

Frey, Bruno S.; Neckermann, Susanne

**Working Paper**

## Awards - A View from Psychological Economics

CREMA Working Paper, No. 2008-02

**Provided in Cooperation with:**

CREMA - Center for Research in Economics, Management and the Arts, Zürich

*Suggested Citation:* Frey, Bruno S.; Neckermann, Susanne (2008) : Awards - A View from Psychological Economics, CREMA Working Paper, No. 2008-02, Center for Research in Economics, Management and the Arts (CREMA), Basel

This Version is available at:

<https://hdl.handle.net/10419/214396>

**Standard-Nutzungsbedingungen:**

Die Dokumente auf EconStor dürfen zu eigenen wissenschaftlichen Zwecken und zum Privatgebrauch gespeichert und kopiert werden.

Sie dürfen die Dokumente nicht für öffentliche oder kommerzielle Zwecke vervielfältigen, öffentlich ausstellen, öffentlich zugänglich machen, vertreiben oder anderweitig nutzen.

Sofern die Verfasser die Dokumente unter Open-Content-Lizenzen (insbesondere CC-Lizenzen) zur Verfügung gestellt haben sollten, gelten abweichend von diesen Nutzungsbedingungen die in der dort genannten Lizenz gewährten Nutzungsrechte.

**Terms of use:**

*Documents in EconStor may be saved and copied for your personal and scholarly purposes.*

*You are not to copy documents for public or commercial purposes, to exhibit the documents publicly, to make them publicly available on the internet, or to distribute or otherwise use the documents in public.*

*If the documents have been made available under an Open Content Licence (especially Creative Commons Licences), you may exercise further usage rights as specified in the indicated licence.*

# **Awards - A View from Psychological Economics**

Bruno S. Frey  
Susanne Neckermann

Working Paper No. 2008 - 2

For: *Journal of Psychology*  
 Deadline : 31 January 2007

# **AWARDS**

## ***A VIEW FROM PSYCHOLOGICAL ECONOMICS***

by  
*Bruno S. Frey<sup>1</sup> and Susanne Neckermann<sup>2</sup>*

### *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 non-monetary rewards. Despite their relevance in all areas of life awards have not received much scientific attention. We propose to study awards and present results on a vignette experiment that quantifies and isolates the effects of different award characteristics such as the publicity associated with winning an award. Further, employing a unique data set, we demonstrate that there are substantial differences in the intensity of usage of awards across countries.

*Keywords:* Awards, compensation, incentives, principal-agent, honors and distinctions

*JEL Classifications:* C93, J33, M52

---

<sup>1</sup> Bruno S. Frey is professor at the University of Zurich, Institute for Empirical Research in Economics and research director at CREMA - Center for Research in Economics, Management and the Arts, Gellertstrasse 18, CH-4052 Basel, Switzerland. Email-address: bsfrey@iew.uzh.ch

<sup>2</sup> Susanne Neckermann is assistant at the University of Zurich, Institute for Empirical Research in Economics.

## 1. *Introduction*

### 1.1 *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. It would be hard pressed to find any area of society in which awards are not used. 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 3'000 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: 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, and that this behavior it is typical for both right- and left-wing dictatorships.

Awards exist not only at the national level. In the arts, culture and the media, awards are also of central importance. A few prominent examples are the Academy Awards (*Oscars*), the prizes handed out by the film festivals at Cannes, Venice or Berlin, the *Grammy* award for artistic significance in the field of recording, the *Brooker Prize* and the *Prix Goncourt* in literature, or the *Pulitzer Prize*.<sup>3</sup> In sports, athletes receive the honor of being chosen “*Sportspersonality of the Year*” (the BBC has no less than seven categories), and of being admitted into one of the many Halls of Fame. In September 2004, the International Football Association bestowed on Pelé (Edson Arantes do Nascimento) and Franz Beckenbauer the “*FIFA Centennial Order of Merit*”, thus honoring them as the best footballers of the 20<sup>th</sup> century. Awards are also used extensively in religious organizations. The Catholic Church, for instance, confers many different awards, such as the Order of Christ and the Order of the Holy Sepulcher of Jerusalem.

---

<sup>3</sup> The *Pulitzer Prize* is awarded for nine different categories Novel, History, Fiction, Poetry, Non-Fiction, Criticism, Telegraphic Reporting, Breaking News Photography and Reporting. Also, there are at least ten other major prizes in British literature, and 5 in French literature, such as the *Prix Fémina*, *Prix Médicis* or the *Grand Prix du Roman de l'Académie Française*.

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 held in high esteem. The opposite is true: academia has an elaborate and extensive system of awards. Consider the universities handing out the titles of honorary doctor, professor or senator, or professional associations awarding an enormous number of medals, the most important one probably being the *Fields Medal* in mathematics.<sup>4</sup> Further, there are prestigious fellowships in the many academies of science (e.g. Fellow of the *Royal Society FRS*). And then, of course, there are the *Nobel Prizes*. An alien looking at earth might well decide that academia is one of the places, which bestows most awards.

Perhaps even more surprising is the widespread use of awards in the *corporate sectors* of market economies.<sup>5</sup> Firms honor their employees as “*Employee of the Month*” or hand out “*Thank you!*”- or “*Bravo!*”-Awards; there seems no limit to the ingenuity to invent ever new awards. The media support this by creating their own awards and by regularly choosing “Best Managers” (*Business Week*), “CEOs of the Year” (*Financial World*) or the “Person of the Year” (*Time*). Organizations such as the World Economic Forum, appoint people to the position of “*Global Leader of Tomorrow*” (1’200 persons), and “*Young Global Leaders*” (1’111 persons below 40 years of age). It would be a mistake to attribute this trend simply to “Americanism”. In Britain, for instance, the leaders of many large corporations are decorated with orders and titles.<sup>6</sup> Or take the Dalai Lama who has received a myriad of awards and honors among them the Nobel Peace Prize, two honorary doctorates, the honorary citizenship of the Ukraine, and the United States Congressional Gold Medal.

## 1.2 Literature

The science of *phaleristics* (the Greek and Roman word for award) has produced a large literature on *specific* awards, in particular on orders, decorations and medals. It

---

<sup>4</sup> But there are more than 30 other important prizes in mathematics ([http://en.wikipedia.org/wiki/List\\_of\\_prizes%2C\\_medals%2C\\_and\\_awards](http://en.wikipedia.org/wiki/List_of_prizes%2C_medals%2C_and_awards)).

<sup>5</sup> For instance, the Swiss weekly newspaper *Cash* presented an (incomplete) list of 59 awards handed out by corporations in Switzerland in one year (2005: 10-11).

<sup>6</sup> One example must suffice. The CEO of BP is a Lord (John Browne of Madingley) and he is supported on the board by the knights Sir Ian (Prosser) and Sir Tom (Killop), by Anne Julius, who was given a CBE (Commander of the British Empire), and by Michael Miles who was given an OBE (Officer of the British Empire) (NZZ 2004: 63).

is historically oriented and is mainly devoted to presenting the historical facts about individual orders as well as the rules according to which a order is handed out. 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*. Useful discussions (including some data) on the present state of orders, focusing on Britain, are provided in Phillips (2004) and the House of Commons (2004). Fewer works cover orders across several countries, for instance Klietmann (1984), Honig (1986), and Mericka and Marco (1990). Awards or related issues have been discussed in a considerable literature in sociology. Examples are Bourdieu, (1979), Elster (1983), Braudy (1986), Marmot (2004), and de Botton (2004). However, with few exceptions, these works either address awards and distinctions in a general and abstract way (and not as incentives), or they study specific prizes. Further, 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).<sup>7</sup> 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. Further, we are unaware of studies that assess the impact of individual stimuli (feedback, money, publicity) when not only one but two or more are present simultaneously, as becomes the case when awards are used. The only exceptions are a few articles in personnel psychology that systematically compare the impact of different human resource practices on performance (see Combs et al. 2006 for a recent meta-analysis).

Despite the importance of awards in society, economists have largely disregarded them.<sup>8</sup> 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 emitted (see Spence 1974), in terms of the competition induced (e.g. Lazear and Rosen 1991), and in terms of incentives in a principle-agent

---

<sup>7</sup> The various reinforcers (stimuli) used in behavior modification in organizational settings can be classified into the following types of interventions: (1) financial/monetary, (2) non-financial, (3) social, and (4) various combinations (simultaneous use) of two or more types of reinforcement. Awards belong to category (4).

<sup>8</sup> A search on EconLit, for example, does not give one single reference to awards in the form of honors, orders, medals or decorations.

relationship in a firm (a survey is provided by Prendergast 1999). While these approaches are useful, they are hardly able to capture and reveal the many different aspects involved in the working 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 the works on esteem, identity, status, and reputation.<sup>9</sup>

There may be various reasons why economists have so far neglected awards. Firstly, as they are not fungible, awards may be considered inferior instruments for inducing effort compared to monetary compensation. Secondly, awards may just be one result of high motivation and success and not a contributing cause. Thirdly, awards may not be perceived as different from monetary incentives. It could be assumed that they are only valued by the recipients due to the ancillary bonus or to the extent that they induce increases in future income. This assumption certainly has some truth to it. Ginsburgh and von Ours (2003), for instance, show that winning the Queen Elizabeth musical competition, the best-known international competition for piano (and violin), significantly affects the subsequent market income of the artist. However, it has also been demonstrated in experiments that people value status independently of any monetary consequence; they are even willing to incur material costs to obtain it (Huberman et al., 2004).

### *1.3 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 (1) because winning an award makes the recipient feel good about himself irrespective of monetary or status consequences, hence even without others knowing about the award, (2) because awards are typically conferred by a principal whose opinion the agent values, (3) because of the social prestige they generate and recognition they bring within the peer

---

<sup>9</sup> Examples of recent economic works addressing aspects related to awards are analyses of status incentives (e.g. Auriol and Renault 2001, forthcoming, Dubey and Geanakoplos 2005, Ederer and Pataconi 2004, Loch et al. 2001, and Fershtman et al. 2001), of rewards as feedback (Sururov and van de Ven 2006), of social recognition (Brennan and Pettit 2004 and English 2005), of reciprocity (e.g. Fehr and Gächter 2000, Fehr and Schmidt 2004), of identity (Akerlof and Kranton 2005), of conventions (e.g. Young 1993), of superstars, and of positional goods (Hirsch 1976, Rosen 1981, Frank 1985).

group, (4) because awards are typically set-up as tournaments and many persons enjoy competing; i.e. working towards an award generates process utility (e.g. Frey et al., 2004), and hence pleasure irrespective of the outcome;<sup>10</sup> (5) because of the monetary compensation or other material or immaterial benefits associated with winning the awards. However, awards do not only work as incentives; they also work ex post. Awards create and establish role models, they distribute information about successful and desirable behavior and create loyalty. 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, that are governmental or monarchical acts, prizes granted by non-profits, 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. But even within this large realm of awards there are considerable differences. Among state orders awards can be identified that convey legislative power, such as the title of a 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 differ 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 beyond pure material compensation to chosen employees.

---

<sup>10</sup> 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 (see Croson and Gneezy, 2005, for an overview).



The realm of awards is quite vague. The semantics are unclear and the various types of awards are not well defined.<sup>11</sup> These unclear distinctions are no accident, but an important feature of awards. The suppliers of awards have an incentive to differentiate awards at many different levels<sup>12</sup> and to continually create new awards.

In this paper, we refrain from distinguishing between different types of awards and treat all types of awards as representation of the phenomenon of interest. This is justified despite the mentioned differences 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 via 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 complaints) count towards winning the award and how much weight each of the relevant behaviors receives when the management decides on the award winner. One reason for vague award criteria may be that they prevent that employees only focus 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. Vague criteria also allow the management to adjust the set of relevant performance dimensions and weights ex post to the realized business situations. This leads to another feature of awards, namely the subjective element in determining the winner. Also, awards are not enforceable. While awards are typically handed out in a manner that makes the reasons for choosing the particular recipient(s) transparent, non-recipients cannot claim an award by trying to establish that their performance was better. In Germany as well as in

---

<sup>11</sup> This is already reflected in the fact that the word “order” has several different meanings: a mathematical sequence, a command, a religious community or an award. The last two meanings are historically connected. Knights with orders of chivalry (such as the Order of the Holy Sepulchre, founded in 1099, the Templars, founded in 1118, the Order of St. John, 1118, and the Teutonic Order, 1170) wore insignia. Over time, such insignia gained a life of their own, independent of membership to an organization.

<sup>12</sup> The *Order of the British Empire*, for instance, has five levels: Knight/Dame Grand Cross, Knight/Dame Commander, Commander, an Officer and a Member; and the German Order of Merit even differentiates between eight different levels, ranging from the Grand Cross Special Class to the simple Medal.

many other countries state orders are, for instance, the only governmental acts besides presidential pardons that are not subject to administrative law. A further characteristic of awards is the tournament character and the fact that 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. Examples of awards with indirect incentive effects are state orders handed out for exceptional civil courage, such as saving lives.

These considerations show that awards are omnipresent in all spheres of life, which suggests that they perform important functions, and that awards can be defined according to a set of criteria despite the myriad of specific forms they take. Thus, awards can and should be studied as a unique phenomenon in psychology as well as in economics. This paper intends to introduce awards as incentives as a field of investigation lying between psychology and economics. It seems to us a good example of how insights from the two disciplines – or psychological economics – can help us to better understand an interesting and relevant phenomenon.<sup>13</sup> Section 2 presents several dimensions according to which awards differ from monetary incentives. In section 3 we present results of a vignette study on awards within companies, identifying the motivational aspects of awards in a business environment. Then, section 4 presents some descriptive evidence on the different intensity of award usage across 82 countries. Section 5 concludes.

## ***2. Differences between Awards and Monetary Compensation***

There are important differences between awards and monetary compensation. These make it worthwhile to analyze awards separately. At this point in time suffice it to mention the following differences between awards and monetary compensation:

---

<sup>13</sup> Further considerations on awards are laid out in Frey 2005, 2006, and 2007, Frey and Neckermann 2006, Neckermann and Frey 2007.

- The material costs of awards may be very low, or even nil, for the donor, but the value to the recipient may be very high.<sup>14</sup> In contrast to monetary compensation, award givers need to take into account that the value of an award decreases with the number of awards in circulation since the prestige associated with winning an award depends on it being scarce.
- 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. Quite the opposite is true: payments can easily be used as justification for working for an organization that one publicly denounces.
- 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 ex post. Monetary compensation on the other hand almost always needs to be clearly specified contractually ex ante. Hence, the principal has no room to take other than the stipulated performance dimensions into account or to adjust the weights of the different performance criteria in determining the winner according to realized business needs. This is often perceived as unfair or inadequate when performance is difficult to contract and measure.
- Awards are less likely to crowd out the intrinsic motivation of the recipients than monetary compensation. Typically, awards are perceived as supportive rather than controlling. This lies in the social nature of awards and the fact that

---

<sup>14</sup> 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.

the associated ex post performance measurement is less intrusive and allows the consideration of input factors such as motivation and work ethics as well as a broad assessment of performance dimensions that are hard to measure. Further, unlike pure monetary payments, awards 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 by the money. In principle the same is true for awards because they are also extrinsic incentives. However, awards are less powerful extrinsic incentives, so that the signal value of special behaviors is reduced less.

- 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.

### ***3. Awards in Companies: a Vignette Experiment***

#### ***3.1. The Setting***

This section presents a survey experiment on awards as incentives in principal-agent relationships (for a more extensive discussion of the methodology, the theories guiding the design, details of the design, and the results see Neckermann and Frey 2007). The vignette study was conducted online during a two-week period in January/February 07 with the employees of the IBM research laboratory in Rüschlikon, Switzerland. The facility has 255 employees, 177 of which 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 3'550 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 among others. To date, four researchers have been awarded Nobel prizes in physics for research they conducted during the time they were employed at the IBM lab in Rüschlikon. The management hands out the approximately 20 different awards that

are available in all IBM research labs. The awards are broadly divided into two main categories: formal and informal awards. Formal awards recognize outstanding scientific contributions and innovations and they 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 on the award ladder which culminates in either the admission into the IBM academy (about 500 persons worldwide) or in the 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. This is an advantage for this study, since it increases reliability and predictive power of our findings.

The survey focuses on the quantitative effect of introducing an award on work behavior and analyzes which award characteristics determine the size of the effect. The behavioral response of the employees is measured via a question asking about the willingness to immediately share an important finding with one's team<sup>15</sup> 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 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.

---

<sup>15</sup> Specifically, we inquired into their willingness to share an important finding in their work 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.

### ***3.2.Design of the Study***

#### **3.2.1. 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 description are identical in their basic set-up; they only differ in the realized values of the five different reward characteristics, which we analyze. Those five independent reward characteristics have been chosen according to what seems to be vital to the effectiveness of a reward.

1) The incentive is framed either as a purely monetary bonus or as an award. The difference is that the former is almost completely deprived of a social component. In this scenario, the 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. The winners are neither specifically notified nor congratulated by the management. If the incentive, however, is designed as an award the opposite holds. Since we assume that the social approval associated with winning an award matters greatly, we expect 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 with a cash payment or a gift. In case the reward was framed as a monetary bonus it always came with cash. For this factor there are 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 management literature cites a number of reasons why a gift should work better than cash (Jeffrey and 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 award is handed to the recipients. In case the incentive is framed as 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 when others know about the reward, we hypothesize 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.

4) The value of the accompanying cash payment or gift was varied between CHF 0 and CHF 10'000. In line with standard economic theory and psychological reinforcement theories, we hypothesize 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. The number of recipients is an interesting variable because the value of an award changes with its scarcity. 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 be 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 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 increase in chances to win.

After specifying the dimensions (award characteristics) and their values, the vignettes can be constructed by choosing one value of the variable for each of the independent dimensions.

### 3.2.2. 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 as was confirmed in interviews preceding the study. In the survey about 84% of the respondents rated the situation description as realistic or very realistic.

### 3.3. Procedure

To control for individual specific effects we generated multiple observations per person by presenting each subject with four different reward scenarios. First, however, we asked the respondents to state their willingness to share the finding assuming they were working in their current work environment (status quo). This gives us the baseline motivation of each respondent. 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. The rewards were granted for extraordinary efforts with respect to cooperation on international teams. Hence, the behavior in the public good situation described above was relevant for winning the award. The descriptions of rewards 1, 2, 3, and 4 were different for each respondent. The individual subject was presented with a random set of 4 reward descriptions out of the total pool of over 100 different reward descriptions.<sup>16</sup> The total pool was comprised of all possible combinations of values in the five dimensions that characterize each reward. 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 are to share the

---

<sup>16</sup> Vignettes were sampled without replacement from the pool of all possible vignettes for a given subject. It is not important that all possible vignettes are actually answered as long as the levels 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.

While the attribution of vignettes to individual respondents was random, we ensured that the 4 award descriptions each subject was confronted with differed sufficiently in the realized values of the factors (i.e. 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 that came with a cash payment, and one award that came with a gift. This was necessary to ensure that subjects were not confused by the potential 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).



finding now that they knew whether they had received reward 4 or not. 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 personal characteristics such as gender, age, and award history at IBM. These questions were the same for all participants.

During the survey period, 52 researchers completed the online questionnaire, resulting in a rate of return of 30%. The respondents are representative of the workforce with respect to all objective criteria available from the company.<sup>17</sup>

### 3.4. Results on Awards as Motivators

The results described in this section refer to the *ceteris paribus* impact of individual award characteristics. These impacts were calculated using the responses of the subjects to the different reward descriptions each of which contained a multitude of different award characteristics. Our design therefore closely resembles “real-world” organizational reward programs, where rewards always consist of more than one incentive dimension (such as monetary compensation, feedback, social recognition).

The monetary value of the reward has a robust, significant, and positive impact on the willingness to share the finding. It turns out that CHF zero and small monetary values do not have a significantly different impact on motivation. The same is true 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. This difference is significant. 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.

Publicity has a significant positive effect on stated contributions to the public good. As compared to a situation with no publicity, contributions are on average 0.44 points higher when publicity is involved, which is substantial. Naming the recipients and having a ceremony increases contributions by as much as increasing the value of the

---

<sup>17</sup> Average age, percentage of female workforce, and length of employment at IBM are 41 years, 13.2%, and 12 years among the workforce of the IBM lab in Rüschlikon and 42 years, 10%, and 12 years in our sample of respondents.

award from CHF 0 to about CHF 1'000. The coefficient of having a ceremony and announcing the winners on the intranet is substantially larger than the coefficient of an announcement on the intranet alone. Hence, the larger coefficient on the combination of intranet and ceremony indicates that employees value the ceremony per se.

For a given monetary value, gifts works less well than payments in cash. Holding the value of the reward constant, a gift leads to a willingness that is 0.3 points 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 2'000. 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 do not find a significant effect of the factor 'type of reward'. The pure framing of the reward as a bonus or an award *ceteris paribus* does not make a difference on the motivation of the employees. This insignificance might be due to the fact that bonuses in our design were very similar to awards. Since each reward description presents a combination of values for all characteristics, bonus scenarios also contain a maximum number of recipients and in half of the cases an announcement of the recipients on the intranet. This is very uncommon for monetary bonuses at IBM and might have rendered them too similar to established IBM awards for us to find a significant effect. Also the number of recipients does not have an effect that is significantly different from zero. We hypothesized that an increase in the number of recipients has two countervailing effects on motivation: An increase reduces the scarcity value of the award, but raises perceived chances of winning. This could cause the insignificance. The baseline motivation has a highly significant positive effect on the willingness to share the finding. 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.

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

### 3.5. 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 for a clear behavioral prediction. Economic status models, for instance, suggest that a representative agent's equilibrium effort level depends positively on his or her status (see e.g. Auriol and Renault (2004)). Since receiving an award increases relative standing, these models predict that winners increase and non-recipients 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 psychological literature suggests (see e.g. Ambrose and 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 non-recipients. Further, non-recipients' learn about the performance of the winners that resulted in the receipt of the award. With this information they can update their understanding about the requirements for winning the award. In principal, this updating process might increase or decrease performance. We do have evidence that this kind of information supply is important when discussing the functions of awards. Almost all subjects in our study agreed that awards provide information about the types of activities, behaviors and attitudes the company cares about most.

The subsequent motivation of winners turns out to be significantly higher than the motivation of losers. The difference in contribution between winners and non-recipients is 0.71 on a 10-point scale, which is substantial. In fact, contributions of non-recipients 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 that indicated a high willingness to share their findings are more willing to share the finding after conferral independently of whether they receive the reward or not. The award characteristics do neither have a significant direct effect on

the motivation after conferral other than via the willingness stated after the introduction of the incentive nor do they have a differentiated effect on winners and non-recipients.

### 3.6. Summary of Results

Awards present a multitude of incentive instruments such as feedback, information and social recognition. One of the advantages of the vignette study technique is that it permits the identification of the effects of individual award characteristics, while not artificially restricting the number of award characteristics present. Further, using this real world subject pool allowed an inference of how the IBM workforce would behave in case IBM were indeed to introduce the suggested award for international cooperation. We find that awards are powerful motivators. Specifically, we find that the effect of rewards is increased by the degree of publicity associated with winning the award and by the monetary value of the reward. Further, 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 non-recipients 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. Despite these findings, we cannot provide a clear estimate of the profitability of the award introduction. To precisely predict the overall change in behavior based on an award introduction and conferral, one needs to aggregate the indicated willingness before and after award conferral, which is problematic. Further, it is necessary to estimate the time span after which the motivation of winners and losers returns to the one indicated upon award introduction. At the same time, it is unclear when or even if motivation ever returns to this previous level and whether the time span is the same for winners and losers. Further, the advantages of awards for the company also depend on the impact of the induced change in behavior on company profit and on the costs of award administration - information that is currently not available to us.

## 4. Awards in an International Comparison

One approach to research awards is their analysis across countries. Specifically, it is interesting to identify the 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. A major problem confronting researchers trying to systematically analyze awards across countries is the lack of internationally comparative data. *Wikipedia* is the only source we found that offers an extensive list of prizes, medals and awards across many different countries.<sup>18</sup> 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 turn to individuals' own reports to identify how many awards they possess. We use 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. The 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 sub-sample of 82 countries, we coded the available information for a random sample of 50 individuals per country.

#### TABLE 1 ABOUT HERE

In order to document the importance of awards in a globalized 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 (often called “orders” or “medals”) and business awards (such as “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 average, and the five countries with the lowest average, are listed. In addition, information on all three categories is provided for the United States and Canada, and for the large European countries United Kingdom, France, Germany, Spain and Italy. This “elite” (as defined by the *International Who's Who*) lists, on average, between 2 and 3 awards per person. The largest number of awards per person is given for three

---

<sup>18</sup> [http://en.wikipedia.org/wiki/List\\_of\\_prizes%2C\\_medals%2C\\_and\\_awards](http://en.wikipedia.org/wiki/List_of_prizes%2C_medals%2C_and_awards), accessed 30 November 2007.

Anglo-Saxon countries (Canada, the UK, and Australia) as well as for Poland and Senegal averaging between 5 and 7 awards. The lowest average number 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 1 award per person.

The average number of awards per member of the elite (3.8) in the United States is considerably higher than the average of 2.7 over all 82 countries. Americans thus seem to enjoy bestowing and receiving awards. Awards enjoy a similar importance in France and Spain (3.6 and 4.2, respectively). This is surpassed by Canada and the United Kingdom (6.8). As can be inferred from the high number of awards handed out in such staunch republics as the United States 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 heads the list in this award category). The top five are now comprised of Poland, France, Tunisia, Egypt and Malaysia. The smallest numbers of these awards are bestowed by a similar set of nations as the overall number of awards. Switzerland joins the ranks because the nation – as the only country in the world - does not bestow *any* governmental awards (not even to its soldiers).

*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).<sup>19</sup> The largest number of business awards goes, on

---

<sup>19</sup> This may be due to 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.

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 United States, 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,<sup>20</sup> 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 a person in the *Who's Who* indicates are above average. The large European countries France, Germany, Spain, and 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 United States 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*. This shows that the relevance and importance of awards is not limited to certain narrow fields or spheres in a society. Three areas comprise the largest share of the awards handed out in the 82 countries of the sample. The two major sectors are Social Welfare and Academia, followed by Culture. The remaining sectors (Armed Forces, Sports, Media, Business and Religion) make up only 10% of all rewards bestowed.

The largest share of awards is bestowed to 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. Often, monetary compensation could even be counterproductive as means of rewarding these kinds of activities (see e.g. the literature on motivation crowding Frey, 1997, or Bénabou and Tirole, 2004). Hence, awards work better to motivate and

---

<sup>20</sup> In the United States, there are only three civilian awards handed out by the federal government: the Congressional Gold Medal, the Presidential Medal of Freedom, and the Presidential Citizens Medal.

reward persons active in these kinds of activities. Individuals working in *Academia* receive the second highest share of awards (32%). These data suggest that individuals in the scientific sector, though a place of rational discourse, are quite happy to receive awards. A significant, but clearly lower, share of awards (19%) is bestowed in the *Cultural Sector*. Similar arguments explain the intensive use of awards in this sector as in the case of Social Welfare may be adduced. 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 *Oscar*, the *Grammy* and *Emmy*, or the Pulitzer or Brooker Prizes.

## 5. Conclusions

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 the results of a vignette study showing that awards substantially and systematically change stated work behavior. Third, we present empirical evidence on the difference in the intensity with which awards are used across countries. While this paper raises some interesting aspects, a general theory of awards still needs to be developed.



## References

- Akerlof, George A. and Rachel E. Kranton. 2005. Identity and the Economics of Organization. *The Journal of Economic Perspectives* 19: 9-32
- Ambrose, M., Kulik, C. 1999. Old Friends, New Faces: Motivation Research in the 1990s. *Journal of Management* 25, 231-292.
- Auriol, Emmanuelle and Regis Renault. 2001. Incentive Hierarchies. *Annales d'Économie et de Statistique* 63, 261-282.
- Auriol, E., Renault, R. 2004. Status and Incentives. THEMA (THéorie Economique, Modélisation et Applications), Université de Cergy-Pontoise, Mimeo.
- Bénabou, Roland and Jean Tirole. 2004. Incentives and Prosocial Behavior. Princeton Economics Discussion Paper No. 230, Princeton University.
- Bourdieu, Pierre. 1979. *La Distinction. Critique Sociale Du Jugement*. Paris: Les éditions de minuit.
- Braudy, Leo. 1986. *The Frenzy of Renown : Fame & Its History*. New York: Oxford University Press.
- Brennan, Geoffrey and Philip Pettit. 2004. *The Economy of Esteem: an Essay on Civil and Political Society*. Oxford: Oxford University Press.
- Cash (2005). 20 January 2005: 10-11.
- Combs, James, Angela Hall, and David Ketchen. 2006. How much do high-performance work practices matter? A meta-analysis of their effects on organizational performance. *Personnel Psychology* 59: 501-528.
- Cowen, Tyler. 2000. *What price fame?*. Cambridge, MA: Harvard University Press.
- Croson, Rachel and Uri Gneezy. 2005. Gender Differences in Preferences: A Review of Economics Experiments. Working paper.
- De Botton, Alain. 2004. *Status anxiety*. New York: Pantheon Books.
- Dubey, P., Geanakoplos, J. 2005. Grading in Games of Status: Marking Exams and Setting Wages. Cowles Foundation, Yale University, Mimeo.
- Ederer, F., Pataconi, A. 2004. Interpersonal Comparisons, Status and Ambition in Organisations, Department of Economics, University of Oxford, Mimeo.
- Elster, Jon. 1983. *Sour Grapes: Studies in the Subversion of Rationality*. Cambridge: Cambridge University Press.
- English, James F. 2005. *The Economy of Prestige: Prizes, Awards, and the Circulation of Cultural Value*. Cambridge: Harvard University Press.
- Fehr, Ernst and Simon Gächter. 2000. Fairness and Retaliation: The Economics of Reciprocity. *Journal of Economic Perspectives* 14: 159-81.
- Fehr, Ernst and Klaus Schmidt. 2004. Fairness and Incentives in a Multi-task Principal-Agent Model. *Scandinavian Journal of Economics* 106: 453-74.
- Fershtman, C., Weiss, Y., Hvide, H. 2001. Status concerns and the organization of work. Eitan Berglas School of Economics, Tel-Aviv University, Mimeo.
- Frank, Robert H. 1985. *Choosing the Right Pond: Human Behavior and the Quest for Status*. Oxford: Oxford University Press.

- Frey, Bruno S. (1997). *Not Just for the Money: An Economic Theory of Personal Motivation*. Cheltenham, U.K.: Edward Elgar.
- Frey, Bruno S. 2005. Knight Fever. Towards an Economics of Awards. IEW Working Paper No. 239, University of Zurich.
- Frey, Bruno S. 2006. Giving and Receiving Awards. *Perspectives on Psychological Science* 1: 377-88.
- Frey, Bruno S. 2007. Awards as Compensation. *European Management Review* 4: 6-14.
- Frey, Bruno S., Matthias Benz and Alois Stutzer. 2004. Introducing Procedural Utility: Not Only What, but Also How Matters. *Journal of Institutional and Theoretical Economics* 160(3): 377-401.
- Frey, Bruno S. and Susanne Neckermann. 2006. Auszeichnungen: Ein vernachlässigter Anreiz. *Perspektiven der Wirtschaftspolitik* 7, 271-284.
- Galloway, Peter. 2002. *The Order of St Michael and St George*. London: Third Millennium Publishing.
- Ginsburgh, V., van Ours, J. 2003. Expert Opinion and Compensation: Evidence from a Musical Competition. *American Economic Review* 93, 289-296.
- Hirsch, Fred. 1976. *Social Limits to Growth*. Cambridge, MA: Harvard University Press.
- Honig, Werner. 1986. Die Ehre Im Knopfloch. Orden und Ehrenzeichen Im Wandel der Zeiten. Berg.-Gladb.: Lübbe.
- House of Commons, Select Committee on Public Administration, 2004, *A Matter of Honour: Reforming the Honours System*. Fifth Report of Session 2003–04. London: Stationary Office.
- Huberman, B., Loch, C., Öncüler, A. 2004. Status As a Valued Resource. *Social Psychology Quarterly* 67, 103-114.
- Jeffrey, S. A., & Shaffer, V. A. 2007. The benefits of tangible non-cash incentives. *Compensation and Benefits Review* 39(3), 44-50.
- Klietmann, Kurt-Gerhard and Ottfried Neubecker. 1984. *Ordens-Lexikon*. Berlin.
- Marmot, M.G., 2004, *The status syndrome: How social standing affects our health and longevity*. New York, NY: Times Books/Henry Holt.
- Lazear, E., Rosen, S. 1981. Rank-Order Tournaments as Optimum Labor Contracts. *Journal of Political Economy* 89, 841-864.
- Loch C., Yaziji, M., Langen, C., 2001. The fight for the alpha position: - Channeling status competition in organizations. *European Management Journal* 19, 16-25.
- Mericka, Vaclav and Jindrich Marco. 1990. *Das Buch der Orden und Auszeichnungen*. 2. Hanau: Dauslen.
- Neckermann, Susanne and Bruno S. Frey. 2007. Awards as Incentives. IEW Working Paper No. 334, University of Zurich.
- Neil, Alison (Ed.). 2006. *The International Who's Who*. London: Routledge.

- NZZ (2004). *Neue Zürcher Zeitung*, 3. November 2004: 63.
- Phillips, Sir Hayden. 2004. *Review of the Honours System*. London: Cabinet Office.
- Prendergast, C. 1999. The Provision of Incentives in Firms. *Journal of Economic Literature* 37, 7-63.
- Risk, James C. 1972. *The History of the Order of the Bath and Its Insignia*. London: Spink and Son.
- Rosen, Sherwin. 1981. The Economics of Superstars. *American Economic Review* 71, 845-58.
- Spence, A. 1974. *Market Signaling*. Cambridge: Harvard University Press.
- Stajkovic, A., Luthans, F. 2003. Behavioral management and task performance in organizations: Conceptual background, meta-analysis, and test of alternative models. *Personnel Psychology* 56, 155-194.
- Sururov, Anton and Jeroen van de Ven. 2006. Discretionary Rewards as a Feedback Mechanism. Working Paper 2006-16, Amsterdam Center for Law & Economics.
- Waldfogel, J., 1993. The deadweight loss of Christmas. *American Economic Review* 83, 1328-1336.
- Young, H. Peyton. 1993. The Evolution of Conventions. *Econometrica* 61, 57-84.

**Table 1: Average Number of Awards per Individual per Country**

	<b>Total Awards</b>		<b>Domestic State Awards</b>		<b>Business Awards</b>
Mean	2.66	Mean	0.43	Mean	0.06
Variance	1.96	Variance	0.11	Variance	0.01
<b>Top 5 countries in each category:</b>					
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
<b>Lowest 5 countries in each category:</b>					
Honduras	0.83	Nicaragua	0.05	Trinidad & Tobago	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
<b>Information on 7 additional countries:</b>					
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)