Report on PhD Dissertation
Candidate: Vladimir Novak

Thesis Title: Essays on Costly Information Acquisition in Economics

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1 Overview and assessment

The thesis comprises three chapters.

The first chapter is a theoretical paper (published in the *Journal of Economic Theory*) showing that, in contexts where experimentation is possible, more risk aversion can be associated to more, rather than less, engagement with the risky option. The counter-intuitive result obtains when the risky option is characterized, in the good state of the world, by more frequent/more modest payoffs compared to the safe option. A risk-averse agent is then presented with the trade-off between: (i) avoiding intra-period risk and (ii) avoiding inter-temporal volatility. When the frequency of payouts of the risky option in the good state of the world is high enough, experimentation is quicker reducing intra-period risk; moreover, the benefits of inter-temporal smoothing – that a successful experimentation can bring about – are felt more the higher the degree of risk aversion. Beyond a certain threshold, it is the high risk-averse agent that is more willing to experiment with the risky option.

The paper shows an interesting scenario where risk and time preferences combine in unexpected ways. One of the main takeaways is that "bizarre" results obtain when risk and inter-temporal preferences are modeled/measured with the same parameter. As a small note, I wish the authors had acknowledged the work, both theoretical and empirical, that separates risk from inter-temporal preferences (Epstein and Zin (1989);

Chew and Epstein (1990); Halevy (2008); among others); the main result, as far as I understand, crucially depends on the assumption that the two preference parameters coincide.

The second chapter is a combination of theory and experiment and tackles belief polarization when attention is costly. The premise is that, in the presence of a status-quo, a decision maker that is gathering costly information about a new policy may find it optimal to only learn about the relative positioning of the new policy compared to the status-quo and does not care to discriminate further (a phenomenon called *state-pooling*). The optimal state-pooling strategy then depends on the value of the status-quo and/or the expected value of the policy. As a result, two agents that differ on either one of these dimensions may choose information structure which lead to a different partition of the state space. This leads to the key insight: the interpretation of the same signal (payoff/state realization) is bound to change depending on how states are bundled together. This, in turn, can lead to updating which goes in the opposite direction of the payoff realization and to belief polarization.

I find the idea of state-pooling intuitive and compelling from a psychological point of view. One implication of state-pooling is that the decision maker only obtains valence information in comparative form, that is relative to the status quo option. This is echoed by neuro-scientific work on context-dependent learning, i.e., the notion that we learn and encode the value of things following context-dependent/comparative (rather than absolute) assessments (see Bavard (2018), and Tymula (2016) for a review). Can this paper provide the link between the rational inattention literature, the literature on reference-dependence and these neuro-scientific studies? I encourage the authors to explore this possibility.

The experiment testing the theory is well done and offers a good validation of the model. Agents choose state-pooling in accordance with the theory and their beliefs move accordingly, albeit to a lesser extent than predicted. I appreciated how the authors managed to break the test of a complex theory into smaller steps, and implemented each of them with a solid design. Overall, I think the paper has high potential, and I would not exclude that it can find place in a top-five journal.

The last chapter is the estimation of a DSGE model with price-setting firms which are rationally inattentive. It compares the performance of a rational inattention DSGE model (RI), with an imperfect common knowledge model (ICKM) and a model with price stickiness à la Calvo. It finds the RI model outperfroms the Calvo model and does better than ICKM in the long-run predictions. This chapter falls outside my area of expertise so I will not comment further on it.

2 General assessment

I found the thesis of Vladimir Novak a remarkable piece of work. It shows depth of knowledge, a wide set of theoretical and experimental skills, an inclination for good economic thinking and several elements of creativity. It is very well curated and clearly written. I fully support the graduation of Vladimir to PhD. I am looking forward to reading more of his work.

References

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