

Fintech Nudges: Overspending Messages and Personal Finance Management

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Motivation

- Policy makers intend to influence individual behavior
- Nudges are relatively a cheap way of intervention
- Fintech apps are a new tool to monitor personal finance

Research Question

Can overspending messages on a money management app serve as "fintech nudges" to influence individuals' financial behavior, given that they are tailored to each and every one of the app users?

Data

- Money management app data from major commercial bank in Canada
- Daily transaction data at account level
 - Date, amount, merchant, and spending category
- Daily app usage data at user level
- Month-end financial and demographic information at user level
- From June 19, 2017 to January 24, 2018
- 55,586 app users in the sample

Empirical Strategy

Charles	David
- Age: 30	- Age: 30
- Account balance: C\$10,000	- Account balance: C\$10,000
- Average spending on 16th: C\$100	- Average spending on 16th: C\$100
- Spending on July 16, 2017: C\$199	- Spending on July 16, 2017: C\$201
- Spending multiple: 1.99	- Spending multiple: 2.01
JULY 16, 2017	JULY 16, 2017
	2.01 x over daily average spend.

Baseline Regression Discontinuity specification:
$$Y_{i,t+1} = \alpha + \beta * 1[X_{i,t} > cutoff] + \gamma_1 * 1[X_{i,t} > cutoff] * f(X_{i,t}) + \gamma_2 * 1[X_{i,t} \leq cutoff] * f(X_{i,t}) + \epsilon_{i,t+1}$$

Empirical Results

Figure 1: Baseline Result - Spending Response

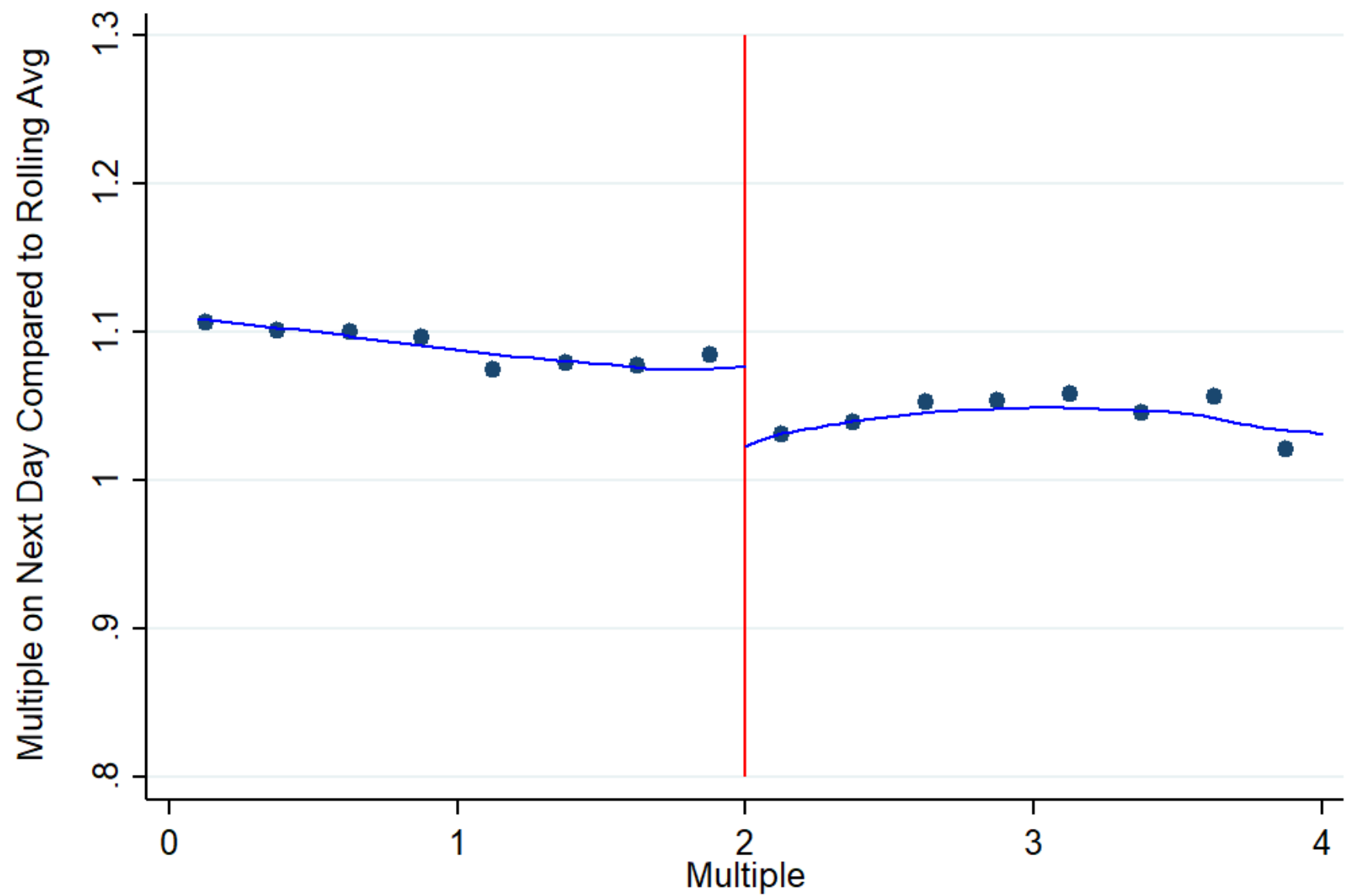


Figure 2: Duration of Impact

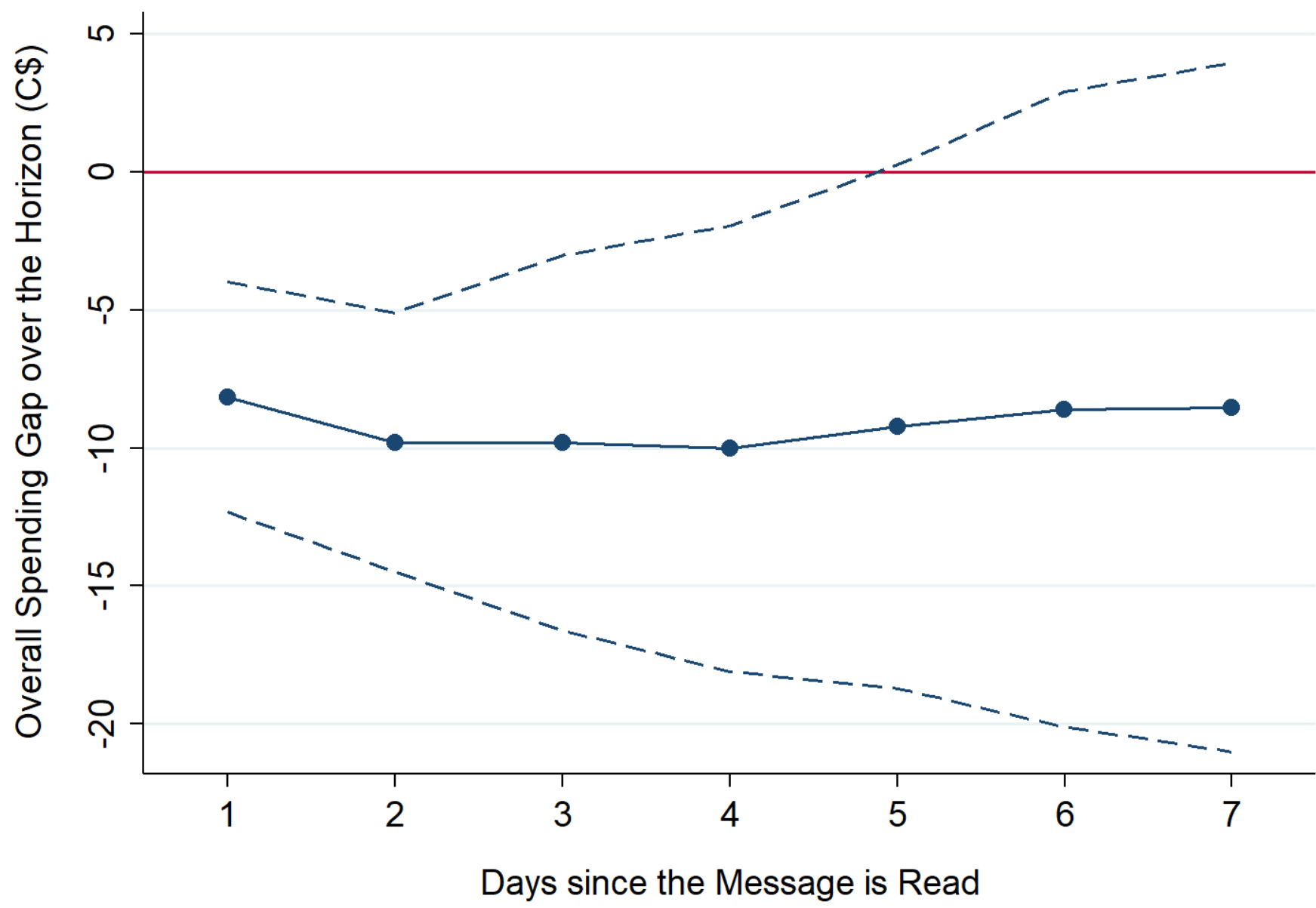


Table 1: Adjustments for Wants Spending

	Cash	DiningOut	Shopping	Entertainment	Travel	Fees
1(Msg)	-C\$1.27 (0.96)	-C\$0.17 (0.49)	-C\$3.09*** (1.15)	-C\$0.07 (0.38)	C\$0.23 (0.61)	C\$0.21 (0.30)
N	180,523	180,523	180,523	180,523	180,523	180,523
Mean Spending	C\$14.54	C\$12.61	C\$26.96	C\$3.12	C\$4.20	C\$2.81

Table 2: Adjustments for Needs Spending

	Groceries	Utilities	Transportation	Education	Health	Home
1(Msg)	-C\$0.78 (0.70)	-C\$0.82 (0.79)	-C\$0.22 (0.69)	-C\$0.26 (0.33)	-C\$0.43 (0.55)	-C\$1.82 (1.15)
N	180,523	180,523	180,523	180,523	180,523	180,523
Mean Spending	C\$17.21	C\$12.57	C\$13.07	C\$2.08	C\$6.78	C\$18.19

Figure 3: Subgroup Analysis - Liquid Wealth

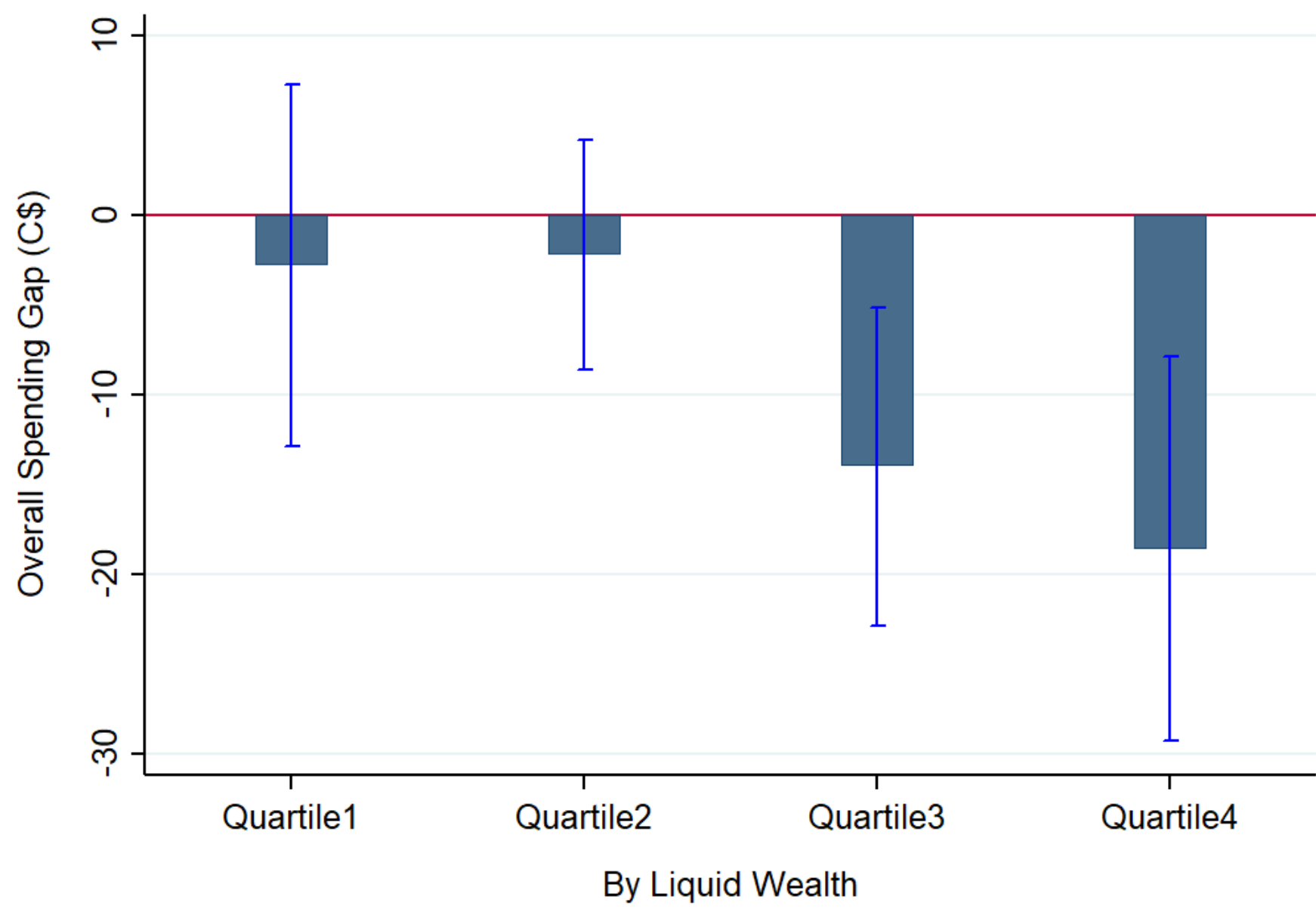


Figure 4: Illustration of Spillover Effects (i.e. F1 vs. F2)

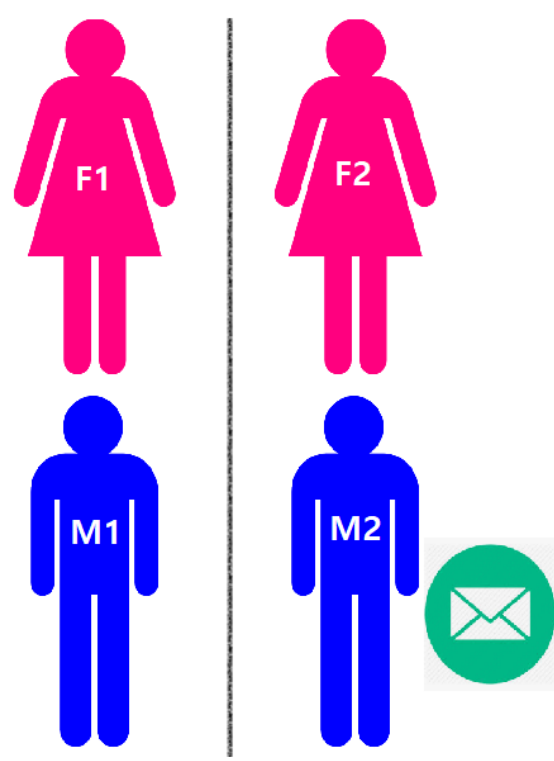
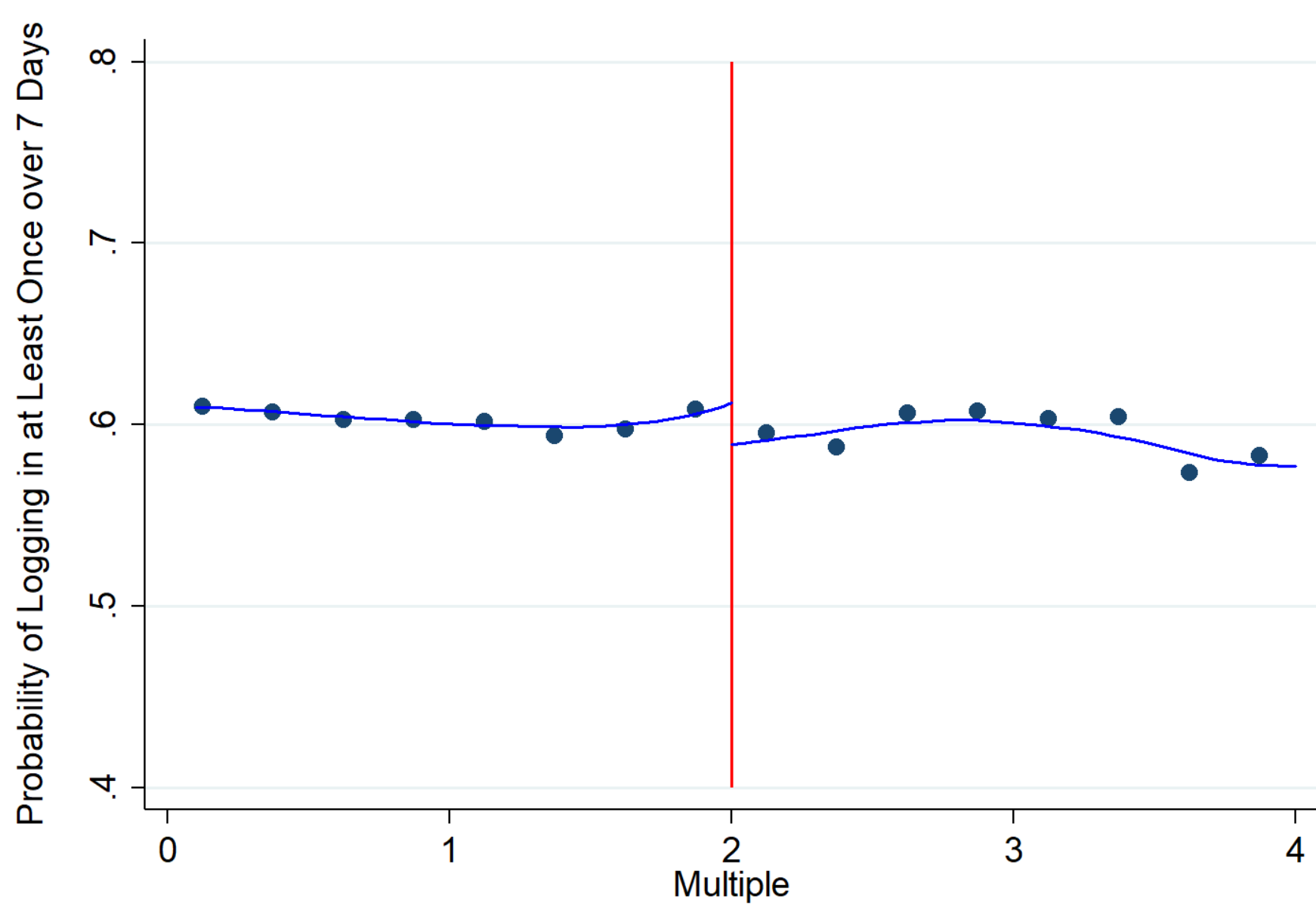


Table 3: Effects of Nudges for the Other Spouse

Spending by the Other Spouse	
1(Msg by a Spouse)	-C\$7.10* (3.95)
N	16,301

Figure 5: Effects on Future Attention - Ostrich Effect



Significance of Magnitude

- Back-of-the-envelope calculation gives that if an average user had read all the messages sent, she would have reduced spending by C\$411 per year
- This saving is tantamount to 10.4% decrease of credit card debt
- Hence, fintech nudges can lead to meaningful, if not substantial, changes in personal finance

Conclusion

- Message feature induced changes in households' spending patterns
 - Message recipients reduced spending on following day
 - They reduced spending on Shopping
- Effects of fintech nudges are persistent
- Effects are more pronounced for users with higher liquid wealth, users living in a city with highly educated population, older users, and users who are more finance-savvy
- Effects spread over from one app user to another in same family
- Reading an overspending message leads to lower likelihood of monitoring accounts in future
- In the end, it is the tailored feature that makes fintech nudges relevant and effective

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