DISCUSSION OF "TECHNOLOGY ADOPTION AND LEAPFROGGING: RACING FOR MOBILE PAYMENTS"
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# THIS PAPER

► **Puzzling observation**: some developing countries have surpassed advanced economies in adopting mobile payment technologies

► **Main contents**

1. stylized <u>facts</u> about cross-country adoption patterns of payment technology

   - non-monotonic relation between per capita income and mobile payment adoption
   - different complement-substitution technology choices across countries
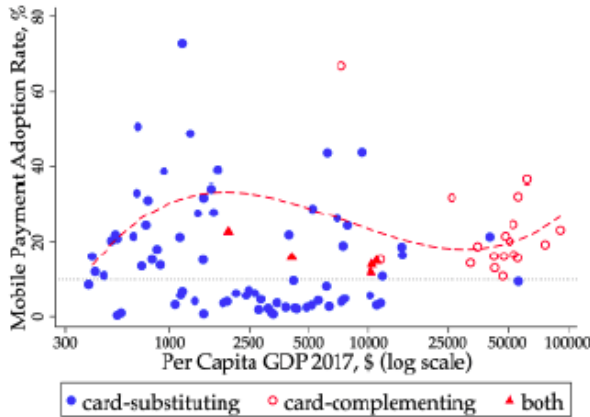
2. a dynamic <u>model</u> with sequential payment innovations

   - card, card-substituting, card-complementing
   - counterfactuals
   - welfare analysis with payment externalities

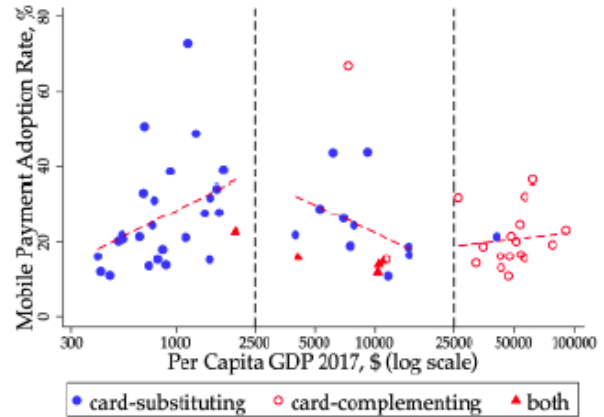# COMMENT #1: NON-MONOTONIC RELATIONSHIP?
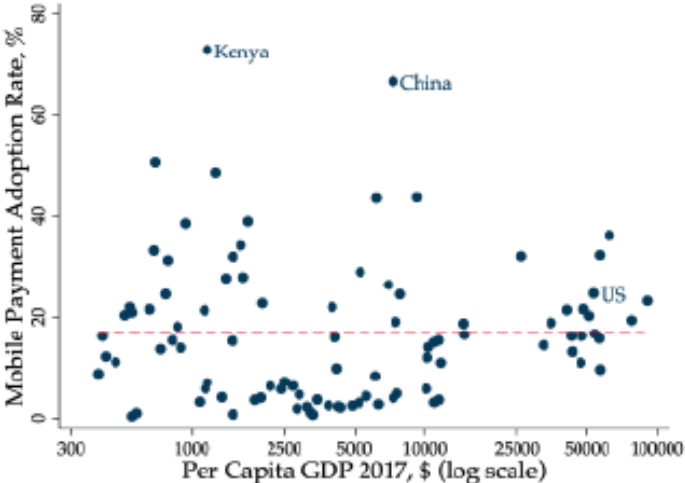
(B) MOBILE PAYMENT ADOPTION
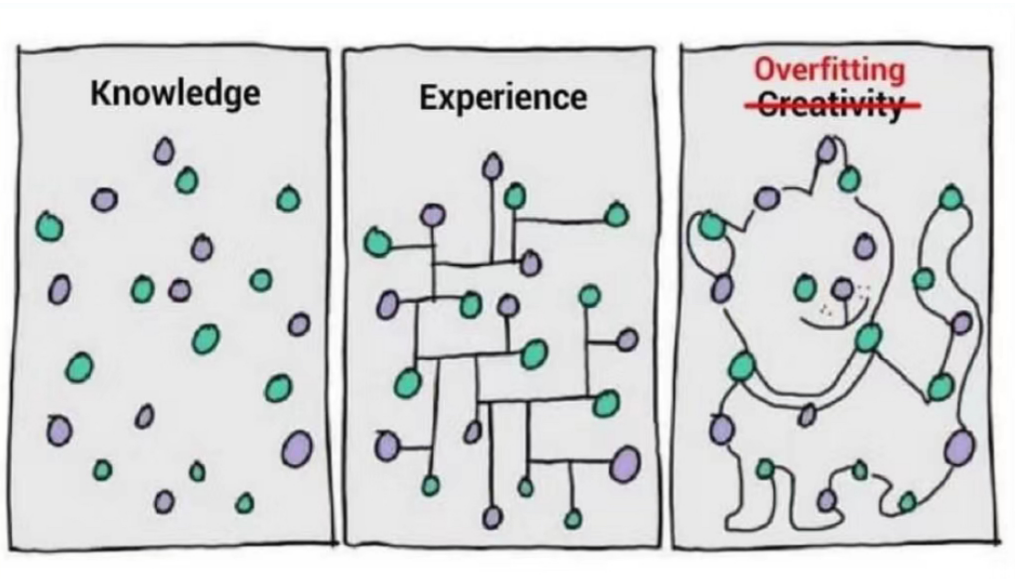
COMMENT #1: NON-MONOTONIC RELATIONSHIP?

(A) NONPARAMETRIC FIT

(B) LINEAR FIT

► leave out the observations that have a very low adoption rate (i.e., <10%)

# COMMENT #1: NON-MONOTONIC RELATIONSHIP?

▶ overfitting v.s. underfitting

COMMENT #2: UNDERLYING MECHANISM

▶ **Key assumption**: incremental reduction in variable costs brought by mobile is smaller for card users than for cash users

▶ **Model outcome**:

  • card users face a higher income threshold to switch to mobile than the cash users
  • existing card adopters delay the introduce of new technology

▶ **Key mechanism using macro language**: path dependence in the transitional dynamics

  • just FYI: directed technical change literature (e.g., Acemoglu 2002 RES) might be helpful

COMMENT #2: UNDERLYING MECHANISM

► **What's missing**: more direct empirical evidence
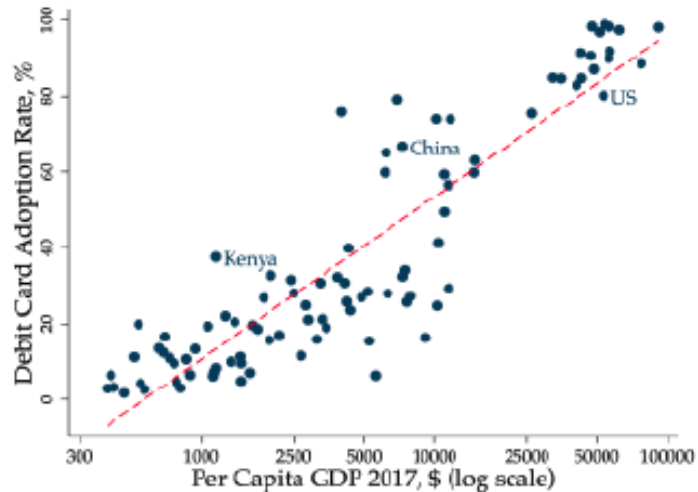
(A) DEBIT CARD ADOPTION

COMMENT #3: FIRST-ORDER IMPORTANCE & REVERSE CAUSALITY

- ► Technology Adoption and Leapfrogging: a big question with many possible explanations

  - **ability of technology adoption** (e.g., AI adopters): Comin and Hobijn (2004); Trouvain (2024); ...

  - **financial inclusion role of mobile payment**: Ouyang (2021); Shaikh et al. (2023); ...

  - **credit card culture and overconsumption**: Bauman (2007); Roach, Goodwin, Nelson (2019); ...

- ► Two possible ways (just FYI)

  - rule out other possibilities and provide causal evidence supporting the path dependence channel

  - a full quantitative exercise showing the relative importance of each explanation

COMMENT #4: PARAMETERIZATION

Table 1. Parameter Values for the Baseline Model

Panel A: Parameters based on a priori information

Discount factor	Income growth rate	Cash variable cost	Card variable cost
β	g	τ_h	τ_d
0.95	2%	2.3%	1.4%

Panel B: Parameters based on estimation

Card adoption cost	Mobile variable cost	Mobile adoption cost	Mobile add-on cost
k_d	τ_m	k_m	k_m^a
$589.83	1.395%	$175.76	$78.17
(238.82)	(0.143%)	(94.33)	(39.09)

COMMENT #4: PARAMETERIZATION

Table 2: Model Fit with Data, Targeted Moments

	Data	Model
Card payment adoption, mean	0.449	0.467
Card payment adoption, standard deviation	0.351	0.396
Per capita income at the peak of mobile payment adoption	$1,918	$1,918
Per capita income at the trough of mobile payment adoption	$30,317	$30,318
Mobile payment adoption, mean	0.245	0.251
Mobile payment adoption, standard deviation	0.129	0.101

SUMMARY

- **A great paper!**

- Important research question, intriguing facts, straightforward model mechanism, insightful policy recommendations, ...

- **Good luck with the publication!**