

Discussion of “Uncertainty is More Than Risk – Survey Evidence on Knightian and Bayesian Firms”

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Motivation

- ▶ Uncertainty is a key factor influencing firm and household decisions, and ultimately business cycles
 - ▶ e.g. Bloom (2009), Bachmann, Elstner and Sims (2013), Coibion, Georgarakos, Gorodnichenko, Kenny and Weber (2021), Kumar, Gorodnichenko and Coibion (2022)
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- ▶ Many different approaches: macro level (incl. financial markets) → volatility/surprises/text analysis; micro level (forecasters/firms/households) → surveys

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- ▶ Many different approaches: macro level (incl. financial markets) → volatility/surprises/text analysis; micro level (forecasters/firms/households) → surveys
- ▶ Within surveys, various approaches to measuring uncertainty at individual level – e.g.
 - ▶ qualitative questions
 - ▶ span between a firm’s best-case and worst-case scenario (BCLS 2021)
 - ▶ “Manski-style” elicitation → calculate implied standard deviation
 - ▶ closely related: Altig, Bloom, Davis et al (2020) firm surveys – implemented in US and UK

Business uncertainty measures of Altig et al. (Journal of Econometrics, forthcoming)

SBU Survey of Business Uncertainty



Looking ahead, from now to four quarters from now, what approximate percentage **SALES REVENUE** growth rate would you assign to each of the following scenarios?

The LOWEST percentage sales revenue growth rate would be about:	<input type="text" value="2"/> %
A LOW percentage sales revenue growth rate would be about:	<input type="text" value="1"/> %
A MIDDLE percentage sales revenue growth rate would be about:	<input type="text" value="0"/> %
A HIGH percentage sales revenue growth rate would be about:	<input type="text" value="1"/> %
The HIGHEST percentage sales revenue growth rate would be about:	<input type="text" value="2"/> %

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Please assign a percentage likelihood to the **SALES REVENUE** growth rates you entered. (Values should sum to 100%)

LOWEST: The likelihood of realizing a -2% sales revenue growth rate would be:	<input type="text" value="0"/> %
LOW: The likelihood of realizing a -1% sales revenue growth rate would be:	<input type="text" value="0"/> %
MIDDLE: The likelihood of realizing a 0% sales revenue growth rate would be:	<input type="text" value="0"/> %
HIGH: The likelihood of realizing a 1% sales revenue growth rate would be:	<input type="text" value="0"/> %
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⇒ Calculate subjective uncertainty as

$$SD(\text{SaleGr}) = \left[\sum_{i=1}^N p_i (\text{SaleGr}_i - \text{Mean}(\text{SaleGr}))^2 \right]^{1/2}$$

This paper: uncertainty is more than risk!

- ▶ Existing quantitative approaches assume that respondents have well-behaved probabilities in mind. But... is that really plausible?
- ▶ Innovation of this paper: directly give respondents the option to either provide a single probability, or an **interval** of probabilities that an event happens (in this case an increase in firm's quarterly sales)

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“Maybe we don't need to bother with asking for probability intervals”

⇒ if that is the take-away, very useful methodological contribution, but maybe not (only) what authors are aiming for?

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- ▶ May well be the case!
- ▶ One way to test: do Knightian responses predict actual or planned behaviors (controlling for midpoint of interval)?
- ▶ Even more demanding test: does this hold even controlling for other (qualitative or quantitative “Bayesian”) measures of uncertainty

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- ▶ Would be interesting to extend (ideally within same module) to macro-level questions, which respondents may think about less intensely – e.g.
 - ▶ What is the likelihood that inflation in Germany will exceed 3% in 2024?
 - ▶ What is the likelihood that the interest rate on a 1-year government bond will be higher in 10 years than it is today?

Assorted smaller suggestions

1. If survey module still in the field in 2020: study (possibly heterogeneous) effects of Covid pandemic on response mode choice
2. Other potential predictors of a firm choosing the Knightian response mode:
 - ▶ Higher-frequency macro developments (could proxy with stock market vol over the week prior to response date, or macro data surprises)
 - ▶ Past forecast misses
3. Same question phrasing is also used for sub-questions asking for the probability that sales “stay the same” and “decrease” – not currently used
4. Respondent (within firm) changes “infrequently” \Rightarrow would be good to (i) be more precise and (ii) test whether there are respondent fixed effects in terms of choice of response mode (assuming respondent name is known?)

Conclusion

- ▶ Understanding how survey respondents think about probabilities is very important
- ▶ In particular, are we making a mistake when just asking for single probabilities of given events?
- ▶ Paper (in my reading) suggests the mistake is not too severe, at least when asking firms about well-understood, familiar events
 - ▶ May be different for more distant/abstract events, and for households
- ▶ Open question whether nevertheless beneficial to allow for probability interval responses, because may have additional information content