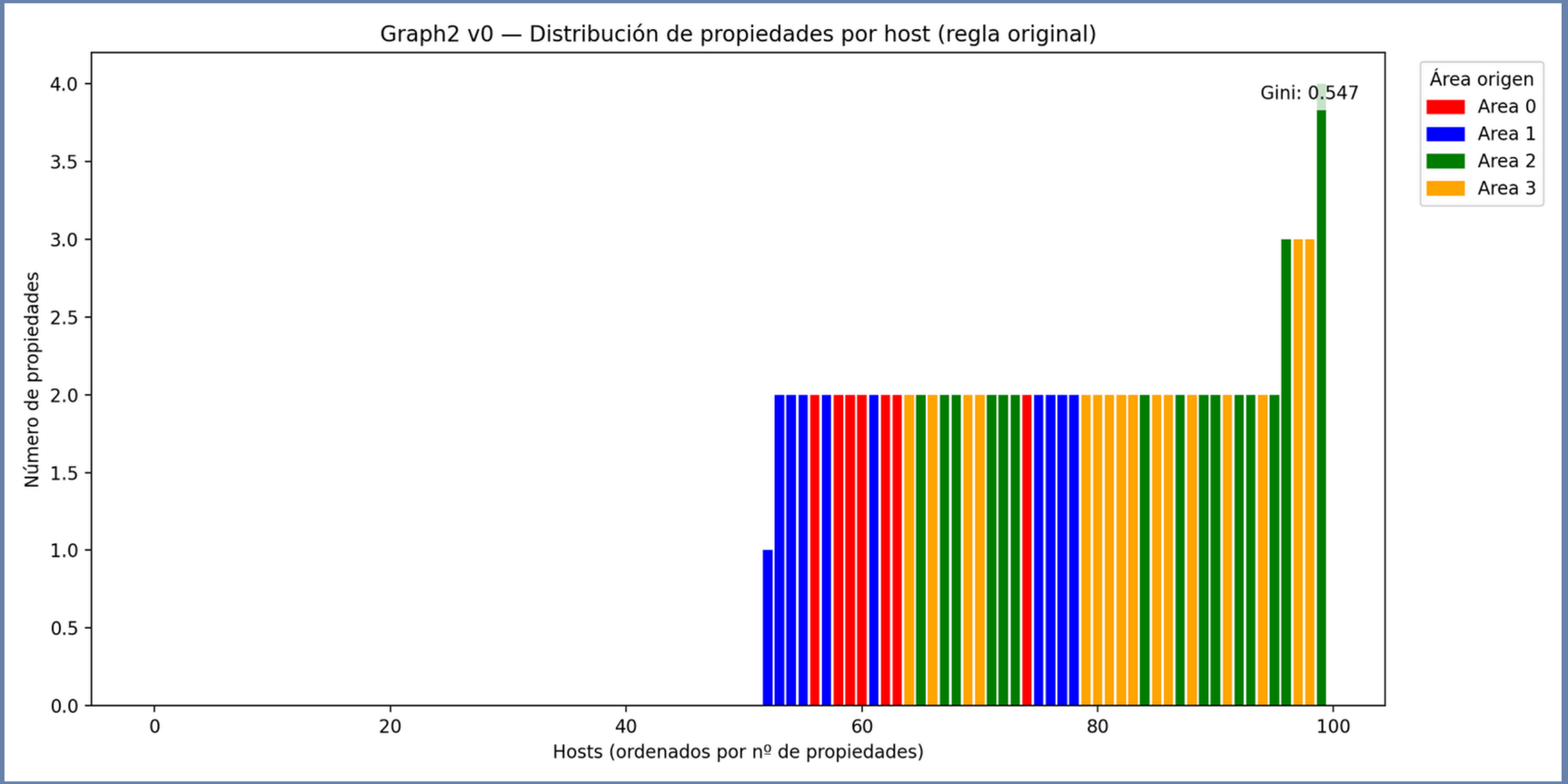
FINAL PROJECT

Nerea De Asís, Hugo Hernández, Alexia Medina, Anna Salido

Additional graph



Each bar represents a host (there are 100 because the grid is 10x10).
The order is from fewest to most properties.

The majority of hosts have 1 or 2 properties.
Only a few hosts have 3 or 4 properties (the tallest bars at the end).
No one has more than 4 → indicates moderate concentration.

A Gini coefficient of 0.547 indicates a moderate to high concentration, but not an extreme one.
And this fits with our original model, where limiting purchases per iteration curbs hoarding.

Original rule:

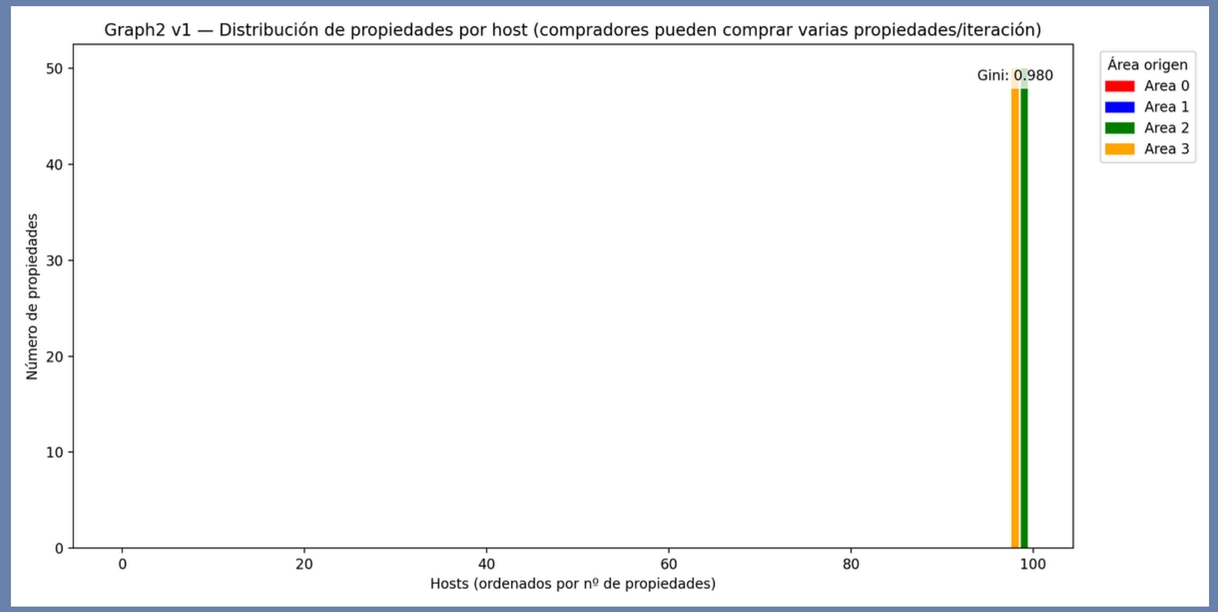
Each host can only purchase one property per iteration at most.

What would happen if we didn't apply the rule?

Rule Change Snippet

New rule:

Each host can purchase more than one property




```python
if not bids:
    return []
df = pd.DataFrame(bids).sort_values("spread", ascending=False)

sold = set()
approved = []

for _, b in df.iterrows():
    pid = b["place_id"]
    # ya no miramos 'bought' → un buyer puede comprar múltiples properties
    if pid not in sold:
        approved.append(b)
        sold.add(pid)

return approved
```

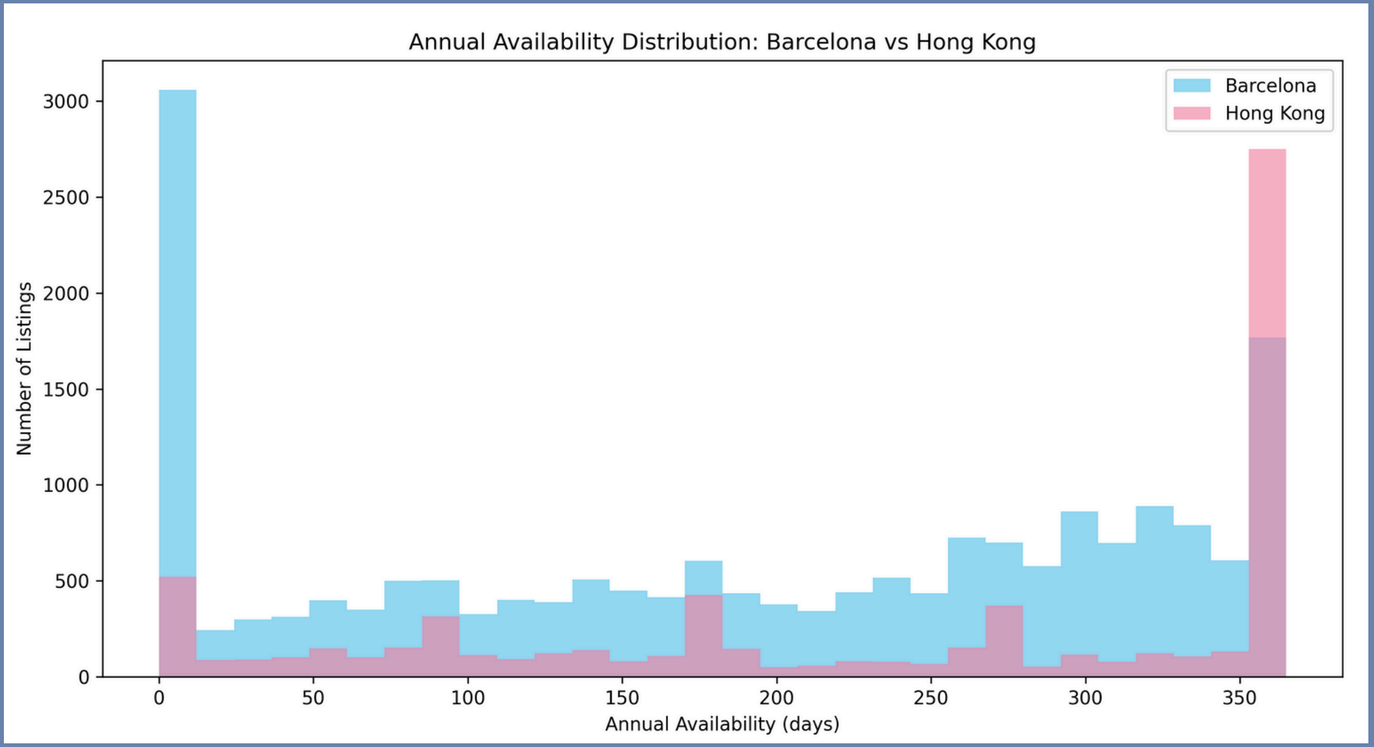
This graph **shows the distribution of the number of properties per host** after 180 iterations.

All the bars are pointing to the right, which shows us that the market has been divided between **two large monopolists.**

The Gini index is approaching 1, which shows us that there is almost **total inequality.**

What should we do to prevent it? → **Having the original rule** → This teaches us how important it is to maintain this rule

Analysis - Annual Availability



Barcelona vs Hong Kong

- 0 days = fully booked
- 365 days = never booked

- Hong Knog → low-demand listings
- Barcelona → more high-demand listings

- Market dominated by pros (Barcelona)
- Many failing listings (Hong Kong)

THANK YOU

FOR YOUR ATTENTION