think is important
4 Key Disrupters

• Public Revenues
• Economic transitions
• New and Emerging Technologies – both inputs and outputs
• Demographics
What will tomorrow’s university look like?

• Will it be more entrepreneurial/creative in generating resources?

• Will students expect more direct economic benefits from their education?

• Will buildings be less important and technology more important?
  • Subsidize Uber
  • Offer more hybrid/remote education to reduce need for more classroom space

• Will education/training be offered more flexibly
  • Unbundled?
  • Non-traditional schedules?
Tennessee Tax Revenue Accelerated in FY21

Percentage

20.0%
15.0%
10.0%
5.0%
0.0%
-5.0%
-10.0%
-15.0%
-20.0%


Total
General Fund
Stunning Sales Tax Growth Over Past Two Years

July 2019 to July 2021, 3-month moving average (year-over-year)

- Misc Retail Stores: 26.8%
- Building Materials
- Auto Dealers and Service Stations
- Services
- Grand Total: 26.8%
- Apparel and Accessory Stores
- Furniture and Home Furnishings
- General Merchandise
- Eating and Drinking Places
- Food Stores
Tennessee State Taxes Have Fallen as a Share of Personal Income, and Will Continue Doing So
Federal Deficits Are at Historic Levels and will Remain Extremely High

Source: IHS
Economic Transitions

• Changes in
  • What we buy
  • How we acquire goods and services
  • The form of goods and services
  • How they are produced

• How do these points affect higher ed?
  • Unbundle our offerings?
  • More digitized content?

• Our market share continues to fall as the range of non-traditional/unbundled higher ed providers expands
## Consumer Spending Has Changed Radically Over Past Decades

<table>
<thead>
<tr>
<th>Category</th>
<th>1979</th>
<th>2020</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total Expenditures</td>
<td>100.0%</td>
<td>100.0%</td>
</tr>
<tr>
<td>Durable Goods</td>
<td>14.3%</td>
<td>11.5%</td>
</tr>
<tr>
<td>Autos</td>
<td>5.7%</td>
<td>3.9%</td>
</tr>
<tr>
<td>Furn &amp; Household</td>
<td>4.1%</td>
<td>2.8%</td>
</tr>
<tr>
<td>Other Durables</td>
<td>4.5%</td>
<td>6.0%</td>
</tr>
<tr>
<td>Nondurable Goods</td>
<td>32.3%</td>
<td>21.6%</td>
</tr>
<tr>
<td>Food &amp; Beverage</td>
<td>13.8%</td>
<td>8.2%</td>
</tr>
<tr>
<td>Other Nondurables</td>
<td>18.5%</td>
<td>13.5%</td>
</tr>
<tr>
<td>Services</td>
<td>53.5%</td>
<td>66.9%</td>
</tr>
</tbody>
</table>
Full Recovery from the Great Recession in Most TN Service Sectors, July 2021 Employment as a share of Dec 2007 Employment

- Professional & Business Services: 136.6%
- Education & Health Services: 120.0%
- Other Services: 117.3%
- Financial Activities: 117.0%
- Leisure & Hospitality: 112.0%
- Total Private: 111.2%
- U.S. Total Private: 107.5%
- Trade, Transportation, Utilities: 105.9%
- Durable Goods Mfg: 96.9%
- Mining, Logging, Construction: 95.1%
- Nondurable Goods Mfg: 88.5%
- Information: 85.6%
COVID 19 Accelerated a Number of Trends

• Many retail and restaurant job losses are permanent as businesses right size themselves – Best Buy laid off 5000
• Retail space falls and fulfillment space grows as online and pick up purchasing doesn’t retreat
• Firms are learning new ways to use technology
  • Teleoffice and telemedicine - Acceptability of remote work has expanded
  • Replacing workers with technology – remote cleaning and disinfecting, drones; AI generally
• Reduction in modest skilled workers in the labor force
• How does this relate to traditional 4 year education?
Adoption Rate for New Technologies is Accelerating

Source: HDR CAV Services
# 1 in 5 Jobs are in Vehicle Intensive Occupations, 2019

<table>
<thead>
<tr>
<th></th>
<th>Tennessee</th>
<th>U.S.</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>Employment</td>
<td>Share</td>
</tr>
<tr>
<td>Total Employment</td>
<td>2,614,962</td>
<td>100.00%</td>
</tr>
<tr>
<td>Vehicle Manufacturing</td>
<td>72,652</td>
<td>2.78%</td>
</tr>
<tr>
<td>Vehicle Support</td>
<td>124,253</td>
<td>4.75%</td>
</tr>
<tr>
<td>Motor Vehicle Operators &amp; Other On-the-Job Drivers</td>
<td>364,910</td>
<td>13.95%</td>
</tr>
<tr>
<td>Total, Vehicle-Related</td>
<td>561,815</td>
<td>21.48%</td>
</tr>
</tbody>
</table>

Notes: 2019 data are preliminary

Tennessee Jobs have Above Average Automation Potential

Less-Educated Workers Will Experience Greater Job Change from Automation

Source: Brookings analysis of 2016 American Community Survey 1-Year microdata (U.S. data).

Bar chart showing:
- 54% of those with less than a high school degree will experience job change.
- 52% of those with a high school degree will experience job change.
- 45% of those with some college will experience job change.
- 31% of those with a Bachelor's degree will experience job change.
- 25% of those with a Graduate or professional degree will experience job change.
- 49% of those with less than a Bachelor's degree will experience job change.
- 29% of those with a Bachelor's or higher degree will experience job change.

August, 2021
William F. Fox • http://cber.haslam.utk.edu
U.S. Population Growing More Slowly

<table>
<thead>
<tr>
<th>Period</th>
<th>Compound Annual Growth Rate (%)</th>
</tr>
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<tbody>
<tr>
<td>1970-79</td>
<td>1.11</td>
</tr>
<tr>
<td>1980-89</td>
<td>0.96</td>
</tr>
<tr>
<td>1990-99</td>
<td>1.28</td>
</tr>
<tr>
<td>2000-09</td>
<td>0.96</td>
</tr>
<tr>
<td>2010-20</td>
<td>0.71</td>
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Tennessee is Experiencing Faster Population Growth than the National Average

2020 Census Percent Change in Resident Population (2010-2020)

US: 7.4% Increase Since 2010

State Percent Change
- <0% or Less Decrease
- 0% to <5%
- 5% to <10%
- 10% or More Increase

Map: Tennessee State Data Center, University of Tennessee, Knoxville • Source: Resident Population of the 50 States (Table 2), US Census Bureau, 2010 and 2020 • Note: Resident population excludes counts of overseas U.S. military and federal civilian employees (and their dependents living with them).
Birth Rates Continue to Decline
(Birth Rates per 1,000 Population)
Population 65 Years and Older, 2017

U.S. Average: 15.6%

- Less than 15.6%
- 15.6% to 16.9%
- 17.0% to 18.9%
- 19.0% to 19.7%
- Greater than 19.7%
Population Aging in Every State
(Population 65 Years and Older, 2030)

U.S. Average: 20.0%

Less than 15.6%
15.6% to 16.9%
17.0% to 18.9%
19.0% to 19.7%
Greater than 19.7%
Percentage of total U.S. population, by age group

First projection year is 2016, at which point lines are dotted.
The number of working-age people without a bachelor’s degree is expected to rapidly shrink in the coming decade.

Source: The Conference Board calculations using data from US Census Bureau and IPUMS-ACS, University of Minnesota.
US Becoming Increasingly Heterogeneous

Source: Census

White is reported as white only not Hispanic, but all other races may include individuals who identify as Hispanic. 2030 are projections performed by the Census in 2017.
Where does this leave us?

• Resources tighter, unless we create them
• Change very rapid and heavily driven by new technologies and new expectations – UTK doesn’t change as fast as the world around us
• People no longer fill their tank once –
  • they fill their from with a lot of different options
  • stream on-demand in the rest of their lives
• Don’t fall off a cliff – slow erosion
• Are flagship universities better protected – are we exceptional?
Some Characteristics of a Successful UTK for Coming Decades

- Flexible/agile
- Customer focused – who are our customers?
- Able to provide non-degree education/training
- Rethinking the delivery model – can’t build or recreate yesterday’s university in tomorrow’s world