UTMD Working Paper

The University of Tokyo
Market Design Center

UTMD-077

Local Support or Structural Barriers? Unpacking Local Bias in Equity-Based Crowdfunding

Keiichi Kawai
Keio University

Akira Matsushita
Kyoto University

February 20, 2025

Local Support or Structural Barriers? Unpacking Local Bias in Equity-Based Crowdfunding

Keiichi KAWAI* Akira MATSUSHITA†‡

February 20, 2025

Abstract

We empirically show that local bias in equity-based crowdfunding (ECF) is driven by psychological factors such as hometown loyalty and regional pride, rather than structural barriers like informational asymmetry or geographic proximity. Using detailed user behavior data from Fundinno, Japan's leading ECF platform, which captures the entire decision-making process—from viewing campaign snippets to accessing detailed pages and ultimately deciding whether to invest—we identify two distinct forms of local bias: (1) local-viewing bias, where users are more likely to view campaigns hosted in their home prefectures, and (2) local-investing bias, where users exhibit a stronger preference for investing in campaigns within their own prefectures, without extending this preference to adjacent prefectures. Notably, these biases are absent in the Tokyo Metropolitan Area (TMA). If structural barriers such as informational asymmetry or geographic proximity were the primary drivers of local bias, we would expect these patterns to persist or even be amplified in TMA, given its dense population and the scale of economic activity, which could heighten localized informational advantages or interactions. Instead, the absence of local bias in TMA, combined with the strict confinement of local-investing bias to prefectural borders in other regions, provides compelling evidence that these behaviors are better explained by psychological and cultural factors than by structural inefficiencies.

1 Introduction

Equity-based crowdfunding (ECF) is a method of raising capital that enables businesses, particularly startups and small ventures, to sell their equity shares directly to individual investors via online platforms. Businesses create campaigns outlining their objectives, financial requirements, and the equity offered, allowing a wide range of investors to evaluate and contribute. Investors, in turn, receive ownership stakes proportional to their contributions, with potential returns through dividends, buyouts, or equity appreciation. By connecting ventures with a broad pool of backers, ECF has the potential to reduce dependence on traditional funding sources and expand access to capital.(1)

*Keio University, keiichikawai@keio.jp.

†Kyoto University, amatsushita@i.kyoto-u.ac.jp.

‡The first author gratefully acknowledges the financial support from Keio University, the Zengin Foundation for Studies on Economics and Finance, Nomura Management School, The Tokio Marine Kagami Memorial Foundation, and the JSPS KAKENHI Grant (23K01313). We also extend our sincere gratitude to Fundinno for generously providing the data used in this analysis. We confirm that we have no conflicts of interest related to this data provision and have not received any financial support or incentives from Fundinno in connection with this research.

(1)Cumming and Hornuf, eds (2018) and Cumming and Johan (2019) provide comprehensive surveys of equity-based crowdfunding, detailing its mechanisms, trends, and broader implications.

One of the core promises of ECF is its ability to overcome geographic and institutional barriers that have historically limited funding opportunities, especially for businesses in underserved regions. By leveraging online platforms, ECF enables ventures to attract investment beyond their immediate communities, allowing them to reach a wider audience of potential backers and compete for funding on a more equitable basis.

However, while ECF theoretically diminishes the importance of geographic proximity by enabling investors to evaluate campaigns based on their merits rather than on location, anecdotal evidence and prior studies suggest that local bias—where investors favor campaigns hosted in their own regions—may persist. Understanding whether such bias exists, and if so, what drives it, is crucial for evaluating the effectiveness of ECF in democratizing funding opportunities.

The causes of local bias are pivotal in determining its implications. If local bias arises from structural inefficiencies, such as informational asymmetries, geographic proximity, or transaction barriers, ECF may not fully resolve traditional challenges in accessing capital. Conversely, if local bias stems from psychological factors, such as hometown loyalty, regional pride, or an intrinsic desire to support local communities, it might serve as a socially constructive force by channeling resources into regional communities.

To analyze the extent and nature of local bias, it is important to consider the mechanisms through which such behavior can manifest. Local bias may arise through two interrelated channels: awareness and decision-making. First, a **local-viewing bias** occurs if users are more likely to become aware of campaigns hosted within their own region. Second, among those already aware, a **local-investing bias** emerges when users show a stronger preference for investing in campaigns hosted in their own regions. Examining these two channels provides a framework for understanding both how local bias operates and the factors that drive it.

Our analysis demonstrates that both viewing and investing biases are present in regions outside the Tokyo Metropolitan Area (TMA) but notably absent within it. This absence is particularly striking because, if structural factors—such as informational asymmetry or geographic proximity—were the primary drivers of local bias, one would expect TMA to exhibit such behavior. As a densely populated and economically diverse region, TMA offers abundant opportunities for local investors to access information, interact with entrepreneurs, and develop familiarity with ventures. The absence of local bias in TMA, coupled with the finding that investing bias in other regions is strictly confined to prefectural borders rather than being driven solely by physical distance, suggests that these behaviors are more likely driven by psychological factors such as hometown loyalty and regional pride.

To investigate these patterns, we draw on detailed access logs from Fundinno, Japan's dominant ECF platform. These data include comprehensive records of user interactions, capturing the entire decision-making process: from viewing campaign snippets to accessing detailed campaign pages and ultimately deciding whether to invest. This level of granularity allows us to identify not only who viewed campaign details but also who invested or refrained from investing after viewing, disentangling the dual channels through which local bias can manifest.

While existing studies often lack user-level log data that distinguish between users who are unaware of a campaign and those who are aware but deliberately choose not to invest, our dataset can capture this critical aspect, providing a more refined understanding of local bias in ECF. While the institutional details of Fundinno are discussed in Section 4, it is worth noting that only users who have completed the required ID verification process can register and make investments on the platform. Consequently, our dataset provides a comprehensive record of both viewing and investment behavior among registered users, making it particularly well-suited for analyzing locality-driven patterns.

These findings challenge the prevailing view that local bias is inherently inefficient. Prior studies, such as Lin and Viswanathan (2016) and Guenther et al. (2018), have emphasized structural factors—like geographic proximity, transaction costs, and informational asymmetries—as the primary drivers of local bias. For instance, Guenther et al. (2018) highlights how local investors benefit from the ability to visit ventures, interact directly with entrepreneurs, and gain a tangible understanding of the business. Similarly, broader research on home bias identifies barriers such as limited diversification opportunities and familiarity bias, which reflects a preference for investing in known entities.[(2)]

In contrast, our findings reveal a different narrative. Local bias in Japanese ECF is largely absent in TMA while remaining pronounced in other regions, suggesting that these behaviors are not primarily driven by structural inefficiencies. Instead, they reflect psychological and cultural factors, such as regional pride and hometown loyalty, which are considered as weaker in Tokyo given that nearly half of its residents come from other prefectures. This observation aligns with the concept of social capital, where emotional and cultural connections motivate investment in regional economies. This distinction underscores that local bias in ECF need not be interpreted as inefficiency; rather, it highlights how ECF platforms can harness intrinsic motivations to channel resources into underserved regions.

The remainder of this paper is organized as follows. Section 2 demonstrates that ECF in Japan has successfully attracted investors from across the country, effectively democratizing investment opportunities. However, we also show that local bias appears to persist at an aggregate level, raising questions about its underlying causes. Section 3 provides institutional details of Japan's ECF market and develops the hypotheses that guide our analysis. Section 4 introduces the data and presents key descriptive statistics to contextualize the subsequent empirical findings. Section 5 presents the main results, focusing on local-viewing and local-investing biases, and disentangles the mechanisms driving these patterns. Finally, Section 6 concludes by discussing the implications of our findings for the broader role of ECF in reducing barriers to funding and fostering regional development.

2 Geographic Spread of Campaigns and Investors

One of the promises of equity-based crowdfunding (ECF) is its potential to "democratize" investment opportunities by reducing geographic barriers. Proponents argue that equal and low-cost access to crowdfunding platforms could facilitate exposure, increase familiarity, and improve access to information for investors, rendering physical proximity less relevant. While complete geographic neutrality may be an overly idealistic goal, our data suggest that crowdfunding has mitigated some traditional constraints imposed by physical distance.

In this section, we explore the extent to which this promise of democratization holds in Japan's ECF market by investigating the extent of geographic neutrality versus local bias in investment behavior. Using aggregated-level evidence, we find strong evidence of local bias, particularly outside the Tokyo Metropolitan Area. Interestingly, the observed patterns suggest that the drivers of this local bias may differ from the factors often highlighted in the literature, such as information asymmetries or familiarity bias. To investigate these patterns, we use data from Fundinno, Japan's dominant equity crowdfunding platform.

As of October 31, 2024, Fundinno has successfully facilitated 561 campaigns. For this analysis, we focus

[(2)] Previous research identifies four key drivers of home bias in investment behavior: (1) transaction barriers, which restrict access to non-local markets (Stulz (1981), Bekaert and Harvey (2000), Dahlquist et al. (2003)); (2) limited diversification opportunities, which discourage cross-regional investments (Errunza et al. (1999)); (3) informational asymmetries, which give local investors better access to relevant, non-public information (Brennan and Cao (1997), Coval and Moskowitz (1999), Ahearne et al. (2004), Coval and Moskowitz (2001), Choe et al. (2005)); and (4) familiarity bias, which drives preferences for known or familiar entities (Huberman (2015), Chan et al. (2005), Bhattacharya and Groznik (2008), Loughran and Schultz (2005)).

on 527 campaigns, excluding 26 early-phase campaigns due to missing user-level access data, 3 canceled campaigns, 4 campaigns restricted to specific investor groups, and 1 campaign that failed to record access logs. Notably, Fundinno accounts for around 80% of the ECF market in Japan, in terms of both campaign volume and total funds raised. Given its market dominance, the patterns observed in Fundinno's data likely reflect broader trends in Japan's ECF market.(3)

2.1 Geographical Distributions of Campaigns and Investors

Table 1: Summary Statistics of Campaigns and Investors by Economic Area

Economic Area	Num of Campaigns (%)*	Amount Pledged to Area (%)**	Num of Users with Pledge (%)	Amount Pledged by Area (%)**
Tokyo Metropolitan	381 (72.30%)	9,390.17 (74.00%)	9,528 (52.93%)	6874.46 (53.39%)
Kansai	48 (9.11%)	1,108.32 (8.73%)	2,615 (14.53%)	1,867.48 (14.50%)
Kyushu	40 (7.59%)	1,053.49 (8.30%)	1,190 (6.61%)	732.79 (5.69%)
Chubu	32 (6.07%)	818.93 (6.45%)	2,356 (13.09%)	1,789.39 (13.90%)
Tohoku & N. Kanto	13 (2.47%)	130.21 (1.03%)	1,100 (6.11%)	703.41 (5.46%)
Hokkaido	7 (1.33%)	98.03 (0.77%)	361 (2.01%)	316.19 (2.46%)
Chugoku & Shikoku	6 (1.14%)	89.88 (0.71%)	850 (4.72%)	593.39 (4.61%)

* Percentages in parentheses represent the share of the total for the corresponding column.
** Amounts are in millions of JPY.

Table 1 summarizes the geographic distributions of campaigns and investors by economic area. As expected, campaigns on Fundinno are predominantly hosted by companies in Japan's major economic hubs, particularly the Tokyo Metropolitan Area. Companies in this region account for 72.30% of all campaigns and have secured 74.00% of the total pledged amount. This reflects Tokyo's central role in entrepreneurial activity. However, a closer look at the data reveals that equity-based crowdfunding is not limited to these major hubs. Companies outside traditional economic centers are actively utilizing ECF platforms to attract funding from a geographically dispersed pool of investors. This raises the question of how pledgers' geographic distribution compares to the concentration of campaigns.

While campaigns are concentrated in the Tokyo Metropolitan and Kansai areas, the distribution of pledgers is far more diverse. For instance, the Tokyo Metropolitan Area represents 52.93% of all users with pledges and contributes 53.39% of the total amount pledged, meaning nearly half of the pledgers come from other regions. Importantly, many campaigns hosted by companies outside Tokyo and Kansai successfully attract investments from these non-local pledgers, highlighting the role of ECF in broadening investment opportunities across Japan.

This pattern is particularly evident in regions like Kyushu and Chubu. Kyushu, for example, hosts 7.59% of campaigns and secures 8.30% of pledged amounts, with 6.61% of all pledgers originating from the region.

(3) The inaugural equity-based crowdfunding (ECF) campaign in Japan was launched by Fundinno on April 24, 2017. By September 2024, over 700 ECF campaigns had been conducted across various platforms, with a combined funding target of 10.3 billion JPY and more than 14.6 billion JPY successfully raised. These figures are based on data provided by the Japan Securities Dealers Association. For more details, see "Equity-based Crowdfunding Market Overview," Japan Securities Dealers Association, available at `https://market.jsda.or.jp/shijyo/kabucrowdfunding/` (accessed November 9, 2024).

Similarly, Chubu, home to industrial hubs like Aichi Prefecture, hosts 6.07% of campaigns and secures 6.45% of pledged amounts. These numbers indicate that companies in these regions are leveraging ECF platforms to reach investors both within and beyond their local areas. Even regions with relatively low campaign activity, such as Tohoku, Hokkaido, and Chugoku & Shikoku, demonstrate the ability to attract geographically dispersed pledgers. For instance, Hokkaido, which hosts only 1.33% of campaigns, still sees meaningful contributions from its investors to campaigns nationwide.

These findings highlight how ECF platforms enable companies outside major economic hubs to overcome traditional geographic barriers and secure investments from across Japan. By connecting companies in less prominent regions with investors from diverse locations, ECF is helping to level the playing field and democratize access to funding opportunities.

That said, while initial observations highlight the democratizing potential of ECF in enabling geographically dispersed investment, they do not necessarily imply that geographic barriers have been completely removed. Patterns of investor participation still indicate a preference for campaigns located closer to home. The following subsection provides aggregated-level evidence to support this indication.

2.2 Local Bias in Equity-Based Crowdfunding Market

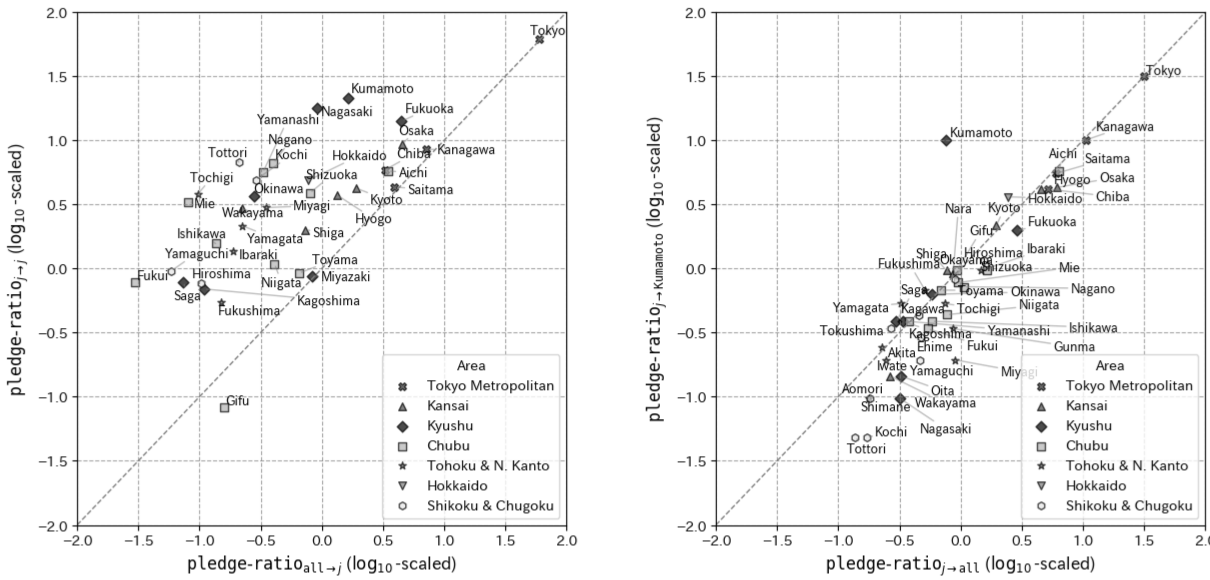
Table 2: Notations and Definitions

Variable	Values	Definition / Explanation
$\texttt{pledge}_{i\to j}$	$\mathbb{R}_+$	Total amount pledged by users residing in prefecture i to campaigns run by companies headquartered in prefecture j
$\texttt{pledge-ratio}_{\texttt{all}\to j}$	$[0, 100]$	$100 \times \frac{\sum_i \texttt{pledge}_{i\to j}}{\sum_k \sum_i \texttt{pledge}_{i\to k}}$: The proportion of the total amount pledged to campaigns in prefecture j relative to the total amount pledged across all campaigns
$\texttt{pledge-ratio}_{i\to\texttt{all}}$	$[0, 100]$	$100 \times \frac{\sum_k \texttt{pledge}_{i\to k}}{\sum_k \sum_j \texttt{pledge}_{j\to k}}$: The proportion of the total amount pledged by users in prefecture i relative to the total amount pledged across all campaigns
$\texttt{pledge-ratio}_{i\to j}$	$[0, 100]$	$100 \times \frac{\texttt{pledge}_{i\to j}}{\sum_k \texttt{pledge}_{i\to k}}$: The proportion of the total amount pledged by users in prefecture i to the campaigns in prefecture j relative to the total amount pledged across all campaigns by the users in prefecture i

While ECF has broadened access to funding and investment opportunities, examining the extent to which proximity still influences investment behavior requires defining the variables and ratios used in this analysis. These are summarized in Table 2. The `pledge-ratio`, in particular, captures the geographical flow of crowdfunding investments by focusing on where pledges originate and where they are directed.

With the variables defined, we now turn to the observed patterns of pledging behavior in Japan's ECF market. These patterns reveal a nuanced picture of local bias, characterized by strong evidence of within-prefecture preference and limited support for pledging behavior based on geographic proximity to neighboring prefectures.

As for the first point, Figure 1-(a) illustrates a significant local bias at the prefectural level. More specifically, the 45-degree line in Figure 1-(a) represents parity between $\texttt{pledge-ratio}_{\texttt{all}\to j}$ and $\texttt{pledge-ratio}_{j\to j}$. Points above this line indicate that investors in a prefecture disproportionately favor campaigns run by local companies. While prefectures in the Tokyo Metropolitan Area tend to cluster near the 45-degree line, reflecting little to no local bias, most other prefectures exhibit pronounced deviations above the line, signaling a strong preference for local campaigns. This pattern is particularly prominent in prefectures outside the Tokyo Metropolitan Area.



(a) pledge-ratio$_{\text{all}\to j}$ vs pledge-ratio$_{j\to j}$ (b) pledge-ratio$_{i\to\text{all}}$ vs pledge-ratio$_{i\to\text{KMT}}$

Figure 1: Examining Local Bias in Pledging Behavior Across Prefectures and for Campaigns in Kumamoto.

For example, consider Kumamoto ($j = \texttt{Kumamoto}$), which hosted 13 campaigns. As detailed in Table 12 (in the Appendix), the total amount pledged to campaigns run by Kumamoto-based companies (pledge-ratio$_{\text{all}\to\text{Kumamoto}}$) constitutes $1.63\% \sim 10^{0.21}$ of the national total. In stark contrast, Kumamoto-based investors allocated $21.17\% \sim 10^{1.32}$ of their total pledged funds to campaigns in Kumamoto. This sharp disparity highlights the strong local bias among Kumamoto investors, a trend that is similarly recognizable in other prefectures, such as Nagasaki and Fukuoka. These observations underscore the prevalence of local bias in ECF, particularly in regions outside the Tokyo Metropolitan Area.

Interestingly, despite the strong local bias observed within prefectures, this preference does not appear to extend beyond prefectural borders, even for neighboring regions. One might expect that proximity effects would lead investors in adjacent prefectures to favor nearby campaigns, but Figure 1-(b) suggests otherwise. For instance, adjacent prefectures to Kumamoto ($j = \texttt{Kumamoto}$), such as Fukuoka, Saga, Nagasaki, Oita, and Miyazaki, show plots clustering near or below the 45-degree line. This pattern indicates that residents of these prefectures pledge to Kumamoto campaigns in proportion to, or less than, their overall share of national pledges.

Consider Oita ($i = \texttt{Oita}$) as an example. While Oita-based investors account for $0.33\% \sim 10^{-0.48}$ of the national total pledged amount (pledge ratio by $i = \texttt{Oita}$), only $0.14\% \sim 10^{-0.85}$ of their pledges were directed to campaigns run by Kumamoto-based companies (pledge ratio by $i = \texttt{Oita}$ to $j = \texttt{Kumamoto}$). This example underscores the limited effect of geographic proximity, with pledging behavior toward Kumamoto campaigns remaining relatively modest in adjacent prefectures.

These findings highlight that while local bias within prefectures is a prominent feature of Japan's ECF market, its influence is sharply bounded by prefectural borders. This contrasts with previous studies, such as Lin and Viswanathan (2016) and Guenther et al. (2018), which emphasize geographic proximity as a key driver of local bias. According to Lin and Viswanathan (2016) and Guenther et al. (2018), factors such as the ability of local investors to visit ventures, interact directly with entrepreneurs, or gain a more tangible sense of the venture are critical in shaping local bias.

However, the observed patterns in Japan's ECF market challenge the universality of these explanations. The absence of a spillover effect into neighboring prefectures suggests that factors such as geographic proximity, information asymmetries, or company-driven promotional efforts are unlikely to fully account for local bias. Most campaigns on ECF platforms are relatively small in scale, with limited public visibility or detailed disclosures, making it improbable that local investors possess significantly more information than non-local counterparts. Moreover, companies promoting their campaigns through networks or advertisements would likely target broader regions beyond prefectural borders. If such factors were the primary drivers of local bias, we would expect to observe some influence extending into adjacent prefectures, which is not supported by the data.

Instead, these findings strongly suggest that the source of local bias is rooted in emotional or social factors, such as hometown loyalty or regional attachment. Investors may feel a stronger sense of trust, pride, or responsibility toward ventures based in their own prefecture, viewing their investments as an opportunity to support the local economy or reinforce regional identity. This distinct alignment with local ventures underscores the unique nature of local bias in Japan's ECF market, where local attachment appears to outweigh the influence of proximity, informational advantages, or traditional barriers highlighted in the literature.

The patterns identified in this section are based on aggregate-level data, which provide valuable insights into the existence and extent of local bias in Japan's ECF market. However, to better understand whether this bias stems from psychological or perceptual factors, we turn to the microdata. By leveraging the detailed access logs of user behavior on the platform, we investigate investment decisions at the individual user level to uncover the mechanisms driving local bias.

3 Hypothesis Development

To develop our hypotheses regarding local bias in user-level behavior, it is first important to understand the institutional details of the ECF platform and how users typically interact with campaigns. This includes examining user browsing patterns, the availability of campaign information, and the timing of pledging decisions. Additionally, we outline the key variables available in our dataset, which capture various dimensions of user behavior and campaign performance. These institutional factors and variables collectively shape the behavior of investors and provide the necessary context for framing and testing our hypotheses.

3.1 Access to Campaign Detail Pages

Fundinno operates under Japan's stringent regulatory framework, requiring companies seeking to raise capital to provide comprehensive disclosures, such as financial statements and business plans. The platform employs the widely-used All-or-Nothing (AoN) funding model, where campaigns must meet their funding targets to secure any funds. Successful campaigns receive the total amount pledged, minus Fundinno's service fee.

A unique feature of Fundinno is its short campaign duration, divided into two phases: the preview phase and the investment phase. During the preview phase, typically lasting about two weeks, users can view essential campaign details, such as the company's business plan and funding target, but cannot make investments. The investment phase follows, usually lasting only two days, during which users can pledge funds until the maximum funding limit is reached.

Understanding how users engage with campaigns on Fundinno is critical to exploring their investment behavior. Before investing, users must first access the campaign detail page, where comprehensive information about the campaign is displayed. Figure 2 illustrates two primary pathways through which users access a campaign's detail page:

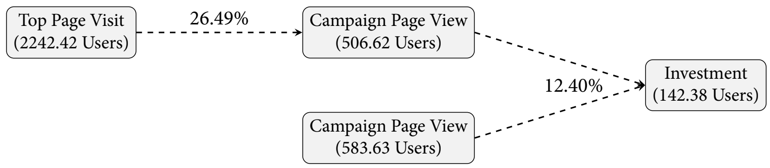


Figure 2: User Behavior on Fundinno Page

1. **Top Page Navigation:** Users arriving at Fundinno's top page see campaigns presented in a grid layout (Figure 3), with investment-phase campaigns featured prominently. Each campaign card displays key details, such as the company name, remaining time to invest, and a progress bar indicating the amount pledged. Clicking on a campaign card redirects users to the campaign detail page. This pathway accounts for 26.49% of top page visitors transitioning to a campaign detail page.

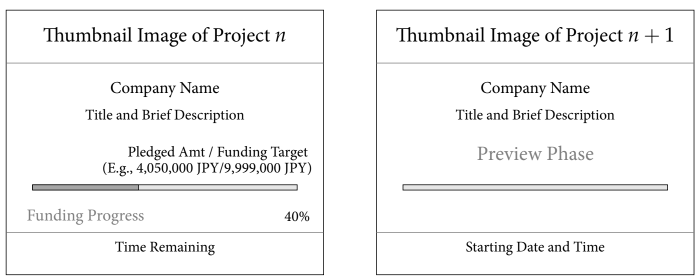


Figure 3: Sample display of campaign listing page on Fundinno

2. **Direct Access:** Users may bypass the top page entirely and land directly on a campaign detail page via external sources, such as promotional emails, web banners, or referral links.

Regardless of the pathway, once users access the campaign detail page, they review the detailed information before deciding whether to invest. On average, 12.40% of users who view a campaign detail page proceed to make an investment.

3.2 Hypothesis Development: Decomposing Local Bias

The pathways through which users access campaign detail pages, described in the previous subsection, provide insight into the mechanisms underlying the observed local bias. As shown in Figure 1-(a), local users—those residing in the same prefecture as the company hosting the campaign—demonstrate a clear tendency to invest more in local campaigns compared to non-local users.

We hypothesize that this observed local bias arises from psychological factors such as hometown loyalty, pride, or emotional attachment, rather than traditional explanations in the literature. Specifically, the patterns of local bias observed in Japan's ECF market suggest that factors such as information asymmetries or geographic proximity are unlikely to fully account for this behavior.

If psychological factors drive the bias, they are expected to influence user behavior at two distinct stages. First, these factors would motivate local users to disproportionately view campaigns tied to their prefecture, a phenomenon we refer to as **(Local-)Viewing Bias**. Second, after viewing, these same factors would increase the likelihood of local users investing in these campaigns, leading to **(Local-)Investment Bias**.

1. **(Local-)Viewing Bias:** This bias reflects how users' perception of a campaign as "local" influences their likelihood of clicking on the campaign card to access its detail page. Campaigns may be identified as local based on visible information in the campaign snippet, such as the company's headquarters. Viewing a campaign detail page is a low-cost, low-commitment action, making it an early stage where psychological factors might first manifest. For instance, local users might feel curiosity or familiarity, prompting them to explore campaigns tied to their prefecture.

2. **(Local-)Investment Bias with Adjacency Neutrality (Conditional on Viewing):** This bias reflects user preferences in the decision-making stage after accessing a campaign's detail page. Local users are more likely to invest in local campaigns than users from other regions, even when accounting for differences in viewing behavior. This tendency may arise from psychological factors such as hometown loyalty, emotional attachment, or a sense of pride and responsibility in supporting ventures within their prefecture. Importantly, this bias does not extend to campaigns based in neighboring prefectures, even when those regions are geographically close.

3.3 Hypotheses: Viewing and Investment Bias

3.3.1 Key Variables

Table 3: Notations and Definitions

Variable	Values	Definition / Explanation
$\texttt{visit}_{i \to j}$	$\{0,1\}$	Indicates whether user i accessed Fundinno's top page while campaign j was displayed (during the preview or investment phase) without having viewed j's detail page beforehand.
$\texttt{view}_{i \to j}$	$\{0,1\}$	Indicates whether user i viewed the detail page of campaign j.
$\texttt{visit-view}_{i \to j}$	$\{0,1\}$	Defined only if $\texttt{visit}_{i \to j} = 1$. It equals 1 if $\texttt{view}_{i \to j} = 1$.
$\texttt{inv}_{i \to j}$	$\{0,1\}$	Defined only if $\texttt{view}_{i \to j} = 1$. It equals 1 if user i pledged funds to campaign j.
$\texttt{pref}_j$	–	For users: the prefecture where user j resides. For campaigns: the prefecture where the company managing campaign j is headquartered.
$\texttt{adj}_j$	–	Set of prefectures adjacent to $\texttt{pref}_j$, excluding $\texttt{pref}_j$ itself (e.g., $\texttt{adj}_{\texttt{Tokyo}} = \{\texttt{Kanagawa}, \texttt{Chiba}, \texttt{Saitama}, \texttt{Yamanashi}\}$).
$\texttt{display}_j$	$\{0,1\}$	Equals 1 if the campaign snippet for j explicitly includes the name of a region associated with the campaign (e.g., prefecture or city).

Notes: Adjacent prefectures of each prefecture are listed in Table 11 in Appendix.

To empirically test for the existence and magnitude of viewing and investing biases, it is essential to clearly define these concepts and the variables used to measure them. To that end, we first summarize the key variables used in our study in Table 3.

3.3.2 Viewing Bias

With the key variables formally defined, we now turn to defining viewing bias, the first channel through which local bias may manifest. Viewing bias refers to the extent to which the awareness of a campaign's locality influences user behavior, specifically the likelihood of accessing a campaign's detail page. To empirically examine viewing bias, we must account for the fact that users' awareness or perception of a campaign as "local" is inherently unobservable. Instead, we use a proxy: whether the campaign snippet explicitly mentions the name of the region associated with the campaign. When the campaign snippet for campaign j (as in Figure 3) explicitly includes the name of the region, i.e., $\texttt{display}_j = 1$, users visiting the campaign listing page are more likely to associate the campaign with its locality. This allows us to analyze how the explicit display of regional information influences users' likelihood of viewing the campaign detail page. To analyze the impact of $\texttt{display}_j$ on the likelihood that a visitor views the detail page of campaign j, we model the odds ratio of the viewing probability as follows:

$$\begin{aligned}\log\left(\frac{\Pr[\texttt{visit-view}_{i\to j} = 1 \mid \texttt{display}_j]}{\Pr[\texttt{visit-view}_{i\to j} = 0 \mid \texttt{display}_j]}\right) &= \sum_k \gamma_k \times \mathbb{1}_{\{\texttt{pref}_i = \texttt{pref}_j = k\}} \\ &\quad + \sum_k \delta_k \times \texttt{display}_j \times \mathbb{1}_{\{\texttt{pref}_i = \texttt{pref}_j = k\}} \\ &\quad + u_i + c_j + \epsilon_{ij},\end{aligned} \tag{1}$$

where:

1. γ_k: Represents the **baseline log-odds** of viewing a campaign's details when the campaign snippet does not display the name of the region ($\texttt{display} = 0$), specifically for users residing in prefecture k and viewing campaigns also in prefecture k. This term reflects the inherent predisposition of local users toward local campaigns, independent of the regional name display.

2. δ_k: Represents the **incremental change in log-odds** when the campaign snippet displays the name of the region ($\texttt{display}_j = 1$) compared to when it does not ($\texttt{display}_j = 0$), for users residing in prefecture k and viewing campaigns also in prefecture k.

3. u_i: Captures **user-specific effects**, representing characteristics unique to user i, such as browsing habits or general interest in equity-based crowdfunding (ECF) campaigns. This term accounts for variability in behavior that is unrelated to campaign-level characteristics.

4. c_j: Captures **campaign-specific effects**, representing characteristics unique to campaign j, such as its inherent quality, appeal, or design. This term accounts for variability in campaign-level attractiveness that is unrelated to user-level behavior.

5. ϵ_{ij}: Represents the **residual term**, capturing idiosyncratic factors influencing individual viewing decisions at the user-campaign level.

We say that users in prefecture k exhibit **(local-)viewing bias** if $\delta_k > 0$, indicating that the presence of the region name in the campaign snippet enhances the likelihood of users from prefecture k viewing campaigns from their own prefecture. While any user behavior can be captured by the specification (1), as the residual term ϵ_{ij} accounts for all unexplained variation, the interpretation of δ_k as a measure of local-viewing bias depends on specific assumptions about user behavior and campaign exposure. Below, we outline key considerations that could affect this interpretation:

1. **Habitual Nature of Top Page Visits:** Most visits to the top page are likely driven by general interest in equity crowdfunding campaigns or routine browsing behavior, rather than targeted intent to view specific campaigns. This habitual nature suggests that the behavior of top-page visitors can reasonably approximate broader patterns of user engagement on the platform. While some users bypass the top page through direct links or referrals, these instances are unlikely to significantly distort the interpretation of δ_k.

2. **Non-Strategic Nature of Region Name Display:** The inclusion of the region name in a campaign snippet ($\texttt{display}_j = 1$) is virtually costless, involving minimal effort and no substantive trade-offs for campaigns. This makes it unlikely that campaigns strategically decide whether or not to display the region name based on their intended audience. Instead, this choice likely reflects minor variations in how campaigns present information, ensuring that δ_k primarily captures user responses to the region name display rather than campaign-driven targeting strategies.

3. **Minimal Influence of External Factors:** Although external factors, such as promotional activities outside the platform, could influence user behavior, their impact on δ_k is likely limited. The habitual nature of top-page visits provides a stable baseline for evaluating viewing behavior, and the non-strategic nature of region name display further mitigates concerns about confounding effects from external actions.

Taken together, these considerations support the validity of δ_k as a reasonable measure of local-viewing bias. While acknowledging potential external influences, the habitual browsing patterns of users and the minimal cost of region name display suggest that δ_k effectively captures the intrinsic role of region name display in shaping user awareness and viewing behavior.

3.3.3 Investing Bias and Adjacency Neutrality

Building on the role of viewing bias in shaping user engagement, we now consider how awareness of a campaign's locality influences investment decisions. Once users access a campaign's detail page, they are typically aware of the company's headquarters location. This awareness may further shape their investment behavior, potentially leading users to favor campaigns based on geographic proximity or familiarity. Specifically, individuals might exhibit a stronger preference for investing in campaigns hosted by companies within their own prefecture.

To formally analyze this potential investment bias, we model the odds ratio of the investment probability, conditional on viewing the campaign detail page, as follows:

$$\begin{aligned}\log\left(\frac{\Pr[\texttt{inv}_{i\to j}=1\mid \texttt{view}_{i\to j}]}{\Pr[\texttt{inv}_{i\to j}=0\mid \texttt{view}_{i\to j}]}\right) &= \sum_k \alpha_k \times \mathbb{1}_{\{\texttt{pref}_i=k, k\in\texttt{adj}_j\}} \\ &\quad + \sum_k \beta_k \times \mathbb{1}_{\{\texttt{pref}_i=\texttt{pref}_j=k\}} \\ &\quad + u_i + c_j + \epsilon_{ij},\end{aligned} \tag{2}$$

where

1. α_k: Represents the **incremental log-odds** of investing in campaigns located in prefectures adjacent to k (excluding k itself) by users residing in prefecture k. This term captures how residents of prefecture k are more likely to invest in campaigns in neighboring prefectures, reflecting the influence of geographical proximity, such as familiarity or accessibility.

2. β_k: Represents the **incremental log-odds** of investing in campaigns located in prefecture k by users residing in the same prefecture. This term encompasses the effects captured by α_k (e.g., familiarity or proximity) but also includes additional factors such as **hometown loyalty**. It reflects the enhanced predisposition of local users toward local campaigns.

We say that users in prefecture k exhibit a **local-investment bias with adjacency neutrality** if $\alpha_k = 0$ and $\beta_k > 0$. This definition reflects the idea that users demonstrate a distinct preference for campaigns hosted by companies within their own prefecture while remaining neutral toward campaigns in adjacent prefectures. This pattern suggests that the observed local bias is not merely a function of physical distance or administrative boundaries. Instead, it likely stems from psychological factors, such as a sense of loyalty, pride, or attachment to their prefecture of residence.

However, this definition assumes that users' current place of residence strongly influences their sense of locality or attachment, which drives their investment behavior. While current residence is a practical and measurable proxy for locality-based preferences, it may not fully capture other factors, such as users' past residences, family ties, or cultural connections to other regions. Below, we outline key considerations that could influence this interpretation:

1. **Role of Hometown Loyalty:** For individuals who have migrated to larger urban areas, their attachment to their place of origin may overshadow their connection to their current residence. These users might exhibit "hometown loyalty," directing their preferences toward their hometown rather than their present location. As a result, our definition could understate the role of such emotional ties in driving local-investment bias.

2. **Demographic Dynamics in Urban Areas:** The transient and diverse population in regions like the Tokyo Metropolitan Area presents a unique challenge. Many residents in such regions are originally from other prefectures, and their investment preferences may align more closely with their hometowns than with their current place of residence. This dynamic could weaken the observed local-investment bias for campaigns based in urban centers.

3. **Practical Boundary Choice:** While local attachments might also operate at smaller geographic scales (e.g., cities or neighborhoods), prefectural boundaries serve as a practical unit of analysis.

Despite these nuances, we hypothesize that prefectural identity remains the most meaningful unit for analyzing local-investment bias. Prefectures in Japan are widely recognized as meaningful administrative and cultural entities, often shaping regional identity and influencing user behavior. This makes them a reasonable proxy for studying locality, even if physical proximity is not the primary driver of local bias.

More importantly, for prefectures with significant net outflows of residents, the observed local-investment bias, as captured by β_k, may understate its true magnitude. Many individuals who have relocated to other regions likely retain a sense of hometown loyalty, continuing to support campaigns in their home prefecture despite no longer being classified as residents. Consequently, β_k serves as a conservative measure—or a lower bound—of the actual degree of local bias.

3.3.4 Hypothesis

To empirically test the existence of viewing and investing biases, we formalize the hypotheses based on the psychological factors hypothesized to drive local bias. These hypotheses also contrast with prior literature, which emphasizes geographic proximity, information asymmetry, or familiarity as key drivers of local bias.

If local bias stems from psychological factors such as hometown loyalty, pride, or regional attachment, we expect both viewing and investing biases to be particularly pronounced in areas with strong regional identity. These areas are typically rural or less urbanized regions, where a sense of community and attachment to local businesses often plays a more significant role in shaping user behavior.

Conversely, neither viewing nor investing bias is likely to exist in the Tokyo Metropolitan Area (TMA). As discussed earlier, TMA's transient and diverse population, coupled with its weaker regional identity compared to smaller prefectures, diminishes the salience of locality as a driver of behavior. Under this hypothesis, local bias should predominantly manifest in non-TMA regions, where regional identity plays a more significant role.

In contrast, if local bias is driven by factors frequently highlighted in the literature—such as geographic proximity, information asymmetry, or familiarity—then both viewing and investing biases should be present in TMA. Given its dense population and extensive economic activity, TMA would likely amplify these effects if they were the primary causes of local bias. Indeed, if these factors drive local bias, we would expect it to be at least as pronounced in TMA as in smaller prefectures, if not more so. The contrast between these two explanations forms the basis of our hypotheses:

H1 (Local-Viewing Bias): Users residing in prefectures outside the Tokyo Metropolitan Area (TMA) exhibit local-viewing bias, such that $\delta_k > 0$ for all prefectures k outside TMA, and $\delta_k = 0$ for all prefectures k within TMA.

H2 (Local-Investing Bias with Adjacency Neutrality): Users residing in prefectures outside TMA exhibit local-investing bias with adjacency neutrality, such that $\beta_k > 0$ and $\alpha_k = 0$ for all prefectures k outside TMA, while $\beta_k = 0$ for all prefectures k within TMA.

4 Data and Methodology

4.1 Data

To construct the key variables defined in Table 3, we utilize the following datasets provided by Fundinno:

1. **`campaign_df` (527 campaigns)**: For each campaign, this dataset includes the company name, `company_id`, `campaign_id`, funding target, funding limit, start time of the preview period, start time of the investing period, end time of the investing period, and the prefecture of the company's headquarters.[4] *(Complete dataset, no missing rows.)*

2. **`user_df` (44,512 registered users)**[5]: For each registered user (i.e., those eligible to invest), this dataset includes `user_id`, prefecture of residence, and registration and approval dates.[6] *(Complete dataset, no missing rows.)*

[4] The dataset also includes additional details such as the area of business, self-reported stock price, and whether the company holds patents, has achieved profitability, received venture capital support, or its tenure. These attributes are recorded but not explicitly modeled due to the inclusion of campaign fixed effects.

[5] We have excluded all users who are not eligible to invest.

[6] The dataset also includes user-level variables such as year of birth, self-reported income, and investment experience, which are not directly used in this analysis due to the inclusion of user fixed effects.

3. **`orders_df`**: For each pair of `campaign_id` and `user_id` where an investment-related action (e.g., investment, cancellation, or application to be waitlisted) is recorded, this dataset includes the timestamp of the action, the type of activity, the pledged amount, and the canceled amount. *(Complete dataset, no missing rows.)*

4. **`access_log_df` (40,123,306 rows)**: For each campaign, during the preview or investment phase, this dataset records the timestamp of each activity (e.g., visit to the top page, campaign detail page view, or investment in the campaign), the `session_id`, the type of activity, and the `user_id` if the activity was performed by a signed-in user. *(Some rows are missing.)*

While these datasets provide comprehensive coverage of user and campaign activities, certain limitations remain. A primary issue is that users can view campaign detail pages without logging in, resulting in some access log entries lacking a `user_id`. These entries may correspond to browsing behavior by registered users who did not log in during their sessions, making it challenging to associate these actions with specific users.

However, the `session_id` enables us to track a user's activity within a single session. If a user logs in during the session—for instance, logging in is required to make an investment—we can associate all actions performed within that session, including those completed prior to logging in (such as browsing campaign detail pages or visiting the site), with the corresponding `user_id`. Moreover, as making a pledge necessitates logging into a registered account, we can reliably trace the `user_id` for all investors.

Additionally, as is common with access logs, some data appear to be missing in the following ways:

- **Unrecorded Activities**: 1.27% of the 76,248 unique `user-campaign_id` pairs with recorded investments in `orders_df` lack any corresponding activities (e.g., views or investment actions) in `access_log_df`.

- **Partial Records**: An additional 0.23% of the same `user-campaign_id` pairs have investment actions logged in `access_log_df` but no prior viewing behavior.

These 1,104 pairs have been excluded from our analysis, leaving 1,489,064 unique pairs of `user_id` and `campaign_id` with complete records of all variables defined in Table 3.

4.2 Descriptive Statistics

As summarized in Table 4, campaigns on Fundinno exhibit substantial heterogeneity in both their sizes and outcomes. This variation is evident in the wide range of funding targets and limits, as well as in the diversity of pledged amounts and success rates. For instance, while some campaigns struggle to attract sufficient investor interest, others surpass their funding limits, achieving exceptional levels of success. Similarly, the number of visitors, viewers, and investors varies significantly across campaigns, reflecting differences in user engagement and campaign appeal.

User behavior also displays considerable variation. For example, while 75% of all users have viewed fewer than 9 campaigns, over half of those who invested have viewed more than 11 campaigns. These patterns suggest that investors engage more actively with multiple campaigns, offering valuable insights into user interactions with the platform. Given these variations, it is crucial to control for characteristics specific to both campaigns and users.

Table 4: Descriptive Statistics of Campaigns and Users

Campaign Metrics ($N = 527$)	**Mean**	**Std**	**25%**	**50%**	**75%**	**Max**
Funding Target (JPY)	13,887,260.38	7,799,753.71	9,990,000.00	12,500,000.00	16,000,000.00	80,000,000.00
Funding Limit (JPY)	48,394,737.95	21,781,349.10	30,091,000.00	45,000,000.00	60,000,000.00	99,990,000.00
Pledged Amount (JPY)	24,077,864.24	19,451,787.81	9,522,000.00	19,500,000.00	32,300,000.00	99,990,000.00
Success Ratio (%)	194.31	155.07	79.79	150.00	275.63	1,010.11
User Engagement by Campaign ($N = 44,512$)	**Mean**	**Std**	**25%**	**50%**	**75%**	**Max**
Visitors to Campaigns: $\sum_i \texttt{visit}_{i\to j}$	2241.92	1010.20	1488.50	2261.00	2870.50	4859.00
Views of Campaigns: $\sum_i \texttt{view}_{i\to j}$	1090.25	344.16	834.50	1037.00	1302.00	2534.00
Viewers among Visitors: $\sum_i \texttt{visit-view}_{i\to j}$	506.62	180.82	377.50	483.00	600.00	1294.00
Investors per Campaign: $\sum_i \texttt{inv}_{i\to j}$	142.38	117.58	50.00	111.00	198.50	591.00
User Engagement Across Campaigns ($N = 44,512$)	**Mean**	**Std**	**25%**	**50%**	**75%**	**Max**
Visited Campaigns: $\sum_j \texttt{visit}_{i\to j}$	26.54	51.83	4.00	8.00	24.00	520.00
Viewed Campaigns: $\sum_j \texttt{view}_{i\to j}$	12.91	34.80	1.00	3.00	9.00	511.00
Viewed after Visited: $\sum_j \texttt{visit-view}_{i\to j}$	6.00	18.15	0.00	1.00	5.00	461.00
Campaigns Invested In: $\sum_j \texttt{inv}_{i\to j}$	1.69	5.72	0.00	0.00	1.00	277.00
User with At Least One View ($N = 35,561$)	**Mean**	**Std**	**25%**	**50%**	**75%**	**Max**
Visited Campaigns: $\sum_j \texttt{visit}_{i\to j}$	32.09	56.58	5.00	11.00	32.00	520.00
Viewed Campaigns: $\sum_j \texttt{view}_{i\to j}$	16.16	38.26	2.00	4.00	13.00	511.00
Viewed after Visited: $\sum_j \texttt{visit-view}_{i\to j}$	7.51	20.03	1.00	2.00	6.00	461.00
Campaigns Invested In: $\sum_j \texttt{inv}_{i\to j}$	2.11	6.33	0.00	0.00	2.00	277.00
User with At Least One Pledge ($N = 17,758$)	**Mean**	**Std**	**25%**	**50%**	**75%**	**Max**
Visited Campaigns: $\sum_j \texttt{visit}_{i\to j}$ 54.64	71.72	11.00	28.00	66.00	520.00	
Viewed Campaigns: $\sum_j \texttt{view}_{i\to j}$	28.20	50.75	4.00	11.00	28.00	511.00
Viewed after Visited: $\sum_j \texttt{visit-view}_{i\to j}$	12.71	26.80	1.00	5.00	12.00	461.00
Campaigns Invested In: $\sum_j \texttt{inv}_{i\to j}$	4.23	8.45	1.00	2.00	4.00	277.00

Table 5: Summary statistics of `view-visit ratios` by economic area for $\texttt{display}_j = 0/1$

Economic Area	**Count**		$\texttt{view-visit ratio}_j$		$\texttt{local view-visit ratio}_j$	
	0	1	0	1	0	1
Tokyo Metropolitan	374	7	27.77 (14.09)	20.32 (4.36)	27.79 (13.39)	21.79 (3.69)
Kansai	42	6	22.19 (5.51)	22.81 (3.28)	22.52 (7.50)	34.23 (10.50)
Kyushu	33	7	26.99 (12.60)	23.86 (8.66)	36.95 (19.91)	42.42 (23.35)
Chubu	26	6	25.60 (11.73)	20.96 (6.79)	28.77 (11.93)	47.99 (15.80)
Tohoku & N. Kanto	11	2	20.04 (5.63)	18.10 (1.84)	27.86 (12.54)	34.13 (4.76)
Hokkaido	3	4	18.45 (4.06)	16.82 (3.12)	28.62 (11.89)	34.02 (8.64)
Shikoku & Chugoku	5	1	22.32 (7.37)	25.31	37.44 (22.82)	50.00

Notes:

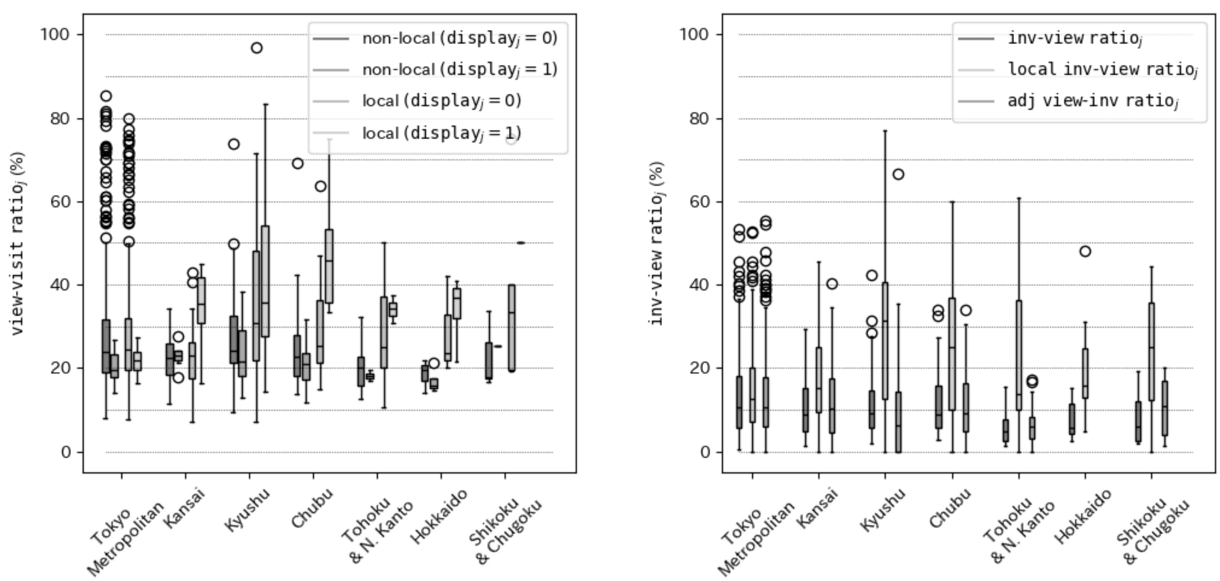
- Parentheses represent standard deviations.
- The values 0 and 1 represent the value of $\texttt{display}_j$.

4.2.1 Summary Statistics Related to Viewing Bias

To investigate the potential role of viewing behavior in explaining campaign outcomes, we introduce two measures: the `view-visit ratio`, which captures the overall conversion of visits into views across all users, and the `local view-visit ratio`, which focuses on the conversion for users within the same prefecture as the campaign. These measures serve as empirical analogs of $\Pr[\texttt{visit-view}_{i\to j} = 1 \mid \texttt{display}_j]$, corresponding to the cases where $\texttt{display}_j = 0$ and $\texttt{display}_j = 1$, respectively, as specified on the left-hand side of (1).

$$\texttt{view-visit ratio}_j \equiv 100 \times \frac{\sum_{i\in\texttt{all pref}} \texttt{visit-view}_{i\to j}}{\sum_{i\in\texttt{all pref}} \texttt{visit}_{i\to j}},$$

$$\texttt{local view-visit ratio}_j \equiv 100 \times \frac{\sum_{i\in\texttt{pref}_j} \texttt{visit-view}_{i\to j}}{\sum_{i\in\texttt{pref}_j} \texttt{visit}_{i\to j}}.$$



(a) `local` vs `non-local view-visit ratio`$_j$ (b) `local` vs `non-local inv-view ratio`$_j$

Figure 4: Viewing Bias and Investing Bias

The relationship between the `view-visit ratio` and the `local view-visit ratio` provides a way to assess local-viewing bias, as captured by the parameters γ_k and δ_k in (1). Specifically, the difference between the `local view-visit ratio` and the `view-visit ratio` when $\texttt{display}_j = 0$ reflects the baseline local-viewing bias, or γ_k. This difference measures the tendency of local users to view campaigns from their own prefecture, even when no explicit regional information is provided in the campaign snippet. Additionally, the incremental difference in these ratios when $\texttt{display}_j = 1$ compared to $\texttt{display}_j = 0$ reflects δ_k, which captures the influence of explicitly displaying the region name on local-viewing behavior.

The summary statistics in Table 5, combined with the box plot in Figure 4, illustrate these patterns across different economic areas. In the Tokyo Metropolitan Area (TMA), the `local view-visit ratio` is nearly identical to the `view-visit ratio`, regardless of whether the region name is displayed in the campaign snippet. For campaigns where $\texttt{display}_j = 0$, the `view-visit ratio` is 27.77%, while the `local view-visit ratio` is 27.79%. Similarly, for $\texttt{display}_j = 1$, the `view-visit ratio` is 20.32%, and the `local view-visit ratio` is 21.79%. These minimal differences suggest the absence of significant local-viewing bias in TMA, consistent with Hypothesis 1, which posits that local-viewing bias is less likely to appear in areas with weaker regional identities.

Outside the TMA, the data show a different pattern. In regions such as Kyushu, Kansai, and Chubu, the `local view-visit ratio` is consistently higher than the `view-visit ratio` when $\texttt{display}_j = 0$, indicating baseline local-viewing bias. For example, in Kyushu, the `view-visit ratio` is 26.99%, while the `local view-visit ratio` is 36.95%. Moreover, when the region name is displayed ($\texttt{display}_j = 1$), the difference between these ratios becomes more pronounced. In Kyushu, for instance, the `local view-visit ratio` increases further to 42.42%, while the `view-visit ratio` decreases slightly to 23.86%. This increase in local-viewing bias when $\texttt{display}_j = 1$ is consistent with $\delta_k > 0$, demonstrating the role of explicit regional cues in strengthening local engagement.

These observations align with Hypothesis 1, which states that local-viewing bias is more likely to manifest in areas outside TMA, where regional identities are stronger. The data also suggest that explicit regional cues amplify local engagement, as evidenced by the larger δ_k values observed in these regions.

Although the observed patterns align with Hypothesis 1, the comparison of `local view-visit ratios` and `view-visit ratios` when $\texttt{display}_j = 0$ raises an important consideration. Specifically, the higher likelihood of local users viewing campaign detail pages—even in the absence of explicit regional information—may suggest that local users are responding to implicit cues within the campaign snippets. These cues, such as visual elements or subtle textual hints, could enable users to infer locality without explicit regional markers. If such implicit cues influence local-viewing behavior, δ_k—which measures the incremental impact of explicit regional cues—captures only part of the broader local-viewing bias. Consequently, δ_k may underestimate the true magnitude of local users' engagement with campaigns tied to their prefecture. This possibility underscores the need to interpret δ_k within the context of potential unobserved factors, a point we will revisit in the econometric analysis that follows.

4.2.2 Summary Statistics Related to Investing Bias

Next, we turn to investment behavior and define the following variables, which serve as the empirical analog of $\Pr[\texttt{inv}_{i\to j} = 1 \mid \texttt{view}_{i\to j}]$ specified on the left-hand side of (2) for three different cases: (i) when i is a viewer of campaign j, (ii) when i is a viewer of campaign j and resides in the same prefecture as the company hosting campaign j, and (iii) when i is a viewer of campaign j and resides in a prefecture adjacent to the one hosting campaign j:

$$
\begin{aligned}
\texttt{inv-view ratio}_j &\equiv 100 \times \frac{\sum_{i \in \texttt{all pref}} \texttt{inv}_{i\to j}}{\sum_{i \in \texttt{all pref}} \texttt{view}_{i\to j}}, \\
\texttt{local inv-view ratio}_j &\equiv 100 \times \frac{\sum_{i \in \texttt{pref}_j} \texttt{inv}_{i\to j}}{\sum_{i \in \texttt{pref}_j} \texttt{view}_{i\to j}}, \\
\texttt{adj inv-view ratio}_j &\equiv 100 \times \frac{\sum_{i \in \texttt{adj}_j} \texttt{inv}_{i\to j}}{\sum_{i \in \texttt{adj}_j} \texttt{view}_{i\to j}}
\end{aligned}
$$

The summary statistics in Table 6 and the box plots in Figure 4-(b) provide an initial understanding of local-investing bias ($\beta_k > 0$) and adjacency neutrality ($\alpha_k = 0$) across different regions. To relate these

Table 6: Summary statistics of `inv-view ratios` by economic area

Economic Area	**Count**	`inv-view ratio`$_j$	`local inv-view ratio`$_j$	`adj inv-view ratio`$_j$
Tokyo Metropolitan	381	13.02 (9.44)	14.51 (9.61)	13.10 (9.62)
Kansai	48	10.71 (7.58)	16.93 (10.30)	12.17 (9.38)
Kyushu	40	12.06 (9.14)	29.30 (20.42)	10.07 (13.80)
Chubu	32	12.36 (8.69)	24.13 (16.50)	12.18 (9.62)
Tohoku & N. Kanto	13	6.18 (4.47)	22.94 (21.40)	6.85 (5.84)
Hokkaido	7	7.76 (4.79)	20.51 (14.48)	
Shikoku & Chugoku	6	8.04 (7.07)	23.65 (17.39)	10.66 (7.90)

Parentheses represent standard errors.

measures to the hypotheses, we examine two key comparisons: the `local inv-view ratios` relative to the `inv-view ratios`, and the `adj inv-view ratios` relative to both.

The comparison between the `local inv-view ratios` and the `inv-view ratios` reflects the magnitude of β_k. A higher `local inv-view ratio` compared to the `inv-view ratio` would indicate the presence of local-investing bias, where local users are more likely to invest after viewing a campaign compared to the general user base. Meanwhile, adjacency neutrality ($\alpha_k = 0$) is assessed by comparing the `adj inv-view ratios` with the `inv-view ratios` and the `local inv-view ratios`. If the `adj inv-view ratios` are closer to the `inv-view ratios` and remain notably lower than the `local inv-view ratios`, it would suggest that proximity to the campaign's prefecture *per se* does not strongly influence investment behavior.

For campaigns in the Tokyo Metropolitan Area (TMA), the `local inv-view ratios` are nearly identical to the `inv-view ratios`, suggesting no substantial difference in investment behavior between local and non-local users. Furthermore, the `adj inv-view ratios` align closely with both the `inv-view ratios` and the `local inv-view ratios`, reinforcing the absence of local-investing bias in this region. These observations indicate that both β_k and α_k are likely close to zero in TMA, consistent with Hypothesis 2, which posits that local-investing bias is less likely to manifest in regions with weaker regional identity, such as TMA.

In contrast, regions outside TMA exhibit clear evidence of local-investing bias. The `local inv-view ratios` are consistently higher than the `inv-view ratios` across economic areas, indicating that local users are more likely to invest after viewing campaigns hosted in their own prefecture. For example, in Kyushu, the median `local inv-view ratio` is substantially higher than the median `inv-view ratio`, supporting the presence of local-investing bias ($\beta_k > 0$). At the same time, the `adj inv-view ratios` are much closer to the `inv-view ratios` and remain significantly lower than the `local inv-view ratios`, providing evidence for adjacency neutrality ($\alpha_k = 0$). This pattern is consistent across other regions such as Kansai and Chubu, where the distinct separation between the `local inv-view ratios` and the `adj inv-view ratios` underscores the psychological basis of local-investing bias, rooted in prefectural identity rather than geographic proximity.

Overall, the summary statistics align with Hypothesis 2. In regions outside TMA, local-investing bias is evident, and adjacency neutrality holds, as seen in the comparison of the `local inv-view ratios` and `adj inv-view ratios`. In TMA, the absence of local-investing bias reinforces the notion that such bias is driven by psychological factors tied to regional identity, which are weaker in urban, cosmopolitan areas. These patterns suggest that local-investing bias is more pronounced in areas where prefectural identity is stronger, consistent with our hypothesis.

4.3 Empirical Strategy

4.3.1 Estimation of Viewing Bias

As we have explained, campaigns are highly heterogeneous, and even campaigns located within the same prefecture are unlikely to be similar in their characteristics or appeal. Furthermore, the data does not provide information on why a company chooses to display (or omit) the location of its headquarters in the campaign snippet. This lack of information introduces a significant limitation in our analysis. Consequently, estimating γ_k and δ_k in (1) from the data is infeasible without imposing additional assumptions. Specifically, these assumptions would need to address the factors influencing both the decision to display location information and how this decision interacts with users' investment behavior.

Since displaying the company's location in the campaign snippet incurs virtually no cost—apart from occupying a small amount of space—it is reasonable to assume that the decision to display this information is not driven by significant strategic considerations or constraints. Instead, for the purpose of estimation, we posit that the choice of whether to include location information in the snippet is effectively a random decision.

Importantly, our model includes fixed effects for campaigns and users, which helps control for unobserved heterogeneity. The campaign fixed effects (c_j) capture any campaign-specific factors, such as the overall quality of the campaign, its design, or the company's marketing strategy, that could influence both the likelihood of displaying location information and the investment probability. Similarly, the user fixed effects (u_i) account for individual user preferences or behaviors that may affect their propensity to invest, independent of campaign-specific characteristics.

Given these fixed effects, the assumption of randomness in location display pertains specifically to variation within campaigns. In other words, we are not asserting that the overall likelihood of displaying location is unrelated to campaign attributes; instead, we assume that conditional on the campaign fixed effects, whether or not location information is displayed is effectively random. This assumption ensures that our estimates of γ_k and δ_k are not confounded by systematic differences in the campaigns themselves or by user-specific tendencies.

Additionally, since campaigns are displayed in a grid format on the platform's top page, it is reasonable to consider that users rely on simple heuristics—such as campaign location, category, or the image in the snippet—to decide whether to click on a campaign, rather than engaging in detailed comparisons. This behavior minimizes direct comparisons between campaigns and makes viewing decisions more independent of the characteristics of other campaigns displayed in the grid. Consequently, a user's decision to view or not view a campaign detail page is likely independent of the attributes of other campaigns shown simultaneously.

With these assumptions in place, we can proceed with a logit estimation to analyze the probability of investment, based on the specification in (1). This estimation relies on having a sufficient number of campaigns with both $\texttt{display} = 0$ and $\texttt{display} = 1$ for each prefecture, ensuring meaningful variation in the data for estimation.

Unfortunately, many prefectures have hosted only a few campaigns, and in some cases, no campaigns exist with one or the other display condition. This lack of variation at the prefecture level poses a significant challenge to reliably estimating the effects of geographical proximity (γ_k) and local patriotism (δ_k). To address this limitation, we group prefectures based on the broader economic areas to which they belong. Specifically, we impose an additional assumption that $\gamma_k = \gamma_{k'}$ and $\delta_k = \delta_{k'}$ if k and k' are in the same economic area. By aggregating prefectures into economic areas, we increase the number of observations within each group, ensuring sufficient variation in the data while preserving meaningful regional characteristics. This approach strikes a balance between maintaining statistical power and retaining the relevance of geographical and cultural factors in shaping investment behavior.

It is important to note, however, that while we group the data at the economic area level to address the challenge of limited observations, the definition of "local" remains tied to the prefecture level. In other words, a campaign is still considered "local" to a user if the campaign and the user are in the same prefecture, even when prefectures are grouped for estimation purposes. By doing so, we preserve the conceptual integrity of local identity while ensuring sufficient variation in the data.

4.3.2 Estimation of Investing Bias

As in the estimation of viewing bias, our model includes fixed effects for campaigns and users. The campaign fixed effects (c_j) control for unobserved campaign-specific factors, while the user fixed effects (u_i) account for individual differences in behavior and preferences.

Importantly, in Japan, the equity-based crowdfunding (ECF) regulation does not impose an annual cap on the total amount an investor can invest, unlike many other countries. Although an individual investor can only invest up to 500,000 JPY per campaign, this restriction does not limit their ability to invest in multiple campaigns, except through liquidity constraints. Consequently, substitution effects among campaigns are unlikely to be large.

Furthermore, while recent campaigns may occasionally overlap during the investment phase (at most two campaigns at a time), this overlap is minimal. Historically, there was typically only one campaign in the investment phase at a time. This limited overlap significantly reduces the likelihood of direct competition or substitution between campaigns. Users are more likely to evaluate each campaign independently, reinforcing the assumption that the odds of investing in one campaign versus not investing are independent of other campaigns the user might consider.

This supports the validity of the Independence of Irrelevant Alternatives (IIA) assumption required for the logit model, ensuring that the estimated parameters are not biased by interactions between simultaneous campaigns. Building on this foundation, we proceed with a logit estimation based on the specification in (2), where the probability of investment is modeled as a function of campaign-specific and user-specific factors. This model incorporates the effects of adjacency (α_k) and local preference (β_k) to capture regional variations in investing behavior and quantify the influence of these factors on the likelihood of investment.

5 Empirical Results: Viewing and Investing Bias

5.1 The Need for Fixed Effects

Before presenting the main results on local-bias in viewing behavior, it is crucial to address the role of user- and campaign-specific heterogeneity in shaping these outcomes. As highlighted in the summary statistics, campaigns on Fundinno vary substantially in size, funding outcomes, and user engagement levels. Moreover, user behavior is highly diverse, with some users engaging extensively across multiple campaigns while others invest selectively. This variation underscores the importance of accounting for unobserved heterogeneity when analyzing locality-driven effects.

Recall that γ_k represents the baseline log-odds of residents in prefecture k viewing the detail page of a campaign j, hosted by a company headquartered in the same prefecture k, when the campaign snippet does not display the name of the region ($\texttt{display}_j = 0$). Similarly, δ_k denotes the incremental change in log-odds when the campaign snippet displays the region name ($\texttt{display}_j = 1$) compared to when it does not ($\texttt{display}_j = 0$).

To confirm the necessity of fixed effects, we present estimation results of the behavior of visitors under four different specifications: (1) without fixed effects, (2) with user fixed effects only, (3) with campaign fixed effects only, and (4) with both user and campaign fixed effects. These specifications group all prefectures into a single category, assuming $\gamma_k = \gamma_{\texttt{all}}$ and $\delta_k = \delta_{\texttt{all}}$ for all k. While this grouping abstracts away regional heterogeneity, it highlights the impact of unobserved user- and campaign-specific factors on the estimated parameters.

Table 7: Estimation Results for $\gamma_{\texttt{all}}$ and $\delta_{\texttt{all}}$ Across Fixed-Effects Specifications

Specification	$\gamma_{\texttt{all pref}}$			$\delta_{\texttt{all pref}}$		
	OLS	**Logit**	**AME**	**OLS**	**Logit**	**AME**
No FE	0.007 (0.001) ***	0.038 (0.006) ***	0.007	0.025 (0.007) ***	0.134 (0.039) ***	0.025
User FE	0.015 (0.001) ***	0.109 (0.009) ***	0.017	0.016 (0.007) *	0.108 (0.046) *	0.017
Campaign FE	0.004 (0.001) **	0.024 (0.007) **	0.004	0.057 (0.015) ***	0.329 (0.081) ***	0.062
Both FE	0.007 (0.001) ***	0.059 (0.011) ***	0.008	0.058 (0.007) ***	0.451 (0.053) ***	0.067

Notes:

- AME represents the average marginal effects of the Logit model.
- Standard errors are reported in parentheses.
- + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
- Results are presented for grouped prefectures, with all campaigns treated as belonging to one group.

Table 7 summarizes the estimation results under these four specifications, based on both OLS and Logit models, with Average Marginal Effects (AMEs) included for interpretability. The results reveal significant discrepancies between specifications. In the "No FE" specification, all variation in the data is attributed to observable factors, potentially conflating the true effects of γ_k and δ_k with unobserved heterogeneity. By contrast, including user or campaign fixed effects isolates variation attributable to γ_k and δ_k, accounting for unobserved factors specific to users and campaigns. The inclusion of both user and campaign fixed effects ensures that the estimated parameters reflect locality-driven biases more accurately by controlling for heterogeneity at both levels.

The observed discrepancies across specifications provide indicative evidence of the importance of controlling for unobserved heterogeneity. While these differences do not constitute direct proof of the need for fixed effects, they strongly suggest that failing to account for user- and campaign-specific factors may bias the estimates of γ_k and δ_k. To ensure that the analysis reliably captures locality-driven biases, we focus on models that include both user and campaign fixed effects.

Similarly, accounting for user- and campaign-specific factors is crucial not only when analyzing the behavior of visitors but also when examining investing behavior of viewers.

5.2 Hypothesis 1: Local-Bias in Viewing Behavior

We now turn to the estimation results for γ_k and δ_k, the key parameters for testing Hypothesis 1. As previously outlined, these parameters capture baseline local-viewing bias and the incremental impact of displaying the region name in the campaign snippet, respectively.

Table 8: γ_k and δ_k(With Both Fixed Effects)

Grouping	γ_k			δ_k		
	OLS	Logit	AME	OLS	Logit	AME
All Prefectures	0.007 (0.001) ***	0.059 (0.011) ***	0.008	0.058 (0.007) ***	0.451 (0.053) ***	0.067
Panel A:						
Tokyo Metropolitan	0.004 (0.001) **	0.033 (0.011) **	0.005	0.012 (0.009)	0.112 (0.071)	0.015
Others	0.027 (0.004) ***	0.223 (0.032) ***	0.032	0.099 (0.012) ***	0.698 (0.081) ***	0.115
Panel B:						
Tokyo Metropolitan	0.004 (0.001) **	0.034 (0.011) **	0.005	0.012 (0.009)	0.113 (0.071)	0.015
Kansai	0.014 (0.006) *	0.132 (0.043) **	0.018	0.064 (0.016) ***	0.435 (0.111) ***	0.069
Kyushu	0.084 (0.012) ***	0.581 (0.082) ***	0.096	0.078 (0.050)	0.552 (0.312) +	0.098
Chubu	0.012 (0.008)	0.102 (0.062)	0.015	0.183 (0.027) ***	1.268 (0.170) ***	0.219
Tohoku & N. Kanto	0.043 (0.022) +	0.363 (0.163) *	0.053	0.143 (0.096)	1.192 (0.666) +	0.218
Hokkaido	0.102 (0.026) ***	0.805 (0.195) ***	0.124	0.065 (0.036) +	0.517 (0.253) *	0.085
Shikoku & Chugoku	0.044 (0.036)	0.348 (0.267)	0.049	0.285 (0.249)	1.514 (1.091)	0.345

Notes:

- Standard errors are reported in parentheses.
- + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
- The "All Prefectures Combined" row provides reference values for campaigns without regional groupings.
- Panel A compares the Tokyo Metropolitan Area with all other regions
- Panel B provides detailed results for individual economic areas.

Table 8 presents the estimated values of γ_k and δ_k using both OLS and Logit models, with fixed effects for both users and campaigns. The estimates are reported for all prefectures combined, as well as for specific regional groupings. Panel A compares the Tokyo Metropolitan Area (TMA) with all other regions, while Panel B provides detailed results for individual economic areas.

To begin, the average marginal effects (AMEs) for γ_k, representing the baseline marginal probability of local users viewing campaigns in their prefecture when $\texttt{display}_j = 0$, are generally modest across regions. For example, in Kansai, the AME of γ_k is 0.018, and in Chubu, it is 0.015. These values suggest that, on average, the baseline probability of a local user viewing a campaign is only slightly higher compared to non-local users. However, Hokkaido and Kyushu stand out with AMEs of 0.124 and 0.096, respectively, indicating more pronounced locality effects in these regions. This suggests that local users in Hokkaido and Kyushu exhibit a particularly strong preference for viewing campaigns originating in their prefectures, even when explicit regional cues are absent.

Turning to δ_k, the AMEs highlight the incremental effect of displaying the region name on the likelihood of local users viewing the campaign detail page. In regions outside the Tokyo Metropolitan Area, these effects are substantial and statistically significant in many cases. For example, in Chubu, the AME of δ_k is 0.219, and in Kyushu, it is 0.098. These results suggest that campaigns emphasizing their locality through explicit regional cues see a considerable increase in engagement from local users.

In contrast, the AME of δ_k in the Tokyo Metropolitan Area is only 0.015 and statistically insignificant, indicating that explicitly displaying the region name has little to no effect on viewer engagement in this region. This aligns with the hypothesis that locality-driven behavior is less pronounced in the Tokyo Metropolitan Area, where regional identity likely plays a less significant role in consumer decision-making compared to other areas.

However, in some regions with fewer campaigns, such as Tohoku & Northern Kanto and Hokkaido, the AMEs for δ_k are positive but less precisely estimated (e.g., 0.218 for Tohoku & Northern Kanto and 0.085 for Hokkaido). The lack of statistical significance in these cases may stem from limited sample sizes rather than the absence of locality-driven effects. Importantly, when these regions are grouped together with others outside the Tokyo Metropolitan Area (Panel A), the combined AME of δ_k becomes both statistically significant (0.115) and relatively large, reinforcing the idea that regional identity influences viewing behavior in these areas.

5.3 Hypothesis 2: Local Bias in Investing Behavior

Building on the evidence of local-viewing bias (H1), this subsection investigates Hypothesis 2: (Local-)Investment Bias with Adjacency Neutrality (Conditional on Viewing). This hypothesis asserts that, once users have accessed a campaign's detail page, local users—those residing in the same prefecture as the campaign's host—are more likely to invest in local campaigns than users from other regions. Notably, this bias is expected to be confined to the same prefecture and does not extend to campaigns hosted in adjacent prefectures, reflecting a preference for true locality over mere geographic proximity. The analysis examines whether this pattern holds across different regions, while also evaluating the role of regional heterogeneity in shaping investment decisions.

Recall that β_k captures the baseline log-odds of users investing in a campaign hosted by a company headquartered in the same prefecture k, relative to non-local users, conditional on having viewed the campaign detail page. A positive and significant β_k indicates the presence of local-investing bias, where local users are more likely to invest in campaigns originating in their own prefecture compared to non-local users.

In contrast, α_k measures the incremental log-odds of investing in a campaign hosted in a prefecture adjacent to the user's residence, relative to non-local users. Hypothesis 2 asserts that adjacency neutrality holds, implying $\alpha_k = 0$. If this is the case, investing behavior is driven by a strong preference for campaigns in the user's own prefecture, with no additional preference for geographically proximate (but non-local) campaigns.

Table 9 presents the estimation results for α_k and β_k based on both OLS and Logit models under different regional groupings. Panel A divides campaigns into two broad categories: those hosted in the Tokyo Metropolitan Area and those hosted in all other regions combined. This grouping provides a high-level comparison between the urban center and other regions, where local identity is expected to play a stronger role. Panel B further disaggregates campaigns into individual economic regions (e.g., Kansai, Kyushu, Chubu) to capture regional heterogeneity in local-investment behavior.[7]

The results for β_k, which capture the incremental effect of being a local user on the likelihood of investing in a campaign, strongly support Hypothesis 2. Across most regions outside the Tokyo Metropolitan Area, $\beta_k > 0$ with high statistical significance, as shown in Panel B. The magnitudes are also economically meaningful, as reflected in the AMEs.

For instance, in Kyushu, the AME of β_k is 0.194, indicating that local users are approximately 19.4% more likely to invest in campaigns hosted within their prefecture compared to non-local users. Similarly, in Kansai and Chubu, the AMEs are 0.057 (5.7%) and 0.081 (8.1%), respectively, both suggesting substantial local-investment bias. Even in smaller regions like Hokkaido and Shikoku & Chugoku, β_k remains large, with AMEs of 0.116 (11.6%) and 0.150 (15.0%), respectively, further reinforcing the prevalence of local-investment bias in these areas.

[7] For additional granularity, a detailed breakdown of α_k and β_k at the prefectural level is provided in Table 13 in the appendix.

Table 9: α_k and β_k(With Both Fixed Effects)

Grouping	α_k			β_k		
	OLS	Logit	AME	OLS	Logit	AME
All Prefectures	0.008 (0.001) ***	0.094 (0.018) ***	0.009	0.018 (0.002) ***	0.218 (0.021) ***	0.023
Panel A:						
Tokyo Metropolitan	0.000 (0.002)	0.000 (0.023)	-0.000	0.005 (0.002) *	0.053 (0.026) *	0.005
Others	0.010 (0.003) **	0.116 (0.037) **	0.010	0.068 (0.005) ***	0.761 (0.049) ***	0.094
Panel B:						
Tokyo Metropolitan	0.000 (0.002)	-0.002 (0.023)	-0.000	0.005 (0.002) *	0.052 (0.026) *	0.005
Kansai	0.015 (0.005) ***	0.189 (0.056) ***	0.017	0.041 (0.007) ***	0.508 (0.075) ***	0.057
Kyushu	0.002 (0.014)	-0.019 (0.183)	-0.002	0.132 (0.014) ***	1.296 (0.113) ***	0.194
Chubu	0.000 (0.005)	-0.004 (0.060)	-0.000	0.062 (0.009) ***	0.645 (0.083) ***	0.081
Tohoku & N. Kanto	0.011 (0.008)	0.133 (0.108)	0.011	0.124 (0.028) ***	1.649 (0.251) ***	0.200
Hokkaido				0.084 (0.022) ***	1.068 (0.247) ***	0.116
Shikoku & Chugoku	0.018 (0.013)	0.358 (0.181) *	0.028	0.097 (0.033) **	1.336 (0.355) ***	0.150

Notes:

- Standard errors are reported in parentheses.
- + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$
- A detailed breakdown by prefecture can be found in Table 13 in the Appendix.

In contrast, the Tokyo Metropolitan Area exhibits a much smaller β_k. Although statistically significant (AME: 0.005, $p < 0.05$), the magnitude of the effect is negligible, indicating that local users in Tokyo are only 0.5% more likely to invest in local campaigns than non-local users. This aligns with the hypothesis that local identity is less influential in Tokyo, where users may prioritize campaign-specific attributes over geographic considerations due to its unique economic and cultural context.

Overall, the results for β_k strongly validate the primary claim of Hypothesis 2: local users in regions outside Tokyo exhibit a statistically significant and economically meaningful bias toward investing in campaigns hosted within their home prefectures.

Turning to α_k, which captures the baseline likelihood of investing in campaigns hosted in neighboring prefectures, the results align with the secondary claim of Hypothesis 2: adjacency neutrality. Across most regions, α_k is close to zero in magnitude and statistically insignificant, as shown in Panel B. For example, in Tokyo Metropolitan, Chubu, and Tohoku & N. Kanto, the AMEs for α_k are effectively zero, indicating that users do not exhibit a preference for campaigns hosted in neighboring prefectures.

The Kansai region is a notable exception, where α_k is both statistically significant and relatively large (AME: 0.017, $p < 0.01$). This suggests that Kansai users may have a broader sense of locality that extends beyond prefectural boundaries to encompass the entire Kansai area. Such behavior is consistent with Kansai's distinct regional identity, which may blur the distinction between "local" and "adjacent" campaigns.

Overall, the results for α_k strongly support the adjacency neutrality hypothesis, with users showing no significant preference for campaigns hosted in neighboring prefectures in most regions. The results further underscore the unique role of prefectural boundaries in shaping local-investment bias, as reflected in the findings for β_k.

To ensure the robustness of our findings, we address the concern that the observed local-investment bias may be influenced by "connected investors"—individuals with personal or professional ties to the campaign

Table 10: α_k and β_k(With Both Fixed Effects: w/o "Connected Investors")

Grouping	α_k			β_k		
	OLS	Logit	AME	OLS	Logit	AME
All Prefectures	0.006 (0.001) ***	0.071 (0.018) ***	0.007	0.014 (0.002) ***	0.169 (0.021) ***	0.017
Panel A:						
Tokyo Metropolitan	0.000 (0.002)	-0.004 (0.023)	-0.000	0.004 (0.002) +	0.038 (0.026)	0.004
Others	0.007 (0.003) *	0.091 (0.038) *	0.008	0.052 (0.005) ***	0.618 (0.050) ***	0.070
Panel B:						
Tokyo Metropolitan	0.000 (0.002)	-0.005 (0.023)	-0.001	0.004 (0.002) +	0.037 (0.026)	0.004
Kansai	0.012 (0.004) **	0.154 (0.057) **	0.014	0.028 (0.007) ***	0.382 (0.078) ***	0.039
Kyushu	0.002 (0.014)	-0.024 (0.186)	-0.002	0.106 (0.014) ***	1.106 (0.117) ***	0.154
Chubu	-0.001 (0.005)	-0.016 (0.061)	-0.001	0.052 (0.009) ***	0.554 (0.085) ***	0.066
Tohoku & N. Kanto	0.010 (0.008)	0.123 (0.109)	0.010	0.094 (0.027) ***	1.406 (0.274) ***	0.149
Hokkaido				0.051 (0.021) *	0.722 (0.285) *	0.062
Shikoku & Chugoku	0.016 (0.013)	0.318 (0.185) +	0.024	0.077 (0.031) *	1.145 (0.374) **	0.116

Notes:

- Standard errors are reported in parentheses.
- + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$

hosts. According to our conversations with Fundinno executives, the platform strongly encourages companies hosting campaigns to contact and solicit investments from their acquaintances and through their networks. This raises the possibility that a portion of the observed local-bias may be driven by such pre-existing connections rather than genuine locality-driven preferences.

To examine this, we conducted a robustness analysis excluding users who are likely to have such ties. For each campaign, we specifically identified "connected investors" using the following criteria: (1) they made an investment within 21 days of their registration, (2) they invested in only one campaign, and that investment was in this particular campaign, and (3) they viewed detail pages for fewer than five campaigns in total. These criteria were designed to capture behavioral patterns typically associated with users who have strong pre-existing connections to campaign hosts, such as close friends, family, or employees.

The results of this robustness check, presented in Table 10, show that the key findings regarding local-investment bias remain largely unchanged. Comparing these results with Table 9 reveals that the estimated values of α_k and β_k remain statistically significant and economically meaningful in most regions. Importantly, the exclusion of these likely "connected investors" does not diminish the overall trends observed in the original analysis. For example, in Kyushu, β_k still indicates that local users are estimated to invest approximately 15.4% more than non-local users, a result consistent with the earlier findings.

This robustness analysis demonstrates that the observed local-investment bias is not solely driven by "connected investors." Instead, it reflects genuine locality-driven preferences among users, providing further support for Hypothesis 2. By controlling for potential confounding factors related to investor connections, these findings strengthen the argument that local-affiliation plays a pivotal role in shaping investment behavior.

6 Concluding Remarks

We examined the role of locality-driven biases in shaping viewing and investing behavior on equity crowdfunding (ECF) platforms, using data from Fundinno. Our analysis provides robust evidence supporting two hypotheses: (1) local-viewing bias, where users are more likely to view campaigns hosted in their home prefectures, particularly when locality is explicitly emphasized in campaign snippets, and (2) local-investment bias with adjacency neutrality, which suggests that users prefer investing in campaigns hosted within their own prefectures, without extending this preference to campaigns in adjacent regions.

Crucially, our findings go beyond merely establishing the existence of local bias. By analyzing patterns across regions and considering the absence of locality-driven effects in the Tokyo Metropolitan Area (TMA), our results suggest that these biases are driven by psychological factors such as hometown loyalty and regional attachment. This stands in contrast to explanations often cited in the literature, such as geographic proximity, information asymmetry, or general familiarity. The pronounced locality-driven preferences observed in regions like Kansai, Kyushu, and Chubu, coupled with their absence in TMA, underscore the central role of regional identity in shaping user behavior on ECF platforms.

While our analysis focuses on Japan, there is little reason to believe that locality-driven biases are unique to this market. If similar patterns hold in other countries, ECF could play a broader role in democratizing investment by channeling capital to startups that might otherwise struggle to secure funding. By reducing geographical barriers and fostering regional engagement, ECF platforms have the potential to counterbalance the concentration of investment in major economic centers, making startup financing more accessible across different regions.

References

Ahearne, Alan G, William L Griever, and Francis E Warnock, "Information Costs and Home Bias: An Analysis of US Holdings of Foreign Equities," *Journal of International Economics*, 2004, *62* (2), 313–336.

Bekaert, Geert and Campbell R Harvey, "Foreign Speculators and Emerging Equity Markets," *The Journal of Finance*, 2000, *55* (2), 565–613.

Bhattacharya, Utpal and Peter Groznik, "Melting Pot or Salad Bowl: Some Evidence from US Investments Abroad," *Journal of Financial Markets*, 2008, *11* (3), 228–258.

Brennan, Michael J and H Henry Cao, "International Portfolio Investment Flows," *The Journal of Finance*, 1997, *52* (5), 1851–1880.

Chan, Kalok, Vicentiu Covrig, and Lilian Ng, "What Determines the Domestic Bias and Foreign Bias? Evidence from Mutual Fund Equity Allocations Worldwide," *The Journal of Finance*, 2005, *60* (3), 1495–1534.

Choe, Hyuk, Bong-Chan Kho, and René M Stulz, "Do Domestic Investors Have an Edge? The Trading Experience of Foreign Investors in Korea," *The Review of Financial Studies*, 2005, *18* (3), 795–829.

Coval, Joshua D. and Tobias J. Moskowitz, "Home Bias at Home: Local Equity Preference in Domestic Portfolios," *The Journal of Finance*, 1999, *54* (6), 2045–2073.

Coval, Joshua D and Tobias J Moskowitz, "The Geography of Investment: Informed Trading and Asset Prices," *Journal of Political Economy*, 2001, *109* (4), 811–841.

Cumming, Douglas and Lars Hornuf, eds, *The Economics of Crowdfunding: Startups, Portals and Investor Behavior*, Palgrave Macmillan, Cham, 2018.

Cumming, Douglas J and Sofia A Johan, *Crowdfunding: Fundamental Cases, Facts, and Insights*, Elsevier, September 2019.

Dahlquist, Magnus, Lee Pinkowitz, René M Stulz, and Rohan Williamson, "Corporate Governance and the Home Bias," *Journal of Financial and Quantitative Analysis*, 2003, *38* (1), 87–110.

Errunza, Vihang, Ked Hogan, and Mao-Wei Hung, "Can the Gains from International Diversification Be Achieved Without Trading Abroad?," *The Journal of Finance*, 1999, *54* (6), 2075–2107.

Guenther, Christina, Sofia Johan, and Denis Schweizer, "Is the Crowd Sensitive to Distance?—How Investment Decisions Differ by Investor Type," *Small Business Economics*, February 2018, *50* (2), 289–305.

Huberman, Gur, "Familiarity Breeds Investment," *The Review of Financial Studies*, 06 2015, *14* (3), 659–680.

Lin, Mingfeng and Siva Viswanathan, "Home Bias in Online Investments: An Empirical Study of an Online Crowdfunding Market," *Management science*, May 2016, *62* (5), 1393–1414.

Loughran, Tim and Paul Schultz, "Liquidity: Urban Versus Rural Firms," *Journal of Financial Economics*, 2005, *78* (2), 341–374.

Stulz, René M, "A Model of International Asset Pricing," *Journal of Financial Economics*, 1981, *9* (4), 383–406.

Appendix

Table 11: Regional Classification and Adjacency of Japanese Prefectures

	Prefecture	area	Adjacent Prefectures
1	Hokkaido	Hokkaido	None
2	Aomori	Tohoku & N. Kanto	Iwate, Akita
3	Iwate	Tohoku & N. Kanto	Aomori, Akita, Miyagi
4	Miyagi	Tohoku & N. Kanto	Iwate, Akita, Yamagata, Fukushima
5	Akita	Tohoku & N. Kanto	Aomori, Iwate, Miyagi, Yamagata
6	Yamagata	Tohoku & N. Kanto	Akita, Miyagi, Fukushima, Niigata
7	Fukushima	Tohoku & N. Kanto	Miyagi, Yamagata, Niigata, Gunma, Tochigi, Ibaraki
8	Ibaraki	Tohoku & N. Kanto	Fukushima, Tochigi, Saitama, Chiba
9	Tochigi	Tohoku & N. Kanto	Fukushima, Ibaraki, Gunma, Saitama
10	Gunma	Tohoku & N. Kanto	Fukushima, Tochigi, Saitama, Nagano, Niigata
11	Saitama	Tokyo Metropolitan	Gunma, Tochigi, Ibaraki, Chiba, Tokyo, Yamanashi, Nagano
12	Chiba	Tokyo Metropolitan	Ibaraki, Saitama, Tokyo
13	Tokyo	Tokyo Metropolitan	Saitama, Chiba, Kanagawa, Yamanashi
14	Kanagawa	Tokyo Metropolitan	Tokyo, Yamanashi, Shizuoka
15	Niigata	Chubu	Yamagata, Fukushima, Gunma, Nagano, Toyama
16	Toyama	Chubu	Niigata, Nagano, Gifu, Ishikawa
17	Ishikawa	Chubu	Toyama, Gifu, Fukui
18	Fukui	Chubu	Ishikawa, Gifu, Shiga, Kyoto
19	Yamanashi	Chubu	Saitama, Tokyo, Kanagawa, Shizuoka, Nagano
20	Nagano	Chubu	Niigata, Gunma, Saitama, Yamanashi, Shizuoka, Aichi, Gifu, Toyama
21	Gifu	Chubu	Toyama, Nagano, Aichi, Mie, Shiga, Fukui
22	Shizuoka	Chubu	Kanagawa, Yamanashi, Nagano, Aichi
23	Aichi	Chubu	Shizuoka, Nagano, Gifu, Mie
24	Mie	Chubu	Aichi, Gifu, Shiga, Kyoto, Nara, Wakayama
25	Shiga	Kansai	Fukui, Gifu, Mie, Kyoto
26	Kyoto	Kansai	Fukui, Shiga, Mie, Nara, Osaka, Hyogo
27	Osaka	Kansai	Kyoto, Nara, Hyogo, Wakayama
28	Hyogo	Kansai	Kyoto, Osaka, Wakayama, Okayama, Tottori
29	Nara	Kansai	Kyoto, Osaka, Wakayama, Mie
30	Wakayama	Kansai	Osaka, Nara, Mie
31	Tottori	Shikoku & Chugoku	Hyogo, Okayama, Shimane
32	Shimane	Shikoku & Chugoku	Tottori, Okayama, Hiroshima, Yamaguchi
33	Okayama	Shikoku & Chugoku	Hyogo, Tottori, Shimane, Hiroshima, Kagawa
34	Hiroshima	Shikoku & Chugoku	Tottori, Okayama, Yamaguchi, Ehime, Shimane
35	Yamaguchi	Shikoku & Chugoku	Shimane, Hiroshima, Fukuoka
36	Tokushima	Shikoku & Chugoku	Kagawa, Ehime, Kochi
37	Kagawa	Shikoku & Chugoku	Tokushima, Ehime, Okayama
38	Ehime	Shikoku & Chugoku	Kagawa, Tokushima, Kochi, Hiroshima
39	Kochi	Shikoku & Chugoku	Tokushima, Ehime
40	Fukuoka	Kyushu	Yamaguchi, Oita, Saga
41	Saga	Kyushu	Fukuoka, Nagasaki
42	Nagasaki	Kyushu	Saga
43	Kumamoto	Kyushu	Fukuoka, Oita, Miyazaki, Kagoshima
44	Oita	Kyushu	Fukuoka, Kumamoto, Miyazaki
45	Miyazaki	Kyushu	Oita, Kumamoto, Kagoshima
46	Kagoshima	Kyushu	Kumamoto, Miyazaki
47	Okinawa	Kyushu	None

Table 12: Distribution of Campaigns by Prefecture

	Prefecture	Area[1)]	Local Campaigns[2)]	Amt Pledged to Local Campaigns[3), 5)] $\left(\sum_i \texttt{pledge}_{i\to j}\right)$	Local Users	Local Users with Pledges	Amt Pledged by Local Users $\left(\sum_j \texttt{pledge}_{i\to j}\right)$	Amt Pledged to Local Campaigns[4)] $(\texttt{pledge}_{i\to i})$
1	Hokkaido	HKD	7 (1.33%)	98.0 (0.77%)	1113 (2.29%)	361 (2.01%)	316.2 (2.46%)	15.3 (4.85%)
2	Aomori	TOH-NKT	1 (0.19%)	2.3 (0.02%)	159 (0.33%)	43 (0.24%)	22.7 (0.18%)	0.0 (0.00%)
3	Iwate	TOH-NKT	0 (0.00%)	0.0 (0.00%)	165 (0.34%)	53 (0.29%)	31.3 (0.24%)	0.0 (0.00%)
4	Miyagi	TOH-NKT	3 (0.57%)	44.6 (0.35%)	490 (1.01%)	184 (1.02%)	116.0 (0.90%)	3.5 (2.98%)
5	Akita	TOH-NKT	0 (0.00%)	0.0 (0.00%)	138 (0.28%)	47 (0.26%)	29.2 (0.23%)	0.0 (0.00%)
6	Yamagata	TOH-NKT	2 (0.38%)	28.4 (0.22%)	172 (0.35%)	58 (0.32%)	41.8 (0.32%)	0.9 (2.15%)
7	Fukushima	TOH-NKT	2 (0.38%)	18.9 (0.15%)	264 (0.54%)	90 (0.50%)	65.9 (0.51%)	0.4 (0.55%)
8	Ibaraki	TOH-NKT	4 (0.76%)	23.8 (0.19%)	736 (1.51%)	294 (1.63%)	189.5 (1.47%)	2.6 (1.36%)
9	Tochigi	TOH-NKT	1 (0.19%)	12.2 (0.10%)	477 (0.98%)	174 (0.97%)	95.2 (0.74%)	3.6 (3.78%)
10	Gunma	TOH-NKT	0 (0.00%)	0.0 (0.00%)	435 (0.89%)	157 (0.87%)	111.8 (0.87%)	0.0 (0.00%)
11	Saitama	TMA	20 (3.80%)	498.1 (3.93%)	2846 (5.85%)	1072 (5.96%)	778.5 (6.05%)	33.6 (4.32%)
12	Chiba	TMA	15 (2.85%)	419.1 (3.30%)	2704 (5.56%)	985 (5.47%)	669.4 (5.20%)	39.5 (5.89%)
13	Tokyo	TMA	307 (58.25%)	7568.7 (59.65%)	13927 (28.61%)	5405 (30.03%)	4058.7 (31.52%)	2490.7 (61.37%)
14	Kanagawa	TMA	39 (7.40%)	904.3 (7.13%)	5303 (10.89%)	2066 (11.48%)	1367.9 (10.62%)	116.2 (8.50%)
15	Niigata	CHU	2 (0.38%)	52.1 (0.41%)	361 (0.74%)	114 (0.63%)	99.3 (0.77%)	1.1 (1.09%)
16	Toyama	CHU	1 (0.19%)	82.3 (0.65%)	288 (0.59%)	91 (0.51%)	88.2 (0.68%)	0.8 (0.92%)
17	Ishikawa	CHU	1 (0.19%)	17.2 (0.14%)	335 (0.69%)	114 (0.63%)	74.7 (0.58%)	1.2 (1.56%)
18	Fukui	CHU	1 (0.19%)	3.8 (0.03%)	187 (0.38%)	75 (0.42%)	69.4 (0.54%)	0.5 (0.78%)
19	Yamanashi	CHU	1 (0.19%)	41.8 (0.33%)	170 (0.35%)	65 (0.36%)	48.2 (0.37%)	2.7 (5.60%)
20	Nagano	CHU	3 (0.57%)	51.1 (0.40%)	498 (1.02%)	195 (1.08%)	137.3 (1.07%)	9.1 (6.63%)
21	Gifu	CHU	1 (0.19%)	20.0 (0.16%)	514 (1.06%)	175 (0.97%)	120.0 (0.93%)	0.1 (0.08%)
22	Shizuoka	CHU	6 (1.14%)	101.2 (0.80%)	968 (1.99%)	345 (1.92%)	211.3 (1.64%)	8.2 (3.87%)
23	Aichi	CHU	15 (2.85%)	439.2 (3.46%)	2848 (5.85%)	1021 (5.67%)	819.8 (6.37%)	47.1 (5.75%)
24	Mie	CHU	1 (0.19%)	10.3 (0.08%)	443 (0.91%)	161 (0.89%)	121.2 (0.94%)	4.0 (3.30%)
25	Shiga	KNS	3 (0.57%)	93.0 (0.73%)	418 (0.86%)	164 (0.91%)	98.6 (0.77%)	2.0 (2.00%)
26	Kyoto	KNS	10 (1.90%)	244.0 (1.92%)	912 (1.87%)	334 (1.86%)	252.4 (1.96%)	10.6 (4.22%)
27	Osaka	KNS	23 (4.36%)	573.1 (4.52%)	3443 (7.07%)	1202 (6.68%)	792.1 (6.15%)	73.8 (9.32%)
28	Hyogo	KNS	11 (2.09%)	170.0 (1.34%)	1949 (4.00%)	712 (3.96%)	578.7 (4.49%)	21.5 (3.72%)
29	Nara	KNS	0 (0.00%)	0.0 (0.00%)	415 (0.85%)	144 (0.80%)	111.8 (0.87%)	0.0 (0.00%)
30	Wakayama	KNS	1 (0.19%)	28.1 (0.22%)	197 (0.40%)	59 (0.33%)	34.0 (0.26%)	1.0 (2.94%)
31	Tottori	SKK-CHG	1 (0.19%)	26.7 (0.21%)	107 (0.22%)	42 (0.23%)	17.6 (0.14%)	1.2 (6.75%)
32	Shimane	SKK-CHG	0 (0.00%)	0.0 (0.00%)	127 (0.26%)	45 (0.25%)	23.4 (0.18%)	0.0 (0.00%)
33	Okayama	SKK-CHG	1 (0.19%)	6.1 (0.05%)	486 (1.00%)	171 (0.95%)	114.8 (0.89%)	0.0 (0.00%)
34	Hiroshima	SKK-CHG	2 (0.38%)	13.1 (0.10%)	719 (1.48%)	243 (1.35%)	200.8 (1.56%)	1.5 (0.77%)

Continued on next page

	Prefecture	Area	Local Campaigns[1)]	Amt Pledged to Local Campaigns[2), 4)] $\left(\sum_i \texttt{pledge}_{i\to j}\right)$	Local Users	Local Users with Pledges	Amt Pledged by Local Users $\left(\sum_j \texttt{pledge}_{i\to j}\right)$	Amt Pledged to Local Campaigns[3)] $(\texttt{pledge}_{i\to i})$
35	Yamaguchi	SKK-CHG	1 (0.19%)	7.5 (0.06%)	259 (0.53%)	90 (0.50%)	60.1 (0.47%)	0.6 (0.96%)
36	Tokushima	SKK-CHG	0 (0.00%)	0.0 (0.00%)	148 (0.30%)	56 (0.31%)	34.6 (0.27%)	0.0 (0.00%)
37	Kagawa	SKK-CHG	0 (0.00%)	0.0 (0.00%)	233 (0.48%)	77 (0.43%)	58.6 (0.45%)	0.0 (0.00%)
38	Ehime	SKK-CHG	0 (0.00%)	0.0 (0.00%)	260 (0.53%)	85 (0.47%)	61.3 (0.48%)	0.0 (0.00%)
39	Kochi	SKK-CHG	1 (0.19%)	36.5 (0.29%)	124 (0.25%)	41 (0.23%)	22.0 (0.17%)	1.1 (4.90%)
40	Fukuoka	KYS	17 (3.23%)	568.1 (4.48%)	1699 (3.49%)	594 (3.30%)	372.0 (2.89%)	52.4 (14.08%)
41	Saga	KYS	1 (0.19%)	9.4 (0.07%)	143 (0.29%)	48 (0.27%)	38.2 (0.30%)	0.3 (0.79%)
42	Nagasaki	KYS	2 (0.38%)	115.7 (0.91%)	218 (0.45%)	79 (0.44%)	41.2 (0.32%)	7.4 (17.95%)
43	Kumamoto	KYS	13 (2.47%)	206.4 (1.63%)	333 (0.68%)	159 (0.88%)	98.4 (0.76%)	20.8 (21.17%)
44	Oita	KYS	0 (0.00%)	0.0 (0.00%)	222 (0.46%)	76 (0.42%)	42.0 (0.33%)	0.0 (0.00%)
45	Miyazaki	KYS	3 (0.57%)	104.8 (0.83%)	149 (0.31%)	36 (0.20%)	22.6 (0.18%)	0.2 (0.88%)
46	Kagoshima	KYS	1 (0.19%)	13.8 (0.11%)	214 (0.44%)	68 (0.38%)	43.3 (0.34%)	0.3 (0.69%)
47	Okinawa	KYS	3 (0.57%)	35.2 (0.28%)	359 (0.74%)	130 (0.72%)	75.1 (0.58%)	2.7 (3.64%)

Notes:

- A local campaign refers to a campaign hosted by a company headquartered in the same prefecture. Similarly, a local user is defined as a user residing in that prefecture.

1) Percentages in parentheses, except in the last column, represent the share of the total for the corresponding column.
2) Amounts are in millions of JPY.
3) Percentages in parentheses in the last column represent the share relative to the value in the previous column.
4) $\texttt{pledge}_{i\to j}$ is the total amount pledged by users residing in prefecture i to campaigns run by companies headquartered in prefecture j.

Table 13: α_k and β_k(With Both Fixed Effects)

	Prefecture	α_k			β_k		
		OLS	**Logit**	**AME**	**OLS**	**Logit**	**AME**
1	Hokkaido				0.084 (0.022) ***	1.069 (0.247) ***	0.117
2	Aomori				-0.037 (0.096)	-9.319 (0.317) ***	-0.000
3	Iwate	-0.021 (0.072)	-18.188 (0.228) ***	-0.000			
4	Miyagi	0.013 (0.035)	-0.075 (0.805)	-0.004	0.265 (0.067) ***	2.280 (0.383) ***	0.369
5	Akita	0.039 (0.070)	0.932 (0.780)	0.112			
6	Yamagata	-0.038 (0.051)	-0.520 (0.865)	-0.031	0.083 (0.088)	1.013 (0.839)	0.128
7	Fukushima	0.030 (0.027)	0.526 (0.409)	0.037	0.073 (0.089)	0.941 (0.887)	0.100
8	Ibaraki	0.024 (0.012) +	0.247 (0.146) +	0.024	0.053 (0.033)	1.186 (0.478) *	0.091
9	Tochigi	0.015 (0.019)	0.237 (0.256)	0.021	0.280 (0.124) *	2.563 (0.722) ***	0.522
10	Gunma	-0.017 (0.016)	-0.265 (0.260)	-0.017			
11	Saitama	-0.006 (0.004)	-0.076 (0.046) +	-0.007	-0.003 (0.009)	-0.036 (0.105)	-0.003
12	Chiba	0.002 (0.004)	0.031 (0.050)	0.003	0.044 (0.012) ***	0.415 (0.111) ***	0.054
13	Tokyo	0.003 (0.003)	0.016 (0.037)	0.002	0.003 (0.002)	0.019 (0.030)	0.002
14	Kanagawa	0.002 (0.003)	0.013 (0.038)	0.001	0.016 (0.006) **	0.186 (0.061) **	0.020
15	Niigata	0.000 (0.034)	0.053 (0.415)	0.005	0.015 (0.068)	0.287 (0.796)	0.030
16	Toyama	-0.018 (0.046)	-0.029 (0.515)	-0.003	-0.076 (0.135)	-0.612 (0.964)	-0.090
17	Ishikawa	-0.090 (0.074)	-0.688 (0.777)	-0.072	0.116 (0.221)	1.447 (2.487)	0.167
18	Fukui	0.013 (0.030)	0.124 (0.275)	0.016	0.163 (0.202)	2.673 (1.618) +	0.383
19	Yamanashi	-0.010 (0.018)	-0.139 (0.211)	-0.014	0.262 (0.106) *	1.924 (0.637) **	0.392
20	Nagano	-0.002 (0.013)	-0.039 (0.152)	-0.004	0.233 (0.064) ***	2.339 (0.425) ***	0.371
21	Gifu	-0.012 (0.019)	-0.114 (0.176)	-0.014	-0.031 (0.092)	-0.127 (1.146)	-0.014
22	Shizuoka	0.002 (0.008)	0.037 (0.102)	0.003	0.114 (0.023) ***	1.516 (0.239) ***	0.171
23	Aichi	0.012 (0.009)	0.195 (0.151)	0.013	0.042 (0.010) ***	0.419 (0.090) ***	0.052
24	Mie	0.019 (0.016)	0.210 (0.170)	0.023	0.215 (0.068) **	2.637 (0.490) ***	0.422
25	Shiga	0.024 (0.031)	0.200 (0.326)	0.021	0.099 (0.061)	0.704 (0.425) +	0.117
26	Kyoto	0.010 (0.009)	0.134 (0.114)	0.012	0.032 (0.021)	0.381 (0.207) +	0.044
27	Osaka	0.008 (0.008)	0.141 (0.114)	0.011	0.043 (0.009) ***	0.500 (0.089) ***	0.060
28	Hyogo	0.022 (0.007) **	0.233 (0.083) **	0.023	0.036 (0.014) **	0.611 (0.198) **	0.048
29	Nara	0.032 (0.017) +	0.342 (0.167) *	0.036			
30	Wakayama	0.006 (0.027)	0.071 (0.377)	0.006	0.147 (0.170)	1.979 (1.134) +	0.292
31	Tottori	0.004 (0.041)	-0.206 (1.194)	-0.008	0.267 (0.199)	1.638 (1.009)	0.350
32	Shimane	0.168 (0.075) *	2.205 (0.449) ***	0.289			
33	Okayama	0.021 (0.018)	0.412 (0.276)	0.029	0.017 (0.012)	-7.876 (0.204) ***	-0.000
34	Hiroshima	-0.011 (0.026)	-0.124 (0.604)	-0.005	0.110 (0.058) +	1.366 (0.460) **	0.198
35	Yamaguchi	0.007 (0.028)	0.170 (0.317)	0.016	0.029 (0.033)	-7.774 (0.199) ***	-0.000
36	Tokushima	-0.024 (0.128)	-0.121 (1.105)	-0.013			
37	Kagawa	-0.111 (0.061) +	-9.459 (0.203) ***	-0.000			
38	Ehime	0.106 (0.083)	1.437 (0.600) *	0.177			
39	Kochi				0.219 (0.132) +	1.695 (0.868) +	0.352
40	Fukuoka	0.020 (0.021)	0.131 (0.783)	0.004	0.102 (0.015) ***	1.057 (0.126) ***	0.147
41	Saga	0.059 (0.041)	0.605 (0.384)	0.079	0.266 (0.173)	2.350 (1.020) *	0.442
42	Nagasaki	0.048 (0.011) ***	-7.692 (0.175) ***	-0.000	0.419 (0.085) ***	2.420 (0.631) ***	0.387
43	Kumamoto	-0.038 (0.033)	-0.400 (0.354)	-0.039	0.233 (0.048) ***	2.071 (0.311) ***	0.383
44	Oita	0.019 (0.024)	0.262 (0.276)	0.024			
45	Miyazaki	-0.112 (0.026) ***	-16.424 (0.168) ***	-0.000	-0.087 (0.089)	-0.753 (0.920)	-0.070
46	Kagoshima	0.008 (0.030)	0.045 (0.513)	0.003	0.164 (0.147)	1.680 (1.160)	0.215
47	Okinawa				0.109 (0.059) +	1.591 (0.518) **	0.184

Notes:

- Standard errors are reported in parentheses.
- + $p < 0.1$, * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$