

Discussion of “Writing Quality and Soft Information in the GenAI Age: Evidence from Online Credit Markets”

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RICE | BUSINESS

ChatGPT Is Transforming Our Lives

Finance: **Goldman Sachs CEO David Solomon says
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'last 5% now matters, rest is commodity'**

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Academia:
coding, writing, idea generation, teaching assistants

Life:
cooking suggestions, travel planning, therapy, virtual friends



BEFORE CHATGPT



AFTER CHATGPT

What This Paper Does



How does ChatGPT affect the use of 'soft' textual information for loan decisions?

- How do borrowers adopt ChatGPT and how do lenders respond to?

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- Take Public **Data from Prosper.com** on Loan Applications & Outcomes
- Show **Textual Data** in Loan Application **Predicts** Whether Loan Funded
 - Extending Netzer, Lemaire & Herzenstein (2019, JMR)
- **Counterfactual** Replacing Loan Applicant's Textual Data With ChatGPT Version
 - ChatGPT Standardizes Text:  Writing Quality,  Information
- Expect lenders to rely less on soft textual information

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- Expect lenders to rely less on soft textual information
- Methodological Innovations
 - Combining ‘old’ (Heckman Correction) & ‘new’ (deep learning, multimodal transformer, LLMs) methods
 - “**Deep Heckman Correction**”...should we now call the old one, Shallow Heckman Correction?



Informative Signals

What Information Is Valuable?

Credit Scoring Model:

- $\Pr(Y_{t+1} = 1) = f(X'_t \beta)$
- Look for features (x_t) that predict default (Y_{t+1})
- A valuable feature is an informative signal to **discriminate consumer types**:
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 - Goods (non-defaulters) from bads (defaulters)
- Some features are deemed unfair and not allowed to be use (immutable characteristics)
 - Textual information seems fair game
 - **But maybe women write better than men? (disparate impact by gender not allowed, so standardization may be beneficial)**
- Technology that masks information, makes it harder to discriminate types

What Information Is Valuable?

- We may have a prior that advances in informational technology always help discriminating consumer types (i.e., extract more information from data)
- **Paper's innovation is highlighting that a technological advancement available to loan applicants (ChatGPT) reduces information available to lenders**
- **Connect to broader literature on masking information (& unintended effects)**
e.g., Agan & Starr, 2018 QJE bans on employers asking for criminal histories;
Bartik & Nelson, 2025 RESTAT bans on use of credit reports by employers;
appendix of Gibbs, Guttman-Kenney, Lee, Nelson, van der Klaauw & Wang., JEL
for cases in credit reporting

The Use of Textual Data

Data Comes from Prosper.com in 2007 to 2008

- 2006 to 2009 Prosper was an auction platform
 - Loan applicant would submit application with text
 - Lenders would consider the risk and decide whether to fund (how much, rate)
 - Applicant decides whether to accept offer

Purpose of loan: This loan will be used to pay off an existing high interest loan and my student loan

My financial situation: I am a good candidate for this loan because I do make my monthly payments on time, and all my accounts are current. My utility accounts are in good standing. I am not in a financial crisis, I am just trying to pave the way for an easier future

Monthly net income: \$1920

Monthly expenses: \$1550

- Since 2010, Prosper no longer works this way.
 - No auctions
 - Prosper now determines the risk and sets rates

Since 2010 (?), Prosper Doesn't Ask for Textual Information

- Loan Applicants Do Not Include Textual Information
- No Textual Information for Lenders/Investors to Use

Since 2010 (?), Prosper Doesn't Ask for Textual Information - Only Asks for Multiple Choice 'Loan Purpose'

2011

PR+SPER
THE LOANS MARKETPLACE

Let's get started!

i Please read the important message about the loan purpose below.

Purpose of loan:

No part of your loan proceeds can be used for post-secondary educational expenses (i.e., tuition, fees, required equipment or supplies, or room and board) at a college/university/vocational school. [Learn more.](#)

Loan amount: Enter between \$2,000 and \$25,000*

My credit is:

Continue ▶

QUESTIONS?

Call toll-free: **1-866-615-6319**
Monday - Friday: 6am - 6pm PT

HOW IT WORKS

- 1 Provide basic application information
- 2 Post your customized loan listing
- 3 Watch Prosper investors fund your loan
- 4 Get your money!

* Based on your Prosper Rating, your maximum loan amount may be less than \$25,000.00.
Prosper is not available to borrowers in the following states: Iowa, Maine and North Dakota.

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2023

2016

Prosper Rating: ☐ AA ☒ A ☒ B ☐ C ☐ D ☐ E ☐ HR

[About Prosper Ratings](#)

Additional Criteria

Loan category:

<input checked="" type="checkbox"/> Auto / Motorcycle / RV / Boat	<input checked="" type="checkbox"/> Engagement Ring Financing	<input type="checkbox"/> Motorcycle
<input type="checkbox"/> Baby & Adoption	<input checked="" type="checkbox"/> Green Loans	<input checked="" type="checkbox"/> Other
<input type="checkbox"/> Boat	<input checked="" type="checkbox"/> Home Improvement	<input type="checkbox"/> RV
<input type="checkbox"/> Business	<input type="checkbox"/> Household Expenses	<input type="checkbox"/> Taxes
<input type="checkbox"/> Cosmetic Procedures	<input type="checkbox"/> Large Purchase	<input checked="" type="checkbox"/> Vacation
<input checked="" type="checkbox"/> Debt Consolidation	<input type="checkbox"/> Medical / Dental	<input checked="" type="checkbox"/> Special Occasion

State of residence: 46 selected

Now delinquent: 0 to 0 delinquent accounts

Amount delinquent: \$ 0 to \$ 0 past due

Inquiries in last 6m: 0 to 0 inquiries

Debt/income ratio: 0 % to 40 %

Current credit lines: 4 to 15 credit lines

Employment status: ☒ Employed ☐ Not employed
☐ Self-employed ☐ Other

Length of status: 3 years 0 months to 30 years 0 months

Previous Prosper loans: 1 to 10 total loans

Debt Consolidation
Listing #12885889

Verification Stage: 3
Borrower State: IL
Borrower Rate: 18.2%
Monthly Payment: \$688.80
Investor Servicing Fee: 1%

\$19,000 Amount
3 Years
17.2% Yield

Historical Return*: 3.1% - 11.6%

\$ Between \$25 and \$10621.96

44% Funded
\$10,621.96 Left

Listing Start Date: Sun, Jul 10, 2022
Expire: Sun, Jul 24, 2022
Note: loan will fund at 70% or higher.

Add to Cart

Available Balance: \$13.61

Borrower's Credit Profile

Inquiries Last 6 Months: 1
First Credit Line: Apr-2011
Current/Open Credit Lines: 5 / 5
Total Credit Lines: 29

Debt/Income Ratio: 30.07%
Employment Status: Employed
Length of Status: 4y 5m
Stated Income: \$50,000-74,999

Borrower's Credit Profile

Prosper Rating: D
Prosper Score(1-11): 3
TU FICO Range: 700-719
Current Delinquencies: 0
Amount Delinquent: \$0.00
Public Records Last 24m / 10y: Not available / 0
Inquiries Last 6 Months: 1
First Credit Line: Apr-2011
Current/Open Credit Lines: 5 / 5
Total Credit Lines: 29
Revolving Credit Balance: \$10,039.00
Bankcard Utilization: 32%
Has Mortgage: No

Debt/Income Ratio: 30.07%
Employment Status: Employed
Length of Status: 4y 5m
Stated Income: \$50,000-74,999
Occupation: Other

Mortgage information displayed above has been obtained from their credit report.

The employment and income information displayed above has been provided by the borrower. This information may not be verified by Prosper, or may be awaiting verification.

Historical Return Range for the Prosper Rating or mix of Prosper Ratings (as applicable) as of June 30, 2022. Historical Returns are based on actual payments (other

Since 2010 (?), Prosper Doesn't Ask for Textual Information - Only Asks for Multiple Choice **'Loan Purpose'**

2025: I also asked ChatGPT.

“No, Prosper doesn't make you write 'why you want a loan'.
You simply pick a category to signal intended use of funds.”

Youtube examples:

<https://www.youtube.com/watch?v=Gsmmqfej4xE> <https://www.youtube.com/watch?v=ycGVxU4tndM> <https://www.youtube.com/watch?v=1wZ0IMdgqkg>

Suggestion: Paper Would Benefit From Demonstrating That This Is A **Real** Problem

- As far as I can tell, Prosper only ask for categories of loan purpose
- Are lenders using textual application data before/after ChatGPT?

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 - What have they done and why?
 - Incentives aligned between academics and platform to collaborate

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 - What have they done and why?
 - Incentives aligned between academics and platform to collaborate
- Idea 2: Find other lenders that use textual data in loan applications.
 - Maybe it is not a thing in the U.S., but is important elsewhere?
 - One example I know of is tiny (and crazy) market for anonymous loans on reddit (Correira, Martins & Waikel (2024))

Posted by [username] x hours ago

[REQ] – (\$350) (#St Louis, MO, USA), (Repay \$400 by 4/22/2022), (PayPal, CashApp)

Got overzealous with bills and thought I could be all caught up and boy I was very wrong. Thanks

Selection

Selection Into ChatGPT May Be Informative Signal Unobserved In Study

- ChatGPT counterfactual doesn't allow for **selection**
- **Is there Adverse or Advantageous Selection of borrowers into using ChatGPT?**
- **The type of consumer that selects into using ChatGPT may be more informative than the textual information itself**
 - **Sophisticated** consumers know how to use ChatGPT, and reveals their type
 - **Bad** consumers know they are bad but want to appear like good consumers

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 - **Sophisticated** consumers know how to use ChatGPT, and reveals their type
 - **Bad** consumers know they are bad but want to appear like good consumers
- Detecting ChatGPT use by applicant may be more important to lenders than the text
 - Parallel to professors detecting student use of ChatGPT on exams
- Use of ChatGPT appears especially open to **fraud**:
 - **Intentionally** ask ChatGPT how to reword to increase odds of loan being approved
 - ChatGPT prompt **unintentionally** changes meaning

Thank You!

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