

Monetary Policy Communication and Social Identity: Evidence from a Randomized Control Trial *

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Abstract

We conduct an information provision experiment on the Bank of Japan's (BOJ) inflation forecast to examine the role of the proximity of social identity in information acquisition. In a randomized control trial that generates exogenous variations in beliefs, we test whether social identities affect how the BOJ's information influences consumers' subjective beliefs. We find that respondents form inflation expectations more in line with the BOJ's forecast when they share the same gender and dialect as an information provider. This is the case with political preferences. The results suggest that respondents significantly revise posterior beliefs when they hear the voice from similar social identities. We interpret the evidence as homophily; homophily leads them to incorporate the information into their beliefs. We provide a model to interpret our empirical results.

Keywords: homophily, imperfect information, inattention, monetary policy, policy communication

JEL classification: D84, E31, E52

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1. Introduction

Expectations play a critical role in modern macroeconomics. A growing literature studies survey data on expectations, suggesting the heterogeneity in consumer expectations (Mankiw et al., 2003; Coibion and Gordnichenko, 2012; Weber et al., 2022) and firm expectations (Coibion et al., 2018; Kumar et al., 2023). Consumer expectations deviate from the full-information rational expectations (FIRE) because of sticky information (Mankiw and Reis, 2002); rational inattention (Sims, 2003); noisy information (Mackowiak and Wiederholt, 2009); different priors (Patton and Timmermann, 2010); and strategic interaction (Morris and Shin, 2002). The heterogeneity in expectations has substantial implications for intertemporal allocation of consumption (Crump et al., 2022); policy with dispersed information (Angeletos and Pavan, 2008); and HANK models (Kaplan et al., 2018). The study of subjective expectations has increasingly gained attention from policymakers.

2. Research Design and Data

This section provides an overview of the research design and the data we obtain. We conducted an information provision experiment using an online survey platform provided by MyVoice Communications, Inc. from November 1 to November 7, 2023, with a sample size of 2,202 participants. The sample was evenly split between Osaka residents and non-Osaka residents to account for dialect intervention, with a 50:50 gender ratio to consider intervention by female voices. The age distribution was representative of Japan's demographics, ranging from 20 to 79 years old. We started the online experiment on November 1, 2023, which is the next day when the BOJ published inflation outlook for fiscal year 2023, which was 2.8%.

In the first stage, we extract individuals' prior beliefs regarding future inflation rates. At the beginning of the survey, respondents are asked about the percentage change in prices over the next 12 months. Respondents are instructed to distribute probabilities across ten given bins, ensuring that the sum of probabilities equals 100%.

After asking about prior inflation expectations, the following text is provided in audio format to the treatment group:

"The Bank of Japan expects prices, excluding fresh food, to increase by 2.8% compared to the previous year in the current fiscal year."

The narration is delivered in both standard Japanese and Osaka dialect by the same female narrator. After providing the audio information, we checked whether respondents were paying attention by asking them what the BOJ's inflation outlook was. Out of 1,997 respondents in the treatment group, 1,814 answered correctly.

In the final stage, respondents are asked to provide the percentage change in prices over the next 12 months. Respondents are asked to choose from 25 bins, with the maximum representing an

increase of over 12% and the minimum representing a decrease of over 12%. Unlike the extraction of prior beliefs in the first stage, respondents answer by selecting one bin.

3. Effects of the information treatment on beliefs

Do consumers incorporate the provided signal into their posterior beliefs? Following Coibion et al. (2018), we begin with an analysis of treatment effects in the full sample. We test whether consumers put weights on a signal when they form the posterior beliefs;

$$X_i^{post} = \alpha_0 + \beta_0 \times X_i^{prior} + \sum_{j=1}^2 \alpha_j \times I\{i \in Treat\ j\} + \sum_{j=1}^2 \beta_j \times I\{i \in Treat\ j\} \times X_i^{prior} + Z_i + \epsilon_i, \quad (1)$$

where i denotes respondent, X_i denotes the respondent's posterior or prior belief over the next 12 months, $I\{i \in Treat\ j\}$ is an indicator variable if respondent i is in treatment group j ; treatment groups 1 and 2 are the standard Japanese and Osaka dialect groups, respectively. Z is a vector of control variables, and ϵ_i is the error term. We use Huber-robust regressions to systematically control for outliers (Coibion et al., 2018).

Table 1 shows the estimation results. The coefficients on prior beliefs are approximately 0.67. Given that respondents are provided no information, one might expect the slope coefficient to be 1. However, because the prior and posterior expectations are measured using different questions, the additional noise leads to a benchmark coefficient on priors which is less than 1.

Table 1 confirms the effects of the information treatment on posteriors. We see that treatments lead to revisions in beliefs toward the provided signal, because the coefficients on the crossterm (β_1) are approximately -0.14 . Thus, informing respondents significantly revise their beliefs. Columns (2) and (4) confirms that our results are robust when we split the treatment dummy: standard-Japanese and Osaka-dialect dummies. Overall, the treatments are successful in generating variation in respondents' beliefs; they incorporate the provided signal into posterior beliefs.

Table 1 Do consumers incorporate a signal into posterior beliefs?

	Posterior beliefs about future inflation rates (%)			
	(1)	(2)	(3)	(4)
Constant	3.613*** (0.464)	3.607*** (0.464)	2.681*** (0.567)	2.694*** (0.569)
Prior beliefs (%)	0.681*** (0.061)	0.682*** (0.061)	0.656*** (0.060)	0.656*** (0.060)
Treatment 1 and 2 _(1/0)	-1.438*** (0.490)		-1.518*** (0.482)	
Treatment 1 and 2 _(1/0) × Prior beliefs (%)	-0.143** (0.064)		-0.136** (0.063)	
Treatment 1 (Standard Japanese) _(1/0)		-1.489*** (0.516)		-1.587*** (0.510)
Treatment 2 (Osaka dialect) _(1/0)		-1.404*** (0.514)		-1.460*** (0.507)
Treatment 1 (Standard Japanese) _(1/0) × Prior beliefs (%)		-0.152** (0.068)		-0.142** (0.067)
Treatment 2 (Osaka dialect) _(1/0) × Prior beliefs (%)		-0.130* (0.068)		-0.128* (0.067)
Female _(1/0)			-0.342** (0.135)	-0.337** (0.136)
Approval rating for the cabinet > 50% _(1/0)			-0.523** (0.225)	-0.533** (0.226)
Osaka residents _(1/0)			-0.163 (0.132)	-0.165 (0.133)
Age _(years)			0.030*** (0.005)	0.030*** (0.005)
Employed _(1/0)			-0.118 (0.149)	-0.117 (0.150)
Education ₍₁₋₇₎			0.016 (0.037)	0.015 (0.037)
Marital status _(1/0)			-0.197 (0.142)	-0.189 (0.142)
Observations	2019	2019	2019	2019

4. Effects of social identities on beliefs

While we confirm the overall effects of the information treatment, a simple analysis suggests the role of social identities in revising posterior beliefs. The left panel of Figure 1 shows the share of respondents who brought their posterior beliefs close to the BOJ' forecast (2.8%) in the control and treatment groups. It suggests that women have a greater response to a woman's voice than men. The share of female respondents indicated by the hatched bars is larger than that of male or others when information is provided. While only 23% of female respondents in the control group brought their posterior beliefs close to 2.8%, approximately two-thirds in the treatment groups did so. It suggests that respondents are more likely to revise their beliefs when the voice comes from their own gender.

The center and right panel of Figure 1 show the share of female respondents who brought their posterior beliefs close to the BOJ' forecast (2.8%) in the control and treatment groups. To exclude the gender effects, we use the subsample of female respondents only. The center panel of Figure 1 suggests that Osaka residents have a greater response (66%) to the treatment in Osaka dialect

than non-Osaka residents (58%). The right panel of Figure 1 suggests that respondents with a high level of support for the current cabinet are more responsive (76%) to the BOJ’s forecast than those with a low level of support (64%). The figures suggest that respondents are more likely to revise their beliefs when the voice comes from similar identities.

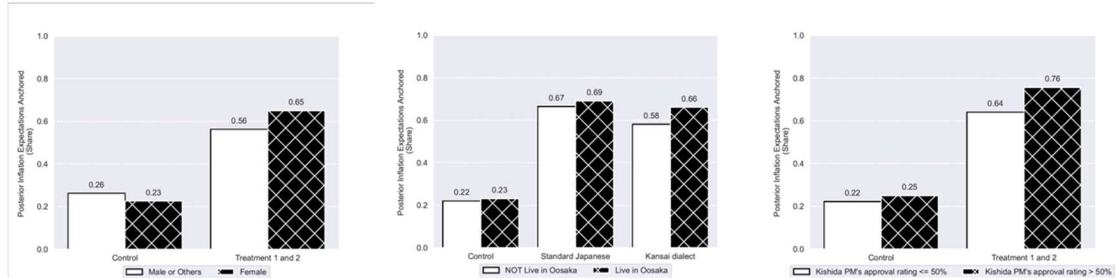


Figure 1 Share of respondents who brought their posterior beliefs close to 2.8%. Left Panel: Male vs female, Center Panel: Effects of the information treatment in Osaka dialect on posterior beliefs, Right Panel: Effects of the approval rating for the cabinet on posterior beliefs.

4. Conclusion

This study conducts an information provision experiment to identify the effects of social identities on expectation formation. Relying on a RCT, we generate exogenous variations in consumers’ beliefs and identify the causal effects of social identities on belief formation.

We find that respondents form inflation expectations more in line with the BOJ’s forecast when they share the same demographics as an information provider. In fact, consumers significantly revised beliefs when gender and dialect of the information provider are similar to them. Women respond more to a woman’s voice than men, while Osaka residents respond more to a voice in Osaka dialect. This is the case when consumers are supportive for the current MP’s cabinet; consumers significantly respond to the BOJ’s forecast when they strongly support the current Prime Minister, Fumio Kishida. The results suggest that consumers pay more attention to information provided by those with the same social identity. We provide a model to interpret our empirical results.

Our findings have substantial implications for social identities and central banks’ communication policy. First, diverse policy committees help consumers understand what central banks do. Our results suggest that social identity has the significant effects on anchoring inflation expectations. There has only been one woman on the BOJ’s policy committees since the (revised) BOJ Act was introduced in 1998. The male-dominated composition of committees may need to be changed to reach women. Second, diverse policy dissemination can improve the quality of policy communication. To enhance understanding, central banks are using social networking sites and YouTube to improve the quality of policy communication. For example, the BOJ posts the economic outlook with illustrations on X (formerly Twitter). Jamaica’s central bank uses reggae

to disseminate information about nation's economic recovery. These attempts may work to help control agents' beliefs. Third, political polarization may decrease the policy effects (Mian et al., 2023). Our results suggest that supporters of the current cabinet are likely to significantly react to a forecast from the central bank, whose policy is usually aligned with that of the government. This implies that the effectiveness of monetary policy may weaken under political polarization.

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