

Tenure.

An appraisal of a national selection process for associate professorship[†]

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Abstract

This paper presents a case study of the national academic competition for associate professorship which took place in Italy during the academic year 1997-98. The two-stage selection procedure led to the appointment of 44 associate professors of Economics (discipline code P01A – *Economia Politica*). A quantitative analysis will attempt to measure the relative contribution to the appointment probability made by the candidates' academic credentials; in particular published articles are classified according to the prestige rank of the journals concerned. According to our results, publishing in foreign journals increased the probability of entering a short list of applicants selected for interview (first stage), while the probability of appointment (second stage) was also affected by the evaluation obtained during the interview and other criteria such as a vacancy in the candidate's own university. All things being equal, candidates from southern universities were favoured, whereas outsider applicants (located in foreign universities or holding non-academic positions, like Central Bank Research Department, etc.) were penalised.

[†] In this paper the author reviews a national competition for 44 positions of (tenured) associate professorship in Economics (discipline code P01A – *Economia Politica*) established by governmental decree (D.M. issued on 22/12/1995 and published in GU on 30/1/1996 – subsequently extended by DM issued on 29/2/96 and published in GU on 8/3/1996). The author is himself an associate professor who was among the nine members of the selecting committee appointed by the Ministry of University on 29/5/1997. The other members were the professors Carlo D'Adda (Bologna), Mario Baldassarri (Rome), Nicola Postiglione (Salerno), Piero Tani (Florence), Piero Tedeschi (Padua), Antonio D'Agata (Catania), Fabio Ranchetti (Pavia) and Maria Luigia Segnana (Trento). The author thanks Giuseppe Bertola, Giorgio Brunello, Franco Donzelli, Riccardo Faini, Marzio Galeotti, Tullio Jappelli, Michele Polo, Giorgio Rampa, Nicola Rossi e Patrizio Tirelli for helpful discussions at an earlier stage of this work. The paper has benefited from specific comments by Carlo D'Adda, Luca Flabbi, Massimo Florio, Giuseppe Marotta, PierGiovanna Natale, PierLuigi Porta, Annalisa Rosselli and Maria Luigia Segnana. The author is also grateful to Silvia Pesenti for invaluable assistance in building the data set. Two anonymous referees and the editor (Giuseppe Bertola) suggested several valuable improvements on a previous version. The author is grateful to all of them. He also acknowledges financial support from the Italian National Research Council (CNR) and the Ministry for Universities and Scientific and Technological Research (MURST). This data set cannot be made publicly accessible for privacy reasons, but the author is available to provide specific statistics on request (email address: checchi@mailserver.unimi.it).

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*Infandum, regina, iubes renovare dolorem,
Troianas ut opes et lamentabile regnum
eruerint Danai, quaeque ipse miserrima vidi
et quorum pars magna fui.....
Sed si tantus amor casus cognoscere nostros
et breviter Troiae supremum audire laborem,
quamquam animus meminisse horret luctuque refugit,
incipiam....*

Vergil, *Aeneides*, 2, 3-13

1. Introduction

Writing about this competition for professorship reminds me of the painful memory expressed by *Aeneas* requested by Dido to recall his flight from Troy. In this paper we will analyse a case of academic personnel selection for the Italian universities through the procedure of a national public competition. This selection process was held between September 1997 and July 1998 and ended with the appointment of 44 new associate professors in Economics (discipline code P01A – Economics (*Economia Politica*)). In the Italian system, unlike those of other countries, such appointments are almost automatically tenured, so it is extremely important to scrutinise its recruitment policy in order to assess its relative quality. Additional elements of interest are the strong impact this kind of competition had on academic life in Italy and the huge amount of public money that has been invested in the procedure. As far as the first aspect is concerned, the entire teaching staff for Economics (discipline code P01A) that existed in Italian universities before 1996 consisted of 249 members. Among them, 130 were full professors and 109 associate professors. The appearance of 44 newly appointed associate professors implied a 17.6% increase in the entire teaching staff; the same number rises to 40.3% if we only include associate professors.¹ When we consider their average age (39 years), we realise that the consequences of this last selection will influence the Italian academic system for at least the next two decades. As for the second aspect, we do not have official figures, so it is difficult to supply an exact estimate. Just to provide a rough one, consider the following calculation. The examining committee had 9 members (five full professors and four associate ones) who met 16 times, for a total of 46 days (or over 400 hours). Each member was expected to be able to express a judgement on each of the 277 applicants: making a cautious estimate of the average length of time spent on each candidate as 3 hours, we can add 831 hours. Finally, we have to add the time spent on communicating and travelling to the meeting place (Bologna). Overall, we consider realistic an estimate of 1500 hours of commitment for each member of the committee, which corresponds to 4/5 of the

¹ The national committee for evaluation limits itself to the nomination of a number of scholars equal to the number of existing open positions. The effective hiring of a nominee in a specific university is based on a process of bilateral bargaining based on teaching loads and additional facilities (given that the government centrally fixes the salary). A nominee becomes definitively tenured undergoing a point evaluation of scientific activity after three years.

average annual working hours of an average worker.² If we estimate an average annual cost of 130 million Italian liras (67.484 euro) for a full professor and of 100 million Italian liras (51.911 euro) for an associate professor, we reach an opportunity cost of this national competition equal to 840 million Italian liras (436.053 euro). When we add travel and accommodation expenditure for each committee meeting (estimated at 13 million for each member), we reach the impressive figure of 944 million Italian lire (490.094 euro) spent to select 44 associate professors, in other words a screening expenditure of 21 million Italian liras (11.137 euro) per head.³

Though impressive, however the numbers do not tell us anything about the quality of the selection, unless we specify an objective function for the selecting committee. Here we face the objectives of at least three groups of agents.

- i) The *university system* governed by the Ministry for Universities and Scientific and Technological Research. In this case, we can imagine the Parliament and/or the Government expressing an interest in raising human capital formation in the country, both from a quantitative (greater number of students reaching the university stage) and qualitative point of view (better screening among enrolled students). In this perspective, the selecting criterion should be the *adherence to institutional goals*.
- ii) The *scientific community*, readily identifiable in the entirety of university professors who elect the selecting committee.⁴ In this case, we expect this community to be interested in the *advancement of scientific research* (asking new questions and giving new answers to old ones) as the dominant criterion to be followed in co-opting new members. As long as this community perceives itself as part of a larger international community, being already a member of this larger community can be considered as an additional asset.
- iii) Each *single university* which has to hire the nominee. When selecting a specific nominee, we expect a college to pay attention to her *teaching capability* and *interpersonal skills*. A newly hired professor not only has to teach an Economics course, but also to participate in Department meetings, organise seminars and supervise students preparing dissertations. It is less clear whether colleges care or should care about advancements in scientific research, since there are no explicit incentives to be more productive in carrying out research projects.⁵ However we presume that a Department is concerned about *external visibility* and *prestige* for its non-monetary externalities: for instance, hiring a professor well connected abroad will facilitate student and scholar exchanges. In addition, if we accept the view of universities as joint production of teaching and scientific investigation, hiring a scholar with a good performance in doing research may also help to improve the quality of the teaching offered by a Department.⁶

² In Italy we cannot speak of a contractual working time for university professors. In its place there is a legal provision of a minimum of 350 hours a year (comprising teaching and marking exams), leaving on individual responsibility the use of the time left for scientific production.

³ This is the expenditure from the point of view of the Public Administration. From a social welfare point of view, we should add the expenditures afforded by each applicant to mail a copy of her scientific production to each of the nine members of the committee. Finally, we should add the travel and accommodation expenditures met by the applicants who entered the short list and held the interview. In such a case, we easily pass the figure of one billion of Italian lire.

⁴ There is some randomness in electing the committee, for the Ministry of Universities draws a list of 27 candidates from the entirety of the tenured professors, and elections are held on this list. This is intended to avoid full monopolisation of the discipline by a theoretically dominant group of scholars.

⁵ Public funding of research in Italy (National Research Council (CNR) and the Ministry for Universities and Scientific and Technological Research (MURST)) is provided on individual basis, without any advantage for the hosting institution (save for a marginal fraction equal to 3-5% deducted for overhead expenses).

⁶ Cf. Johnes 1997. It is less clear whether individual abilities are (imperfect) complements or substitutes in doing research within a Department. In the former case, production efficiency would require integration of individuals with different performances, whereas in the latter case perfect stratification would yield the maximum output in research: cf. Benabou 1996.

Even from this short review, it is evident that the selection process is overloaded with demands. Adherence to institutional goals, scientific productivity, teaching ability and interpersonal skills are four possible criteria that may prove mutually incompatible. A candidate who devoted most of her time to teaching courses might exhibit a lesser scientific production (but this is not the case in these data set – see Tables 3 and 4). Equally possible is the case of a candidate with good research record but poor performance in dealing with colleagues.

The selecting committee did not receive any official indication on how to amalgamate these alternative goals within a single objective function. Therefore, each member had an incentive to follow personal criteria, often in accordance with her own constituency. Thus, the end-product of the committee may be seen as the bargaining outcome among players with different objective functions. When we add the further information that national competitions for professorship like the one analysed here were few and far between (the previous one had taken place six years earlier), we understand why a candidate would be totally incapable of anticipating the selecting criteria, not to speak of adjusting her perspective career strategy to some pre-specified standard. Even observing one occurrence of a committee adopting a specific criterion (like “teaching experience”) would induce a change in the candidate’s behaviour, as there was no guarantee that the next committee would adopt a similar criterion.⁷ In the absence of such continuity, the best strategy for a potential candidate seems to have been asset diversification: “accept some teaching load, publish in good journals, be friendly with everyone and do not miss official meetings!» Given the fact that specialising in each activity requires time, a candidate would have (partially) self-insured against any unexpected modification in the selection criteria, creating an incentive to devote some time to each activity. As a result, the national competitions system for professorship in force in Italy until 1998 did not provide clear incentives to candidates to base their profiles on one (or more) of the previous criteria.

The present paper does not, however, aim to provide a normative analysis of optimal selection for university professors. Since the final result is the bargaining outcome of nine members with unobservable objective functions, the working of the selecting committee is like a black box. Opening this box, this paper intends to provide a positive analysis of a case study, based on observable features of this selection procedure. The advantage of adopting observable variables is that this analysis might in principle be replicated on past or future selection processes, allowing potentially interesting comparisons. It is important to note that by now this study has no practical use, since Law n.210 issued on 3/7/1998 (and the following governmental regulation issued on 28/10/1998) has radically reformed the procedures for professorship competitions.⁸ Still, it arguably retains some interest in the study of the working of institutions, especially when considering their somehow slow speed of change. It may also have some interest for future candidates for university posts as they may gain information on observable characteristics of their predecessors and may form expectations about what represents an element of relative strength or weakness. A final point deserves discussion. The author has played the double role of external researcher and object of investigation. As a member of the selecting committee, he agreed with the choices and bears the full responsibility of the result. What can assure a reader that he is not refraining from asking crucial questions, intentionally or unintentionally? Weighing the relative cost of potential non objectivity and the relative benefit of giving access to data otherwise impossible to collect, the author believes that the latter outweighs the former, and is therefore about to develop the empirical analysis of the paper. It is worth recalling that the paper does not describe how the committee actually worked (a task that is impossible given the composition effects mentioned above). Instead, it asks whether some observable characteristics of the candidates

⁷ The only continuity in the criteria adopted by successive selecting committees can be assured by the need of each member to preserve some reputation within the academic community. However, being this community made of individuals with different objective functions, it will always exist a constituency supporting any selection outcome.

⁸ See the sixth section for a discussion of the new system. The system analysed in the present article was initially introduced by the law n.382 issued on 11/7/1980. Notwithstanding a provision of holding a national competition every two years, since then we had only three editions of this type of competition.

(age, sex, scientific productivity, teaching experience, and job location) may have played some role in increasing the probability of appointment. Therefore, the estimated models have to be interpreted as description of the actual behaviour as if the Committee had been a single selecting agent. If the same virtual agent had kept on selecting in later editions of these competitions, the proposed estimates would have provided an invaluable source of information for any potential candidate. It would have become possible to maximise the probability of appointment by carefully selecting a strategy where (marginal) costs and benefits for each record were equated. As it is, the institutional set-up has changed so radically that the present results may prove worthless in working out the best strategy for future competitions.

The paper is organised as follows. The next section introduces the data set containing the relevant information on the applicants and how they were organised. The third section describes the selection procedure in two stages, creating a short list for interview and final appointment, by showing the average characteristics of each sub-group and estimating maximum likelihood probit models for transition. The fourth section presents two synthetic indices to rank the candidates and analyses their predictive ability with reference to the competition analysed. The fifth section contains conclusive remarks and raises some general issues. The sixth section contains an addendum that discusses the reform of the competition systems and raises some doubts concerning its ability to deal with the problems that emerged in previous sections.

2. Building a data base

All information about the candidates was obtained from their curriculum vitæ which they had to attach to their application.⁹ In case of ambiguity, original publications were referred to. For each candidate it is possible to identify age, gender, educational achievements, current job position (title and location), teaching experience and scientific productivity.¹⁰ All information is easily measured except for the last. In the category of published articles, we find a great variety of papers, varying from top journals to newspapers. We have thus classified the intellectual production of each candidate in four groups (article in a foreign journal, article in an Italian journal, contribution to collected papers and volumes) with further disaggregation within each group.¹¹ For the first group (articles published in foreign journals) there are alternative rankings of journals available in the literature. The Social Science Citation Index offers a ranking based on the number of citations obtained by each journal inside a pre-specified group of journals. Laband and Piette (1994) provide alternative rankings, where each citation is weighted according to the relative rank of the journal containing the citation. Both approaches present problems.¹² The Social Science Citation Index includes only journals that report to SSC publishing

⁹ Here there is a potential risk of imperfect synchronisation of the relevant information. Formal applications for the competition were submitted in February 1996, whereas the committee was appointed in May 1997. By then, the applicants were encouraged to submit their publications to the commissioners, and most of them took the opportunity to update their c.v. When they did not, the author explicitly requested it, but not all applicants accomplished. In these case, the initial c.v. was used. Since the present data set has been built on this information, the information regarding the candidates is not exactly contemporaneous. However, the alternative of using contemporaneous information available at the beginning of 1996 would have been excessively penalising for younger applicants.

¹⁰ Other potential information available in a c.v. is participation to seminars and conferences, refereeing, scholarship obtained and fellowships. However, not all candidates provide this information, and therefore we were forced to exclude them from the analysis.

¹¹ The other alternative would have been counting the number of citations in the EconLit Database, which represents the electronic version of citations reported in the *Journal of Economic Literature* (as proposed by Marcuzzo in Carabelli, Parisi and Rosselli 1999). This procedure has two main limitations: partial coverage of Italian journals and publishers, and possible repetition of the same record (when for example it appears first as a working paper and then as an article). For the sake of completeness of analysis, we have collected this variable for all candidates on the September 1997 version of EconLit, but it does not seem to play any role in predicting the competition outcome.

¹² We abstract from different length in published pages. The alternative would be to use length-adjusted pages (as in Kalaitzidakis et al. 1999), but this captures more the effort than the quality of the scientific production.

house, and in some cases non-scientific journals (like *The Economist*) are included. On the contrary, Laband and Piette (1994) take as reference basis the citations that appeared in all economic journals during the time interval 1984-89, thus excluding by construction all the new journals that started their publications after 1989.¹³ For these reasons, we have devised a personal ranking of journals. It is based on the relative position reached by a journal in both the Social Science Citation Index (October 1995) and in Laband and Piette's ranking. Then all entries unrelated with general Economics have been removed, and new entries have been added.¹⁴ Once the list was completed, it was divided into four intervals: the top ten journals, a second group of journals ranked between 11 and 50, a third group including 51 through 125 and a fourth group with the remaining journals. As far as Italian journals are concerned, to the best of our knowledge we do not know of any published ranking. Therefore we have proposed an arbitrary three-fold partition: the top five journal group (identified by subjective evaluation of prestige, age of existence of the journals and constant presence of refereeing activity), the group of journals ranging between 6 and 20 and the remaining journals. Contributions to collected papers are not generally refereed, even if this is more frequent in the case of foreign volumes. For this reason we have distinguished only between collected papers published abroad and published in Italy (irrespective of the citizenship of the editor). Finally, the volumes have been divided in accordance with the publisher (foreign or Italian) and his prestige (primary or non-primary). In order to reduce the number of sub-groups, we chose a three-tier scheme: volume with a primary foreign publisher; volume with a non-primary foreign or a primary Italian publisher; volume with a non-primary Italian publisher. The general classifying scheme of publications is presented in Table 1.¹⁵ When dealing with cases of co-authorship, the most intuitive solution would be to weigh such a work with $\frac{1}{n}$, where n is the number of authors. Nevertheless, this procedure ignores synergies existing in joint work, and this suggests weighting co-authorship with $\frac{1}{1+0.5 \cdot (n-1)}$. This formula privileges joint work, since it gives 0.66 for a work with a co-author, 0.5 for a work with 2 co-authors and 0.4 for an article with 3 co-authors.¹⁶ Finally, in the case of formally accepted but yet unpublished papers, we have classified them as already published.¹⁷

[Insert Table 1 about here]

¹³ Critiques to Laband and Piette 1994's procedure are reported in Beed and Beed 1996.

¹⁴ See the Appendix 1 for original rankings and a more precise description of the procedure followed in creating a personal ranking.

¹⁵ Additional conventions adopted in building the data set:

- i) articles published in foreign journals different from the 125 listed in Table 1 have been attributed to group P4.
- ii) working papers from foreign institutions are classified in group P5.
- iii) working papers from Italian institutions, research reports and unpublished papers (but deposited in accordance with printing laws – according to the Italian system of public competition, when an unpublished paper accomplishes printing laws, has to be considered as a published paper) are reported in group P8. Papers that were unpublished and non-deposited are still counted in group P8 but with half weight.
- iv) book reviews and newspaper articles have been excluded.
- v) master or PhD dissertations have been excluded, since in most cases they give rise to further publications in journals and volumes.
- vi) when a paper has been published more than once (for example in Italian and in English), we have classified the paper in the most prestigious group.

¹⁶ This specification adopts a concave rather than a linear technology in the production of scientific articles, and assumes that the former dominates the latter in the relevant [0,1] range. A possible test of this assumption would have been to count the number of pages for each article and check whether the average number of pages of co-authored papers is higher than the corresponding number for single-authored papers.

¹⁷ In case of *revise and resubmit*, we have weighed these articles as $\frac{1}{2}$ of the corresponding category.

Descriptive statistics for the whole sample of applicants are reported in Table 2.¹⁸ Reading this Table, we get a general portrait of the average candidate for a position as an associate professor in Economics: aged around 40 on average, most candidates will have carried out postgraduate studies in a foreign university¹⁹ and in their vast majority (84.2%) are actually employed as assistant professors, mainly in a Centre-Northern university. They exhibit a considerable teaching experience, since they have taught 3.6 courses on average. Their scientific production has mainly appeared in national journals: they have published less than ½ article (0.48) in the top 125 foreign journals, 1.7 articles in the top five Italian journals and 4.2 in the successive 15 journals. Younger candidates are slightly more outward oriented, since the corresponding values are 0.61, 1.8 and 3.7. Publishing a volume abroad is rather limited, whereas there is a tendency for older candidates to have published a volume with a non-primary Italian publisher: the sample average of 0.49 volumes rises to 0.82 for candidates over 40. Therefore it seems possible to identify at least two groups of candidates: a first group composed of younger candidates, holding postgraduate certificates from foreign universities and looking for international visibility, with limited teaching experience; a second group, composed of older candidates, more inward oriented, with wide teaching experience and very often a vast scientific production published in less prestigious journals.²⁰ Gender differences indicate a higher age for women accompanied by lower “visibility” and “productivity” when compared with their male counterparts.²¹

[Insert Table 2 about here]

A partial confirmation of these claims is found in the correlation indices reported in Table 3. These indices (which exhibit low values, thus reducing the risk of multi-collinearity when jointly using these variables as regressors) indicate that gender and age are negatively associated with publishing articles in foreign (variable P3) and top Italian journals (variable P4). On the contrary, teaching experience is positively correlated with age (the value of 0.40 is among the highest in the table). Once we exclude the case of candidates already holding an associate professorship in a foreign university (variable W5), previous job and job location do not seem to represent a significant source of advantage or disadvantage. An interesting phenomenon can be noticed: most of the off-diagonal coefficients referring to published articles (variables from P1 to P8) are highly significant, indicating the existence of a “hierarchical cumulating” effect: publishing an article in the 11-51 top foreign journals is positively associated with publishing in the top 10 journals. Alternatively phrased, it is hard to place an article in highly ranked journals if you have not published in somewhat less prestigious journals. A more structured analysis is offered with Table 4, where the productivity within each category of articles is regressed on the same set of variables. All things being equal, gender differentials are significant only for foreign journals ranked below 50th position, but no evidence emerges with respect to Italian

¹⁸ The committee received 353 formal applications for this competition, but only 277 candidates finalised their applications by mailing copy of their papers to the official headquarter of the committee in Bologna. The data set concerns only this sub-set of candidates.

¹⁹ This is more valid for younger candidate: more than 50% of candidates younger than 40 hold a PhD from a foreign university, contrary to the 17% of older candidates.

²⁰ Both groups are selection biased with respect to the corresponding universe of scholars. In the case of younger candidates, we expect them to be self-selected among the most brilliant ones, given their aspiration to be appointed as university professors. In the case of older candidates, we expect an opposite bias because most of them have already applied in a previous competition (held in 1991-92) without success.

²¹ Marcuzzo in Carabelli, Parisi and Rosselli 1999 utilises EconLit citations to define “productivity” and “visibility” (respectively as the number of entries for each candidate and as the ratio between candidates with entries to candidate without entries). With reference to the universe of all Italian economists, she measures lower values of both indicators for women when compared to men. From Table 2 there is also evidence of slightly weaker background in postgraduate studies for women, but a reverse situation applies for the younger cohort. When we look at candidate younger than 40, 80.2% of male applicants holds a PhD from either a foreign or an Italian university) compared to 81.7% of the female counterpart. A possible explanation is that younger female scholars, becoming increasingly aware of discrimination at the higher stages of the academic career, strengthen their position by improving their academic background. The author is indebted with Annalisa Rosselli for drawing my attention on this point.

journals. Holding a PhD degree from a foreign university helps in publishing in top journals, both at home and abroad. The hierarchical cumulating effect is also evident from this table, but its magnitude is low: publishing one article in a group of journals increases the publication of an average of 0.1 article in the group of journals immediately higher. Being located outside the Italian academy and/or working as an associated professor in another university represent an advantage in publishing in top foreign journals. Vice versa, being located in a southern Italian university represent a disadvantage only for publishing in top Italian journals. Finally, age does not affect scientific productivity at any level.²²

[Insert Tables 3 and 4 about here]

3. A two stage selection

The system of national competitions for a professorship introduced by Italian Law n.382/1980 envisaged a two-stage selection. The first stage was based on the valuation of scientific titles (degrees, experience, scientific production) and ended with a short list of candidates admitted to the second stage. The second stage consisted of an interview, where a candidate was examined about her writings, and had to give a mock lecture on an argument randomly drawn 24 hours in advance. In the competition analysed here 277 applicants were evaluated in the first stage, 120 of whom short listed. However only 108 faced the Committee, since 12 candidates withdrew in the time interval between the two stages.²³ From the group of 108 candidates, the Committee selected 44 nominees. However, the final selection was less severe than it may appear, since in the meanwhile the Committee had become aware of the simultaneous appointment of 18 of the candidates to other economic disciplines.²⁴ As a consequence, the degree of selectivity in the first stage (120 out of 277, or 1 candidate every 2.31 applicants) was higher than in the second stage (44 out of 90, or one nominee every two candidates). Our aim is to work out the guide lines of the selection stages. In the theory of revealed preferences, we do not observe the utility function of the agent, but we can still judge whether s/he behaved as a utility maximiser. We do not observe either the candidates' ranking assumed by each commissioner or the bargaining process within the Committee, but the final outcome only. Nevertheless we can verify whether the observed behaviour of the Committee contradicted (or did not contradict) some minimal requirements of coherence (for instance, that publishing an article in the top ten foreign journals indicates more talent than publishing an article in an unknown local journal). We must be aware that some features (like scientific productivity or teaching experience) are more observable than others (like teaching ability or reliability and loyalty with respect to institutions), and a few of them are not even observable (like originality of thought, creativity and elegance in reasoning). Some unobservable characteristics can be proxied by observable variables (like the ranking of journals where the articles were published), but they are so arbitrary that one would not be surprised to find two commissioners expressing opposite evaluations of the same paper in terms of originality and creativity. Since we can use only observable variables, we are forced to rely on scientific productivity and consequently on the external visibility of the candidates. Since this was also the condition of each commissioner at the beginning of the competition, we expect scientific production to have been the dominant criterion in

²² It is problematical to compare these results with those of Campanelli, Segnana and Soci in Carabelli, Parisi and Rosselli 1999. They work on a similar data-set (277 – somehow a magic number! – curriculum vitae of applicants to the previous national competition for associate professorship, held in 1991-92. They are mostly concerned with women/men differentials, and in this framework they find evidence of higher age of women, weaker background of postgraduate studies, greater teaching experience, lower productivity in articles published in lower rank journals, but higher productivity in volumes.

²³ The Committee issued the short list on 17/1/1998 and the interviews began on 12/3/1998. In the meanwhile two other national competitions ended (*Economic Analysis* – code P01E and *Monetary Economics* – code P01F), and nominees in those competitions withdrew from the present one.

²⁴ These disciplines are *Economic Policy* (code P01B), *History of Economic Thought* (code P01D), *International Economics* (P01G) and *Development Economics* (P01H). By the conclusion of the present competition (15/7/1998), there were three competitions still not concluded: *Public Economics* (P01C), *Industrial Economics* (P01I) and *Regional Economics* (P01J).

the first stage of selection, whereas in the second stage new information was acquired through the interview and mock lecture. Moreover, while the needs of local universities could not have played any role at the first stage, they could have exerted some pressure at the second stage, because the Committee had to take into account the specific features of the positions to be covered.

Table 5 compares the relevant characteristics of the candidates in the short list (3rd column) with those excluded (4th column), and takes their ratio (5th column). A value exceeding one indicates a feature that was over-represented in the short list, thus constituting a potential explaining factor for entering the short list. The opposite happened when the index was below one. The same exercise is repeated for the sub-sample of women (6th column) and younger candidates (7th column). From this Table we get a picture of short-listed candidates characterised by better postgraduate backgrounds and better/higher scientific productivity. In fact the candidates in the short list had published at least ten times more in the top 125 foreign journals than applicants outside, and three times more in collected papers published abroad.²⁵ Looking at job location, some disadvantage is associated with working outside the Italian academy. The same differences characterise the sub-sample of women and younger candidates, thus suggesting that previous factors are stronger than possible sample biases.

[Insert Table 5 about here]

The typical candidate admitted to the short list was a man, under 40, holding a PhD from a foreign University, who had published at least one article in a highly ranked foreign journal and at least three articles in good Italian journals; additional scientific production is more concentrated in collected papers published abroad than in secondary Italian journals. The old practice of requiring the publication of a volume as a pre-condition to becoming a professor seems to have been ignored. These claims can be made more rigorous by estimating a maximum likelihood probit model, which has the advantage of considering the simultaneous contribution of different variables in predicting the probability of entering the short list. Table A1 in Appendix 2 reports alternative specifications of the first stage of selection ("1" being the condition of entering the short list), whereas Table 6 contains the change in the probability for an infinitesimal change in each independent continuous variable and the discrete change in the probability for dummy variables (all referring to the last column of Table A1). In all cases, the probability of entering the short list was positively correlated with the ranking of the journal where the candidate could have published an article.²⁶ The effect is quite strong: observing the coefficients shown in Table 6 one sees that publishing an article in the top 50 foreign journals almost ensured admission to the short list. The same probability falls to 0.7 for an article published in a journal ranked between 51 and 125, and then drops to 0.20 for further groups of journals. Taking the ratio between these odds coefficients, we can infer that publishing an article in the top 50 foreign journals is probability-equivalent to publishing just about five articles in the top 5 Italian journals or twelve articles in secondary Italian journals. We do not find statistical evidence of any probability contributions yielded by minor scientific production (articles in collective volumes published in Italy or articles in secondary Italian journals). Given the fact that the estimated coefficients declines with the ranking of the publication place, we can take these results as evidence of the contemporary adoption of qualitative and quantitative measures of scientific production by the selecting Committee. Other favouring factors seem being women (probability effect equal to 0.17) and young (a decline in probability of one percentage point for each additional year of age). However, the effect of age masks

²⁵ Notice that all applicants that published in the top ten journals were placed in the short list.

²⁶ Bettio in Carabelli, Parisi and Rosselli 1999 estimates probit and hazard functions for becoming associate professor (thus passing both stages of selection in national competitions) in the universe of the Italian academy for the period 1983-1997 (343 observations). She studies the passage as function of age, sex, job location, number of publications in the top 130 journals (according to the ranking provided by Laband and Piette 1994) and total number of publications cited by EconLit data-base. She finds gender discrimination as hardly significant, whereas a positive contribution is offered by the total number of EconLit citations and by being located in North-Centre universities. On the contrary publishing in prestigious journals has non-statistically significant effect.

the different postgraduate experience of different age cohorts: since younger candidates are more likely to hold a PhD from a foreign university, when this control is included, the age variable becomes non-significant (4th and 5th column in Table A1). A PhD from a foreign university has a gain in probability in the order of 0.33, whereas the equivalent effect of the same degree from an Italian university is much lower and statistically non-significant. Since teaching experience was positively correlated with age, it does not come as a surprise that it does not exert a significant effect (5th column in Table A1). Equalising the candidates in terms of scientific productivity, we find evidence that the Committee favoured candidates from Southern Universities (with a probability effect equal to 0.41)²⁷ while placing a negative premium on outsiders (either working in a foreign university or holding a job outside the academy – probability effect equal to –0.46). Finally, we wanted to control for “networking effects” by creating two additional dummies: whether the candidate came from the same university as a commissioner (COMMIS variable),²⁸ and whether the candidate came from a university with a vacancy (LOCAL variable). The former variable is statistically significant, with quite a high impact (0.33, equivalent to holding a PhD from a foreign university), whereas the latter is not.

[Insert Table 6 about here]

How well does this model fits ? Apart from the reported pseudo R² statistics, we can order the candidates according to the predicted probability and compare it with their actual chances in the competition. In Table 7 we distinguish between unanimous admission, majority vote admission and non-admission. It can easily be noticed that 98 out of 111 applicants with high probability of passing the first stage of selection were actually inserted in the short list (86 of them on unanimous voting). This leads to the conclusion that the model reported in Table 6 represents a good approximation of the actual behaviour of the selecting committee during the first stage of selection.

[Insert Table 7 about here]

It is now time to move to the second stage of selection, where the committee actually met the short-listed candidates. From the interview and the mock lecture new information was revealed, even it is difficult to measure on an objective scale. However, each member of the committee was required to mark each interview. Taking an average across the commissioners gives us a measure of the performance of the candidate during the interview.²⁹ It is interesting to see that the appearance of new information leads to a reorganisation of the list of statistically significant variables guiding the first stage of selection. Table 8 compares the salient features of the nominees (either in this competition or in other economic disciplines) with those who entered the short list but were not appointed. We can recognise some analogies between the first and the second stage of selection (Table 5 and Table 8 respectively): younger age, a majority holding a PhD (61.2% from a foreign university, 52.3% from an Italian university)³⁰ and at least one article published in the top 125 foreign journals. If we look at

²⁷ We have already noticed that working in a Southern University does not reduce scientific productivity, and therefore a positive coefficient implies a pure effect of preference. As a possible explanation, it must be recalled that half of the positions were open in Southern Universities, whereas applicants from the same universities were 16%.

²⁸ This variable captures spatial continuity between a commissioner and a candidate, and proxies two distinct effects: potential direct acquaintance between the commissioner and the candidate, and potential pressure from the faculty onto the commissioner on behalf of the candidate. In the absence of better information, this dummy takes value equal to one when the city of origin of the commissioner and of the candidate coincides. In case of cities with more than one university (Milan, Rome or Naples) it is rather possible that candidate and commissioner do not know each other. When we estimate the model presented in Table A1 distinguishing between unanimous and majority vote admission to the short list, this dummy is significant only in the latter case.

²⁹ While not required by official regulations, the Committee adopted the following procedure. Each commissioner marked each part of the interview in a range [0,5]; then the marks of each commissioner were standardised and then summed across commissioners. The final score represents the variable ORAL used in the following regressions.

³⁰ There are 22.7% of the nominee who hold two degrees (a PhD from an Italian university and a PhD from a foreign university), whereas only 6.8% of the nominees do not possess any postgraduate degree.

EconLit citations (which include some Italian journals and articles in collective volumes published in English), we get an average of 4.6 citations (in an interval between 0 and 16). The teaching experience of the nominees is consistent, since on average they had already taught at least four courses. But the greatest differences between the group of nominees against the non-nominees is recorded with respect to the evaluation of the interview: in a range of [-33, +33], the nominees had an average score of 6.8, against an average of - 8.2 for non-nominees. When we move to maximum likelihood estimation of a probit model, we find again that the contribution in probability of publishing an article is increasing in the ranking of the journal (see Table 9 which reproduces the last column of Table A2 in Appendix 2). An article published in the top 10 foreign journals entails a probability increase in the order of 0.81, whereas the coefficient drops to 0.67 for a journal in range 11-50, and even to 0.57 for range 51-125. The highest contribution is associated with publishing a volume with a leading foreign publisher (probability contribution equal to 1.62, which is threefold the probability contribution obtained by a volume published by non primary Italian publishers).

[Insert Tables 8 and 9 about here]

Once all candidates' scientific productivity is controlled for by multivariate analysis, we find evidence of favourable treatment for candidates from southern universities. The counterpart is a negative premium for outsiders from the Italian Academy, but it masks a more favourable attitude towards candidate coming from universities with vacancies (see 2nd column of Table A2). When we control for this effect (inserting the LOCAL dummy variable from the 3rd column onward of Table A2), the drawback for outsiders becomes statistically non-significant. Both variables controlling for "networking effects" are significant: coming from a university that declared a vacancy ensures a probability gain in the order of 0.79, and an additional gain in probability of 0.41 is ensured by coming from the same university as one of the commissioners. This effect, however, is not as statistically significant as many of the others, the p-value being equal to 0,07). However, a great contribution is also assured by the quality of the interview; introducing the ORAL variable improves the estimates, raising the pseudo R² from 0.25 to 0.53 (4th column of Table A2). The magnitude of this effect is rather large: being judged by each commissioner 2 points above the average (thus obtaining 18 additional points) implies a probability 1 of being appointed. Finally, holding a PhD degree and teaching experience reveal significant determinants in predicting the outcome of the second stage of selection (5th and 6th columns of Table A2 – last three coefficients reported in Table 9).

One may wonder about the coherence of the criteria adopted in the two stages of selection, or whether they represent two independent stages of a process. Re-estimating the model of Table 9 for comparison reasons,³¹ in Table 10 we can contrast the probability contributions of observable characteristics. When moving from the first stage (*being short-listed*) to the second one (*being appointed*), we notice a decline in the contribution of scientific productivity published in foreign journals and/or with foreign publishers, and an increase of importance of publishing in indigenous locations (articles in collected papers edited in Italy, volumes with secondary Italian publishers). An analogous trend is observable with postgraduate degrees, where holding an Italian PhD in the second stage almost equals the advantage assured by a foreign PhD. In addition, in the second stage we see a raising importance for coming from a Southern University and/or from a University with vacant position in the competition. Thus, our impression is that the two stages are rather different when examining the selection criteria inferred by our estimates. To support this claim, we consider the estimated probabilities inferred from the last columns of Tables A1 and A2. Identical criteria in the two stages of selection would yield a rank-correlation coefficient close to one, whereas its measure is 0.44 (108 observations). This is evident when we graph these probabilities on two axes, as done in Figure 1.

³¹ In the first stage of selection publishing an article in the ten top journals or a volume with a primary foreign publishers perfectly predicts admission, and we were forced to combine each category with the next one in order not to reduce the number of observations. The same procedure had to be adopted in estimating the second stage of selection to make them comparable.

Identical criteria would have led all observations to line up perfectly on a 45 degree line, since candidates more likely to enter the short list would also more likely to be appointed. In addition, we should observe the “diamonds” (a \diamond indicates a nominee) grouped in the north-eastern part of the diagram, whereas the “circles” (a \circ indicates a short-listed candidate that subsequently has not been appointed) should gather in the south-western portion. In fact let us consider an hypothetical case where the same selecting device is applied twice, the first time to short-list the candidates, and a second time to appoint some of them. In this case, the second stage of selection is redundant, because the individual obtaining the highest score during the first stage remains highest during the second stage and obtains appointment. Also the second highest candidate retains the same ranking, and gets appointment, and so on. On the contrary, when the selecting device is modified from the first to the second stage, being short-listed by a wide margin does not imply an equally high likelihood of appointment. . In fact, the data show some clustering in the north-eastern region of the graph (best candidates at both stages of selection), but there are other candidates with a low probability of entering the short list who were subsequently appointed (possibly thanks to a good quality interview). Symmetric considerations apply to candidates clustered in the north-western region (high probability when entering the short list, but failing to be appointed).

[Insert Table 10 and Figure 1 about here]

Summing up, the first stage of selection seems to have put more emphasis on publishing in prestigious foreign journals as a dominant condition for being short listed for interview. In addition to the new information acquired during the interviews, the second stage balanced the weights in favour of domestic journals and publishers. The geographical location of vacant positions seems to have played some role, together with a favourable attitude towards candidates from Southern Universities.

For the sake of discussion, let us ask the following question: had the coefficients of Table 10 been known at least ten years in advance, what would have been the optimal strategy for a candidate aiming to become an associate professor in economics ? The answer is easy: publish at least one article in the top 50 foreign journals³² to enter the short list, and ask your university to put up a vacant chair for appointment in the competition. By itself scientific productivity does not seem to have granted the “almost certainty” of being appointed. It appears as if the relative weights in the objective function of the selecting committee changed during the different stages of the competition. The advancement of scientific research, probably dominant during the first stage of selection, was combined in the second stage with the objectives of teaching ability and interpersonal skills, more typical of local universities.

4. Building a representative index

Analysis so far has shown us that different publications obtained different valuations by the selecting committee. We may conjecture if it is possible to provide a single measure of scientific productivity by appropriately weighing different categories of publications. By extension, we are also tempted to extend this approach to all observable characteristics (including postgraduate background and teaching experience), in order to provide a first approximative ranking of all potential applicants. We are far from thinking that this exercise can give a global evaluation of candidates, as the second stage of selection previously illustrated. In actual fact, teaching and arguing capabilities can be assessed only through direct examination. In addition, we do not believe that recording the journal ranking can conclude the analysis of scientific production. Even if we accept the idea that the quality of an article is correlated with the ranking of the journal involved, there are other elements that escape this

³² Equivalently, publish one article in a foreign journal ranked between 51 and 125 and a second article in the top 5 Italian journals. Remember that publishing in top foreign journals is more likely for scholars holding a PhD from foreign universities – see Table 4.

correlation: think of creativity, originality, knowledge of the literature, and so on.³³ However the longer this list, the more subjective the evaluation becomes. Even leaving aside differences in ideology or in schools of thought, it is quite plausible that any referee will express positive judgements whenever s/he sympathises with the research project of the author to be evaluated. However, this arbitrariness can be offset precisely by the use of objective measures. For these reasons, we now propose to build an overall indicator of the scientific productivity of a scholar, and we will test its discriminating ability on the data set represented by the candidates to the competition analysed. On the basis of arguments offered in the next section, selection procedures based on a large number of candidates should arguably put some weight on “objective” (or “hard”) measures of candidates’ productivity. This prevents the exclusion of productive and locally unknown candidates, still leaving room for introducing further elements of “subjective” (or “soft”) judgement. The following indices are just a first attempt in this direction.

The observable information taken into account can be grouped into three categories:

- i)* the highest postgraduate degree obtained;
- ii)* published articles, classified according to the journal ranking;
- iii)* teaching experience.

We ignore other observable variables (like gender, age, and job location) in the absence of good normative reasons to prefer one specific type of candidate to another.

In the case of the first group, we have calibrated the weights on the impact of holding these degrees estimated in Table 10

	Relative score in the synthetic index	Relative weight as obtainable from Table 10 *
PhD in a foreign university	8	10.3
PhD in a Italian University	4	6.9
master	2	--
BA (laurea)	1	--

* Attributing an arbitrary weight of 20 to publishing an article in a foreign journal ranked 1-10 (taken as the reference category), we can re-express all the other titles in relative terms by taking the ratio of their coefficients to the coefficient of publishing such an article. The coefficients are averages between the two columns of Table 10.

With respect to the second group (scientific publications), previous investigation has shown the existence of at least two distinct profiles among the candidates, one preferred by older candidates and more centred on the internal debate of the Italian academy, and the other more outward oriented. In addition, we have seen that the weights attributed to different groups of publications have changed when passing from the first to the second stage of the selection. For both reasons, we propose two alternative sets of weights. In one case (indicated as RANK 1) the gap between foreign and Italian journals is limited (an article in the 10 top foreign journals weighs 2.5 articles in the 5 top Italian journals – that is to say that an article in the American Economic Review is worth 2.5 articles in the *Giornale degli Economisti*), and secondary writing (like research reports, articles in minor journals, and so on) is not penalised. In the other case (indicated as RANK 2) the gap between foreign and Italian journal widens (now you need 4 articles in the *Giornale degli Economisti* to reach the score of one article in the American Economic Review), and we place an asymptotic ceiling to excessive production published in non primary Italian journals. It should be clear that RANK 1 tends to favour a scholar with limited experience in foreign universities, who made most (or all) of her scientific career in the Italian academy. She may exhibit a conspicuous production in terms of quantity, but most of it has not passed any referee control, as is the practice of most foreign journals. On the contrary, RANK 2 favours candidates with some experience abroad, where they got used to aiming to publish in top journals, compensating fewer articles with their better placement. When we compare the two sets of

³³ Last, but not least, there is the problem of how to rank sectoral journals in comparison with generalist journals. Path-breaking but sector specific contributions may find it difficult to obtain an acceptance in generalist journals (which are more often quoted, and therefore obtain higher ranking).

weights with the estimates obtained in the previous section (and reported in the last column), we get the impression that the actual behaviour of the committee was closer to RANK 2 than to RANK 1.

RELATIVE SCORES TO DIFFERENT TITLES	VARIABLE NAME	RANK 1	RANK 2	Relative weight as obtainable from Table 10 **
article in a foreign journal ranked 1-10	P1	10	20	20.0
article in a foreign journal ranked 11-50	P2	7	15	15.1
article in a foreign journal ranked 51-125	P3	5	10	15.1
article in a Italian journal ranked 1-5 or any other foreign journal	P4	4	5	4.4
article in a Italian journal ranked 6-20	P5	2	max 10*	0.6
contribution to collected papers published abroad	P6	3	3	2.6
contribution to collected papers published at home	P7	2	max 10*	1.1
article published in any other Italian Journal and any other publication	P8	1	max 10*	-0.3
volume published by a main foreign publisher	M1	15	15	8.0
Volume published by a main Italian publisher or any other foreign publisher	M2	7.5	7.5	8.0
other volumes	M3	2.5	2.5	7.9

Notes: * using an exponential function like $\left[10 - \frac{80}{n+8}\right]$, where n is the number of contributions, imposes a maximum floor equal to 10.

** Attributing an arbitrary weight of 20 to publishing an article in a foreign journal ranked 1-10 (taken as the reference category), we can re-express all the other titles in relative terms by taking the ratio of their coefficients to the coefficient of publishing such an article. The coefficients are averages between the two columns of Table 10.

Finally, with respect to teaching experience it may be useful to recognise that teaching is an activity that quickly exhibits decreasing returns. For this reason, a ceiling is imposed on the weight attributable to teaching:

	RELATIVE SCORES	Relative weight as obtainable from Table 10 *
1 course taught	2	0.9
2 courses taught	4	1.8
3 courses taught	5	2.7
4 courses (or more) taught	6	3.6

* Attributing an arbitrary weight of 20 to publishing an article in a foreign journal ranked 1-10 (taken as the reference category), we can re-express all the other titles in relative terms by taking the ratio of their coefficients to the coefficient of publishing such an article. The coefficients are averages between the two columns of Table 10.

Using the data set illustrated in section 2, it is possible to build two scores for each candidate to the present competition. One score makes use of the weights proposed in RANK 1 (and by extension will retain the same name), and the other is based on RANK 2. The position of the candidates in the two rankings is rather similar, even if the second one is characterised by wider dispersion (as emerges in Table 11, reporting some descriptive statistics of the two measures).³⁴ Looking at the south-west panel of Figure 2, we infer that both scores predict rather well the first stage of selection, since candidates with higher scores are more likely to enter the short list. Vice versa, the scores do not help to discriminate during the second stage of selection, as can be gathered by average and median values reported in bottom part of Table 11 and also by the clustering of diamonds and circles in the south-east panel of Figure 2. This is hardly surprising, since both scores are based on observable characteristics and do not take into account either the result of the interviews or the judgement on quality of publications based on direct reading by the commissioners. This may explain why we observe some candidates with high scores in both ranking, who nevertheless were not appointed professors.

[Insert Table 11 and Figure 2 about here]

In order to test their predictive ability, we repeated probit estimates by replacing observable characteristics with the computed scores. The results reported in Table A3 in Appendix 2 are encouraging, especially when referred to the first stage of the selection. Looking for instance at the relative performance of RANK 2 (that put more weight on publications in foreign journals), it is able to replace the information contained in 14 original variables with limited loss of predictive power.³⁵ The goodness of fit worsens when passing to the second stage of selection, accompanied by a decline of the impact on probability of both scores.³⁶ The other features of the selecting procedure carry on in these specifications.³⁷

5. Concluding remarks

This paper investigates the salient features of a national selection for 44 associate professorships in Economics (discipline code P01A – *Economia Politica*). The selective procedure consisted of two stages, entering a short list for an interview and final appointment. Quantitative analysis has been made possible by classifying the scientific production of each applicant in accordance with a citation ranking

³⁴ The simple correlation index between the two scores is equal to 0.883 (s.e. 0.03), whereas the Spearman rank correlation index is equal to 0.881.

³⁵ By comparing the pseudo R² statistics in the 5th column of Table A1 with the same statistics reported in 3rd column of Table A3 (which are comparable specifications), we get a limited decline (from 0.638 to 0.623).

³⁶ Looking again to RANK 2, the change in probability associated to 1 point increase is 0.049 in the first stage of selection (3rd column of Table A3) and 0.026 in the second stage (4th column of Table A3).

³⁷ We find evidence of relative advantage placed on candidates from Southern Universities, relative disadvantage on outsiders, positive premium on coming from a university opening a position or that is the job location of one of the commissioners. The only differences with the results obtained in Table A1 and A2 concerns the age: while younger candidates are still advantaged during the first stage, the opposite applies in the second stage estimates reported in Table A3

of foreign and Italian journals. Empirical results reveal that the selecting committee has placed great weight on publishing in foreign journals as the main criterion in the first stage of selection. On the contrary, during the second stage this criterion was compound with the evaluation of both the interview and the mock lecture. An additional element that appears positively significant is whether a candidate comes from a university opening a new position within the present competition. The scientific productivity of candidates being equal, the committee favoured the applicants from Southern Universities, whereas placing a negative premium on outsiders. We have also proposed a synthetic index built on observable characteristics of the candidates (postgraduate studies, scientific production, teaching experience) and we have shown its predictive ability when applied to the two stages of selection.

One may ask what is the usefulness of conducting this type of analysis. We hold it worth for two main reasons. The first one is to provide an objective counterpart to several rumours that circulated during and after the competition in the Italian academy, and to offer considerations that may be informative in the occasion of future selection processes. Let us consider the problem of positive discrimination. There are those who maintain that a selecting committee should take into account inequality of access opportunities, because it places some disadvantage on a number of candidates. A typical example is represented by women having children at the beginning of their career. As a consequence, they have experienced a reduction of the time devoted to research, and when we measure their scientific productivity some time later we find lower values than those registered for otherwise comparable candidates. A similar case can be made for candidates from disadvantaged universities, like some of southern universities. They experienced a scarcity of basic infrastructures (libraries, communication facilities, availability of research funds), sometimes coupled with irregular presence of teachers. It is rather likely that working under these condition may reduce their productivity, especially when compared with candidates trained in other universities. If a selecting committee wants to cope with this type of situation it faces two alternatives: either to reserve predefined quotas in the designated positions or to grant some extra-premium to compensate for the initial disadvantages. This analysis makes it possible to investigate whether the actual behaviour of the committee implicitly followed one of these practices. Ex-post we argue that this committee did not apply any type of gender discrimination, either positive or negative,³⁸ whereas it did apply a positive discrimination for candidates from southern universities. The main limitation of this exercise lies in being always an ex-post reconstruction, which cannot be used to assess actual behaviours in real time.

The other reason for this exercise consists of experimenting in quantitative measurement of scientific production. The possibility of introducing a common metric based on journal ranking allows the comparison of candidates otherwise incommensurable. In addition, if we consider that this measure enjoys the property of linearity, we can imagine its adoption in other circumstances. Think of evaluating the research activity of a single scholar or a full department as a temporal variation in a synthetic index. Alternatively, consider the case of assessing the “academic weight” of different research units applying for research funds. We are perfectly aware of the puzzlement, or even the concern, which could be triggered by this prospect in the Italian academy.³⁹ The objections could point to the fact that we cannot measure ingenuity with the number of pages or with the place of publication. “Sraffa would score quite low!” could be a typical quote of someone opposing these measures. We agree to the idea that it is impossible to assess the scientific contribution of a scholar in an objective way. However, when we are confronted by a large-scale selection, we have to take into

³⁸ Therefore, the two genders obtained the same chances of career advancement, thus preventing discrimination in future perspectives. Cf. Lazear and Rosen 1990.

³⁹ Probably not only in the Italian one. The author is indebted to a referee for the suggestion of reading the first chapter of Stigler 1963 (An academic episode), and it was really enjoyable. It shows that it is almost impossible to design an incentive compatible mechanism to organise a university department. He is also indebted to PierLuigi Porta for pointing out a list of concerns, centred on the loss of research freedom entailed by the gradual but unavoidable extension of quantitative measures in the Italian academy.

account the probability of errors. Borrowing the jargon of statistics, we face two types of errors: type-1 errors (rejection of true hypothesis, namely exclusion of good candidates) and type-2 errors (acceptance of false hypothesis, namely inclusion of poor quality candidates). Arguably, when a “hard” measure is adopted in a selection procedure (among many other possible criteria) it emphasises candidates who hold high visibility and therefore it may minimise type-1 errors (namely their potential exclusion). Obviously, the adoption of this criterion does not prevent type-2 errors (namely, the inclusion of poor quality candidates), but in principle this cannot be avoided, provided that some subjective judgement is involved. And from an individual point of view, a type-1 error is more serious than type-2 one, even if this could not be true from a social point of view.,

6. Addendum: a new system for selecting professors

Almost contemporary with the conclusion of the present competition, a new selection system was introduced in the Italian academy by Law n.210 issued on 3/7/1998 (and the following governmental regulation issued on 28/10/1998). The new system introduces three innovations with respect to the old procedure analysed in the present paper:

- a) it creates a distinction between qualification (*abilitazione*) and appointment (*immissione in ruolo*). The selecting committee is now entitled to appoint a number of qualifications that is double the number of vacancies (even triple during the first two years of the new law coming into force).
- b) each selecting committee may decide upon a single position, and each professor may sit on a committee not more than once a year.
- c) it gives a wider freedom of choice to local universities, which can refuse to hire their professors from the candidates qualified by the committee.

Along these lines, we expect a clear separation between the different phases of selecting new university professors. Different objectives pursued in different phases should now become more transparent. Selecting committees, still elected within the academy, could more freely aim to the advancement of scientific research by qualifying the best candidates in terms of publications. In their turn, local universities can compete to hire the most appropriate candidates in terms of presence, teaching ability, interpersonal skills and institutional commitment. The national system retains the possibility of final sanction through a national evaluation of scientific activity that is compulsory after three years from the initial appointment.

By separating the different phases of selection and attributing the related responsibility to different classes of agents, the reform could represent a possible solution to the conflict of goals mentioned above (and confirmed by the empirical analysis). However, an efficient separation would require a clear-cut partition of tasks, and ensure that each selecting agent works independently of the others. Quite the opposite, the new system does not prevent contamination between the different phases. Each selecting committee includes one member, out of five, appointed by the local university. Since the designated member does not have to gain election among peers, s/he is not accountable to the rest of the academy. What about the incentives for the other four members? They are not paid either directly or indirectly (for example obtaining some relief from teaching). Thus, their only incentive is represented by the possibility of qualifying a candidate of their (personal) preference. In this way, there is substantial competition among five candidates at best. One of them would probably be in a dominant position. The candidate from a local university opening a vacancy will be strongly supported by the locally designated commissioner. This member will probably make use of the argument that the position has been explicitly opened for her, and that the local faculty will not appoint a different candidate. General competition is further reduced by the constraint imposed on applicants to apply a maximum of five times a year. In this manner, potential candidates are forced to spread out among existing competition, after an attempt to form expectations on committee formation and existing local candidates.

It is rather easy to form the expectation that the new system changes the effective requisites to be (almost surely) appointed as university professor. Now you need a local university to opening a ‘one’ vacancy for you and a university (full) professor available to become member of a selecting committee to support your application. Scientific production becomes a residual condition, something like a

minimum threshold that is necessary to overcome, but nothing more than that. Without risking excessive pessimism, we claim that the new system reduces the incentives for the advancement of scientific research and for publishing in top journals. The only incentive left for research is based on reputation effect among potential commissioners. If the academy gives significant weight to scientific research, it will elect commissioners with similar objective functions. However, this requires each commissioner to pledge not to support a specific applicant. And this destroys any incentive to become a commissioner. In our opinion, this is the fundamental contradiction of the new system. We hope that new research along the line of the present paper will be able to disprove these pessimistic expectations.

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Tables and figures
Table 1 – Ranking of scientific journals

<i>variable name</i>	<i>definition</i>	<i>journals</i>
P1	article published in a foreign journal ranked 1-10	Amer.Econ.Rev., Brookings Pap.Econ.Act., Econometrica, J. Econ. Theory, J.Econometrics, J.Financ.Econ., J.Polit.Econ., Quart.J.Econ., Rand J.Econ., Rev.Econ.Stud.
P2	article published in a foreign journal ranked 11-50	Ec.Theory, Ecol.Econ., Econ.Dev.Cult.Change, Econ.Hist.Rev., Econ.Journal, Economica, Eur.Econ.Rev., Explorations Econ.Hist., Game Econ.Behav., IMF Staff papers, Ind.Lab.Relat.Rev., Ind.Rel., Inquiry-J.Health Care Org., Int.J.Game Theory, J.Appl.Econom., J.Bus.Econ.Stat., J.Devel.Econ., J.Econ.Hist., J.Econ.Lit., J.Econ.Perspectives, J.Finance, J.Health Econ., J.Hum.Resour., J.Ind.Econ., J.Int.Bus.Stud., J.Int.Econ., J.Labor Econ., J.Law Econ., J.Law Econ.Organ., J.Math.Econ., J.Monetary Econ., J.Money Credit Banking, J.Public.Econ., J.Reg.Sci., J.Risk Uncertainty, J.Urban Econ., Kyklos, Oxford Bull.Econ.Statist., Work Employ.Soc., World Devel.
P3	article published in a foreign journal ranked 51-125	Amer.J.Econ.Sociology, Appl.Econ., Australian J.Agr.Econ., BritishJ.Ind.Rel., Bus.Hist.Rev., Cambridge J.Econ., Canadian J.Econ., Cato Journal, Defenc.Econ., Econ.Inquiry (West Econ.J.), Econ.Letters, Econ.Modelling, Econ.Record, Econometric Theory, Economic Policy, Economics & Philosophy, Energy Econ., Hist.Polit.Econ., Int.Econ.Rev., Int.J.Ind.Organ., Int.J.Soc.Econ., Int.Lab.Rev., Int.Reg.Sci.Rev., Int.Soc.Sci.J., J.Banking Finance, J.Common Market Stud., J.Comp.Econ., J.Devel.Stud., J.Developing Areas, J.Econ.Behav.Organ., J.Econ.Bus., J.Econ.Dynamics & Control, J.Econ.Educ., J.Econ.Issues, J.Econ.Stud., J.Environ.Econ.Manag., J.Finan.Quant.Anal., J.Finan.Res., J.Forecasting, J.Lab.Res., J.Macroecon., J.Policy Anal.Manage., J.PostKeynesian Econ., J.Risk.Ins., J.Transport Econ.Policy, J.World Trade, Labor Hist., Managerial Dec.Econ., Manchest.Sch.Econ.Soc.Stud., Matekon, Mon.Lab.Rev., Nat.Tax J., Natural Res.J., Oxford Econ.Pap., Public Choice, Public Finance Quart., Quart.Rev.Econ.Bus., Reg.Sci.Urban Econ., Reg.Stud., Resour.Energy Econ., Rev.Black Polit.Econ., Rev.Bus.Econ.Res., Rev.Econ.Statist., Rev.Soc.Econ., Scand.J.Econ., Sci.Society, Scottish J.Polit.Econ., Soc.Choice Welfare, Soc.Res., Soc.Sci.Quart., Southern Econ.J., Theory & Decision, Urban Stud., Weltwirtsh.Arch., World Econ.
P4	article published in an Italian journal ranked 1-5 or any other foreign journal	Economia Politica, Economic Notes, Giornale degli Economisti, Politica Economica, Ricerche Economiche
P5	article published in an Italian journal ranked 6-20	BNL Quart.Rev., Econ.Pol.Industriale, Economia e Lavoro, Economia Internazionale, Economia Pubblica, Labour, Lavoro e Relaz.Ind., L'Industria, Metroeconomica, Moneta e Credito, Note Economiche, Riv.Int.Sc.Ec.Comm., Riv.Int.Sc.Sociali, Riv.Politica Economica, Studi economici
P6	contribution to collected papers published abroad	
P7	contribution to collected papers published at home	
P8	article published in any other Italian Journal and any other publication	
M1	volume published by a main foreign publisher	Basic Blackwell, Cambridge Univ.Press, Oxford University Press, MIT Press, North Holland
M2	volume published by a main Italian publisher or any other foreign publisher	CLUEB, Laterza, Mulino, NIS, Hoepli, ... Elgar, McMillan, McGraw Hill, ...
M3	other volumes	

Table 2 – Data description

	variable name	all applicants (avg)	all applicants (st.dev.)	all applicants (min)	all applicants (max)	women (avg)	men (avg)	younger than 40 yrs (avg)	older than 40 yrs (avg)
Number of cases		277	277	277	277	76	201	158	119
Female	FEMALE	0.274	0.447	0	1	1	0	0.259	0.294
Age	AGE	39.412	6.151	27	65	40.118	39.144	35.209	44.992
Educational certificates:									
BA (laurea)	T1	0.985	0.119	0	1	1	0.980	0.987	0.983
master	T2	0.516	0.500	0	1	0.579	0.488	0.677	0.294
PhD in a Italian University	T3	0.350	0.478	0	1	0.329	0.358	0.487	0.168
PhD in a foreign University	T4	0.357	0.478	0	1	0.322	0.371	0.494	0.176
Job position:									
associate professor or reader	W5	0.036	0.187	0	1	0.000	0.050	0.051	0.017
assistant professor or lecturer (tenured)	W4	0.708	0.456	0	1	0.763	0.687	0.639	0.798
assistant professor or lecturer (tenure track)	W3	0.134	0.341	0	1	0.105	0.144	0.209	0.034
research department	W2	0.032	0.178	0	1	0.026	0.035	0.032	0.034
other	W1	0.090	0.287	0	1	0.105	0.085	0.070	0.118
Job location:									
North	NORTH	0.394	0.489	0	1	0.434	0.378	0.437	0.336
Centre	CENTER	0.264	0.441	0	1	0.250	0.269	0.228	0.311
South	SOUTH	0.166	0.373	0	1	0.171	0.164	0.152	0.185
Foreign university or non-academic pst.	EST	0.177	0.382	0	1	0.145	0.189	0.184	0.168
Teaching experience (number of taught courses)	INS	3.581	4.551	0	38	3.678	3.545	2.361	5.202
article in a foreign journal ranked 1-10	P1	0.043	0.252	0	3.06	0.013	0.054	0.071	0.004
article in a foreign journal ranked 11-50	P2	0.149	0.411	0	2.66	0.159	0.145	0.207	0.072
article in a foreign journal ranked 51-125	P3	0.297	0.612	0	4.66	0.107	0.369	0.337	0.244
article in a Italian journal ranked 1-5 or any other foreign journal	P4	1.690	2.300	0	18.30	0.961	1.966	1.883	1.434
article in a Italian journal ranked 6-20	P5	4.249	3.689	0	18.32	3.669	4.468	3.741	4.923
contribution to collected papers published abroad	P6	0.859	1.684	0	12.14	0.400	1.033	0.998	0.676
contribution to collected papers published at home	P7	2.127	3.222	0	21.50	1.869	2.225	1.482	2.984
article published in any other Italian journal and any other publication	P8	5.314	4.978	0	46.26	4.941	5.455	4.438	6.477
volume published by a main foreign publisher	M1	0.020	0.123	0	1	0.031	0.016	0.021	0.018
volume published by a main Italian publisher or any oth. foreign publisher	M2	0.215	0.511	0	3.16	0.255	0.200	0.168	0.278
other volumes	M3	0.491	0.949	0	7	0.452	0.505	0.232	0.835
# occurrences in Econlit database (1997)	ECONLIT	2.708	3.124	0	19	1.671	3.100	2.899	2.454

Table 3 – Data correlations (277 cases)

	sex	age	t1	t2	t3	t4	ins	p1	p2	p3	p4	p5	p6	p7	p8	m1	m2	m3
sex	1.00																	
age	0.07	1.00																
t1	0.07	0.01	1.00															
t2	0.08	-0.38	0.06	1.00														
t3	-0.03	-0.40	-0.04	0.17	1.00													
t4	-0.05	-0.34	0.09	0.30	-0.14	1.00												
ins	0.01	0.40	0.04	-0.17	-0.31	-0.10	1.00											
p1	-0.07	-0.11	0.02	-0.09	-0.03	0.19	0.13	1.00										
p2	0.02	-0.13	0.04	0.07	-0.01	0.33	0.09	0.23	1.00									
p3	-0.19	-0.14	0.06	0.11	-0.02	0.22	0.05	0.03	0.21	1.00								
p4	-0.20	-0.12	0.04	0.05	0.04	0.26	0.00	0.06	0.13	0.42	1.00							
p5	-0.10	0.13	0.07	-0.12	-0.10	0.01	0.19	0.06	-0.03	0.15	0.33	1.00						
p6	-0.17	-0.06	0.04	0.00	0.02	0.29	0.08	-0.01	0.11	0.20	0.40	0.22	1.00					
p7	-0.05	0.21	-0.02	-0.21	-0.11	-0.11	0.24	-0.09	-0.09	-0.06	0.06	0.36	0.20	1.00				
p8	-0.05	0.14	-0.12	-0.16	-0.06	-0.08	0.00	-0.04	-0.09	-0.02	0.16	0.29	0.13	0.33	1.00			
m1	0.05	-0.02	0.02	-0.04	0.04	0.11	0.00	0.09	0.06	0.03	0.08	0.04	-0.01	0.04	0.01	1.00		
m2	0.05	0.09	-0.01	-0.10	-0.05	0.16	0.15	0.00	0.02	0.05	0.18	0.12	0.24	0.14	0.22	-0.07	1.00	
m3	-0.03	0.35	-0.07	-0.31	-0.14	-0.25	0.10	-0.08	-0.12	-0.10	0.20	-0.05	0.11	0.25	0.02	-0.07	0.03	1.00
w5	-0.12	-0.04	0.02	-0.01	-0.14	0.22	0.18	0.20	0.27	0.13	0.06	0.09	0.27	-0.10	-0.12	-0.03	0.03	-0.10
w4	0.08	0.17	0.06	-0.02	-0.06	-0.07	0.15	-0.12	-0.10	0.01	-0.05	0.05	-0.12	0.04	-0.05	0.10	0.00	-0.01
w3	-0.05	-0.29	0.05	0.10	0.26	0.06	-0.21	0.11	0.08	-0.05	0.01	-0.1	-0.01	-0.11	-0.07	-0.06	-0.04	-0.13
w2	-0.02	0.00	-0.15	-0.07	-0.05	0.03	-0.01	-0.03	-0.04	0.12	0.15	0.04	0.15	0.19	0.13	-0.03	0.18	-0.04
w1	0.03	0.09	-0.07	-0.05	-0.10	-0.13	-0.09	-0.05	-0.08	-0.12	-0.07	-0.05	-0.06	0.01	0.16	-0.05	-0.09	0.25
nord	0.05	-0.09	0.10	0.04	0.08	0.08	0.08	0.06	0.17	-0.01	0.07	-0.08	0.01	0.05	0.02	0.11	0.08	-0.11
centro	-0.02	0.07	0.00	0.04	0.05	-0.04	-0.16	-0.08	-0.15	0.04	0.04	0.05	0	-0.02	0.03	-0.02	-0.05	-0.06
sud	0.01	0.05	0.05	0.00	-0.01	-0.13	0.1	-0.08	-0.11	-0.06	-0.19	0.05	-0.13	-0.04	-0.16	-0.07	-0.11	0.12
est	-0.05	-0.01	-0.18	-0.10	-0.16	0.07	-0.02	0.09	0.06	0.02	0.05	-0.01	0.1	-0.01	0.09	-0.05	0.07	0.09

Figures in bold are significant at the 5% threshold

Table 4 – Estimate of scientific productivity
Method: step-wise regression, with backward selection with a 0.1 probability threshold

(t-statistics in parentheses)

Model :	1	2	3	4	5	6
# obs :	277	277	277	277	277	277
Depvar:	p1	p2	p3	p4	p5	p6
intcpt	0.128 (2.98)	0.028 (0.95)	0.089 (1.55)	-0.90 (-1.34)	4.257 (4.21)	2.045 (4.19)
p1		0.245 (2.65)				-0.666 (-1.89)
p2	0.087 (2.30)		0.227 (2.81)			
p3		0.086 (2.27)		1.105 (5.69)		
p4			0.098 (6.67)		0.498 (5.83)	0.219 (5.59)
p5				0.170 (5.03)		
p6	-0.017 (-1.84)			0.376 (4.99)		
p7				-0.069 (-1.75)	0.349 (5.53)	0.110 (3.98)
p8					0.114 (2.68)	
m2						0.389 (2.24)
m3					0.539 (2.50)	
sex			-0.176 (-2.34)			
t2	-0.081 (-2.66)		0.110 (1.67)			
t3						0.336 (1.76)
t4	0.092 (2.63)	0.20 (4.02)		0.461 (1.80)		0.683 (3.47)
w1	-0.215 (-2.80)			1.272 (1.72)	-3.493 (-2.87)	-2.208 (-3.99)
w2	-0.233 (-2.32)			2.218 (2.51)	-4.027 (-2.72)	-1.887 (-2.78)
w3				1.526 (2.21)	-3.045 (-2.72)	-2.254 (-4.28)
w4	-0.099 (-2.47)			1.369 (2.14)	-2.578 (-2.50)	-2.328 (-4.85)
w5		0.385 (3.07)				
south				-0.954 (-3.08)	1.273 (2.37)	
est	0.123 (2.08)					
R ²	0.141	0.186	0.22	0.376	0.307	0.324

Table 5 – First stage of selection: admission to a short list (oral examination)

	variable name	all applicants (avg)	applicants admitted to oral exams (avg)	applicants not admitted to oral exams (avg)	admitted/ not admitted (all)	admitted/ not admitted (women)	admitted/ not admitted (age <40)
Number of cases		277	120	157	0.764	0.580	0.880
Female	FEMALE	0.274	0.233	0.305	0.764	---	0.527
Age	AGE	39.412	38.325	40.242	0.952	1.015	1.019
Educational certificates:							
<i>BA (laurea)</i>	T1	0.982	0.991	0.981	1.010	1.000	1.024
<i>master</i>	T2	0.513	0.558	0.477	1.170	0.980	0.923
<i>PhD in a Italian University</i>	T3	0.350	0.392	0.318	1.233	1.143	0.946
<i>PhD in a foreign University</i>	T4	0.357	0.558	0.203	2.749	2.286	2.027
Job position:							
<i>associate professor or reader</i>	W5	0.036	0.050	0.025	2.000	0.000	1.135
<i>assistant professor or lecturer (tenured)</i>	W4	0.708	0.775	0.656	1.181	1.600	1.413
<i>assistant professor or lecturer (tenure track)</i>	W3	0.134	0.125	0.140	0.893	0.000	0.649
<i>research department</i>	W2	0.032	0.042	0.025	1.680	0.000	0.757
<i>other</i>	W1	0.090	0.008	0.153	0.052	---	0.000
Job location:							
<i>North</i>	NORTH	0.394	0.467	0.337	1.386	1.613	1.391
<i>Centre</i>	CENTER	0.264	0.242	0.280	0.864	0.791	0.811
<i>South</i>	SOUTH	0.166	0.167	0.165	1.012	0.762	1.342
<i>Foreign university or non-academic pst.</i>	EST	0.177	0.125	0.216	0.579	0.381	0.432
Teaching experience (number of taught courses)							
	INS	3.581	3.892	3.343	1.164	1.309	2.072
article in a foreign journal ranked 1-10	P1	0.043	0.098	0.000	∞	∞	∞
article in a foreign journal ranked 11-50	P2	0.149	0.315	0.021	15.00	29.76	14.855
article in a foreign journal ranked 51-125	P3	0.297	0.606	0.061	9.934	2.702	6.538
article in a Italian journal ranked 1-5 or any other foreign journal	P4	1.690	2.814	0.830	3.390	2.537	2.829
article in a Italian journal ranked 6-20	P5	4.249	5.664	3.167	1.788	1.743	1.886
contribution to collected papers published abroad	P6	0.859	1.425	0.427	3.337	2.166	2.600
contribution to collected papers published at home	P7	2.127	2.255	2.030	1.111	1.764	1.176
article published in any other Italian journal and any other publication	P8	5.314	5.558	5.127	1.084	0.960	1.200
volume published by a main foreign publisher	M1	0.020	0.046	0.000	∞	∞	∞
volume published by a main Italian publisher or any other foreign publisher	M2	0.215	0.327	0.129	2.535	1.430	3.976
other volumes	M3	0.491	0.445	0.525	0.848	1.184	1.801
# occurrences in Econlit database (1997)	ECONLIT	2.708	4.375	1.433	3.053	2.473	2.745

Table 6 – Changes in the probability of entering the short-list (oral examination)
(from 5th column of Table A1)

	VARIABLE NAME	coeff	pvalue	xbar
Gender	FEMALE	0.178	0.101	0.274
Age	AGE	-0.009	0.453	39.411
Article in a foreign journal ranked 1-50	P1+P2	0.984	0.000	0.191
Article in a foreign journal ranked 51-125	P3	0.701	0.000	0.296
Article in a Italian journal ranked 1-5 or any other foreign journal	P4	0.201	0.000	1.689
Article in a Italian journal ranked 6-20	P5	0.079	0.000	4.248
Contribution to collected papers published abroad	P6	0.130	0.009	0.859
Contribution to collected papers published at home	P7	0.000	0.985	2.127
Article published in any other Italian Journal and any other publication	P8	-0.001	0.962	5.314
Volume published by a foreign publisher or a main Italian publisher	M1+M2	0.377	0.000	0.235
Other volumes	M3	0.141	0.018	0.49
Job location: FOREIGN UNIVERSITY OR NON-ACADEMIC POSITION	EST	-0.464	0.022	0.176
Job location: UNIVERSITY IN THE SOUTH	SOUTH	0.413	0.001	0.166
Job opening in the university of the applicant	LOCAL	-0.091	0.523	0.66
A commissioner from the university of the applicant	COMMIS	0.328	0.003	0.292
Educational certificates: PHD IN A ITALIAN UNIVERSITY	T3	0.110	0.372	0.353
Educational certificates: PHD IN A FOREIGN UNIVERSITY	T4	0.328	0.016	0.357
Teaching experience (number of taught courses)	INS	-0.001	0.947	3.581

Table 7 – Coherence between model prediction and actual behaviour

applicants ordered according to the probability predictions obtained with the model reported in table 6	unanimously admitted	admitted on majority vote	not admitted	total
0-55	---	---	55	55
56-111	3	2	51	56
112-166	10	7	38	55
167-222	37	7	12	56
223-277	49	5	1	55
total	99	21	157	277

Table 8 – Second stage of selection: appointment to professorship

	variable name	applicants in the short list who sat the oral exam (avg)	applicants nominated associate professors of Economics (discipline P01A) (avg)	applicants nominated associate professors in other economic disciplines (avg)	applicants in the short list who sat the oral exam but were not nominated professors (avg)	nominee/non nominee (all)	nominee/non nominee (women)
Number of cases		108*	44*	24*	46*	1.478	0.867
Female	FEMALE	0.259	0.227	0.125	0.326	0.586	---
Age	AGE	38.527	37.955	37.833	38.935	0.974	0.957
Educational certificates:							
BA (laurea)	T1	0.991	1.000	1.000	0.978	1.022	1.000
master	T2	0.574	0.523	0.583	0.587	0.952	1.484
PhD in a Italian University	T3	0.407	0.523	0.292	0.348	1.311	1.154
PhD in a foreign University	T4	0.556	0.614	0.542	0.478	1.230	1.154
Job position:							
associate professor or reader	W5	0.046	0.023	0.042	0.065	0.451	---
assistant professor or lecturer (tenured)	W4	0.778	0.773	0.833	0.761	1.044	1.000
assistant professor or lecturer (tenure track)	W3	0.130	0.159	0.083	0.130	1.015	---
research department	W2	0.037	0.045	0.042	0.022	2.029	---
other	W1	0.009	0.000	0.000	0.022	0.000	---
Job location:							
North	NORTH	0.481	0.568	0.500	0.370	1.472	1.154
Centre	CENTER	0.250	0.182	0.333	0.283	0.833	0.577
South	SOUTH	0.167	0.159	0.083	0.217	0.609	1.154
Foreign university or non-academic pst.	EST	0.102	0.091	0.083	0.130	0.676	1.154
Teaching experience (number of taught courses)	INS	3.953	4.523	3.188	3.598	1.126	1.062
article in a foreign journal ranked 1-10	P1	0.095	0.168	0.090	0.049	2.865	0.000
article in a foreign journal ranked 11-50	P2	0.289	0.448	0.256	0.166	2.290	2.025
article in a foreign journal ranked 51-125	P3	0.541	0.574	1.019	0.392	1.863	1.323
article in a Italian journal ranked 1-5 or any other foreign journal	P4	2.684	2.817	3.887	2.088	0.002	1.811
article in a Italian journal ranked 6-20	P5	5.812	5.052	6.843	5.700	0.997	0.721
contribution to collected papers published abroad	P6	1.384	1.178	1.832	1.274	1.106	0.987
contribution to collected papers published at home	P7	2.271	2.142	2.376	2.247	0.990	0.884
article published in any other Italian journal and any other publication	P8	5.532	4.918	6.785	5.695	0.979	0.881
volume published by a main foreign publisher	M1	0.045	0.053	0.090	0.022	3.037	∞
volume published by a main Italian publisher or any other foreign publisher	M2	0.342	0.358	0.211	0.350	0.874	0.148
other volumes	M3	0.460	0.423	0.388	0.510	0.805	0.793
# occurrences in Econlit database (1997)	ECONLIT	4.287	4.659	6.167	2.978	1.743	1.319
average mark obtained during oral examination	ORAL	-0.116	6.813	3.569	-8.186	-0.717	-0.474

* The total number of cases does not coincide with results of previous Tables, since some applicants who were in the short list did not sit the oral exam because in the meanwhile they were appointed as associate professor in other economic disciplines (like *economic policy*, *monetary economics*, *development economics*). Summing up, out of 120 scholars placed in the short list, 12 withdrew before the oral exam (6 of them because already nominated associated professors – their information appear in 4th column) and 108 sat the oral exam. Among this latter group, 44 were appointed associate professors in Economics, 18 were appointed in other disciplines and the remaining 46 did not obtain any position.

Table 9 - Changes in the probability of being appointed to professorship
(from 6th column of Table A2)

	VARIABLE NAME	coeff	pvalue	xbar
Gender	FEMALE	0.246	0.291	0.278
Age	AGE	0.030	0.276	38.455
Article in a foreign journal ranked 1-10	P1	0.809	0.093	0.107
Article in a foreign journal ranked 11-50	P2	0.673	0.018	0.304
Article in a foreign journal ranked 51-125	P3	0.573	0.006	0.481
Article in a Italian journal ranked 1-5 or any other foreign journal	P4	0.164	0.004	2.445
Article in a Italian journal ranked 6-20	P5	-0.018	0.578	0.054
Contribution to collected papers published abroad	P6	0.075	0.301	1.227
Contribution to collected papers published at home	P7	0.098	0.064	2.196
Article published in any other Italian Journal and any other publication	P8	-0.022	0.229	5.315
Volume published by a main foreign publisher	M1	1.628	0.090	0.037
Volume published by a main Italian publisher or any other foreign publisher	M2	0.194	0.336	0.354
Other volumes	M3	0.555	0.005	0.467
Job location: FOREIGN UNIVERSITY OR NON-ACADEMIC POSITION	EST	-0.505	0.355	0.111
Job location: UNIVERSITY IN THE SOUTH	SOUTH	0.540	0.036	0.189
Job opening in the university of the applicant	LOCAL	0.792	0.010	0.722
A commissioner from the university of the applicant	COMMIS	0.414	0.074	0.367
Average mark obtained during oral examination	ORAL	0.053	0.000	-0.853
Educational certificates: PHD IN A ITALIAN UNIVERSITY	T3	0.482	0.044	0.444
Educational certificates: PHD IN A FOREIGN UNIVERSITY	T4	0.546	0.074	0.544
Teaching experience(number of taught courses)	INS	0.077	0.062	4.05

Table 10 – Comparison between the two stages of selection

	entering a short list	appointment to professorship
Gender	0.178	0.219
Age	-0.009	0.025
Article in a foreign journal ranked 1-50	0.964	0.611
Article in a foreign journal ranked 51-125	0.701	0.502
Article in a Italian journal ranked 1-5 or any other foreign journal	0.201	0.151
Article in a Italian journal ranked 6-20	0.079	-0.028
Contribution to collected papers published abroad	0.130	0.077
Contribution to collected papers published at home	0.000	0.089
Article published in any other Italian Journal and any other publication	-0.001	-0.019
Volume published by a foreign publisher or a main Italian publisher	0.377	0.263
Other volumes	0.141	0.492
Job location: FOREIGN UNIVERSITY OR NON-ACADEMIC POSITION	-0.464	-0.559
Job location: UNIVERSITY IN THE SOUTH	0.413	0.532
Job opening in the university of the applicant	-0.091	0.707
A commissioner from the university of the applicant	0.328	0.327
Educational certificates: PHD IN A ITALIAN UNIVERSITY	0.110	0.437
Educational certificates: PHD IN A FOREIGN UNIVERSITY	0.328	0.493
Teaching experience(number of taught courses)	-0.001	0.075
Average mark obtained during oral examination	---	0.054
pseudo R ²	0.638	0.565

Coefficients in bold are significant at the 0.1 threshold.

Table 11 – Comparison of candidate distributions

	Rank 1	Rank 2
average	41.31	36.03
median	35.43	29.15
minimum	1	1
maximum	184.67	153.93
standard deviation	25.82	24.74
variation coefficient	0.625	0.686
Gini's concentration index	0.312	0.341
<i>admission to short list (120 obs)</i>		
average	57.09	53.99
median	49.40	45.25
standard deviation	28.32	26.83
<i>appointment to professorship (discipline Economics – code P01A) (44 obs)</i>		
average	56.82	56.80
median	49.85	50.98
standard deviation	23.17	22.63

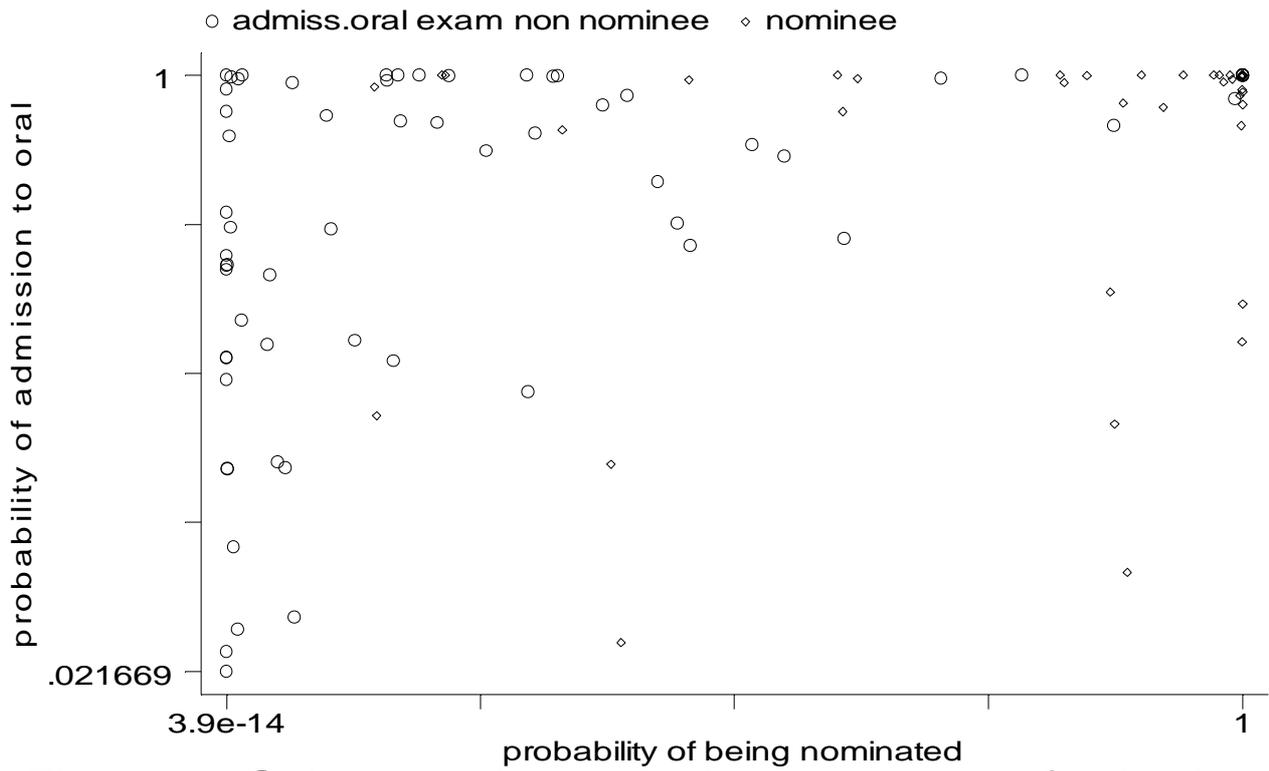


Figure 1 - Coherence between the two stages of selection

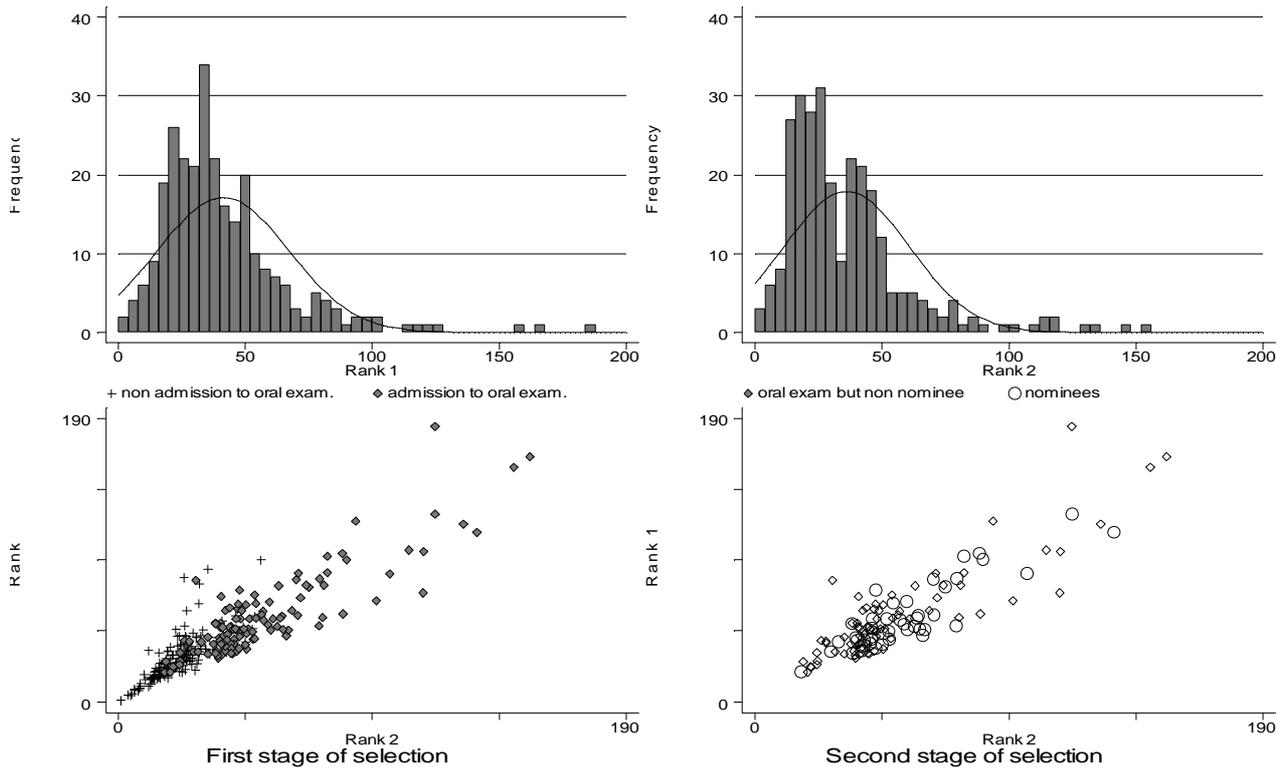


Figure 2 - Alternative rankings of the applicants

Appendix 1 – Alternative ranking of economic journals and present ranking

The following table reports alternative ranking of economic journals. The first column (from Table 1 in Laband and Piette 1994) orders the journals according to the number of quotations obtained by each journal in the same set of journals. The second column (from Table 2 in Laband and Piette 1994) weights the citations with the ranking of the journal as they appear in the first column, and repeat the procedure until convergence. In other words, a citation is considered more relevant if it appears in a highly quoted journal. The third column shows a (unweighed) ranking of the subset of journals that report to the Social Sciences Citation Index. The fourth column is the ranking utilised in the present work. It is obtained by excluding non-academic journals (like *the Economist*) or field specific journals (like *Soviet Studies* or *Journal of Accounting Economics*), and by considering an average rank between the first and the third column, with some exceptions. The *Journal of Risk and Uncertainty* and the *Journal of Finance* were moved to the second group because they appear in just one list; some fate occurred to the *Journal of Economic Literature* and the *Journal of Economic Perspectives*, on the consideration that they pre-assign their articles. In their position were moved the *Journal of Econometrics*, the *Brooking Papers on Economic Activity*, the *Rand Journal of Economics* and the *Journal of Economic Theory*. Similar changes were introduced in the neighbourhood of the border between the second and the third group, downgrading the journals appearing in just one list and upgrading those appearing in both lists. Finally to update the list, some additions were introduced in the second group (*Economic Theory* and *International Journal of Game Theory*) and in the third one (*Economic Policy*, *Economics and Philosophy* and *Theory and Decisions*).

	1990 Citations to Articles Published 1985-1989 (table 1 in Laband-Piette 1994)	1990 Citations to Articles Published 1985-1989 (table 2 in Laband-Piette 1994)	SSCI Journal Citation reports Economics - October 1995	Ranking utilised in the present paper (see Table 1)
1	J.Econ.Lit.	J.Finan.Econ.	Economist	Econometrica 1
2	J.Finan.Econ.	Econometrica	J.Econ.Lit.	J.Financ.Econ. 2
3	Yale Law J.	J.Polit.Econ.	Econometrica	J.Polit.Econ. 3
4	Michigan Law Rev.	J.Monet Econ.	Quart.J.Econ.	Quart.J.Econ. 4
5	J.Cons.Rev.	Quart.J.Econ.	J.Risk Uncertainty	Amer.Econ.Rev. 5
6	Econometrica	Rev.Econ.Stud.	J.Polit.Econ.	Rev.Econ.Stud. 6
7	J.Acc.Econ.	Amer.Econ.Rev.	J.Econ.Perspect	J.Econometrics 7
8	J.Polit.Econ.	Bell.J.Econ.(Rand J.Econ.)	Sov.Econ.	Brookings Pap.Econ.Act. 8
9	J.Amer.Statist.Assoc.	J. Econ. Theory	J.Financ.Econ.	Rand J.Econ. 9
10	J.Legal Stud.	J.Finance	Amer.Econ.Rev.	J. Econ. Theory 10
11	Amer.Econ.Rev.	J.Econ.Lit.	Rev.Econ.Stud.	J.Econ.Lit. 11
12	J.Monet Econ.	J.Acc.Econ.	Econ.Geogr.	J.Risk Uncertainty 12
13	J.Bus.	J.Econ.Perspectives	J.Econometrics	J.Econ.Perspectives 13
14	J.Econ.Perspectives	J.Bus.	J.Account.Econ.	J.Finance 14
15	Bell.J.Econ.(Rand J.Econ.)	J. Math. Econ.	Brookings Pap.Econ.Act.	J.Law Econ.Organ. 15
16	Quart.J.Econ.	J.Econometrics	J.Environ.Econ.Manag.	Ecol.Econ. 16
17	J.Roy.Statist.Soc.	Brookings Pap.Econ.Act.	Oxford Bull.Econ.Statist.	Oxford Bull.Econ.Statist. 17
18	J.Finance	J. Lab. Econ.	J.Law Econ.Organ.	J.Law Econ. 18
19	Demography	J. Finan. Quant. Anal.	Ecol.Econ.	J.Health Econ. 19
20	J.Law Econ.	Int. Econ. Rev.	J.Health Econ.	J.Monetary Econ. 20
21	Rev.Econ.Stud.	J.Law Econ.	Rand J.Econ.	J.Int.Bus.Stud. 21
22	Population Devel.Rev.	J. Money Credit Banking	J.Law Econ.	Econ.Journal 22
23	J.Health Econ.	J. Public. Econ.	Eastern Eur.Econ.	J.Labor Econ. 23
24	J.Int.Bus.Stud.	J.Amer.Statistic.Assoc.	Econ.J.	Work Employ.Soc. 24
25	Oxford Bull.Econ.Statist.	J. Bus. Econ. Statist.	J.Labor Econ.	Ind.Lab.Relat.Rev. 25
26	Brookings Pap.Econ.Act.	J. Int. Econ.	J.Bus.Econ.Stat.	J.Appl.Econom. 26
27	J.Econometrics	Econ.J.	J.Hum.Resour.	J.Hum.Resour. 27
28	Econ.J.	Rev.Econ.Statist.	Work Employ Soc	J.Money Credit Banking 28
29	Ind.Lab.Relat.Rev.	J.Ind.Econ.	J.Econ.Theory	Ind.Rel. 29
30	J. Lab. Econ.	J. Banking Finance	Econ.Hist.Rev.	J.Bus.Econ.Stat. 30
31	J.Acc.Res.	Int. J. Ind. Organ.	Econ.Dev.Cult.Change	IMF Staff papers 31
32	J. Econ. Theory	J. Econ. Dynamics & Control	J.Appl.Econom.	Econ.Hist.Rev. 32
33	J. Money Credit Banking	Demography	Post-Sov.Aff.	J.Math.Econ. 33
34	Ind. Rel.	J.Human Res.	J.Monetary Econ.	J.Ind.Econ. 34
35	California Manage. Rev.	Soc. Choice Welfare	Indones.Econ.Stud.	J.Int.Econ. 35
36	J. Finan. Quant. Anal.	Ind.Lab.Relat.Rev.	IMF Staff papers	Game Econ.Behav. 36
37	J. Int. Econ.	J. Econ. Educ.	Land Econ.	Inquiry-J.Health Care Org. 37
38	J. Hum. Res.	Econ. Inquiry (West Econ. J.)	J.Ind.Econ.	J.Public.Econ. 38
39	J. Math. Econ.	J.Roy.Statist.Soc.	Sov.Stud.	Econ.Dev.Cult.Change 39
40	Econ.Geogr.	Econ. Letters	Tud.Econ.Soc.Ge.	J.Reg.Sci. 40
41	Rev.Econ.Statist.	J. Econ. Hist.	Eur.Econ.Rev.	Economica 41
42	Sloan Manage. Rev.	Oxford Bull.Econ.Statist.	Kyklos	Explorations Econ.Hist. 42
43	J.Ind.Econ.	J.Acc.Res.	Probl.Communist	J.Urban Econ. 43
44	J. Bus. Econ. Statist.	Economica	World Econ.	World Devel. 44
45	Econ. Hist. Rev.	J. Finan. Res.	Game Econ.Behav.	J.Econ.Hist. 45
46	J. Public. Econ.	Explorations Econ. Hist.	J.Dev.Econ.	Eur.Econ.Rev. 46
47	Economica	J. Risk. Ins.	World Dev.	Kyklos 47

48	Inquiry-J. Health Care Org.	Europ. Econ. Rev.	J.Int.Econ.	J.Devel.Econ.	48
49	J. Reg. Sci.	J. Econ. Behav. Organ.	J.Econ.Hist.	Ec.Theory	49
50	J. Urban Econ.	Scand. J. Econ.	J.Financ.Quant.Anal.	Int.J.Game Theory	50
51	Explorations Econ. Hist.	Public Choice	J.Public.Econ.	J.Environ.Econ.Manag.	51
52	Land Econ.	J. Compar. Econ.	Economica	J.Finan.Quant.Anal.	52
53	Int. Econ. Rev.	Econometric Theory	Defenc.Econ.	Rev.Econ.Statist.	53
54	Reg. Stud.	J.Legal Stud.	Soc.Choice Welfare	Defenc.Econ.	54
55	J. Environ. Econ. Manage.	J. Urban Econ.	Econ.Inq.	Reg.Stud.	55
56	J. Forecasting	J. Lab. Res.	J.Urban Econ.	Int.Econ.Rev.	56
57	Econ. Inquiry (West Econ. J.)	Public Finance	Rev.Econ.Stat.	Econ.Inquiry (WestEcon.J.)	57
58	Amer.J.Agr.Econ.	J. Devel. Econ.	Int.Econ.Rev.	J.Forecasting	58
59	Mon. Lab. Rev.	Southern Econ. J.	Int.J.Ind.Organ.	Mon.Lab.Rev.	59
60	Soc. Sci. Quart.	Cato J.	New England Econ.Rev.	Soc.Sci.Quart.	60
61	World Devel.	Canadian J. Econ.	Resour.Energy Econ.	Resour.Energy Econ.	61
62	Oxford Econ. Pap.	J.Health Econ.	Am.J.Agr.Econ.	Oxford Econ.Pap.	62
63	Public Choice	Oxford Econ. Pap.	J.Comp.Econ.	Int.J.Ind.Organ.	63
64	J. Econ. Behav. Organ.	J. Macroecon.	Energ.Econ.	J.Econ.Behav.Organ.	64
65	J. Econ. Hist.	Kyklos	Economet.Theory	J.Comp.Econ.	65
66	British J. Ind. Rel.	Amer.J.Agr.Econ.	Nat. Tax J.	BritishJ.Ind.Rel.	66
67	Econ. Devel. Cult. Change	Ind. Rel.	Geneva Pap.Risk.Ins.	World Econ.	67
68	J. Compar. Econ.	British J. Ind. Rel.		Reg.Sci.Urban Econ.	68
69	Int. J. Ind. Organ.	Public Finance Quart.		J.Policy Anal.Manage.	69
70	Reg. Sci. Urban Econ.	Manchestr Sch. Econ. Soc. Stu		Soc.Choice Welfare	70
71	J. Policy Anal. Manage.	Population Devel.Review		Soc.Res.	71
72	Soc. Res.	Econ. Modelling		Canadian J.Econ.	72
73	Canadian J. Econ.	World Econ.		Nat. Tax J.	73
74	Europ. Econ. Rev.	Appl. Econ.		Southern Econ.J.	74
75	Southern Econ. J.	Nat. Tax J.		J.Econ.Dynamics & Control	75
76	J. Econ. Dynamics & Control	J. Forecasting		J.Lab.Res.	76
77	J. Lab. Res.	J.Int.Bus.Stud.		Int.Reg.Sci.Rev.	77
78	Int. Reg. Sci. Rev.	Scottish J. Polit. Econ.		Cambridge J.Econ.	78
79	Cambridge J. Econ.	Quart. Rev. Econ. Bus.		J.Devel.Stud.	79
80	J. Devel. Stud.	Reg. Sci. Urban Econ.		Sci.Society	80
81	Kyklos	Cambridge J. Econ.		Scand.J.Econ.	81
82	Sci. Society	Econ. Devel. Cult. Change		Manchest.Sch.Econ.Soc.Stud.	82
83	J. Devel. Econ.	Econ. Record		J.Banking Finance	83
84	Nat. Tax J.	Mon. Lab. Rev.		Public Choice	84
85	Scand. J. Econ.	Land Econ.		Energy Econ.	85
86	Manchest.Sch. Econ. Soc. Stud.	Weltwirtsh. Arch.		J.Finan.Res.	86
87	J. Banking Finance	J. Environ. Econ. Manage.		Urban Stud.	87
88	Soc. Choice Welfare	Econ. Hist. Rev.		J.Econ.Educ.	88
89	J. Finan. Res.	J. Econ. Stud.		Weltwirtsh.Arch.	89
90	Urban Stud.	J. Reg. Sci.		Rev.Soc.Econ.	90
91	World Econ.	Australian J. Agr. Econ.		J.Risk. Ins.	91
92	J. Econ. Educ.	Bus. Hist. Rev.		Econ.Modelling	92
93	Weltwirtsh. Arch.	Energy Econ.		Econometric Theory	93
94	Rev. Soc. Econ.	J. Devel. Stud.		J.PostKeynesian Econ.	94
95	J. Risk. Ins.	Int. J. Soc. Econ.		J.Econ.Issues	95
96	Econ. Modelling	Yale Law J.		J.Transport Econ.Policy	96
97	J. Post Keynesian Econ.	J. Common Market Stud.		Public Finance Quart.	97
98	J. Econ. Issues	Rev. Soc. Econ.		Labor Hist.	98
99	J. Transport Econ. Policy	J. Transport Econ. Policy		J.World Trade	99
100	Public Finance Quart.	J. Post Keynesian Econ.		J.Macroecon.	100
101	Labor Hist.	J. Econ. Bus.		J.Common Market Stud.	101
102	J. World Trade	World Devel.		Int.Lab.Rev.	102
103	J. Macroecon.	J. Econ. Issues		Int.J.Soc.Econ.	103
104	J. Common Market Stud.	Michigan Law Rev.		Econ.Letters	104
105	Int. Lab. Rev.	Reg. Stud.		Natural Res.J.	105
106	Int. J. Soc. Econ.	J. Pol. Anal. Manage.		Appl.Econ.	106
107	Econ. Letters	Hist. Polit. Econ.		Cato Journal	107
108	Natural Res. J.	Inquiry-J. Health Care Org.		J.Econ.Bus.	108
109	Appl. Econ.	Urban Stud.		J.Developing Areas	109
110	Cato J.	Manager.Dec.Econ.		Econ.Record	110
111	Public Finance	Amer. J. Econ. Sociology		Scottish J.Polit.Econ.	111
112	Energy Econ.	California Manage. Rev.		Hist.Polit.Econ.	112
113	J. Econ. Bus.	Int. Lab. Rev.		Quart.Rev.Econ.Bus.	113
114	J. Developing Areas	Int. Soc. Sci. J.		Bus.Hist.Rev.	114
115	Econ. Record	Econ.Geogr.		Amer.J.Econ.Sociology	115
116	Scottish J. Polit. Econ.	J.Cons.Res.		Rev.Black Polit.Econ.	116
117	Hist. Polit. Econ.	J. Developing Areas		Int.Soc.Sci.J.	117
118	Quart. Rev. Econ. Bus.	Labor Hist.		Managerial Dec.Econ.	118
119	Bus. Hist. Rev.	J. World Trade		J.Econ.Stud.	119
120	Amer. J. Econ. Sociology	Sci. Society		Australian J.Agr.Econ.	120
121	Rev. Black Polit. Econ.	Matekon		Rev.Bus.Econ.Res.	121
122	Int. Soc. Sci. J.	Natural Res. J.		Matekon	122
123	Managerial Dec.Econ.	Sloan Manage. Rev.		Economic Policy	123
124	J. Econ. Stud.	Soc. Sci. Quart.		Economics & Philosophy	124
125	Australian J. Agr. Econ.	Soc. Res.		Theory & Decision	125
126	Rev. Bus. Econ. Res.	Rev. Black Polit. Econ.			
127	Econometric Theory	Rev. Bus. Econ. Res.			
128	Matekon	Int. Reg. Sci. Rev.			

Appendix 2 – Probit estimates of the two stages of selection

Table A1 – Probability of admission to the short list (interview and mock lecture)

Dependent variable: AMISS (1=admitted to the short list, 0=not admitted)
(t-statistics in parentheses)

Model :	1	2	3	4	5
# obs :	277	277	277	277	277
Depvar:	amiss	amiss	amiss	amiss	amiss
intcpt	-1.053 (-1.28)	-1.013 (-1.08)	-1.188 (-1.15)	-2.935** (-2.14)	-2.948** (-2.12)
female	0.331 (1.37)	0.414 (1.57)	0.424 (1.56)	0.461* (1.64)	0.461* (1.64)
age	-0.035* (-1.57)	-0.051** (-2.06)	-0.054** (-2.08)	-0.024 (-0.79)	-0.023 (-0.75)
p1+p2	2.331** (4.84)	2.487** (4.67)	2.571** (4.90)	2.476** (4.46)	2.481** (4.42)
p3	1.355** (5.11)	1.501** (4.96)	1.762** (5.36)	1.767** (5.28)	1.768** (5.27)
p4	0.318** (4.31)	0.481** (4.94)	0.50** (4.87)	0.505** (4.83)	0.506** (4.82)
p5	0.183** (4.60)	0.190** (4.32)	0.181** (4.06)	0.20** (4.36)	0.20** (4.36)
p6	0.315** (3.02)	0.330** (2.99)	0.357** (2.94)	0.328** (2.63)	0.328** (2.63)
p7	-0.013 (-0.31)	0.004 (0.10)	-0.005 (-0.11)	0.000 (0.00)	0.001 (0.02)
p8	-0.029 (-0.87)	-0.006 (-0.15)	-0.011 (-0.28)	-0.002 (-0.04)	-0.002 (-0.05)
m1+m2	0.736** (3.41)	0.967** (4.06)	1.012** (4.16)	0.946** (3.83)	0.951** (3.67)
m3	0.181 (1.53)	0.269** (1.90)	0.339** (2.24)	0.354** (2.36)	0.355** (2.36)
est		-1.683** (-3.38)	-1.541** (-2.72)	-1.298** (-2.29)	-1.301** (-2.29)
South		0.769** (2.40)	1.146** (3.15)	1.239** (3.22)	1.242** (3.21)
local			-0.299 (-0.84)	-0.234 (-0.65)	-0.232 (-0.64)
commis			0.955** (3.30)	0.883** (2.93)	0.883** (2.93)
t3				0.284 (0.92)	0.280 (0.89)
t4				0.831** (2.46)	0.827** (2.42)
ins					-0.003 (-0.07)
pseudo R ²	0.528	0.59	0.621	0.637	0.638

* indicates p-value lower than 0.10
** indicates p-value lower than 0.05

Table A2 – Probability of being appointed as associate professor of Economics

Dependent variable: VINC (1=being appointed, 0=not appointed)
(t-statistics in parentheses)

Model :	1	2	3	4	5	6
# obs :	90	90	90	90	90	90
Depvar:	vinc	vinc	vinc	vinc	vinc	vinc
intcpt	-0.039 (-0.03)	-1.536 (-1.03)	-3.114* (-1.81)	-6.250** (-2.87)	-10.40** (-3.01)	-11.467** (-2.61)
female	-0.139 (-0.38)	-0.122 (-0.31)	0.093 (0.23)	0.755 (1.24)	0.703 (1.07)	0.688 (1.06)
age	-0.018 (-0.50)	0.001 (0.04)	0.000 (-0.01)	0.042 (0.86)	0.106* (1.67)	0.079 (1.09)
p1	0.578 (1.24)	1.116** (2.25)	1.538** (2.63)	1.672** (2.29)	1.948** (2.19)	2.110* (1.68)
p2	0.787** (2.42)	1.310** (3.08)	1.497** (3.35)	1.336** (2.62)	1.480** (2.41)	1.754** (2.36)
p3	0.408* (1.76)	0.688** (2.51)	0.903** (2.88)	1.10** (2.81)	1.189** (2.66)	1.495** (2.72)
p4	0.138* (1.84)	0.219** (2.47)	0.30** (2.90)	0.334** (2.83)	0.367** (2.78)	0.427** (2.86)
p5	-0.036 (-0.76)	-0.044 (-0.85)	-0.057 (-0.98)	0.002 (0.03)	0.002 (0.02)	-0.048 (-0.56)
p6	-0.059 (-0.70)	0.018 (0.16)	-0.056 (-0.42)	0.225 (1.29)	0.202 (1.10)	0.194 (1.03)
p7	0.069 (1.10)	0.117 (1.57)	0.147* (1.72)	0.210* (1.84)	0.247** (1.98)	0.254* (1.85)
p8	-0.021 (-0.70)	-0.012 (-0.36)	-0.011 (-0.33)	-0.071* (-1.61)	-0.082* (-1.80)	-0.058 (-1.20)
m1	1.129 (1.28)	1.741* (1.79)	2.758** (2.32)	3.193* (1.60)	3.20* (1.69)	4.248* (1.70)
m2	0.061 (0.22)	0.321 (1.01)	0.407 (1.21)	0.407 (0.94)	0.240 (0.48)	0.505 (0.96)
m3	0.185 (0.89)	0.176 (0.80)	0.432* (1.69)	0.991** (2.60)	1.255** (2.80)	1.449** (2.83)
est		-1.789** (-2.29)	-0.917 (-1.00)	-1.220 (-1.02)	-1.164 (-0.83)	-1.416 (-0.92)
South		0.608 (1.36)	0.855* (1.70)	1.501** (2.20)	1.931** (2.26)	2.255** (2.10)
local			0.967* (1.77)	1.684** (2.48)	2.150** (2.59)	2.631** (2.58)
commis			0.645* (1.63)	0.691 (1.41)	0.780 (1.45)	1.20* (1.78)
oral				0.125** (4.36)	0.133** (3.96)	0.139** (3.55)
t3					0.911 (1.60)	1.377** (2.01)
t4					1.085* (1.62)	1.530* (1.79)
ins						0.201* (1.87)
pseudo R ²	0.145	0.206	0.253	0.529	0.560	0.592

* indicates p-value lower than 0.10
** indicates p-value lower than 0.05

Table A3 – Predictive ability of synthetic indices

Model 1: placement in a short list using Rank 1
 Model 2: appointment to associate professorship in Economics using Rank 1
 Model 3: placement in a short list using Rank 2
 Model 4: appointment to associate professorship in Economics using Rank 2

(t-statistics in parentheses)

Model :	1	2	3	4
# obs :	277	90	277	90
Depvar:	amis	vinc	amis	vinc
intcpt	0.754 (1.04)	-4.260** (-2.47)	-2.848** (-2.96)	-7.670** (-3.29)
female	0.305 (1.41)	0.052 (0.12)	0.469* (1.78)	0.407 (0.87)
age	-0.091** (-4.75)	0.065* (1.69)	-0.047** (-2.37)	0.089** (2.07)
rank1	0.062** (8.72)	0.023** (2.58)	---	---
rank2	---	---	0.124** (8.58)	0.067** (3.65)
oral	---	0.109** (5.02)	---	0.115** (4.80)
est	-0.948** (-2.51)	-1.058 (-1.32)	-1.323** (-2.57)	-2.380** (-2.39)
South	0.561** (2.17)	0.438 (0.94)	1.333** (3.93)	1.370** (2.23)
local	-0.078 (-0.29)	0.740 (1.54)	-0.241 (-0.74)	0.952* (1.74)
commis	0.355* (1.61)	0.189 (0.52)	0.824** (2.93)	0.512 (1.22)
pseudo R ²	0.398	0.392	0.623	0.485

* indicates p-value lower than 0.10
 ** indicates p-value lower than 0.05