

Information and Macroeconomic Expectations: Global Evidence

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Motivation and questions

- Two robust findings in the literature on consumers' beliefs
 - Large dispersion of macroeconomic expectations
 - Persistent biases across consumers and over time
- Evidence typically drawn from single-country data
 - Is dispersion robust to homogenous elicitation at global level?
 - Are there common global drivers of systematic bias?
 - Can mainstream models explain the evidence?

The paper

- Global survey of consumers' subjective beliefs
 - 47 countries, 1000 individuals
- Main findings
 - Households' macroeconomic perceptions are biased upwards
 - Bias is heterogeneous across countries
 - And larger for consumers relying on local info sources
 - Evidence on information acquisition and updating of beliefs
 - Consumers in countries with higher inflation seek more info
 - But they make larger errors as they draw on local info sources
- Rational inattention (RI) models predict otherwise
 - Higher inflation should increase info collection and lower bias
 - Reason for discrepancy is neglect for 'trust' and info 'quality'

Local vs global information sources

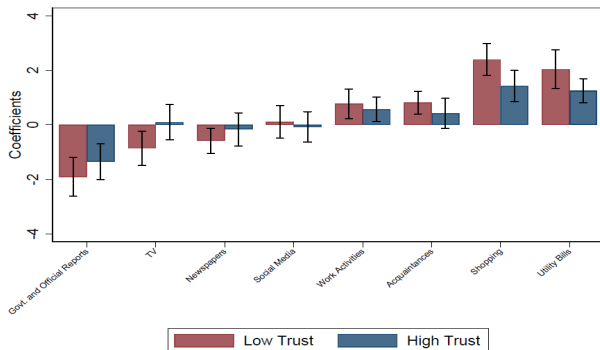
- Classification of aggregate vs local info source is imprecise
 - Social media (local) report aggregate as much as local info
 - Work related activities (local) may generate aggregate info
 - Local newspapers/TV (aggregate) may provide local info
- Could bias the results by strengthening the link between local (aggregate) sources and high (low) expectations and biases

Trust, information acquisition and bias

- Low trust induces agents to use local info sources which send less accurate signals and increase the perception error
- Evidence:
 - Positive relation between higher past inflation and use of all sources except official reports, hinting at loss of trust in govt
 - Trust in govt/CB correlates positively with willingness to use official reports
 - But also with willingness to use all other info sources
- Reducing info from official sources without replacing it with larger use of local sources may not be conducive to higher bias
- Indeed, results suggest limited role of trust (low/high) on relation between info sources and perception errors.

Trust, information acquisition and bias [cont'd]

Figure 12: Information Sources and Perception Errors by Trust in Central Bank/Government



RI models: accounting for the evidence

- Costs of info acquisition usually depends on agents' learning
 - Costs are function of entropy reduction, ie the remaining uncertainty on the state after observing a signal (Sims, 2003)
 - Reasonable when agents are sure of acquiring only new info
- Alternative: costs depend on the info source capacity
 - Costs are a function of the max possible entropy reduction after observing a given signal (Nimark-Sundaresan, 2019)
 - Appropriate if source is eg broadcast, where some info is already known but cannot be separated from the rest
- The latter class of RI models can generate endogenous choice of info source and persistent errors in line with survey evidence

A model of channel capacity

Nimark and Sundaresan, JET 2019

- State: $\omega = \{0, 1\} \equiv \Omega$, signal: $s \in \{0, 1\}$
- Agent's prior belief: $p(\omega = 1) = \pi$
- Info channel S : defined by error probabilities of signal s
- Entropy of ω (expected info): $H(\Omega) = \sum_{\omega \in \Omega} p(\omega) \log \frac{1}{p(\omega)}$
- Revealed information: $I(\Omega, S) = H(\Omega) - H(\Omega|S)$
- Channel capacity: $C(\Omega, S) = \max_{p(\omega) \in \{0,1\}} [H(\Omega) - H(\Omega|S)]$

A model of channel capacity: updating of beliefs

- Two alternative definitions

- Cost of acquired info: $\Gamma_I = \theta I(\Omega, S)$

- Cost of channel capacity: $\Gamma_C = \max_{p(\omega) \in \{0,1\}} \theta I(\Gamma, S)$

where $I(\Gamma, S) = \sum_{s \in \{0,1\}} p(s) \sum_{\omega \in \{0,1\}} p(\omega|s) \log \frac{p(\omega|s)}{p(\omega)}$

- Implications for info acquisition and belief update

Γ_I Higher priors' precision decreases value *and* cost of new signals
→ info acquisition and belief update till $p(\omega|s) = p(\omega)$

Γ_C Higher priors' precision lowers value but *not* cost of new signal
→ if priors are precise enough, agents choose uninformative signals and stop updating beliefs (in line with survey results)

A model of channel capacity: clustering of beliefs

- Confirmation effect: agents choose channels more likely to confirm their priors
- Beliefs resulting from random signals can be self-reinforcing and lead to permanent clustering
- Does this help explain the survey results?
 - Agents with low inflation expectations randomly read official source reporting low inflation → If prior is precise enough, they keep sourcing from official reports and stop updating beliefs
 - Clustering of agents around different expectations and biases

Conclusions

- Great paper and data
- Progress in understanding global drivers of beliefs and biases
- Models of RI can partly reconcile the survey evidence