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Econometric Fellows and Nobel Laureates in Economics

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Abstract

An academic award is method by which peers offer recognition of intellectual efforts. In this paper we take a purely descriptive look at the relationship between becoming a Fellow of the Econometric Society and receiving the Nobel Prize in economics. We discover some interesting aspects: of all 69 Nobel Prize Laureates between 1969 and 2011, only 9 of them were not also Fellows. Moreover, the proportion of future Nobel winners among the Fellows has been quite high throughout time and a large share of researchers who became Fellows between the 1930s and 1950s became Nobel Laureates at a later stage. On average, researchers become Fellows relatively early in their career (14.9 years after their PhD) and those who were subsequently made Nobel Laureates become Fellows earlier than other researchers. Interestingly, Harvard and MIT have been the dominant PhD granting institutions to generate Fellows and Nobel Laureates in the past.

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Excellence is an overworked, almost hackneyed phrase. It has even become fashionable in some quarters to sneer at the pursuit of excellence as subversive of equality, as selling out to elitism and meritocracy. That view is untenable and ultimately destructive. Critics of excellence and merit ought to be willing to endorse mediocrity in their physicians and their airline pilots if they are willing to defend it in their own professions. I have yet to meet anyone who did not want the best when their personal health and safety were at stake. Our disciplinary health and safety are always at stake. Circumstances may force us to tolerate mediocrity. But anyone who fails to do his or her best to overcome mediocrity – personally and professionally – has no business in a university, or anywhere near one.

Abler (1988, p. 139).

1. Introduction

In his autobiography *Models of My Life*, Herbert Simon (1996) explains that many economists and the media thought he was an outsider when he received the Nobel Prize in economics. However, a closer look at his biography reveals a different picture. He was made a Fellow of the Econometric Society in 1954, 24 years before he became a Nobel Laureate. Receiving the appointment as a Fellow is recognition for prior professional achievements and is perceived to be a great honour in the academic profession (Hamermesh and Schmidt 2003). The aim of the Econometric Society is neatly described by an introductory Editorial note by (then) editor Ragnar Frisch (1933) in the first issue of *Econometrica*. Frisch jointly won the first Nobel Prize in economics with Jan Tinbergen and was a key driving force alongside Irving Fisher in the foundation of the Econometric Society in 1930 (Gordon 1997). In his Editorial note Frisch refers to the Econometric Society's Constitution (Section I): "the Econometric Society is an international society for the advancement of economic theory in its relation to statistics and mathematics. The Society shall operate as a completely disinterested, scientific organization without political, social, financial, or nationalistic bias. Its main object shall be to promote studies that aim at a unification of the theoretical-quantitative and the empirical-quantitative approach to economic problems and that are penetrated by constructive and rigorous thinking similar to that which has come to dominate in the natural sciences. Any activity which promises ultimately to further such unification of theoretical and factual studies in economics shall be within the sphere of interest of the Society" (p. 1).

This statement demonstrates a key feature of the postwar history of economics, namely the increased influence of mathematics and statistics (Simon 1996)[1]. Prior to World War II the language of mainstream economics was strictly prose (Lurie 2007). For example, Simon notes that "[i]n 1950, it was still difficult to get a paper published in the *American Economic Review* if it contained equations (diagrams were more acceptable)" (p. 326). Davis R. Dewey was the first editor of *American Economic Review*, and was in charge of managing *AER* for 30 years

[1] For a discussion of the debate around the use of mathematics in economics see also Torgler and Piatti (2011).

between 1911 and 1940. He was criticized for making *AER* a "journal unreceptive to the growing technical rigor and formalization of economics," an effect, some suggest, "was a good deal stronger on the *AER* than on the profession. In effect Dewey subsidized the rise of *Econometrica*" (Stigler, Stigler, and Friedland 1995, p. 344). Samuelson (2004, p. 49) also reports that when he "began the study of economics back in 1932 on the University of Chicago Midway, economics was literary economics. A few original spirits—such as Harold Hotelling, Ragnar Frisch, and R. G. D. Allen—used mathematical symbols; but, if their experiences were like my early ones, learned journals rationed pretty severely acceptance of anything involving the calculus. Such esoteric animals as matrices were never seen in the social science zoos. At most a few chaste determinants were admitted to our Augean stables". Samuelson (1983) also recounts that as a Junior Fellow at Harvard his "problem was to avoid saturating any one journal. I doled out the articles to as many different publications as would tolerate them. Again and again editors wrote: "Please shorten and make less mathematical." I swallowed the temptation to protest: "Which do you want? Both are impossible. And neither is optimal." The last laugh is to the scientist: the quality of the papers that editors rejected was, if anything, a bit better than the rest" (p. xxv).

However, by the late 1960s, mathematics had taken over economics (Simon 1996, Lurie 2007). Karier (2010) discusses forty years of the Nobel Prize in economics in his book *Intellectual Capital*, and argues: "Almost all of the Nobel winners in economics had strong mathematical background, and most of their theories were originally presented as formulas that emulated those in physics and other sciences… a surprising number of the winners of the prize began their training as majors in physics, engineering, mathematics, or related sciences" (p. 6). Simon (1996) also stresses that "[i]t is perhaps not too disrespectful to label the people who brought about this revolution the Econometric Mafia. Who were they? If you examine the list of Fellows of the Econometric Society in 1954, fifteen years before the first Nobel Prize in economics was awarded, you will find the names of 20 of the first 27 prizewinners. Three others (Bob Solow, George Stigler, and Leonid Kantorovich) became Fellows later, but well before they won the prize, leaving only Ted Schultz, Sir Arthur Lewis, James Meade, and James Buchanan off the magic list… a historian of science might take this record as evidence for an invisible college that had a major influence on the Nobel nominations and selections" (p. 326).

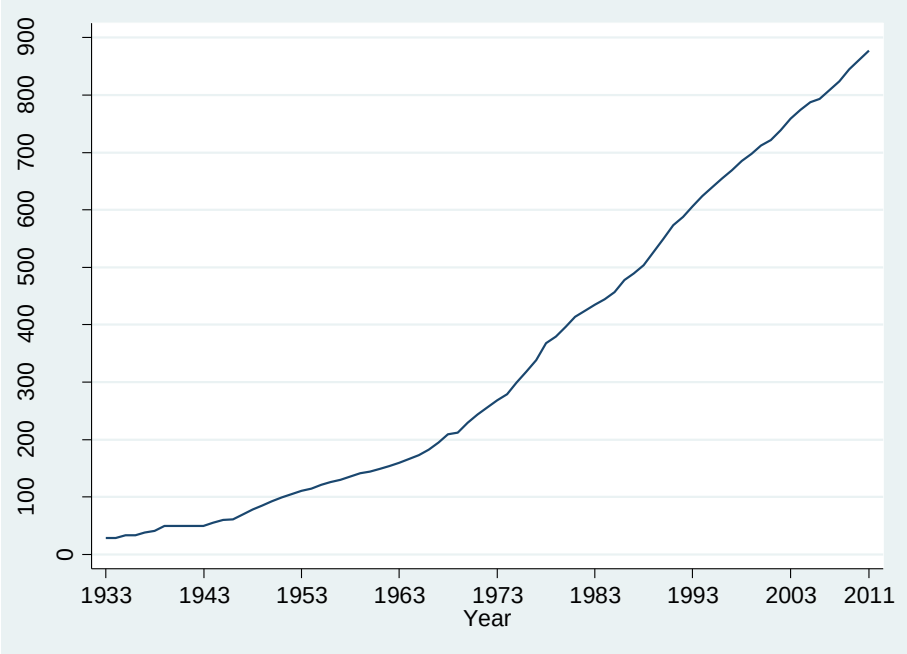
Motivated by Simon's observation, we take a closer look at the relationship between becoming a Nobel Laureate and being a Fellow of the Econometric Society. Our approach is purely descriptive, however, in our opinion it is valuable as there are only very few studies that explore this link or take a closer look at awards in the economic profession in general (Frey and Neckermann 2009a, 2009b) and at Fellows of the Econometric Society in particular.

2. Econometric Fellows over Time

Of all 69 Nobel Prize Laureates between 1969 and 2011, only 9 of them were or are not Fellows, this includes Elinor Ostrom (2009), Robert A. Mundell (1999), Douglass C. North (1993), Ronald H. Coase (1991), William F. Sharpe (1990), James M. Buchanan Jr. (1986), Theodore W. Schultz (1979), Sir Arthur Lewis (1979) and James E. Meade (1977). Thus, we are first going to take a look at Fellows awarded over time. *Figure 1* shows the total cumulated number of recipients between 1933 and 2011. The Econometric Society awarded the first group of Fellows in 1933, the year of the first issue of *Econometrica*. At that time, a total of 29 people were elected as

Fellows including the 16 founding members of the Society. By the end of 2011 there are no less than 877 Fellows[2], partly due to a substantial increase of Fellows since the 1970s. This phenomenon is demonstrated by *Figure 2* which plots the number of awards handed out per year. In the period between 1933 and the late 1960s the number of Fellows awarded was rarely more than 10 per year. For the period 1934 to 1969, the average number of Fellows appointed per year was only 5.08 and subsequently increased to 15.83 after 1970. However, there are fluctuations between the years with the largest number of recipients in 1978 (30 Fellows)[3]. Thus, the Society is flexible regarding the number of people it names for this recognition. This is not always the case; for example, the French Academy maintains a fixed number of members, namely forty, at any given point in time[4]. Scarcity or exclusion may enhance the value of the award, but may produce other issues such as failing to include very talented researchers or unintentionally punishing a generation/cohort of high achievers in the type of fixed system that exists in the French Academy. Merton (1973) points out: "When the fixed number is coupled with a growing tendency toward conservatism, it results in the academicians of the forty-first chair – the "also rans" – exhibiting a level of excellence that would be hard to match among the officially designated academicians. The familiar list of incumbents of the 41st chair would include Descartes, Pascal, Molière, La Rochefoucauld, Bayle, Rousseau, Saint-Simon, Diderot, Stendhal, Flaubert, Zola, Proust" (pp. 434-435).

Figure 1: Accumulated Number of Fellows over Time



[2] So far 219 Fellows have passed away.
[3] It should be noted that there were two periods during which nobody was awarded: from 1940 to 1943 and from 1934 to 1936.
[4] For the current members see http://en.wikipedia.org/wiki/Acad%C3%A9mie_fran%C3%A7aise

Figure 2: Yearly Number of Recipients over Time

3. Education of Economic Fellows and Nobel Laureates

The next issue we consider is the question of where the awarded Fellows obtained their academic education; looking specifically at which institution granted their PhD. We collected information on 843 Fellows to develop an institutional ranking (see *Table 1*)[5]. People with a PhD from MIT account for the largest proportion of Fellows (9.83%), followed by Harvard University (9.27%) and Chicago (6.66%). The observed results are consistent with a ranking developed by Torgler and Piatti (2011) which aggregated the institutional ranking results out of several previous journal articles. In their ranking system, MIT was number one, followed by Harvard and Chicago.

We observe from the information presented in *Table 1* that U.S. universities alos play a dominant role here, as the top 7 universities are in the U.S., and among the 29 universities listed, only 9 are outside the U.S. Our results are consistent with Frey and Neckerman (2009a) who examined self-declared awards among economists based on data obtained from *Who's Who in Economics*. 80% of the awards received by all economics are reported by American economists and the largest percentage of awards go to Harvard (9% of all awards) followed by MIT (5%), Berkeley (5%) and Chicago (4%).

[5] In 34 cases we were not able to identify the educational background of the Fellows.

Table I: PhD Affiliation of Fellows of the Econometric Society

PhD Affiliation	Freq.	Percent	Cum.
Harvard University	81	9.63	9.63
MIT	78	9.27	18.91
University of Chicago	56	6.66	25.56
Stanford University	50	5.95	31.51
University of California, Berkeley	43	5.11	36.62
Yale University	40	4.76	41.38
No PhD	37	4.4	45.78
Princeton University	37	4.4	50.18
London School of Economics	27	3.21	53.39
University of Minnesota	23	2.73	56.12
Columbia University	20	2.38	58.5
Cambridge University	18	2.14	60.64
Northwestern University	17	2.02	62.66
Oxford University	17	2.02	64.68
University of Michigan	15	1.78	66.47
University of Wisconsin	15	1.78	68.25
University of Rochester	13	1.55	69.8
Hebrew University of Jerusalem	12	1.43	71.22
University of Pennsylvania	10	1.19	72.41
Carnegie Mellon University	9	1.07	73.48
Johns Hopkins University	9	1.07	74.55
Purdue University	7	0.83	75.39
University of Paris Ix	7	0.83	76.22
Cornell University	6	0.71	76.93
Iowa State University	6	0.71	77.65
University of Amsterdam	6	0.71	78.36
University of California, Los Angeles	6	0.71	79.07
University of Stockholm	6	0.71	79.79
University of Tokyo	6	0.71	80.5
University of Vienna	6	0.71	81.21
Total	842		

Table I also reports a relatively large number of researchers without a PhD. For these 37 people we report the institution at which they completed their highest graduate degree (see *Table II*). It is clear that most of these researchers graduated from European universities.

Interestingly, Harvard's leading position, followed by MIT and Chicago does not change when we look at the PhD institution of 69 Nobel Laureates in economics (period 1969 to 2011) presented in *Table III*.

Table II: Affiliation of Fellows without a PhD

Institution of the Highest Degree	Freq.	Percent	Cum.
Cambridge University	8	21.62	21.62
London School of Economics	5	13.51	35.14
Oxford University	5	13.51	48.65
École Polytechnique	3	8.11	56.76
University of Warsaw	2	5.41	62.16
Columbia University	1	2.7	64.86
Harvard University	1	2.7	67.57
INSEE	1	2.7	70.27
Saint Petersburg State Polytechnical University	1	2.7	72.97
Sciences Po	1	2.7	75.68
Trinity College Dublin	1	2.7	78.38
University College Dublin	1	2.7	81.08
University of Amsterdam	1	2.7	83.78
University of Birmingham	1	2.7	86.49
University of Bologna	1	2.7	89.19
University of Glasgow	1	2.7	91.89
University of Milan	1	2.7	94.59
University of Naples	1	2.7	97.3
Yale University	1	2.7	100
Total	37		

At this point, it is interesting to determine how long it takes to become a Fellow of the Econometric Society. *Figure 3* shows the distribution. On average, it takes a researcher 14.9 years from the time a researcher is awarded the PhD. Of course, there are exceptions: Elmer Working, Trygve Haavelmo, Victor Polterovich, and Gérard Debreu became Fellows before obtaining their PhD and Kenneth Arrow was awarded a Fellow the same year he finalized his PhD. On the other hand, Sewall Wright had to wait 63 years, followed by R. Duncan Luce (59 years) and Thomas Schelling (56 years). In general, Nobel Laureates become Fellows earlier than other researchers (12.9 years after their PhD). The difference is statistically significant at the 10% level when applying a Two-sample mean-comparison test.

Figure 4 reports the academic age (years since PhD) distribution for obtaining the Nobel Prize. The average academic age of the Nobel Laureates is 39 years. Kenneth Arrow is the youngest (21 years) and Thomas Schelling is the oldest (54 years), followed by Bertil Ohlin (53 years) and Friedrich August von Hayek (53 years).

Table III: PhD Institution of Nobel Prize Laureates

PhD Affiliation	Freq.	Percent	Cum.
Harvard University	10	14.49	14.49
MIT	8	11.59	26.09
University of Chicago	7	10.14	36.23
Columbia University	4	5.8	42.03
No PhD	4	5.8	47.83
Carnegie Mellon University	3	4.35	52.17
Cambridge University	2	2.9	55.07
Johns Hopkins University	2	2.9	57.97
Leiden University	2	2.9	60.87
London School of Economics	2	2.9	63.77
Princeton University	2	2.9	66.67
University of California, Berkeley	2	2.9	69.57
University of California, Los Angeles	2	2.9	72.46
University of Oslo	2	2.9	75.36
University of Stockholm	2	2.9	78.26
Cornell University	1	1.45	79.71
École Polytechnique	1	1.45	81.16
Eötvös Loránd University	1	1.45	82.61
Goethe University Frankfurt	1	1.45	84.06
Humboldt University Berlin	1	1.45	85.51
Norwegian School of Economics	1	1.45	86.96
Saint Petersburg State University	1	1.45	88.41
The New School	1	1.45	89.86
University of London	1	1.45	91.3
University of Minnesota	1	1.45	92.75
University of Nottingham	1	1.45	94.2
University of Paris	1	1.45	95.65
University of Vienna	1	1.45	97.1
University of Wisconsin	1	1.45	98.55
Yale University	1	1.45	100
Total	69		

Figure 3: Lag Between PhD and Becoming an Econometric Society Fellow

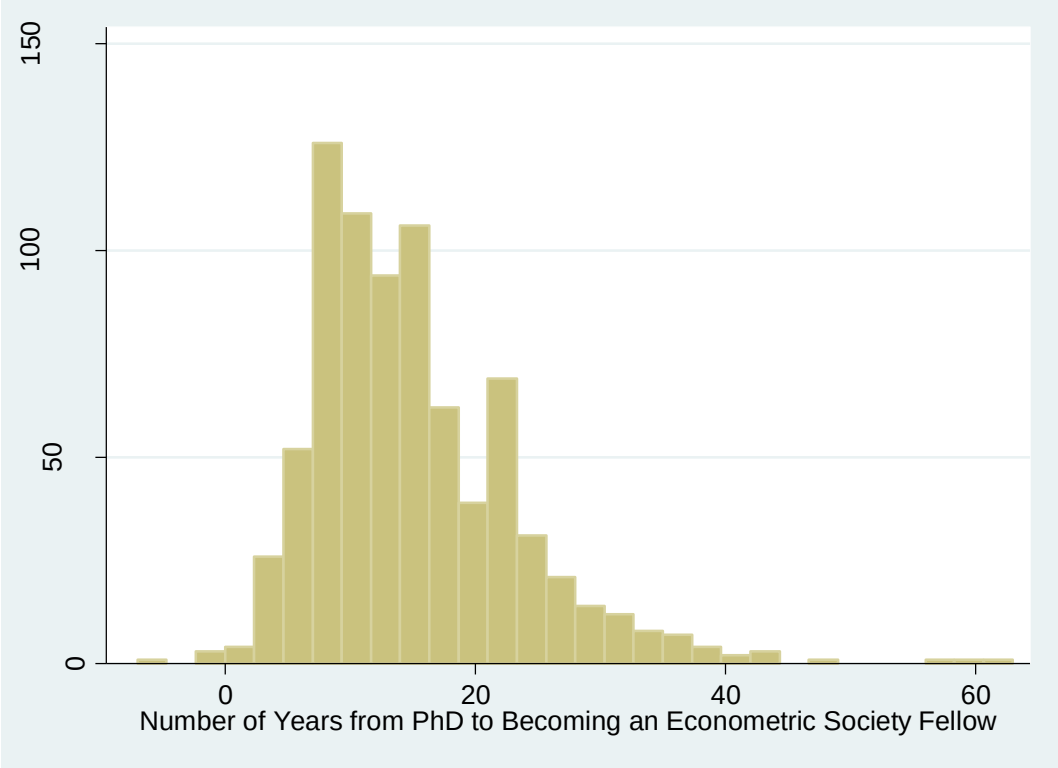
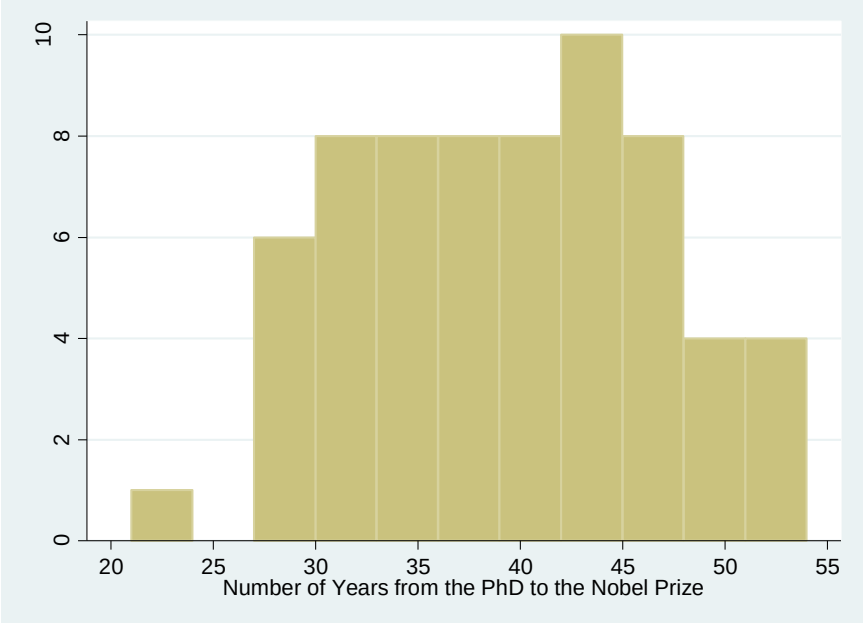


Figure 4: Lag Between PhD and Becoming A Nobel Prize Winner



4. Relationship Between Fellows and Nobel Laureates

Figure 5 reports the share of future Nobel Prize winning Fellows among newly awarded Econometric Society Fellows. For example, for the year 1970, out of all the 17 Fellows elected, 2 were later awarded the Nobel Prize in economics, namely James A. Mirrlees in 1996 and Daniel L. McFadden in 2000. As can be seen, the proportion was quite high, particularly during the first two to three decades (1930s till 1950s). On average and over the entire period, 17 percent of Fellows from a year will get the Nobel Prize. *Figure 6* shows cumulative values looking at the total number of Fellows rather just at those that became Fellows in a particular year. For example, with respect to the year 1970, the proportion of future Nobel Prize winners was 0.144 which indicates that out of the 229 researchers who were Fellows so far, 33 became Nobel Laureates at a later stage. The largest proportions are observable in the period where the group of Fellows was still relatively small (1940s and 1950s). Nevertheless, the share remained quite high for a long period of time (e.g., above 10% till the late 1980s).

Figure 5: Ratio of Future Nobel Prize Winning Fellows to Total Fellows over Time

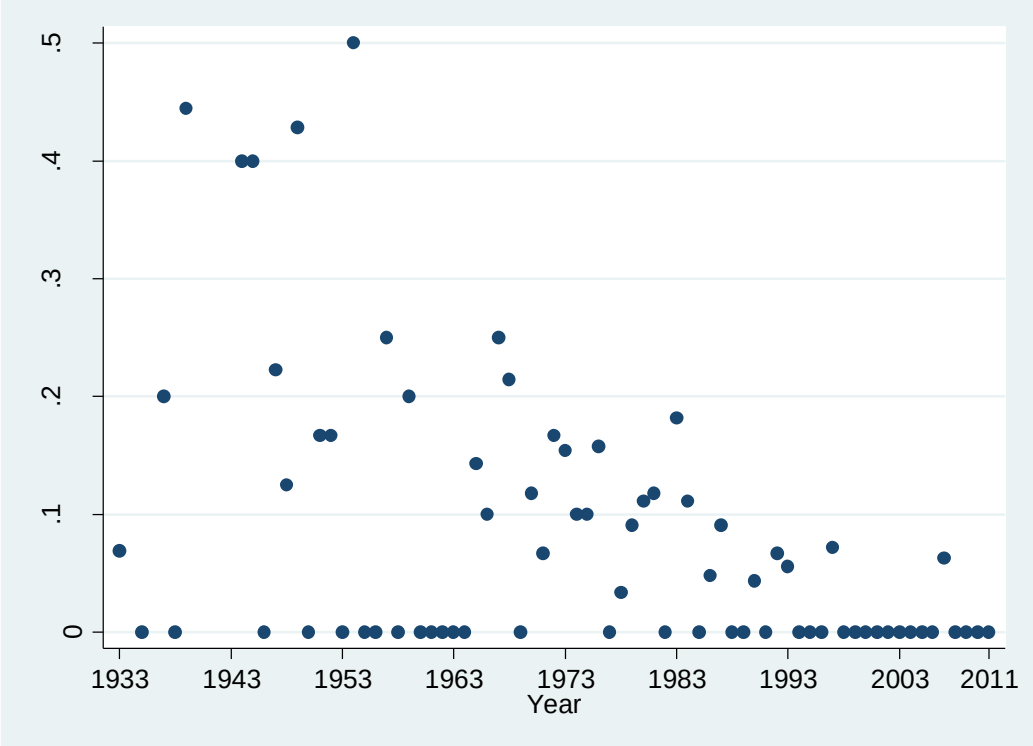
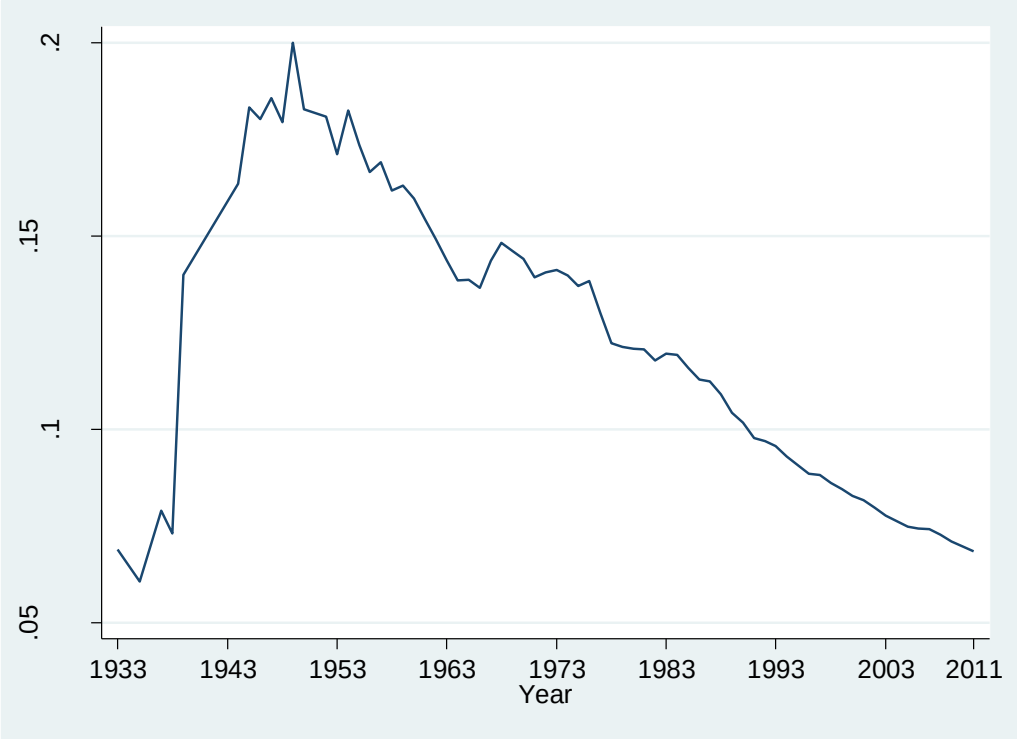


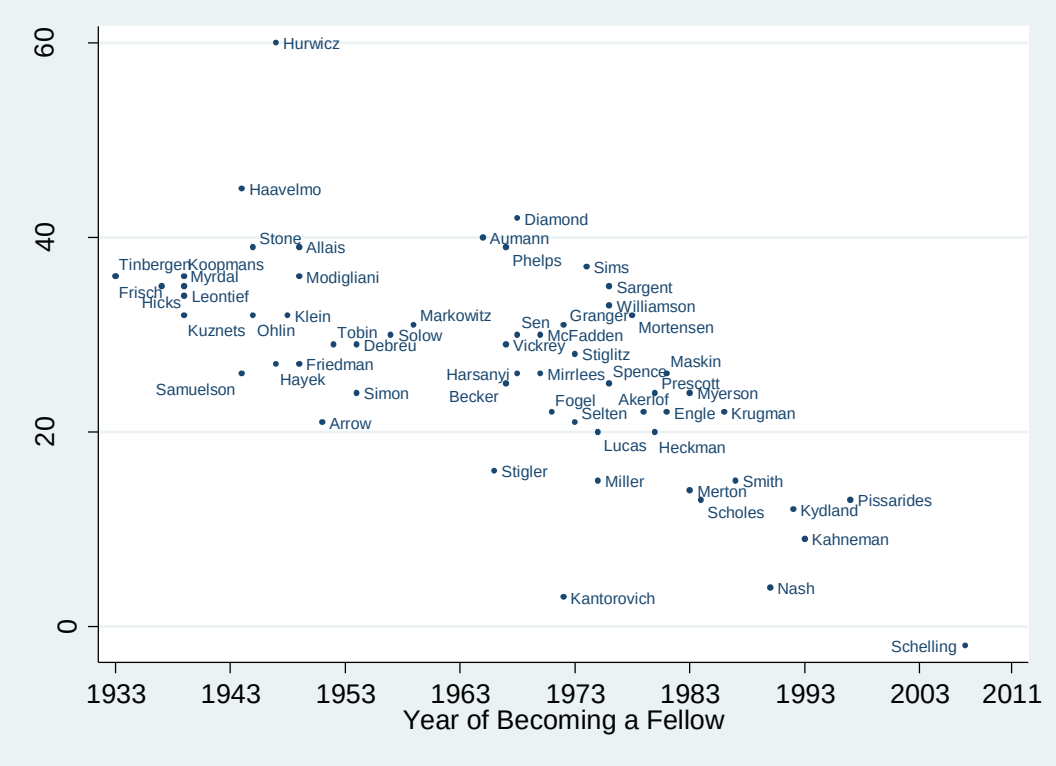
Figure 6: Ratio of Future Nobel Prize Winning Fellows to Overall Fellows over Time



Overall, we observe a relatively large share of future Nobel Laureates among the Fellows which is consistent with the comments made by Simon (1996) for the year 1954. Therefore, this indicates a strong link between Nobel Laureates and Econometric Fellows.

The next issue to consider is the length of time, on average, a Nobel Laureate had to wait between becoming a Fellow of the Econometric Society and receiving a Nobel Prize. *Figure 7* provides an overview. The figure shows the distribution of the lag between receiving the Nobel Prize and becoming Fellow of the Econometric Society. The average "waiting" time is 26.9 years, although Leonid Hurwicz had to wait the longest: he was awarded the Nobel Prize in 2008 at the age of 90, 60 years after he became a Fellow. He was also the oldest Nobel Laureate to date. Thomas C. Schelling was the only Nobel Laureate who received the prize before becoming a Fellow. He obtained the Nobel Prize in 2005 at the age of 84, two years before becoming a Fellow.

Figure 7: Time Lag Between both Awards



5. Conclusions

Hamermesh and Schmidt (2001) emphasise that "[h]alls of fame are ubiquitous. People in groups appear to have a tremendous desire to honour those members who have achieved more than the ordinary" (p. 1). In addition, awards reward merit and can foster superior achievement by providing incentives to excel and to be recognized (Abler 1988). A quote by Samuelson (2004, p. 60) demonstrates that researchers are also motivated by recognition: "Let me close with a few remarks on the motivation and rewards of scientists. Scientists are as avaricious and competitive as Smithian businessmen. The coin they seek is not apples, nuts, and yachts; nor is it the coin itself, or power as that term is ordinarily used. Scholars seek fame. The fame they seek, as I noted in my 1961 American Economic Association presidential address, is fame with their peers—the other scientists whom they respect and whose respect they strive for. The sociologist Robert K. Merton has documented what I call this dirty little secret in his book *The Sociology of Science*. I am no exception. Abraham Lincoln's law partner and biographer William Herndon observed that there was always a little clock of ambition ticking in the bosom of honest and whimsical Abe. No celebrity as a *Newsweek* columnist, no millions of clever-begotten speculative gains, no power as the Svengali or Rasputin to the prince and president could count as a pennyweight in my balance of worth against the prospect of recognition for having contributed to the empire of science".

In this paper we took a purely descriptive approach to investigating the relationship between Fellows of the Econometric Society and Nobel Laureates. We concluded that many of the Nobel Laureates were Fellows beforehand. On average, Laureates were already Fellows for 26.9 years before they were awarded the Nobel Prize. A large proportion of researchers who became Fellows in the first two decades

of the Econometric Society became Nobel Laureates at a later stage. Moreover, they became Fellows sooner after graduation. It is also worth noting that Harvard and MIT are the dominant PhD granting institutions with respect to generation of both Fellows and Nobel Laureates.

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