

Interaction and Telemarketers

EES 4760/5760

Agent-Based and Individual-Based Computational Modeling

Jonathan Gilligan

Class #14: Tuesday, October 8 2019

Getting Started

- Download files from course download page for Oct. 8:
ees4760.jgilligan.org/downloads/telemarketer_class_14 or from Brightspace.

Telemarketer Model

Telemarketer Model

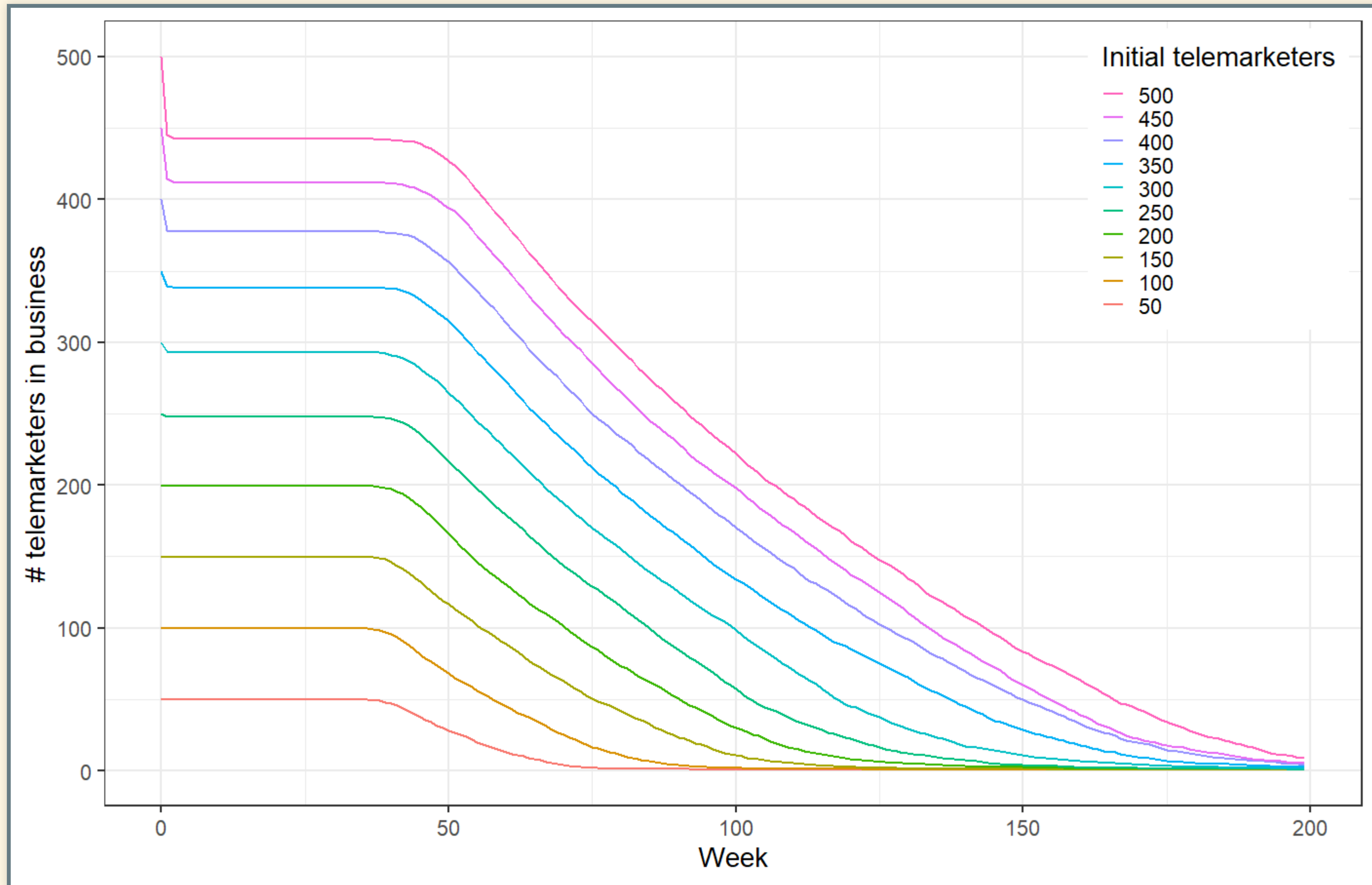
- Telemarketing firms interact
 - Telemarketer calls patches
 - If patch has received a previous call that tick, it hangs up
 - If patch has not received a previous call that tick, it buys something
 - Interaction is indirect, mediated by patches
- Accounting:
 - $\text{Net profit} = 2 \times \text{sales}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

Telemarketer Interactions

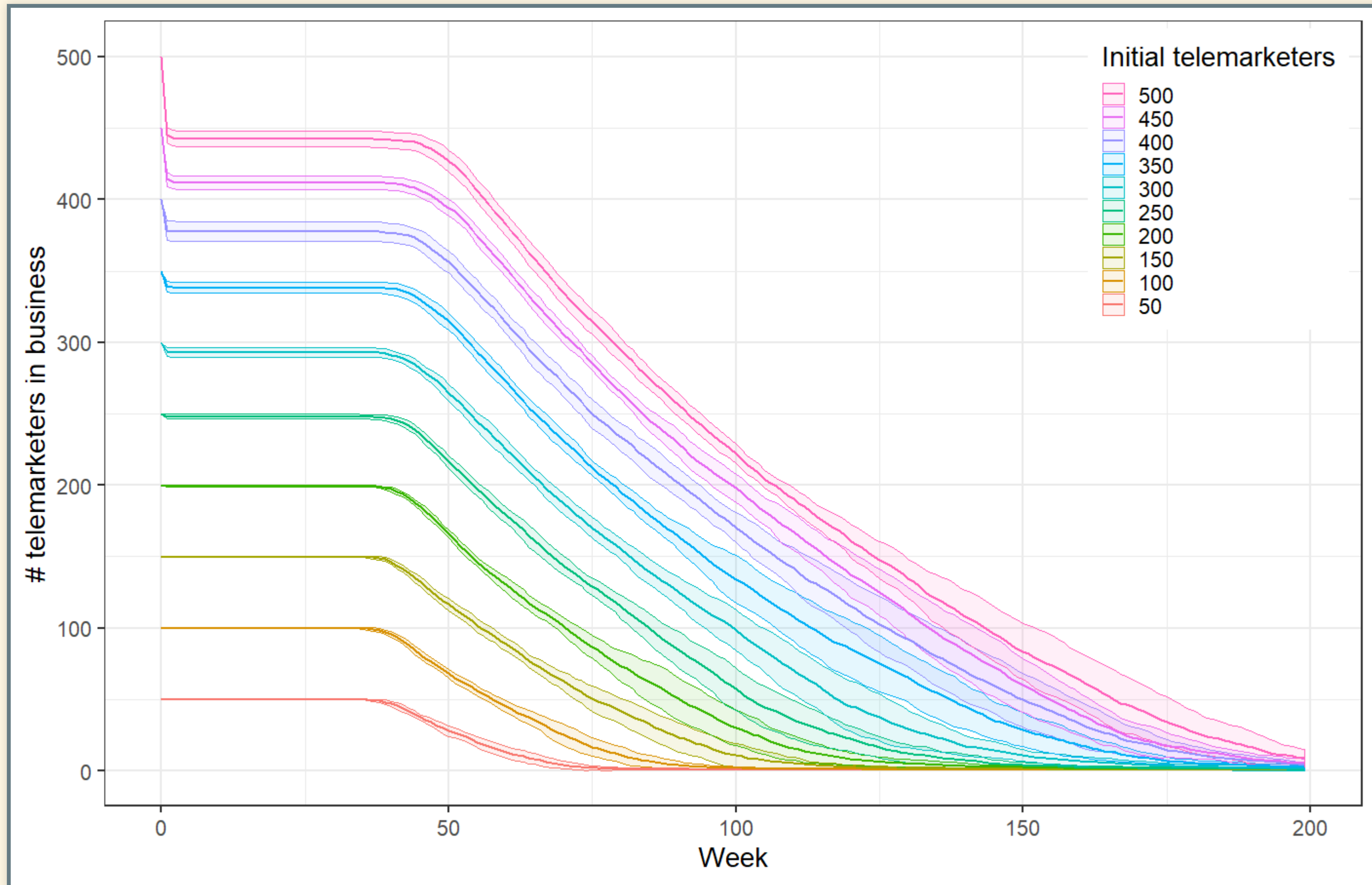
- **Indirect interactions:**
 - Customers (patches) only buy from the first marketer (turtle) to call them that tick.
 - If one marketer calls a customer, that prevents other marketers from selling to that customer.
 - Competition
- **Direct interactions:**
 - When one telemarketing company goes broke,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

Results

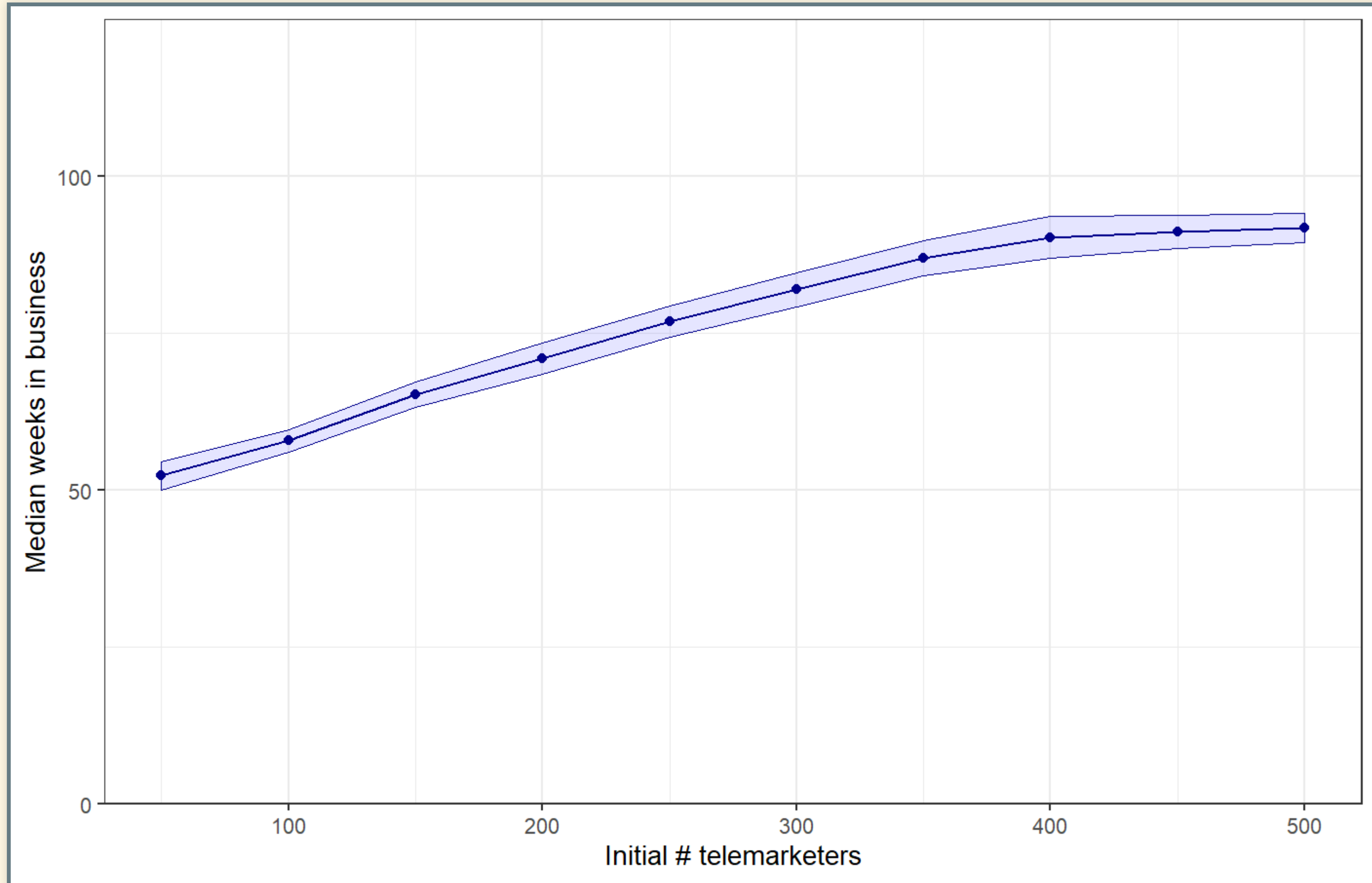
Results



Variation



Median Weeks in Business



Mergers

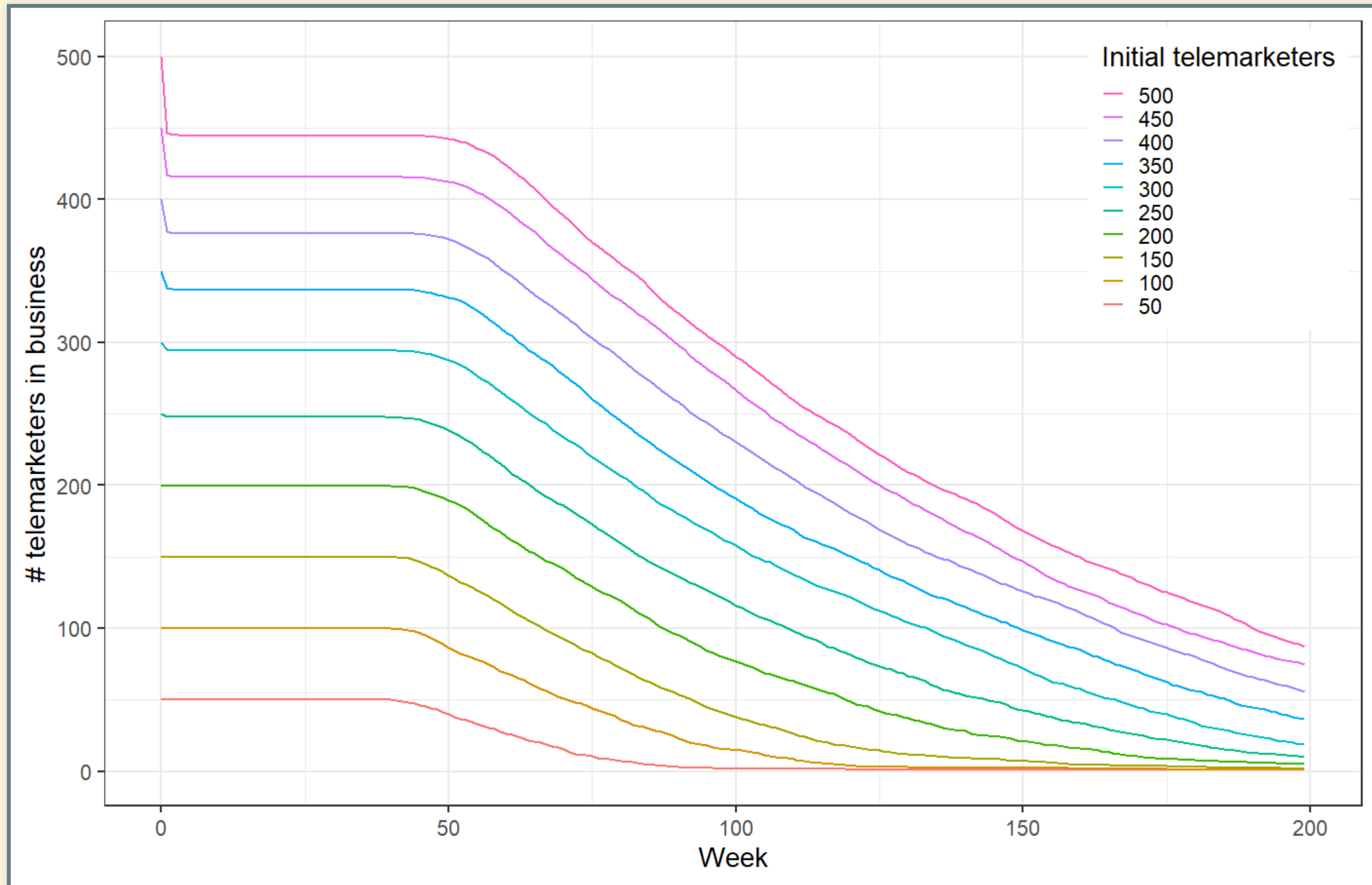
Mergers

- 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.

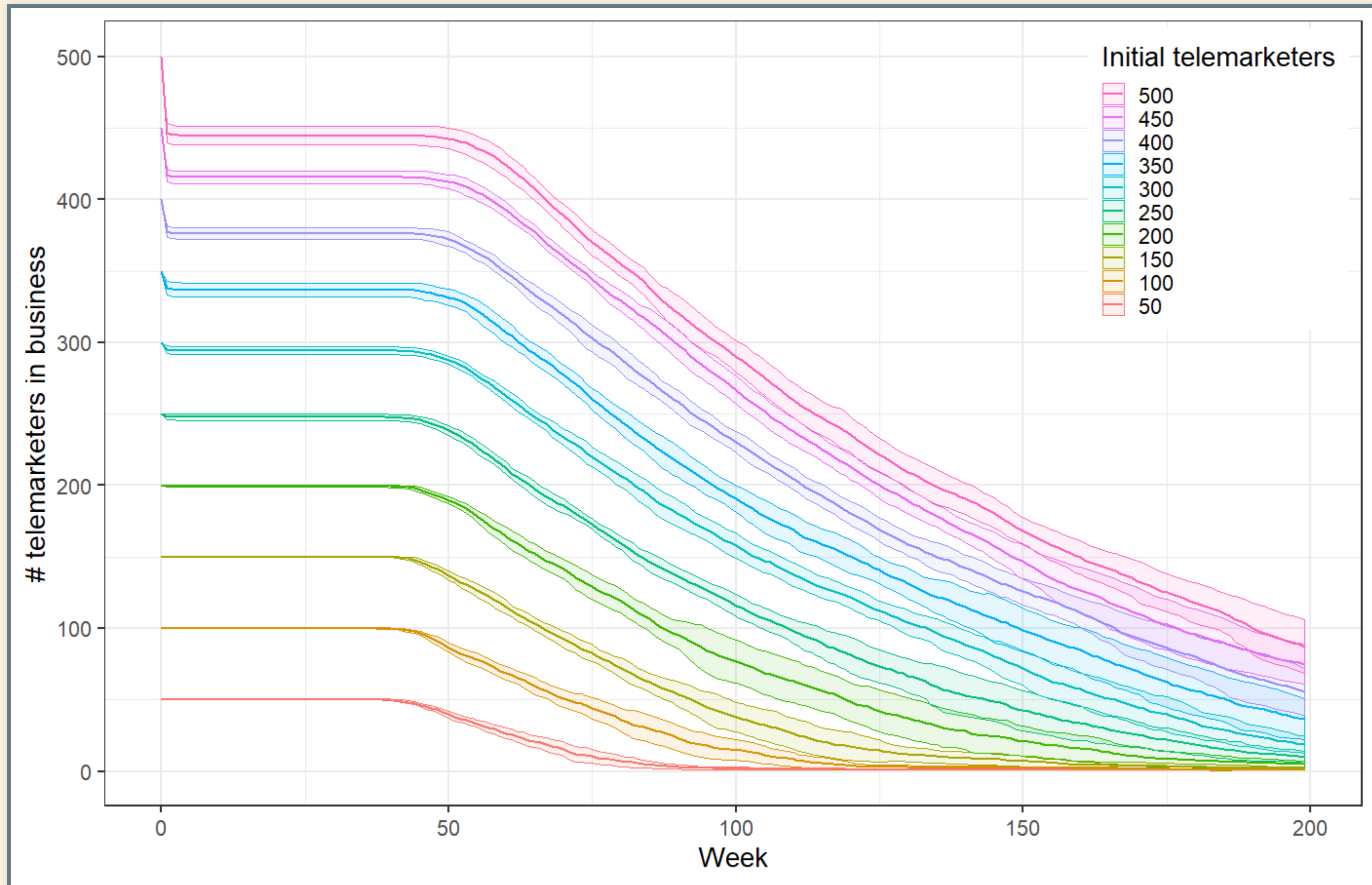
Implementing Mergers

- 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

