The Changing Travel Behavior of the Elderly
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Introduction/Background
• In 2016, USA had 46 million people aged 65+ (15% of total), expected to increase to 21% of total share by 2030
• Seniors are more active, likelier to work than previous generations (Goulas et. al, 2007; Rosenbloom, 2001)
• What socio-demographic factors impact activity-travel of the elderly in action space, mode choice, and time use? Differences in ages 55-64, 65-74, 75-84, and 85 or older?
• We use the 2017 NHTS to study this, looking specifically at weekday travel by individuals aged 55 or older

Sample Characteristics
• 7,522 seniors (age 55+) in Dallas-Fort Worth metro sub-sample of 2017 NHTS, location data from NCTCOC
• Older elderly less likely to be part-time and full-time workers than younger elderly, most individuals regardless of age are drivers
• Oldest group more white than younger peers, slightly less educated than younger groups
• Higher proportion of the older elderly live alone, perhaps contributing to social isolation and decreased mobility
• Overall, a gradual change in socio-economic characteristics until the age of 74, with more dramatic shifts happening at 75+ and 85+ years

Action Space

<table>
<thead>
<tr>
<th>Log-linear multivariate multiple-regression of action space by aggregated activity type</th>
<th>Mode Use</th>
<th>Explanatory Variables</th>
<th>Work/School Action Space</th>
<th>Shopping/Eating Action Space</th>
<th>Social/Recreational/Health Action Space</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td>Explained</td>
<td>Std. Error</td>
<td>Explained</td>
<td>Std. Error</td>
</tr>
<tr>
<td></td>
<td></td>
<td>Total</td>
<td>0.25</td>
<td>0.08</td>
<td>Total</td>
</tr>
<tr>
<td>Age 65-74</td>
<td>+0.0502</td>
<td>0.0600</td>
<td>+0.0315</td>
<td>0.0703</td>
<td>+0.24</td>
</tr>
<tr>
<td>Age 85+</td>
<td>+0.0548</td>
<td>0.0600</td>
<td>+0.2165</td>
<td>0.0703</td>
<td>-0.24</td>
</tr>
<tr>
<td>Individual has a medical condition</td>
<td>+0.0363</td>
<td>0.0600</td>
<td>+0.2622</td>
<td>0.0703</td>
<td>+0.08</td>
</tr>
<tr>
<td>Individual is a full-time worker</td>
<td>-0.0232</td>
<td>0.0703</td>
<td>-0.0224</td>
<td>0.0703</td>
<td>-0.2165</td>
</tr>
<tr>
<td>Household income below $35K</td>
<td>-0.0098</td>
<td>0.0703</td>
<td>-0.0089</td>
<td>0.0703</td>
<td>-0.08</td>
</tr>
</tbody>
</table>

• Action space is farthest road-network distance from home to participate in an activity
• Gender differences not significant, medical condition and urban residence tend to decrease act. space, and age only predictive in select activity type/age situations
• Online shopping positively impacts shopping/eating out action space – variety seeking?

Mode Use
• Multivariate ordered probit model of mode share of active transportation (biking and walking), private vehicle (car, SUV, van, truck), and public transport (bus, rail)
• Those aged 65-74 choose to drive with higher propensity than those aged 85 or older; those aged 85+ may have diminished driving capability, also walk/bike less frequently
• Minorities more inclined to use public transport than other groups
• Individuals who travel by one mode for activity are more likely to travel by the same mode for different activity types

References

Time Use
• Time use modeled using MDECV (see Bhat, 2005), full results omitted for brevity
• Age differences – newly retired spend more time shopping/eating out (age 65-74), those aged 75-84 truly relinquish working (some aged 65-74 may work part-time)
• Activity participation differences likely more attributable to physical condition and lifecycle – medical condition and medical device, working status, household size

Conclusions
• There is heterogeneity among age groups even when controlling for various other effects – the degree of heterogeneity varies among choice dimensions
• Medical condition and medical device significant predictors of activity-travel choices, often to a greater degree than age – physical and cognitive abilities more important indicators of differences
• Policy interventions should be aimed at all people with disabilities, regardless of age and future work should measure size effects of explanatory factors on travel