GENERAL EVALUATION

Dissertation consists of three chapters. Methodology is experimental economics (lab and field). The first chapter combines the elements of a literature review and descriptive comparison of prediction and betting markets. The second chapter is undoubtfully the strongest piece of the dissertation. It is a concise and well conducted laboratory experiment that replicates Plott et al. (2003) with several important modifications (most notably, the measurement of risk aversion). Chapter 3 is a field experiment on running a prediction market within a nonprofit institution.

In the dissertation the doctoral candidate shows and applies a deep knowledge of the experimental method. Even though CERGE-EI is traditionally strong in econometric methods, this particular dissertation does not employ such methodology beyond standard statistical tests. Also the dissertation does not have any theoretical model.

The main contribution to the literature is probably the result in chapter 2. Plott et al. (2003) find that information is aggregated in the market but the best descriptive model is the one that does not assume any information aggregation. The author shows that this paradoxical result can be explained by looking at individual rather than aggregate data.

Chapter 1 essentially compares pros and cons of prediction and betting markets. The comparison is verbal but some of the arguments may be questioned. I think that verbal description might be not the best method for this chapter. The arguments might have been clearer if the author set up a simple model (perhaps with just to bidders) to formally compare the properties of prediction and betting markets within this model.

Chapter 3 describes a very interesting field experiment. I guess the field experiment described in chapter 3 could be only used as a pilot experiment to formulate practical suggestions for a future design of similar internal prediction markets. It cannot be used for drawing any strong conclusions, for example, on the relative comparative advantages of such markets. So the author might consider scaling down some of the claims in chapter 3.

The current draft warrants a dissertation defense and the eventual award of a doctoral degree provided that the author addresses as much as possible detailed comments listed below. The author definitely showed a potential for conducting academic research and I believe she deserves her Ph.D.

DETAILED COMMENTS

Section 1.2.1 Your examples are OK but I think the dissertation would benefit a lot if you could provide a formal definition of a continuous double auction and a call market.

Section 1.2.3 I find this section a little bit repetitive. You basically repeat what you already stated before or are about to state in the following subsections. I think this section could be substantially abbreviated.

Section 1.3.1 in the opening paragraph you write that information aggregation means that insiders are attracted into the market. Yet, in the third paragraph you write that information aggregation means that the revealed price is close to the price that would exist on the market if all private info were pooled together. These are two very different notions of information aggregation and it is not clear at all if they are equivalent. You need to state clearly what you mean by information aggregation. Again, maybe adding a formal definition is not a bad idea.

Section 1.3.2 in the opening paragraph you write that it is only a conjecture that insiders enter early in the prediction market but in Figure 1 in section 3.1 this is stated as a fact. You need to make clear that this is only a hypothesis. Maybe you could leave the corresponding field in Figure 1 empty or write “not known”.

Section 1.3.2 second paragraph. It is not clear at all why insiders should bet late in a betting market. You write that “the higher the number of traders the lower the payoff”. This is simply not true. My payoff is given by x*(x+A+B)/(x+B) if the event is true (and zero if the event is false), where x is my bet, A is the amount of money bet against the event and B is the amount of money bet for the event excluding my own bet. So clearly, the higher is A the higher is my payoff. I would benefit a lot if there are many traders betting against the event and if there are few traders betting for the event. So, if I am an insider on the betting market I might first bet against the event to attract other bidders into betting against the event and then I place a large last minute bid for the event to rip high profit. But if other players realize that such strategies are available I might as well bid for the event from the very beginning because they would not know whether I am “fooling” the market or I genuinely act on my private information. In short, I do not think you can make any statement about insiders betting early or late in the betting market. It all depends on the specific modeling assumptions.

Section 1.3.3 Your argument that the occurrence of an informational bubble is lower in the prediction market than in the betting market rests on the assumption that insiders bid late in the betting market. As I already pointed out, this assumption maybe questionable.

Section 1.3.6 last paragraph: you write that it is possible to hold a riskless portfolio on a betting market but in Figure 1 in section 3.1 you state that such portfolio does not exist.

Section 1.3.7 you write that reselling is not possible in betting markets. That is simply not true. At any moment in time I can cancel my bet simply by betting an appropriate amount of money AGAINST the event. Specifically, if I already bet x for the event I can cancel this bet by betting y=x*A/B against the event, where A is the amount of money bet against the event (excluding my own bet) and B is the amount of money bet for the event (excluding my own bet).

Section 1.3.8 I would say that the market maker can extract profit in both prediction and betting markets, if he wants to. Usually, in the prediction markets there is a fee for placing orders and this is generates profit for the market maker, just like house charge in the

betting markets.

Section 1.5 last paragraph. Please carefully revise your statements about cancelling bets in a betting market. As I already pointed out, de facto it is possible to cancel a bet at any point in time by betting an appropriate amount of money against the event.

Section 2.1 is a little bit repetitive. You basically repeat what you already wrote in various parts of Section 1. I think you can drop Section 2.1 altogether.

Section 2.3.2 p. 32 top paragraph. You write "… the traders … invest all the money they have irrespective of their attitude towards risk. Only extremely risk-averse subjects would do otherwise." So, trading decision does depend on risk attitude?

Section 2.3.2 p. 32 last paragraph (point 4. Paying periods). You are arguing that subjects might be discouraged from sniping if only few periods are selected for payment. I would disagree. Subjects would engage in sniping only if the expected payoff from this strategy is positive. If it is profitable to snipe in one period, it is profitable to do so in all periods because periods are independent from each other and you do not allow for wealth accumulation across periods. So how can a smaller number of paying periods affect the profitability of some strategy in one period? Under expected utility theory that is simply not possible. Sure, under non-expected utility there might be such effect. For example, a smaller number of paying periods increases the probability of a loss but they you need to invoke the story of loss aversion or something similar.

Section 2.4 result 1 last paragraph on p.34 continued on page 35. You write that information aggregation improves over time with declining Würtz measure. Well, the difference between 0.495 for all periods and 0.489 for the last 8 periods with standard deviations around 0.19 does not look significant to me. So maybe you should not stress too much this pont…

Section 3.4 result 1 is based on "visual inspection" of Figure 6. I am not quite sure what we could learn from this. Even in the case of the short-term market the fact that the most valued share coincided with the realized outcome might be of a limited practical significance if there are nineteen other shares with prices just a little bit lower. In this case, even though the mode of the distribution coincides with the true state of the world, the implied probability of making a correct prediction would be only 5%. I guess what I am trying to say is the following. Looking just at the distribution of prices (as on Figure 6) is not very informative for practical purposes. It would be nice if you could convert this distribution into implied likelihoods of the underlying events with the confidence bounds so that I could judge how far off is the realized outcome from what is expected by market prices.

Section 3.4 result 2: you cannot seriously claim that prediction markets successfully aggregated information because they made a better forecast than "the best guess". By the way, how did you come up with "the best guess" of 100 total applications and 10 CZ+SR applications? I do not have the data, but just by looking at Figure 7 I would guess

that the simple average of total number of applications over those 4 academic years would be around 130, which is pretty close to the realized outcome of 140 (and which looks like a better prediction than your bimodal long-term market).

Section 3.4 result 3: the fact that asset prices do not sum up to one simply means that the market is not efficient and there are arbitrage possibilities. Why these arbitrage possibilities were not exploited by market participants is another question. It has certainly nothing to do with a tournament incentive scheme. In a tournament, if prices of all assets exceed one, I can make profit by buying market portfolios and reselling them individually. In the last period I invest all my earned profits from such arbitrage opportunities into the share that I believe to be the most likely to win. So, nothing in the tournament scheme prevents me from making more money on arbitrage. There might be some liquidity constraint in the small-scale markets but setting this issue aside I think it is fair to say that your participants simply missed on existing arbitrage opportunities perhaps due to bounded rationality. I honestly do not understand your Observation 1 on page 60 that “there were actually no practical arbitrage opportunities”. Look, for example, at periods 28 and 29 on Figure 9. You can increase your wealth by 30% in these two periods alone by reselling market portfolios as individual shares.

Section 3.6 is largely repeating what you already wrote elsewhere and some arguments presented in this section are purely speculative. For example, on page 68 you write that some non-winning assets were traded at positive prices because traders who needed cash must have bought them to sell market portfolio to the market maker. Why would anybody go in such a roundabout way? If I need cash I just sell some of the assets that I hold individually, there is no need to buy worthless assets for that.

Section 3.7 last paragraph. Your conclusion that “properly designed market has strong potential to serve as a prediction and internal decision making tool” seems to be in direct contradiction with what you wrote in Observation 5 on page 65 “a poll, where the individuals with the most accurate guessers (sic) get a prize, might be a faster, simpler and probably equally precise way to gather the dispersed pieces of information”.