

Reply to Referee 2 Sept 30, 2013

Geller Mustard Shahwan Focused Power 2013-42, received by Economics e-Journal Aug 21 2013

We thank Referee 2 for the time, care, and effort spent in reading and reviewing our paper. Although our paper has been rejected, we feel that replies may be of use to some readers.

Cheers,

Chris Geller

Oct 9, 2013

Comments from Referee 2 are numbered. Replies follow letters.

- 0) Referee 2 claims an over-broad agenda for our paper “to test whether the Shapley Shubik power index is a good proxy of the distribution of power in voting games where voters differ for the number of votes they have and have to form coalition to share a common endowment.”
 - a. The difference between the agenda as stated by Referee 2 is subtle but important. Indeed, if our agenda were what Referee 2 claims, more of the referee’s objections would be valid. Summarizing our objective accurately would require including the phrase “in an environment tailored to the assumptions of the Shapley value and SSPI.”
- 1) “... as if it requires that ‘the game is efficient’: this is clearly incorrect. The axiom of efficiency requires that the power index mapping is such that the sum of the power of the players must equal the worth of the grand coalition of the game. Axioms are a list of properties that a power index mapping should satisfy, not the games....”
 - a. Referee 2 is precisely correct in this point.
 - b. We do state “The three axioms were characteristics that a reasonable bargaining model – had one existed – presumably ought to obey.”
 - c. We should have retained that vocabulary in items 1)-3) addressing the axioms.
 - d. Then we should have related the importance of our experimental game approximating the axiomatic conditions. In brief, readers could be understandably sceptical of our results our experiment violated the axioms underlying the Shapley value. If:
 - i. We had evaluated the fit of a mapping that assumed player symmetry, and used an experimental game in which players were asymmetrical (for example, having the same subject start offers of coalitions, vote profiles were listed from largest to smallest, etc.)
 - ii. Experimental conditions had lead to less than the full purse (worth of the grand coalition) being distributed, given an axiom that all potential gains were realized (efficiency).
 - e. Which brings us back to our premature wording in the first paragraph of section III.
 - f. This case of incorrect wording is an editorial matter, not an issue that calls our methods into question.
- 1a) “I recommend the authors to read a recent paper by E. Einy and O. Haimanko (2011); in the characterization result contained in this paper, the efficiency axiom is replaced by a much weaker axiom. Apart from a wrong interpretation of the role of axioms, the authors seem to believe that efficiency plays a central role in the SSPI characterization and repeated point out that the design of the experiment as also the selection of the subjects aim at inducing efficiency.”
 - a. We realize that other axioms can lead to the Shapley value. We state: “However, given the domain to which these three axioms do apply, ‘it is remarkable that no

further conditions are required to determine the value uniquely' (Shapley, 1953). These are sufficient conditions, not necessary ones. As Shapley (1953) notes, other sets of sufficient conditions exist."

- b. Our methodology involves experimental conditions suited to the value and SSPI. It does not require implementing the weakest set of axioms, nor the sum of all sets of sufficient axioms.
- 2) "All the discussion about focal points and transaction costs at page 10 and following pages lacks of clarity. I am not able to follow the arguments made by the authors. They do not provide a clear definition of what they mean by 'focal points' or by 'transaction costs': according to the definition of transaction costs that I have in mind, there are no transaction costs in their bargaining game."
- a. I suspect that it is the location (rather than content) of our explanations of focal points and transaction costs that caused Referee 2 difficulties.
 - b. In compliance with the usual practice in economic papers, at the end of the introduction (pg 4) we note that Section V addresses focal points focal points and transaction costs.
 - c. Our paper probably would be easier to read with the explanation on page 18 moved to page 10.
- 3) "I do not agree on the authors' justification on how they select the participants of the experiment and especially the motivation on why they exclude some subjects based on their preferences. The sentence "Subject homogeneity is the empirical manifestation of symmetry is meaningless." From a methodological point of view the authors seem to suggest that they choose their subjects in order to obtain the desired results. At page 11 line 4 the authors write that they select subjects and write instructions that promoted behaviour consistent with the assumptions, confounding once again, assumptions about mathematical properties of the power index with assumptions about voters' behaviour. The exclusion of some subjects based on their (supposed) preferences casts serious doubt on the validity of their experiment"
- a. Exclusion of some subjects calls the *external* validity of the experiments into question. One should be just as careful in applying our results in natural environments as one should be about applying the Shapley Value or SSPI in those environments. Our results, the Shapley value, and the SSPI address underlying voting power among weighted players; none of the three address forms of other variation among players or institutions.
 - b. Consider the ordinary example of perfect competition. Perfect competition is a mathematical result. Yet we regularly expect markets that approximate perfectly competitive conditions to approximate perfectly competitive outcomes. Further we regularly expect that markets that diverge widely from perfectly competitive conditions (e.g. monopoly power, unknown goods) to have outcomes that diverge widely from perfectly competitive outcomes. Likewise for monopoly markets, markets with externalities, markets with public goods and many more. Economists have addressed many such markets with experiments in which various conditions served as empirical manifestations of abstract market conditions. I thought this parallel to our work was sufficiently well known that it need not be made explicit.
 - c. As noted in our literature review, some significant scholars remain skeptical that power indices relate to any human behavior.
 - d. We do not "choose their subjects in order to obtain the desired results." We choose our subjects and environmental conditions to permit results that could be clearly related to the Shapley value and the SSPI.
 - e. Consider the significance of our results if human behaviour diverged widely from the value and SSPI even under our tailored conditions. Our results would be more interesting and probably more publishable. Although one supposes that referees would be saying something to the effect that "Of course their results came out negative. No one would expect theoretical values to match experimental results where x , y , and z did not fit with the logical foundation of power indices."

- 4) “In the experiment, participants have the possibility to freely negotiate by means of a chat room. This is probably the most interesting feature of the experiment, which is totally disregarded by the authors who devote no effort in analysing the content of the messages exchanged during the negotiation process. According to my opinion, it would be interesting to know how many times voters refer to ‘fairness’ or make use of threats, etc.”
- a. Referee 2 does not suggest how such information would fit into our current paper, and takes exception to our use of analogous information.
 - b. Perhaps Referee 2 wants us to write (and submit) multiple analyses and articles from our data simultaneously. Unfortunately, we have limited time and resources so we have to do one at a time.
 - c. This proposal of a different topic (if meant as a criticism) is directly contrary to Economics eJournal’s declared instructions to referees. We explicitly state that we are not investigating the effects of behavioural distortions, although we use other plain vocabulary.
 - d. If Referee 2 wants to investigate bargaining issues with our data, we would be pleased to share the data and project.

Cheers,

Chris