

Shaun P. Hargreaves Heap (2014). Social Influences towards Conformism in Economic Experiments. Economics Discussion Papers, No 2014-4, Kiel Institute for the World Economy. <http://www.economics-ejournal.org/economics/discussionpapers/2014-4>

Revised version 8 April 2014

Social influences towards conformism in economic experiments

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Abstract

This paper reviews some of the economic experimental evidence on conformism. There is nothing to match the early psychology experiments where subjects were often swayed by the behaviour of others to an extraordinary degree, but there is plenty of evidence of conformism. This seems built-in to our sociality either because we have preferences for conversation or status which are activated by the knowledge of what others do, or because other people face relevantly similar decisions to our own and so that their behaviour signals something useful to us about the uncertain world. These social influences can cause mischief. The more worrying cases, however, are those where individual preferences themselves change through interaction with others: the strongest experimental evidence for this is with respect to individual social preferences, particularly in a context where individuals belong to different groups.

1. Introduction

Is my name shorter than that of another person called Shaun Hargreaves? Obviously not, because I have the extra four letters: 'Heap'. Nevertheless, it seems that as many as 75% of us could be persuaded on occasion, if enough other people said my name is shorter, to agree that, indeed, my name is the shorter. This is the insight of some famous psychology experiments from the 1950s (see Asch, 1951). It is disturbing because we are not well served, in general, by holding inaccurate beliefs about objective features of the world. In this paper, I review some of the more recent evidence from experimental economics on such apparent conformism and I consider whether it is as worrying as the Asch example suggests. That is, I shall be especially interested in the welfare consequences of such conformism. For this purpose, I take 'apparent conformism' to be instances where individual behaviours in a group context become more aligned or more similar in some respect as compared with what individuals would do without the context or information regarding what others are doing.

The original psychological experiments were motivated in part by the experience of conformism under fascism. While few worry about conformism in economics in the same way, it can potentially have negative effects. Herding, for example, can be a key ingredient in the explanation of damaging asset price bubbles (see Akerlof and Shiller, 2010) and the last phases of merger waves that destroy value (see Clark and Mills, 2013). The worry in both cases is usually that the conformism leads to actions that are wrongly informed in ways that create inefficiency. There is a further possible and deeper worry that conformist behaviour might arise, not from this type of (mis)information sharing but from individual preferences bending towards the norm of a group. The habit in economics of taking individual preferences as given, as for example when using the Pareto criterion, would make little sense if this proved the case.

It is well known that people who belong to the same group often exhibit the same opinions and preferences. The difficulty with knowing whether this reflects conformism in this deeper or any other sense is that groups can come together precisely because their individuals hold similar preferences and they exchange information. In other words, the appearance of conformism could arise from the dynamics of group formation as much as some kind of psychological process of 'group think'. This is why experiments are particularly well suited for the investigation of this issue. They enable control for such prior commonalities and the common shocks that might otherwise explain tendencies towards conformism.

I distinguish in this paper between three mechanisms that can produce conformism among individual behaviours. Although this paper is primarily concerned with experimental evidence, it draws in this respect on the theoretical literature on conformism (e.g. Jones, 1984, and Bernheim, 1994). Two mechanisms turn on the way that the behaviour of others conveys information that is relevant to an individual who is acting on given preferences. In particular, in section 2, I consider those experiments that have focused on decision problems where the behaviour of others gives information about the state of the world and this information affects an individual's decision over how best to satisfy his or her preferences. The classic example is the traveller to a new town who is looking for a place to eat. He or she

passes two restaurants offering similar menus, one is almost full, the other is almost empty. He or she infers from this evidence of others' behaviour that the almost full one is better and so decides to eat there.

In section 3, I discuss experiments where the behaviour of others provides information that matters in a different way. It affects individual behaviour because individuals have preferences that depend on social comparison in some form or another. People may, for example, value the status that comes from doing better than others. As a result, the provision of information about the performance of others encourages each to expend more effort than would be the case if they knew nothing about other people's performance. That is, everyone responds to the information about performance in the same way: they work harder.

Finally in section 4, I consider those experiments that examine whether people's preferences actually change in ways that produce conformism in behaviour. These are the more disturbing cases for the methodological individualism of economics that takes individual preferences as givens. Section 5 concludes with a discussion of whether the types of conformism identified in these experiments are worrying and where future experimental work might usefully be focused.

2. Information cascades and the wisdom of crowds.

The restaurant-like cascading of information has been studied in the laboratory. The classic experiment has two states of the world, each associated with an urn from which balls are drawn. Urn A has twice as many red balls as white, and Urn B has twice as many white balls as red. An individual gets a draw without knowing which urn was used and must decide on which it came from (i.e. the state of nature), another individual knows the first person's decision, gets another draw, and must decide on the state of nature, another individual follows in the same fashion and so on (see Anderson and Holt, 1997). An information cascade occurs when individuals place excess weight on the evidence provided by the behaviour of others, as compared with their own private signal, with the result that people can make mistakes; and this happens in the experiment. Formally, with a prior probability of $\frac{1}{2}$, the first person will rationally declare that the urn was A (B) when the draw is red (white). When the second person, knowing this, draws red, they declare red because there have now been two red draws (making urn A much more likely). The cascade now sets in because the third person will rationally discount their own draw when it is white because, the balance of evidence (two reds versus one white) still favours A. Their private information is not revealed, this is the source of the inefficiency, and a collective mistake can arise when the first two draws, unluckily, came from Urn B.

It is the equivalent of our putative diner, knowing something about each restaurant (the draw from the urn), who places greater weight on the evidence of what others do because it seems overwhelming and so follows them. As a consequence, it is possible that a mixture of 'bad' luck with respect to the order in which people come for dinner that night and excess weight being placed on what others do, the worst restaurant fills up. Or to shift example, people pile into the stock market, despite what they know, because the evidence of rising prices suggests that private information held by other

individuals is more optimistic about the trajectory for future profit streams. This kind of conformism can be rational behaviour, but it can yield inefficiency.

This result appears robust: for example, see Hung and Plott (2001) who also consider whether the propensity towards such inefficient cascades depends on the rules governing individual rewards. They find that when individual rewards depend on the majority opinion (rather than individual declarations), such cascades are much less likely to occur because people place more weight on their own private information when deciding on the state of the world. This is an interesting result because it connects with the findings in some experiments that contrast decisions made in groups with those made by individuals when facing the same decision problem.

Charness and Sutter (2012) report on a series of such experiments where there are similarly objectively correct decisions that can be made. For example, in the 'Linda' experiment, subjects are given a description of Linda, that includes her concern for discrimination and social justice, and they must choose whether it is more likely that a) Linda is bank teller or b) Linda is a banker teller and an activist in the feminist movement. b) must be less likely because it involves an extra restriction (being an active feminist), but a strikingly large number of individuals declare that b) is more likely. This number falls when the same question is asked of groups of people (see Charness, Karni and Levin, 2010). Likewise in the beauty contest game where individuals or groups are asked to choose a number between 0 and 100, and the person or group closest to $2/3$ of the average number chosen wins the contest and collects the prize, the groups exhibit a higher level of iterated reasoning than do individuals and so choose a smaller number (see Kocher and Sutter, 2005). These results relate to the Hung and Plott protocol because groups often in effect have a similar protocol connecting individual rewards to the views of others: that is, in the group context the individual's rewards depends on the quality of the average view within the group.

In one sense the results reported in Charness and Sutter(2012) are unsurprising. It is a mathematical property, known as the wisdom of crowds, that the average error of the average opinion is equal to the average individual error minus the variance in individual opinions (see Page, 2007). So, provided group discussion does not either increase the average individual error and/or reduce the variance in views, it must be an improvement over what the typical individual would do. What is interesting is that these possible adverse effects do not occur within these experimental groups with sufficient force to offset the gain that is built-in by the mathematical wisdom of crowds. In other words, to combine these insights, it seems that when the opinion of others influence individuals informally (as in the traveller dining out), they can have unfortunate effects on outcomes. In contrast, when the outcome for an individual is formally yoked to the opinion of others (via group decision making or the reward protocol), the individual response to this is such that the all benefit from property of the wisdom of crowds. This is a case, typically not recognized in the lexicon of this debate, where centralization can be better than decentralization because it is more efficient in sharing information.

3. Social comparison

Suppose individuals are first set a real effort task where they are paid on a piece rate and then, having being told how others performed, they repeat the task. There can be a surprisingly large boost in productivity (around 20%) during the second real effort task (see Azmet and Ichiberry, 2010, 2012, Hargreaves Heap *et al* 2014). The subjects in these experiments exhibit a form of conformism in the sense that all suddenly work harder during the second real effort task; and it would be easy to imagine that some kind of contagion of the work ethic has taken place, except that how hard others work is not apparent in the laboratory.

Instead, this is more plausibly an example of where a common shock can induce similar behaviours. The general point is not surprising: we all tend to open our umbrellas when it starts to rain and close them when it stops. The particular example is, however, more interesting than this because the common shock is the knowledge of others' behaviour. To motivate action, this requires that people have preferences that are sensitive to this information. A preference for status that comes from doing better than others is one example (I take up 'status' that comes from performing in accordance with a norm of 'reasonableness' in the next section, as it involves a different set of issues). When someone just performs the task in isolation, there is no easy way for the individual to assess how well they are doing relative to others and so status in the sense of doing better than others does not enter into their consideration over how hard to work. But when there is information about others these relative judgments can be made and, if status in this particular sense motivates, then it provides a new incentive to work harder. Equally, the preference could be for self esteem and the connection with the behaviour of others arises for epistemic reasons. When people make judgments about whether their behaviour reflects well or otherwise upon themselves, they need an evaluative standard. In many activities, however, there is no obvious absolute standard and so we rely on the behaviour of others to act as the reference point. When I run the 100 meters in 12 seconds, is this a good or a bad time? This is difficult to answer because there is no absolute standard for running the 100 metres, but when I know what others do in my position then I can form some judgement. For this reason, I may respond to the knowledge of what others do because it affords the opportunity to acquire self esteem.

The difference as compared with the rain is that the common shock of 'knowing what others do', is often a policy decision. Indeed, this is one example of a policy 'nudge' in the sense of Sunstein and Thaler (2008). Should employers, for instance, tell their workers how their co-workers are performing (as often happens in a salesforce)? Should the teacher tell his or her students the class average on an assignment? The employer will want to because salespeople will probably work harder and so add to firm profits. It is well known that tournament type contracts can be very useful when effort is difficult to monitor and it seems the same might be achieved without this contractual complication because we have a psychological propensity to derive some satisfaction from doing better than others even when material pay-offs do not depend on this comparison.

The picture is more complicated for the worker. Some will feel better and others worse through such relative comparison because we cannot all be in the top half of the distribution (see Azmat and Iriberry, 2012, for some suggestive experimental evidence

on this). For those at the top, there may be a net benefit that comes from working harder in response to the information about what others do, but for those in the bottom there is not. They work harder than they would when there is no information and this is to mitigate the negative impact of the relative comparison. Yet, it has not such effect, on average, in equilibrium, because when all work harder the standard rises. It would be better for all to know their relative position and not respond to this than to know and respond, but responding is irresistible. This aspect of status contests are akin to the temptation that each spectator in a stadium has to stand: they hope thereby to get a better view, but when all stand the views are no better than when all are seated.

The question for children shares some of these difficult trade-offs of interest. It also reveals a different possible complication because it might be argued that they can underestimate the importance in terms of absolute rewards from working hard at school and so the extra incentive that comes from social comparison helps offset what would otherwise be an unfortunate bias towards underworking. For these reasons, I draw the inference that policy 'nudges' of this kind will not always be self evidently desirable as they can entail complicated and conflicting welfare considerations.

4. Preference conformity

In some real effort task experiments where information is given about the performance of others, there is evidence of a much stronger form of conformism. It seems people adjust their behaviour in ways that conform to what others do. The high performers do not improve significantly. It is the low performers who redouble their efforts with the result that performance becomes closer among the group (e.g. see Mas and Moretti, 2009, less clearly but impressionistically in Falk and Ichino, 2006, because there is no statistical test of significance for different performers, and also Abeler *et al.*, 2011, where in a different context, the mode of behaviour in a group shifts with the reference point). This is a case where it seems individuals have a preference for conformity, possibly because they value status, in this instance, that comes from behaving in accordance with the norm of 'reasonableness' within their group (e.g. see Bernheim, 1994). Give them a different reference point and they all might have behaved differently (as in Abeler *et al.*, 2011). As a result, with such a preference for conformity, it is hard to maintain that individuals have exogenously given preferences in the way that is required for preference satisfaction to be the basis of a welfare standard.

There is related evidence on the desire for conformity in public good experiments when there is an opportunity for punishment. It seems from these experiments that people tend through punishment to encourage contributions that are equivalent to the average (at least among those who have under contributed in the past). It is possible, of course, to interpret this behaviour as a reflection of some preference for fairness rather than conformity (although see Carpenter, 2004, for an experiment that favours conformism when trying to distinguish between these two accounts). A natural experiment conducted by Sheng and Croson (2009) on contributions to public radio in the US points in similar direction. The provision of information about a high previous contributor, *ceteris paribus*, raises individual contribution. The effect is smaller and not statistically significant when more moderate previous contributions

are reported. This suggests that the effect is norm-like, particularly as there is no effect on the renewing member who are on average much higher contributors in the first place (i.e. their contributions do not have to change to conform to the social information). The experiment is particularly interesting because it also finds that the provision of social information has enduring effects (i.e. there is no reduction when renewals occur) and that the evidence is more consistent with a social norm explanation than a cognitive reference point/anchor one. There is also evidence that is consistent with forms of conformism in social preferences that are revealed in dictator and ultimatum games (see Cason and Mui, 1998, and Bohnet and Zeckhauser, 2004).

Nevertheless, there is a puzzle in the real effort task experiments over why the provision of information about the performance of others sometimes encourages everyone to work harder (as in section 3 above) and sometimes for efforts to converge on the apparent norm for that group. One possible explanation of this difference is that the evidence in Hargreaves Heap *et al.*, 2014 where everyone works harder comes from an experiment where subjects belong to either one of two groups and information is given about the performance of people in both groups. Although there is no explicit competition between the two groups in this experiment it is possible that the two group frame encourages a between-group competitive response to the information about how others perform. Individuals might associate their status in these circumstances more closely with the performance of their group as compared with the other and this could override a tendency towards conformism within the group.

The evidence that comes from other experiments where there is more than one group suggest that conformist behaviour may be affected by intergroup dynamics of this sort. For example it is well known from a variety of experiments that there is an in-group bias. People are more likely to trust members of their own group than members of another group in trust games and this bias arises from negative discrimination towards outsiders (see Hargreaves Heap and Zizzo, 2009, and Chen and Li, 2009). This bias, in turn, might help explain other instances where preference conformism seems to occur within groups. Charness and Sutter (2012) report on a series of experiments where groups appear to exhibit more selfish preferences than do individuals in analogous decision settings. When a group makes a decision as the first mover in the trust game, they apparently give 20% less than the typical individual making the same decision (see Kugler *et al.*, 2007). Either people become on average more selfish when they come together in a group or they expect the group that is the second mover will have become more selfish than the typical individual. One explanation of this shift towards selfishness is that it reflects the in-group bias. When individuals play the trust game as individuals they either have no group affiliation or think of all the subjects in the laboratory as a group. However, when they play as groups and they interact with another group, the negative discrimination against outsiders kicks-in to produce more selfishness.

Intergroup dynamics have also played a role in changing behaviour in public goods games. When two teams are put in competition with each other and where the outcome of the competition turns on the extent to which the members of each team contribute to that team's public good, it seems that individuals contribute more to their team's public good (see Bornstein *et al.*, 1990). This result is consistent with the

‘parochial altruism’ argument: i.e. within group altruism depends on conflict between groups (see Bowles and Gintis, 2011).

These examples suggest that conformist behaviour may not arise from conformist preferences *per se*. Rather, the conformism may be a consequence of the way that group identification and intergroup dynamics affect individual behaviours in the same way. Whichever is the case, if individual (social) preferences are associated with behaviour, it seems that individual (social) preferences in such cases are not stable and they tend to change in similar ways.

Another revealing experiment where such group effects seem weak or absent and which does not involve social preference change had subjects downloading music (and rating what they heard). In one treatment, this is done in isolation; and in another they knew what other people had listened to (but not their ratings) in their session. There were eight different session (or worlds) in the second treatment. In the second treatment, the pattern of downloads are much more concentrated: that is, the downloads are more unequally distributed across all the possible tracks (see Salagnik *et al.*, 2006). In this sense, demand for listening across the subjects becomes more similar when subjects know what others are doing. This could be consistent with people extracting information about what are good tracks from what others do. However, since the person can download any or all tracks to form a direct personal judgment, there is no need to rely in this way on the judgment of others (as there was in the urn experiments that I described in the beginning where each individual only sampled the urn once). It seems more likely therefore that tastes are genuinely socially influenced. This interpretation receives further support when the variance in downloads for a particular track across the eight sessions in treatment 2 is compared with the variance in success for this track in treatment 1. The variance is greater in treatment 2. In other words, the social influence also makes the success of a track more unpredictable (and this is particularly so for those tracks that are revealed as the best under independent listening in treatment 1). It seems more likely therefore that tastes are changing through social influence as this would help explain the greater unpredictability of outcome: it depends on vagaries of how particular bandwagons develop. Indeed, the authors conclude that when individuals are subject to this minimal kind of social influence these ‘markets do not simply aggregate pre-existing preferences’ (p.856).

While this is a natural inference. There is another. People typically use creative outputs like music, film and TV as a social, conversational resource and this will always incline people to listen or view what others are viewing and hearing. You cannot talk about a film at any length with someone who has not seen it. Plainly there is no opportunity for this kind of exchange in the laboratory, but it is possible that subjects bring the habits of consumption into the lab. If this were the case, then although in some broad sense people would be responding to a ‘social preference’, this would not be a ‘social preference’ in the sense discussed earlier where trusting behaviours and contributions to public goods changed with the social/group context.

5. Conclusion

Conformism tends to have a bad name. It can conjure images of crowds behaving unpredictably. It could be a football crowd or a mob turning nasty or a Nazi rally or some scene from *Il Conformista*, the Italian film studying the psychology of fascism. None of this fortunately happens in the laboratory. Nevertheless, people do behave alike in the lab.

One reason for this is that people can quite rationally use the behaviour of others as a signal about the state of the world. Information cascade experiments reveal this and it can sometime produce inefficiency when private information is (rationally) undervalued in decision making. This mechanism might plausibly help in the explanation of asset price bubbles where decentralized herding occurs. Experiments also reveal that these inefficiencies are much less likely to occur in group settings where individual outcomes depend on the opinion of all. Centralisation in this minimal sense deals better with uncertainty when there are a variety of useful but private signals. Or to put this slightly differently, and perhaps more interestingly, the tendency towards conformism in such settings can in these experiments be reduced by arrangements that equalize the returns to individuals in this particular way. This benefit from equality is not typically recognized. This is one important implication that I draw from the experimental evidence.

Another reason for apparent conformism is that people's preferences can depend on social comparison (e.g. a preference for status) and in these circumstances the provision of information about what others do (an informational 'nudge') can encourage all to respond in a similar way (e.g. by working harder). The experimental evidence suggests that these effects can be large, and so it is hardly surprising to find that this type of 'nudge' has a long history in the management literature. Nevertheless, the complexity of the welfare consequences, once employer profit is not the only consideration, should caution against any simple proliferation of these 'nudges' in the public policy arena. This is the second important implication that I draw from these experiments.

Finally, there is laboratory evidence of preference conformism. That this occurs in the laboratory with respect social preferences is, perhaps, not so surprising. After all, social preferences often have a normative character. They also refer to a domain in the laboratory where there is likely to be much ambiguity (because it is devoid of social clues) and this is often thought to increase the likelihood of social influence. The evidence with respect to ordinary preferences like music tracks is perhaps more surprising but could also reflect a more pragmatic aspect of social life: that we can only talk in any depth about experiences that are shared. Nevertheless, this evidence, whether restricted only to an individual's social preferences or not, is disturbing because it suggests that in many settings an individual's preferences cannot be taken as given. This, too, is important because welfare comparisons are typically made in economics under the assumption that individual preferences are stable. If individual preferences cannot be taken as 'given', then the challenge for economics is to know what standard to base welfare judgments on.

How serious this challenge is depends on the extent of such preference conformism. Psychologists have argued that it is likely whenever there is ambiguity or uncertainty

over what one should do and since such ambiguity/uncertainty could apply when individuals encounter anything that is novel, one might suspect that preference conformism arises with ordinary preferences as much as with social ones. The music download experiment is at best suggestive on this. Hence, this is one area where future experimental research might usefully focus. Another is in understanding the relation between social information ‘nudges’ and material incentives. It is plain from the experimental evidence that such ‘nudges’ can have powerful affects on behaviour but it is not so clear (from the experimental evidence) how these effects interact with the kind of material incentives that are also present in work settings and the like.

References

- Abeler, J., A. Falk, L. Gotte, and D. Huffman. 2011. “Reference Points and Effort Provision.” *American Economic Review* 101 (2), 470-492.
- Akerlof, George and Robert Shiller. 2010. *Animal Spirits: How Human Psychology Drives the Economy and Why It Matters for Global Capitalism*. Princeton: Princeton University Press.
- Anderson, L., and Holt, C. 1997. “Information Cascades in the Laboratory”. *American Economic Review*, 87(5), 847–62.
- Asch, S.E. (1951). “Effects of group pressure on the modification and distortion of judgments”. In H. Guetzkow (Ed.), *Groups, leadership and men*(pp. 177–190). Pittsburgh: Carnegie Press.
- Azmat, G. and Iriberry, N. 2010. “The importance of relative performance feedback information: Evidence from a natural experiment using high school students”, *Journal of Public Economics* 94 (2010) 435–452.
- Azmat, G., and N. Iriberry. 2012. “The Provision of Relative Performance Feedback Information: An Experimental Analysis of Performance and Happiness.” *Centre for Economic Performance Discussion paper 1116*.
- Bernheim, B. D. 1994. "A theory of conformity", *Journal of Political Economy*, 102, 841-877.
- Bohnet, I. and Zeckhauser, R. 2004. “Social Comparisons in Ultimatum Bargaining”. *Scandinavian Journal of Economics*”, 106(3), 495-510.
- Bornstein, G., Erev, I. and Rosen, O. (1990) “Intergroup competition as a structural solution to social dilemma”, *Social Behavior*, 5, 247-260.

- Bowles, S. and H. Gintis (2011) *A Cooperative Species: Human Reciprocity and its Evolution*. Princeton: Princeton University Press.
- Cason, T. and Mui, V-L. 1998 "Social influence in the sequential dictator game". *Journal of Mathematical Psychology*, 1998, vol 42, 248-265.
- Charness, G and Sutter, M. 2012. "Groups make better self interested decisions". *Journal of Economic Perspectives*, 26(3), 157-76.
- Charness, G., Karni, E. and Levin, D. 2010. "On the conjunction fallacy in probability judgement: new experimental evidence regarding Linda". *Games and Economic Behavior*. 68(2), 551-6.
- Chen, Y. and Li, S. 2009: "Group identity and social preferences", *American Economic Review*, 99 (1), 431-457.
- Clark, P. and Mills, R. 2013. *Masterminding the Deal: Breakthroughs in M&A Strategy and Analysis*. Kogan Page.
- Falk, A. and A. Ichino. 2006. "Clean Evidence on Peer Pressure". *Journal of Labor Economics* 24 (1), 39-58.
- Hargreaves Heap, S. and Zizzo, D. 2009. "The Value of groups". *American Economic Review*, 99(1), 295-323.
- Hargreaves Heap, S., Ramalingam, A. and Rojo-Arjona, D. 2014. Group reference points, effort and inequality: an experiment. *UEA Mimeo*.
- Hung, Angela A., and Charles R. Plott. 2001. "Information Cascades: Replication and an Extension to Majority Rule and Conformity-Rewarding Institutions." *American Economic Review*, 91(5): 1508-1520.
- Jones, S. R. G. 1984. *The Economics of Conformism*. Basil Blackwell: Oxford.
- Kocher, M and Sutter, M. 2005. "The decision maker matters: individual versus group behavior in experimental beauty-contest games". *Economic Journal*, 115, 200-223.
- Kugler, T., Bornstein, G., Kocher, M. and Sutter, M. 2007. "Trust between individuals and groups: groups are less trusting than individuals but just as trustworthy". *Journal of Economic Psychology*, 28(6), 646-57.
- Mas, A. and Moretti, E. 2009. "Peers at Work." *American Economic Review*, 99(1): 112-45.
- Sunstein, Cass and Richard Thaler. 2008. *Nudge: Improving decisions about health, wealth and happiness*. Yale University Press

- Shang, J. and Croson, R. 2009. A Field Experiment in Charitable Contribution: The Impact of Social Information on the Voluntary Provision of Public Goods, *The Economic Journal*, 119, 1422–1439,
- Salganik, M., Dodds, P and Watts, D. 2006."Experimental study of inequality and unpredictability in an artificial cultural market." *Science*, 311:854-856.
- Carpenter, J. 2004. "When in Rome: conformity and the provision of public goods". *Journal of Socio-Economics*, 33, 395-408.
- Page, S. E. (2007). *The Difference: How the Power of Diversity Creates Better Groups, Firms, Schools, and Societies*. Princeton University Press.