

Awards

A View from Psychological Economics

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Abstract. Awards in the form of orders, decorations, prizes, and titles are ubiquitous in monarchies and republics, private organizations, not-for-profit, and profit-oriented firms. This paper argues that awards present a unique combination of different stimuli and that they are distinct and unlike other monetary and nonmonetary rewards. Despite their relevance in all areas of life, awards have not received much scientific attention. Employing a unique data set, we demonstrate that there are substantial differences in the frequency of awards across countries. Moreover, we present the results of a vignette experiment that quantifies and isolates the effects of different award characteristics such as the publicity associated with winning an award.

Keywords: awards, compensation, incentives, work motivation

Introduction

Awards All Over

If an alien were to look at the social life of people here on earth, it would be stunned by the enormous number of awards in the form of orders, medals, decorations, prizes, titles, and other honors. Awards are equally ubiquitous in monarchies as in staunch republics. In the French Republic, for instance, the *légion d'honneur* plays an important role, and 3000 such awards are conferred annually (House of Commons, 2004). In the United States, the President and Congress bestow medals, while at the same time purple hearts, bronze and silver stars are handed out quite liberally, and at an increasing rate, in the military service (Cowen, 2000, p. 93). It is well-known that a flood of orders, medals, and titles (such as “Hero of the Soviet Union” or “Hero of Socialist Labour”) was handed out in communist countries, such as the Soviet Union or the German Democratic Republic.

Awards do not only exist at the national level. In the arts, culture, and the media, awards are also of central importance. Prominent examples are the Academy Awards (Oscars), the prizes handed out by the film festivals at Cannes, or Berlin, the Grammy award for artistic significance in the field of recording, or the Booker and Pulitzer Prizes in literature. In sports, athletes may receive the honor of being chosen “Sports Personality of the Year,” and of being admitted into one of the many Halls of Fame. It might be

expected that in academia intrinsic interest in scientific progress provides all of the motivational drive needed and that awards, as extrinsic and social stimuli, are not necessarily held in high esteem. However, the opposite is true: Academia has an elaborate and extensive system of awards, such as honorary doctorates, prizes such as the Fields Medal in mathematics or the Nobel Prizes, as well as a multitude of prestigious fellowships. Perhaps even more surprising is the widespread use of awards in the corporate sectors of market economies. Firms honor their employees as “Employee of the Month” or hand out “Thank you!” or “Bravo!” Awards; there seems to be no limit to the ingenuity available to invent ever new awards.¹ The media support this by creating their own awards and by regularly choosing “Best Managers” (*Business Week*) or “CEOs of the Year” (*Financial World*).

Literature

The science of *phaleristics* has produced a large literature on specific awards, in particular on orders, decorations, and medals. It is historically oriented and is mainly devoted to presenting the historical facts about individual orders as well as the rules according to which an order is handed out.² Awards or related issues have been discussed in sociological literature (see Bourdieu, 1979; Elster, 1983; Braudy, 1986; Marmot, 2004). However, with few exceptions, these works mainly address awards and distinctions in a general

¹ In his book *1001 Ways to Reward Employees*, Nelson (2005) provides ample evidence of the number and variety of awards in companies.

² Examples of this literature are Risk (1972) on the Most Honourable Order of the Bath, or Galloway (2002) on the Order of St Michael and St George.

and abstract way (and not as incentives), and they do not use a comparative perspective.

The psychological literature provides important insights into the mechanisms via which awards work on the individual level. For an overview of this literature and a survey of studies investigating the effects of different stimuli see Stajkovic and Luthans (2003).³ However, this literature mainly focuses on isolated stimuli and is largely silent about the types of tasks and situations for which one can expect awards to be successful motivators. There are a few articles in personnel psychology that systematically compare the impact of different human resource practices, such as performance pay, praise and feedback, and their various combinations, on performance (Combs, Liu, Hall, & Ketchen, 2006). Awards, as bundles of these and other stimuli, however, have not been studied. Additional psychological literatures relevant for studying awards are goal-setting theory (Locke, 1968), reinforcement theory (Skinner, 1935), social-cognitive theory (Bandura, 1986), need theory (Maslow, 1943) including its advancements (Alderfer, 1972), motivation-hygiene theory (Herzberg, 1959), expectancy theory (Vroom, 1964), and the motivation model by Porter and Lawler (1986).

The literature in economics has also largely disregarded awards despite the recognition of the importance of incentives. However, there is some literature in economics that provides insights into isolated aspects of awards. A typical way for (standard) economists to look at awards would be in terms of the signal sent (Spence, 1974), in terms of the competition induced (Lazear & Rosen, 1981), and in terms of incentives in a principal-agent relationship in a firm (Prendergast, 1999). While these approaches are useful, they are hardly able to capture and reveal the many different aspects involved in the workings of awards. In psychological economics, which combines economic methods with insights from psychology, certain other aspects relevant to understanding awards have been discussed. Of particular relevance are analyses of status incentives (see Auriol & Renault, 2008; Loch, Yaziji, & Langen, 2001), of rewards as feedback (Sururov & van de Ven, 2006), of social recognition (see Brennan & Pettit, 2004; English, 2005), of reciprocity (Fehr & Gächter, 2000), and of identity (Akerlof & Kranton, 2005).

The Nature of Awards

Awards work as incentives via a number of channels that have been shown to influence human behavior. Among others, awards motivate because: (1) Winning an award makes the recipient feel good about him/herself irrespective of

monetary or status consequences, hence, they even have an impact without others knowing about the award (Bénabou & Tirole, 2003). (2) Awards are typically conferred by a principal whose opinion the agent values. (3) They generate social prestige and bring recognition within the peer group (Brennan & Pettit, 2004). (4) Awards are typically set-up as tournaments and many persons enjoy competing; i.e., working toward an award generates procedural utility (Frey, Benz, & Stutzer, 2004) and, hence, pleasure irrespective of the outcome.⁴ (5) Monetary compensation or other material or immaterial benefits are associated with winning awards. However, awards do not only work as incentives, i.e., while people work towards them, but also after they have been handed out. Awards create and establish role models, they distribute information about successful and desirable behavior (Bandura, 1986, pp. 18–22), change the work environment including the prevalent norms and values (Dessler, 1999), create role models, and change the identities of winners by inducing loyalty (Akerlof & Kranton, 2000). Depending on the specific award analyzed, the various award channels mentioned above are salient in differing degrees. While the general term “award” implies that the different existing honors and prizes pertain to the same group of incentives, specific awards differ vastly from one another in terms of what component is most salient. Some awards are clearly competition prizes, while others more closely resemble feedback or praise. Some awards are valuable in monetary terms, while others come with neither monetary nor other material benefits. Enormous differences exist between state orders like the Medal of Freedom, the highest civilian order in the USA, and the Order of the Garter in the UK, which are governmental or monarchical acts, prizes granted by nonprofits, foundations, or clubs, such as the Service Above Self Award of the Rotary Club, and awards in for-profit-companies such as the title Employee of the Month, to name just a few. However, even within each of these award categories there are considerable differences. Among state orders certain awards can be identified that convey legislative power, such as the title “Lord” among the British orders, whereas other orders are purely honorific, such as those that come with the title “Knight”. At the same time, awards may be similar in terms of monetary compensation and type of activity rewarded, such as the Nobel Prize and Balzan Prize in science, however, they differ greatly with respect to the social recognition and prestige they will bring to the recipient. In general, awards bestowed within private institutions, including those in for-profit firms, vary from other awards mainly in that the money coming with them is of greater importance. Nevertheless, managers clearly indicate that they use awards to give special recognition that goes above and be-

³ The various reinforcers (stimuli) used in behavior modification in organizational settings can be classified into the following types of interventions: (1) financial/monetary, (2) nonfinancial, (3) social, and (4) various combinations (simultaneous use) of two or more types of reinforcement. Awards belong to category (4).

⁴ Agents, however, vary in the degree to which they find the participation in a competition desirable. Many studies have documented, for instance, gender differences with respect to this issue (Croson & Gneezy, 2005).

yond pure material compensation to chosen employees. In general, all awards serve as incentives, be it direct or indirect. Awards are direct incentives when they are announced *ex ante* to be granted for certain kinds of performances within a given period of time, such as the customer service award granted for the best customer service in the current year. Awards are indirect incentives when they stimulate other individuals to engage in similar tasks by establishing that this kind of behavior is deemed desirable, even when these individuals do not expect to win the award in the future. Examples of awards with indirect incentive effects are state orders handed out for exceptional civil courage, such as saving lives.

In this paper, we refrain from distinguishing between different types of awards and treat all types of awards as representations of the phenomenon of interest. This is justified, despite the differences mentioned above, as all awards share certain essential features that warrant the analysis of awards as one phenomenon. Among others, these features are that awards are always visible, be it at a public ceremony or because the award itself can be publicly displayed. Further, awards are associated with some form of social recognition, which can come either from peers or from the award-giving institution. Awards are handed out according to a broad and vague set of criteria. Typically, the various performance dimensions and how these are weighed to determine the winner are not clearly specified. Consider, for example, an award for exceptional customer service. It is typically not made explicit which specific behaviors (e.g., working overtime, being friendly, solving customer problems) count toward winning the award and how much weight each of the relevant behaviors is given when management decides on the award winner. One reason to keep award criteria vague may be to prevent employees from only focusing on the activities specified as being relevant for winning the award rather than on considering which behavior would be best in the situation at hand. Keeping criteria vague also allows management to adjust the set of relevant performance dimensions and weights according to the realized business situations after these have occurred. This leads to another feature of awards, namely the subjective element in determining a winner. Also, awards are not enforceable. While awards are typically handed out in a manner that makes the reasons for choosing a particular recipient apparent, nonrecipients cannot claim an award by trying to establish that their performance was better. A further characteristic of awards is their tournament character.

These considerations suggest that awards perform important functions, and that awards can be defined according to a set of criteria despite the myriad of specific forms they may take. Thus, awards can and should be studied as a unique phenomenon in psychology as well as in economics. This paper discusses awards (a special form of incen-

tives) as a field of investigation lying between psychology and economics, where insights from both disciplines help to better understand an interesting and relevant phenomenon. The section entitled “Differences Between Awards and Monetary Compensation” presents several dimensions according to which awards differ from monetary incentives as these are the most widely used and discussed types of rewards. In the section entitled “An International Comparison of Awards” we present some descriptive evidence on the different frequency of award usage across 82 countries. Then, the section entitled “Awards in Companies: A Vignette Experiment” presents the results of a vignette study on awards within companies, identifying the motivational aspects of awards in a business environment.

Differences Between Awards and Monetary Compensation

Monetary compensation is the type of stimulus that has been studied most extensively in both psychology and economics. It is worthwhile to identify and highlight the differences between monetary compensation and awards as these make it valuable to analyze awards separately.

- The material costs of awards may be very low, or even nil, for the donor, but the value to the recipient may be very high⁵.
- Awards are always made public. In the case of companies, award recipients are announced on the intranet, displayed on bulletin boards, or celebrated in a specially arranged ceremony. In contrast, the size of monetary compensations, i.e., salaries, tends to be hidden.
- Accepting an award establishes a special relationship, in which the recipient owes (some measure of) loyalty to the donor. The respective contract is, however, tacit, incomplete, and difficult, or impossible, to enforce by the donor. Monetary compensation, in contrast, typically does not induce loyalty.
- Awards are better incentive instruments than monetary payments when the recipients’ performance can be determined only vaguely. Criteria for awards are typically broad and not clearly specified. Therefore, performance can be globally evaluated at the end of the relevant period. Monetary compensation, on the other hand, almost always needs to be clearly specified contractually *ex ante* (Bandura, 1986).
- Awards are of a social nature and, unlike pure monetary payments, they are less likely to destroy the signal value of actions requiring special commitment or of actions beyond what is typically expected. When payments are involved it is not clear for observers whether the behavior was driven by dedication and commitment or solely

⁵ Often, there is some monetary compensation tied to winning the award that entails corresponding costs to the giver. However, these costs are typically very low when compared with wage payments and can also be deducted from taxable profits.

by the money. In principle, the same could hold for awards. However, because awards are less powerful extrinsic incentives, the signal value of special behaviors is not reduced as much (Bénabou & Tirole, 2003).

- Awards are not taxed, while monetary income is. In countries with high marginal taxes it is, therefore, relatively more attractive to receive an untaxed award than to receive a highly taxed monetary compensation.

These considerations make clear that there are indeed many major differences between awards and monetary compensation well worth inquiring into.

An International Comparison of Awards

One approach to studying awards is their analysis across countries. Thereby, factors that render an award important or unimportant in a country, be it as an incentive, as a visible symbol of social recognition, or as a signal of one's ability or motivation to outside parties, can be identified. A major problem that confronts researchers trying to sys-

tematically analyze awards across countries is the lack of internationally comparative data. *Wikipedia* is the only source that offers an extensive list of prizes, medals, and awards across many different countries.⁶ As is well known, this source is of a somewhat doubtful quality, and it is quite obvious that some countries are covered more completely than others. In view of this data problem, we turned to individuals' own reports to identify how many awards they possess. We used the awards specified by individuals in the *International Who's Who* (IWW; Neil, 2006), a work of reference comprising a list of the most important personalities in 212 countries. The persons included are, for example, every head of state, all directors of international organizations, heads of leading universities, CEOs of the Global 500 and Fortune 500 companies, prize winners of distinguished awards (such as the Nobel Prize and the Pulitzer Prize), important sports personalities, as well as prominent individuals from the film and television industry. This data source provides information on person-specific characteristics such as nationality, occupation, and age, as well as information about the number and kinds of awards each person has received. For a subsample of 82 countries, we coded the available information for a random set of 50 individuals per country.

In order to document the importance of awards in a glo-

Table 1. Average number of awards per individual per country

Total awards		Domestic state awards		Business awards	
Mean	2.66	Mean	0.43	Mean	0.06
Variance	1.96	Variance	0.11	Variance	0.01
Top 5 countries in each category:					
Canada	6.82	Poland	1.78	Canada	0.52
UK	6.78	France	1.32	Singapore	0.46
Poland	6.16	Tunisia	1.05	USA	0.34
Australia	5.66	Egypt	1.02	Saudi Arabia	0.27
Senegal	5.30	Malaysia	1.00	Australia	0.26
Lowest 5 countries in each category:					
Honduras	0.83	Nicaragua	0.05	Trinidad & Tobego	0.00
Bangladesh	0.78	Honduras	0.04	Uganda	0.00
Uganda	0.76	Uruguay	0.04	Ukraine	0.00
Tanzania	0.62	Switzerland	0.02	Uruguay	0.00
El Salvador	0.30	El Salvador	0.00	Venezuela	0.00
Information on 7 additional countries:					
USA	3.80		0.22		0.34
Canada	6.82		0.86		0.52
UK	6.78		0.78		0.04
France	3.60		1.32		0.04
Germany	2.46		0.48		0.06
Spain	4.20		0.70		0.06
Italy	1.96		0.22		0.04

Source: Own calculations using data constructed from the *International Who's Who 2007* (Neil, 2006).

⁶ http://en.wikipedia.org/wiki/Lists_of_prizes%2C_medals%2C_and_awards, accessed 15 May 2008.

balized world, Table 1 shows the average number of awards handed out per country per individual sampled. The table lists the total number of awards as well as two specific, and very different types of awards: domestic state awards (i.e., orders or prizes handed out by national and subnational executive organs) and business awards (such as the titles Manager of the Year or Business Executive of the Month). In addition to the average and variance over all 82 countries, the five countries with the highest averages and the five countries with the lowest averages are listed. In addition, information on all three categories is provided for the US and Canada, and for the large European countries UK, France, Germany, Spain, and Italy.

This "elite" group of persons (as defined by the *International Who's Who*) lists, on average, between two and three awards per person. The largest number of awards per person is handed out in three Anglo-Saxon countries (Canada, the UK, and Australia), as well as for Poland and Senegal, averaging between five and seven awards. The lowest average numbers of awards per person are reported for some small South American, African, and Asian countries (such as El Salvador and Tanzania) with substantially less than one award per person.

The average number of awards per member of the elite (3.8) in the US is considerably higher than the average of 2.7 over all 82 countries. Americans, thus, seem to quite enjoy bestowing and receiving awards. Awards are of a similar importance in France and Spain (3.6 and 4.2, respectively). This is surpassed by Canada and the UK (6.8). As can be inferred from the high numbers of awards handed out in such staunch republics as the US and France, awards are not only a matter of tradition or monarchic regimes. Rather, the data indicate that awards are of importance and general relevance today in many countries of the world.

The ranking of the countries with respect to the average number of awards changes when awards bestowed by national governments (in particular national orders, medals, and decorations) are considered. Not surprisingly, the average number of national government awards received by the individuals listed in the *International Who's Who* is much lower (less than every second individual sampled received such an award). Also, different countries now lead the list of handing out the highest numbers of awards per person (except for Poland, which is again in the top five). The top five are now Poland, France, Tunisia, Egypt, and Malaysia. The set of countries that bestows the smallest number of domestic state awards is similar to the one bestowing the smallest number of total awards. Switzerland joins the ranks because this nation is the only country in the world that does not bestow *any* governmental awards (not even to its soldiers). There is one individual in the data

set with an honorary citizenship from Lausanne, Switzerland, that causes the coefficient to be greater than zero.

Business awards have, of course, a quite different character from national government awards. They refer to awards handed out for private sector activities and comprise honors such as Most Powerful Woman, Manager of the Year, or Arabian Business Achievement Award. On average, only few persons in the *International Who's Who* elite indicate such awards (the average number of business awards per person is 0.06 over all countries).⁷ The largest number of business awards goes, on average, to persons in three Anglo-Saxon countries (Canada, the United States, and Australia), to individuals in Singapore, and in Saudi Arabia. In a considerable number of countries (33 of the 82 countries in the sample) no business awards are reported.

In the US, the awards are divided very unequally between national governmental awards and business awards: With respect to domestic state awards US-Americans are clearly below average in international comparison,⁸ but for business awards they are nearly at the top. With an average number of awards per person far above the worldwide average, this suggests that in the US the large number of business awards compensates for the small number of state awards. A different pattern holds, for instance, in Canada. In that country, both the number of domestic state awards as well as the number of business awards indicated by the persons in the *Who's Who* are above average. The large European countries France, Germany, Spain, and the UK rank above average with respect to national government awards (between 0.5 and 1.3), and below average with respect to business awards (between 0.04 and 0.06). These findings are consistent with the notion that in the US business affairs are of central social importance while in European and Commonwealth countries awards bestowed by the state are held in great esteem.

Awards are handed out for activities in many different areas. The largest share of awards is bestowed on persons for activities that can be broadly summarized as belonging into the category social welfare (37%). This category includes awards such as state orders and peace prizes. This large proportion of awards for social welfare can be attributed to the fact that these activities – while being socially desirable – are often not (or only inadequately) compensated in monetary terms. At the same time, monetary compensation could even be counterproductive as a means of rewarding these kinds of behaviors (see Frey [1997] or Bénabou & Tirole [2004] on motivation crowding-out). Individuals working in academia receive the second highest share of awards (32%). These data suggest that individuals in the scientific sector, although an area of rational discourse, are quite happy to receive awards. A significant,

⁷ This may be the result of the way the *International Who's Who* defines its "elite." Business persons, and, hence, the persons most likely to receive business awards, may be underrepresented since only CEOs and CFOs of the top 500 companies world-wide and the top 500 US companies are included in the book.

⁸ In the US, there are only three civilian awards handed out by the federal government: The Congressional Gold Medal, the Presidential Medal of Freedom, and the Presidential Citizen's Medal.

but clearly lower, share of awards (19%) is bestowed in the cultural sector. The same arguments that explain the intensive use of awards in the social welfare sector may be adduced here. In addition, the cultural sector, which includes film, television and writing, is particularly skillful in using the media to promote its own importance. This is reflected in the great attention received by the award ceremonies such as the Oscars, Grammys, Emmy Awards, and the Pulitzer or Brooker Prize.

Awards in Companies: A Vignette Experiment

The Setting

This section presents an overview of our survey experiment on awards as incentives in principal-agent relationships. Further details on the relevant theories, the design, and the statistical analyses are presented in Neckermann & Frey (2007). The vignette study was conducted online during a 2-week period in January/February 2007 with the employees of the IBM research laboratory in Rüschlikon, Switzerland. The facility has 255 employees, 177 of whom are researchers from more than 20 different nations (primarily from European countries). The lab in Rüschlikon is one of the eight labs that IBM operates worldwide with about 3550 employees total. In collaboration with clients and universities, researchers at these labs conduct basic as well as applied research in chemistry, information technology, physics, electrical engineering, and material science. To date, four researchers have been awarded Nobel prizes in physics for research they conducted during their time at the IBM lab in Rüschlikon. The management hands out the approximately 20 different awards that are available in all IBM research labs. These awards are broadly divided into two main categories: Formal and informal awards. Formal awards recognize outstanding scientific contributions and innovations and recipients are rewarded with substantial monetary compensations. Recipients of these awards are always announced on the worldwide intranet of IBM research and have the possibility to move up an award ladder, which culminates in either admission into the IBM academy (about 500 persons worldwide) or nomination as an IBM Fellow (about 40 persons worldwide). Informal awards, on the other hand, honor exceptional motivation in general; examples are contributions to teams, knowledge sharing, passion for work, and customer service. According to the human resource manager at IBM Rüschlikon, informal awards are also used to motivate researchers during times in which no major scientific breakthrough is impending.

Informal awards are typically rewarded with smaller monetary bonuses or gifts such as vouchers for dinners or weekend city-trips. Only the more important informal awards are publicized on the local intranet of the Rüschlikon lab. Given this large number of established awards at IBM, the respondents to this study can be assumed to be familiar with their own behavior and feelings with respect to striving for and receiving awards. These circumstances are advantageous for this study, as they increase the reliability and predictive power of our findings.

The survey uses the vignette study technique⁹ and analyzes the quantitative effect of introducing a new award at IBM on stated work behavior as well as which award characteristics determine the size of the effect. In vignette studies, subjects are presented with scenarios in which several factors of interest are systematically varied by the researcher and asked how they would feel or behave in the presented scenario. Using statistical methods, such as multivariate regressions, the researcher can then isolate the changes in response due to variations in the factors of interest. In our study, the behavioral response of the employees was measured via a question asking about willingness to immediately share an important finding with one's team¹⁰ in their current work environment as well as in four different scenarios each of which represented the introduction of a new award for international cooperation at IBM. The awards differed with respect to whether they were accompanied by cash bonuses or gifts, the monetary value of the bonus or gift, the number of award recipients, and the degree of publicity associated with winning the award. Further, we simulated a situation in which the respondents were then told that they either did or did not receive the award. This addresses the question about the behavior of both winners and losers upon the receipt of an award.

Design of the Study

Independent Variables: The Award Characteristics

Each vignette describes the introduction of a new incentive for all employees at the IBM research lab in Rüschlikon. All vignettes, i.e., reward descriptions are identical in their basic set-up; they only differ in the realized values of the five different reward characteristics that we analyzed. Those five independent reward characteristics were chosen according to theoretical considerations on the effectiveness of rewards.

1. The incentive is framed either as a purely monetary bonus or as an award. The difference is that the former is completely devoid of any social component. In scenarios in which the incentive comes in the form of a mone-

⁹ For a general introduction of the method and further methodological information see Rossi and Anderson (1982).

¹⁰ Specifically, we inquired into their willingness to share an important finding with their work group. Sharing increases team productivity, but entails the risk of losing part or all of the personal scientific credit that a researcher would certainly receive when publishing the finding first and only sharing it with the team later.

tary bonus, management decides who will receive the bonus without any employee participation in the nomination process. The money is subsequently transferred to the selected employee's bank account together with the next paycheck without any explanation. The winners are neither specifically notified nor congratulated by the management. If the incentive is framed as an award the opposite holds. Since we assume that the social approval associated with winning an award matters, we expected to find a larger behavioral response to the introduction of an award as compared to the introduction of a monetary bonus.

2. In the vignette, the reward is randomly described as being accompanied by a cash payment or a nonmonetary gift. When the reward is framed as a monetary bonus it always comes with cash. This condition offers two opposing behavioral predictions. On the one hand, standard economic theory predicts that cash should work better than a gift because it is fungible (Waldfogel, 1993). On the other hand, the psychological and managerial literature cites a number of reasons why a gift should work better than cash (Jeffrey & Shaffer, 2007). Examples of such reasons are evaluability (the perceived value of the gift is higher than its actual value) and justifiability (recipients value the gift more than the equivalent payment in cash, but would not have bought it for themselves; e.g., luxuries).
3. In the vignettes, the degree of publicity is varied among three different types. First, the list of recipients remains undisclosed. Second, the list of recipients is published on the intranet. Third, in addition to publicizing the list of recipients on the intranet, the company arranges a formal ceremony in which the awards are handed to the recipients. In the case where the incentive represents a monetary bonus, the third type of publicity involving the ceremony is excluded, as this would not have been realistic. Since status and social recognition can only be gained, and, hence, make their documented impact, when others know about the reward, we hypothesized that the effect of a reward is greater when it is publicized. Further, the effect should be even greater when there is a ceremony in addition to the announcement of the winners on the intranet as ceremony adds a more immediate personal component of recognition by colleagues.
4. The value of the accompanying cash payment or gift varied between CHF 0 and CHF 10,000.¹¹ In line with standard economic theory and psychological reinforcement theories, we hypothesized that the behavioral impact of the reward increases with its monetary value.
5. We varied the maximum number of award recipients per year between 1, 2, 6, 10, 16, and 20.¹² The number of recipients is an interesting variable because the value of an award changes with its scarcity (Gavrila, Caulkins,

Feichtinger, Tragler, & Hartl, 2005). The effect of a reward should, therefore, decrease with the number of recipients. However, there is a countervailing effect as an increase in the number of reward recipients *ceteris paribus* increases the chances of an individual employee to become a winner. Therefore, we hypothesize an inversely u-shaped relationship between the number of recipients and motivation. As long as the quality of the award is not diluted by too high a number of recipients, additional recipients will increase effort by raising the perceived chances of winning the award. Beyond a certain threshold number of recipients, the negative effect of decreased reward quality outweighs the positive effect of an increased chance to win.

Operationalization of the Dependent Variable

Following the reward introduction scenarios, the subjects were asked to indicate their behavior in a public-good situation, i.e., a situation in which subjects face a trade-off between individual and collective benefit. In particular, we asked about their willingness to share an important finding with their team before publishing it under their own name. They were told that sharing the finding now would increase the quality and speed of the team project, but expose them to the personal risk that the finding could be used and published without giving them the appropriate credit for the discovery. Alternatively, they could wait and publish the finding in a scientific journal under their own name before sharing it with the team colleagues. Respondents marked their willingness on a 10-point scale ranging from 1 meaning "I definitely would not share now" to 10 meaning "I would certainly share now." Employees were familiar with this type of public-good situation in their everyday work life; this was confirmed in interviews preceding the study. In the survey, about 84% of the respondents rated the situation description as realistic or very realistic. The rewards are granted for extraordinary efforts with respect to cooperation in international work teams with members from different nations. Hence, the behavior in the public-good situation is relevant for winning the award.

Procedure

After specifying the dimensions (award characteristics) and their values, each vignette was compiled by choosing one combination of values for each of the five independent dimensions. For each participant, the vignettes were sampled without replacement from the pool of all possible vignettes. The total pool comprised all possible combinations of values in the five dimensions that characterize each re-

¹¹ The set of possible values was CHF 0, CHF 50, CHF 150, CHF 300, CHF 1000, CHF 2000, CHF 4000, CHF 6000, CHF 8000, and CHF 10,000 (about the same amounts in US\$). In the statistical analysis, monetary value was treated as a continuous variable.

¹² Like the monetary value of the reward, the number of recipients is treated as a continuous variable in the statistical analysis.

ward, i.e., 720 different vignettes. It is not important that all possible vignettes are actually answered as long as the levels of the different factors are uncorrelated and there is sufficient variation in the vignettes drawn. In the sample of vignettes drawn in our study both of these conditions were met. Further, two of our dimensions (Value in CHF and Number of Participants) are treated as quantitative, which significantly reduces the number of observations necessary to reliably estimate their impact. A number of combinations were excluded for plausibility reasons, such as those vignettes that combine a monetary bonus (Factor 1: Framing) and a ceremony (Factor 4: Publicity), or cash payments (Factor 2: Associated Reward) of zero value (Factor 4: Value in CHF).

To control for individual-specific effects, we generated multiple observations per person by presenting each subject with four different reward scenarios. While the assignment of vignettes to individual respondents was random, we ensured that the 4 award descriptions each subject was confronted with differed in terms of factor levels (e.g., we ensured that each person received one award with zero, small, medium, and high monetary value). Further, each person received at least one bonus, one award with a cash payment, and one award with a gift. This was necessary to ensure that subjects were not confused by a close similarity of award realizations caused by a purely random assignment. Further, we randomized the order in which the different factors appeared in the award description to control for order effects (only the type of reward – bonus or award – always remained at the beginning of the vignette). Hence, each participant was presented with a random set of four different reward descriptions, i.e., combinations of scenarios, out of the total pool of vignettes that was balanced with respect to content and order according to our experimental design.

Before introducing the scenarios, we asked the respondents to state their willingness to share the finding assuming they were working in their current work environment (status quo). This gave us the baseline motivation for each one of the respondents. Then subjects were confronted with the vignettes, i.e., the reward introduction scenarios, and were asked to indicate in each of them their willingness to share their finding. After having stated their motivation in the public-good situation after the fourth award vignette, we described a scenario in which the individual either did or did not receive the reward that was described to them as Reward 4. Then we asked them again to indicate how willing they were to share the finding now that they knew whether they had received Reward 4 or not. As the reaction to receiving or not receiving the award requires subjects to put themselves in this situation emotionally and as we expected that respondents would only reliably do this once, we only asked this question once and used a between-subject design to study the impact of (not) receiving an award. In order to diminish any effects of impression management

or self-deception, one could have asked how a colleague would respond in such a situation. However, our pretest revealed that the subjects resisted the question in this form. The questionnaire ended with a survey section in which respondents were asked questions about their perception on the role of awards in organizations and the determinants of award effectiveness in motivating employees. Further, we inquired about personal characteristics such as gender, age, and award history at IBM. These questions were the same for all participants.

Discussion of the Effect of the Different Award Characteristics

During the survey period, 52 out of 177 researchers at IBM completed the online questionnaire, resulting in a rate of return of 30%. The respondents were representative of the workforce with respect to all objective criteria available from the company.¹³ According to our design about one third of the 208 realized vignettes were framed as bonuses and two thirds as awards; there were approximately the same numbers of realized combinations including associated rewards of small, medium, and high value; and with few, medium, and a high number of recipients. Further, there was an approximately equal distribution of the type of publicity and form of associated reward (gift or cash). The results described in this section refer to the *ceteris paribus* impact of individual award characteristics as estimated in ordinary least squares (OLS) regressions with random effects controlling for individual fixed effects. Included in the regression are the five reward characteristics, the random effects, a constant, and the stated baseline willingness to share the finding. There were a total of 208 observations from the 52 respondents. The coefficient of determination, R^2 , equals 0.78.

The monetary value of the reward had a robust, significant, and positive impact on the willingness to share the finding. We ran a second regression that was identical to the one described above, apart from the fact that we included dummy variables for whether the value of the reward in CHF was zero, small, medium, or high. The result showed that CHF zero and small monetary values do not have a significantly different impact on motivation. The same holds for medium and high values. Compared to the latter, CHF zero or small monetary values lead to a motivation that is approximately half a point lower on a 10-point scale. The differences of 0.52 and 0.54 are statistically significant with standard deviations of 0.21 each. In the qualitative survey conducted after the vignette study, the responding employees confirmed the importance of the monetary value of rewards. Almost all indicated that they considered it to be essential for an award to be accompanied by a substantial monetary bonus.

¹³ Average age, percentage of female workforce, and length of employment at IBM are 41 years, 13.2%, and 12 years, respectively, among the workforce of the IBM lab in Rüschlikon and 42 years, 10%, and 12 years, respectively, in our sample of respondents.

Publicity had a significant positive effect on stated contributions to the public good. As compared to a situation with no publicity, contributions were, on average, 0.44 points (*SD* 0.2) higher when publicity was involved, which is substantial. Naming the recipients and having a ceremony increased contributions by about the same amount as did increasing the value of the award from CHF 0 to about CHF 1000. The coefficient of having a ceremony and announcing the winners on the intranet was substantially larger than the coefficient of an announcement on the intranet alone. Hence, the larger coefficient of the combination of intranet and ceremony indicate that employees value the ceremony per se.

For a given monetary value, gifts did not work as well as payments in cash. Holding the value of the reward constant, a gift leads to a willingness that was 0.3 points (*SD* 0.17) lower than the willingness induced by an equivalent payment in cash. For a gift to induce the same willingness to share as a payment in cash of CHF 50, it needs to increase in value from CHF 50 to CHF 2000. This is in line with remarks by the respondents in the last part of the questionnaire. In the comment section a substantial number stated that they preferred money or paid vacation to other kinds of prizes.

We did not find a significant effect of the factor Type of Reward. Simply framing the reward as a bonus transferred to the employees' bank account without any social recognition or as an award associated with either a gift or a cash payment *ceteris paribus* does not make a difference in the motivation of the employees. Also the number of recipients does not have an effect significantly different from zero. The baseline motivation has a highly significant positive effect on the willingness to share. The coefficient of 0.9 implies that a person with a 1-point higher willingness to share the finding in the current work environment is about 0.9 points more willing to share the finding after incentives have been introduced. Demographic variables such as age, gender, and experience with international teams do not play a role. The same holds for the award history of the participants, i.e., the number and value of the IBM awards received in the past.

The analysis shows that in a public-good situation that participants were quite familiar with in their work experience, awards have significant and systematic effects on the stated contributions of employees.

The Effect of Receiving or Not Receiving an Incentive

The design of the vignette allows studying how people react when they receive or do not receive a reward. Both economic and psychological theory do not allow a clear behavioral prediction on this reaction, in general, nor with respect to the particular design of this experiment. Economic-status models, for instance, suggest that a representative agent's equilibrium effort-level depends positively

on his or her status (Auriol & Renault, 2008). Because receiving an award increases relative standing, these models predict that winners will increase and nonrecipients decrease their effort. Winners can also be expected to increase their performance when the positive feedback or the social recognition associated with winning increases motivation, as the psychological literature suggests (Ambrose & Kulik, 1999). At the same time, however, the incentive effect, i.e., the motivational power that comes with the prospect of winning the reward next time is typically smaller or zero for winners, but should be undiminished for the nonrecipients. On the other hand, nonrecipients might be frustrated or disappointed and, therefore, decrease their performance efforts.

Subsequent to Scenario 4, half the subjects were asked to imagine that they receive the reward that was described to them in Scenario 4, while the other half of the participants was asked to imagine that they had learned that they would not receive it. After that they were asked about the willingness to share the finding. Again, we ran a random-effects OLS regression including the individual random effects, a constant, the five reward characteristics, the baseline motivation, the motivation as indicated in Scenario 4, and a dummy for whether the person would be a winner or a nonrecipient. The contribution of winners exceeded that of the nonrecipients by 0.71 (*SD* 0.31) on a 10-point scale, which is substantial. In fact, contributions of nonrecipients fall below their original baseline willingness to share. This draws attention to the importance of considering the effects of rewards on behavior after conferral and not only their incentive effects. Persons showing a higher baseline motivation and those who indicated a high willingness to share their finding after the award introduction in Scenario 4 are more willing to share the finding after conferral independently of whether they receive the reward or not. The award characteristics have neither a significant direct effect on the motivation after conferral other than via the willingness stated after the introduction of the incentive nor a differentiated effect on winners and nonrecipients.

Evaluation

Awards combine a multitude of stimuli such as feedback, information, and social recognition in unique ways. Through the vignette study technique, we were able to identify the effects of individual award characteristics, while not artificially restricting the number of award characteristics present. Specifically, the effect of reward increases with the degree of publicity associated with winning an award and with the monetary value of the reward. Also, rewards at IBM work better when they are accompanied by a payment in cash rather than a gift. Further, the study shows that it is important to also consider the effect of awards after conferral as it was shown that nonrecipients substantially decrease their contributions even if the award is granted yearly and, hence, open to them in the future.

Winners, on the other hand, increase their contributions even further. As we used a real-world subject pool, the results allow an inference on how the IBM workforce would behave in case IBM were indeed to introduce the suggested award for international cooperation.

One has, of course, to be aware of the advantages and shortcomings of the vignette technique. Advantages are that reports are typically more reliable and less biased than traditional survey methods (Alexander & Becker, 1978) as they present subjects with a stimulus that is precisely specified and that closely resembles real-life decision-making situations. In particular, respondents evaluate a complete situation description (bundle of different factors), rather than having to state how isolated factors influence their behavior. This is cognitively less challenging and more natural for the respondents and decreases the risk that respondents consciously bias their answers toward socially desirable responses. Among other studies, Telser and Zweifel (2007) show the external validity of survey experiments by comparing stated choices in their experiment with actual choices made by the same individuals. Moreover, results from vignette studies have been shown to be reliable over time (measurements are taken and then repeated at a subsequent point in time), over attribute sets (effect of one set of factors is examined as other factors are varied), and over data collection methods (Bateson, Reibstein, & Boudling, 1987). Vignette studies exhibit a degree of uniformity and control over the stimulus situation approximating what is achieved by researchers using experimental designs in the laboratory. However, vignettes only elicit stated rather than actual behaviors.¹⁴ Hence, a comparison with results from field or laboratory studies is indispensable. Neckermann, Cueni, and Frey (2008) and Markham, Scott, and McKee (2002) corroborate the findings from this study with field evidence and show that formal recognition programs have an impact on employee performance. Peterson and Luthans (2006) document the impact of financial and nonfinancial incentives on business-unit outcomes over time.

Conclusion

Awards are a relevant phenomenon deserving the attention of both psychologists and economists. This paper presents three distinct approaches to awards. First, we demonstrate that awards cannot be equated with monetary compensation. Second, we present empirical evidence on the differences in the intensity with which awards are used across countries. Third, we present the results of a vignette study showing that awards substantially and systematically change stated work behavior. While this paper raises some interesting aspects, a general theory of awards still needs to be developed.

¹⁴ Shortcomings of survey data in general are discussed in Bertrand & Mullainathan (2001).

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