

Bias for proximity and gender in the voting patterns of contestants in the TV quiz-show 'The Weakest Link'.

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Background Field studies based on television quiz-shows are free from the kinds of demand characteristics and ethical concerns that can sometimes blight experimental work. Further, they are effectively double-blind, so providing a useful empirical test-bed for theories in social psychology, decision making and economics.

The popular TV quiz-show *The Weakest Link* (WL) has already been used to assess the optimal banking strategy in an analysis of economic decision making (Haan, Los and Riyanto (In press)); as a test of gender and race discrimination in voting practice (Levitt, 2004; Antonovics, Arcidiacono & Walsh, 2005); to investigate the trade-off between risk and return strategies in game playing (Barmish & Boston, 2009); and to show 'neighbour avoidance' in first round voting (Goddard, Ashley, Fuller & Hudson, 2011). A similar procedure was used here to measure the voting behaviour of contestants as a function of the proximity of the voter to the candidate voted for and as a function of their gender. The aim was to test for proximity and/or gender biases in voting patterns.

Method In a field study the observed pattern of voting in the first round of 72 episodes of the UK version of the TV show WL were analysed. The first round involved the host of the show directing questions for three minutes to a line of nine contestants. The questions were fielded sequentially by contestants in a clockwise direction. Following the questions, the first round culminated when each of the nine contestants openly declared which of their compatriots was, in their own individual opinion, the worst performer in the group. The contestant accruing the most 'votes', the '*weakest link*', was then summarily eliminated from the show. The show continued thereafter in a similar vein, through subsequent rounds, until an overall winner was found.

Analysis The analysis focused only on the first round voting procedure. In effect contestants carried out an eight-alternative-forced-choice task by voting for one of their peers as the weakest performer in the group. A vote given was therefore a negative attribution openly directed at another contestant. Nine votes were made in the first round giving a sample of 648 votes across 72 episodes. Rudimentary probability theory was then used to generate the *expected* frequencies of votes for all relative positions of voter-to-candidate spatial relations and this was compared to the *observed* pattern from the episodes. Similarly, the gender of contestants was recorded and the *expected* frequencies of males voting for males/females were recorded and *vice versa*. Inferential analysis was conducted to ascertain whether there were significant deviations between the *observed* and *expected* frequencies. Any such deviations from expected probability were interpreted as biases.

Results The findings reiterated some of those made previously (Goddard et al, 2011) where there was a significant bias against voting for direct neighbours. However, additionally, contestants demonstrated other biases regarding gender. Firstly, females were significantly overrepresented as the WL in the first round. Further, individual voting patterns showed that males were significantly more likely to vote for a female than a male contestant. Females exhibited a similar bias in that they were also more likely to vote for female contestants over male contestants. These results contrast somewhat with an analysis of the US version of the show by Levitt (2004) and by Antonovics et al (2005). Antonovics et al (2005) found no evidence of voting biases based either on race or male voting patterns regarding gender, however, one bias that did emerge was the opposite of that reported here as females were more likely to favour females by voting for males. Levitt (2004) reported a similar bias with females also more likely to vote for males but he also found that males were more likely to vote for women.

Discussion Observing contestants' performance in the context of TV quiz-shows provides an authentic insight into human decision making.

'.....this game show provides an ideal laboratory to study human decision-making. The rules are well defined and the stakes high, something that is difficult to replicate elsewhere.' Barmish and Beamish (2009).

The main findings here are that contestants are susceptible to biases in their voting behaviour relating to the location of the contestant they are voting for and their gender. One interpretation for these biases is that contestants were basing their voting decisions on two very different sources of information (Goddard et al, 2011). One primary source was exogenous, public and explicit, encompassing the observable performance of the candidates during the round of questions. For instance, this could be based on the accuracy, speed and ability of their fellow contestants to generate answers. A secondary source was endogenous, private and implicit. For instance this could be based on the underlying beliefs and attitudes of the voter. Following this reasoning the observed biases exhibited above would be the manifestation of this secondary source, exposed by conducting an analysis over a large number of instances. This thereby makes these kinds of field studies an invaluable asset in exposing these otherwise implicit biases.

Word count = 991 (including titles and references)

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