

# Interaction and Telemarketers

EES 4760/5760

Agent-Based and Individual-Based Computational Modeling

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# Getting Started

- Download files from course download page for Oct. 8:  
[ees4760.jgilligan.org/downloads/telemarketer\\_class\\_14](https://ees4760.jgilligan.org/downloads/telemarketer_class_14) or from Brightspace.

# Telemarketer Model

# Telemarketer Model

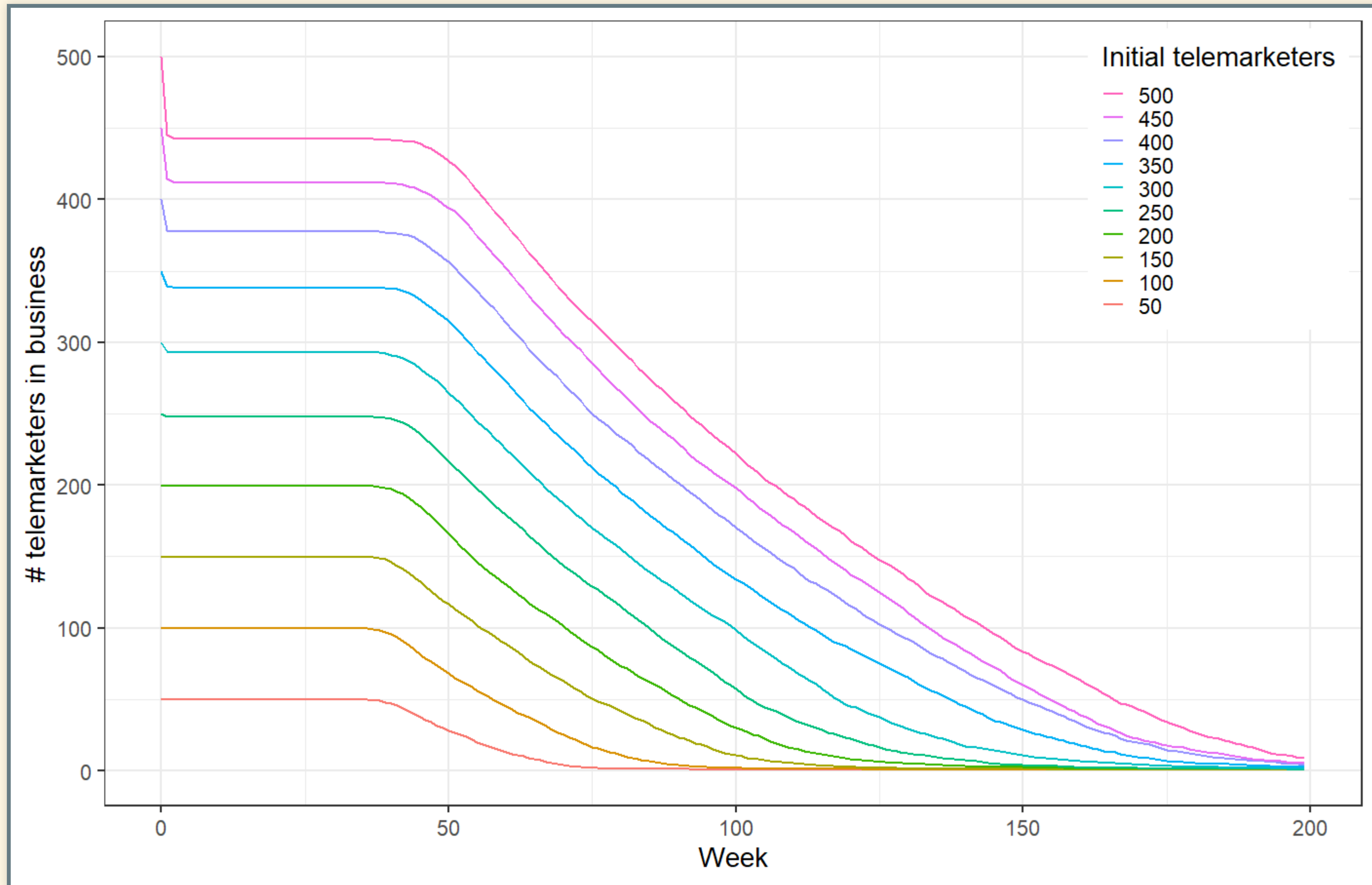
- Telemarketing firms interact
  - Telemarketer calls patches
  - If patch has received a previous call that tick, it hangs up
  - If patch has not received a previous call that tick, it buys something
  - Interaction is indirect, mediated by patches
- Accounting:
  - $\text{Net profit} = 2 \times \text{sales} - 50 \times \text{size}$
  - If  $\text{balance} < 0$ , firm goes bankrupt
- Growth
  - If  $\text{balance} > \text{growth threshold}$ , firm increases size proportional to excess balance

# Telemarketer Interactions

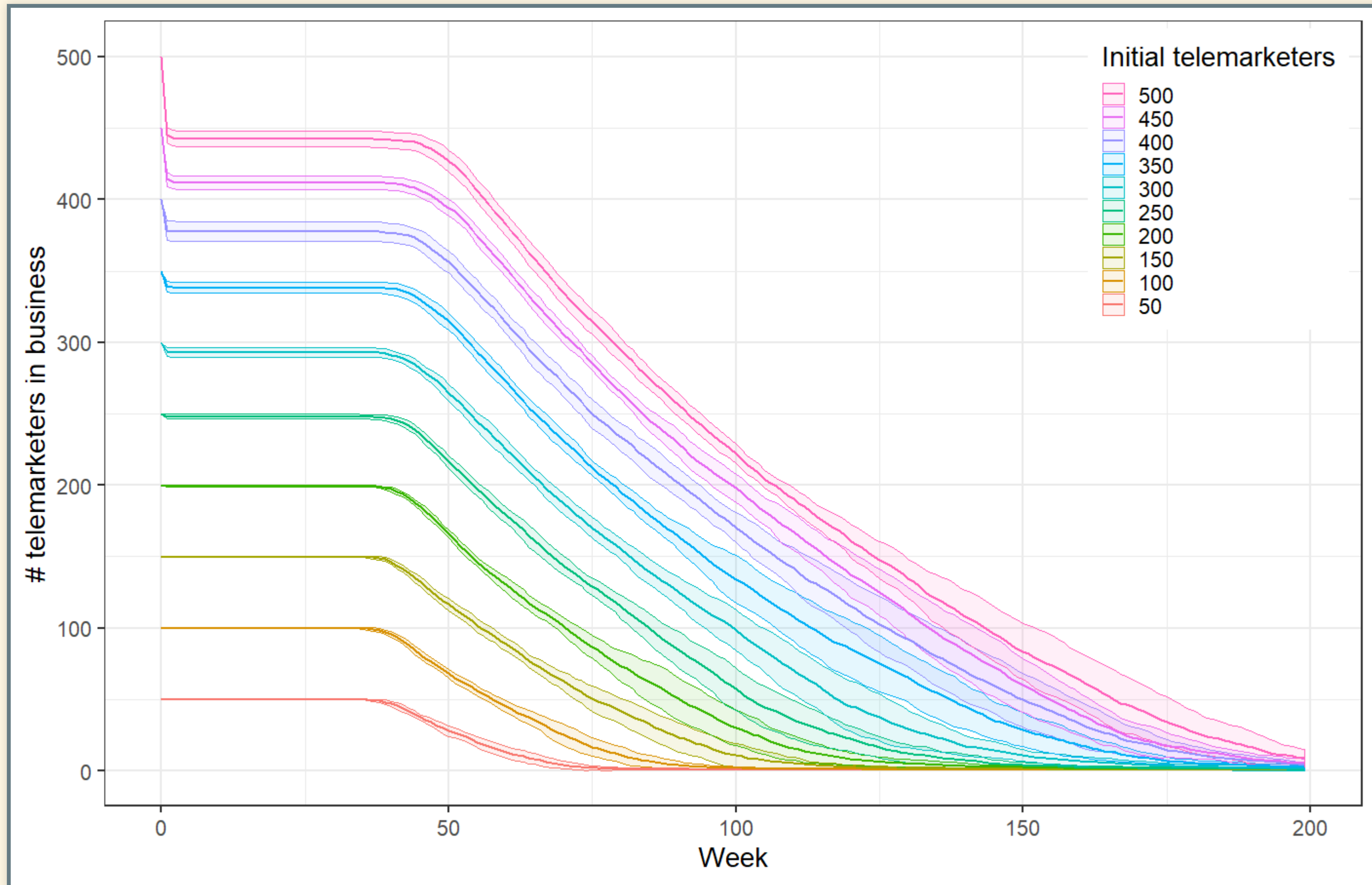
- **Indirect interactions:**
  - Customers (patches) only buy from the first marketer (turtle) to call them that tick.
  - If one marketer calls a customer, that prevents other marketers from selling to that customer.
  - Competition
- **Direct interactions:**
  - When one telemarketing company goes broke, a larger one may buy it.
  - Create persistent owner/subsidiary relationship.
  - Direct transfer of money each tick.

# Results

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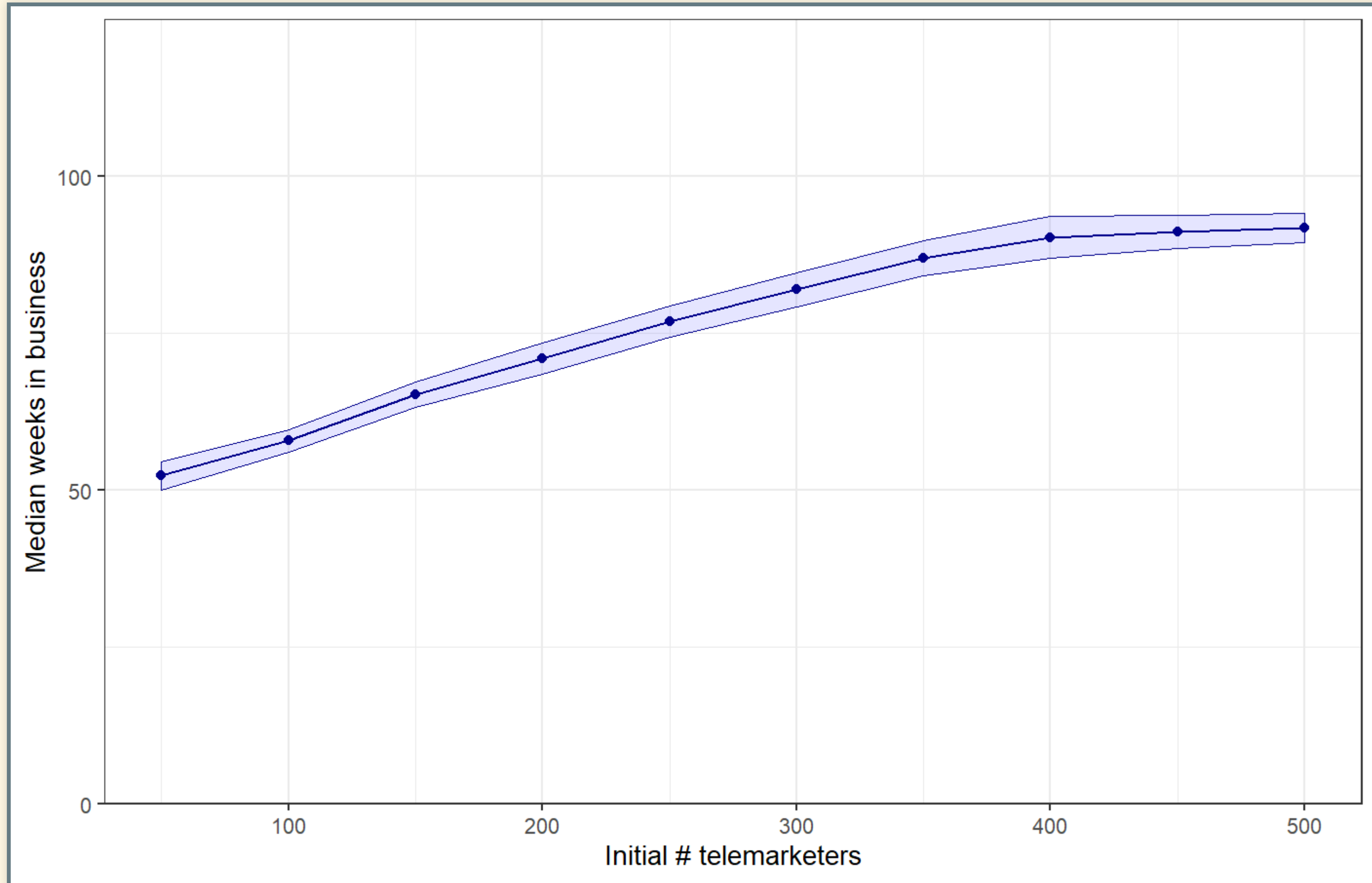


# Variation





# Median Weeks in Business



# Mergers

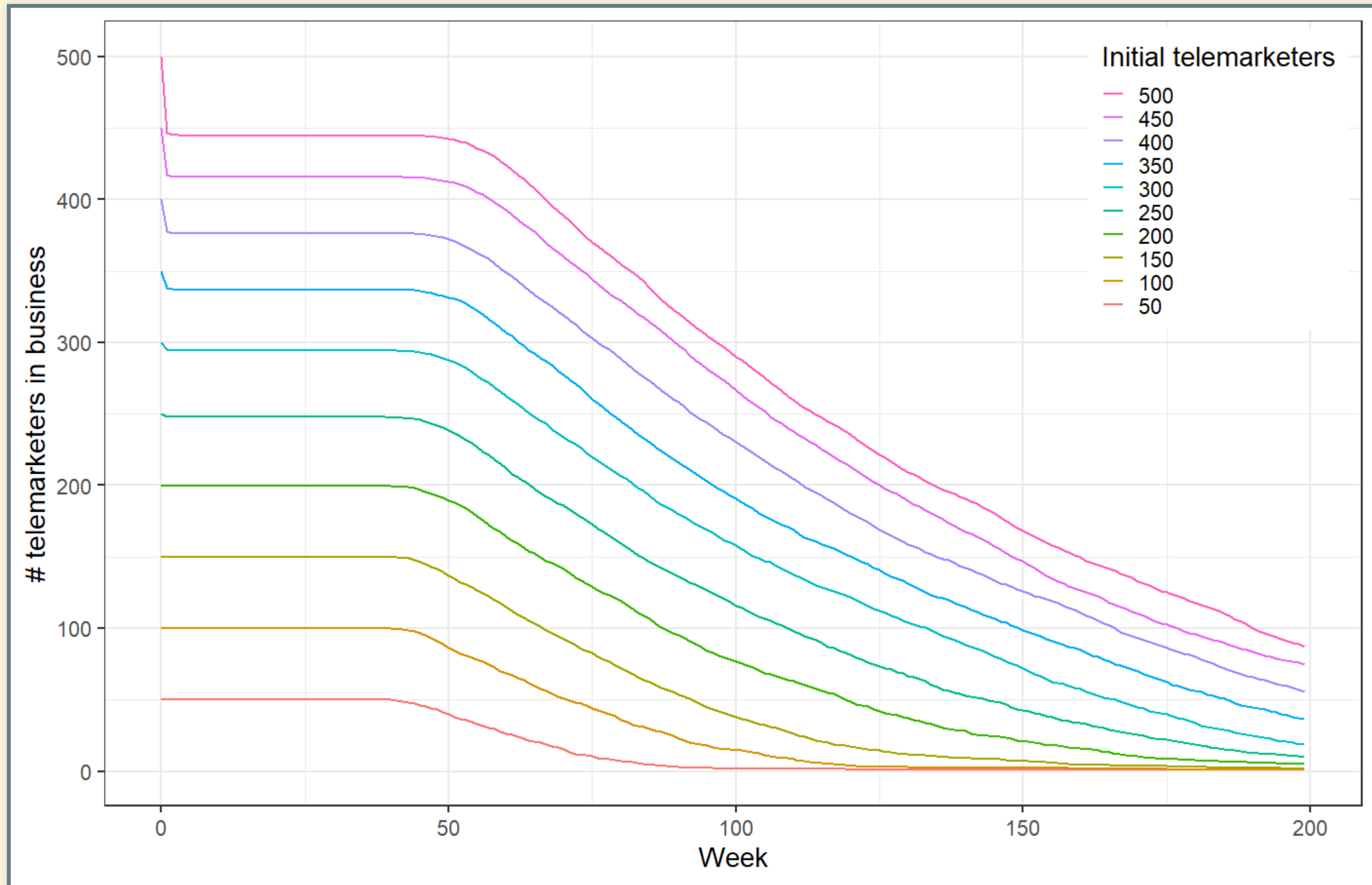
# Mergers

- Instead of going bankrupt when the bank balance drops below 0, firms look for acquisition partner
  - Find a company that's bigger and has enough money to pay off deficit.
  - If it finds a parent, parent pays off deficit
    - child firm ends up with zero balance
  - In future turns, child pays parent 50% of its net profits.
  - In future, if child's balance becomes negative:
    - If parent has enough money, it pays child's deficit
    - If parent does not have enough money, child dies.

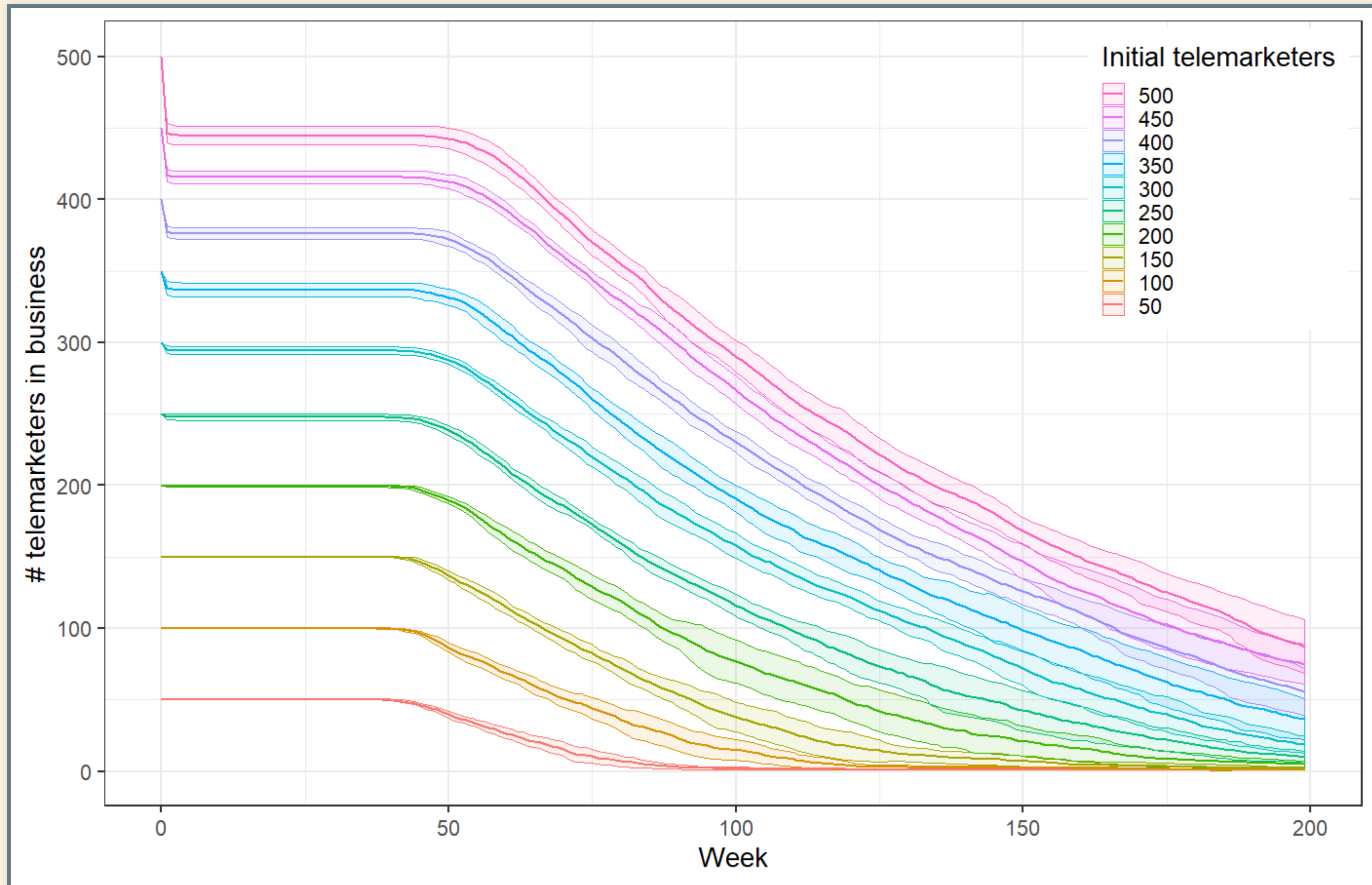
# Implementing Mergers

- Turtles-own variable: parent
  - Initialize `set parent nobody` in `to setup`
  - When a merger happens, the broke turtle being acquired sets `parent` to the larger turtle buying it.
    - The owner does not have a record of the turtles it owns.
- Links
  - No special initialization
  - When a merger happens, create a directed link from the owner to the subsidiary.
    - Now turtles can track both their owners and their subsidiaries.
    - Easier to keep track of relationships
    - Relationships can be displayed on the model view.

# Results



# Variation



# Median Weeks in Business

