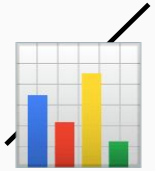
Explorations in Wealth and Chance

OIDD 325: *Grace Jiang*

The Problem

- Wealth Inequality
- Create a model to represent situation
- See how factors may contribute to wealth inequalities
  - Varying access to resources
  - Varying initial wealth



2-Cluster

Initial Resource Inequality

Wealth Growth

Initial Wealth Inequality

2-Cluster Experiment

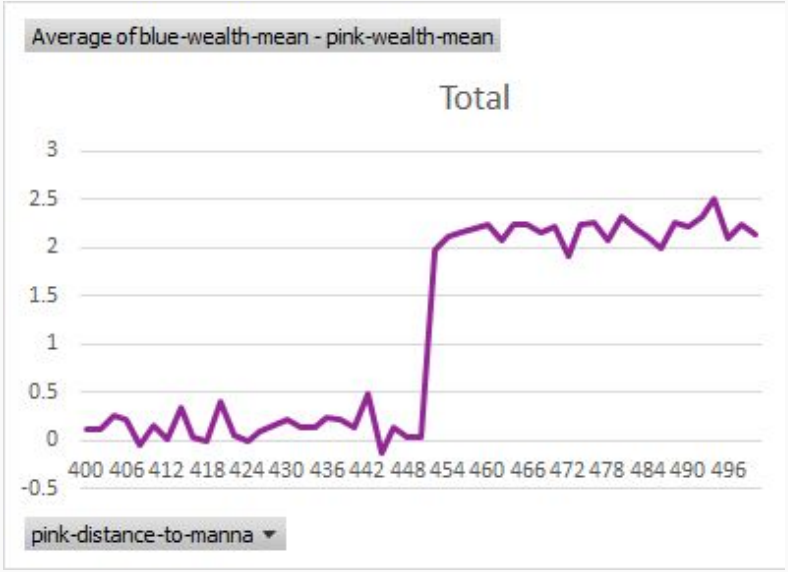
Overview

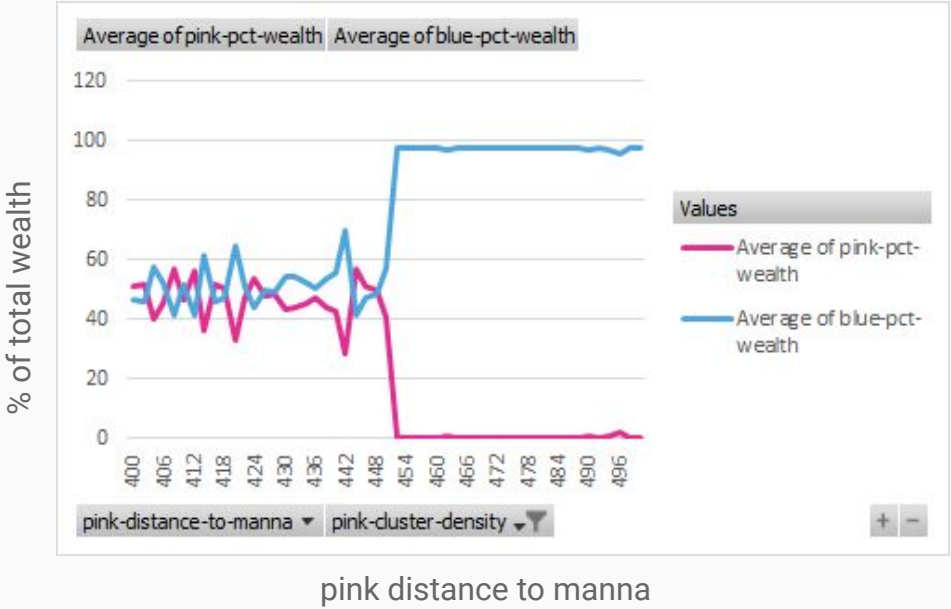
- **Overview**: Turtles split into two clusters
- **Experimental Variables**: distance to manna, cluster density
  - **Pink Cluster** = Less access to resources
  - **Blue Cluster** = More access to resources
- **Result Measures**: Mean difference in wealth, % of total wealth per cluster
- **Connection to Real Life**: Different groups have varying access to resources that affect people even with equal starting wealths

Hypothesis

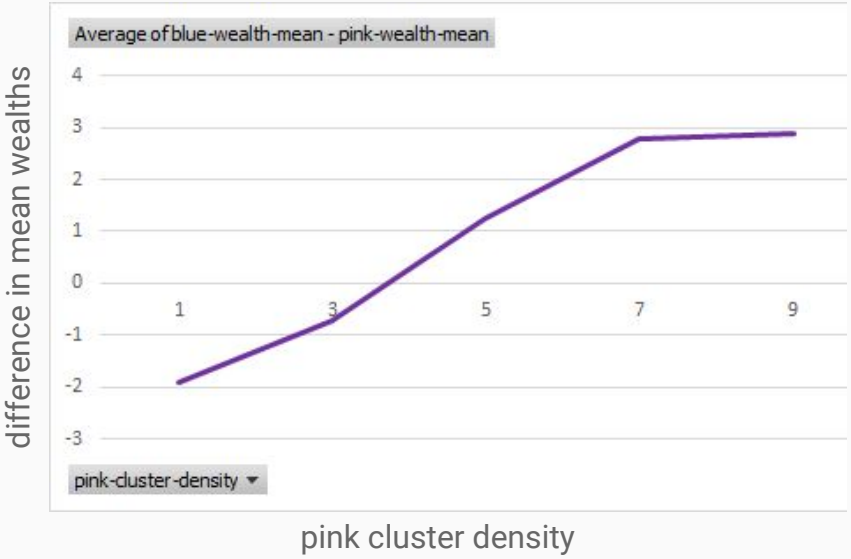
- Small differences in access to resources can cause exponential increases in wealth disparity
- Group uniformity will not have an impact on wealth generation

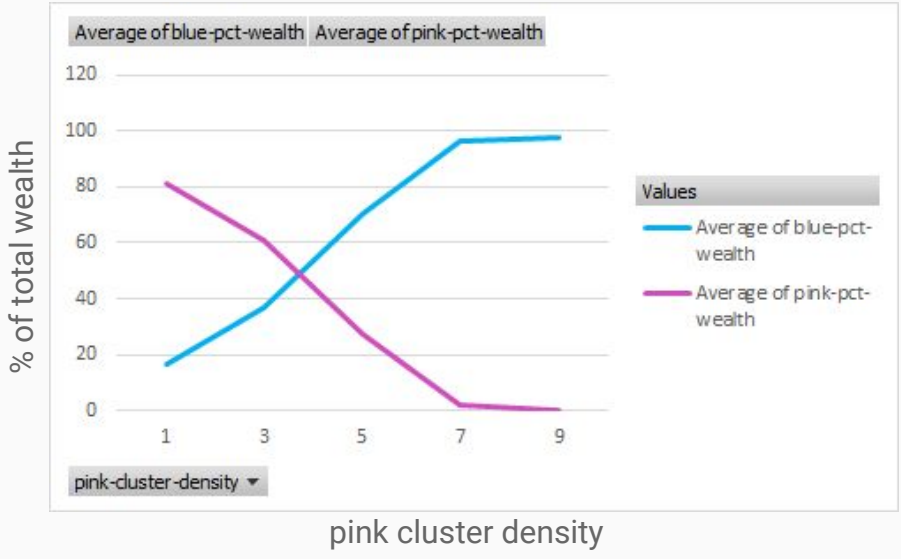
Results


Average of blue-wealth-mean - pink-wealth-mean
Total
3
2.5
2
1.5
1
0.5
0
-0.5
400 406 412 418 424 430 436 442 448 454 460 466 472 478 484 490 496
pink-distance-to-manna
difference in mean wealths
pink distance to manna


Average of pink-pct-wealth
Average of blue-pct-wealth
120
100
80
60
40
20
0
400 406 412 418 424 430 436 442 448 454 460 466 472 478 484 490 496
Values
Average of pink-pct-wealth
Average of blue-pct-wealth
pink-distance-to-manna
pink-cluster-density
% of total wealth
pink distance to manna

Results


Average of blue-wealth-mean - pink-wealth-mean
difference in mean wealths
4
3
2
1
0
-1
-2
-3
1
3
5
7
9
pink-cluster-density
pink cluster density


Average of blue-pct-wealth
Average of pink-pct-wealth
% of total wealth
120
100
80
60
40
20
0
1
3
5
7
9
pink-cluster-density
Values
Average of blue-pct-wealth
Average of pink-pct-wealth
pink cluster density

Wealth Growth Experiment

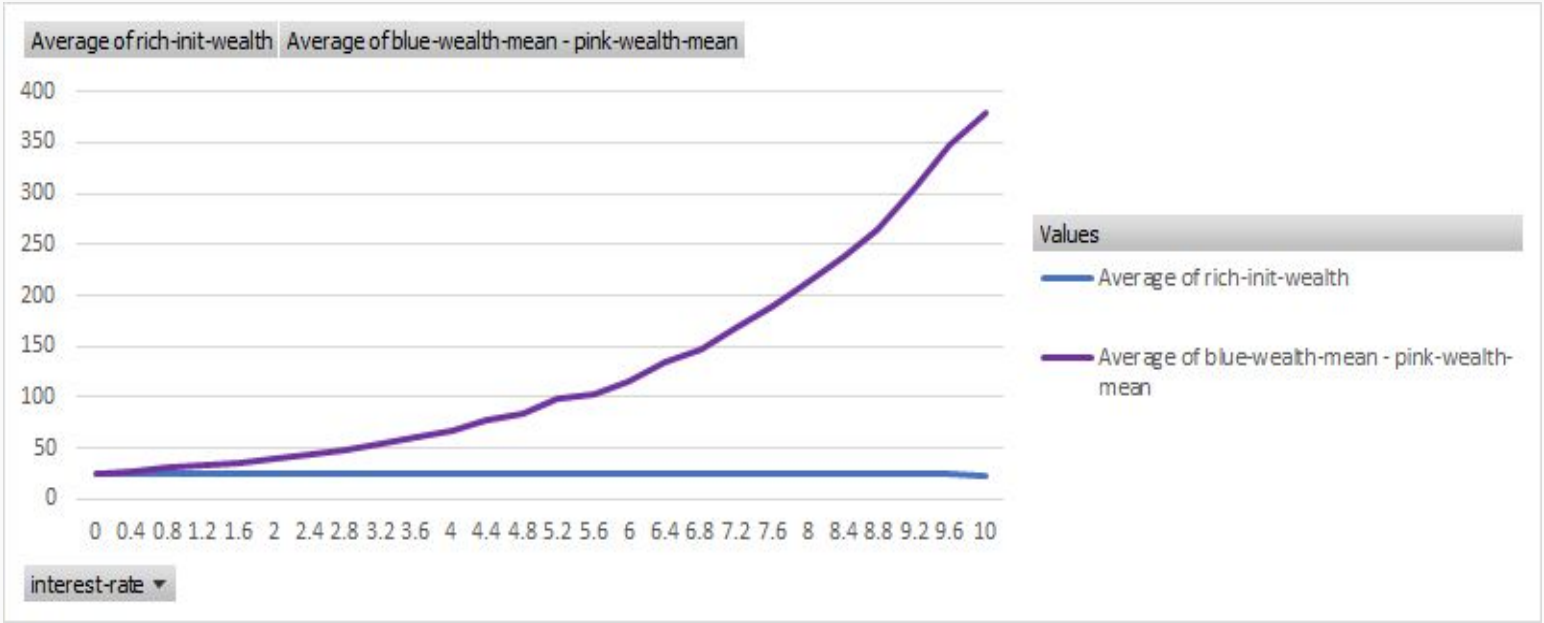
Overview

- **Overview**: “Rich” and “Poor” turtles
- **Experimental Variables**: initial wealth, interest rate, cost of living
  - **Pink Cluster** = No initial starting wealth
  - **Blue Cluster** = Varying initial starting wealth
- **Result Measures**: Mean difference in wealth, % of total wealth per cluster
- **Connection to Real Life**: Different groups have varying initial starting wealths that affect people even with equal access to resources

Hypothesis

- Slightly higher initial wealth creates larger proportionate difference in wealth disparity
- “Rich get richer, poor get poorer”

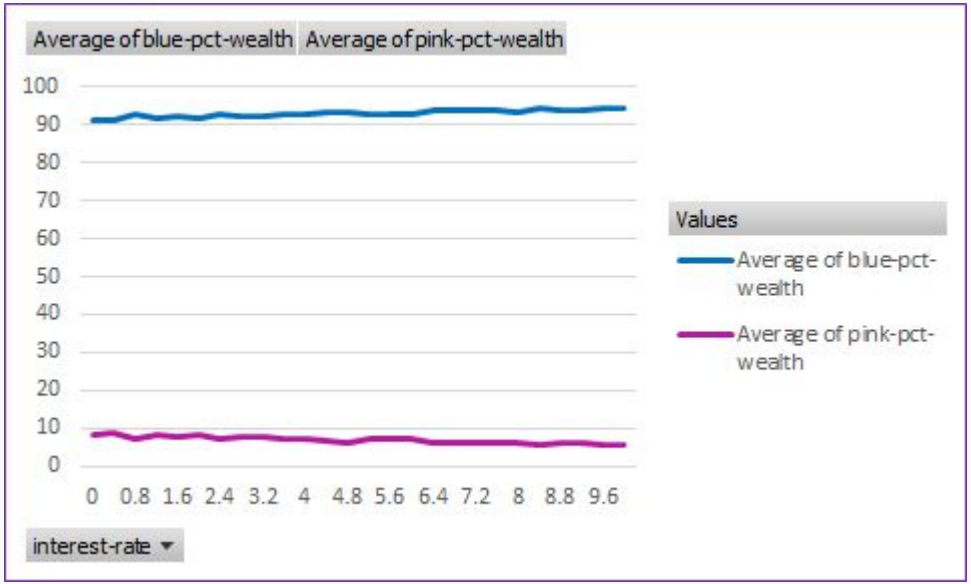
Results



Wealth

Interest Rate

Results



Rich turtles = blue
Poorer turtles = pink

Conclusion

- Factors like access to resources and presence of initial wealth can contribute to the issue of wealth disparity
- Start conversation of urgency to acknowledge and address wealth disparities that impact many lives
    - Goal to make the future of our society more equitable