Recent Trends in the Travel Intensity of the US Economy

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Question: Is driving making us prosperous?

Answer: Not like it used to.
Transportation and the economy

Transportation -> expenditures
Transportation -> travel
expenditures -> economy
travel -> economy
Travel intensity of the economy: The ratio of VMT to GDP

Aggregate level:
• National
• State
• Metro

Intervening factors

Disaggregate level
US National Indexed VMT, GDP, Disposable Income, Employment - Services
1960-2010 (1990=100)
Transportation Vehicle Miles Traveled/$GDP, 1945-2030

(US Chamber of Commerce, 2011)
State-Level Per Capita GDP vs Per Capita VMT (2008)

- New York
- Delaware
- Alaska
- California
- New Mexico
- Mississippi
- Wyoming

Per Capita GDP (000's of Dollars)

Per Capita VMT (000's of Miles)

$R^2 = 0.2171$

CCAP 2011
Historic Percent of National VMT and GDP
California vs Florida

Year

CA VMT % of US
CA GDP % of US
FL VMT % of US
FL GDP % of US
Metropolitan-Level Per Capita GDP vs Per Capita Primary Arterial VMT (2007)

R² = 0.0002
Indexed Primary Arterial VMT & Total GDP Growth in the Houston CBSA, 2001 - 2006

Indexed Primary Arterial VMT & Total GDP Growth in the St. Louis CBSA, 2001 - 2006

Houston

St. Louis
Intervening variables

- Demographic shifts
- Fuel prices
- Congestion
- Growth of Service Sector
- Telecommuting and E-commerce
- Freight vs Passenger travel
- Empty vs Productive miles
GDP, VMT and Real Gasoline Prices, 1983-2010

S. Winkelmann, 2011

GDP: (BEA, 2011, Table 1.1.6). VMT: (FHWA, 2010, Figure 1). Gasoline Price: (USDOE, 2011, Table 9.4)
Growth in GDP, Truck VMT and Car VMT 1970-2008

VMT data from (USDOT, 2010, Table 1-32). GDP data from (BEA, 2011, Table 1.1.6)

FIRE and Services no more than 50% of growth

<table>
<thead>
<tr>
<th>Industry</th>
<th>Share of GDP (non govt)</th>
<th>Share of GDP growth (non govt)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Agriculture, forestry, and fishing</td>
<td>3%</td>
<td>3%</td>
</tr>
<tr>
<td>Mining</td>
<td>2%</td>
<td>3%</td>
</tr>
<tr>
<td>Construction</td>
<td>6%</td>
<td>5%</td>
</tr>
<tr>
<td>Manufacturing</td>
<td>31%</td>
<td>27%</td>
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<tr>
<td>Transportation and public utilities</td>
<td>10%</td>
<td>10%</td>
</tr>
<tr>
<td>Wholesale trade</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>Retail trade</td>
<td>11%</td>
<td>11%</td>
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<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
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<tr>
<td>Finance, insurance, and real estate</td>
<td>16%</td>
<td>17%</td>
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<tr>
<td>Services</td>
<td>13%</td>
<td>15%</td>
</tr>
<tr>
<td><strong>Subtotal</strong></td>
<td></td>
<td></td>
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</tbody>
</table>

**FIRE and Services 2/3 of growth**

<table>
<thead>
<tr>
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</thead>
<tbody>
<tr>
<td>Agriculture, forestry, fishing, and hunting</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
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<tr>
<td>Mining</td>
<td>1%</td>
<td>3%</td>
<td>5%</td>
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<tr>
<td>Utilities</td>
<td>2%</td>
<td>2%</td>
<td>2%</td>
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<tr>
<td>Construction</td>
<td>5%</td>
<td>5%</td>
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<tr>
<td>Manufacturing</td>
<td>18%</td>
<td>13%</td>
<td>7%</td>
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<tr>
<td>Wholesale trade</td>
<td>8%</td>
<td>7%</td>
<td>6%</td>
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<tr>
<td>Retail trade</td>
<td>9%</td>
<td>7%</td>
<td>4%</td>
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<td>Transportation and warehousing</td>
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<tr>
<td><strong>Subtotal</strong></td>
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<td><strong>33%</strong></td>
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<tr>
<td>Information</td>
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<td>5%</td>
<td>6%</td>
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<tr>
<td>Finance and insurance</td>
<td>9%</td>
<td>9%</td>
<td>10%</td>
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<tr>
<td>Real estate and rental and leasing</td>
<td>15%</td>
<td>15%</td>
<td>17%</td>
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<tr>
<td>Services</td>
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<td>30%</td>
<td>35%</td>
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<tr>
<td><strong>Subtotal</strong></td>
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<td></td>
<td><strong>67%</strong></td>
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</table>
Household level
US VMT per Household and Household Income
1967-2008 (Indexed)

Income from (US Census Table, 2010, Table H-5).
HH VMT calculated (US DOT, 2010 Table 1-32) and (Infoplease, 2010)
Average Daily Miles Driven by Income Group

(FHWA 2009 NHTS)
Further Research Areas
Travel that contributes little or nothing to households and local economies might be called “empty miles.”
Mobility – the ability to move

Accessibility – the ability to get where you want to go
Four Components of Wealth

1. **Treasure**

2. **Tangible Assets:** land, infrastructure, water, air, biodiversity, etc.

3. **Intangible Assets:** health (of the individual, population or environment), education (of the individual or population), social cohesion, historic/cultural heritage, quality of life, etc.

4. **Stability:** (i.e., confidence in predicting your future relationship to the other three components of wealth)
Big Picture Questions

• How can we maximize productive trips and minimize “empty miles”? For who?

• What is the relationship between accessibility and a world economy?

• How is travel related to other dimensions of “wealth”