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**Working Paper**

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CREMA Working Paper, No. 2008-14

**Provided in Cooperation with:**

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

*Suggested Citation:* Frey, Bruno S.; Neckermann, Susanne (2008) : Awards: Questioning Popular Notions, CREMA Working Paper, No. 2008-14, Center for Research in Economics, Management and the Arts (CREMA), Basel

This Version is available at:

<https://hdl.handle.net/10419/214408>

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# **Awards: Questioning Popular Notions**

Bruno S. Frey  
Susanne Neckermann

Working Paper No. 2008 - 14

## ***AWARDS: QUESTIONING POPULAR NOTIONS***

by

Bruno S. Frey and Susanne Neckermann<sup>□</sup>

Awards in the form of orders, decorations, prizes, and titles, are predominantly non-material, but extrinsic incentives. Economists tend to be somewhat snobbish about awards. *The Economist* recently featured an article on the British honours system titled “A ridiculous, outdated system that cannot be improved upon” (2004: 31). But revealed preferences do not support this view. *The Economist* recognizes this and admits that “a quick glance around the globe suggests that fancy decorations are virtually universal.”

Despite the prevalence of awards, economists have largely disregarded them.<sup>1</sup> There may be various reasons for this neglect. Firstly, awards may be considered to be less efficient incentives than monetary compensation, because they are not fungible and

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<sup>1</sup> A search on *EconLit* for honors and awards, understood as orders and decorations or as formal recognition programs in companies, did not result in a single reference, albeit there are a few isolated works on the issue.

difficult to apply marginally. Hence, the use of awards presents an error by the award giver that should be eliminated by the market over time. Secondly, awards may just be one result of high motivation and success and not a contributing cause. An example would be Richard Branson, the founder of Virgin airlines, who was knighted in 1999 when he was already successful and well recognized. While awards are sometimes bestowed on already famous persons to associate that person with the award-giving organization, the majority of awards do serve as incentives be it directly or indirectly. Awards are direct incentives, when they are known to be handed out for a particular kind of effort, e.g. an award for best customer service in the next year. Awards serve as indirect incentives, when individuals cannot or do not consciously work towards them, for example state orders for acts of exceptional civil courage. Then, awards serve as indirect incentives as they create role models, highlight the values of a society, and bring prestige also to individuals who have acted similarly without being chosen as award recipients. Additionally, changes in norms, values and role models also encourage other individuals to engage in the recognized activities. Thirdly, it may be thought that awards only motivate insofar as they lead to future material or immaterial benefits whose impact on behavior can be studied directly.<sup>2</sup> Ginsburgh and van Ours (2003), for instance, show that winning the Queen Elizabeth musical competition, the best-known international competition for piano (and violin), significantly increases subsequent market performance of the artist. However, it has also been demonstrated experimentally that people value status independently of any monetary consequence; they are even willing to incur material costs to obtain it

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<sup>2</sup> Another benefit from receiving awards may be that they improve the health of the recipients. It has been calculated that, on average, the actor receiving an *Oscar* lives four years longer than actors not getting one, see Redelmeier and Singh (2001).

(Huberman et al. (2004)). In contrast, some prizes, medals and awards that are accompanied by large sums of money are relatively unknown and have no prestige even within the relevant community.<sup>3</sup> Fourthly, economists may shy away from the study of awards because of serious data limitations. To our knowledge, there is no comprehensive list of awards spanning the different types and levels of awards in the various spheres of society (government, the arts, culture, media, sports, religion, academia, not-for profits and for-profit enterprises), countries and time periods. Only partial, spotty and inconsistent evidence is available from scattered sources. This applies in particular to the many awards given by private institutions, such as non-profit organisations, clubs and firms. Orders given by monarchs or governments are somewhat better documented.<sup>4</sup> In general, it seems to be impossible to measure the usage of awards in a country from the supply side. There are hundreds of thousands, if not millions (and moreover a constantly changing set), of institutions bestowing awards.

This paper argues that there are major differences between awards and monetary compensation, making it worthwhile to analyse awards as a separate phenomenon.

- The material costs of awards, consisting of a certificate for the wall or a small trophy, are typically low for the donors, but the value to the recipients may be

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<sup>3</sup> A pertinent example from academia is the Balzan Prize awarded to eminent scholars since 1961 by the Italian and Swiss presidents. It comes with a prize money of 1 million Swiss Francs (US\$ 1 million), but few persons know about it, or attribute any prestige to it.

<sup>4</sup> Examples are Phillips (2004) and the House of Commons (2004) that give useful surveys of (part of) the orders in Britain, as well as some limited information about other countries according to conditions at present.

very high. Abstracting from selection and potential non-material costs, the cost-benefit-balance is therefore unlike that of gifts;<sup>5</sup>

- Accepting an award establishes a special relationship, in which the recipient owes (some measure of) loyalty to the donor. This is not true for monetary compensation;
- Due to their vague nature, awards are more adequate incentive instruments than monetary payments when the recipient's performance can only be vaguely determined;
- Awards are less likely to crowd out the intrinsic motivation of their recipients than monetary compensation;
- Awards are not taxed, while monetary income is.

This paper presents a first step towards empirically measuring the importance of awards in modern societies. Due to the serious data limitations addressed above, we construct our own data set. The arguably best source providing information on the awards received by the most important personalities is the *International Who's Who* (IWW) covering 212 countries (Neal (2006)) where they are asked to indicate their received honors and awards. The purpose of this paper is to illustrate the significance of awards in modern society and challenge popular notions about them.

The next section provides a short survey of related literature. The following section presents five widely held beliefs and objections to studying awards, and discusses their validity using the unique data compiled on the basis of the *International Who's*

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<sup>5</sup> As Waldfogel (1993) shows empirically, the value of (Christmas) gifts to the recipients is much smaller than the costs to the donor.

*Who.* The concluding section argues that it is important for economists to study awards.

## **Survey of the Literature**

To our knowledge, no comprehensive study of awards has so far been undertaken in economics. Exceptions are the far-sighted forerunners Hansen and Weisbrod (1972) who made a first attempt at an economics of awards, Besley (2005) who, in his unpublished “Notes on Honours”, analyses why individuals show so much interest in awards that are, after all, often just pieces of ribbon, and Frey (2005) who addresses the issue of awards in terms of their supply and demand and derives hypotheses on the intensity with which awards are used across countries. A few isolated works discuss awards as incentives. Gavrilă et al. (2005) derive a theoretical solution for managing the quantity of an award over time considering that award quality, and hence the size of the incentive effect, depends on award scarcity. For the case of corporations, Frey and Neckermann (forthcoming) study the channels via which awards motivate and investigate the differences to monetary rewards. There are a limited number of empirical studies on awards. Malmendier and Tate (2005) as well as Neckermann et al. (2008) find that awards significantly affect the subsequent behavior of winners. Markham et al. (2002), Asch (1990), and Neckermann and Frey (2007, (2008) show that award systems have a systematic incentive effect on performance in the corporate sector, and that managers rightly take awards seriously as incentive instruments.<sup>6</sup>

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<sup>6</sup> A few papers either use specific awards to study other phenomena such as the accuracy of expert opinion (Ginsburgh (2003), Ginsburgh and van Ours (2003), and Glejser and Heyndels (2001)), or discuss awards in general and not as incentive instruments in principal-agent relationships (e.g. Hansen and Weisbrod (1972) and Frey (2006)).

Many topics in economics have an indirect bearing on the issue of awards. Examples of recent economic contributions addressing aspects related to awards are status incentives (e.g. Auriol and Renault (2001), Auriol and Renault (2008), Dubey and Geanakoplos (2005), Ederer and Pataconi (2004), Loch et al. (2001), and Fershtman et al. (2001)), rewards as feedback (Suvorov and van de Ven (2006)), social recognition (Brennan and Pettit (2004) and English (2005)), reciprocity (e.g. Fehr and Gächter (2000), Fehr and Schmidt (2004)), identity (Akerlof and Kranton (2005)), or superstars, and positional goods (Hirsch (1976), Rosen (1981), Frank (1985)). Analyses of “incentives beyond pay” (Ichniowski and Shaw (2003)) and of “paying respect” (Ellingsen and Johannesson (2007)) also cover closely related subjects. However, while awards touch on many of these issues, the specific role and impact of awards are disregarded.<sup>7</sup>

## **Awards in Modern Society**

### **Data**

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<sup>7</sup> Studying awards is a truly interdisciplinary undertaking. The related phenomena status and recognition have, for instance, been an important topic in sociology (e.g. Bourdieu (1979), Braudy (1986), Marmot (2004), and De Botton (2004)). However, these works address social recognition in a general way and not as incentives and do not use a comparative perspective. The science of *phaleristics* has produced a huge literature on *specific* awards, in particular on orders, decorations and medals. It is mainly devoted to presenting the legal rules and regulations, as well as historical facts (e.g. Risk (1972) on the *Most Honourable Order of the Bath*, or Galloway (2002) on the *Order of St Michael and St George*). The psychological literature provides important insights into the mechanisms via which awards work at the individual level. Stajkovic and Luthans (2003) and Combs et al. (2006) present recent meta analyses on the effects of different stimuli or different human resource practices on behavior. However, this literature fails to address awards as formal recognition programs that combine several stimuli.

Five generally held notions about awards are challenged and analyzed using the data constructed on the basis of the *International Who's Who* (IWW) (Neal (2006)). This data source provides information on the number and kinds of awards each person received as well as on person-specific characteristics such as nationality, job, age, and international mobility. A subsample of 82 countries was selected according to the availability of the basic country specific variables necessary for the statistical analysis.<sup>8</sup> For these 82 countries a random sample of 50 persons per country was chosen. Where there were less than 50 entries, all the available entries were coded. With respect to awards, we collected the following information when available: source of the award (country of origin, foreign country, or international); award giving institution (state, private organizations, non-profit organizations, university, media); category in which the prize was awarded (social welfare, military, science, culture/art, sport, media, business, religion); type of award (order, medal, prize, title, grant, membership/fellowship); and whether the award was accompanied by a monetary bonus or not. This information allows us to construct aggregate award data such as the number of awards per person. It would be useful to take into account the value of the award to the recipient and the appreciation of that award in the society. In the IWW, the quality problem is somewhat alleviated because the respondents only indicate those awards that are important mechanisms of social recognition in their particular country.<sup>9</sup> As a result, award quality is to some extent endogenously controlled for.

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<sup>8</sup> Sample selection cannot be tested due to the unavailability of data for the countries not in the sample. However, the 82 countries in the sample represent a large set of countries for a cross-country analysis.

<sup>9</sup> The IWW editorial team and their freelance staff research and write the biographical entries for the persons selected for inclusion. These entries are sent out to entrants annually for them

## Questioning Popular Notions

*Are awards outlandish to the modern world because they mainly present monarchic remnants in the form of state orders and honors?*

In the past, awards have mainly consisted in state orders, honors and decorations and have been closely connected to monarchies.<sup>10</sup> An obvious example of a country where this link between awards and monarchic past is apparent is Great Britain. Britain features many dozens of honors and awards bequested by the Queen, which have been installed by different monarchs throughout the long history of the British monarchy (see Phillips (2004) and House of Commons (2004)). The same holds for Australia and Canada, which have chosen to remain part of the British monarchic honors system.

Table 1 suggests that the link between monarchies and awards/honors no longer holds nowadays.

Table 1 ABOUT HERE

The left-hand panel of Table 1 lists the countries with the ten highest average numbers of awards received per individual. Among those countries with the highest number of

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to update and amend in any way necessary. All entries in the International Who's Who follow an editorial process to verify the accuracy of the information.

<sup>10</sup> See the many works on orders, medals, and decorations, e.g. Spencer (2006), Clarke (2001) and Werlich (1974).

awards, seven are republics (the Anglo-Saxon countries Canada, Australia<sup>11</sup> and New Zealand; and the European countries Poland, Hungary, Switzerland and Finland) and only two are monarchies (the United Kingdom and Spain). The table also lists information on the number of awards received for an additional set of seven countries deemed to be of particular interest. Americans living in the United States receive a considerable number of awards, more than in France and Italy. The data indicate that today awards are no longer linked to monarchies. Indeed, staunch republic such as France, the United States and Switzerland are on top of the list of the 82 countries in our sample.

It might be argued that the monarchic link of awards would become apparent when awards bestowed by the *Domestic State* are considered. Column 2 of Table 1 shows that among the top ten countries, there is an even smaller number of monarchies (Tunisia and Malaysia) but eight republics. The United Kingdom and Spain drop out of this list. This suggests that, surprisingly, state awards tend to be even more popular in republics than they are in monarchies.

#### *Aren't awards mainly a military affair?*

Judging from pictures appearing in the press of soldiers and officers having their chests covered with orders, decorations and medals, it may be concluded that most awards are received by the military. In the USA, for example, *purple hearts*, *bronze* and *silver stars* are handed out quite liberally, and at an increasing rate in the military service (see Cowen (2000: 93)). For example, the army national guard lists not less

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<sup>11</sup> We count Canada and Australia among the republics though they still have a connection to the British monarch.

than 21 major decorations, awards and honors, not counting various subcategories (Baca and Gilmore (1996)). However, our data suggest that awards are not mainly a military affair.

Of the 82 countries in the sample, 49 countries contain individuals from the military sector in their sample of individuals drawn from the *IWW*. Averaged over these 49 countries, these people receive 11% of the total number of awards. If one includes the remaining countries in the calculation, assuming that these exhibit zero awards per person in the military sector, this figure falls to 7%. But in a few countries awards focus indeed on persons in the military. In Uganda, Paraguay, and Venezuela, for example, one third to almost one half of all awards (46%, 38% and 37%, respectively) are given to people in the army. However, these countries are the exception rather than the rule. When considering domestic government awards only, the share of awards going to persons in the military sector is larger (15% or 9% depending on whether countries without military personnel in the sample are included in the calculation). However, this share is still far from being dominant.

If one focuses on the type of rewarded activity rather than on the occupation of the receiver, the picture looks similar. However, the overall share of awards bestowed for military achievements is even lower, because general state orders, which are frequently received by military personnel, do not count as military awards. The proportion of the total number of awards in a country handed out for military purposes is 5% on average, with Uganda (36%), Venezuela (33%), and Indonesia (27%) leading the list. The share of domestic state awards handed out for military purposes is 12% on average, with Paraguay (100%), Uganda (80%), and Bulgaria (68%) in the top three positions. As a comparison, in the USA the respective shares are 1% of total

awards and 9% of domestic state awards. It is fair to conclude that today most awards go to persons and achievements unconnected to the military.

*Are there many awards for academics who are supposed to be immune to these kinds of social flattery?*

It might be expected that in academia intrinsic interest in scientific progress and/or monetary compensation provide all the motivational drive needed and that awards are not necessarily held in high esteem.

In contrast to this notion, however, academia has an elaborate and extensive system of awards. Consider the universities handing out the titles honorary doctor or senator, or professional associations awarding a great number of medals, the most important one probably being the *Fields Medal* in mathematics.<sup>12</sup> And then, of course, there are the *Nobel Prizes*. Many prestigious fellowships exist in academies of science (e.g. Fellow of the *Royal Society FRS*, founded in 1660; Fellow of the *American Academy of Arts and Sciences*, founded in 1780; Fellow of the *Royal Society of Edinburgh FRSE*, founded, among others, by Adam Smith in 1783; or *Fellow of the Academy of Social Sciences in Australia FASSA*). Moreover, there is a complicated system of titles (not always connected to functions), such as that of lecturer, reader, assistant professor, associate professor with or without tenure, full professor, named professor, university professor, distinguished professor etc.

Or consider researchers in economics, who - indoctrinated by the concept of income-maximization - should not care for awards as their material value is often close to

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<sup>12</sup> Additionally, there are at least 15 other important prizes in mathematics ([http://en.wikipedia.org/wiki/List\\_of\\_prizes, medals and awards](http://en.wikipedia.org/wiki/List_of_prizes,_medals_and_awards)).

zero<sup>13</sup> and social recognition and pride are assumed to provide no utility by themselves. Hence, economists might be expected to discount awards as cheap incentive devices. Supporting this notion is the example of James Meade, Nobel Prize winner in Economics, who rejected to accept orders and titles as a matter of principle.

On the other hand, most recipients of Nobel Prizes are (rightly) proud of this honour and do not try to hide it; lobbying activities to get the Nobel Prize are not unheard of (see Nasar (1998) and, more generally, Lindbeck (1985)). Apart from the Nobel Prizes, younger economists crave getting the *John Bates Clark Medal* of the American Economic Association. The more recently founded European Economic Association hands out a *Hicks Medal*, and appoints better-known economists to the position of “*Fellows*”. CESifo, one of the leading research institutions in Europe, each year appoints a “*Distinguished Fellow*”. A list of awards given by the national economics associations all over the world would be extremely long. The same applies to the large number of *Best Paper Prizes* awarded by economics journals (see Coupé (2005)). Many of the most respected economists in Britain have been offered, and accepted, knighthoods, such as Sir John (Hicks), Sir John (Vickers), Sir James (Mirrlees), Sir Partha (Dasgupta), Sir Tony (Atkinson) or Sir Alan (Peacock). Others have achieved an even higher rank of nobility, such as Lord John Maynard Keynes, Lord Lionel Robbins, or Lord Richard Layard.

Table 2 reports that almost one quarter of all awards (23%) are given to individuals in academia.

#### TABLE 2 ABOUT HERE

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<sup>13</sup> It is, of course, true that some awards may induce increases in future consumption due to their value as signals of ability.

Switzerland and Belgium lead with a share of 66% of all awards going to individuals in academia. In Turkey the academic sector is also a major recipient (61%). There are five additional countries in which half or more of the awards go into this sector (Netherlands with 56%, Germany with 55%, Australia with 53%, and Nigeria with 50%).

Column 2 shows that the ten top countries listed according to the average number of awards received by the elite. These include the United States, and several other countries whose universities system count among the leading ones:<sup>14</sup> Belgium, Switzerland, Japan, France and Australia. But some other countries give much weight to bestowing academics with awards though their universities are not considered to be among the best ones (Venezuela, Lithuania, Poland and Argentina).

Our data suggest that it is mistaken to claim that awards are unimportant in the academic system. Individuals in the scientific sector, the place of rational discourse, are quite happy to receive awards.

*Are there awards in the business sector where supposedly money rules?*

One may think that awards are rarely used in the corporate sector of a market economy. After all, employees in private corporations are used to see performance in terms of money, as reflected in the current importance attributed to pay-for-performance schemes adopted all over the world (Pfeffer and Sutton (2006)). Further, transactions in the market sector are typically considered to solely aim at realizing

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<sup>14</sup> See for instance the 2007 list of the top 200 universities worldwide according to the Times Higher Education Supplement <http://www.timeshighereducation.co.uk/>, accessed April 4, 2008.

mutual material advantages. This would disqualify awards as they consist in a paper certificate or a small trophy with a value close to zero. Moreover, awards are inefficient as compared to monetary compensation as they are not fungible and competition should therefore drive them out of existence.

However, already a casual observation of business practice suggests that awards and titles are very important. In his book *1001 Ways to Reward Employees* Nelson (2005) provides ample evidence of the number and variety of awards in companies ranging from “*Employee of the Month*” titles to “*Bravo*” and “*Thanks*” awards.<sup>15</sup> Consider Federal Express, which confers a host of awards, for individual as well as team efforts. These include the “*Circle of Excellence Award*” that is presented monthly to the best-performing FedEx station, and the “*Golden Falcon*” that is awarded to employees who go beyond the call of duty to serve their customers. Honorees of the latter award receive a golden uniform pin, a congratulatory phone call from a senior executive and ten shares of stock. Awards also play a substantial role in high technology firms. The research laboratories of IBM, for example, have a multitude of awards for technical achievements (such as the “*Outstanding Technical Achievement Award*”), as well as for other exceptional efforts (such as the “*Knowledge Advantage Award*” or the “*One Team Award*”). Organisations, such as the World Economic Forum, appoint people to the position of “*Global Leader of Tomorrow*” (1200 persons), and “*Young Global Leaders*” (1111 persons below 40 years of age).

TABLE 3 ABOUT HERE

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<sup>15</sup> Nelson and Spitzer (2003) list the various awards offered in big international companies such as IKEA, McDonald’s or SONY. Awards are also widely used in small and mid-sized companies. Examples are provided in the *Strategic HR Review* that regularly devotes an entire section to successful company award programs (e.g. Keating (2007); Addison (2005)).

Column 1 of Table 3 shows that across all 82 countries, the average individual has 0.06 business awards. This number may sound small, but is quite sizeable considering the large number of politicians, artists and sportsperson in the *International Who's Who* that typically are not eligible for business awards. The eleven countries with the highest number of business awards per individual in our sample comprise a broad variety of countries in terms of GDP per capita. The top 10 include some countries that are rich such as Canada, Singapore, the United States, Saudi Arabia, Sweden or Switzerland, but also some developing countries such as the Philippines and Turkey.

The second column of Table 3 indicates that in some countries such as Canada, Venezuela, Israel or Luxemburg business persons included in *IWW* on average indicate to have received quite a number of awards (between 4 and 5). China's business people listed in *IWW* receive a substantial number of awards, more than even the respective US businesspersons.

The claim made about the unimportance of awards in business is partly right (see column 3 of Table 3). Awards going to individuals active in business are shown to be of little importance in many countries such as Spain or Italy, but are very central in some of the economically most successful countries of the world such as Singapore, the United States, China or Israel with between 9 and 15 percent of all awards. It may be conjectured that the picture will change in the future. An increasing number of countries may well adopt the practice of honouring business people with awards thus imitating the economically particularly successful countries.

## Conclusions

The descriptive statistics presented in this paper allow some interesting and unexpected insights. Awards are widely used in modern society and not solely a remnant of monarchy; they are predominantly used in the civilian sector and are not mainly a military affair; and they are important in academia as well as in business.

Before going beyond a descriptive analysis as presented here, major data problems must be addressed. As pointed out above to measure awards from the supply side seems to be feasible only for individual countries in restricted time periods, and for narrowly defined awards such as particular orders, medals and decorations bestowed by the state. The approach used here of measuring awards by exploiting the information provided by the recipients is also faced with problems. In addition to a possible bias introduced by individual members of the elite failing to report awards received, there is the obvious shortcoming of weighing each award equally. It is difficult to weigh awards according to the preferences of the (potential) recipients and their peer group.<sup>16</sup> A trade-off must be made: either one can undertake a detailed analysis of a few well-defined awards, or a more general analysis of a large number of awards. Both approaches have their advantages and disadvantages, and it depends on the question to be asked which approach should be used.<sup>17</sup> Such an approach may

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<sup>16</sup> There are large differences between, say, a CBE and a CH, or between a Knight and a Lord. The ranking among English titles and orders is formally well established but does not necessarily correspond to the evaluation of (potential) recipients. For example, while a Lord is higher (he becomes a member of the House of Lords) than a Knight (with the title Sir), an appointment to the latter may be valued more highly because it is less connected to party politics.

<sup>17</sup> Attributing equal weights has proved to be useful for other issues in economics such as, for example, in the analysis of regulations. Regulations obviously differ greatly with respect to

nevertheless yield useful insights, but great care must be given before undertaking the next step, a causal analyses via econometric estimates.

*Earlier versions of this paper have been presented at several university seminars (the University of Mannheim, Berne, Rome, IESE in Barcelona, ..... ) and conferences (First International Public Choice Conference in Amsterdam, ISNIE in Rejkjavik, ..... ). Many of our colleagues warned us to engage in such a “vague” subject while others encouraged us. We are particularly grateful to George Akerlof, Kenneth Arrow, Jagdish Bhagwati, Mark Blaug, Nick Barr, Roger Congleton, Philip Cook, Giacomo Corneo, Tyler Cowen, Richard Easterlin, Nuno Garoupa, Victor Ginsburgh, Daniel Hamermesh, David Hirshleifer, Simon Kemp, Bruce Kogut, Elinor Ostrom, Eric Posner, Pierre Salmon, Dean Simonton, David Throsby, and Raimo Väyrynen.*

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their impact but are nevertheless weighed equally in most studies (see e.g. Christainsen and Haveman (1981)).

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

| <b>Total Awards</b>                           |      | <b>Domestic State Awards</b> |      |
|---|------|------------------------------|------|
| Mean  | 2.66 | Mean                         | 0.43 |
| Variance                                      | 1.96 | Variance                     | 0.11 |
| <b>Top 10 countries in each category:</b>     |      |                              |      |
| Canada  | 6.82 | Poland                       | 1.78 |
| UK  | 6.78 | France                       | 1.32 |
| Poland  | 6.16 | Tunisia                      | 1.05 |
| Australia                                     | 5.66 | Egypt                        | 1.02 |
| Senegal                                       | 5.30 | Malaysia                     | 1.00 |
| Hungary                                       | 5.00 | Finland                      | 0.88 |
| New Zealand                                   | 4.96 | Canada                       | 0.86 |
| Switzerland                                   | 4.70 | Portugal                     | 0.84 |
| Finland                                       | 4.64 | Ecuador                      | 0.83 |
| Spain   | 4.20 | Philippines                  | 0.82 |
| <b>Information on 7 additional countries:</b> |      |                              |      |
| USA   | 3.80 |                              | 0.22 |
| Canada  | 6.82 |                              | 0.86 |
| UK  | 6.78 |                              | 0.78 |
| France  | 3.60 |                              | 1.32 |
| Germany                                       | 2.46 |                              | 0.48 |
| Spain   | 4.20 |                              | 0.70 |
| Italy   | 1.96 |                              | 0.22 |

**Table 2: Awards Per Country Going To Individuals in Academia**

| Share of Total Awards                         |      | Average Number of Awards |       |
|---|------|--------------------------|-------|
| Mean  | 0.23 | Mean                     | 3.76  |
| Variance                                      | 0.03 | Variance                 | 7.62  |
| <b>Top 10 countries in each category:</b>     |      |                          |       |
| Switzerland                                   | 0.66 | Belgium                  | 10.83 |
| Belgium                                       | 0.66 | Venezuela                | 10.00 |
| Turkey  | 0.61 | Switzerland              | 9.50  |
| Netherlands                                   | 0.56 | Japan                    | 9.43  |
| Germany                                       | 0.55 | USA                      | 9.43  |
| Australia                                     | 0.53 | Lithuania                | 9.17  |
| Nigeria                                       | 0.50 | France                   | 8.50  |
| Sweden  | 0.47 | Poland                   | 7.67  |
| Israel  | 0.45 | Argentina                | 7.60  |
| El Salvador                                   | 0.43 | Australia                | 7.50  |
| <b>Information on 7 additional countries:</b> |      |                          |       |
| USA   | 0.35 |                          | 9.43  |
| Canada  | 0.21 |                          | 6.00  |
| UK  | 0.19 |                          | 6.50  |
| France  | 0.28 |                          | 8.50  |
| Germany                                       | 0.55 |                          | 3.37  |
| Spain   | 0.06 |                          | 1.71  |
| Italy   | 0.42 |                          | 3.80  |

**Table 3: Business Awards**

| Average Number of Business Awards per Person  |      | Average Number of Awards of a Person in Business Sector |      | Proportion of Awards in Country Handed out for Business Activities |      |
|---|------|---|------|--|------|
| Mean  | 0.06 | Mean  | 1.14 | Mean   | 0.02 |
| Variance                                      | 0.01 | Variance  | 1.62 | Variance   | 0.00 |
| <b>Top 10 countries in each category:</b>     |      |   |      |  |      |
| Canada  | 0.52 | Canada  | 4.78 | Saudi Arabia   | 0.21 |
| Singapore                                     | 0.46 | Venezuela   | 4.75 | Korea, Republic of   | 0.15 |
| USA   | 0.34 | Israel  | 4.00 | Singapore  | 0.15 |
| Saudi Arabia                                  | 0.27 | Luxembourg  | 4.00 | Tanzania   | 0.14 |
| Australia                                     | 0.26 | Ukraine   | 3.60 | USA  | 0.10 |
| Korea, Republic of                            | 0.24 | UK  | 3.50 | China  | 0.10 |
| Philippines                                   | 0.20 | Australia   | 3.43 | Israel   | 0.09 |
| Sweden  | 0.18 | Nigeria   | 3.38 | Pakistan   | 0.09 |
| Turkey  | 0.16 | Poland  | 3.00 | Canada   | 0.08 |
| Israel / Switzerland                          | 0.14 | China   | 2.80 | Turkey   | 0.08 |
| <b>Information on 7 additional countries:</b> |      |   |      |  |      |
| USA   | 0.34 |   | 1.17 |  | 0.10 |
| Canada  | 0.52 |   | 4.78 |  | 0.08 |
| UK  | 0.04 |   | 3.50 |  | 0.01 |
| France  | 0.04 |   | 1.50 |  | 0.01 |
| Germany                                       | 0.06 |   | 0.47 |  | 0.03 |
| Spain   | 0.06 |   | 0.33 |  | 0.02 |
| Italy   | 0.04 |   | 1.14 |  | 0.02 |