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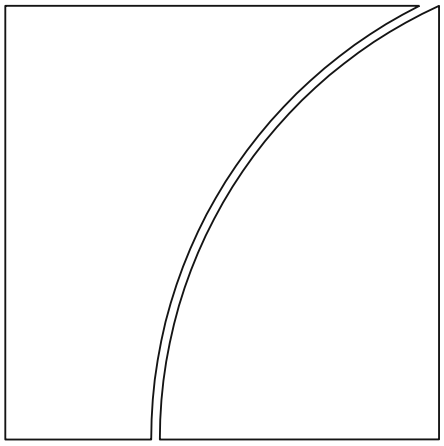

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Monetary and Economic Department

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JEL classification: E51, J16, O32.

Keywords: fintech, gender, financial inclusion, personal data, privacy.

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The fintech gender gap

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Abstract

Fintech promises to spur financial inclusion and close the gender gap in access to financial services. Using novel survey data for 28 countries, this paper finds a large 'fintech gender gap': while 29% of men use fintech products and services, only 21% of women do. The gap is present in almost every country in our sample. Country characteristics and several individual-level controls explain about a third of the unconditional gap. Gender differences in the willingness to use new financial technology or fintech entrants if they offer cheaper services account for over half of the remaining gap. The paper concludes by suggesting potential explanations for the gender gap and implications for challenges in fostering financial inclusion with new technology.

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Keywords: fintech, gender, financial inclusion, personal data, privacy

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1 Introduction

Better access to financial services can improve individuals' employment outcomes, wealth accumulation and propensity to start a business (Guiso et al., 2004; Brown et al., 2019; Célerier and Matray, 2019). And yet, women all over the world remain unbanked or underbanked relative to men: they have lower rates of bank account ownership than men (Demirgüç-Kunt et al., 2017), are less likely to manage household finances (Guiso and Zaccaria, 2021) or to participate in the stock market (Ke, 2020).

Hopes are high that new financial technology – or 'fintech' – can enhance financial inclusion and close the gender gap in the access to financial services (Demirgüç-Kunt et al., 2018; Breza et al., 2020). By leveraging new technology and non-traditional data, both traditional financial institutions ('incumbents') and new fintech firms ('fintech entrants') promise to offer novel products better tailored to consumers' needs at a lower cost (Arner et al., 2020; Boot et al., 2020; Philippon, 2020; Thakor, 2020). These technological advances could benefit disadvantaged groups disproportionately (Suri and Jack, 2016; Bachas et al., 2017; Ouma et al., 2017; Lee et al., 2021). However, evidence on whether fintech helps to close the gender gap in the access to and use of financial services is scarce.

This paper uses data from a large survey of over 27,000 adults from 28 major economies to investigate gender differences in the adoption of new financial technology. The dataset draws on a survey used to construct the 2019 EY Global Fintech Adoption Index (2019). The survey sample is representative along the age and gender distributions and includes details on individuals' use of fintech products, as well as attitudes towards fintech entrants and incumbents. It also contains detailed background information along several key dimensions.

Our key finding is the presence of a large and ubiquitous 'fintech gender gap': namely, that women are significantly less likely to use fintech products or services offered by fintech entrants than men. On average, 29% of men report having used fintech entrants over the previous six months. The respective figure for women is 21%. The gap is present in almost all countries in our sample and not fully explained by a large set of individual

characteristics, such as age, income, education, marital or employment status, or a proxy for financial literacy. Nor is it explained by country-specific characteristics. Accounting for individual characteristics reduces the gap from 8.4 percentage points (pp) to 5.9 pp, or by 30% relative to its unconditional mean. Further including country fixed effects reduces the gender gap to 5.2 pp, but it remains statistically highly significant.

How does the fintech gender gap compare with the gap in bank account ownership? Demirgüç-Kunt et al. (2018) report that 72% of men and 65% of women have a bank account globally. The unconditional gap in bank account ownership (7 pp) is thus smaller than the fintech gender gap (8 pp). Scaled by mean adoption rates, which equal 69% for traditional bank accounts and 25% for fintechs, the difference equals (7/69 =) 10% vs (8/25 =) 32%. These findings suggest that fintech entrants have so far not closed the gender gap in the access to financial services.

Fintech products differ greatly in scope. For example, some products facilitate cross-border payments, while others offer peer-to-peer loans. Potentially, the gap is more pronounced in some categories than others, which could explain the aggregate gap. To test this possibility, we estimate regressions at the respondent-product level for 19 narrowly defined product categories. We find that including product fixed effects and comparing the use of fintech services and products by men and women within the same product category does not affect our estimates of the gender gap in any statistical or economically meaningful way.

Respondent-product level regressions also allow us to exploit variation across genders within the same product. For example, we find that the gender gap is around 50% smaller among products that complement traditional banking services, relative to those that are substitutes. These findings indicate that women might be more likely to adopt fintech products that complement familiar services. Including granular fixed effects at the individual level does not materially change our coefficients, despite the fact that the R-squared more than quadruples. Individual observable and unobservable characteristics are hence unlikely to explain the product-specific gap, alleviating concerns about self-selection and gender differences in unobserved characteristics (Altonji et al., 2005; Oster, 2019).

Does it matter who offers fintech products? We find that 49% of respondents use novel financial products and services that are offered by traditional financial institutions, compared with 25% for fintech entrants. Moreover, if individuals use fintech products provided by incumbents, they also report to use fintech entrants significantly more than respondents who do not use incumbents (35% vs 15%). These findings suggest that fintech entrants are a complement to rather than a substitute for traditional banks (Fuster et al., 2019; Tang, 2019a). Still, men are more likely to use fintech products irrespective of the provider. The gender gap equals 6.4 pp (25% of the mean adoption rate) among services provided by entrants and 7.1 pp (14% of the mean) among those provided by incumbents. The difference across providers is statistically insignificant, which implies that the gender gap is not specific to *who* provides fintech products or services, but rather to the products themselves.[1]

To investigate potential determinants of the gender gap, we document differences between women and men in their reported attitudes towards privacy and technology. Women report more than men that they worry more about their security when dealing with companies online. They also report being significantly less willing to adopt new financial technology, for example digital banks. Results further suggest that men are more price-sensitive: they are more willing to use a fintech entrant or share their personal data with fintechs for cheaper offers.[2] Finally, women report being less willing to use a fintech even if it offers better products or products that are better-suited to the respondent's lifestyle.

To shed further light on our findings, we examine whether differences in attitudes can explain the gender gap. Controlling for whether an individual worries about his or her security does not materially affect results; neither does controlling for differences in the suitability of products. However, controlling for attitudes towards technology and price sensitivity reduces the gap from 5.2 pp to 2.3 pp. Thus, while individual and country characteristics reduce the unconditional gender gap by around one-third,

[1]The difference remains insignificant when we estimate regressions at the respondent-provider or respondent-product-provider level and include individual and/or product fixed effects.

[2]This finding is consistent with evidence from outside financial services. For instance, Farrelly et al. (2001) find that men are more responsive to changes in the price of cigarettes than women.

further accounting for differences in attitudes reduces the gap by another 40%.[3]

Nevertheless, we are unable to fully explain the gender gap, in spite of introducing additional exercises. For example, while it could be that men are more likely to make financial decisions among couples, we find that the gender gap is also present among respondents who live alone. This result suggests that arguments that try to tie the gap to traditional gender roles within households fall short. Similarly, we find a significant gap among the groups that are employed, have multiple accounts at financial institutions, or are financially literate. One important caveat is that our survey does not contain direct measures of risk aversion, which limits our options to directly investigate one plausible explanation for the fintech gender gap. We do find, however, that including individual fixed effects to account for unobservable characteristics leaves our findings unaffected.

Our results suggest that the gap in the use of fintech is closely linked to differences in attitudes towards technology and price sensitivity. What determines differences in these factors, however, remains an open question. They could be explained by differences in preferences across genders, for example differences in risk aversion (Croson and Gneezy, 2009; Dohmen et al., 2011), or differences in the costs and benefits that consumers attach to the use of these new products. They could also result from gender-based discrimination (Bartlett et al., 2019), for example from bad previous experiences by women with financial institutions (Brock and De Haas, 2021). Finally, the gap could arise from social norms or laws that affect the cost-benefit trade-off differently across genders (Burda et al., 2013; Falk and Hermle, 2018; Hyland et al., 2020). For instance, if women have reason to worry more about a leak of personal data, then it may be rational to avoid services that require collection and processing of personal data.[4] As factors related to attitudes towards technology and price sensitivity explain a sizeable part of the overall gap, future research focusing on the determinants of these factors could be particularly promising in understanding the fintech gender gap.

Several important questions are opened up by our findings on policies to foster

[3] As we show in the Appendix, these factors explain the gender gap in fintech products offered by traditional FIs to a significantly smaller extent.

[4] Okat et al. (2020) argue that trust in traditional financial institutions is not a significant driver of fintech adoption, while Yang (2020) shows that a scandal in the US banking sector has led to an increase in fintech adoption.

financial inclusion. For one, our results suggest that improvements in technology alone may fall short of the objective of closing the gender gap in access to financial services. The fintech revolution may need to be complemented by targeted policy initiatives that take account of differences in attitudes across demographic groups. Depending on the cause of the fintech gender gap, the specific policy response may differ. If differences in adoption rates are based on differences in hard-wired preferences, then the scope for interventions through policy is limited. Should, however, the observed outcome be the result of discrimination or social norms and laws that disadvantage women, then policy that addresses and remedies these factors could help to promote financial inclusion through financial innovation. These policy options also raise deeper conceptual questions on where to draw the line between hard-wired preference differences and attitudes that are susceptible to changes in prevailing norms.

Our paper contributes to the current literature on the effects of financial technology on financial inclusion and the gender gap in access to financial services.[5] Fuster et al. (2019) and Tang (2019a) show that fintech often serves as a complement, rather than a substitute, to traditional banking services. Jagtiani and Lemieux (2018), Hau et al. (2018), Agarwal et al. (2019) and Frost et al. (2019) instead argue that fintech and big tech lenders serve borrowers that are traditionally underserved by banks. Other papers also highlight how fintechs could spur financial inclusion, for example by reducing the costs of financial intermediation (Philippon, 2020; Sahay et al., 2020) or changing consumer behaviour (Breza et al., 2020). Our results are, to the best of our knowledge, among the first that use individual-level information to investigate the adoption of fintech products from the consumer side across genders for a large sample of countries.[6] We establish a persistent gender gap in the use of fintech that could pose an obstacle to financial inclusion through financial innovation.

The results further show that the willingness to share data and concerns about privacy differ across subgroups in the population. In particular, we find that women appear less willing to share personal data than men and that they worry more about their

[5] See Demirgüç-Kunt et al. (2017) for a survey on financial inclusion.

[6] Carlin et al. (2019) show for Iceland that younger generations adopt financial technology more readily than older generations.

security when dealing with companies online. If users value privacy differentially, then effective privacy regulation needs to take these differences into account, for example when assigning control rights (Acquisti et al., 2016; Tang, 2019b; Jones and Tonetti, 2020). In light of the debate on algorithmic fairness and bias in data (Kleinberg et al., 2015; Corbett-Davies and Goel, 2018; Kleinberg et al., 2018), algorithms trained on non-representative data that are then used to derive conclusions about the general population could lead to an inefficient outcome (Bergemann et al., 2020).[7] Our findings hence highlight the need to better understand the causes of differences in the willingness to share data across demographic groups.

2 Data

Our main source of data is the EY Global Fintech Adoption Index (2019). The consumer survey is based on 27,103 online interviews with digitally active adults between February and March 2019 in 28 countries.[8] The countries in the sample represent around 82% of global GDP and 58% of the world population. The sample is drawn from a standing panel provided by the survey company Ipsos Group, where the sample is constructed to mirror the age and gender distribution within each country.[9] Respondents are remunerated for participation. The purpose of the survey is to get an understanding of global fintech adoption trends across markets and demographic groups. It is translated and administered in local languages. Answers to demographic questions, such as on income, education or employment status, are adapted to reflect the characteristics of each local market, and then grouped to allow for global comparability.

The survey asks detailed questions about individuals' use of and attitude towards fintech products provided by fintech entrants and traditional financial institutions. Fintech entrants are defined as companies providing innovative, technology-enabled finan-

[7] The decision by men to share personal data for better offers on financial services may further impose an externality on women who are not willing to share their data. Whether the use of biased data is less efficient than the use of no data is ambiguous (Rambachan et al., 2020).

[8] Argentina, Australia, Belgium, Brazil, Canada, Chile, China, Colombia, France, Germany, Hong Kong SAR, India, Ireland, Italy, Japan, Luxembourg, Mexico, the Netherlands, Peru, Russia, Singapore, South Africa, South Korea, Spain, Sweden, Switzerland, the United Kingdom and the United States.

[9] The Ipsos panel is used for a variety of other surveys, for example on the outreach of government policies during Covid-19 or consumer product branding, and aims for representativeness.

cial services. It groups fintech products within five broad categories: money transfer and payments, budgeting and financial planning, savings and investments, borrowing and insurance. Within these categories, there are a total of 19 individual products.[10] Interviewers describe each product in non-technical terms and provide the names of market-specific providers of those services as examples.

The online survey includes only demographic sub-groups with internet access, which differs across countries and genders. As we will show below, controlling for differences across countries in access to internet services or the level of development does not affect our main conclusion.[11] Yet women are significantly less likely than men to own mobile phones or have internet access, especially in developing economies (Burjorjee and Bin-Humam, 2018). If we were able to include individuals with no internet access into our sample, this would likely widen the observed gap, as relatively more women would report never having used fintech products that rely on digital technology. Our estimates could hence present a lower bound of the actual gender gap.

Generally, fintech products are proclaimed to differ along three dimension: their use of new technology and big data; offering cheaper services than comparable offerings by traditional providers; and providing products that better cater to specific consumer needs or offer a better user experience. We define the following three variables that capture these aspects: *FT technology*, *FT pricing* and *FT products*. Each variable is based on the first principal component of a set of questions that proxy individuals' attitudes towards new financial technology, price advantages and better-tailored products. Higher values indicate that an individual is more willing to *i*) adopt new financial technology in general, *ii*) adopt fintech products to obtain cheaper offers, and *iii*) adopt fintech because it offers better-suited products. We report the detailed questions underlying the construction of these variables in the Online Appendix.

We construct the following controls at the individual level: log of age, dummy *single* that takes a value of one for individuals not living with a partner, dummy *employed* that takes a value of one if an individual is employed, dummy *uses FI* that takes a value of

[10] See the Online Appendix for a detailed list.

[11] Specifically, including country fixed effects that absorb any differences in observable and unobservable country characteristics in our regression narrows the gap by less than 10%.

one if an individual has used a traditional financial institution (FI) for novel financial products over the last six months, dummy *income group* that reflects an individual's position in seven distinct buckets within the country-specific income distribution and an education dummy for whether an individual has a higher education degree. We have no direct measure of financial literacy, which has been shown to matter for the adoption of financial services (Cole et al., 2011) and can differ across genders (Gomes et al., 2020). Instead, we proxy financial literacy by defining the dummy *financial planning* that takes a value of one if a respondent disagreed or strongly disagreed with the statement 'I am unsure how to plan best for my financial future'. For country-level comparisons, we collect data on GDP per capita from the World Bank. We further construct a gender equality index similar to Falk and Hermle (2018) that is based on the first principal component of the male-female labor force participation ratio, the World Economic Forum's Global Gender Gap and the United Nation's Gender Inequality Index.

Table 1 provides summary statistics for our key variables. It reports the share of overall respondents (column *all*) who answer with yes to a given question, and the respective shares of *female* and *male* respondents who answer yes. The final column *gap* reports the male minus female difference in means for each question. Our key dependent variable *uses fintech* (and its respective sub-questions) takes a value of one if a respondent has used a fintech entrant's product or service over the last six months.

In the sample, 50% of respondents are female and the average (median) age is 43 (40) years. Two-thirds of respondents are working (full- or part-time or self-employed) and 15% live alone.[12] Around 48% of respondents have a higher degree and 35% are unsure how to best plan for their future. The average age equals 44 years for men and 41 years for women; conditional on reporting their income, female respondents belong to slightly lower income groups. Female respondents are less likely to live alone, work or have a degree. They are more likely to agree that they are unsure how to best plan for their future. The Online Appendix provides further details.

[12] Around 5% of respondents are unemployed and looking for work. Among those who are not working or unemployed, 15% report being a full-time parent or homemaker, 44% report being retired and 21% report being a student.

3 Empirical analysis

Figure 1, panel (a) shows a sizeable gender gap in the use of fintech entrants. The panel plots the average share of female (black dots) and male respondents (red diamonds) who have used fintech products or services within the last six months by country. Vertical lines denote the sample averages for women (black line) and men (red line). Across countries, 29% of men use fintech products, but just 21% of women – a difference in the unconditional mean of 8 pp. In 26 out of the 28 countries men report using fintech entrants more than women, with the exceptions of Peru and India.[13]

3.1 The fintech gender gap

To investigate the gap in greater detail, we estimate the following regression:

$$y_i = \beta \; female_i + controls_i + \theta_c + \varepsilon_i. \tag{1}$$

In the baseline specification, the dependent variable y_i is a dummy with a value of one if individual i has used fintech entrants over the last six months, and zero otherwise. The dummy *female* takes on a value of one for female respondents and zero for males. A coefficient of $\beta < 0$ indicates that women have used fintech entrants less than men on average.

To account for differences across individuals, we include the following individual-level controls: *log(age)*; dummies *single*, *employed*, *uses FI* and *financial planning*; as well as an individual's relative *income group* and *education*. θ_c denote country fixed effects, which absorb any observable and unobservable differences across countries, for example in GDP per capita, internet access or gender equality. All regressions use robust standard errors.[14]

Table 2 confirms the pattern found in Figure 1, panel (a): women are less likely to use fintech products than men. In column (1), the unconditional difference averages 8.4

[13] A striking feature are the high adoption rates in India and China, which are mostly explained by the use of novel payments services. Almost 60% of respondents use fintech entrants for payments in India and 74% do so in China. For the remaining countries, the average is 17%.

[14] In the Online Appendix we show that our results are similar when we estimate probit regressions.

pp. Once we add individual controls in column (2) the difference narrows, but women still are 5.9 pp less likely to use fintech products among respondents of similar characteristics. Our sample contains advanced and emerging market economies that differ along several dimensions. Column (3) accounts for any unobservable country characteristics by inclusion of country fixed effects. The gender gap narrows in magnitude to 5.2 pp, but remains highly significant.

Results in columns (1)–(3) suggest that observable individual characteristics and country-specific differences account for 38% of the unconditional gap. Yet even after accounting for these factors, a sizeable difference remains. To put results into perspective, 25% of all respondents use fintech entrants, so the difference between men and women in column (3) represents over 20% of the average adoption rate. How does the conditional gap – measured by coefficient β in Equation 1, conditional on individual controls and estimated separately for each country – compare with the unconditional gap? Figure 1, panel (b), shows the unconditional female-to-male gap on the horizontal axis and the conditional gap on the vertical axis, by country. Both series are standardised by average fintech use in each country. The black solid line denotes the linear fit. There is a positive and almost linear relationship: the conditional and unconditional gap are highly correlated across countries, reinforcing the notion that individual and country-level controls cannot account for the gap.

Fintech products differ in scope: some products offer cross-border payments, while others facilitate investment decisions or offer peer-to-peer loans. If men and women use fintechs for different types of products, then the gender gap could be present *across* products, but not *within* similar products. Columns (4)–(7) hence estimate regressions at the respondent-product level for 19 distinct fintech products. On average, 4.6% of respondents use each fintech product. Column (4) shows that women are also less likely to use fintech entrants at the product level (conditional on individual-level controls and country fixed effects). Column (5) adds product fixed effects, exploiting only variation within the same category. The coefficient for dummy *female* remains identical to that in column (4), while the R-squared increases slightly. The gender gap within similar products equals 1.1 pp and 25% of the unconditional adoption rate.

A large literature shows that women are more risk averse than men (Croson and Gneezy, 2009). Women might thus be more willing to use products that complement familiar services. Columns (6)–(7) introduce an interaction term with the dummy *complement* that takes on a value of one for fintech products that complement traditional financial products offered by financial institutions.[15] Column (6) shows that the gender gap is around 50% smaller among complements, relative to substitutes. In column (7), we exploit the rich within-product variation and include individual fixed effects. While the coefficient on the interaction term does not change in any statistically or economically meaningful way, the R-squared more than quadruples. These results suggest that individual characteristics are unlikely to explain the differential gap between complements and substitutes, reducing potential concerns about self-selection and omitted variable bias (Altonji et al., 2005; Oster, 2019). Instead, the gender gap likely reflects differences in attitudes across genders towards specific products. We will investigate this possibility in greater detail below.

3.2 Fintech entrants and incumbent FIs

The fintech gender gap could arise because women are less willing to adopt new technology, or because women are less willing to use new providers, even if they would be willing to use the underlying technology. To disentangle these channels, we compare the use of fintech products offered by fintech entrants to those offered by traditional incumbent FIs.

Figure 1, panel (c) plots the average share of female (black bars) and male (red bars) respondents that use fintech products offered by traditional FIs and fintech entrants. Three patterns stand out: first, 49% of respondents use novel financial products if they are offered by traditional FIs (average across left-hand bars). Second, the centre and right-hand bars show that respondents using incumbents also use fintech entrants significantly more (35% vs 15% on average). And third, among all groups there is a sizeable gender gap of 9 pp (17% of the mean adoption rate within that group), 4 pp

[15]The Online Appendix provides a detailed list. Fintech products are classified as complements if adoption rates are similar when offered by fintech entrants and traditional FIs.

(29% of the mean) and 8 pp (20% of the mean).

To examine these patterns in more detail, columns (1) and (2) in Table 3 split the sample into respondents that have and have not used fintech products offered by traditional financial institutions. Among those that have used incumbents in column (1), the gap averages 7.5 pp; among those that have not, the gap averages 3.4 pp in column (2). While the absolute gap is smaller among those who do not use incumbents, relative to average adoption rates it equals 20% of the mean among those who use incumbents and 28% of the mean among those who do not. Further, column (4) shows that men are more likely to use fintech products, irrespective of whether they are offered by fintech entrants or traditional FIs. The dependent variable is dummy *uses FI*, which takes on a value of one if respondents use fintech products offered by incumbents. The gender gap equals 7.1 pp among products provided by traditional FIs, which is larger than the absolute gap for fintech entrants of 5.2 pp.

Yet columns (4)-(6) show that the difference is statistically insignificant. We estimate regressions at the respondent-provider (entrants vs FIs) level. Column (4) shows that the gender gap averages 6.8 pp when we pool across fintech entrants and FIs. Column (5) interacts *female* with the dummy *fintech* that takes on a value of one if the provider is a fintech entrant, and zero if it is a traditional FI. The negative and significant coefficient for *fintech* indicates that the average respondent is less likely to use fintech products if they are offered by entrants. The coefficient on the interaction term $female \times fintech$ is small in magnitude and insignificant, suggesting that the gender gap is statistically and economically similar across providers. Adding individual fixed effects in column (6) to account for differences in unobserved respondent characteristics does not affect our estimates. The fact that the gender gap does not statistically differ across providers implies that the gender gap is not specific to *who* provides fintech products, but rather the products themselves (i.e. products relying on novel financial technology).

3.3 Attitudes towards fintech

To investigate potential determinants of the gender gap, this section documents differences between women and men in their reported attitudes towards privacy and technology. Column (1) in Table 4, panel (a), shows that women worry more about their security when dealing with companies online than men. Relative to the mean of the dependent variable (69%), the difference of 2.5 pp is small. Columns (2)–(4) use the three variables that capture individuals' general attitudes towards fintech products, as defined in Section 2: *PCA technology* measures how comfortable respondents are with the use of new financal technology; *PCA pricing* measures whether respondents are willing to use fintech entrants if they provide cheaper offers for comparable products than traditional FIs; and *PCA products* captures the willingness of individuals to use fintech entrants because they better cater to specific consumer needs or offer a better user experience. Column (2) shows that women report being significantly less willing to adopt new financial technology, such as digital banks, than men. Column (3) suggests that men are more price-sensitive: they are more willing to use a fintech entrant or share their personal data with an entrant for cheaper offers. Column (4) indicates that women report being less willing to use a fintech entrant even if it offers tailored products that are better-suited to the respondent's lifestyle.

Investigating differences in these attitudes and their role in narrowing the fintech gender gap can offer insights into the potential factors underlying the observed gap. In columns (5)–(8) we thus examine how directly accounting for differences in attitudes affects our estimates of the gender gap. Across columns, we add each outcome variable from columns (1)–(4) as an additional regressor. Controlling for whether an individual worries about his or her security in column (5) does not materially affect the coefficient on *female*. Once we control for attitudes towards technology in column (6), the gap narrows to 3.1 pp. Further accounting for individuals' price sensitivity in column (7) reduces the gap to 2.3 pp. Further taking into account the suitability of products in column (8) barely affects the coefficient of *female*. The overall drop in coefficient size is large: Table 2 showed that individual characteristics and country fixed effects reduce

the gap from 8.4 pp to 5.2 pp. Accounting for attitudes towards technology and price sensitivity, the remaining gap declines from 5.2 pp to 2.3 pp. Thus, the factors included in column (7) explain a combined total of 75% of the gap.

These results suggest that women and men differ significantly in their attitudes towards fintechs. In particular, differences in general attitudes towards new financial technology and the willingness to adopt fintech entrants if they offer cheaper services explain a sizeable part of the overall fintech gender gap. Future research focusing on understanding the determinants of these factors could be particularly promising in understanding the fintech gender gap.

Additional results Panel (b) in Table 4 investigates the fintech gender gap among sub-groups of respondents. The gap is present when we restrict the sample to individuals who worry about the security of their data when dealing with companies online (column 1), or those who would be willing to share their data for better offers (column 2). Column (3) shows that even among those who would be willing to use a digital bank, the gap persists and is close in magnitude to the overall sample. Columns (4) and (5) yield a similar gap among those who are financially literate (i.e. plan for their financial future) or have more than three accounts with financial companies. These findings suggest that differences in individual characteristics cannot fully explain the gap.

Could the gender gap reflect the presence of social norms and traditional gender roles that prescribe a division of labor within households (Alesina et al., 2013)? For example, among married couples, it could be that men are expected to manage the couples' finances (Ke, 2020). Column (6) shows that the gender gap is also present among individuals who live alone (5.2 pp). Relative to the average adoption rate, it equals 27% and is similar to the gap in the full sample. This finding suggests that explanations that try to tie the gap to traditional gender roles within households fall short of fully explaining the gap. Finally, column (7) also shows that the gap is also present among individuals that work.

We provide a number of additional tests in the Online Appendix. We show that fintech adoption declines with age, but that the gap is present among all age groups.

We further show that men use fintechs for a broader range of services than women, and that most macro variables are unrelated to the country-level fintech gender gap. The gap also persists across the fintech subcategories payments, investing, insurance, borrowing or financial planning, even when we include individual fixed effects. Finally, we show that our results are robust to probit regressions instead of OLS regressions.

4 Potential explanations for the gap

We find that differences in attitudes towards new financial technology, as well as the willingness to use fintech entrants if they offer cheaper services, explain a significant part of the gender gap. What could determine these differences in attitudes?

Generally, they could be explained by differences in preferences across genders, as well as differences in the costs and benefits that consumers attach to the use of these new products. For example, Croson and Gneezy (2009) provide evidence that women are more risk averse then men, which could explain why women are less willing to adopt new financial technology, irrespective of whether it is offered by new or established players. If so, as fintech products become more standard (and regulated), the gap could close over time.

Differences could also arise due to gender-based discrimination, for example from bad previous experiences by women with financial institutions (Bartlett et al., 2019). Further, fintech products and services might be designed primarily with male users in mind and are thus not adequately tailored to female clients. Yet our results, in particular our product quality variable, suggest that differences in the suitability of fintech products explain the gender gap only to a limited extent.

Finally, differences in attitudes could reflect social norms that affect the cost-benefit trade-off differentially across genders within a society (Burda et al., 2013; Falk and Hermle, 2018). For instance, if women have reason to worry more about the consequences of a leak of personal data, then it may be rational to avoid services that require collection and processing of personal data, even if they offer cheaper or better products. Our results suggest that these norms would need to differentially affect men and women, as country

fixed effects explain only a modest part of the gap.

Our data do not allow us to fully distinguish between these explanations, so further research is needed to understand the exact causes of the fintech gender gap and inform policy. While our results suggest that new technology alone cannot close the gender gap in access to financial services and might need to be accompanied by inclusive public policy, the appropriate policy response will crucially hinge on the cause of the observed gap.

5 Conclusion

This paper has identified a gender gap in the reported use of fintech services. The gap is present in almost every country. While the gap can be closed when using country and individual characteristics to some extent, it is not fully explained by these controls. It is present irrespective of whether entrants or incumbents provide the product, and does not hinge on the specific type of product offered. The survey reveals stark differences between digitally active women and men: women report worrying more about their privacy when dealing with companies online, being less willing to share their data with fintechs for better offers and being less willing to use fintechs for better or more innovative products. Importantly, accounting for attitudes towards new financial technology and the willingness to use fintech entrants if they offer cheaper services narrows the fintech gender gap significantly.

Policies that aim to enhance financial inclusion through fintech will have to grapple with the reasons for the fintech gender gap. If the gap is explained by differences in preferences across genders, for example in risk aversion, then it may be that there is little role for policy. Yet if the gap is explained by gender-based discrimination or by social norms and conditions that disadvantage women, then policy interventions may be necessary to enhance the inclusiveness of fintech services.

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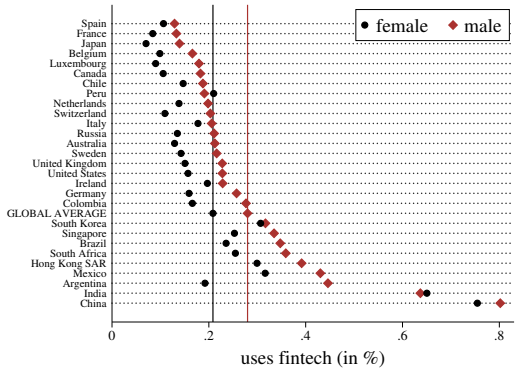
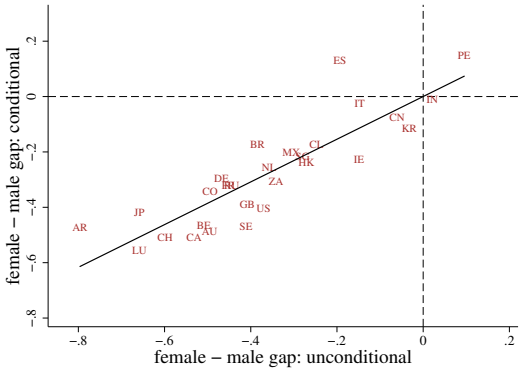
Figures and tables

Figure 1: **The fintech gender gap**

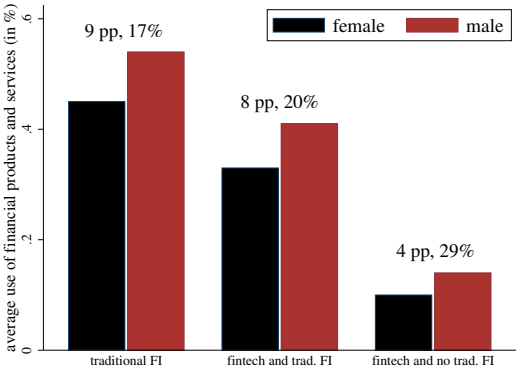
(a) By country



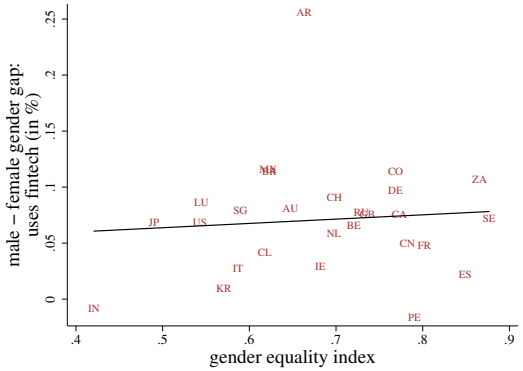
(b) Conditional vs unconditional



(c) By traditional FI usage



(d) Gender equality index



Note: Panel (a) shows the average share of female (black dots) and male (red diamonds) respondents that use products offered by fintech entrants for each country. Vertical lines denote the unweighted sample average. Panel (b) plots the female-to-male gender gap in the use of fintech entrants by country, standardized by the average share of respondents that use fintech entrants in each country. The horizontal axis plots the unconditional standardized gap. The vertical axis plots the conditional gap, i.e. coefficient β in Equation 1, conditional on individual controls and estimated separately for each country, standardized by the average share of respondents that use fintech entrants in each country. Panel (c) reports the average share of female (black bars) and male (red bars) respondents that use fintech products. The left bars report the share of female and male respondents that use traditional FIs for these services, the center bars report the share that uses fintech entrants but also use traditional FIs, and the right bars report the share that uses fintech entrants but does not use traditional FIs. Panel (d) provides a country-level scatter plot of the fintech gender gap on the vertical axis against the gender equality index on the horizontal axis (both conditional on log GDP). The black line denotes the linear fit.

Table 1: **Summary statistics**

	all mean	female mean	male mean	gap mean
Uses fintech entrants	0.25	0.21	0.29	0.08
... for payments	0.21	0.17	0.24	0.07
... to invest	0.09	0.07	0.12	0.05
... to borrow	0.06	0.05	0.08	0.03
... for financial planning	0.06	0.05	0.07	0.02
... for insurance	0.09	0.07	0.11	0.04
Uses traditional FI	0.49	0.45	0.54	0.09
... for payments	0.40	0.37	0.44	0.07
... to invest	0.13	0.10	0.17	0.07
... to borrow	0.08	0.07	0.09	0.02
... for financial planning	0.09	0.08	0.10	0.02
... for insurance	0.16	0.13	0.18	0.05
Willing to share financial data	0.37	0.33	0.42	0.09
... with fintechs	0.23	0.19	0.27	0.08
... with other financial institutions	0.30	0.26	0.34	0.07
... with non-financial services companies	0.17	0.15	0.20	0.05
Worry about security online	0.69	0.70	0.68	-0.02
Would use digital bank	0.37	0.32	0.42	0.09
Unsure how to plan for financial future	0.35	0.37	0.31	0.06
Observations	27103	13569	13534	27103

Note: This table shows summary statistics for the main variables. It provides the average share of respondents that agreed or strongly agreed with each statement. Column *all* refers to the sample average, columns *female* and *male* to the average for female and male respondents. Column *gap* indicates the average male-female gap. For details, see text.

Table 2: **The use of fintech services**

VARIABLES	(1) uses FT	(2) uses FT	(3) uses FT	(4) uses FT prod	(5) uses FT prod	(6) uses FT prod	(7) uses FT prod
female	-0.084***	-0.059***	-0.052***	-0.011***	-0.011***	-0.017***	
	(0.005)	(0.005)	(0.005)	(0.001)	(0.001)	(0.001)	
female × complement						0.009***	0.009***
						(0.001)	(0.001)
Observations	27,103	27,103	27,103	514,957	514,957	514,957	514,957
R-squared	0.009	0.168	0.222	0.076	0.090	0.091	0.364
Controls	-	✓	✓	✓	✓	✓	-
Country FE	-	-	✓	✓	✓	✓	-
Product FE	-	-	-	-	✓	✓	✓
Individual FE	-	-	-	-	-	-	✓
Mean of y	0.25	0.25	0.25	0.05	0.05	0.05	0.05

Note: This table estimates Equation 1 in columns (1)–(3). The dependent variable is dummy *uses FT*, which takes on a value of one if a respondent has used fintech entrants over the last six months, and zero otherwise. Column (4)–(7) estimate regressions at the respondent-product level for 19 distinct fintech products. For each product, the dependent variable *uses FT prod* is a dummy that takes on a value of one if a respondent has used fintech entrants for that product over the last six months, and zero otherwise. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise. Dummy *complement* takes on a value of one for fintech products that complement traditional financial products offered by FIs. *Product FE* denote 19 distinct product-level fixed effects, *Individual FE* denote fixed effects at the respondent level. Each regression uses robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

Table 3: **Fintech entrants and traditional FIs**

VARIABLES	(1) uses FI uses FT	(2) uses no FI uses FT	(3) uses FI	(4) uses FT or FI	(5) uses FT or FI	(6) uses FT or FI
female	-0.075***	-0.034***	-0.071***	-0.068***	-0.072***	
	(0.008)	(0.005)	(0.006)	(0.004)	(0.006)	
fintech					-0.248***	-0.248***
					(0.005)	(0.005)
female × fintech					0.008	0.008
					(0.007)	(0.007)
Observations	13,326	13,777	27,103	54,206	54,206	54,206
R-squared	0.178	0.123	0.116	0.123	0.187	0.670
Controls	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓
Individual FE	-	-	-	-	-	✓
Mean of y FE	0.38	0.12	0.49	0.37	0.37	0.37

Note: This table estimates Equation 1 in columns (1)–(3). The dependent variable *uses FT* is a dummy that takes on a value of one if a respondent has used fintech products offered by fintech entrants over the last six months, and zero otherwise. The dependent variable *uses FI* is a dummy that takes on a value of one if a respondent has used fintech products offered by traditional FIs over the last six months, and zero otherwise. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise. Column (1) restricts the sample to the set of respondents that use fintech products offered by traditional FIs. Column (2) restricts the sample to the set of respondents that do not use fintech products offered by traditional FIs. Column (3) uses the baseline sample. Columns (4)–(6) estimate regressions at the respondent-product provider level. The dependent variable *uses FT or FI* is a dummy that takes on a value of one if a respondent has used fintech products offered by fintech entrants or traditional FIs over the last six months, and zero otherwise. Dummy *fintech* takes on a value of one if the provider is a fintech entrant and zero if it is a traditional FI. Each regression includes individual-level controls and country fixed effects and uses robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

Table 4: **Further regressions**

Panel (a): Differences in attitudes

VARIABLES	(1) worry sec	(2) PCA technology	(3) PCA pricing	(4) PCA products	(5) uses FT	(6) uses FT	(7) uses FT	(8) uses FT
female	0.026***	-0.042***	-0.039***	-0.035***	-0.053***	-0.031***	-0.023***	-0.022***
	(0.006)	(0.003)	(0.003)	(0.003)	(0.005)	(0.005)	(0.004)	(0.004)
worry about security					0.018***	0.020***	0.015***	0.011**
					(0.005)	(0.005)	(0.005)	(0.005)
PCA technology						0.525***	0.427***	0.271***
						(0.011)	(0.011)	(0.013)
PCA pricing							0.296***	0.257***
							(0.011)	(0.012)
PCA products								0.269***
								(0.011)
Observations	27,103	27,103	27,103	27,103	27,103	27,103	27,103	27,103
R-squared	0.076	0.216	0.155	0.219	0.222	0.299	0.322	0.344
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓
Mean of y	0.69	0.38	0.20	0.26	0.25	0.25	0.25	0.25

Panel (b): Sub-sample analysis

VARIABLES	(1) worry sec uses FT	(2) share data yes uses FT	(3) dig bank yes uses FT	(4) literate uses FT	(5) accounts uses FT	(6) live alone uses FT	(7) working uses FT
female	-0.053***	-0.034***	-0.065***	-0.048***	-0.074***	-0.052***	-0.061***
	(0.006)	(0.012)	(0.009)	(0.006)	(0.010)	(0.011)	(0.006)
Observations	18,677	6,288	10,047	17,650	7,942	4,095	17,775
R-squared	0.228	0.218	0.198	0.210	0.251	0.199	0.220
Controls	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓
Mean of y	0.26	0.53	0.42	0.22	0.35	0.19	0.31

Note: This table estimates Equation 1. In panel (a), column (1), the dependent variable *worry sec* is a dummy that takes on a value of one if a respondent agrees to the statement 'I worry about my security when dealing with companies online', and zero otherwise. In column (2), the dependent variable *PCA technology* is the first principal component of a set of questions that measure individuals' attitudes towards new financial technology. In column (3), the dependent variable *PCA pricing* is the first principal component of a set of questions that measure individuals' attitudes towards potential price advantages of fintech entrants. In column (4), the dependent variable *PCA products* is the first principal component of a set of questions that measure individuals' attitudes towards better-tailored products offered by fintech entrants. In columns (5)–(8), the dependent variable *uses FT* is a dummy that takes on a value of one if a respondent has used fintech entrants over the last six months, and zero otherwise. In panel (b), the dependent variable is dummy *uses FT*, which takes on a value of one if a respondent has used fintech entrants over the last six months, and zero otherwise. Column (1) restricts the sample to the set of respondents that worries about their security when dealing with companies online. Column (2) restricts the sample to the set of respondents that is willing to share date with fintech entrants for better offers. Column (3) restricts the sample to the set of respondents that is willing to use a digital bank. Column (4) restricts the sample to the set of respondents that has a high literacy score. Column (5) restricts the sample to the set of respondents that has financial accounts at more than three companies. Column (6) restricts the sample to the set of respondents that lives alone. Column (7) restricts the sample to the set of respondents that is employed or self-employed. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise. Each regression includes individual-level controls and country fixed effects and uses robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

Online Appendix

Variable definitions

Variable name	Description
uses FT	Dummy with value 1 if respondent has used any of the 19 fintech products and services offered by fintech entrants over the last six months
uses FI	Dummy with value 1 if respondent has used any of the 19 fintech products and services offered by traditional financial institutions over the last six months
uses FT prod	Dummy with value 1 if respondent has used a specific fintech product or service offered by fintech entrants over the last six months
worry sec	Dummy with value 1 if respondent agrees or strongly agrees to the statement "I worry about the security of my personal data when dealing with companies online"
PCA technology	First principal component of a set of questions that measure individuals' attitudes towards new financial technology.
PCA pricing	First principal component of a set of questions that measure individuals' attitudes towards potential price advantages of fintechs.
PCA products	First principal component of a set of questions that measure individuals' attitudes towards better-tailored products offered by fintechs
share data yes	Dummy with value 1 if respondent agrees or strongly agrees to the statement "I would be comfortable with my main bank securely sharing my financial data with other organizations if it meant that I received better offers"
dig bank yes	Dummy with value 1 if respondent agrees or strongly agrees to the statement "I would be comfortable to use a digital, branchless financial services provider"
female	Dummy with value 1 if respondent is female
literate	Dummy with value 0 if respondent agrees or strongly agrees to the statement "I am unsure how to plan best for my financial future"
accounts	Number reported to the question "Approximately how many different companies do you currently have at least one financial account, product or service with?"
live alone	Dummy with value 1 if respondent answers the question "Which of the following best describes your household? " with "Living alone"
working	Dummy with value 1 if respondent answers the question "What is your current employment status? " with "Employed full-time", "Employed part-time" or "Self employed"

Principle components The variables *PCA technology*, *PCA pricing* and *PCA products* are based on the first principal component of a set of questions.

PCA technology: First principal component based on five dummies, 27% of variance explained. The five dummies reflect the given answers to the following questions:

- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: Easier to set up an account.
- Q: What are the most important reasons for using a traditional financial services company instead of a FinTech company? A: Not aware or limited understanding of how FinTech companies work.
- Q: Thinking about non-financial companies providing financial products (eg banking, borrowing, payments, insurance and investing), which of the following applies to you? A: I would be happy to use them, if they were working with a FinTech company.
- Q: I would prefer to chat with my bank through social media rather than through the bank's own apps or traditional channels? A: Disagree or strongly disagree.
- Q: I would be comfortable to use a digital, branchless financial services provider? A: Agree or strongly agree.

PCA pricing: First principal component based on three dummies, 39% of variance explained. The three dummies reflect the given answers to the following questions:

- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: More attractive rates or fees.
- Q: I would be comfortable with my main bank securely sharing my financial data with other organizations if it meant that I received better offers from FinTech companies? A: Agree or strongly agree.
- Q: Imagine you are thinking about buying a new financial policy or product. Which of the following providers would you typically turn to first? A: Options suggested by a price comparison site.

PCA products: First principal component based on five dummies, 29% of variance explained. The five dummies reflect the given answers to the following questions:

- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: Easier to set up an account.
- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: Access to different and more innovative products and services than those available from traditional financial institutions.

- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: Better experience, for example, better product features and quality of service.
- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: Greater level of trust than with traditional financial institutions.
- Q: What are the most important reasons for using a FinTech company instead of a traditional financial services company? A: Better fit with my lifestyle and aspirations.

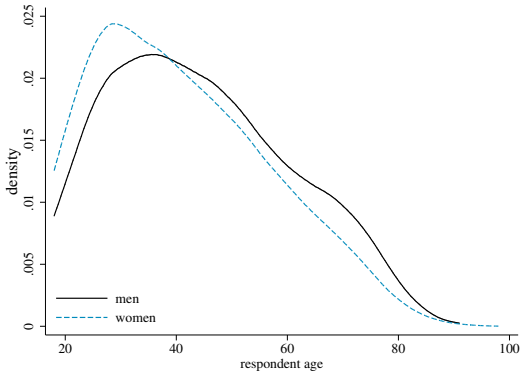
Product categories The survey contains 19 distinct product categories.

1. Online foreign exchange
2. Overseas remittances (substitute)
3. Digital-only branchless banking (substitute)
4. Peer-to-peer payments and non-bank money transfers (substitute)
5. In-store mobile phone payments (substitute)
6. Cryptocurrency eWallet
7. Online budgeting and financial planning tools
8. Online retirement and pensions management tools (substitute)
9. Lending on peer-to-peer platforms
10. Investments via crowdfunding platforms
11. Online investment advice and investment management
12. Online stock broking (substitute)
13. Online spreadbetting
14. Online-only loan provider
15. Online marketplaces and aggregators for loans
16. Online loan brokers and broker facilitation websites
17. Insurance premium comparison sites (substitute)
18. Insurance-linked smart devices (substitute)
19. App-only insurance

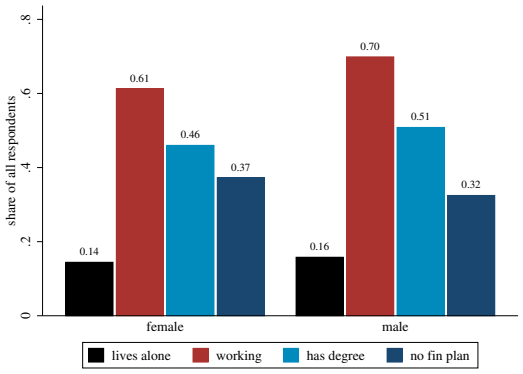
Further Figures and Tables

Figure OA1: **Summary statistics by gender**

(a) Age distribution

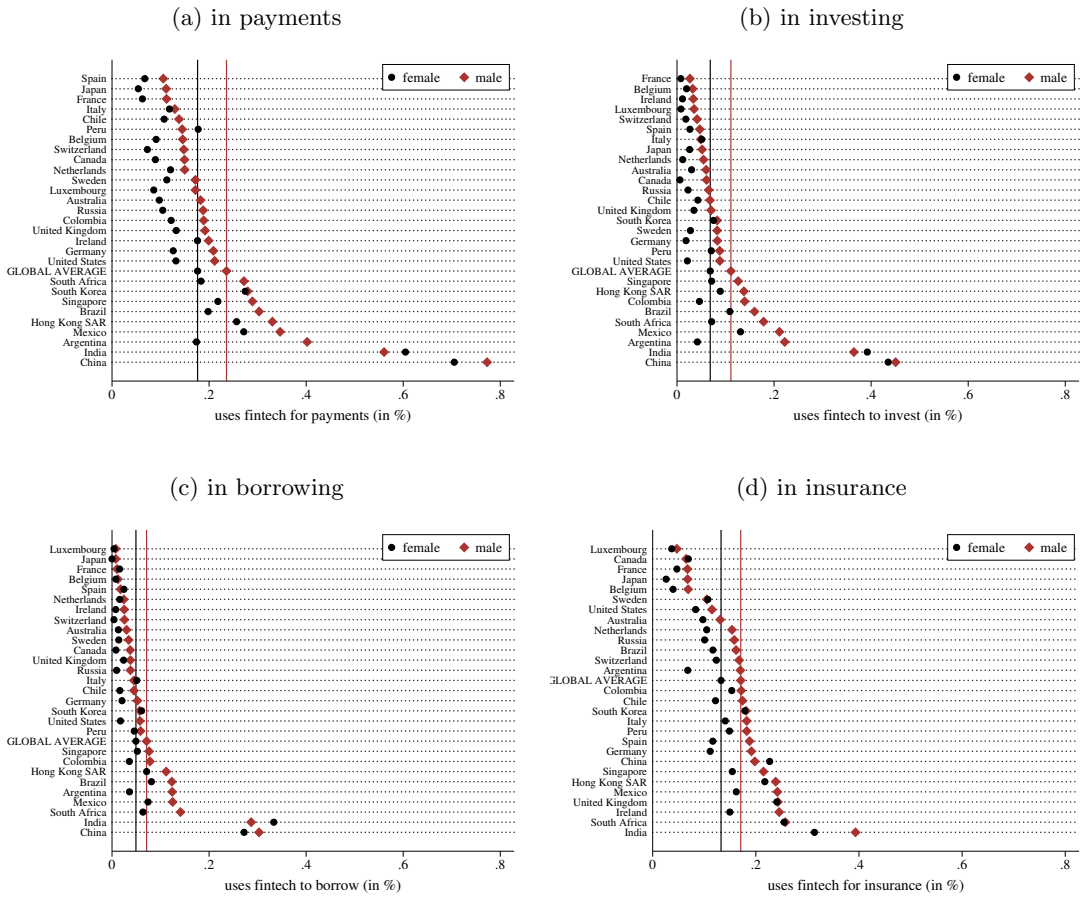


(b) Individual characteristics



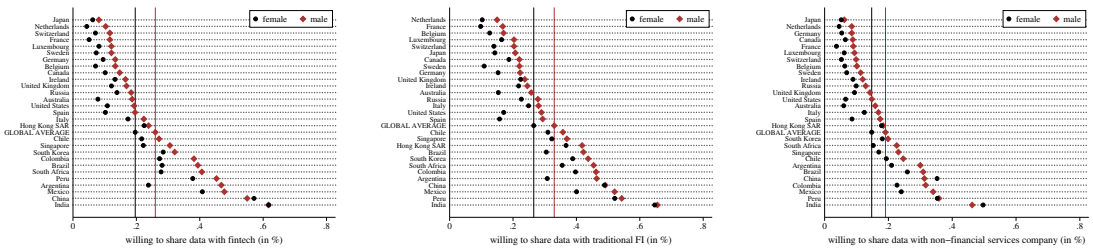
Note: This figure shows the age distribution by gender, as well as the sample average of respondents by gender that reports living alone, is employed or self-employed, has a higher education degree, and is unsure how to best plan for their future.

Figure OA2: The fintech gender gap by category



Note: This figure shows the average share of female (black dots) and male (red diamonds) respondents that use fintech for payments, to invest, to borrow, or for insurance, for each country. Vertical lines denote the unweighted sample average.

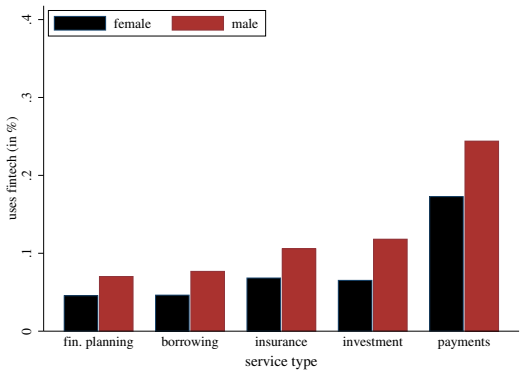
Figure OA3: Willingness to share data for better terms and conditions with



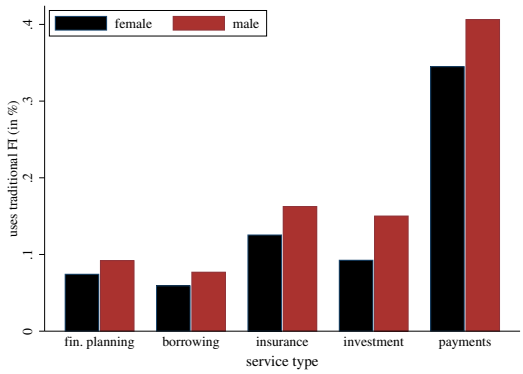
Note: This figure shows the average share of female (black dots) and male (red diamonds) respondents that are willing to share their data for better offers with fintech entrants, traditional FIs or non-financial services companies. Vertical lines denote the unweighted sample average.

Figure OA4: Fintech entrants vs traditional FIs

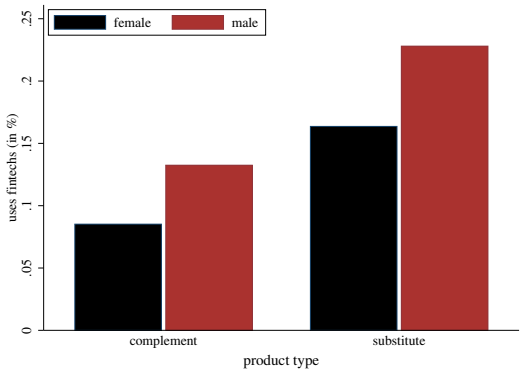
(a) Categories: Fintech entrants



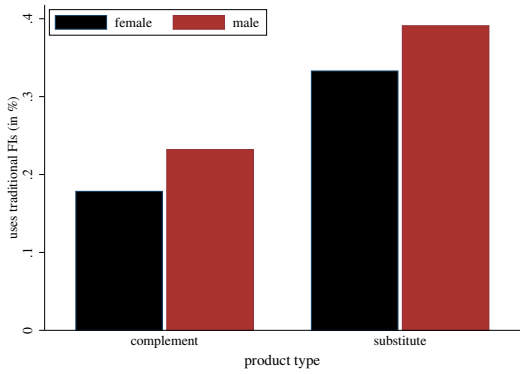
(b) Categories: Traditional FIs



(c) Complements vs substitutes: Fintech entrants

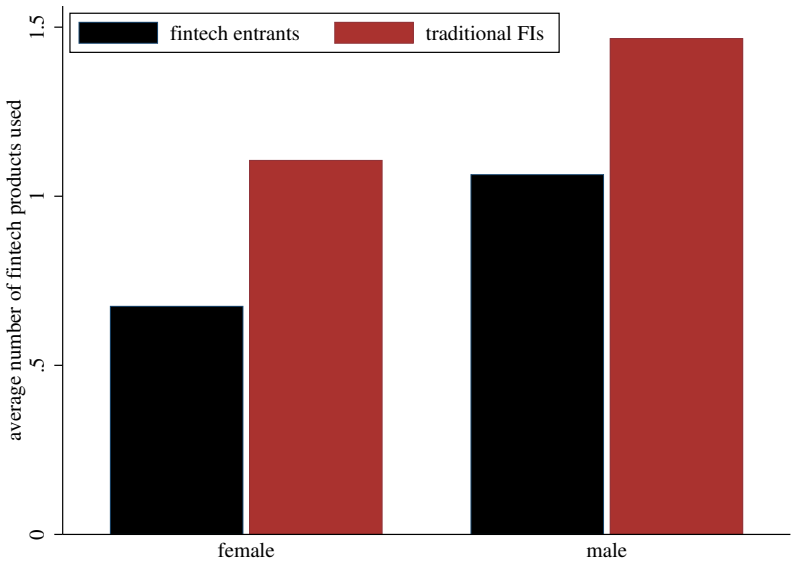


(d) Complements vs substitutes: Traditional FIs



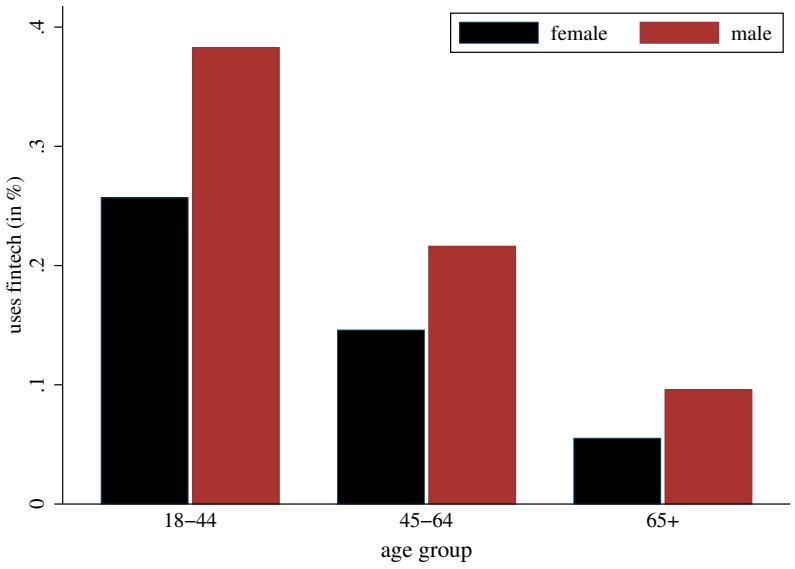
Note: This figure reports the average share of female (black bars) and male (red bars) respondents that use fintech products across different subsamples. The Online Appendix provides a detailed categorization of the 19 product categories into complements and substitutes.

Figure OA5: Number of fintech product categories used



Note: This figure reports the average number of distinct product categories used by female and male respondents, separately for fintech entrants (black bars) and traditional FIs (red bars).

Figure OA6: The gender gap by age



Note: This figure reports the average share of female (black bars) and male (red bars) respondents that use fintech products by age group.

Table OA1: **The use of fintech products – individual fixed effects**

VARIABLES	(1) uses FT prod	(2) uses FT prod	(3) uses FT prod	(4) uses FT prod	(5) uses FT prod	(6) uses FT prod	(7) uses FT prod	(8) uses FT prod	(9) uses FT prod
female	-0.013***		-0.012***		-0.012***	-0.008***		-0.012***	
	(0.001)		(0.001)		(0.001)	(0.001)		(0.001)	
female × borrowing	0.007***	0.007***							
	(0.001)	(0.001)							
female × financial planning			0.006***	0.006***					
			(0.002)	(0.001)					
female × insurance					0.003**				
					(0.001)				
female × payments						-0.011***	-0.011***		
						(0.001)	(0.001)		
female × savings and investments								0.002**	0.002**
								(0.001)	(0.001)
Observations	514,957	514,957	514,957	514,957	514,957	514,957	514,957	514,957	514,957
R-squared	0.090	0.364	0.090	0.364	0.090	0.091	0.364	0.090	0.364
Controls	✓	-	✓	-	✓	✓	-	✓	-
Country FE	✓	-	✓	-	✓	✓	-	✓	-
Product FE	✓	✓	✓	✓	✓	✓	✓	✓	✓
Individual FE	-	✓	-	✓	-	-	✓	-	✓

Note: This table estimates regressions at the respondent-product level for 19 distinct fintech products. The 19 products are grouped into five categories. For each product, the dependent variable *uses FT prod* is a dummy that takes on a value of one if a respondent has used fintech entrants for that product over the last six months, and zero otherwise. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise. *Product FE* denote 19 distinct product-level fixed effects, *Individual FE* denote fixed effects at the respondent level. Each regression uses robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

Table OA2: **Probit – the use of fintech services**

	(1)	(2)	(3)	(4) uses FI	(5) uses no FI
VARIABLES	uses FT	uses FT	uses FT	uses FT	uses FT
female	-0.267***	-0.246***	-0.246***	-0.227***	-0.199***
	(0.017)	(0.018)	(0.018)	(0.024)	(0.030)
Observations	27,103	27,103	27,103	13,326	13,777
Controls	-	✓	✓	✓	✓
Country FE	-	-	✓	✓	✓

Note: This table estimates Equation 1 by fitting a maximum-likelihood probit model. The dependent variable is dummy *uses FT*, which takes on a value of one if a respondent has used fintech entrants over the last six months, and zero otherwise. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise. *** p<0.01, ** p<0.05, * p<0.1

Table OA3: **Probit – differences in attitudes**

VARIABLES	(1) worry sec	(2) PCA technology	(3) PCA pricing	(4) PCA products	(5) uses FT	(6) uses FT	(7) uses FT	(8) uses FT
female	0.065***	-0.189***	-0.209***	-0.208***	-0.249***	-0.141***	-0.113***	-0.110***
	(0.017)	(0.027)	(0.016)	(0.017)	(0.018)	(0.020)	(0.020)	(0.020)
worry about security					0.112***	0.113***	0.098***	0.083***
					(0.021)	(0.022)	(0.022)	(0.023)
PCA technology						2.174***	1.802***	1.243***
						(0.041)	(0.044)	(0.049)
PCA pricing							1.029***	0.948***
							(0.041)	(0.041)
PCA products								1.026***
								(0.036)
Observations	27,103	27,103	27,103	27,103	27,103	27,103	27,103	27,103
Controls	✓	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓	✓

Note: This table estimates Equation 1 by fitting a maximum-likelihood probit model. In column (1), the dependent variable *worry sec* is a dummy that takes on a value of one if a respondent agrees to the statement 'I worry about my security when dealing with companies online', and zero otherwise. In column (2), the dependent variable *PCA technology* is the first principal component of a set of questions that measure individuals' attitudes towards new financial technology. In column (3), the dependent variable *PCA pricing* is the first principal component of a set of questions that measure individuals' attitudes towards potential price advantages of fintech entrants. In column (4), the dependent variable *PCA products* is the first principal component of a set of questions that measure individuals' attitudes towards better-tailored products offered by fintech entrants. In columns (5)–(8), the dependent variable *uses FT* is a dummy that takes on a value of one if a respondent has used fintech entrants over the last six months, and zero otherwise. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise.*** p<0.01, ** p<0.05, * p<0.1

Table OA4: **Probit – sub-sample analysis**

VARIABLES	(1) worry sec uses FT	(2) share data yes uses FT	(3) dig bank yes uses FT	(4) literate uses FT	(5) accounts uses FT	(6) live alone uses FT	(7) working uses FT
female	-0.239***	-0.121***	-0.215***	-0.293***	-0.320***	-0.319***	-0.311***
	(0.022)	(0.035)	(0.028)	(0.023)	(0.031)	(0.049)	(0.021)
Observations	18,677	6,288	10,047	17,650	7,942	4,095	17,775
Controls	✓	✓	✓	✓	✓	✓	✓
Country FE	✓	✓	✓	✓	✓	✓	✓

Note: This table estimates Equation 1 by fitting a maximum-likelihood probit model. The dependent variable is dummy *uses FT*, which takes on a value of one if a respondent has used fintech entrants over the last six months, and zero otherwise. Dummy *female* takes on a value of one if a respondent is female, and zero otherwise. Column (1) restricts the sample to the set of respondents that worries about their security when dealing with companies online. Column (2) restricts the sample to the set of respondents that is willing to share date with fintech entrants for better offers. Column (3) restricts the sample to the set of respondents that is willing to use a digital bank. Column (4) restricts the sample to the set of respondents that has a high literacy score. Column (5) restricts the sample to the set of respondents that has financial accounts at more than three companies. Column (6) restricts the sample to the set of respondents that lives alone. Column (7) restricts the sample to the set of respondents that is employed or self-employed. Each regression includes individual-level controls and country fixed effects and uses robust standard errors. *** p<0.01, ** p<0.05, * p<0.1

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