

The Causal Effects of Tariff Uncertainty on Consumers' Macroeconomic Expectations and Spending Plans

Bernardo Candia

James Mitchell
Federal Reserve Bank of Cleveland

Damjan Pfajfar

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- US tariff rates rose from 2% (Jan 2025) to 17% (Jan 2026).
 - ▶ Highest level since 1935.
 - ▶ SCOTUS decision made them illegal.
 - ▶ Canadian tariffs.
- Trade policy uncertainty hit multi-decade highs.
 - ▶ Peaked after “Liberation Day” (April 2, 2025).
- Key question: **How do tariff rate expectations affect the economy?**

- Implement a randomized controlled trial (**RCT**) in a population-representative survey to test whether information treatments affect beliefs on tariff expectations.
- We distinguish between consumers' expectations of increases in tariff rates themselves and increases in the uncertainty about future tariffs (1^{st} vs. 2^{nd} moments).
- We use exogenous variation of tariff beliefs generated by the RCT to study the causal effect of changes in the first and second moments of tariff expectations on:
 - ▶ Consumers' macroeconomic expectations:
 - Inflation
 - GDP growth
 - Unemployment rate
 - ▶ Spending plans.

RCT Implementation:

- Measure prior beliefs (1^{st} & 2^{nd} *moments*) of all agents using a probabilistic question asking respondents to provide a histogram for 12-month ahead tariff expectations.
- Randomly assign agents to “control” and “treatment” groups such that only those in the treatment group are provided with signal. Four treatment groups:
 - ▶ Treatment 1: Current tariff rates (18%)
 - ▶ Treatment 2: Tariff uncertainty (range: 10-100%)
 - ▶ Treatment 3: Share of imports (9%)
 - ▶ Treatment 4: Extreme scenarios (100% tariffs on some goods)
- Measure posterior beliefs (1^{st} & 2^{nd} *moments*), immediately after the information treatments off all agents.

Effects of Treatments on Tariff Expectations

- Simple Bayesian updating predicts: $posterior_i = (1 - G) \times prior_i + G \times signal$.

- **Estimate treatment effect:**

$$Post_{i,t} = a_0 + b_0 Prior_{i,t} + \sum_{j=1}^4 a_j \times I\{i \in treat_j\} + \sum_{j=1}^4 b_j \times I\{i \in treat_j\} \times Prior_{i,t} + error_{i,t},$$

- ▶ $j \in \{1^{st}m, 2^{nd}m, \text{share imports, extreme scenario}\}$.
- ▶ b_0 represents the relationship between prior and posterior for the control group.
- ▶ a_j captures the level effect of the information treatment.
- ▶ $b_j \in [-1, 0]$ captures how informative treatment j is.
- ▶ $|b_j|/b_0$ represents the weight that the household places on the signal (G).

Effects of Treatments on Tariff Expectations

	Dependent variable: Posterior belief	
	Implied mean	log(Implied uncertainty)
	(1)	(2)
<i>Prior</i>	0.329*** (0.015)	0.280*** (0.018)
$\{Treat\ 1: Current\ tariff\ rates\} \times \{Prior\}$	-0.125*** (0.020)	0.037 (0.027)
$\{Treat\ 2: Tariff\ uncertainty\} \times \{Prior\}$	-0.067*** (0.020)	-0.223*** (0.024)
$\{Treat\ 3: Share\ of\ imports\} \times \{Prior\}$	-0.045** (0.021)	-0.033 (0.026)
$\{Treat\ 4: Extreme\ scenarios\} \times \{Prior\}$	-0.056*** (0.022)	-0.075*** (0.025)
Observations	11,794	11,490
R^2	0.175	0.101
F-stat	237	128.5

Households consistently revise their beliefs toward the information they receive.

Causal Effects on Consumers' Macroeconomic Expectations

- **Second stage:**

$$Expect_{i,t}^{Post} = \alpha_1 Post_{i,t}^{mean} + \beta_1 Post_{i,t}^{uncert} + \lambda Expect_{i,t}^{Prior} + controls_{i,t} + error_{i,t}. \quad (1)$$

- **First stage:**

$$\begin{aligned} Post_{i,t}^{mean} &= a_0 + \sum_{j=1}^4 a_j \times I\{i \in treat_j\} + \sum_{j=1}^4 b_j \times I\{i \in treat_j\} \times Prior_{i,t}^{mean} \\ &\quad + \sum_{j=1}^4 c_j \times I\{i \in treat_j\} \times Prior_{i,t}^{uncert} + controls_{i,t} + error_{i,t}, \\ Post_{i,t}^{uncert} &= \tilde{a}_0 + \sum_{j=1}^4 \tilde{a}_j \times I\{i \in treat_j\} + \sum_{j=1}^4 \tilde{b}_j \times I\{i \in treat_j\} \times Prior_{i,t}^{mean} \\ &\quad + \sum_{j=1}^4 \tilde{c}_j \times I\{i \in treat_j\} \times Prior_{i,t}^{uncert} + controls_{i,t} + error_{i,t}. \end{aligned} \quad (2)$$

Causal Effects on Consumers' Macroeconomic Expectations

Inflation Expectations

	Dependent Variable					
	Expected mean			100xlog(Expected uncertainty)		
	Inflation (1)	GDP growth (2)	Unemp. (3)	Inflation (4)	GDP growth (5)	Unemp. (6)
Posterior mean	0.91*** (0.15)			1.82* (0.99)		
100xlog(Post.uncert.)	0.01 (0.03)			0.81*** (0.20)		
Observations	11,163			11,157		
R^2	0.24			0.28		
1 st stage F-stat (mean)	35.05			34.22		
1 st stage F-stat (uncert)	29.68			29.06		

Consumers perceive a strong relationship between tariff expectations and inflation expectations.

Causal Effects on Consumers' Macroeconomic Expectations

GDP Growth and Unemployment Rate Expectations

	Dependent Variable					
	Expected mean			100xlog(Expected uncertainty)		
	Inflation (1)	GDP growth (2)	Unemp. (3)	Inflation (4)	GDP growth (5)	Unemp. (6)
Posterior mean	0.91*** (0.15)	0.64*** (0.15)	0.58*** (0.12)	1.82* (0.99)	1.44 (1.01)	1.07 (0.85)
100xlog(Post.uncert.)	0.01 (0.03)	-0.01 (0.03)	-0.02 (0.02)	0.81*** (0.20)	0.56*** (0.20)	0.32** (0.17)
Observations	11,163	11,162	11,144	11,157	11,161	11,120
R^2	0.24	0.30	0.48	0.28	0.40	0.46
1 st stage F-stat (mean)	35.05	33.31	33.35	34.22	33.20	33.01
1 st stage F-stat (uncert)	29.68	28.09	27.51	29.06	26.75	34.09

Smaller, but still statistically significant effects on other macro expectations.

Causal Effects on Spending Plans

- **Second stage:**

$$\mathbf{1}(PlanDur)_{i,t} \times 100 = \alpha_1 Post_{i,t}^{mean} + \beta_1 Post_{i,t}^{uncert} + \mathbf{1}(PastSpend)_{i,t} + controls_{i,t} + error_{i,t}. \quad (3)$$

- **First stage:**

$$\begin{aligned} Post_{i,t}^{mean} &= a_0 + \sum_{j=1}^4 a_j \times I\{i \in treat_j\} + \sum_{j=1}^4 b_j \times I\{i \in treat_j\} \times Prior_{i,t}^{mean} \\ &\quad + \sum_{j=1}^4 c_j \times I\{i \in treat_j\} \times Prior_{i,t}^{uncert} + controls_{i,t} + error_{i,t}, \\ Post_{i,t}^{uncert} &= \tilde{a}_0 + \sum_{j=1}^4 \tilde{a}_j \times I\{i \in treat_j\} + \sum_{j=1}^4 \tilde{b}_j \times I\{i \in treat_j\} \times Prior_{i,t}^{mean} \\ &\quad + \sum_{j=1}^4 \tilde{c}_j \times I\{i \in treat_j\} \times Prior_{i,t}^{uncert} + controls_{i,t} + error_{i,t}. \end{aligned} \quad (4)$$

Causal Effects on Spending Plans

	Dependent variable: Plan to buy			
	Durable	Home	Car	Big Item
	(1)	(2)	(3)	(4)
Posterior mean	0.80*	0.41*	0.76**	0.59*
	(0.47)	(0.23)	(0.35)	(0.36)
100xlog(Post.uncert.)	-0.23***	-0.08**	-0.25***	-0.19***
	(0.09)	(0.03)	(0.06)	(0.06)
Observations	11,139	11,192	11,166	11,181
1 st stage F-stat (mean)	23.21	23.95	22.68	24.39
1 st stage F-stat (uncert)	17.00	18.99	17.32	17.22

The level of tariff expectations has an opposite effect from uncertainty in tariff expectations

- Exogenous variation in tariff-level expectations and perceived future tariff uncertainty differentially affects consumers' expectations and perceived uncertainty about inflation, GDP growth, and unemployment.
- Consumers lack a single demand- or supply-shock view of tariffs.
- **Level** and **uncertainty** have distinct, opposing effects
 - ▶ higher expectations of tariff rates induce an intertemporal substitution effect, increasing consumers' likelihood of buying durable goods.
 - ▶ higher tariff-rate uncertainty reduces consumers' readiness to spend on durable goods, consistent with precautionary saving motives.
- Clear implications on how to communicate tariff policy changes, so that this change does not lead to a reduction in spending.