Tax Disrupters: Rapid Technological and Demographic Changes

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Tax Disrupters

• Technology – about half of activities could potentially be automated
  • E-commerce
  • Autonomous/electric vehicles
• Demographic Changes
E-COMMERCE
State General Sales Tax Collections as a Percentage of GDP
E-Commerce Sales are Growing Very Rapidly
What Wayfair Did?

- Eliminated the judicially (Quill) created tax shelter based on physical presence rule and permits states to impose the sales tax compliance responsibility on remote firms in cases where it does not burden interstate commerce
- Does this apply equally to all cross border sales?
- Bottom line is Wayfair is a step in the right direction, but does not get the sales tax where it needs to be – moves from physical presence rule to size of vendor rule.
What Wayfair did not do

- Enact legislation imposing sales tax compliance on behalf of states - becomes incumbent on those states wanting to enforce the sales tax on remote transactions to ensure legislation/regulations are in place
- Permit enforcement of compliance on all remote sales
Most States Have Passed Legislation Since Wayfair Decision

[Map showing states with varying levels of legislation passed since Wayfair decision, with color codes indicating status such as 'Does not collect sales tax', 'Has not passed legislation', 'Effective before ruling', 'Q3 2018', 'Q4 2018', 'Q1 2019', 'Q2 2019', 'Future effective date'].

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Modest Number of B2C Companies With Sales Over $25 Million

<table>
<thead>
<tr>
<th>Sales Range</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>$25 - 40 million</td>
<td>237</td>
</tr>
<tr>
<td>$40 - $125 million</td>
<td>456</td>
</tr>
<tr>
<td>$125 - 500 million</td>
<td>207</td>
</tr>
<tr>
<td>$500 - $1 billion</td>
<td>43</td>
</tr>
<tr>
<td>&gt; $1 billion</td>
<td>57</td>
</tr>
</tbody>
</table>

Source: Internet Retailer
Challenge of collecting on remote sales is not over

- Many state specific issues remain, such as thresholds, which sales apply to thresholds, simplification, marketplace facilitator, etc.
- Thresholds may be high enough to continue distorting the economy, and limit tax revenues collected on remote firms – ultimately want an economy where the tax system is the same for large and small businesses
- Marketplace legislation helps
<table>
<thead>
<tr>
<th>Marketplace</th>
<th>Number of Sellers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Amazon</td>
<td>2,000,000</td>
</tr>
<tr>
<td>eBay</td>
<td>25,000,000</td>
</tr>
<tr>
<td>Walmart</td>
<td>15,000</td>
</tr>
<tr>
<td>Houzz</td>
<td>20,000</td>
</tr>
<tr>
<td>Sears</td>
<td>7,000</td>
</tr>
<tr>
<td>Etsy</td>
<td>1,900,000</td>
</tr>
<tr>
<td>Newegg</td>
<td>10,000</td>
</tr>
</tbody>
</table>

Source: Internet Retailer
Challenge of collecting on remote sales is not over

- Enforcement could remain difficult for many firms –
  - Identifying which have nexus
  - Will all related companies be aggregated – how will this be enforced/audited?
  - Will all channels be aggregated – own website, all marketplaces?
  - How to decide when a threshold is met during a year.
- Interacts with thorny questions of the destinations’ location – for example, where services purchased by buyer with multiple locations are sourced
The Changing Sales Tax Base Remains

- Digitization/sharing economy will continue eroding the tax base
- Avoidance behavior will continue
- The bottom line, revenues will be smaller than some expect
AUTONOMOUS VEHICLES
Pew hopes to offer states a framework for evaluating the revenue effects of developing economic trends, including how they might influence state tax bases. The objective of this work is to encourage policymakers to assess the long-term sustainability of their state’s tax structure and future risks to both currently reliable and already eroding revenue streams.
My Expectations for AVs

- Owned in fleets – part of asset sharing that results in fewer vehicles
- Electric and charged w/o plug in
- Lead to more travel – less for seeking parking, but overall more because it is easier and less costly to travel
- Will be a long transition where traditional vehicles and AVs operate together, but dynamics could hasten the change - planning for the transition will be very difficult
Overall Effects will Ultimately Mean

- Less congestion
- Greater safety
- Lower expense for mobility
- Reduced environmental effects
New Era Best Thought of as Mobility on Demand

- Vehicles, scooters, bicycles
- Food delivery
- Freight delivery
- Drones and air travel
Table 1. Vehicle-Related Employment: Tennessee and the U.S, 2017

<table>
<thead>
<tr>
<th>Category</th>
<th>Tennessee</th>
<th></th>
<th>U.S.</th>
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<tbody>
<tr>
<td></td>
<td>Employment</td>
<td>Share</td>
<td>Employment</td>
<td>Share</td>
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<tr>
<td>Total Employment</td>
<td>2,930,932</td>
<td>100.0%</td>
<td>143,859,855</td>
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<tr>
<td>Vehicle Manufacturing</td>
<td>72,507</td>
<td>2.47%</td>
<td>1,023,674</td>
<td>0.71%</td>
</tr>
<tr>
<td>Vehicle Support</td>
<td>118,993</td>
<td>4.06%</td>
<td>5,425,489</td>
<td>3.77%</td>
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<tr>
<td>Vehicle Intensive Use:</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Motor Vehicle Operators and</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Other On-the-Job Drivers</td>
<td>291,000</td>
<td>9.93%</td>
<td>16,571,180</td>
<td>11.52%</td>
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<tr>
<td><strong>Total Vehicle-Related Employment</strong></td>
<td><strong>482,500</strong></td>
<td><strong>16.46%</strong></td>
<td><strong>23,020,343</strong></td>
<td><strong>16.00%</strong></td>
</tr>
</tbody>
</table>

Some Employment Effects of Autonomous/electric Vehicles

- Fewer cars manufactured
  - Many fewer parts, shorter supply chain for electric
  - Most of vehicles’ value will shift from powertrains to batteries, computers and electronics
- Fewer drivers
  - Motor vehicle drivers- Taxis, vehicle sharing services, truck drivers - 3.8 million
  - On the job drivers
- Support industries ultimately affected
Figure 7. Industry Structure for Conventional and Electric Vehicles

Some tax/revenue implications of AVs and EVs

- Sales tax revenues decline with
  - fewer vehicles sold
  - fewer support services sold
- Motor vehicle registrations and title fees decline
- Motor fuel tax revenues fall with more electric vehicles
- Parking, parking fines, traffic citations, registrations, gas taxes, etc. at local level
<table>
<thead>
<tr>
<th>State</th>
<th>Standard Sales Tax Rate</th>
<th>Local Transit</th>
<th>Taxis</th>
<th>Automotive Washing and Waxing</th>
<th>Road Service and Towing</th>
<th>Auto Service Except Repair</th>
<th>Parking Lots &amp; Garages</th>
<th>Rustproofing and Undercoating</th>
<th>Labor Charges for Motor Vehicles</th>
<th>Repair Materials, Generally</th>
<th>Repair Limousine Service</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>7.25</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>7.25</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>7.25</td>
<td>E</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>New York</td>
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<td>4</td>
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<td>Ohio</td>
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<td>5.75</td>
<td>5.75</td>
<td>E</td>
<td>5.75</td>
<td>5.75</td>
<td>5.75</td>
<td>5.75</td>
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<tr>
<td>Tennessee</td>
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<td>7</td>
<td>7</td>
<td>7</td>
<td>7</td>
<td>E</td>
</tr>
<tr>
<td>Texas</td>
<td>6.25</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>E</td>
<td>6.25</td>
<td>E</td>
<td>E</td>
<td>6.25</td>
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<tr>
<td>States</td>
<td>45</td>
<td>6</td>
<td>10</td>
<td>24</td>
<td>20</td>
<td>25</td>
<td>21</td>
<td>26</td>
<td>23</td>
<td>47</td>
<td>17</td>
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</table>

Source: FTA 2017 Services Taxation Survey
https://www.statetaxissues.org/services/2017/
<table>
<thead>
<tr>
<th>State</th>
<th>State Gasoline Excise Tax</th>
<th>Other State Vehicle Taxes</th>
<th>Total</th>
<th>State Diesel Excise Tax</th>
<th>Other State Diesel Taxes</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>California</td>
<td>41.7</td>
<td>13.83</td>
<td>55.53</td>
<td>36</td>
<td>51.35</td>
<td>87.35</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>22.2</td>
<td>1.63</td>
<td>23.83</td>
<td>22.2</td>
<td>1.63</td>
<td>23.83</td>
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<tr>
<td>New York</td>
<td>8.05</td>
<td>37.57</td>
<td>45.62</td>
<td>8</td>
<td>37.02</td>
<td>45.02</td>
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<tr>
<td>Ohio</td>
<td>28</td>
<td>0.01</td>
<td>28.01</td>
<td>28</td>
<td>0.01</td>
<td>28.01</td>
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<tr>
<td>Tennessee</td>
<td>25</td>
<td>1.4</td>
<td>26.4</td>
<td>24</td>
<td>1.4</td>
<td>25.4</td>
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<tr>
<td>Texas</td>
<td>20</td>
<td>0</td>
<td>20</td>
<td>20</td>
<td>0</td>
<td>20</td>
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<td>States</td>
<td>23.06</td>
<td>11.15</td>
<td>34.21</td>
<td>23.04</td>
<td>13.24</td>
<td>36.27</td>
</tr>
</tbody>
</table>

All taxes state in cents per gallon
Vehicle Taxes as Percent of Total, 2016

<table>
<thead>
<tr>
<th>State</th>
<th>Percent</th>
</tr>
</thead>
<tbody>
<tr>
<td>Texas</td>
<td>19.90</td>
</tr>
<tr>
<td>Tennessee</td>
<td>17.30</td>
</tr>
<tr>
<td>California</td>
<td>14.40</td>
</tr>
<tr>
<td>Ohio</td>
<td>12.50</td>
</tr>
<tr>
<td>New Hampshire</td>
<td>9.40</td>
</tr>
<tr>
<td>New York</td>
<td>6.1</td>
</tr>
</tbody>
</table>
Share of Taxes Lost with Full Adoption of AVs

- Texas: 9.10
- Tennessee: 8.60
- Ohio: 7.20
- California: 6.20
- New Hampshire: 4.70
- New York: 2
Factors affecting revenue loss

- Importance of vehicle related taxes in tax structure.
- Many revenue sources are inelastic so fall relative to overall structure even without AVs.
- Fuel tax revenues are affected more than vehicle taxes.
- Electric vehicle tax
- Total potential revenue loss depends on reduction of vehicles and electric, not the timing.
Why change policy now?

- Can create a conducive environment that ultimately leads to the U.S. being a leader in the AV industry.
- Easier to establish appropriate policy now before positions become entrenched.
- Places and people are affected unevenly – rural areas most likely to be relative losers.
- Limit revenue losses.
Policy options – keep tax structure up-to-date

- Consider moving from taxes on vehicles and fuel to taxes on transportation services (sales, VMT taxes, etc.), such as vehicle sharing and taxis.
- Carefully consider how to tax other shared assets with an eye towards level playing field, but must define the comparable service being provided.
- Collect at the most efficient point in the supply chain.
DEMOGRAPHIC CHANGE
Demographic Issues

• Changing population demographics
  • Aging populations – living longer, baby boomers passing 65
• Falling birth rates
U.S. Population Growing More Slowly

<table>
<thead>
<tr>
<th>Period</th>
<th>Compound Annual Growth Rate (%)</th>
</tr>
</thead>
<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>2010-18</td>
<td>0.65</td>
</tr>
</tbody>
</table>
Percentage of total U.S. population, by age group

First projection year is 2016, at which point lines are dotted.
Birth Rates Continue to Decline
(Birth Rates per 1,000 Population)
Birth rates are lower for Mothers Under 30 (Birth rates per thousand by mother age)

<table>
<thead>
<tr>
<th>Age Band</th>
<th>2007 Birth Rate Per Thousand</th>
<th>2016 Birth Rate Per Thousand</th>
</tr>
</thead>
<tbody>
<tr>
<td>15-19</td>
<td>42.5</td>
<td>20.3</td>
</tr>
<tr>
<td>18-19</td>
<td>73.9</td>
<td>37.5</td>
</tr>
<tr>
<td>20-24</td>
<td>106.3</td>
<td>73.8</td>
</tr>
<tr>
<td>25-29</td>
<td>117.5</td>
<td>102.1</td>
</tr>
<tr>
<td>30-34</td>
<td>99.9</td>
<td>102.7</td>
</tr>
<tr>
<td>35-39</td>
<td>47.5</td>
<td>52.7</td>
</tr>
<tr>
<td>40-44</td>
<td>9.5</td>
<td>11.4</td>
</tr>
</tbody>
</table>
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%

Legend:
- Less than 15.6%
- 15.6% to 16.9%
- 17.0% to 18.9%
- 19.0% to 19.7%
- Greater than 19.7%
Expenditure implications of aging

- State and local pensions
- Health care
  - Employees or retirees
  - Low income elderly
- Education –
  - What will the elderly be willing to pay for?
  - How will fewer students affect spending
- Demand for different services, such as more or different recreation
Personal Income Tax

• Aging effects revenues through behavioral changes and because of statutes.
• Behavioral effects
  • Average earnings increase through most of your career, and then drop as approach retirement – relative patterns differ across states.
  • Labor force participation varies by age, but will likely see more transitional retirement.
Lower but Rising Labor Force Participation Rate for 55 and Up

![Graph showing labor force participation rate over time for different age groups. The graph illustrates that the participation rate for those 55 years and older is on an upward trend, while the rates for younger age groups are more stable.](image-url)
Personal Income Tax

• Aging effects revenues through behavioral changes and because of statutes.

• Behavioral effects
  • Average earnings increase through most of your career, and then drop as approach retirement – relative patterns differ across states
  • Labor force participation varies by age, but will likely see more transitional retirement
  • Income changes to relatively more pensions, interest and capital gains
  • Demographics reduce per capita tax revenues
Personal Income Tax

• Statutory effects
  • Progressivity affects how demographics impact income tax revenues.
  • More limited taxation of capital income.
  • 37 states have some type of special provision for pension income, and all have some favorable treatment for the elderly.
    • Only six states tax social security to the same extent as the Federal Government.
    • Many have special treatment for other pensions.
    • Other credits and exemptions – GA cost more than $250 million per year a decade ago.
Sales Tax

• Some consumption smoothing over life but consumption patterns change with age – middle aged spend the most, oldest and youngest groups spend a little more than half as much -taxable spending much greater 35-54.

• Elderly consume more health care and food at home, so breadth of base affects how sales tax responds.

• Aging population will cause per capita tax revenues to fall, with the biggest effects in Hawaii, Colorado and North Carolina.
Sales Tax and Millennials

- How does lower (at least to this point) asset accumulation by Millennials alter sales tax revenues? Fewer cars with car sharing and autonomous vehicles?
- Sales tax collection and remote sales
Property tax

• Again, behavioral effects and statutory effects
• Millennials
  • How will they behave in terms of property ownership?
  • Household formation affects need for new construction.
  • Decisions to own versus rent could alter the value of property.
Household Formation has Slowed Dramatically

[Graph showing the increase in all housing units from 2000 to 2019]
New Privately Owned Housing Unit Starts Have Fallen Significantly from the Previous Expansion
Property tax

• Behavior - Older people spend less on housing – want to stay in their home but most ultimately downsize
• Statutory
  • Age specific homestead exemptions
  • Move into nontaxable nursing homes, etc.
  • Places relatively more of the tax burden on the working age population
Policy Options

• Keep tax bases broad
  • Limit any further age related (and all) exemptions
• Tax pensions and Social Security under PIT
• Tax food and carefully selected services under sales tax
• What about health care?
• Homestead exemptions?
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