Trust in Traditional Finance and Consumer Fintech Adoption – Internet Appendix

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IA.1 A simple model of the effect of trust on fintech adoption

In this section, we set up a simple model to analyze the effect of a decline in trust in the traditional banking system on the demand for some specific fintech products. We will focus on the decision of a representative individual who is endowed with one dollar and interested in allocating her endowment between two types of financial products/services. The first type of financial product is offered by a traditional bank and corresponds to one of the following financial services:

- A saving account,
- A payment system,
- Investment advice.

An individual can receive either of these services at a price of one dollar. We assume divisibility so that a fraction of the service is purchasable. The return to the individual from this product depends on the type of the bank. The bank can be of two types: honest or dishonest. For each unit invested in its product, an honest bank always produces R units of satisfaction to its customer. Such satisfaction could represent an increase in the portfolio value after good investment advice or could be the utility gain of the customer after a successful (e.g., low-fee) money transfer. Below, we will express the precise effect of such satisfaction on the individual's utility. In contrast to a honest bank, a dishonest bank does not provide any satisfaction.

In the context of our model, each type of financial service listed above can have its own interpretation of dishonesty. For savings accounts, a dishonest bank might offer deposit interest rates below the prevailing market rate (or charge excessive fees), which is unfair to customers. This problem is often observed in environments with fluctuating interest rates and banks are often criticized for not passing on the benefits of an increase in the

base rate to their deposit customers.[1] In order to address this issue, the UK's Financial Conduct Authority introduced a new regulation in July 2023 called the Consumer Duty. The regulation aims to prompt banks to review deposit interest rates quickly following base rate changes and encourage their customers to switch to accounts with higher rates.[2]

In the context of money transfer services, dishonesty could refer to hidden fees, which are a common concern that has also received significant media attention. The Consumer Financial Protection Bureau's report[3] and recent comments by the White House highlight the issue of excessive fees charged by banks.[4]

In investment advice, dishonesty could take the form of hidden fees or a bank's hidden agenda (i.e., a bank might encourage customers to buy certain products while discharging the same products from its portfolio). Wells Fargo was recently ordered to pay 40 million USD to its customers for excessive investment advice fees. A well-known example of a hidden agenda is Goldman Sachs, which paid fines exceeding 5 billion USD in 2016 for misrepresenting the nature of the mortgage-backed products they advised their clients to buy.[5]

The type of the bank (whether the bank is honest or dishonest) is not observed by the individual. The perceived probability that the bank is honest is $q \in (0, 1)$. The parameter q is intended to capture the level of public trust in the banking system and dishonesty, as explained in detail in the previous paragraph. It means that the contractual terms are imperfect and allow the bank to deliver a service to the customer that is different from what the customer initially expected. We will later be interested in comparative statics around q. For example, we will analyze how a sudden mistrust in the entire society (e.g., a negative shock to q such as the Madoff scandal in 2008) would affect the equilibrium choice of the individual. Note that in our representation trust is simplistically defined as the belief of the

[1] See, for example, https://www.ft.com/content/cc4c5a1c-a530-4f88-be84-3262723a63e9

[2] https://www.fca.org.uk/news/press-releases/action-plan-cash-savings

[3] https://www.consumerfinance.gov/about-us/newsroom/cfpb-exams-return-140-million-to-consumers-hit-by-illegal-junk-fees-in-banking-auto-loans-and-remittances/

[4] https://www.cnbc.com/2023/10/11/white-house-announces-crack-downs-on-tens-of-billions-in-junk-fees.html

[5] https://www.justice.gov/opa/pr/goldman-sachs-agrees-pay-more-5-billion-connection-its-sale-residential-mortgage-backed

individual that the bank is honest.

The second type of financial product is offered by a fintech company and yields either r units of satisfaction with probability $p > 0$ or no satisfaction with the complementary probability. The fintech product refers to one of the following services:

- Peer-to-peer lending[6] or cryptocurrency investing,
- Payment apps,
- Robo-advising.

These services are potential competitors to the traditional bank products mentioned earlier. For instance, instead of seeking financial advice from a human at a bank, an individual may opt for robo-advising services. For peer-to-peer lending, payment apps, and robo-advising we set p equal to 1, meaning there is no uncertainty about what these products might generate, and their fee structures are fully transparent. This assumption is supported by anecdotal evidence (e.g., **?**) and is consistent with many fintech firms' claims (e.g., **?**). When investing in cryptocurrency, we assume that p is strictly less than 1. This assumption is made to capture the idea that the cost of mistakes is higher in cryptocurrency investing. Finally, we assume that fintech company is a distinct entity and not a subsidiary of a traditional bank.

The representative individual's preferences exhibit constant elasticity of substitution. In particular, when the individual buys X units of traditional bank's product and Y units of fintech firm's product, her expected utility becomes

$$q\frac{(XR)^\alpha}{\alpha} + p\frac{(Yr)^\alpha}{\alpha}$$

where $\alpha \leq 1$ represents the degree of substitution between bank's and fintech firm's products. If $\alpha = 1$, the utility function becomes linear and two financial products are perfect substitutes. For smaller values of α, on the other hand, changes in characteristics of one product (e.g., the expected return of the traditional finance product) should have only a

[6]Our model includes only the option of lending on peer-to-peer lending platforms and not borrowing.

little impact on the demand of the other product. To show this, we will solve the allocation problem of the individual.

Individual maximizes her utility by allocating her entire endowment between these two financial products (i.e., between X and Y). Her budget constraint is $X + Y = 1$. The optimal amount of traditional financial product X^* purchased by this individual is given by

$$X^* = \left[1 + (qp^{-1}R^{\alpha}r^{-\alpha})^{\frac{1}{\alpha-1}}\right]^{-1}$$

Because of the binding budget constraint, the amount of fintech product purchased by the individual is given by $Y^* = 1 - X^*$. When these two products are perfect substitutes (i.e., $\alpha = 1$), there is a corner solution and the consumer prefers to buy only one product. If the expected satisfaction from the traditional financial product exceeds the satisfaction from fintech product (i.e., $qR > pr$), for example, she uses all her endowment to buy traditional financial product. Otherwise (i.e., when $qR < pr$), the individual buys only fintech product. When α is strictly less than 1, both X and Y are strictly greater than zero. The partial derivative of X^* with respect to q is positive. That is, a decrease in trust in bank's product, decreases X^* and thus increases the demand for the fintech product:

$$\frac{\partial X^*}{\partial q} = \frac{1}{1-\alpha} q^{\frac{2-\alpha}{\alpha-1}} p^{\frac{1}{1-\alpha}} \left(\frac{R}{r}\right)^{\frac{\alpha}{\alpha-1}} \left[1 + (qR^{\alpha}r^{-\alpha})^{\frac{1}{\alpha-1}}\right]^{-2} > 0 \text{ for every } \alpha < 1$$

Observe that all terms in the above derivative go down as α decreases. That is, the cross partial derivative of X^* with respect to q and α is positive. It means the effect of a change in trust on the allocation between traditional finance product and fintech product disappears for small values of α. Intuitively, a decline in trust to traditional finance (i.e., reduction in q), increases the demand for the fintech product only if these two products are good substitutes (i.e., when α is high). Also observe that because the success probability of crypto investing is assumed to be strictly less than 1 (i.e., $p < 1$), a decline in trust has a relatively smaller impact on crypto investing compared to usage in other fintech products. As this success

probability p decreases, a larger decline in trust is needed to induce a significant investment in a crypto product.

In our experiments, we aim to shock q by priming subjects to mistrust traditional banking services and observe its effect on subjects' willingness to use fintech products. An increase in the adoption to fintech products as a result of a decline in trust to bank's product would suggest that the fintech product is a good substitute to the bank's product (i.e., α is high). Otherwise, the absence of any relation between mistrust to traditional finance and fintech adoption could be interpreted as traditional finance and fintech products not being good substitutes.

IA.2 News article examples

Below, in Table **??**, we provide anecdotal examples of media articles, industry reports, industry blogs and academic blogs discussing lack of trust in banks as a driver of fintech adoption.

Table IA.1
News article examples

Outlet	Date	Headline	Quote
Media articles			
The Economist	02-May-19	The banking revolution is great for customers	"McKinsey's annual digital-payments surveys used to find that banks were more trusted than tech firms. Now, Amazon is running neck-and-neck with banks. And Raddon's research into Gen Z Americans finds that two-thirds expect tech firms will change the way financial services are provided."
CNBC	14-Sep-18	After the crisis, a new generation puts its trust in tech over traditional banks	"The chaos and disruption of the credit crisis instilled lack of trust in existing banks and brought on new regulations and the rise of technologies that would allow scrappy Silicon Valley start-ups to reshape consumer finance. [...] A key reason fintech companies have flourished, analysts say, is a lingering distrust in banks.
Forbes	24-Jun-15	Americans Trust Tech Firms More Than Banks For Finance	"Trust levels in American financial institutions have plummeted over the past couple of years with a recent Gallup poll showing that a mere 28 percent of people in the United States have confidence in the nation's banks. Interestingly, the financial capabilities of America's leading technology companies are now trusted more than the country's biggest banks."
The Conversation	27-Sep-19	Traditional banks are struggling to stave off the fintech revolution	"Following the global financial crisis and bank bailouts, trust in the banking system was irrevocably shaken. Arguably, tech companies such as Amazon, Google, and Apple enjoy more trust from the global consumer than banks. With billions of devices and services from these companies already holding banking data and payment access in the form of apps and mobile wallet cards, customers seem to have already moved their financial transactions."
The Financial Brand	23-Nov-21	Millennials Now Trust Fintechs as Much as Banks	"As consumers make a permanent shift to digital and find greater access and inclusivity in fintech, the trust gap between the tech companies and traditional banks has disappeared altogether among young adults."
The Financial Brand	21-Jun-21	Legacy Financial Institutions Losing The Battle For Consumer Trust	"While traditional financial institutions still prevail as a PFI for most consumers – having the direct deposit relationship – the historical trust advantage is eroding. This declining trust advantage also appears to be accelerating, as the importance of location diminishes and the desire for personalization, speed and simplicity of engagement (empathy) increases."

BBC News	03-Sep-18	Funding Circle leads the firms taking on traditional banks	"As customers' trust in banks shrank, their trust in internet companies grew, and companies like foreign exchange platform Transferwise, online bank Monzo, and Funding Circle have been successful in cannibalising bits of the banking industry by offering quicker, easier to use facilities."
CNBC	15-Sep-18	One unintended consequence of Lehman collapse: The birth of a new kind of bank	"The fallout from the bank's collapse resulted in reduced market liquidity, fiscal and monetary stimulus and widespread distrust of the banks. [. . .] But although financial conditions have mostly improved, Revolut's Storonsky believes one ramification remains: that consumers' trust in banks has dwindled significantly, and it hasn't recovered."
CNBC	07-Apr-21	JPMorgan Chase CEO Jamie Dimon: Fintech is an 'enormous competitive' threat to banks	"Amid the Covid-19 pandemic, especially, Americans have become more willing to use fintechs, according to a 2020 McKinsey & Company survey. The consulting company found that fintechs are 'catching up with traditional banks in terms of customer trust'."
Fintech News	13-Dec-18	Fintech Firms Are Taking Business Away From Banks: Study	"A June 2018 study by American Banker finds that traditional banks' reputation is declining among U.S. consumers. "The trust level of banks has continued to drop relative to what it was before, to the point that less than half of customers and just a quarter of noncustomers give banks the benefit of the doubt in a crisis situation," said Bradley Hecht, a senior managing director with the Reputation Institute."
Financial IT	07-Sep-22	Traditional Banks Are Losing To Fintech'S In Customer Services. Will They Lose In Customer Experience Too?	"Global customers rate trustworthiness as the most important factor in a bank (50%) – rising to 54% of UK customers – with low fees on products (17%) coming in a far second globally. "
Yahoo Finance	16-Aug-19	Can You Trust Your Bank? 5 Key Things To Look For	"Americans have been leery of banks since the financial crisis of 2007. [...] According to popular opinion, banks deserve suspicion at best and condemnation at worst. Not all financial companies are considered untrustworthy, however. One segment that has succeeded in keeping customer trust is the financial technology sector."
PYMNTS	21-Mar-22	Incumbent Banks May See Competitive Advantage vs FinTechs Amid Rising Rates	"More than half of those respondents say that trust is critical when considering how they use short-term credit, and who they want to get that credit from. We'll see, in the months ahead, how age and experience (through the banks) fare against youth and apps (the FinTechs)."
Business Insider	05-Jul-19	Big banks view consumer trust as an advantage over challengers	"As waves of fintech startups rise up to challenge legacy banks, incumbents are finding their high levels of consumer trust to be a chief advantage."

Insider Intelligence	31-Aug-22	Consumers' trust in digital banking is shifting from their primary financial institution	"Digital banking consumers' preferences are changing when it comes to who they're trusting with their banking needs. For the first time, consumers ranked PayPal above their current bank or credit union as their most trusted provider for banking services."
Industry reports			
Capgemini	N/A	World Fintech Report 2017	"Trust is paramount in financial services relationships, but traditional firms have yet to corner the market on it as only about one third of customers (36.6%) say they trust traditional firms. However, this still gives traditional firms a modest advantage over FinTechs, which are trusted by only 23.6% of customers."
EY	11-Jun-21	How financial institutions can win the battle for trust	"Thirty-seven percent of consumers now say a FinTech firm is their most-trusted financial services brand, compared with 33% who name a bank as their most-trusted brand and 12% who say they trust a wealth management firm the most. Further, 51% of Gen Z and 49% of millennials named a FinTech as their most-trusted financial brand, a sign of incumbent brands' struggle for relevance with younger audiences."
McKinsey	17-Dec-20	How US customers' attitudes to fintech are shifting during the pandemic	Not surprisingly, the primary factor for considering a traditional bank was trust (30 percent of responses). A similar share of respondents (27 percent) indicated they trusted financial technology companies more than banks; so far, so equal. But, fintechs surpassed banks in a number of other areas (e.g., convenience, ease of use, and digital experiences), suggesting traditional players' incumbent advantages may be eroding.
Plaid & The Harris Poll	N/A	The Fintech Effect 2021	"While people see technology providers leading the pack on innovation and ease of use, banks still lead on trust, a fundamental requirement for people to take actions with their finances."
Bain & Company	09-Jan-19	Many Consumers Trust Technology Companies More than Banks	In Bain & Company's new survey of 151,894 consumers in 29 countries, 54% of respondents trust at least one tech company more than banks in general, and 29% trust at least one tech company more than their own primary bank. Trust affects a customer's willingness to try banking services offered by tech companies.

Morning Consult	08-Jun-21	Why Fintech Brands Have the Trust of Consumers, Even if 'Fintech' Doesn't	"Fintechs have gained commendable amounts of trust among users in their short lifetimes. [...] This is almost the inverse of the trend we saw for trust in established institutions such as banks, in our Most Trusted Brands: Financial Services report, and bears repeating: Although consumers were more likely to say they trusted banks and credit unions as a category, only one brand made the list of most trusted brands in financial services."
Industry blogs			
LinkedIn blog (Jennifer Grazel Rubio, Chief Marketing Officer, RBC Capital Markets US)	02-Nov-16	World Fintech Report 2017: The battle is about 'Trust' not 'Tech'	"Despite their trust advantage over FinTech companies, incumbents can't afford to take consumer confidence for granted. Our survey revealed a spike in customer trust once they have a positive experience with a FinTech brand. 56% of respondents said they trusted FinTech companies they had a positive experience with, compared to 53% for financial institutions."
BAI	02-Dec-21	How banks can leverage trust to drive growth	"Ernst & Young consumer financial research shows that more consumers today count a fintech firm than a bank as their most-trusted financial brand. The erosion of trust is most notable among younger consumers: More than half of Gen Z consumers consider a fintech their most trusted brand, and nearly as many have made a fintech their primary financial relationship (PFR)."
The Dubs	N/A	Traditional Banks Vs Fintechs: Who Does Gen Z Trust More?	"The pandemic has encouraged and sped up the shifting trust from traditional banks to digital finance organisations. A physical location is no longer necessary or required by consumers."
Bilderlings' blog	21-Feb-19	Why are banks' clients switching to Fintech?	"Another reason that fewer and fewer clients entrust their money to banks is the fear that they may cease to exist during the next financial crisis, and these clients are looking in the direction of payment companies."
Thales	21-Feb-22	How Traditional Banks Can Counter Neo-Banks And Fintechs With Digital-First Mobile Services	"The success of challenger banks – and the easing of regulations around access to the banking sector – has made it possible for companies from non-finance backgrounds to move into the market. In fact, some experts believe the pretty much any enterprise can be a bank as long as it has a certain degree of customer trust."
Academic blogs			
VoxEU column by Richard Thakor and Robert Merton	21-Aug-18	The implications of trust on the lending activities of banks and fintech firms	"This column argues that trust in financial institutions may have a first-order impact on whether non-bank (fintech) firms can survive when competing against traditional banks. "

UNSW blog	28-Jul-22	How fintech is disrupting traditional banking	"But perhaps a leading reason why fintech has been so effective in rattling traditional banks' hold on consumer banking is the erosion of consumer trust in the Australian finance sector."

IA.3 Website experiment – treatment and control articles

Table IA.2
Treatment and control articles

This table lists the treatment articles and corresponding control articles used in our website experiment.

Treatment article	**Control articles**
British banks fined billions for mis-selling insurance	Airlines fined hundreds of millions for flight delays
Bank-enabled "dividend washing" costs European taxpayers over 55 billion	Tax exemptions for labor unions cost taxpayers hundreds of millions
Crises and scandals have lowered trust in banks	Why morning routines are important for productivity
	Wärtsilä, Apple and Tesla are favorites of retail investors
	Can your portfolio beat the index by following Twitter?
Data leak reveals how banks facilitate money laundering despite penalties to traditional banks	The death of a tenant can cause a surprising amount of work for a housing cooperative (Note: In Finland, most apartment buildings are structured as cooperatives where apartment owners are shareholders.)
	Mark Cuban: Your success depends on how empathetic you are
	The deduction for household expenses can significantly lower a heavy tax bill
ECB demands banks crack down on giant bonuses during the coronavirus crisis	Budgeting is now more important than ever
	Study shows that Finland is one of the most investor friendly countries for mutual fund investors
	The coronacrisis requires a new kind of thinking from entrepreneurs here is a checklist for a new age of customer understanding

IA.4 Online lab experiment – Qualtrics Files

Screen 1

This screen includes the consent form. We have removed it as it includes author identities.

Screen 2

What is your Prolific ID?

Please note that this response should auto-fill with the correct ID

Screen 3

In this section you will be asked about your experiences of unfair treatment. If you have not been treated unfairly, please respond to the prompt below the question.

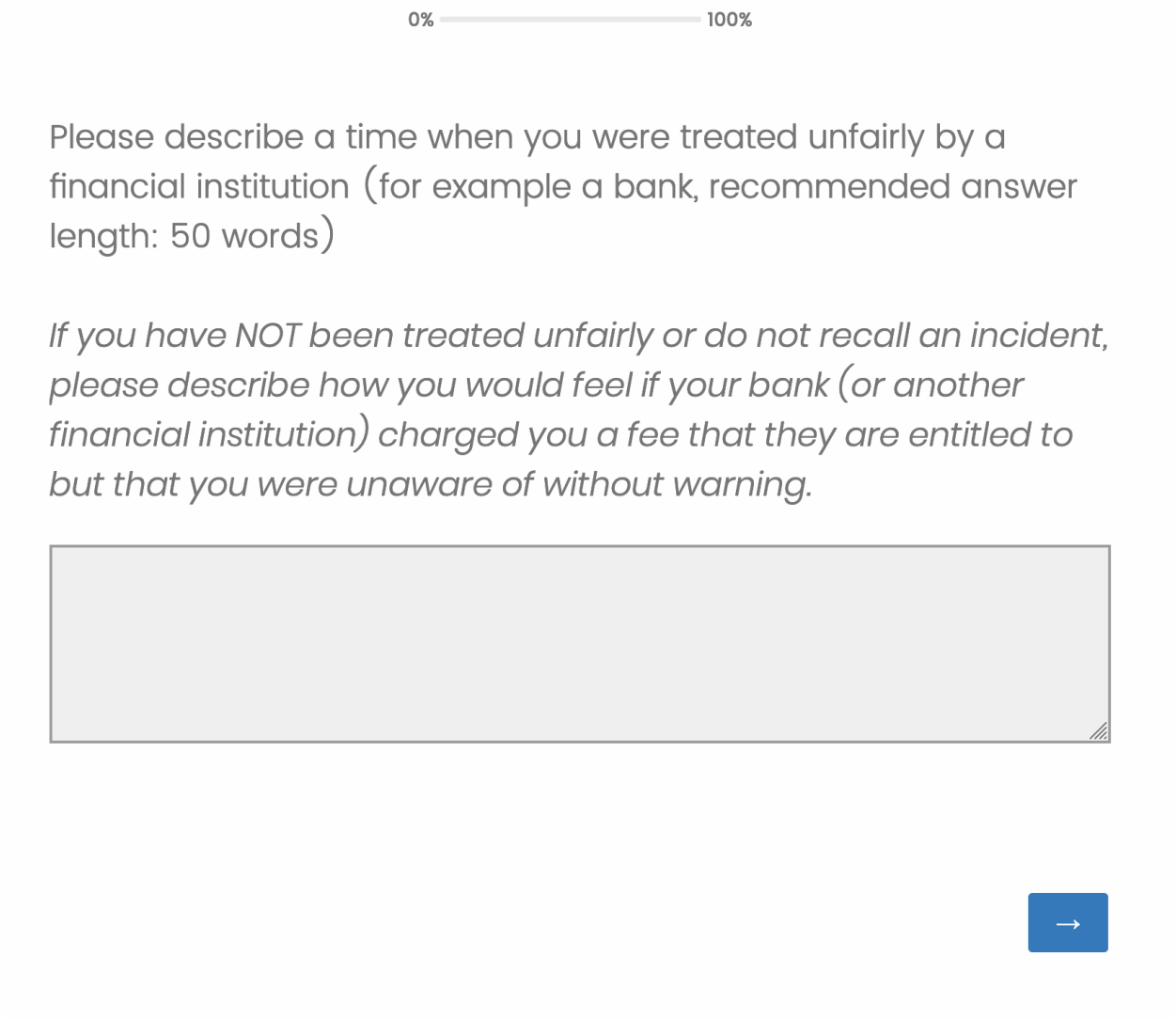
Please describe a time when you felt unfairly treated by your family or friends (recommended answer length: 50 words)

If you cannot think of a time, please describe how you would feel if your parents constantly favored a sibling over you

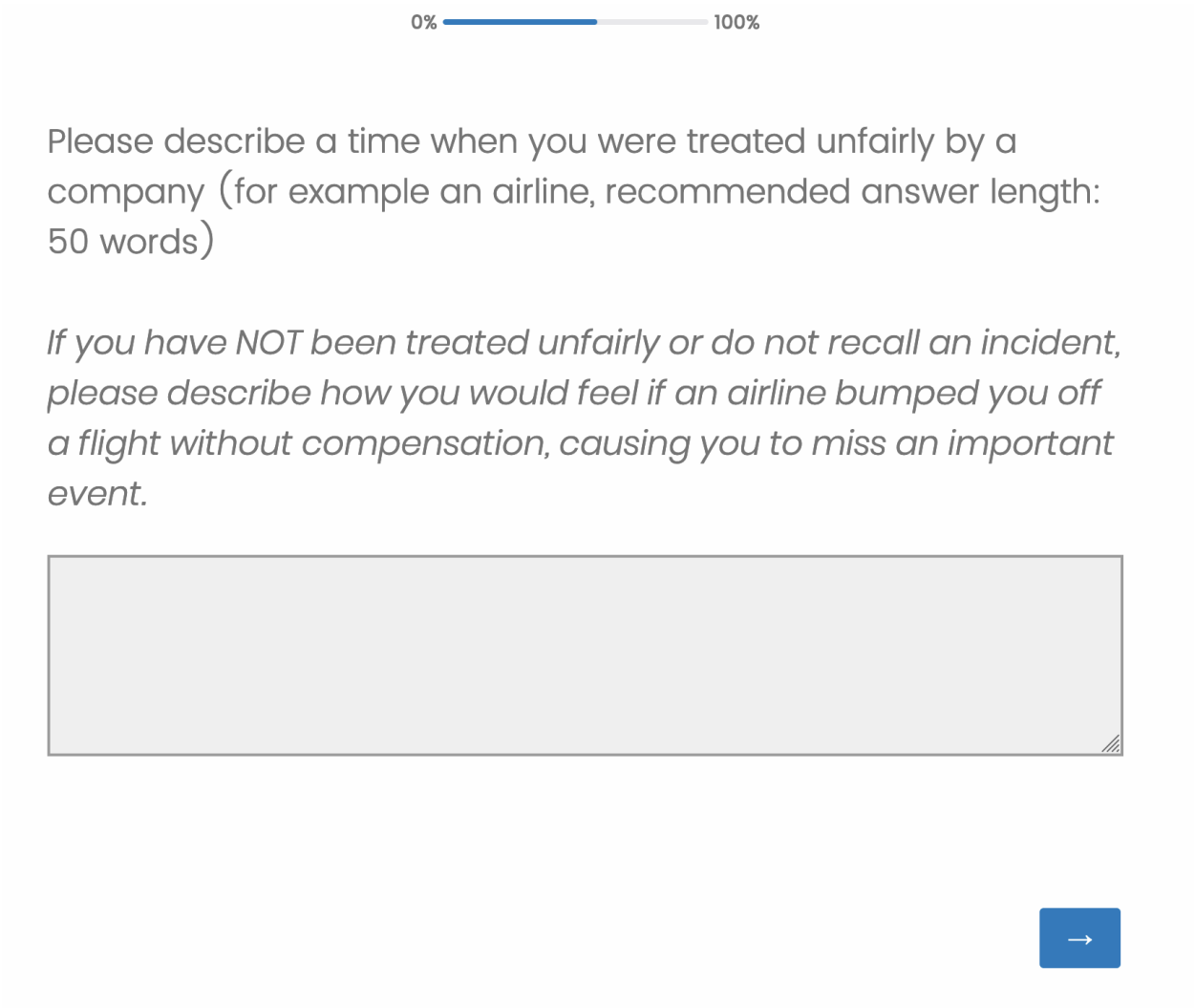
Please describe a time when you were unfairly treated at work (recommended answer length: 50 words)

If you cannot think of a time, please describe how you would feel if your boss at work denied you holidays that you had been previously promised

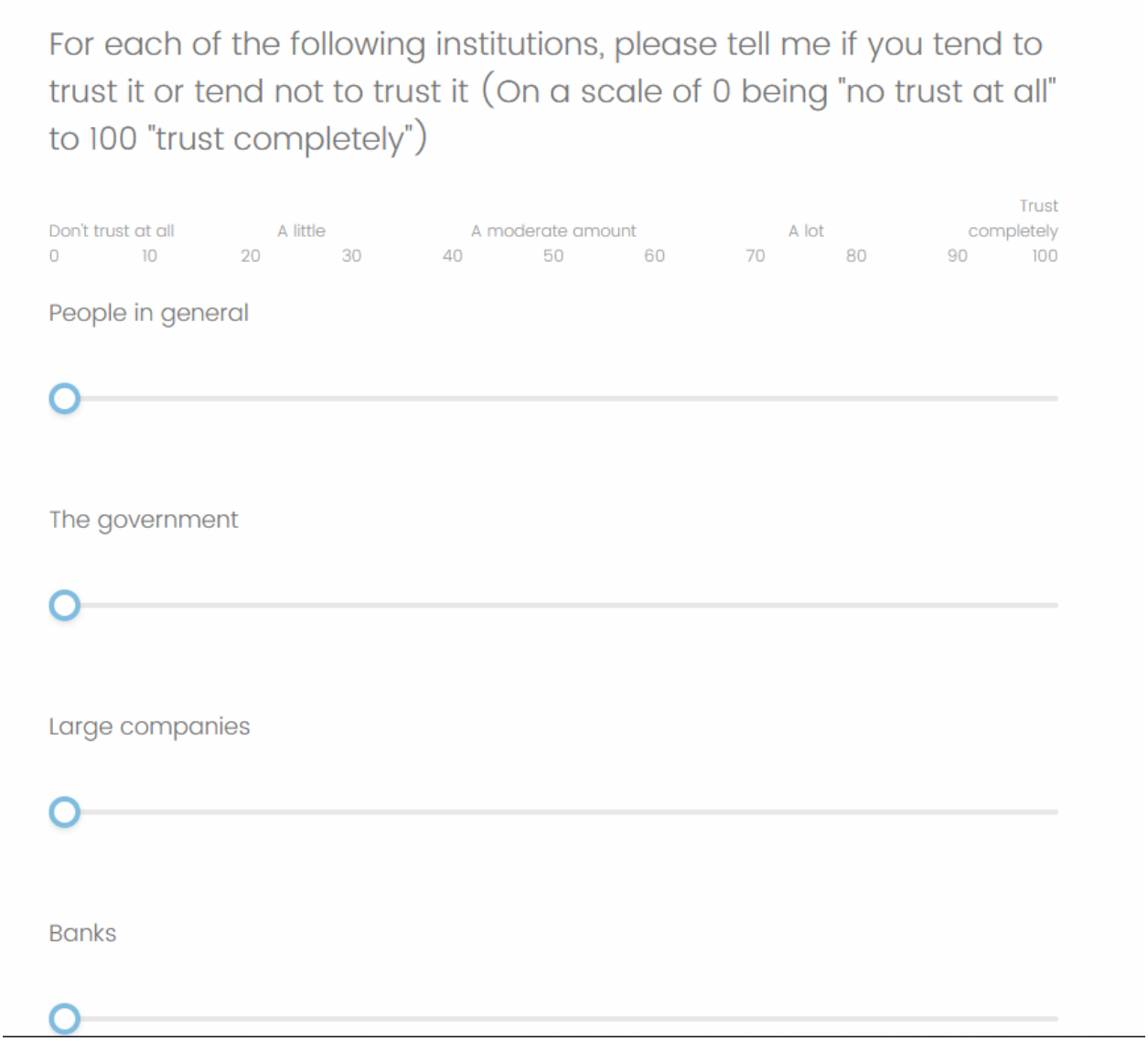
Screen 3 – version 1 (treatment group)



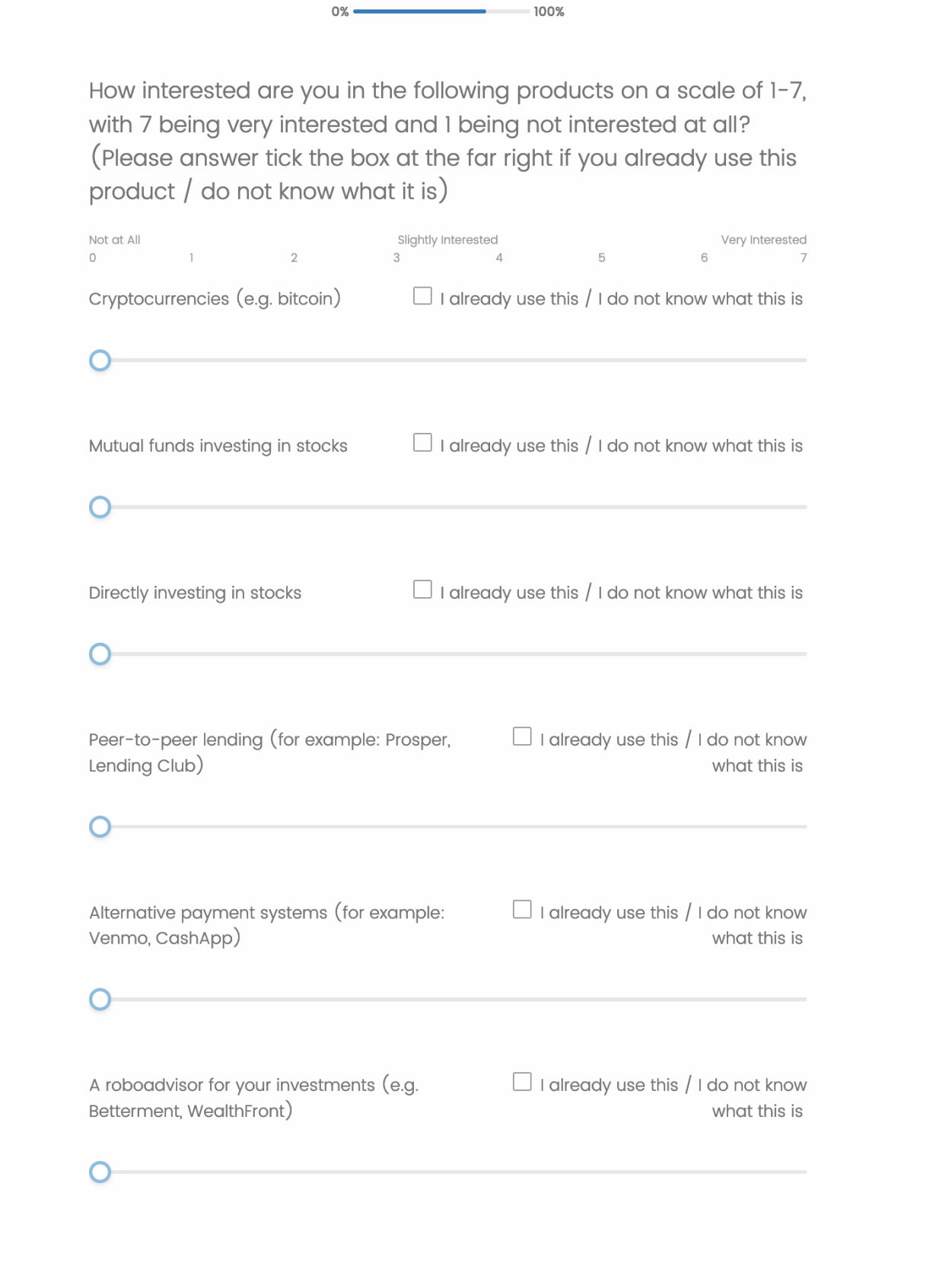
Screen 3 – version 2 (control group)



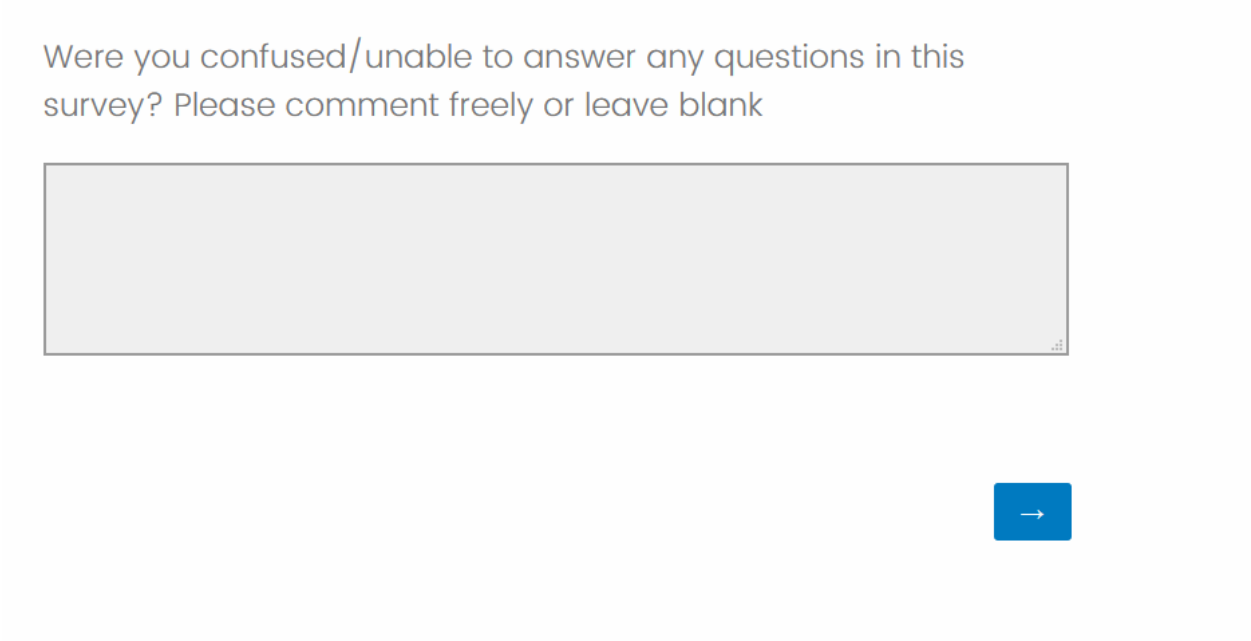
Screen 4


For each of the following institutions, please tell me if you tend to trust it or tend not to trust it (On a scale of 0 being "no trust at all" to 100 "trust completely")
Don't trust at all
A little
A moderate amount
A lot
Trust completely
0 10 20 30 40 50 60 70 80 90 100
People in general
The government
Large companies
Banks

Screen 5


0%
100%
How interested are you in the following products on a scale of 1-7, with 7 being very interested and 1 being not interested at all? (Please answer tick the box at the far right if you already use this product / do not know what it is)
Not at All
Slightly Interested
Very Interested
0 1 2 3 4 5 6 7
Cryptocurrencies (e.g. bitcoin)
I already use this / I do not know what this is
Mutual funds investing in stocks
I already use this / I do not know what this is
Directly investing in stocks
I already use this / I do not know what this is
Peer-to-peer lending (for example: Prosper, Lending Club)
I already use this / I do not know what this is
Alternative payment systems (for example: Venmo, CashApp)
I already use this / I do not know what this is
A roboadvisor for your investments (e.g. Betterment, WealthFront)
I already use this / I do not know what this is

Screen 6


Were you confused/unable to answer any questions in this survey? Please comment freely or leave blank
→

IA.5 Description of fintech apps in the survey analysis

Below, in Table **??**, we provide a brief summary of the fintech apps included in our LISS survey.

Table IA.3
App descriptions

App	Description	Ownership
Tikkie	Tikkie facilitates sharing of payment requests for B2B and B2C transactions via SMS, WhatsApp, or other channels, with payments completed using iDEAL. It's available to anyone with a Dutch bank account.	Tikkie is an initiative by ABN AMRO Bank N.V., which is publicly traded on Euronext Amsterdam under ticker ABN.
PayPal	PayPal allows users to send, spend, and manage transactions without sharing financial information, supporting online and in-person shopping, sending and receiving money, and fundraising or donations.	PayPal is owned by by PayPal Holdings, Inc., which is publicly traded on NASDAQ under ticker PYPL.
Payconiq	Payconiq enables mobile payments in stores, online, and between friends, supporting direct payment online, in-store, and peer-to-peer transactions. It's integrated into mobile bank apps like KBC's and ING Belgium's.	Payconiq is backed by ASN Bank, AXA Bank, Belfius Bank, BNP Paribas Fortis, De Volksbank, ING Ventures, Rabobank Group, and RegioBank.
AfterPay	AfterPay offers a "buy now, pay later" (BNPL) service, allowing customers to shop now and pay over six weeks without interest. The app operates in Australia, the United Kingdom, Canada, the United States, and New Zealand.	AfterPay has been acquired by Block Inc., which is publicly traded on the NASDAQ under the ticker SQ
Bunq	Bunq is an international fintech company with a European banking license, offering banking services to private and business customers based on a subscription model.	Bunq is privately held and is backed by private equity investor Pollen Street Capital since 2021.
Peaks	Peaks is a robo-advisor app that enables users to invest in premade investment strategies, even with small amounts. The app collects "spare change" to be automatically invested in ETFs, with four portfolio options for investment strategies.	Peaks cooperates with the Dutch Rabo Bank. Since 2022 it is private equity backed by Haerlem Capital and Rithmeester.
Knab	Knab is an online retail banking service that allows users to manage various banking services. The app offers specific features for self-employed individuals and other business owners.	Knab operates as a subsidiary of Aegon Bank N.V. In 2021 Knab and Aegon Bank merged and operate fully under the Knab label

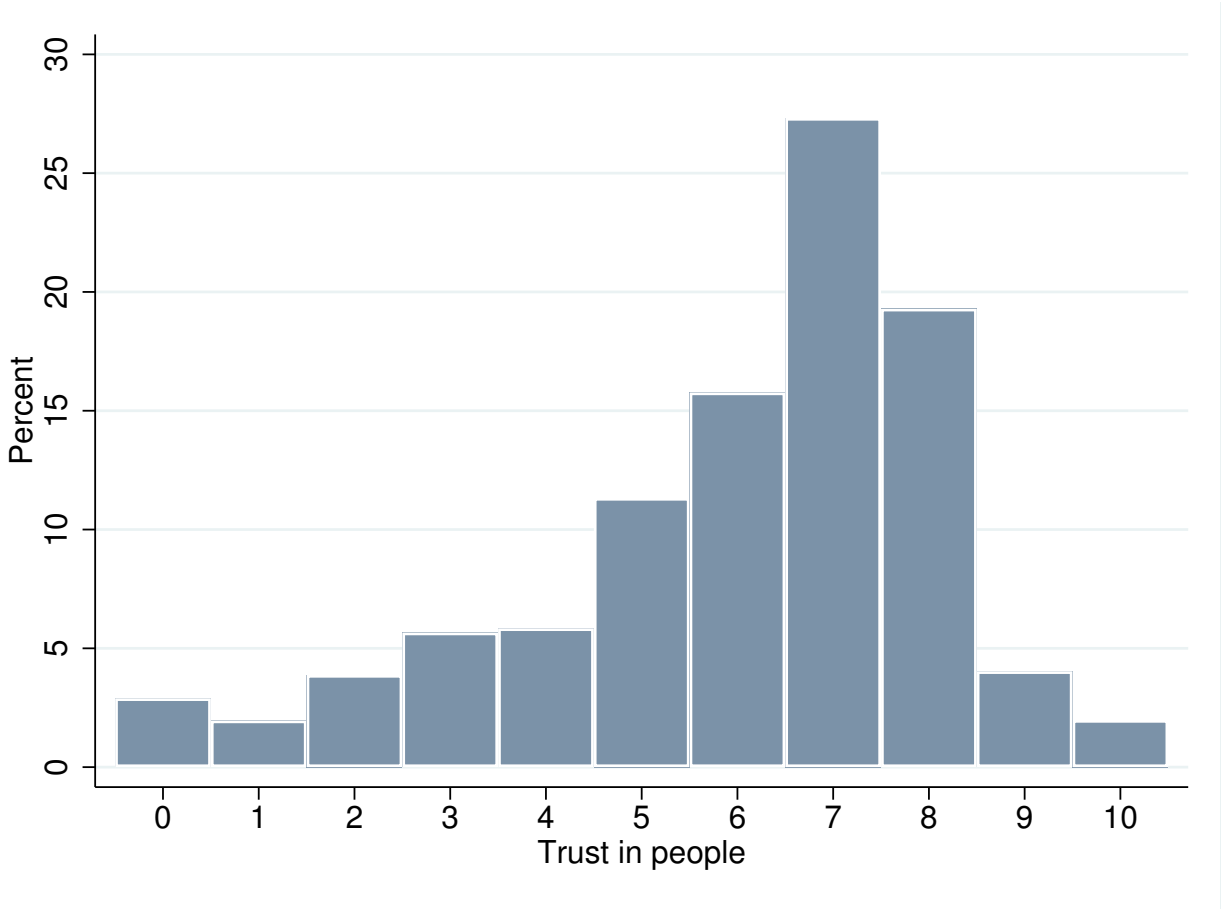
N26	N26 is a German neobank that provides a mobile banking platform that allows users to manage their finances. The app alloes customers in 24 countries to save, spend, and manage their finances on the go,	N26 is a privately held company, backed by 46 active investors, all of which hold a minority stake.
iDEAL	iDEAL is an e-commerce payment system utilized primarily in the Netherlands for online banking. It allows consumers to make online payments through their own banks. The system facilitates not only payments for online merchants but also for other organizations outside the e-commerce market.	iDEAL was supported by major Dutch banks including ABN Amro, ING Groep, and Rabobank.The European Payments Initiative (EPI), has planned to acquire iDEAL along with Payconiq.
Revolut	Revolut is a British FinTech company offering a range of banking services through its mobile app. The app facilitates easy money management allowing users to plan budgets, exchange currencies, spend, save, and transfer money.	Revolut is privately owned and backed by 78 active investors, all of which hold a minority stake in the company.
Twyp	Twyp is a payment app designed to facilitate peer-to-peer money transfers and chat functionalities.	Twyp is a platform developed and owned by ING Bank.
Wise	Wise is a UK-based fintech company specializing in cross-border payment transfer, allowing users to send money to over 70 countries swiftly and at real exchange rates.	Wise is traded publicly on the London Stock exchange under the ticker WISE.

IA.6 Additional analysis

IA.6.1 Additional summary statistics

Figure IA.1: General trust in people

Distribution of general trust in people.



IA.6.2 Determinants of trust in banks and people

In this section, we present regression analyses of the determinants of *Trust in banks* (Table **??**) and *Trust in people* (Table **??**).

Table IA.4
Survey: Determinants of trust in banks

The dependent variable is *Trust in banks*. Variables are defined in Appendix A. Heteroscedasticity-consistent standard errors are shown in parentheses. Significance levels: * 0.1, ** 0.05, *** 0.01.

	(1)	(2)	(3)	(4)	(5)	(6)	(7)	(8)
ln(Gross income)	0.3187***	0.4919***	0.3561***	0.2778*	0.2125***	0.4673***	0.3589***	0.2674
	(0.0552)	(0.0791)	(0.0865)	(0.1657)	(0.0558)	(0.0806)	(0.0873)	(0.1658)
ln(Age)	−0.3667***	−0.3251***	−0.1629	−0.2543	−0.3925***	−0.4387***	−0.2210	−0.3481
	(0.0676)	(0.1192)	(0.1306)	(0.2952)	(0.0690)	(0.1230)	(0.1346)	(0.3138)
Male	−0.1452**	−0.1920***	−0.2465***	−0.1897	−0.1139*	−0.1639***	−0.2359***	−0.1855
	(0.0608)	(0.0621)	(0.0669)	(0.1257)	(0.0618)	(0.0633)	(0.0686)	(0.1275)
Polit. left-right			0.1237***	0.0902***			0.1361***	0.0944***
			(0.0153)	(0.0296)			(0.0157)	(0.0302)
Conf. - legal system			0.2053***	0.2237***			0.1772***	0.1945***
			(0.0220)	(0.0368)			(0.0226)	(0.0399)
Conf. - science			0.0243	0.1584***			0.0245	0.1556***
			(0.0303)	(0.0526)			(0.0310)	(0.0536)
Conf. - physical firms			0.1839***	0.1980***			0.1610***	0.1895***
			(0.0339)	(0.0550)			(0.0348)	(0.0551)
Conf. - internet firms			0.1066***	0.0827**			0.0892***	0.0678*
			(0.0239)	(0.0393)			(0.0246)	(0.0400)
Fin. literacy index				0.1357				0.1192
				(0.1092)				(0.1111)
Fin. confidence (index)				0.0203				0.0188
				(0.0491)				(0.0506)
Risk aversion index				0.0351				0.0319
				(0.0324)				(0.0327)
Trust in people					0.2009***	0.1986***	0.1204***	0.1050***
					(0.0165)	(0.0169)	(0.0198)	(0.0353)
Occupation FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Urbanity FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
Education FE	No	Yes	Yes	Yes	No	Yes	Yes	Yes
N	4,617	4,588	3,501	1,059	4,231	4,205	3,309	1,025
R^2	0.010	0.028	0.163	0.222	0.059	0.076	0.177	0.231

Table IA.5
Survey: Determinants of trust in people

The dependent variable is *Trust in people*. Variables are defined in Appendix A. Heteroscedasticity-consistent standard errors are shown in parentheses. Significance levels: * 0.1, ** 0.05, *** 0.01.

	(1)	(2)	(3)
ln(Gross income)	0.5297***	0.2985***	0.2449***
	(0.0653)	(0.0835)	(0.0910)
ln(Age)	0.3127***	0.8739***	0.7986***
	(0.0844)	(0.1430)	(0.1576)
Male	−0.1592**	−0.1462**	−0.1910**
	(0.0704)	(0.0706)	(0.0749)
Polit. left-right			−0.0780***
			(0.0163)
Conf. - legal system			0.2466***
			(0.0239)
Conf. - science			−0.0109
			(0.0347)
Conf. - physical firms			0.1629***
			(0.0391)
Conf. - internet firms			0.0945***
			(0.0286)
Occupation FE	No	Yes	Yes
Urbanity FE	No	Yes	Yes
Education FE	No	Yes	Yes
N	4,231	4,205	3,309
R^2	0.025	0.088	0.191

IA.7 Additional specifications

Table IA.6
Survey: Fintech products used vs. trust in banks (additional controls)

The dependent variable, *Used cryptocurrency* (columns 1-2), *Used crowdfunding* (columns 3-4), *Used alternative payments* (columns 5-6), or *Has risky investments* (column 7), takes the value one if the respondent reports having used the product. Variables are defined in Appendix A. Heteroscedasticity-consistent standard errors are shown in parentheses. Significance levels: * 0.1, ** 0.05, *** 0.01.

	Crypto		Crowdfunding		Alt. payments		Risky investments
	(1)	(2)	(3)	(4)	(5)	(6)	(7)
Trust in banks	−0.0015	−0.0006	0.0026	0.0021	0.0066**	0.0047	0.0110**
	(0.0028)	(0.0026)	(0.0017)	(0.0017)	(0.0033)	(0.0033)	(0.0048)
ln(Gross income)	0.0284**	0.0271**	0.0003	0.0014	0.0168	0.0147	0.0103
	(0.0131)	(0.0133)	(0.0055)	(0.0057)	(0.0193)	(0.0190)	(0.0318)
ln(Age)	−0.1281***	−0.1306***	−0.0002	−0.0049	−0.1798***	−0.1778***	0.1948***
	(0.0379)	(0.0385)	(0.0189)	(0.0200)	(0.0481)	(0.0497)	(0.0534)
Male	0.0178*	0.0121	0.0059	0.0054	0.0177	0.0189	0.0426*
	(0.0096)	(0.0095)	(0.0053)	(0.0051)	(0.0164)	(0.0166)	(0.0235)
Fin. literacy index	0.0052	0.0014	0.0014	−0.0000	0.0050	0.0122	0.0341***
	(0.0060)	(0.0060)	(0.0023)	(0.0022)	(0.0100)	(0.0097)	(0.0111)
Fin. confidence (index)	0.0017	0.0032	−0.0004	−0.0004	0.0012	0.0027	0.0153*
	(0.0038)	(0.0036)	(0.0017)	(0.0019)	(0.0063)	(0.0064)	(0.0082)
Risk aversion index	−0.0017	−0.0014	−0.0023	−0.0025	0.0009	0.0011	−0.0007
	(0.0026)	(0.0027)	(0.0018)	(0.0019)	(0.0039)	(0.0039)	(0.0058)
Has risky investments		0.0513***		0.0260**		0.0141	
		(0.0198)		(0.0119)		(0.0222)	
Occupation FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Urbanity FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Education FE	Yes	Yes	Yes	Yes	Yes	Yes	Yes
N	1,305	1,255	1,305	1,255	1,305	1,255	1,255
R^2	0.070	0.080	0.023	0.035	0.066	0.066	0.124

Table IA.7
Survey: Fintech products used vs. trust in banks (no controls)

The dependent variable, *Used cryptocurrency* (column 1), *Used crowdfunding* (column 2), *Used alternative payments* (columns 3), or *Has risky investments* (column 4), takes the value one if the respondent reports having used the product. Variables are defined in Appendix A. Heteroscedasticity-consistent standard errors are shown in parentheses. Significance levels: * 0.1, ** 0.05, *** 0.01.

	Crypto	Crowdfunding	Alt. payments	Risky investments
	(1)	(2)	(3)	(4)
Trust in banks	−0.0009	0.0012	0.0077***	0.0109***
	(0.0015)	(0.0010)	(0.0021)	(0.0025)
N	4,895	4,895	4,895	4,553
R^2	0.000	0.000	0.003	0.004

IA.8 Additional robustness checks

IA.8.1 Power calculation – online lab experiment

In this section, we perform a power calculation for the online lab experiment, which is the only part of our analysis that is potentially subject to the concern of lacking power. We note that this analysis is done after conducting the experiment itself, while power calculations are usually conducted prior to an experiment in order to ensure that the experiment is sufficiently powered to be able to detect an effect if one exists.

We are working from a slightly different premise, assessing ex post whether our experiment was suitably powered such that the "null" result that we observe is not due to an underpowered experiment but rather due to a true null. In this sense, a power calculation, which relies on uncertain inputs as we describe below, may be less informative than the fact that most of our estimates are centered around zero. An underpowered experiment would have wide confidence intervals where a lack of a statistically significant result might still be economically significant. In our experiment, most of the estimates are economically insignificant, suggesting that if there is an effect of our treatment on interest in the selected fintech products, it is likely to be a small one. That being said, we do acknowledge (as we show below), that ex post our online lab experiment probably would not have been able to pick up moderately sized effects, as we acknowledge in the main text.

To more explicitly address this point, we estimate the minimum detectable effect (MDE) size under different parameter estimates. The **?** MDE calculation takes as inputs:

- Significance: The probability of committing a type I error. We set this to 0.05.
- Power: The probability of committing a type II error / falsely failing to reject the null. This is conventionally set to 0.8, i.e., we aim for a 20% chance of falsely rejecting the null.
- Sample size: For us, this is 5,000.
- Standard deviation of the outcome variable: The standard deviation of our interest in

(product) variables ranges from 1.632 to 2.284. We will assume a standard deviation of 2.

- Proportion allocated to treatment: 50% (half of the participants were treated).

The "standard" formula for the MDE also has to be adjusted for take-up/non-compliance. If one assumes that everyone in the treated group receives the treatment, non-compliance is not an issue. Under this assumption, our tests would be sufficiently powered such that we would have sufficient power to detect a different in means between the treated and control of 0.0793 or a standardized difference of 0.0396. In order to detect a difference of means of 0.25, we would need a sample size of 500. Our sample size of 5,000 far exceeds that. Table 2 in the paper shows that the differences in interest between the groups are far smaller than either the MDE with full compliance (0.0793 points on our scale).

However, with imperfect compliance (i.e., weak treatment), our experiment may have been underpowered. Hence, if our estimates were economically significant but statistically insignificant, we might not be able to draw any conclusions. However, as discussed above, our estimates are economically close to zero, suggesting that this is less of a concern.

IA.8.2 Omitted variable bias – survey analysis

In this section, we assess the extent of omitted variable bias in our survey estimates, using the methodology by **?**. This issue is only relevant (and feasible to estimate) for our survey analysis (presented in Table 8). The online lab experiment is randomized and, therefore, should not require controlling for participant characteristics as these should be similar across treatment and control. The website experiment does not have perfect randomization in the sense that there may be selection effects in who reads what article, but there is no way to control for reader characteristics or to estimate omitted variable bias in any meaningful way.

First, we note that a key input into the formula is the maximum R-squared that can be achieved with all observed and unobserved controls. This input is very difficult to estimate, as there may be measurement error and substantial idiosyncratic variation in the decision to

use financial products, in which case the maximum R-squared could be substantially lower than theoretical maximum of 1 (**?**). In our estimations below, we use, as suggested by **?**, 1.3 times the R-squared from our most saturated regression specification.

Throughout the paper, we also attempt to be open about the fact that unobservables might influence our results. As we have a relatively low R-squared in our regression and no exogenous variation in either trust or use of fintech products, this will always be an issue. As we note previously, a convincing economic case for unobservables causing our estimates of beta to converge to zero would also need to explain why we observe a positive relationship between trust and fintech adoption for risky investments and alternative payments. Of course, it is not impossible that these are also biased, simply from a different level. We also want to highlight that we do not consider our survey evidence strong by itself but rather in conjunction with all of the other evidence we present.

With these caveats, we use the methodology of **?** to test the sensitivity of our estimates to potential omitted variables. We report the β, the treatment effect after accounting for selection on unobservables, under different specifications. As with the power calculation in Section **??**, our goal is slightly different than that of most users of the **?** methodology. Typically, a researcher will be interested in how potential omitted variables might influence their results, but from the perspective of how likely an observed (statistically significant) relationship between two variables is to be driven by an unobserved third variable. In contrast, we are interested in understanding whether unobserved variables might have biased a true economic relationship between trust and fintech adoption either up or down such that no relationship is apparent in the data. Indeed, **?** states that "A natural approach, noted above, is to use δ as part of a bounding argument – that is, report the value of δ which would produce a treatment effect of zero. On average, larger values of δ indicate more robust results."

We apply the **?** test in a way where we show, under different assumptions about the maximum explainable R-squared as well as different assumptions about the relative corre-

lation of unobserved and observed variables with our "treatment" variable, what potential levels of β may be found.

We perform these estimates using the command psacalc in Stata using our most saturated regression specification from Table 8 as the base model. R_{max} refers to the maximum R-squared that can be explained by observables and unobservables whereas δ refers to the ratio of selection, such that δ=1 implies that observables and unobservables are equally important in explaining selection and higher values imply a greater role for unobservables. Our R-max of 1.3*R-squared is based on the recommendation of **?**, which considers this a sensible threshold for most empirical applications. The resulting beta estimates that are very close to zero, suggesting that our conclusions are not substantially affected by adjusting the estimates for unobservables.

Table IA.8
Test of omitted variable bias – survey analysis

This table presents beta estimates for *Trust in banks* with our most saturated regression specification from Table 8 for each fintech product as the base model, using the methodology of **?**.

	δ	R_{max} = 1.3*R-squared
Crypto	δ=1	-0.00342
	δ=2	-0.00381
Crowdfunding	δ=1	0.00088
	δ=2	0.00065
Alt. Payments	δ=1	0.00369
	δ=2	0.00231

References

Catmull, J. February 14, 2019. Fintech groups are giving SMBs a better experience than banks. Forbes.

Duflo, E., R. Glennerster, and M. Kremer. 2007. *Handbook of development economics*, vol. 4, chap. Using Randomization in Development Economics Research: A Toolkit, 3895–962. Elsevier.

Laven, M., and D. Bruggink. 2016. How fintech is transforming the way money moves around the world: An interview with Mike Laven. *Journal of Payments Strategy & Systems* 10:6–12.

Oster, E. 2019. Unobservable selection and coefficient stability: Theory and evidence. *Journal of Business and Economic Statistics* 37:187–204.