

# Should My Car Move or Should We?

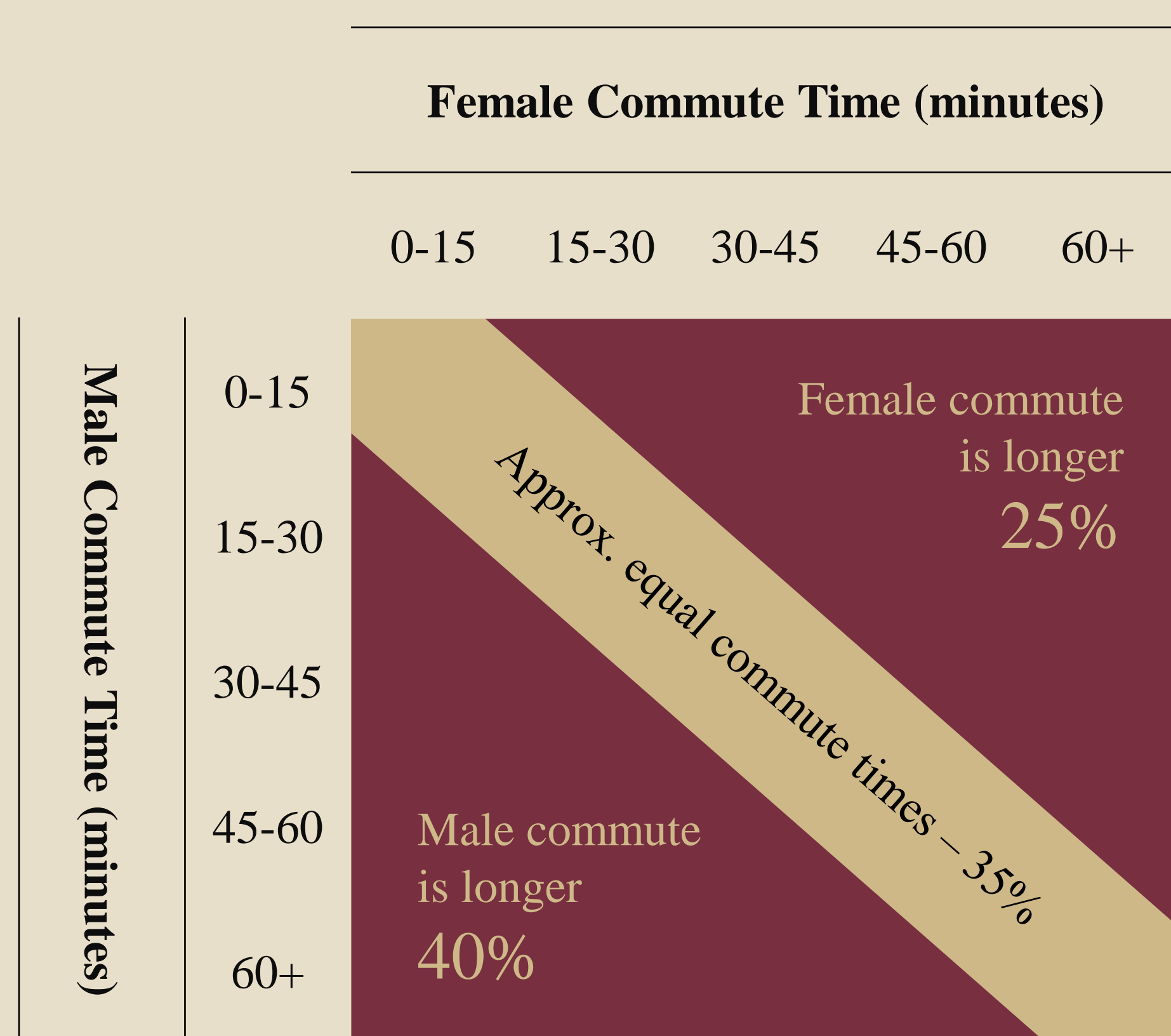
## An Intra-Household Model of Residential and Commuting Choices

### Motivation

- Canonical residential choice model assumes households make choices as if there is a **single decision maker** for the family (McFadden, 1978)

$$\begin{aligned} \max \quad & U(c^H + c^W, L^H, L^W) \\ \text{s.t. } p(c^H + c^W) &= w^H L^H + w^W L^W \end{aligned}$$

- Defensible assumption only if *all* characteristics of a residence are **public** goods within the family
- If different individuals within a household commute to different locations, commutes are **private** goods



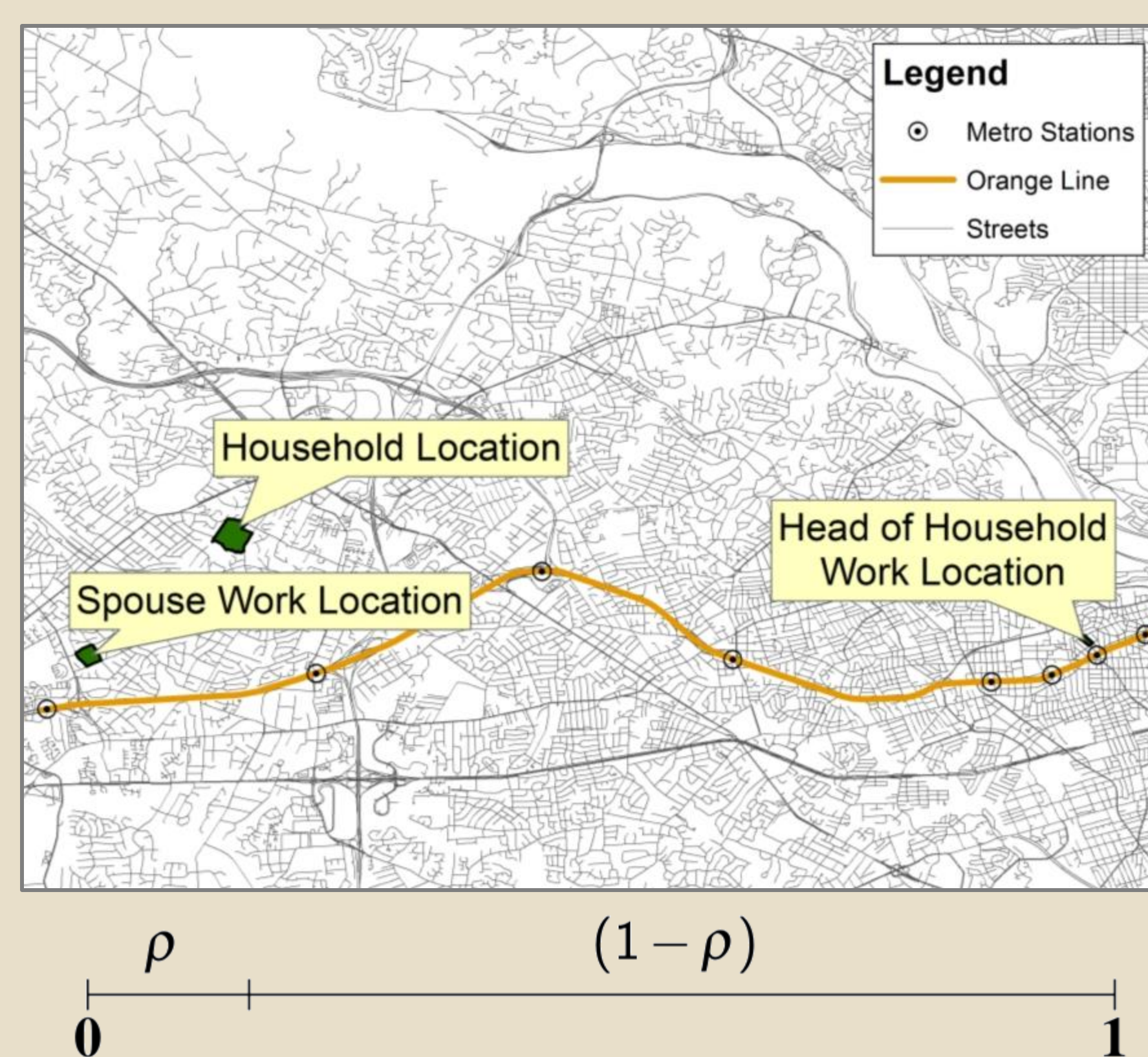
- I model bargaining within the household with the **collective model** of the household (Chiappori 1988, 1992)
- Allows me to extend residential and commuting choice model in Clapp (2014) to **dual-earner households**
- Failure to address this issue would lead to **biased estimates** and **flawed policy prescriptions**

### Methodology

- Cannot model individual optimization without unobserved individual consumptions

$$\begin{aligned} \max \quad & U^H(c^H, L^H) + U^W(c^W, L^W) \\ \text{s.t. } p c^H &= \rho (w^H L^H + w^W L^W) \\ p c^W &= (1 - \rho) (w^H L^H + w^W L^W) \end{aligned}$$

- Collective Model solves this problem with the sharing rule ( $\rho$ )



### Identification

- Must observe at least one private good (**individual commute times!**)
- Exogenous sharing shifters

### Ongoing & Future Research

- Structural model estimation is ongoing
  - **Restricted-access** ACS micro-data
  - Novel **GIS** commute characteristics
- Will use model estimates to simulate the **effects of congestion reduction policies** (congestion pricing, fuel taxes, highway expansion, etc.)

