university of groningen

Stuck In The Mud?

Geographical Immobility Across The UK

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Motivation and Theoretical Background

Idea Generation Is A Wonderful Thing

- *Who are the people that go through major life disruptions, are exposed to significant policy initiatives, and have all the theoretical reasons to change behaviours, but do not do so?*

  - Who does not fit the theoretical mold?
  - Who does not adapt?
  - Who is stubborn in the face of change?

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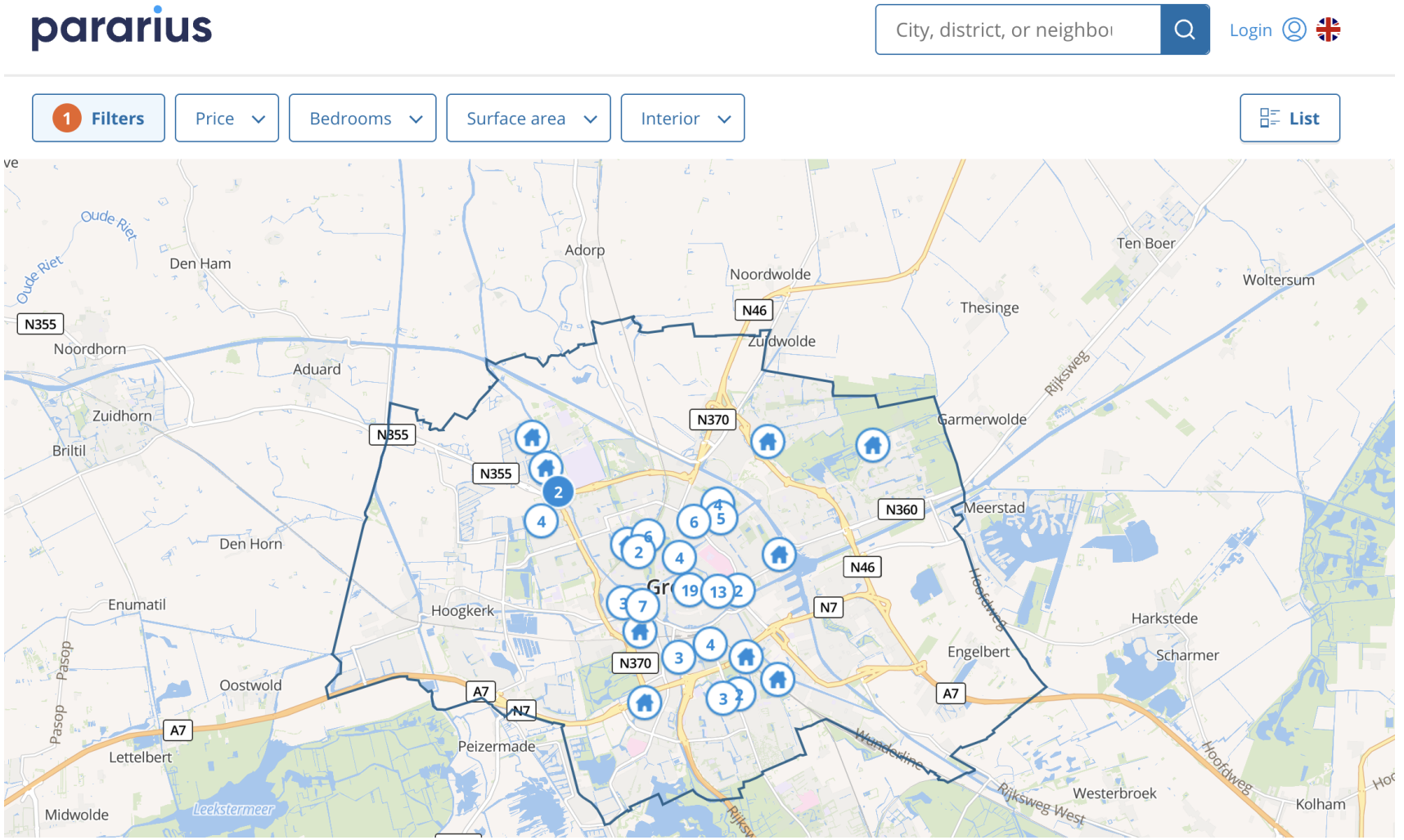
Residential Self-Selection and A New Awakening



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- **Geographic Mobility:**

The movement of individuals, households, or populations across different geographic locations, often in response to economic, social, or environmental factors. It encompasses short- and long-distance moves, both temporary and permanent, and plays a key role in labour market functioning, spatial inequality, and regional development (Litwak, 1960; Fields, 1976; Greenwood, 1997; Geist and McManus, 2008; Choudhury, 2022).

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Geographic Immobility In Theory

- Mobility is a core assumption underlying prevalent theories surrounding:
  1. "Systems" of Cities and Urban-Rural Dynamics (Krugman, 1979, 1981, 1991; Pike, Rodríguez-Pose, and Tomaney, 2017).
  2. Firms and "Economic" Decision Making (Brakman, Garretsen, and van Marrewijk, 2019).
  3. Utility Maximizing Consumers/Individuals (Tiebout, 1956; Rosen, 1974, 1979; Roback, 1982, 1988).
- Meanwhile….
  - Family, Lifestyle, and Demographic Dynamics (Geist and McManus, 2008; Michilien and Mulder, 2008).
  - But immobility is widely documented *empirically!* (Hughes, 1987; Eliasson and Westerlund, 2023; Zabek, 2024).

Where Are We Then?

- How prevalent is geographic immobility (across the UK)?
  - Is it a problem worth worrying about?
- Who is most susceptible to geographic immobility?
  - And where do they live?
- How does immobility impact the implications of the theoretical models used to describe global Economic Geography?

Data and Definitions

British Household Panel Survey (1991-2008) and UK Household Longitudinal Survey (2008-2024)

- A comprehensive battery of individual-level socio-demographic variables geo-coded at two regional levels spanning 29 years.
  - Local Authority Districts and Government Office Regions. If I reduce the number of years, I can get more granular geocoding.

- No Spatial Data :O

How Do I Measure Immobility?

- I use 2-to-3 variables to define whether individuals are “stuck”.
  - 2 for the “base” definition, and 3 in a more restrictive version.

1. *addrmov_dv*$_{t0}$ = checks whether participants have changed address postcode since the previous survey wave.
2. *lkmove*$_{t-1}$ = asks “If you could choose, would you stay here in your present home or would you prefer to move somewhere else?”
3. *xpmove*$_{t-1}$ = asks “Even though you may not want to move, do you expect you will move in the coming year?”

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Summary of Stuckness Variables

Statistic	Mean	St. Dev.	Min	Max
Stuck Incidence (Base Definition)	1.70	2.46	0	16
Stuck Share (Base Definition)	0.28	0.34	0.00	1.00
Stuck Incidence (Full Definition)	1.82	2.51	0	16
Stuck Share (Full Definition)	0.30	0.35	0.00	1.00

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Methods and Tentative Results

Where things become less clear and mysterious

The Baseline Estimator: Who Is Stuck In The Mud?

- **Dependent Variable =** Dummy variable indicating "stuckness" in a calendar year *(Stuck)*.
- **Independent Variables =** Various socioeconomic and demographic characteristics.

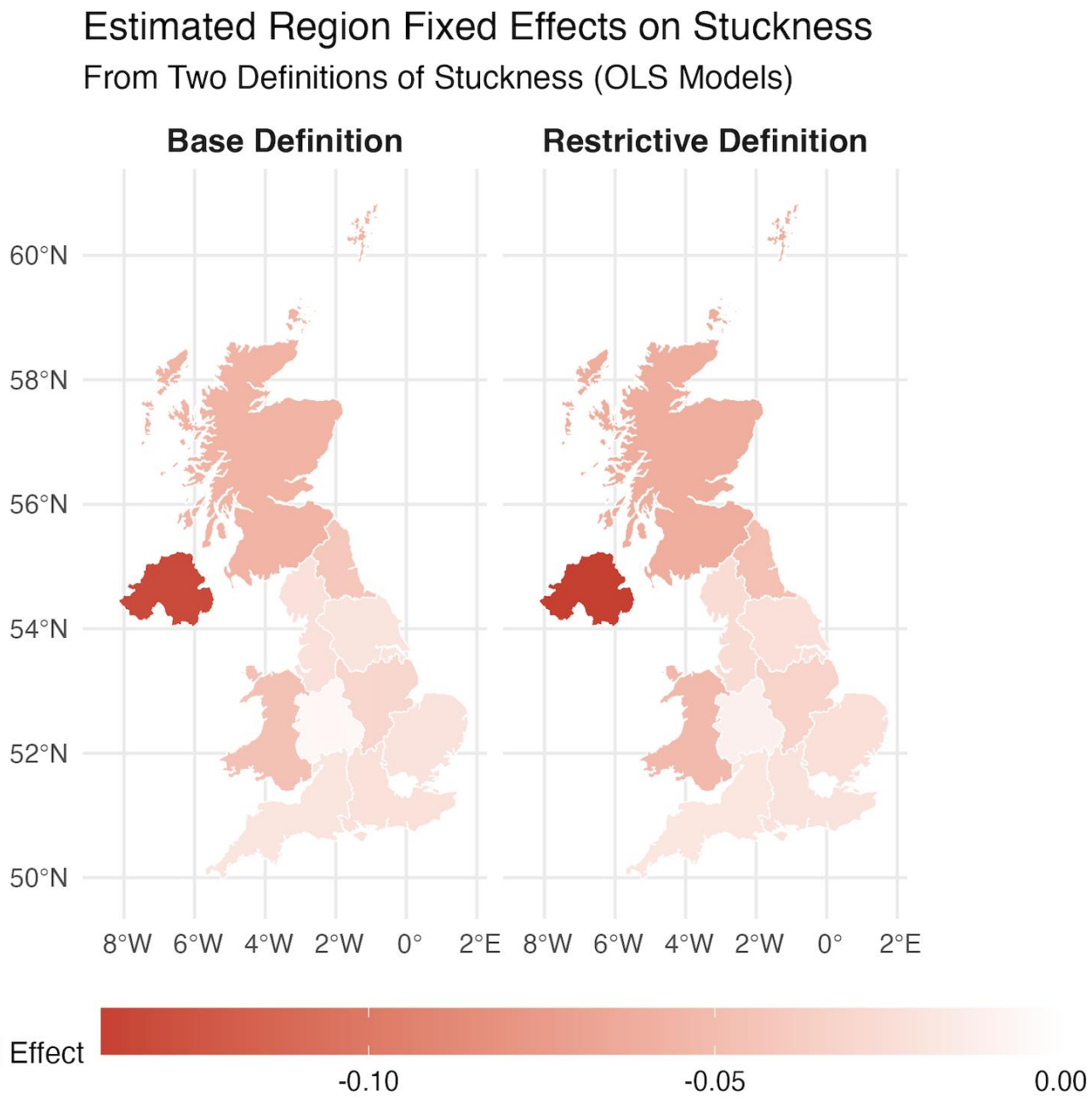
- Pooled OLS Linear Probability Estimator:

$$\mathbb{P}(Y_i = 1 \mid X_i) = \beta_0 + \beta_1 X_{1i} + \beta_2 X_{2i} + \ldots + \gamma_t + \delta_r + \varepsilon_i$$

	Dependent Variable: Probability of Being Stuck			
	Base Definition of Stuck		Restrictive Definition of Stuck	
	(1)	(2)	(3)	(4)
Natural Log of Gross Monthly Income (All Sources)	-0.001	0.001*	-0.002***	0.0003
	(0.0004)	(0.0004)	(0.0004)	(0.0004)
Sex (1 = Male)		-0.003**		0.0002
		(0.001)		(0.001)
Age		-0.003***		-0.004***
		(0.0001)		(0.0001)
White (1 = Yes)		0.002		-0.003
		(0.002)		(0.002)
Married or Couple (1 = Yes)[1]		-0.019***		-0.027***
		(0.002)		(0.002)
Widowed, Divorced/Seperated, or Other (1 = Yes)[1]		0.027***		0.028***
		(0.003)		(0.003)
Number of Children In Household		0.011***		0.006***
		(0.001)		(0.001)
University/College Educated (1 = Yes)		-0.010***		-0.005***
		(0.001)		(0.001)
Owns A Car (1 = Yes)		-0.015***		-0.018***
		(0.002)		(0.002)
Employed (1 = Yes)[2]		0.014***		0.009***
		(0.002)		(0.002)
Unemployed But Still In The Labour Force (1 = Yes)[2]		0.043***		0.040***
		(0.003)		(0.003)
Commute Time (Minutes)		0.0002***		0.0002***
		(0.00004)		(0.00004)
Constant	0.070***	0.232***	0.097***	0.311***
	(0.006)	(0.006)	(0.006)	(0.006)
Survey Wave Fixed Effects	Yes	Yes	Yes	Yes
Government Office Region Fixed Effects	No	Yes	No	Yes
Observations	430,022	430,022	430,022	430,022
R^2	0.058	0.082	0.060	0.090
Adjusted R^2	0.058	0.082	0.060	0.090
Residual Std. Error	0.421 (df = 429999)	0.415 (df = 429976)	0.430 (df = 429999)	0.423 (df = 429976)
F Statistic	1,211.823*** (df = 22; 429999)	851.749*** (df = 45; 429976)	1,245.267*** (df = 22; 429999)	949.002*** (df = 45; 429976)

- Car ownership, higher education, age, and being married lowers the probability of being “stuck”.
  - Physical and Economic mechanisms.

- Being part of dissolved households, having more kids, being in the labour force, and being a woman increases the probability of being “stuck”.
  - Family/Life Course dynamics.
  - Having “strings attached” to people and places.



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Who Is Stuck In The Mud? Taylor's ~~Version~~ Estimator

- **Dependent Variable =** Dummy variable indicating "stuckness" in a calendar year *(Stuck)*.
- **Independent Variables =** Various socioeconomic and demographic characteristics.
  - Individual-wave panels spanning 5, 10, 15, and 20 consecutive observations.

- Linear Probability Estimator:

$$\mathbb{P}(Y_{it} = 1 \mid X_{it}) = \alpha_i + \beta_1 X_{1it} + \beta_2 X_{2it} + \ldots + \gamma_t + \delta_r + \varepsilon_{it}$$

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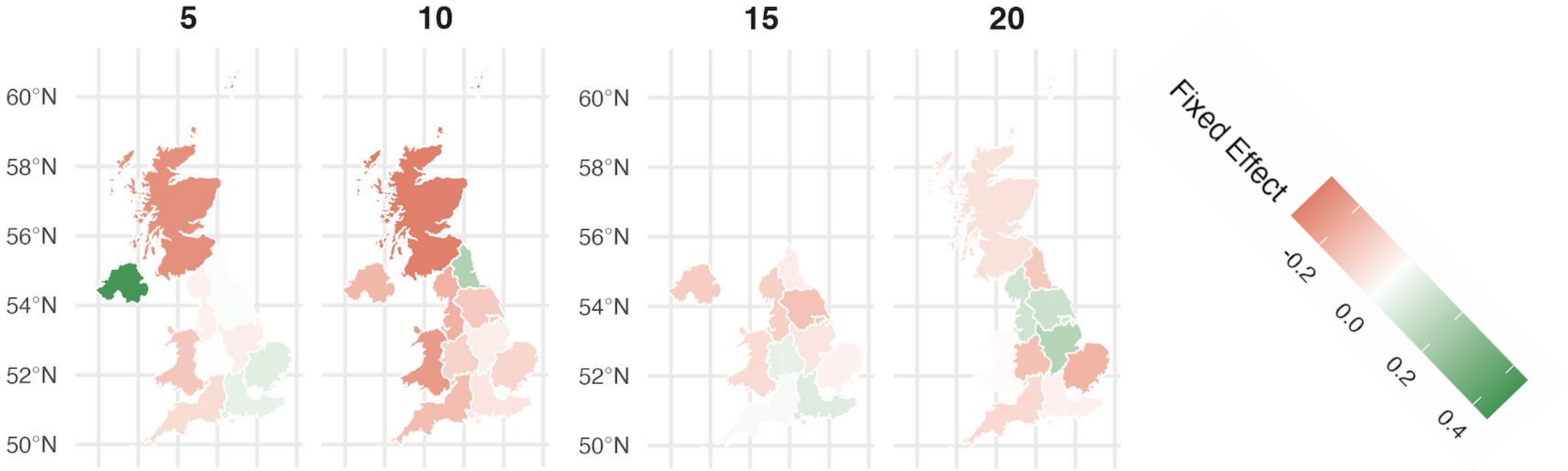

- The socio-demographic characteristics associated with “stuckness” change over time.
  - Car ownership and unemployment remain the only consistent predictors of “stuckness”.

- Change is good?

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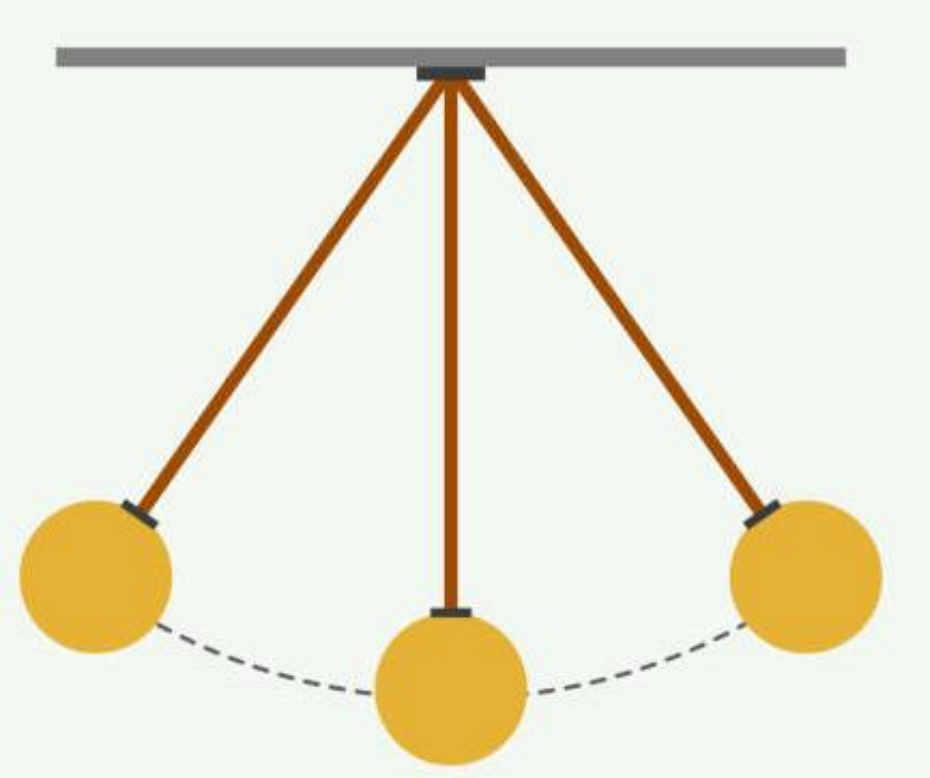
A Change In Direction: I Have Found My X

Heterogeneity, Comparisons, and Reframing The Problem



Exposure	Trajectory
Always “Stuck”	Always “Stable”
Intermittently “Stuck”	Always “Stuck”
Became “Stuck”	“Always Mobile”
Initially “Stuck”	“Became Stuck”
Never “Stuck	“Escaped Stuckness”
	“Other/Messy Trajectory”

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Some Problems With This: A Gateway To The Next Steps

- Beyond 10 years, nobody remains “Always Stable” or “Always Stuck”.
  - Distance is not dead. Mud is still sticky…
- Beyond 10 years, the different degrees of Stuckness wash out, forcing the creation of a binary indicator.
  - *Any and all forms of Stuckness VS never stuck.*

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Thank you!

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