

TOWARDS AN ECONOMICS OF AWARDS

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Abstract. Awards are a widespread phenomenon. They cater to the fundamental desire for social recognition and serve as a valuable incentive to influence behaviour. The study of awards such as medals, prizes and titles has in recent years gained momentum in economics, complementing the longstanding focus on material incentives. To evaluate the effectiveness of awards as a motivator is difficult as the effect of awards must be separated from the fact that awards are meant to be given to the best. We show how research on awards has advanced over the last couple of years, thus providing points of departure for future work.

Keywords. Awards; Esteem; Incentives; Monetary rewards; Motivation; Performance

1. Introduction

Awards are designed to provide recognition to those persons who are thought to best exemplify the norms and goals upheld by the award giver. Awards may take many different forms and are bestowed by a multitude of agents. Heads of state regularly hand out orders, such as in Great Britain the *Order of the Garter*. Honours play a significant role in science (e.g. the *Fields Medal* in mathematics and the *Nobel Prizes*), the arts (e.g. the *Academy Awards*), sports (e.g. the *Most Valuable Player Award* in Major League Baseball), as well as in the business sector (e.g. titles such as *Manager of the Year*).

Many people are extremely fond of awards. There are four main reasons for this valuation: First, awards convey *appreciation* and *recognition*. The demand for social recognition is a major feature of human beings (Brennan and Pettit, 2004). It raises our self-evaluation and gives us the feeling that our activity is valuable. The higher is the giver's prestige, the more actual and hopeful winners cherish an award. Many persons publicly state that they do not want to be honoured because, they argue, they 'just do their duty'. However, it can frequently be observed that such persons are highly pleased when they, and the activity they engage in, nevertheless are honoured and celebrated in a public ceremony.

Second, awards establish a *special relationship* to the donor. The resulting bond of loyalty holds for both parties. Persons deciding to accept an award are expected by the giver and by the general public to agree with the general goals of the giver. At the same time, by bequeathing an award, the giver is expected to maintain a supportive attitude towards the recipients. If these expectations of loyalty are violated, both parties experience a loss of appreciation and the award signal's credibility suffers.

Third, awards entail *social* and *material advantages*. They are sometimes directly accompanied by money or annuities. For instance, an undivided Nobel Prize presently goes with 8 million Swedish kronor (about 623,000 British pounds, or 863,000 euros). However, many awards are purely symbolic and still command high regard. This is, for example, the case with most orders. In some cases, the recipient even has to buy the insignia of the honour received. For example, recipients of Belgium's highest order, the

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Order of Leopold, since 1921 have to purchase the Order's insignia if they are to receive it at times of peace.

Fourth, and most importantly, award recipients gain *social status*. They enjoy the public celebration and elation, setting them apart from other people. This is also the case with other rewards such as getting a bonus exceeding the bonuses received by coworkers. However, bonuses are privately given. In many cases the recipients are prohibited to reveal the amount received to other persons, in particular to coworkers. In contrast, awards are invariably given in a public ceremony by one's superior or even the CEO in person. Awards thus have the added benefit of making the distinction visible to one's reference group, and even beyond.

Symbolic awards therefore differ in many important dimensions from the material, in particular monetary, rewards commonly studied in economics. Nevertheless, it needs to be empirically established that individuals assign a positive value to receiving awards and behaviourally respond in a systematic way. Indeed, some economists have proved to be sceptical about the value and effectiveness of awards, insisting that they are just pieces of ribbon after all (Besley, 2005). It could also be argued that the added value of receiving an award is fully captured by subsequent increases in income. Even the presumed status effect of receiving an award has been questioned. Awards may put their winners in an uncomfortable situation where they have to face a large number of persons envying them (similar to the best pupil's being ostracised from the class community). The Economist (2004) ridicules awards and decorations, suggesting that such distinctions in fact kill the recipient's honour rather than increasing it. The evidence discussed in our survey suggests that these concerns rarely apply, and that under specific conditions symbolic awards do indeed carry value and do enhance performance.

Despite their omnipresence and their distinct characteristics, awards have been largely disregarded in economics. In an early contribution, Hansen and Weisbrod (1972) made a 'modest effort to provide a building block for a "general theory of awards"' (p. 422). However, their lead was not taken up until recently (Besley, 2005; Frey, 2005, 2007). Today, economic research on awards has somewhat gained momentum, so that it is useful to survey the field in order to give scholars a perspective on this new and promising area of research.

In Section 2 we establish that awards play an important role in many areas of society, ranging from the state sector to culture, sports, religion, volunteerism, academia and business. Section 3 surveys in what way awards have been studied in various disciplines and in economics in particular. The following section introduces a taxonomy of the most fundamental types of awards. Section 5 focuses on the crucial issue of the causal effects of awards on motivation and performance. The final section concludes.

2. Awards are Ubiquitous

There are an enormous number of awards adorning people's chests and organizations' entry halls. They range from orders and crosses bequeathed by heads of state, to decorations handed out by the military, and to many different other prizes and titles bequeathed by all sorts of organizations in the for-profit and nonprofit sectors. It would be difficult to find an area of society in which awards are not employed.

2.1 State orders and decorations

All countries around the world (with the exception of Switzerland) know the institution of official awards in the form of state orders and crosses (House of Commons, 2004; Robertson, 2010; Frey and Gallus, 2015). Among the most highly regarded monarchic orders is the *Gulden Fleece*, founded in 1430 by Philip III, the Duke of Burgundy. It can be seen on portraits of kings and emperors, and is worn at formal occasions for instance by the King of Spain, who is one of its two Grand Masters (besides the Head of the House of Habsburg). Today, the best-known order arguably is the British *Order of the Garter* (Duckers,

2004). It was founded in 1348 and is given as the British Sovereign's personal gift. The United Kingdom also knows a lot of other orders ceremonially bequeathed by the Queen. The French Republic hands out the highly valued *Légion d'honneur*, which ranges from the *Chevalier* up to the *Grand-Croix*. Napoléon Bonaparte founded it as First Consul, and later extended it when he became Emperor. It became a model for many other modern orders of merit.

2.2 Arts, Media and Fashion

A great many awards are bequeathed in the cultural sector (see, e.g. Wijnberg, 2003, and English, 2014, for more general discussions). The *Academy Awards (Oscars)* and the prizes given at various film festivals feature many different categories to recognize persons involved in the movie industry. The *Emmy Awards* honour outstanding achievement in television and the *Grammy Awards* are given for artistic significance in the field of recording in the United States. The prestigious *Pulitzer Prize* is awarded in no less than 21 categories, and there are numerous book prizes (Kovács and Sharkey, 2014). Museums and other arts institutions also honour their supporters, in particular in the form of titles, such as benefactor or patron.

The motives behind the establishment of cultural prizes and the benefits for example for award givers and jury members are discussed in Anand and Watson (2004) and Anand and Jones (2008) focusing on the *Grammy Awards* and the *Booker Prize*, respectively. In a similar vein, Rossman and Schilke (2014) show how prizes such as the *Oscars* can be used to structure the cultural field. Rossman *et al.* (2010) analyse the process of award-seeking, concluding that being a member of a privileged work team provides cumulative advantage. Ginsburgh (2003) looks at the *Oscars* and the *Booker Prize* to analyse the role of experts. He finds that their verdict (i.e. the awards they bestow) may affect success in the arts, but that expert juries are often poor judges of an oeuvre's fundamental aesthetic quality. Based on the related observation that winners are frequently of no better 'quality' than nonwinning nominees, Ginsburgh and Weyers (2014) argue that contests in the arts should dispense altogether with selecting a final winner. Instead, the authors contend, all nominees should be rewarded.

2.3 Sports

In regular intervals, the titles *Olympic* or *World Champion*, as well national, regional and city champions, are awarded. In chess, there are *International Masters (IM)* and *Grandmasters (GM)*. Athletes get the honour of being elected *Sports Personality of the Year* and are admitted into one of the many Halls of Fame.

2.4 Religion

Organizations such as the Roman Catholic Church also bestow awards, for instance, in the form of titles, such as *Canon*, *Monsignore*, or Bishop of some long disappeared diocese. Its beatifications and canonisations honour distinguished religious persons and can be considered post-mortem awards. The rate at which persons have been elevated to sainthood has greatly risen over the past decades (Barro *et al.*, 2011). A recent case in point is Pope Francis' decision to elevate both of his two deceased immediate predecessors, John XXIII and John Paul II, to the honour of a saint.

2.5 Voluntary and Humanitarian Sector

Nonprofit organizations bequeath many different awards (Gallus, 2014). The International Committee of the Red Cross, for instance, bestows the *Florence Nightingale Medal* on nurses for 'exceptional courage and devotion'. At a more local level, voluntary organizations such as the fire fighters recognise their members' courage and engagement with many different forms of honours.

2.6 Academia

Scientific institutions know an elaborate and extensive system of awards (Zuckerman, 1992). Universities hand out the titles of *honorary doctor* or *senator*, and professional scientific associations award an enormous number of medals and prizes. The best known are certainly the *Nobel Prizes* (see, e.g. Crawford, 1987; Zuckerman, 1996; Feldman, 2001; Chan and Torgler, 2012) and the *Fields Medal* in mathematics (Borjas and Doran, 2013). Many prestigious fellowships exist in academies of science, some of which also allow for the use of post-nominal letters as they are known from state orders. Examples are *Fellow of the Royal Society* (FRS), founded in 1660, or *Fellow of the American Academy of Arts and Sciences*, established in 1780.

2.7 Business

Most surprising is the widespread use of awards in the corporate sector, where the only valid reward, after all, is supposed to be money. But titles are very important, even if they are at times not related to functions (Jeffrey, 2004; Wade *et al.*, 2006; Malmendier and Tate, 2009). The number of titles of *Chief Officers* has virtually exploded. There is a CEO (*Chief Executive Officer*), a COO (*Chief Operating Officer*), a CFO (*Chief Financial Officer*), as well as a CRO (*Chief Risk Officer*), among many other variants. Firms also commend their own employees for being *Salesman of the Week* or *Employee of the Month*. The media actively engage in choosing the *Manager of the Year* or even the *Entrepreneur of the Century* (Gallus and Frey, 2016).

3. The Academic Study of Awards

The study of honours has evolved a discipline of its own, called phaleristics (coined after the Roman order, *phalera*). This discipline is historically or legally oriented and concentrates on particular orders, such as the *Most Honourable Order of the Bath* (e.g. Risk, 1972). This literature is not concerned with analysing why somebody receives an order (and not someone else), or what the effects of orders are on subsequent performance.

Despite the importance of awards in society, research in social science has largely disregarded them. There are various potential explanations for this neglect.

First, the effectiveness of awards as a motivational device may be questioned, because they are difficult to apply marginally and can hardly be retracted because the signalling has already occurred (Frey and Gallus, 2014). Monetary compensation is therefore seen as a superior instrument for inducing effort because it can be closely tied to measured performance.

Second, awards may be considered just a reflection of success, honouring people for their already established performance and fame. Awards given for lifetime achievements or post-mortem awards illustrate this point. They are clearly directed to past performance (English, 2005).

Third, awards as such may be taken to be of little interest to recipients. After all, they are not fungible and thus cannot be consumed. The only aspects of value about awards may be considered to be the ancillary income. It has been empirically shown, for instance, that recipients financially profit from having been awarded a major book prize (Chan *et al.*, 2014; Ponzo and Scoppa, 2015). Awards can also improve the health of their recipients. Rablen and Oswald (2008) calculate that, on average, scholars who received the *Nobel Prize* in Physics or Chemistry lived between one and two years longer than nonwinning nominees. Redelmeier and Singh (2001a) reach a similar result for *Oscar* winning actors. However, winning film directors' life expectancy was shortened, perhaps due to increased stress after having received an *Oscar* (Redelmeier and Singh, 2001b).

Recipients of the *Nobel Prize* certainly value the Prize over and above the accompanying or subsequent monetary reward or improvement in health. Studies show that people do indeed value status independently

of the monetary consequence; they are even willing to incur material costs to improve their status and rank (Huberman *et al.*, 2004; Tran and Zeckhauser, 2011). As awards are one of the most important producers of status, it follows that people do attach intrinsic value to awards. Conversely, some prizes, medals and awards that are accompanied by large sums of money are nevertheless relatively unknown; even within the relevant community, say academia. The Balzan Prize is an example.

4. Types of Awards

4.1 *Confirmatory and Discretionary Awards*

Two basic types of awards may be distinguished (Frey and Gallus, 2014). They have vastly different implications for their winners, including for their potential winners. Differentiating between them becomes particularly relevant when considering the incentivizing function of awards.

The first type of award is *confirmatory*. It is more or less automatically given based on a clearly defined and observable achievement. The eligibility criteria of such awards are fixed. Confirmatory awards are widely used in the corporate sector, for instance when honouring the salesperson who leads the rankings in several different dimensions (e.g. life insurance, health insurance and liability insurance). In a quite different field, European football, the player with the highest goal score in league matches in a given season automatically receives the *Golden Shoe*.

Confirmatory awards are similar to bonus pay. In both cases the rewards are handed out when specific criteria fixed in advance are reached or surpassed. Potential recipients can go to court if they did indeed meet the criteria but the reward is withheld. In the case of awards the reward consists in a symbolic order, decoration, or some other form of prize; in the case of bonuses it consists in money. Not surprisingly, confirmatory awards are often given in addition to bonus pay. The awards serve to increase the visibility of top performers, and to confirm the ranking hierarchy. However, they risk inviting strategic action by potential recipients (Gubler *et al.*, 2014). Agents have an incentive to concentrate all effort on meeting or surpassing the criteria while disregarding other aspects of the job. They are induced to fake their performance and to manipulate the criteria in their favour. Moreover, adding a monetary component may crowd out the intrinsic motivation to perform the activities underlying the award (Frey and Jegen, 2001; Gneezy and Rustichini, 2001; Frey, 2006).

The second type of award is *discretionary*. The givers enjoy leeway in deciding whether and to whom to bequeath an award. Indeed, it is one of the few areas in which the actions by decision-makers cannot be brought to court. It is, for instance, unthinkable that anyone would go to court in order to be made a *Knight of the Order of the Garter*, or to receive the *Nobel Prize*. In effect, such a step would defeat the very essence of the reward: honour, which has to be freely granted.

Donors have a strong incentive to honour persons and groups in line with their political, economic, or social interests. However, an award only becomes and remains valuable if it enjoys high prestige. The donors would be ill advised to only consider their short run and direct interests. Rather, they must balance the benefits received from the award recipients (for instance, a higher productivity of work) with the need to honour persons and groups generally recognized for their meritorious behaviour.

Our survey focuses on discretionary awards, because only they provide an opportunity to the givers to recognize behaviour that is truly exceptional and goes beyond what was expected or asked for, that is, beyond the call of duty. Discretionary awards allow the givers to respond to the unexpected, and thereby possibly induce more of that desired behaviour, also on the part of third parties.

4.2 *Innovation Prizes*

Innovation prizes (often referred to as 'inducement prizes') are a special type of award that seeks to promote new ways of overcoming economic and social problems. A monetary sum is offered to that

person or group of persons finding a solution to a well-specified problem (on the motivational effects of nonmonetary targets, see Rablen, 2010). It has been empirically shown that the winners of science problem-solving contests are often people whose field of technical expertise is distant from the field in which the problem originated (Jeppesen and Lakhani, 2010). Prestigious nonpecuniary awards have been documented to be potentially even more effective in fostering competitive entry to innovation contests than are monetary rewards. Analysing one of the longest available datasets of awards for innovation, offered by the Royal Agricultural Society of England in the 19th and 20th centuries, (Brunt *et al.*, 2012) conclude that ‘medals were more important than monetary awards’ (p. 657) in encouraging competition and innovation.

A famous example of an innovation prize is what is nowadays called the *Longitude Prize* (Sobel, 1995). The establishment of this prize in 1714 was the British government’s response to the scientists’ and seafarers’ longstanding inability to develop a practicable method for exactly determining a ship’s longitude, an important prerequisite for military and commercial navigation in the open seas. While the specialists’ greatest hopes were attached to a solution based on astronomy, it was clockmaker John Harrison who finally came up with the winning solution, a marine chronometer. Due to his unorthodox approach, Harrison had great difficulties to collect his prize. In fact, he never was officially recognized as the winner.

Another famous example, this one dating from the beginning of the 20th century, is the *Orteig Prize*. Raymond Orteig, a New York hotel owner, offered 25,000 US dollars in 1919 (about 350,000 US dollars as of 2015) to the first aviator to fly nonstop across the Atlantic from New York to Paris. Charles Lindbergh won the prize in 1927 and became a national hero. This achievement greatly increased public interest in air travel.

A contemporary example of an innovation prize is the *Longitude Prize 2014*. This challenge offers a prize fund of 10 million British pounds (roughly 13.9 million euros) to its winners. It has been launched to help solve one of the greatest issues of our time. Which issue exactly the prize would target was decided by the British public, who was asked to cast their vote. The target for 2014 thus became the development of a cost-effective and rapid test to help health professionals select the right antibiotics in time. The prize has been developed and is being run by Nesta, the UK’s innovation foundation, with support by the Technology Strategy Board, the UK’s innovation agency. In the United States, the X Prize Foundation is specialized on innovation prizes, such as the well-known *Ansari X Prize* offering 10 million US dollars (9 million euros, 6.5 million British pounds) for the first nongovernmental team launching a manned spacecraft into space twice within two weeks.

Innovation prizes have a great advantage over research conducted within an organization, say a ministry or a corporation. They leave open what approach is to be used and what person or persons make an effort to solve the problem. This is advantageous because often the winning solution comes from persons whose technical expertise is far from the field within which the problem originated. It is therefore beneficial to not reduce the group of potential innovators to insiders, but to leave it open instead. This is achieved with innovation prizes. Innovation prizes equal contests, or tournaments, with clearly defined goals set out *ex ante*. Organizations can use prizes to encourage future innovation in a given field. As shown by Moser and Nicholas (2013), prizes awarded for high-quality innovations at the Crystal Palace Exhibition in 1851 thereafter raised the number of US patents by 40% for prize-winners compared to other exhibits.

While the economic literature on tournaments is extensive (e.g. the seminal paper by Lazear and Rosen, 1981; Eriksson, 2009), the literature on discretionary awards given *ex post* to outstanding performance is still in its beginnings. In the following section, we survey the existing evidence on the effects of such awards.

5. Effects of Awards

5.1 Awards Honouring or Inducing Best Behaviour?

Awards are designed to honour outstanding achievements (e.g. English, 2005). The donors formally distinguish award recipients from other persons who in their view have performed less well. At the same time awards are bequeathed to motivate the recipients to keep on doing excellent work, or perhaps to perform even better. This motivation may extend to other activities (Neckermann *et al.*, 2014), and to other persons who aspire to receive the award in the future (e.g. Frey and Gallus, 2014).

Bequeathing awards may be seen to involve two separate causal relationships. The first is going from high performance to receipt of the award; the second is going from receiving the award to high performance. Both may exist at the same time. Just observing a person being honoured, and performing well, does not allow us to distinguish the two causal links. The best person wins the award, and the awardee performs best. In this section we discuss work separating the two effects. We wish to know whether an award further raises the performance of its recipients after the award bestowal. Such an effect may occur for two reasons. The motivation of the recipients is bolstered; or a Matthew effect occurs (Merton, 1968; Azoulay *et al.*, 2013), meaning that the successful award winners enjoy an elevated status and therefore get better access to resources, which facilitates higher performance.

The motivational consequences of monetary rewards have been extensively studied and applied to many areas (Becker, 1976). It is a basic premise in economics that the more money a person receives, the more he or she is induced to work (Milgrom and Roberts, 1992). This idea also lies behind the movement for variable performance pay, which is widely applied in the corporate sector and results in adding bonuses to the basic salary (Osterloh and Frey, 2000). Under the banner of 'New Public Management' (Ferlie *et al.*, 1996; Hughes, 2003) variable performance pay has been extended from the corporate to the public sector, and beyond.

5.2 Scholarly Honours and Their Effects

We survey results from econometric analyses on esteemed awards given by academic institutions to honour researchers for outstanding scientific performance. Such awards not only serve to acknowledge and highlight past achievements among peers but also to motivate award recipients to further pursue excellent research. At the same time they can induce other members of the scientific community to work hard in order to be awarded in the future. The analyses we discuss focus on the implications of receiving an important academic award for their recipients' subsequent performance.

In academia, unlike in entertainment-oriented sectors, the set of candidates not winning the award is in most cases unknown because shortlists are not made publicly available. This further complicates the endeavour to distinguish the two links of causation. It is insufficient to establish that the recipients of an award publish more, and are cited more often, than other members of the academic community. The award winners may just have been more able to begin with, which is why they received the prize, and which explains why they also publish more and are cited more after having been awarded. In order to identify the effects of receiving an academic award on performance, the recipients (the treatment group) must be compared to a control group of nonrecipient scholars with similar previous research performance and comparable career paths.

Chan *et al.* (2014) use the synthetic control method (Abadie and Gardeazabal, 2003) to construct a control group for every award winner that mirrors his or her performance and career path before the award conferral. Comparing the winners' subsequent academic performance trajectory to that of the control group, which represents the counterfactual scenario of no award receipt, allows identifying whether winning the award raised research productivity and professional status. The proxies used are publications

for productivity, and citations to papers published before the conferral to reflect the attention enjoyed in academic circles.

The authors focus their analyses on two highly prestigious awards in economics. The *John Bates Clark Medal* is annually bequeathed by American Economic Association to honour a scholar in the United States below the age of 40, 'who is judged to have made the most significant contribution to economic thought and knowledge'. Of the 37 scholars who have been honoured with the Medal as of 2015, 12 have subsequently won the *Nobel Prize*. The second prestigious academic award investigated is the election to *Econometric Society Fellowship*. The two scholarly associations behind the respective awards have been studied by Diamond and Toth (2007) and Hamermesh and Schmidt (2003), looking at the determinants of being elected to the Presidency of the *American Economic Association* and to *Econometric Society Fellowship*, respectively.

The analysis of the *Clark Medal* reveals that after five years, the number of weighted publications of medallists is 13% higher than in the counterfactual scenario of no medal receipt; the number of citations received has been augmented by 50% compared to the counterfactual. After 10 years, the respective productivity and citation differentials amount to 15% and 78%. The second award investigated by Chan *et al.* (2014) is the election to *Econometric Society Fellowship*. Similar to Clark Medallists, scholars become Fellows relatively early in their career (about 15 years after their PhD). Yet, the selection mechanisms of the two awards are vastly different. The choice of who becomes a Fellow is based on a vote among currently active members of the Econometric Society. In contrast, in the case of the *Clark Medal*, it is a small jury of prominent economists who decide on the winner.

In the case of the *Econometric Society Fellowship* again a long-lasting postelection productivity and status differential between Fellows and their counterfactuals is observed. The results indicate that 5 years after the election, Fellows' publications have been augmented by 15% compared to the counterfactual scenario of no award receipt. They have by then also received 37% more citations to their preaward publications than had they not become *Fellow of the Econometric Society*. Ten years after the election, the respective figures are 19% for publications, and 58% for citations.

Generalizing these results, the analysis in Chan *et al.* (2014) suggests first, a performance enhancing effect, and second, a status effect of awards. Receiving a prestigious award may induce winners to work harder. It also tends to raise the likelihood of getting grants, teaching releases, better students, and new and productive co-authors. The increased attention received from other scholars positively affects the winners' status.

Gallus (2015) provides evidence for the first-mentioned motivational effect of purely symbolic awards, given in a largely anonymous field setting. Based on the results from a Randomized Control Trial conducted on Wikipedia, which struggles with declining editor retention rates, awards prove to raise the retention rate among newcomers by 25% in the following month, as well as in further periods.

An empirical study by Borjas and Doran (2013) of the *Fields Medal* (the top mathematics prize for scholars under the age of 40) points to the negative effects awards can have on their winners' performance. The Fields Medallists' publication rate is shown to subsequently decline in some dimensions compared to that of nonwinning contenders. In contrast to the awards studied in Chan *et al.* (2014), the Fields Medal is the very peak in a mathematician's career—especially as there is no *Nobel Prize* in mathematics. Fields Medallists are free to turn their attention to new topics aside from the conventional paths. Receiving the *Clark Medal* or being elected Fellow, however, may encourage scholars to concentrate on doing research (instead of taking on administrative tasks, for example), in an effort to receive the next higher award our results support this conjecture.

6. Conclusions

Awards are widely used in all spheres of society, not only in monarchies and in the military, but also in culture, sports, religion, the voluntary and humanitarian sector, academia and in business. They cater to

one of the most important determinants of individual utility, the urge to be socially recognized. Despite the importance of awards in all societies and all periods, in the past research by economists has disregarded this field. It is only in the last few years that theoretical and empirical studies have been undertaken, at an increasing rate.

Identifying the effects of awards is difficult; there is so far only little empirical work devoted to separating the two directions of causality, running from top performance to receiving an award, and from winning an award on increased performance. The existing studies focusing on academic honours suggest that awards have a systematic effect, increasing performance, provided the provision of social recognition going with awards is adequately implemented. Two mechanisms may explain the performance-enhancing effect. First, awards raise their recipients' motivation, as shown by a recent Randomized Control Trial (Gallus, 2015). Second, awards entail a status effect consisting in higher attention and more resources available (Chan *et al.*, 2014).

The Economics of Awards deals with an important area in the economy and society but so far there are a limited number of research results, in particular with respect to empirical studies. The field is wide open for future research. In addition to extending the research on the effects of awards beyond the academic realm, most importantly to business and the nonprofit sector, it would be crucial to analyse what persons and groups get which types of awards, for what reasons, and with what effect. Analysing the consequences for award recipients' self-esteem and their risk-taking is of major importance. The deliberation process of award givers (including possible vested interests) is another interesting topic. Determining the optimal number of awards for different activities and areas is also a promising endeavour. Moreover, awards should be considered which draw attention to particularly bad performance (e.g. *Golden Raspberry* in film). Another disregarded area of research is the reaction by nonrecipients of awards. This is a glaring gap since these people by far outnumber the lucky few receiving awards.

The collection of systematic and reliable data is a major challenge. It constitutes an important basis for future research endeavours. Given the widespread use of awards, such systematic research promises to provide much-needed policy implications.

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References

- Abadie, A. and Gardeazabal, J. (2003) The economic costs of conflict: a case study of the Basque country. *American Economic Review* 93: 113–132.
- Anand, N. and Jones, B.C. (2008) Tournament rituals, category dynamics, and field configuration: the case of the booker prize. *Journal of Management Studies* 45: 1036–1060.
- Anand, N. and Watson, M.R. (2004) Tournament rituals in the evolution of fields: the case of the Grammy awards. *Academy of Management Journal* 47: 59–80.
- Azoulay, P., Stuart, T. and Wang, Y. (2013) Matthew: effect or fable? *Management Science* 60: 92–109.
- Barro, R.J., McCleary, R.M. and McQuoid, A. (2011) Economics of sainthood (a preliminary investigation). In R. M. McCleary (ed.), *The Oxford Handbook Of The Economics Of Religion*. Oxford, UK: Oxford University Press.
- Becker, G.S. (1976) *The Economic Approach to Human Behavior*. Chicago and London: University of Chicago Press.
- Besley, T. (2005) Notes on honours. *Mimeo, London School of Economics*.
- Borjas, G.J. and Doran, K.B. (2013) Prizes and productivity: how winning the Fields Medal affects scientific output. NBER Working Paper No. 19445.

- Brennan, G. and Pettit, P. (2004) *The Economy Of Esteem: An Essay On Civil And Political Society*. Oxford, UK: Oxford University Press.
- Brunt, L., Lerner, J. and Nicholas, T. (2012) Inducement prizes and innovation. *Journal of Industrial Economics* 60: 657–696.
- Chan, H.F., Frey, B.S., Gallus, J., Schaffner, M., Torgler, B. and Whyte, S. (2014) Do the best scholars attract the highest speaking fees? An exploration of internal and external influence. *Scientometrics* 101: 793–817.
- Chan, H.F., Frey, B.S., Gallus, J. and Torgler, B. (2014) Academic honors and performance. *Labour Economics* 31: 188–204.
- Chan, H.F. and Torgler, B. (2012) Econometric fellows and Nobel laureates in economics. *Economics Bulletin* 32: 3365–3377.
- Crawford, E. (1987) *The Beginnings Of The Nobel Institution: The Science Prizes, 1901–1915*. Cambridge, UK: Cambridge University Press.
- Diamond Jr, A.M. and Toth, R.J. (2007) The determinants of election to the Presidency of the American Economic Association: evidence from a cohort of distinguished 1950's economists. *Scientometrics* 73: 131–137.
- Duckers, P. (2004) *British Orders and Decorations*. Buckinghamshire, UK: Shire Publications.
- English, J.F. (2005) *The Economy of Prestige: Prizes, Awards, and the Circulation of Cultural Value*. Cambridge, MA: Harvard University Press.
- English, J.F. (2014) The economics of cultural awards. In V. A. Ginsburg and D. Throsby (eds), *The Handbook Of The Economics Of Art And Culture*, Vol. 2 (pp. 119–143). Amsterdam: Elsevier;.
- Eriksson, T. (2009) Tournaments. In S. N. Durlauf and L. E. Blume (eds), *The New Palgrave Dictionary of Economics*, Online Edition.
- Feldman, B. (2001) *The Nobel Prize: A History of Genius, Controversy, and Prestige*. New York, NY: Arcade Publishing.
- Ferlie, E., Ashburner, L., Fitzgerald, L. and Pettigrew, A.M. (1996) *The New Public Management in Action*. Oxford: Oxford University Press.
- Frey, B.S. (2005) Knight fever: towards an economics of awards. CESifo Working Paper No. 1468.
- Frey, B.S. (2006) Giving and receiving awards. *Perspectives on Psychological Science* 1: 377–388.
- Frey, B.S. (2007) Awards as compensation. *European Management Review* 4: 6–14.
- Frey, B.S. and Gallus, J. (2014) Awards are a special kind of signal. CREMA Working Paper No. 2014-04.
- Frey, B.S. and Gallus, J. (2015) Awards, honours, and ribbons: Between fame and shame. *VOX – CEPR's Policy Portal*. Available at: <http://www.voxeu.org/article/awards-motivation-and-performance>. (Last accessed July 1, 2015).
- Frey, B.S. and Jegen, R. (2001) Motivation crowding theory. *Journal of Economic Surveys* 15: 589–611.
- Gallus, J. (2014) *Honors and Performance: An Economic Analysis of Awards*. Dissertation, University of Zurich.
- Gallus, J. (2015) Fostering voluntary contributions to a public good: a large-scale natural field experiment at Wikipedia. *CREMA Working Paper No. 2015-05*.
- Gallus, J. and Frey, B.S. (2016) Awards: A strategic management perspective. *Strategic Management Journal* 37(8): 1699–1714.
- Ginsburgh, V. (2003) Awards, success and aesthetic quality in the arts. *Journal of Economic Perspectives* 17: 99–111.
- Ginsburgh, V. and Weyers, S. (2014) Nominees, winners, and losers. *Journal of Cultural Economics* 38: 291–313.
- Gneezy, U. and Rustichini, A. (2001) Pay enough or don't pay at all. *Quarterly Journal of Economics* 115: 791–810.
- Gubler, T., Larkin, I. and Pierce, L. (2014) Motivational spillovers from awards: crowding out in a multitasking environment. Harvard Business School NOM Unit Working Paper No. 13–069.
- Hamer mesh, D.S. and Schmidt, P. (2003) The determinants of Econometric Society Fellows elections. *Econometrica* 71: 399–407.
- Hansen, W.L. and Weisbrod, B.A. (1972) Toward a general theory of awards, or, do economists need a hall of fame? *Journal of Political Economy* 80: 422–431.

- House of Commons (2004) *A Matter of Honour: Reforming the Honours System. Fifth Report of Session 2003–04. Volume I*. London: Stationery Office.
- Huberman, B.A., Loch, C.H. and Öncüler, A. (2004) Status as a valued resource. *Social Psychology Quarterly* 67: 103–114.
- Hughes, O.E. (2003) *Public Management and Administration: An Introduction*. Basingstoke, UK: Palgrave Macmillan.
- Jeffrey, S. (2004) The benefits of tangible non-monetary incentives. Working Paper, University of Chicago.
- Jeppesen, L.B. and Lakhani, K.R. (2010) Marginality and problem-solving effectiveness in broadcast search. *Organization Science* 21: 1016–1033.
- Kovács, B. and Sharkey, A. (2014) The paradox of publicity: how awards can negatively affect the evaluation of quality. *Administrative Science Quarterly* 59: 1–33.
- Lazear, E.P. and Rosen, S. (1981) Rank-order tournaments as optimum labor contracts. *Journal of Political Economy* 89: 841–864.
- Malmendier, U. and Tate, G. (2009) Superstar CEOs. *Quarterly Journal of Economics* 124: 1593–1638.
- Merton, R.K. (1968) The Matthew effect in science. *Science* 159: 56–63.
- Milgrom, P.R. and Roberts, J. (1992) *Economics, Organization and Management*. Englewood Cliffs, NJ: Prentice-Hall.
- Moser, P. and Nicholas, T. (2013) Prizes, publicity and patents—non-monetary awards as a mechanism to encourage innovation. *Journal of Industrial Economics* 61: 763–788.
- Neckermann, S., Cueni, R. and Frey, B.S. (2014) Awards at work. *Labour Economics* 31: 205–217.
- Osterloh, M. and Frey, B.S. (2000) Motivation, knowledge transfer, and organizational forms. *Organization Science* 11: 538–550.
- Ponzo, M. and Scoppa, V. (2015) Experts' awards and economic success: evidence from an Italian literary prize. *Journal of Cultural Economics*: 1–27. doi: 10.1007/s10824-015-9239-4.
- Rablen, M.D. (2010) Performance targets, effort and risk-taking. *Journal of Economic Psychology* 31: 687–697.
- Rablen, M.D. and Oswald, A.J. (2008) Mortality and immortality: the Nobel Prize as an experiment into the effect of status upon longevity. *Journal of Health Economics* 27: 1462–1471.
- Redelmeier, D.A. and Singh, S.M. (2001a) Survival in Academy Award-winning actors and actresses. *Annals of Internal Medicine* 134: 955–962.
- Redelmeier, D.A. and Singh, S.M. (2001b) Longevity of screenwriters who win an Academy Award: longitudinal study. *British Medical Journal* 323: 1491–1496.
- Risk, J.C. (1972) *The History Of The Order Of The Bath And Its Insignia*. London: Spink & Son.
- Robertson, M.C. (2010) Medals of the world. <http://www.medals.org.uk/> (accessed June 2014).
- Rossman, G., Esparza, N. and Bonacich, P. (2010) I'd like to thank the Academy, team spillovers, and network centrality. *American Sociological Review February* 75: 31–51.
- Rossman, G. and Schilke, O. (2014) Close, but no cigar: the bimodal rewards to prize-seeking. *American Sociological Review* 79: 86–108.
- Sobel, D. (1995) *Longitude: The True Story of a Lone Genius Who Solved the Greatest Scientific Problem of His Time*. New York: Walker & Company.
- The Economist* (2004) Titles. Honour Killings. 15 July: 31.
- Tran, A. and Zeckhauser, R. (2011) Rank as an incentive. HKS Faculty Research Working Paper RWP09-019.
- Wade, J.B., Porac, J.F., Pollock, T.G., and Graffin, S.D. (2006) The burden of celebrity: the impact of CEO certification contests on CEO pay and performance. *Academy of Management Journal* 49: 643–660.
- Wijnberg, N.M. (2003) Awards. In R. Towse (ed), *Handbook Of Cultural Economics*, pp. 81–88. London, UK: Edward Elgar.
- Zuckerman, H. (1992) The proliferation of prizes: Nobel complements and Nobel surrogates in the reward system of science. *Theoretical Medicine* 13: 217–231.
- Zuckerman, H. (1996) *Scientific Elite: Nobel Laureates in the United States*. Brunswick, NJ: Transaction Publishers.