Leveraging Detailed Payment History Data for Better Credit Scoring Methods to Improve Women's Access to Credit

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Lab for Inclusive FinTech

Motivation

- Although women default less than men (Karlan and Zinman, 2009; D'Espalier et.al., 2011) gender gaps in access to credit have persisted (Demirguç-Künt and Klapper, 2013, Agier and Szafarz, 2013, Alesina et.al. 2013)

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  - Gender is excluded (Mester,1997) or included without sufficient flexibility (Johnston and Morduch, 2008)

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  - Randomize access to a credit card among women rejected by standard models but approved by the new model (randomly assign credit scoring models)

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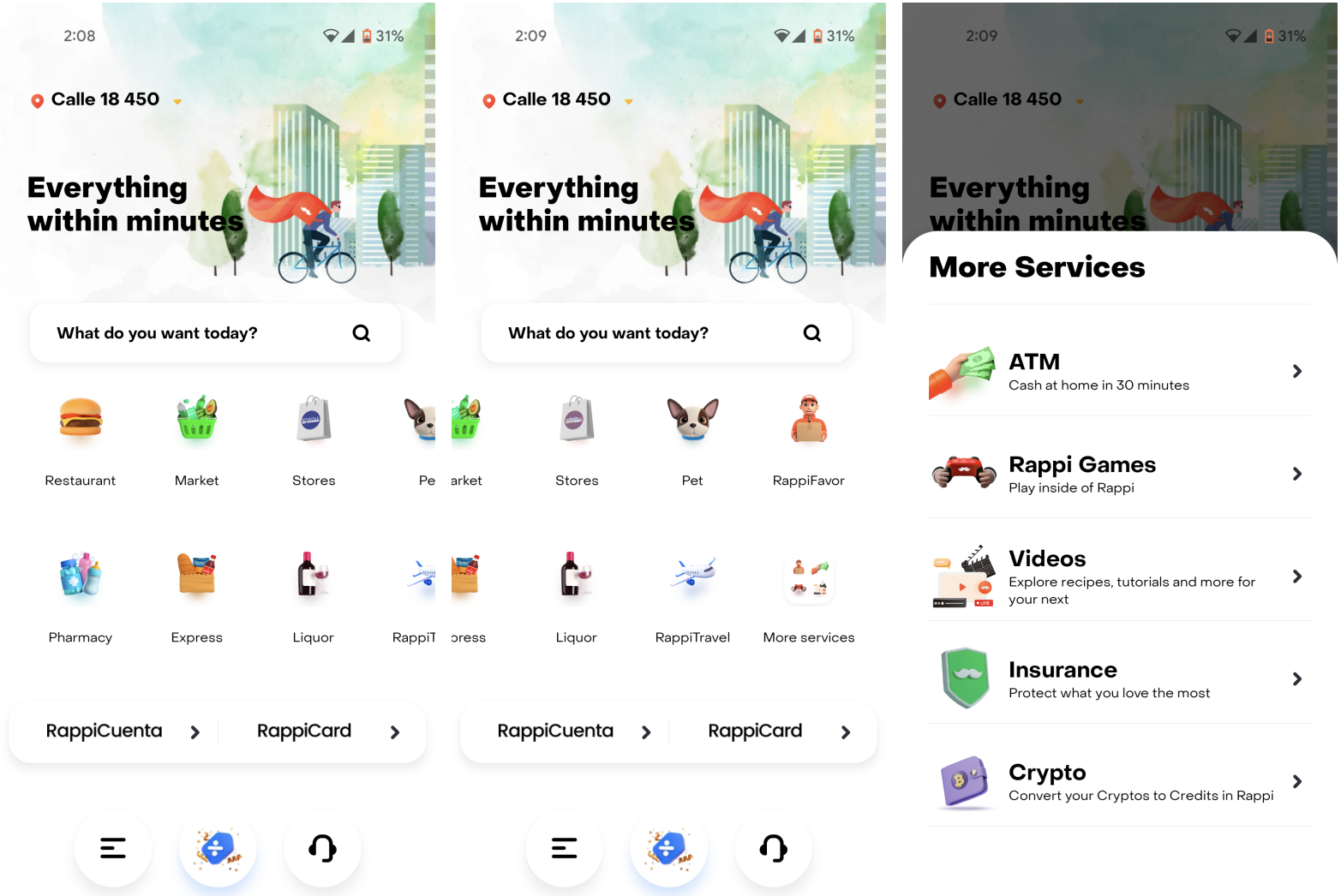
Rappi data: A new type of digital footprint



Data includes: groceries, pharmacies and medical lab services, cash, air-travel, special deliveries, crypto-payments (coming-up), and other retail shops

Why gender-differentiated algorithms? Intuition

Harvard Health Publishing
HARVARD MEDICAL SCHOOL

Clinicians sometimes misread heart attack symptoms in women

TIME SUBSCRIBE

healthline Health Conditions Discover Plan Connect

HEALTH NEWS

Doctors Missed Heart Attack Signs in Women 50% of the Time

Women are more likely than men to report heart attack pain not in the chest.

HEALTH • RESEARCH

Here's Why Doctors Often Miss Heart Attack Symptoms in Women

ESC European Society of Cardiology

The ESC | Congresses & Events | Journals | Guidelines | Education | Research

European Society of Cardiology › The ESC › ESC Press Office › Press releases

ESC Press Office

Press releases

Heart attack diagnosis missed in women more often than in men

12 Mar 2021

Why gender-differentiated algorithms?

- Conditional on observable, differences in default rates could arise if women behave intrinsically differently than men: more reluctant to compete (Nieerle and Vesterlung 2011), more risk averse and less self-confident (Charness and Gneezy 2012 Eckel and Grossman 2008), and less responsive to pay-for-performance incentives (Bandiera et.al. 2021)

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- A principled framework for jointly optimizing objectives on two stratified populations, i.e., women and men (Calders and Verwer, 2009; Kleinberg et al., 2015) can capture complex ways in which gender interacts with other characteristics available in the data

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- Preliminary analysis with RappiCard Mexico shows promising results

Main outcomes of interest

- Delinquency, default, credit card use and profitability of women approved under the pooled or gender-differentiated model
- Ownership of assets and self-reported control over assets within the household
- Labor supply and access to other sources of credit
- Risk coping and consumption smoothing
- Intra-household bargaining power
- Subjective well-being, self-reported measures of stress and mental-health

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- Next steps: ML model + Pilot + RCT