

## “THE ELITE IN ECONOMICS”

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### Abstract

This paper analyzes a sample of economists from two sources: faculty members working in 2007 in a selection of the top 81 Economics departments in the world, and Econometric Society Fellows active at that date but working elsewhere in other institutions. Productivity is measured in terms of a quality index that weights the publications of each individual in four journal equivalent classes. We identify three elites consisting of the 123, 332, and 908 researchers in a total sample of 2,605 scholars that have published at least one article in the periodical literature up to 2007. We investigate the following six questions. (1) The “funneling effect” from countries where elite members obtain their first degree, to countries where they obtain a Ph.D. and, finally, to countries where they work in 2007. (2) The clustering of elite members in a few top U.S. Economics departments in order to pursue their Ph.D. and to work in 2007. (3) The geographical distribution of the elite into the following three groups: those who study and work in the same country (*stayers*), those who study the Ph.D. abroad but come back to the country where they obtained a first degree (*brain circulation*), and those who complete their education at home but move abroad after the Ph.D., plus those who leave their country to study the Ph.D. and remain abroad in 2007 (two forms of *brain drain*). (4) The extent of the research gap between the U.S. and the EU. (5) The characteristics of the elites in Economics with the elites in other scientific disciplines and, especially, with the elite in Mathematics for which we have comparable data. (6) Finally, we investigate questions 1 to 4 above for “young people”, defined as the economists in our original samples that obtained a Ph.D. at most 25 years before 2007.

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## I. INTRODUCTION

The notion of an elite is a complex conceptual question. As pointed out in the Sociology of Science, academic research communities generate their own well-defined elites among the individuals that have demonstrated the highest commitment to an ethos in which the search for scientific knowledge is the paramount objective. Similarly to elites in other contexts, Mulkay (1976) characterizes scientific elites in terms of four basic features. (i) They are privileged in two respects: awards, recognition, and visibility, granted in accordance with perceived scientific achievements, and excellent access to opportunities for doing high quality work, including research funds and facilities. (ii) They tend to cluster in a few centers, and their social ties with each other are stronger than their ties with other scientists. (iii) They control or direct the activities of others by occupying positions of formal authority, committees for the allocation of research funds, journal editorial boards, scientific advisory bodies at the international and national levels, as well as by exercising informal influence in determining which work is high quality. (iv) They considerably influence the recruitment of new members into the elite. Furthermore, (v) academic elites mediate between academic communities and the wider society, successfully resisting instrumental demands from governments and other agents, and maintaining considerable freedom for members of the academic research community to pursue their own “scientifically defined” interests.

Clearly, aspects (iii) to (v) are difficult to observe. However, a number of contributions have used a variety of empirical sources for identifying academic elites in terms of “outstanding performance”.<sup>1</sup> In this vein, in this paper we identify the elite in Economics with a set of highly productive scholars in a sense that will be made precise below. Observing where these scholars work in 2007, we will be able to study the clustering in a few centers mentioned in point (ii) above. Choosing a measure of productivity to identify an academic elite is a good choice for two reasons. Firstly, the distribution of individual researchers’

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<sup>1</sup> See Zuckerman (1977), Stephan & Levin (2001), Weinberger & Galeson (2005), Bauwens *et al.* (2008), and Hunter *et al.* (2009). For an attempt to take into account the elite’s functional aspects that sociologists have emphasized, see Laudel (2003, 2005).

productivity is known to be highly unequal. Seglen’s (1992) seminal contribution refers to this phenomenon –present also in the distributions of the citations received by articles published in academic journals at all aggregation levels– as the *skewness of science*. Thus, in so far as a rather small number of scientists actually produce a large proportion of published results, it is natural to identify the elite with highly productive scholars. Secondly, using size- and scale-independent statistical techniques, it has been found that individual productivity distributions are remarkably similar across scientific disciplines.<sup>2</sup> This opens the way for a common definition of elites in all of them.

Since the mid-1990s the EU –namely, the 15 countries forming the European Union before the 2004 accession– has published more scientific papers in the periodical literature than the U.S. in a majority of scientific fields, independently of the way that publications are assigned to broad or detailed categories at different aggregation levels. This led to the so-called “European Paradox”, according to which Europe plays a leading world role in terms of scientific excellence but lacks the entrepreneurial capacity of the U.S. to transform this excellent performance into innovation, growth, and jobs.<sup>3</sup> However, once we take into account the citation impact of these publications, the dominance of the U.S. is overwhelming at all aggregate levels.<sup>4</sup>

In Economics, Drèze & Estevan (2007) provide an excellent survey of what we know at the beginning of the present century –namely, the date at which our samples have been constructed– concerning the following three issues. Firstly, the “funneling effect” (in the terminology of Hunter *et al.*, 2009) that takes place in two steps: from countries where economists obtain their first degree, to countries

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<sup>2</sup> For productivity distributions, see the landmark paper by Alfred Lotka (1926), the book by Derek de Solla Price (1963) that starts the modern quantitative study of science and, *inter alia*, Nicholls (1989), Kretschner & Rousseau (2001), and Ruiz-Castillo & Costas (2014). For recent studies concerning citation distributions, see Schubert *et al.* (1987), Glänzel (2007), Albarrán & Ruiz-Castillo (2011), and Albarrán *et al.* (2011a).

<sup>3</sup> See the executive summary of the report EC (1994) by Ugur Muldur and Luc Soete, as well as Delanghe, Sloan, and Muldur (2011), and King (2004).

<sup>4</sup> See Dosi *et al.* (2006, 2009). For the 22 broad fields distinguished by Thomson Reuters, see Albarrán *et al.* (2011b, c). For a study focusing on the 250 most highly cited researchers in 21 disciplines in 1981-1999, see Bauwens *et al.* (2008). For 219 Web of Science subject-categories, see Herranz and Ruiz-Castillo (2012a, b, c). For contributions that emphasize governance and policy aspects, see Aghion *et al.* (2008), and Veugelers & Van der Ploeg (2008).

where they obtain a Ph.D. and, finally, to countries where they currently work. Secondly, the clustering in a few top U.S. Economics departments by those moving abroad to pursue their Ph.D. and/or to work in 2007. Thirdly, the extent of the gap between the research produced in U.S. or European institutions. The first aim of this paper is to study whether the funneling and the clustering effects, as well as the research gap in favor of the U.S. become stronger as we consider a succession of elites characterized by difference degrees of excellence. Naturally, the higher is the productivity standard the smaller is the elite size. In every elite, we distinguish between three geographical areas: the U.S., the EU, and the rest of the world (RW hereafter).

Spatial mobility is a widespread phenomenon in science that motivates the following partition of scientists into three groups. Firstly, mobility often becomes migration –a phenomenon that has given rise to a large literature on the *brain drain*.<sup>5</sup> In our context, we will be concerned with what can be called the *elite brain drain*.<sup>6</sup> Secondly, there is a second group of highly talented individuals who study and work abroad followed by a return to the home country –a phenomenon known as *brain circulation*.<sup>7</sup> These two groups, taken together, will be referred to as *movers*. Thirdly, there are those who study and work in the same country, referred to as *stayers*. Having information on everyone’s origin and destination, the second aim of this paper is twofold. On one hand, we study how the partition between movers and stayers in every geographical area evolves as we move from the largest to the smallest elite. On the other hand, part of the success achieved by U.S. institutions relative to the EU and the RW must be attributed to scholars born in other countries that either remained in the U.S. after obtaining a PhD there, or moved to the U.S. after

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<sup>5</sup> Initially, the term brain drain applied to the exodus of British scientists to the U.S. in the 1960s. Afterwards, this term usually designates the high-skilled migration from developing to developed countries. However, the term is also used in a narrower sense –closer to the initial meaning– relating to the migration of engineers, physicians, scientists and other very highly skilled professionals with university training from both the developing and developed countries. For a short historical review, see Gaillard & Gaillard (1997), and for two surveys of four decades of economics research on the brain drain, see Commander *et al.* (2004), and Doquier & Rapoport (2012).

<sup>6</sup> See Laudel (2003, 2005), Hunter *et al.* (2009), Section 5.2 in Doquier & Rapoport (2012), Panaretos & Malesios (2012), as well as the references cited in note 1. For the importance of the foreigners contribution to U.S. science, see Finn (1999), Regets (2001), Saint-Paul (2004), Ioannidis (2004), Tritah (2008), Section 2 in Docquier & Rapoport (2012), Panaretos & Malesios (2012), and chapter 8 in Stephan (2012).

<sup>7</sup> Glaser & Habers (1978), Gaillard & Gaillard (1997), Johnson & Regets (1998), Finn (1999), Section 6 in Commander *et al.* (2004), and Section 4.4 in Doquier & Rapoport (2012).

attending graduate school at home. Therefore, we study the research gap that refers to the output achieved by the nationals from the three geographical areas, distinguishing whether they work in 2007 in their country of origin (stayers and brain circulation) or abroad (brain drain).

Relative to other scientific disciplines, particularly within the natural sciences, Economics is a new social science historically dominated by British and U.S. scholars. This justifies the third aim of this paper, namely, the comparison of the characteristics of the elites in Economics and other discipline. Given the availability of data, we perform the following two exercises. Firstly, we compare the consequences of the funnelling effect towards the U.S. and, to a lesser degree, the extent of the clustering effect towards a few U.S. institutions, in Economics & Business and 20 other broad scientific fields. Secondly, we compare the geographical mobility in Economics and Mathematics, a much older discipline whose original practitioners can be found in many countries, and whose applied research –as in Economics– does not require capital-intensive facilities.

For the construction of the different elites, we start from a pool of 2,780 economists coming from two sources: faculty members working in 2007 in a selection of the best 81 Economics departments of the world, and a set of economists having received at that date an important professional distinction –a fellowship in the Econometrics Society, a membership in the American Academy of Sciences, or a Nobel prize. The members of this pool that have published at least one article in the periodical literature are not only very productive, but they share a common outlook through a graduate education that, in the majority of cases, takes place in the U.S. and other Anglo-Saxon countries, or is heavily influenced by the doctoral programs designed in them. Therefore, this total sample of 2,605 economists forms an elite in its own right. Beyond this, we distinguish between three elites, referred to as Elite III, II, and I, consisting of 908, 332, and 123 researchers, respectively.

We measure productivity in terms of a quality index that weights the number of publications up to 2007 in four equivalent journal classes. This clearly favors older people. Consequently, to have a glimpse

of the characteristics of the elite around 2030, in our final contribution we focus on a subset of “young people”, defined as those economists who obtained a Ph.D. at most 25 years before 2007 and are assumed to be, approximately, less than 50 years old in 2007.

The rest of this paper is organized into five Sections. Section II discusses the identification of the different elites, and presents some descriptive statistics. Section III contains the empirical results concerning the funnelling and the clustering effects, the geographic mobility, the extent of the two gaps – depending on the geographical area where the research is produced, and the country of origin of the researchers–, and the comparison with other sciences. Section IV briefly reviews the characteristics of the subset of young people, while Section V concludes. To save space, we include several Appendices in the Supplementary Material Section (SMS hereafter).

## II. THE IDENTIFICATION OF THE ELITE

### II.1. The construction of the dataset

In this Sub-section, we simply state the criteria we have followed to select the different notions of the elite that will be used in the sequel.<sup>8</sup> We base the notion of elite on outstanding performance according to a procedure that can be summarized in the following seven points.

1. We start by selecting a pool of scholars belonging to the best Economics departments in the world. Therefore, with the exceptions discussed below, researchers working in Business Schools are excluded from this study.

2. The best Economics departments are identified with the top 81 departments in the world according to the Econphd (2004) university ranking that takes into account the publications in 1993-2003 in the top 63 Economics journals according to the Kalaitzidakis *et al.* (2003) journal ranking. In this journal

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<sup>8</sup> A review of the previous literature on the identification of scientific elites, and the justification of our methodological decisions can be found in Appendices I, and II in the SMS, respectively.

ranking, journal quality weights reflect citation counts adjusted for factors such as the annual number of pages and the age of a journal.

3. We find 2,755 economists listed in the 81 departmental web pages in 2007. The minimum information we require for each individual includes the nationality, the University where the Ph.D. is obtained, the age, and the publications in the periodical literature up to 2007. The information concerning the country of birth is very often hard to find. Therefore, we generally assign the nationality in terms of the country where each individual obtains a B.A. or an equivalent first College degree. Similarly, since people's age is not generally available, we use the academic age, namely, the number of years elapsed from the Ph.D. (or equivalent degree) up to 2007. We could not find information about a person's education and/or publications in 50 cases. Therefore, the initial sample consists of 2,705 economists.

4. We register the information available in Internet (personal web pages, *RePEc*, *Publish or Perish*, etc.) concerning the publications until 2007 of these 2,705 people. Because of budgetary restrictions, our information suffers from two serious limitations. Firstly, the article count in our dataset made no distinction between single and multiple-authorship. Consequently, no correction for co-authorship could be implemented. Secondly, it was impossible to search for the citation impact achieved by every article. Therefore, we are constrained to measure productivity using the number of publications and the journals where they have appeared. Specifically, we measure productivity by a quality index  $Q$  that weights the number of articles published in four journal equivalent classes, denoted by A, B, C, and D.<sup>9</sup>

5. There are 175 faculty members without any publication at all (typically because they are on tenure track). The remaining 2,530 faculty of members with a positive quality index (or at least one publication) is a very productive sample: only 36.9% has no class A publication, while 25% published once or twice, and the remaining 38.1% published three or more times in the top journal class. The average productivity of

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<sup>9</sup> See Appendix I in the SMS for the alternative of measuring productivity by the total, un-weighted number of publications. For a complete listing of the five, 34, and 47 journals in classes A, B, and C, see Appendix II in the SMS.

this set of people is 307.3 quality points *per capita*, equivalent to more than seven articles of class A or about 20 articles of class B. Alternatively, the average quality index is 16.2 per year during the academic life (the period from the first year after the Ph.D. to 2007), a quantity that can be compared with the 15 points assigned to one article in class B.<sup>10</sup> In contrast, only 42.8% of European academic economists published at least once in *EconLit* during 1971-2000 (Combes and Linnemer, 2003), while only 39% of a sample of 1,600 economists graduating in 1969-1988 in the U.S. published at least one article, averaging 0.42 publications per year in 126 journals (Hutchinson and Zivney, 1995).

6. We fix the thresholds to select different types of elites as follows. Let  $\mu_1$  be the mean of the productivity distribution;  $\mu_2$  the mean productivity of individuals with productivity above  $\mu_1$ , and  $\mu_3$  the mean productivity of the individuals with productivity above  $\mu_2$ . Consider the partition of the distribution into four broad classes: a relatively low productivity, smaller than or equal to  $\mu_1$ ; an intermediate productivity, between  $\mu_1$  and  $\mu_2$ ; a remarkable productivity, between  $\mu_2$  and  $\mu_3$ , and an outstanding productivity above  $\mu_3$ . Panel A in Table 1 includes the percentage of individuals in the four classes, as well as the percentages of the total quality points accounted for by each. The mean  $\mu_1 = 307.3$  is 17 percentage points above the median, and the top 11.5% of economists in the last two classes account for 43.6% of all quality points.

We should emphasize that this result closely resembles the available evidence on the skewness of science in many dimensions (see note 2 for references to this literature). By way of example, Panel B in Table 1 reproduces the results taken from Ruiz-Castillo & Costas (2014) for a comparable distribution. This article studies the productivity of 17 million authors measured as the number of articles published in

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<sup>10</sup> By way of example, the following 12 journals are in class B: *Economic Journal*, *Games and Economic Behavior*, *International Economic Review*, *Journal of Econometrics*, *Journal of Economic Growth*, *Journal of Economic Theory*, *Journal of Finance*, *Journal of Labor Economics*, *Journal of Monetary Economics*, *Journal of Public Economics*, *Rand Journal of Economics*, *Review of Economics and Statistics*.



the periodical literature in 2003-2011 in 30 broadly defined scientific fields. There are 132,336 authors in the Economics & Business field. However, as many as 65.8% authors publish only one article in this nine year period –a feature shared with all other fields (the average of this percentage over the 30 fields is 68.1%). Therefore, Ruiz-Castillo & Costas (2014) also study the so-called successful authors, namely, the 25,911 scholars publishing a number of articles above the mean, which is equal to 2.26 articles. The results for successful authors in Economics & Business, as well as the average for the 30 fields are reproduced in Panel B in Table 1.

### Table 1 around here

The partition of authors into the three classes is remarkably similar to our own. Moreover, this partition is very similar to the average over the 30 fields.<sup>11</sup> Finally, as documented in Ruiz-Castillo & Costas (2014), this is essentially the same partition that we find in other bibliometric contexts. Thus, the high skewness of the individual productivity distribution in our set of 81 Economics departments is of the same type of what we find in the previous literature –a reassuring fact about the adequacy of this initial sample of 2,530 economists. In these circumstances, we suggest to work with elites characterized by an increasing productivity standard: (i) a group of 833 researchers with productivity above  $\mu_1$ ; (ii) the subset of 302 researchers among them with a remarkable productivity, that is, with  $Q$  above  $\mu_2 = 707.4$ , and (iii) a final group of 111 researchers with outstanding productivity with a  $Q$  index greater than  $\mu_3 = 1,165.2$ .<sup>12</sup>

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<sup>11</sup> On the other hand, the set of scholars with a number of publications below (above) the mean in Economics & Business accounts for a relatively large (small) percentage of all articles. The same is the case for the average over all fields. However, recall that individual productivity in our case is not measured as the number of publications, but in terms of a quality index that weights differently publications in four equivalent classes according to a rather elitist weighting scheme. Therefore, the above situation is compatible with the fact that economists in our sample with a number of quality points below (above) the mean account for a relatively small (large) percentage of all quality points.

<sup>12</sup> As explained in Appendix I in the SMS, an experiment where the quality index was defined using a less elitist weighting system of journal classes A to D convinced us that the more demanding construction with the above reported consequences was preferable.

7. Although these 833 people constitute an interesting starting point, it is very likely that we are missing other researchers that deserve to be part of the elite. Consequently, we search for economists that have received a high professional recognition. Following other contributions to the literature, we find it useful to focus on the set of Econometrics Society (ES hereafter) Fellows in 2007 that satisfy two conditions. Firstly, they remain active in 2007 in the sense that they have some publications in the 2005-2009 period. Secondly, they are productive enough in the sense that their overall quality index is above the mean  $\mu_l$ . Out of the 444 ESFs satisfying these criteria, 369 are already included in some of the original 81 Economics departments (some as Emeritus Professors). Among the rest, 34 are found in Business Schools, and 41 belong to some other institutions. Thus, our final total sample contains 2,605 economists, of whom 123, 332 and 908 belong to what we call Elite I, Elite II, and Elite III, respectively. These elites include 22, 9, and 6 scholars that have received a Nobel Prize up to 2007. On the other hand, all members of the American Academy of Sciences that satisfy the two criteria are also ES Fellows, and hence part of our elites.

8. As we will see below (Panel A in Table 4), approximately 69% of all economists in the total sample obtain their Ph.D. in the U.S. We should add that 12% attend graduate school in the UK or Canada. Furthermore, the Ph.D. program in some of the remaining institutions in the EU or the RW is inspired in the type of program we find in these Anglo-Saxon countries. Thus, a vast majority of the total sample receives a very similar type of graduate education that typically combines mathematics, game theory, and econometric methods with neo-classical economic theory and a wide set of applied fields. Consequently, they share a very similar methodological outlook, as well as a common view of what it takes for a piece of research to be of high quality.<sup>13</sup> Moreover, all individuals in the total sample belong to a subset of the best Economics departments of the world or are active members of the Econometric Society and, in comparison with the rest of the economics profession, their average productivity is very high

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<sup>13</sup> For a review of several studies investigating whether studying economics influences beliefs and behavior, see Coupé (2004).

indeed (see point 5 above). We conclude that, relative to the academic profession as a whole, the 2,605 economists in the total sample form a forth elite in its own right. Therefore, together with the other three elites, the total sample will be systematically taken into account below in the study of the stylized features of the set of highly productive economists.

## II.2. Some descriptive statistics

In this Sub-section, we briefly discuss some descriptive statistics for the total sample and the different elites.

- In the first place, the listing of the 85 types of institutions, together with information for each institution concerning the number of faculty members, the number of people without publications, and the remaining scholars' publications in classes A to D, is in Table A in Appendix III in the SMS. The original 81 departments are distributed as follows: 52 in the U.S., 29 in the EU, and 7 in the rest of the world (RW hereafter). Consider the 2,705 faculty members in the 81 departments, including those without any publication, plus the 75 ES Fellows who are not in these departments. Of this total of 2,780 individuals, 62.1% belong to U.S. institutions, 30.6% to European institutions, and the remaining 7.3% to the rest of the world (RW hereafter). Contrast this with the proportions 39%, 31%, and 30% reported in Coupé (2003) for the 55,000 people belonging to the profession at large who contributed at least one article in 1994-98 to the Economics literature as captured in *EconLit*.

- In the second place, Table 2 includes some basic statistics concerning the gender and age characteristics of the different samples. It can be observed that the proportion of females decreases as we proceed towards the most productive economists. They start at 13.7% in the total sample, but completely disappear when we reach Elite I. As far as the number of years from the Ph.D., it is quite clear that our productivity measure favors older people. The correlation coefficient between the quality index and the number of publications is 0.79, while the correlation between the latter and the number of years since the Ph.D. is 0.57. Thus, for example, people with at least 33 years since obtaining the Ph.D., which represent

17.4% of the total sample, end up representing 60.2% of Elite I. Under the assumption that, at the earliest, people finish the PhD. with 25 years, this subset would have at least 58 years of age in 2007. On the other hand, people with at most 16 years since the Ph.D., that is, people with at most 40 years of age in 2007, represent 46.4% in the total sample but only 4.0% in Elite I.

### **Table 2 around here**

- In the third place, Appendix IV in the SMS lists members of Elites I, II, and III ranked by their  $Q$  value, including their nationality (the country where they obtained the B.A.), and the university where they are associated to in 2007.

- Finally, to better understand the nature of our data, it is instructive to examine the partition of the economists in the total sample by their nationality. Countries can be partitioned into two groups, according to whether they have at least one of the 81 departments in the original sample or none at all. Nationals from each of the countries of the first group can be partitioned into those who work there in 2007, and those who are brain drained and work somewhere else in the world. In turn, nationals from countries with no department in the original sample can only belong to the brain drain category. Results are presented in Table 3.<sup>14</sup>

### **Table 3 around here**

Two partitions must be discussed. U.S. nationals present no problem, since they belong to both of them, constitute the dominant country, and represent 39.1% of the total sample. The two partitions differ depending on how we treat Europeans and members of the RW belonging or not to countries that have at least one department among the 81 included in the sample. Firstly, recall that there are only eight countries in the EU and three in the RW in this situation, whose nationals represent 31.4% and 10.8% of the total, respectively. The remaining 18.7% are nationals from countries that have no department in the sample.

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<sup>14</sup> There are some exemptions, consisting of a few ESFs that do not belong to any of the countries of the first group but are working in 2007 in their own countries, that is, they are not part of the brain drain. They appear in Table 2 in row 13 within the first group.

This distribution illustrates the shortcomings of our construction. We are missing nationals from all over the world that, in spite of being very productive according to our own definition, have had no chance of being considered because they are working in 2007 in departments not included in our sample, or they are not ES Fellows. However, we believe that the total sample and the three elites we have isolated constitute a reliable set of top researchers that is inclusive enough to be of interest to everyone.

Secondly, once we accept the criteria discussed in Section II.1 to construct the total sample, it is natural to partition any elite into the three geographical areas disregarding this distinction. Naturally, this would increase the weight of the EU and the RW. For example, these two areas represent 37.0% and 23.9% of the total sample, respectively. The route through which this takes place is an increase in the brain drain component of both areas. This should be taken into account whenever we discuss the partition of the nationals in any country or any group of countries into stayers, brain circulation, and brain drain. Consider, for example, the RW. Stayers and brain circulation would necessarily come from Canada, Israel, or China, namely, the only countries in this area with at least one department in the sample. However, the brain drain from the RW would include the nationals from these three countries that are working abroad in 2007, plus the nationals from any other country different from the U.S. or the 15 members of the EU who have no department in the sample and can only appear in this paper as part of the brain drain. Thus, both the EU and the RW include a different set of countries when we study stayers and brain circulation, or when we study the brain drain. As long as this is always taken into account, we do not need complicating the notation to distinguish between two EUs and two RWs depending on the circumstances.

### **III. EMPIRICAL RESULTS**

#### **III.1. The funneling effect**

The number of people classified by their nationality (or the country where they obtained their B.A.), the place where they obtained the Ph.D. (or a second university degree), and the current job in 2007 in the partition of the world into the U.S., the EU, and the RW is in the Panel A in Table 4. The number of

countries at every stage is equally classified in Panel B in Table 4. We emphasize the following three points.

**Table 4 around here**

1. In all samples, the data show a clear funneling effect towards the U.S., albeit with different intensity as we move towards the smallest elite. Beginning with the total sample, the percentage of people obtaining a B.A. in the U.S. is 39.1%. This percentage increases to 68.7% and 61.9% for people obtaining a Ph.D. and working in 2007 in the U.S. (Panel A in Table 4). A similar situation takes place in Elite III. However, in Elites II and I the percentage of scholars in the U.S. increases monotonically from the B.A., the Ph.D. and the current job in 2007. Figure 1 illustrates the situation in the total sample and Elite I.

**Figure 1 around here**

2. Another way of viewing the funneling effect takes into account the number of countries present at the three stages in every sample (Panel B in Table 4). Besides the U.S., the economists in the total sample belong to 61 different countries, they obtained a Ph.D. in 24, and they work in 2007 in only 20 countries. In Elite I, for example, these figures are 12, 6, and 6 (in particular, together with 110 people working in the U.S., eight persons work in the UK, and only one in France, Sweden, Belgium, Canada, and Israel). The consequences of the funneling effect are illustrated in Figure 2 showing the percentage of people in the different samples working in 2007 in the three geographical areas.

**Figure 2 around here**

3. An interesting question is: how do the elites in Economics stand in relation to those of other scientific disciplines? As an alternative notion of elite, Panaretos & Malesios (2012) use the 250 most highly cited researchers (HCRs hereafter) during 1981-1999 in 21 broad scientific disciplines according to Thomson & Reuters. The consequences of the funneling effect, namely, the percentage of scholars working in 1999 in the U.S. the EU, and the RW is in Figure 3, where scientific disciplines appear in descending order of the percentage of HCRs working in the U.S.

### **Figure 3 around here**

Not surprisingly, the Social Sciences, Economics & Business, and Psychiatry & Psychology occupy the first three positions. In particular, the percentage of the 311 HCRs in Economics & Business working in 1999 in the U.S. is 86.1%. Two comments are in order, Firstly, this figure is very close to the percentage of economists in Elites III, II, and I working in 2007 in the U.S., which is 75.3%, 81.3%, and 89.4%, respectively (see Panel A in Table 4). It is reassuring that the distribution across geographical areas of our economic elites –based on the weighted number of publications in four journal classes– is so close to the distribution of the elite in Economics & Business in 1999 based on citation impact. Secondly, on average over all disciplines only about two thirds of the 6,103 HCRs in Figure 3 work in the U.S. Thus, the dominance of U.S. institutions in our field is considerably stronger than in most other disciplines.

#### **III.2. The clustering effect**

Naturally, when we move from the total sample towards Elite I involving ever fewer people, the number of educational and research institutions in all geographical areas decreases. Moreover, the total number of institutions in each sample decreases when we move from the B.A. to the Ph.D. and the current job in 2007 (see Table C in Appendix III in the SMS). However, the proportion of U.S. institutions at every stage keeps increasing as we move towards Elite I. That is to say, the smaller the elite size, the more prevalent is the role of U.S. institutions. The situation in Elites III and I is illustrated in Figure 4.

### **Figure 4 around here**

As a matter of fact, a large part of this clustering of institutions takes place towards a rather reduced number of leading U.S. Economics departments. It is interesting to analyze this phenomenon in relation to the graduate education received by elite economists. Inspiring ourselves in Amir and Knauff (2008) –a contribution that ranks 58 Economics departments worldwide in terms of graduate education in 2006– we partition the people working in 2007 into four classes: (i) a selection of ten top Ph.D. granting institutions

in the U.S.<sup>15</sup>; (ii) the remaining U.S. institutions; (iii) EU institutions, and (iv) institutions in the RW. For each class  $i$  in this partition, we compute the number of people who have obtained their Ph.D. in any of the institutions in this class, as well as in any of the other  $j$  classes with  $j \neq i$ . A summary of results for all samples is presented in Table 5 and Figure 5 (further details can be found in Table D in Appendix III in the SMS).

### **Table 5 and Figure 5 around here**

Three aspects of the clustering towards these top ten U.S. departments should be noted: the clustering of people working there in 2007; the concentration of Ph.D. graduates in these top institutions among the elite in the three geographical areas, and the relative insularity of people that work in 2007 *and* obtain their Ph.D. in these ten universities.

1. As we move from the total sample to the smallest elite, the scholars working in 2007 in the top ten U.S. institutions represent an increasing percentage of the total: from 15.8% in the total sample to 58.5% in Elite I (see Figure 5.A).

2. The percentage of elite economists of all sorts trained in these ten U.S. departments goes from almost 50% in the total sample to two thirds in Elite I. The degree of inbreeding among the elite, and the special role of the two graduate schools training the largest number of scholars –Harvard and MIT– are impressive (see Figure 5.B).

3. Finally, we study the degree of insularity experienced by the subset of scholars working in 2007 in the top ten U.S. departments. The percentage that has obtained a Ph.D. in some of the same institutions is very similar in the four samples (ranging from a minimum 78.3% in the total sample to a maximum 80.9% in Elite III). Note, however, that this inbreeding is a collective phenomenon not present at the individual departmental level. We do not have complete information on the entire academic career of

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<sup>15</sup> Nine of these departments occupy also the first nine positions in the Econphd ranking. The tenth, the University of Minnesota, ranked 29<sup>th</sup> in Econphd, has been selected among the top ten in this Section because of the high number of its Ph.D.s among the elite. It should be noted that these top ten departments coincide with the top ten in Amir and Knauff (2008).



every individual but, whenever possible, we have recorded where the 2,605 economists in the total sample hold their first job immediately after obtaining a Ph.D.<sup>16</sup> The percentage of people in the total sample studying the Ph.D., holding the first job, and working in the same university in the U.S. is a rare event affecting only 1.7% of the people with a U.S. job in 2007.<sup>17</sup>

This trend contrasts with what we find among the members of the elite working in the EU. On the one hand, it is known that a large number of people in the EU conduct their academic career within their own countries. As a matter of fact, a large percentage of them typically work in the same university where they obtained their Ph.D. Among the highly productive scholars studied in this paper, the situation is the following. In the total sample, we confirm that people working in 2007 in the EU having attended graduate school in that area is very high: 71.9%. Even in this selected sample, those studying the Ph.D., holding the first job, and working in the same university in the total sample represent 16.0% of the total –a much larger percentage than in the U.S. On the other hand, the number of people working in 2007 in the EU that have obtained their Ph.D. in the U.S. increases as we proceed towards more restrictive elite notions. Consequently, contrary to what is observed in the U.S., the extent of the European insularity declines: the percentage of economists working in the EU in Elites III, II, and I that have obtained their Ph.D. in the EU is 69.4%, 60.4%, and 54.5%, respectively (row 5 over the total in column 3 in Table 5). At the same time, an increasing number of people with a Ph.D. from the EU form part of the brain drain to the U.S.: from 18.1% in the total sample up to 70% in Elite I (row 5 in columns 1, 2, and 4 over the total in row 5 and column 5 in Table 5).

Finally, an interesting question that we also asked in the previous Sub-section is: how do the elites in Economics stand in relation to those of other scientific disciplines? The availability of comparable data

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<sup>16</sup> In 429 cases, we could not find explicitly this information in peoples' CVs. However, in 245 cases we used the university to which they belong when they publish the first working paper or professional article as the first job university. The remaining 184 economists have a missing value in this variable.

<sup>17</sup> Because some leading universities in our dataset break this rule in 20 cases, this percentage for the top ten U.S. departments is raised to 4.6%. It should be said, however, that some of these 20 people have left these universities for extensive periods of time after holding there a first job only for a few years.

is very limited. However, using the same source as Panaretos & Malesios (2012), Bauwens *et al.* (2008) analyzes 5,597 HCRs in 21 disciplines who work in 1999 in 1,329 institutions all over the world. They report that the distribution of HCRs across institutions is very uneven. The median of the distribution is one, which means that the majority of institutions have a single HCR. At the other extreme, it is observed that the top 10 and 25 institutions account for 16.0% and 30.1% of the whole panel of HCRs, respectively. The top 10 institutions in Table 2 in Bauwens *et al.* (2008) include eight U.S. universities together with the U.S. National Institutes of Health, and the Max Plank Institute; the next 15 institutions include 13 U.S. universities, the NASA, and the University of Oxford.

In contrast, recall the situation in Elite II, a sample of 332 economists comparable with the approximately 250 HCRs per discipline in Bauwens *et al.*'s (2008) contribution. The percentage of economists in Harvard and MIT and in the top ten U.S. universities is 19.9% and 34.9% (Table 5). The conclusion is that the concentration of elite members in a handful of institutions is considerably greater in Economics than in all disciplines taken as a whole when the elite is formed by the most highly cited researchers.

### **III.3. Geographical mobility**

Geographical mobility is a key characteristic of all sciences. Our information concerning this phenomenon in Economics is very limited but interesting. We only use the country where people do the B.A. (or where they are born), as well as the country where they do the Ph.D., and the country where they work in 2007. Therefore, any move that takes place during the period between the Ph.D. and 2007 is ignored.<sup>18</sup> Nevertheless, with this information we can distinguish between the following five types. Firstly, we have economists completing all their studies and working in the same countries, which are referred to as *stayers*. Secondly, there are those who study the Ph.D. abroad but come back to the country of origin, which are classified as *brain circulation*. Thirdly, there are three groups that will be considered as part of the

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<sup>18</sup> For simplicity, in this Sub-section we do not use the information we have collected concerning the institution where the individuals hold their first job.

brain drain because they work in 2007 in a different country than the one where they originate. (i) *Regular movers* stay abroad in 2007 in the same country where they obtained a Ph.D. (ii) *Late movers* migrate after the Ph.D. Finally, (iii) *frequent movers* obtain the two degrees and work in 2007 in three different countries.

There are three interesting issues. Firstly, how does the distinction between movers and stayers evolve in the different samples? Secondly, how do the U.S., the EU, and the RW differ in the composition between stayers and movers, including those who come back to the area of origin –brain circulation– and those who form part of the brain drain? Thirdly, we already know about a funneling and a clustering effect towards the U.S. that gains strength as we proceed from the total sample to the more restrictive subsets (see Figures 1 to 5). The question that remains is: what is the national composition of the contingent of economists working in the U.S. in 2007? The partition between movers and stayers in all samples is in Table 6. But we also need the information about origins and destinations in the three geographical areas. A summary of results is presented in Table 7, where the total of brain drain and brain gain in columns 3 and 4 coincide in all samples (for the details, see Table E in Appendix III in the SMS).

#### **Tables 6 and 7 around here**

1. More than 50% of economists in the total sample are stayers. However, this percentage steadily increases as we move towards the most productive economists: for example, in Elite I stayers represent 64.2% of the total (Table 6). Interestingly, the people in brain circulation always represent approximately 8% of the total in all samples. Since the percentage of late movers remains constant, as we move from the total sample to Elite I the steady increase in stayers is essentially offset by the decrease in the percentage of regular and frequent movers.

The next question is whether this pattern characterizes all geographical areas. We begin by stayers. The percentage of stayers in the EU and the RW decreases by more than ten percentage points (Table 7). Therefore, as we focus on the most productive people, the key difference is that U.S. stayers increase from 36.2% in the total sample to 60.2% in Elite I (Table 7, and Figure 6.A). We finish with movers.

Surprisingly enough, as illustrated in Figure 6.A, the U.S. brain gain represents practically the same 25% of the total number of economists in all samples (approximately, 10-9% from the EU, and 15-16% from the RW). Therefore, the decrease in the brain drain takes place outside the U.S., i.e. what decreases is the relative importance of the EU and the RW brain gain from 14.5% in the total sample to 2.4% in Elite I (Table 7).

#### **Figure 6 around here**

2. The composition between stayers and movers is very different in the geographical areas. As observed in Figure 7.A, the U.S. manages to retain most of their B.A.s for graduate work, as well as most of their Ph.D.s as faculty members in U.S. institutions. The distribution into stayers, brain circulation, and brain drain in the U.S. remain very stable in all samples, with the former representing more than 92% in all cases. In the EU, brain circulation is an important phenomenon ranging from 14% to 21%, while the decrease in the percentage of stayers already noted is matched by an increase in the brain drain (Figure 7.B). A similar but even more drastic effect takes place in the RW where stayers, which represent 5% in the total sample, disappear in Elite I (Figure 7.C).

#### **Figure 7 around here**

3. We have already seen that, as we focus on the most productive people, the percentage of economists working in 2007 in the U.S. is increasing. Those working in the U.S. are either U.S. nationals (U.S. stayers plus U.S. brain circulation), or foreigners (U.S. brain gain). We have also seen that U.S. stayers increase. On the other hand, brain circulation is a minority phenomenon in the U.S. Consequently, within the people working in the U.S. in 2007, foreigners represent a decreasing percentage: from 40.4% in the total sample to 28.2% in Elite I (Table 7, and Figure 6.B).

#### **III.4. The research gap between the U.S. and other geographical areas**

A good part of the bibliometric literature in Economics has focused on the research gap between the output produced in the U.S. and the EU. Using a number of indicators including Nobel prizes, ESFs,

publications, and citations, Drèze and Estevan (2007) conclude that Europe's research output amounts to some 15% to 25% of world output, versus 60% to 75% for the U.S., which implies a U.S./EU ratio between four and three. In a similar vein, Ruiz-Castillo (2008) summarizes the situation as follows: although the gap between the U.S. and Europe narrowed during the 1990s, the U.S. is still responsible for more than half the volume of worldwide production, and approximately two thirds of the total number of pages adjusted by differences in quality and other concepts published by the top 200 universities worldwide. At the end of the last century, the proportion represented by the United States among the top 200, 100, and 20 Economic Departments in the world is 45%, 55%, and 95%, respectively. Finally, among the 22 broad fields studied in Albarrán *et al.* (2010), Economics & Business is one of the disciplines where the dominance of the U.S. over the EU is more overwhelming. When articles published in 1998-2002 are ordered by the citations received in 1998-2007, the share of publications authored by people working in the U.S. is greater than the share of articles in the EU at all citation levels; furthermore, the gap between the U.S. and the EU increases as we reach the upper tail of citation distributions.

In our case, the proportion of elite economists working in 2007 in the U.S. relative to those working in the EU is almost equal to two in the total sample, but it dramatically increases as we focus on the most productive scholars where it becomes 4.3, 6, and 10 in in Elite III, II, and I, respectively. Similarly, the ratio of the quality points accumulated in the U.S. relative to the EU increases from 4.2 in the total sample to 11.6 in Elite I (Table 8.A). Thus, as expected, the order of magnitude of the U.S./EU research gap increases as we concentrate the attention in the most productive economists.

### **Table 8 around here**

Table 8.A contains additional information concerning the clustering towards a handful of U.S. institutions, whose contribution to the total quality points increases systematically as we move from the largest to the smallest elite. The top ten U.S. departments contribute approximately one third of all quality

points in the total sample, and end up contributing almost two thirds in Elite II, whereas Harvard and MIT that contribute about 10% in the total sample end up contributing almost 30% in Elite I. This is three times more than the contribution of the EU and the RW taken together. The situation is illustrated in Figure 8.A.

### **Figure 8 around here**

However, part of the output produced in U.S. institutions should be attributed to the foreigners constituting the U.S. brain gain. Thus, as indicated in the Introduction, we are also interested in the research gap that refers to the output achieved by the nationals originating in every geographical area, distinguishing between whether they work in 2007 in their country of origin (stayers and brain circulation) or abroad (brain drain). The relevant information, which is presented in Table 8.B and illustrated in Figure 8.B, deserves the following three comments.

Firstly, consider the percentage contribution of the U.S. institutions and the U.S. born economists to the total as we move from the total sample to Elite I in Tables 8.A and 8.B, respectively. The absolute increase is of the same order of magnitude. The difference is that, in the total sample, the percentage of quality points attributed to those working in 2007 in the U.S. institutions as opposed to the percentage attributed to the U.S. nationals (stayers plus brain circulation) is 75.6% and 50.0%, respectively. The difference of 15.6 percentage points is the contribution that should be attributed to foreigners working in the U.S. Thus, as expected, as we focus on the most productive economists the research gaps between the U.S. and the EU or the RW illustrated in Figure 8.B –although increasing – is considerably smaller than in Figure 8.A.

Secondly, in Section III.3 we saw that, as we focus on the most productive economists, a key point is the absolute and relative increase in the number of U.S. stayers. Correspondingly, the increase in the U.S. nationals' contribution should be attributed to the increase in the number of U.S. stayers (Table 8.B

and Figure 8.B). Similarly, in Section III.3 we saw that the EU and the RW brain drain to the U.S. represents practically the same 25% of the total number of economists in all samples. Correspondingly, the importance of the non-U.S. brain drain in table 8.B only diminishes from 28.1% in the total sample to 24.7% in Elite I. Therefore, given the relative constancy of the brain circulation in the EU and the RW, the decrease in this group's contribution must be due to the decrease in its stayers component. This is, of course, consistent with the fact that the percentage of stayers in the EU and the RW decreases by more than ten percentage points (Table 7).

Thirdly, it is worth noting that the percentage of total quality points contributed by Harvard and MIT economists, which is six times smaller than the one by all non-U.S. scholars in the total sample (10.5% versus 60.8%), ends up being of the same order of magnitude for the two groups in Elite I (32.6% versus 29.9%).

### **III.5. A comparison between Economics and Mathematics**

To study similar features of the elite in other sciences, we need individual information in different dimensions. Fortunately, Panaretos & Malesios (2012) have information on the nationality, graduate education, and place of work in 1999 for 337 HCRs in Mathematics. Thus, it is possible to compare their dataset with our Elite II consisting of 332 economists.<sup>19</sup> We begin by studying the partition of the elites into the three geographical areas according to where the B.Sc. or the B.A. is obtained, as well as the funneling and the clustering effects. The situation is illustrated in Figure 9.<sup>20</sup>

**Figure 9 around here**

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<sup>19</sup> Although Panaretos & Malesios (2012) have data on country of birth, for comparison purposes we will identify the mathematicians' national origin with the place where they obtain a B.Sc. The percentage of people who obtain a B.Sc. in the same area where they are born in the U.S., the EU, and the RW is 96%, 91.5%, and 90%, respectively. However, the information concerning the geographical area where the B.Sc. is obtained covers only 313 researchers.

<sup>20</sup> The numerical information concerning the connection between origins, graduate studies, and current job for both the HCRs in Mathematics and the economists in Elite II is available in Table F in Appendix III in the SMS.

1. As observed in Figure 9.A, there is an almost uniform distribution of mathematicians by the geographical area where the B.Sc. is obtained, i. e. by nationality for our purposes. Specifically, there are 36.4% and 27.8% born in the EU and the RW among mathematicians, while these figures are 22.0% and 20.2% among economists –a considerable difference.

2. However, as we move towards the Ph.D. and the current job in 1999, the funneling effect towards the U.S. is clearly established (left-hand side of Figures 9.A, B, and C). As we know, this effect is considerably stronger among economists at every stage (right-hand side of Figures 9 A, B, and C).

3. The number of non-U.S. mathematicians is considerably greater than the number of non-U.S. economists within the corresponding elites. However, mathematicians born in the EU or the RW are less attracted by U.S. graduate schools than their counterparts in Economics. Alternatively, relative to the U.S., European Ph.D. programs are much more competitive in Mathematics than in Economics (Figure 9.B). On the other hand, the clustering of current jobs towards a handful of U.S. institutions is also less pronounced among mathematicians. In particular, the percentage of scholars working in the top ten U.S. departments is 26.2% for mathematicians and 43.5% for economists (Figure 9.C).<sup>21</sup>

Next we study two aspects of the distinction between movers and stayers. Firstly, as in Economics, brain circulation and brain drain is a minority phenomenon in the U.S. Therefore, we focus on the distinction among those born in the EU and the RW taken together. As illustrated in Figure 10.A, there are more movers (brain circulation plus brain drain) than stayers in both elites.<sup>22</sup> However, this difference is greater among economists who have six percentage points more than mathematicians in each of the brain circulation and brain drain categories. Secondly, given the concentration of scholars currently working in the U.S., it is interesting to investigate the distinction among them between U.S. nationals and foreigners (U.S. brain gain, or brain drain from the EU and the RW towards the U.S). We have seen that

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<sup>21</sup> Seven out of the top ten universities are the same in the two disciplines.

<sup>22</sup> It should be noted that, in the Mathematics sample, we couldn't distinguish between brain circulation and the U.S. brain drain that takes place after obtaining a Ph.D. at home (i.e. U.S. late movers). However, the latter should constitute a negligible phenomenon.



the relative importance of brain drain is somewhat smaller among mathematicians than among economists. However, recall that there are considerably more mathematicians than economists born outside the U.S. The end result is that the percentage of foreigners in the U.S. is 50.9% in mathematics, and 30.7% in Economics (Figure 10.B).<sup>23</sup>

**Figure 10 around here**

#### **IV. SOME CHARACTERISTICS OF THE ECONOMISTS WITH LESS THAN 50 YEARS OF AGE IN 2007**

As discussed in Section II.2, our productivity measure favors older people. Therefore, it is important to review the characteristics of a subset of younger economists. We focus on the economists that have obtained a Ph.D. less than 25 years before 2007. Assuming that people finish their Ph.D. when they are at least 25 years of age, young economists are, approximately, those with less than 50 years in 2007.

##### **IV.1. Descriptive statistics**

We confirm that younger people are underrepresented in the original elites. Indeed, we find that the new total sample consists of 1,714 economists, or 65.8% of the original number, but the number of young people in the three elites represents 42.2%, 22.9%, and 18.7% of the original members in Elite III, II, and I, respectively. Similarly, the mean  $Q$  index is now 204.7, *versus* 323.4 in the original total sample. However, the average  $Q$  index per year before and after the elimination of older people is of the same order of magnitude: 14.1 and 16.6, respectively –a reassuring result about the comparability of the two samples from this perspective.

Appendix V lists the members of Elites I, II, and III ranked by their  $Q$  value, including their nationality, and the university where they are associated to in 2007. There are more women among the young than in the original sample. Recall that in the original case there were no women in Elite I, while the percentages of women in the total sample, Elite III, and Elite II were 13.7%, 5.3%, and 1.8% (see Table

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<sup>23</sup> Hunter *et al.* (2009) analyzes a small sample of 158 highly cited physicists that can be compared with the 123 economists in Elite I. Not surprisingly in view of Figure 3 in Section III.1, the funneling towards the U.S. is stronger in Economics than in Physics. Since the percentage of U.S. brain gain is very similar in both disciplines, the main difference between them is that the percentage of U.S. (EU) stayers in Economics is considerably greater (smaller) than in Physics.

2). Among the young, these percentages are 18.0%, 9.8%, 3.8%, respectively. Finally, given how pervasive is what has been called the skewness of science (see *inter alia* Seglen, 1992, Albarrán *et al.*, 2011a, and Ruiz-Castillo & Costas, 2014), it comes as no surprise that the skewness of the productivity distribution for the total sample before and after the elimination of the older people is of the same order of magnitude.<sup>24</sup>

#### IV.2. Basic characteristics

Given the small size of Elites II and I for the young, in the sequel we briefly compare some of the characteristics of the new total sample and the new Elite III with the corresponding samples in Section III. In particular, we summarize the results concerning the following five issues: the funneling effect; the U.S./EU research gap; the clustering effect towards U.S. institutions; the distinction between movers and stayers, and the partition of the total sample into nationals of different countries. The information about these issues in the original case is in Tables 4, 5, 7, and 2 in Section III. The corresponding information for the young is in Tables G to I in Appendix III in the SMS. The comparison of these characteristics among the original samples and the young people is summarized in Table 9.

#### Table 9 around here

- Table 9.A. The funneling effect towards the U.S. is even stronger after eliminating the older people: the difference between the proportion of economists working in 2007 in the U.S. and the proportion of U.S. nationals in the total sample and Elite III is now equal to 27.8% and 34.2%, while these differences are 22.8% and 24.9% in the original case.<sup>25</sup> However, there is an important difference between the two situations: in the total sample and Elite III among the young there are 6.6% and 4.5% more people working in the EU than originally. This increase is mostly offset by a similar reduction in the people working in the U.S.

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<sup>24</sup> The percentage of economists in categories 1, 2, and 3 + 4 in Panel A in Table 1 were 67.1/21.4/11.5, and are now 65.5/23.3/11.2. Similarly, the percentage of quality points accounted for by categories 1, 2, and 3 + 4 were 24.2/32.2/43.5, and are now 24.0/35.1/40.9.

<sup>25</sup> Another way of assessing the funneling effect is by observing the number of countries at every stage in the partition of the world into the U.S., the EU, and the RW (compare Panel B in Table 3, and Table G in Appendix III in the SMS). The reduction in the number of countries where economists obtain a B.A., a Ph.D., or work in 2007 in the total sample and Elite III is of the same order of magnitude before and after eliminating the older economists.

- Table 9.B. As before, the ratio of the quality points accumulated in the U.S. relative to the EU increases from 2.7 in the total sample to 3.7 in Elite III. However, these ratios in the previous situation were 4.2 and 5.4. Therefore, the U.S./EU research gap is considerably smaller than before.

- Table 9.C. In Section III.3, we discussed several issues with regard to the clustering towards the top ten U.S. departments. To begin with, the proportion of people working in 2007, or obtaining a Ph.D. in these U.S. institutions in the total sample and Elite III are very similar before and after eliminating the older people. The dominant role of Harvard and MIT is also of the same order of magnitude. In the second place, the degree of insularity in the U.S., that is, the proportion of people working in 2007 in the top ten U.S. departments that obtained a Ph.D. from some of these same institutions is again very similar indeed in the total sample before and after the age correction. The same is the case with regard to the degree of insularity in the EU. The only difference is that the degree of U.S. (European) insularity in Elite III is slightly greater (smaller) among the young than in the original situation.

- Table 9.D. The comparison of the geographic mobility before and after the elimination of the older people warrants the following three comments. Firstly, perhaps the largest difference between the two scenarios is that the percentage of movers has increased in, approximately, ten percentage points in both samples. Since brain circulation represents, approximately, 8% in the two samples in both cases, the difference lies in the extent of the brain drain. Secondly, the key feature when moving from the total sample to Elite III in the original situation was the increase in the importance of U.S. stayers by more than ten percentage points. This feature is essentially maintained among the young. The difference is that the percentage of stayers in the U.S. among the young is considerable smaller than in the original situation. Thirdly, the role of the U.S. brain gain has changed considerably: in the original situation the U.S. brain gain in both the total sample and Elite III represented approximately 25% of the total, while this

percentage in the two samples is now 30.2% and 36.3%. Finally, the EU brain gain also increases somewhat.

- Table 9.E. The percentage of U.S. nationals in the original situation is 11.3% smaller than among the young. The European countries with some departments among the 81 in the total sample, as well as all other countries with no department at all in this list offset this reduction in equal parts.

## V. SUMMARY AND CONCLUSIONS

Given what Seglen (1992) has called the skewness of science, the dominance of U.S. institutions in every scientific discipline, and the importance of spatial mobility, the study of the national origins and other characteristics of elite scientists constitutes a key topic in the understanding of the workings of the academic profession in any scientific field.

Admittedly, the definition of the elite is a delicate issue. In this paper, we have identified the elite in Economics in 2007 with a set of highly productive researchers. Productivity is measured in terms of a quality index that weights the number of publications up to that date in four equivalent journal classes. Elite members come from two groups. Firstly, those with above average productivity among faculty members in a selection of the top 81 Economics departments in the world. Secondly, ES Fellows who belong to some other institution, are active in research around 2007, and have a quality index at least as high as members of the first group. Using different productivity thresholds, we distinguish between three elites consisting of 908, 332, and 123 scholars. The total sample, consisting of 2,605 economists, constitutes a fourth elite in its own right. Naturally, the methods used to construct these elites can be justly criticized. However, we have established that the total sample shares some key features with comparable samples in the field of Economics & Business (Ruiz-Castillo & Costas, 2014, and Panaretos & Malesios, 2012). Thus, we believe that the broad picture we have drawn is solid.

The main conclusions in the paper can be summarized as follows.

1. We knew from previous research about the following three trends. (i) The funneling effect, from

the first degree in the country of origin to the current job around 2000, towards the U.S. and a few other countries. (ii) The clustering for obtaining a Ph.D. or holding a current job towards a handful of U.S. institutions. (iii) The general dominance of the research done in the U.S. relative to the research done in Europe and elsewhere. This paper has established the following two complementary facts about the funneling and clustering effects, and the U.S. research dominance. Firstly, these trends become stronger as we move from the largest to the smallest elite. Secondly, except for the other social sciences, these trends are more pronounced within the elite in Economics than within the elite in other scientific disciplines. The role of the U.S. is more overwhelming in Economics than anywhere else.

2. As far as movers and stayers are concerned, the key aspect when we focus on the most productive economists is the increase in the role of U.S. stayers and the constancy of the percentage of foreigners working in 2007 in the U.S. Except for the brain drain towards the U.S. and the brain circulation that remain essentially constant, the reduction offsetting the increase in U.S. stayers takes place among those born in the eight European countries and the three countries in the RW with at least one department in our sample, as well as their inability to attract eminent economists from any other country. Nevertheless, the gap between the research done in the U.S. and the research done in other countries is greater than the gap between the research accomplished by U.S. nationals and the research accomplished by nationals from the EU and the RW.

3. The funnelling and the clustering effects in the subset of “young people”, defined as those approximately less than 50 years old in 2007, work exactly as we saw for the comparable Elite III. The main difference lies in the decrease of the U.S. dominance: the percentage of U.S. nationals and those working in 2007 in the U.S. both decrease. The room left by the U.S. is essentially taken up by the EU.

We should finish with the following observation. Given the skewness of the citation distribution of articles in any journal, including an important percentage with zero citations, it is not wise to judge the quality of individual publications –as we have done in this paper– by the citation impact of the journal

where they have been published (Seglen, 1992, 1997). Similarly, Oswald (2007) has shown that “*It is better to write the best article published in an issue of a medium quality journal such as the Oxford Bulletin of Economics and Statistics than all four of the worst four articles published in an issue of an elite journal like the American Economic Review.*” Therefore, one way to improve upon the results presented in this paper is to introduce productivity measures based on the citation impact directly achieved by each individual publication.

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## APPENDIX I

### THE IDENTIFICATION OF SCIENTIFIC ELITES

#### A. Previous literature

The governing and regulating function of elites emphasized by the Sociology of Science take place within scientific specialties as reference groups. A *specialty* is understood as a community of scientists who directly or indirectly interact in the production of new knowledge about a common subject matter (Laudel, 2003). These are relatively small international communities that are unevenly distributed across countries. Science policy should be based on knowledge of the possibly specialty-specific causes and consequences of the elite brain drain. Thus, detailed investigations should start by delineating specialties, identifying specialties' elites, and analyzing their distribution across countries.

To the best of our knowledge, the only contribution that has successfully carried on this program is Laudel (2003, 2005), which reports two case studies. Both exploit the existence of special conference series, the so-called Gordon Conferences, which only invite scientists who have made outstanding contributions to very specific topics, for example, the hormone Angiotensin, and Vibrational Spectroscopy, a specialty within physical chemistry that uses spectroscopic techniques to analyze molecular motion. In the first case, Laudel starts with a list of 215 participants in six meetings that took place between 1996 and 2002. Using bibliometric data about citations and co-citations links, two groups of 130 and 87 scientists were then traced for international mobility using different data sources. In the second case, 110 participants in four conferences that took place in the above period give rise to a smaller elite consisting of 64 scientists selected with the help of bibliometric information. A large part of the Angiotensin elite has always lived in the U.S (45% in the 130 members case), but the U.S. has attracted many elite scientists (13% migrated, and 13% stayed temporarily). The only other country that experimented some brain gain was Switzerland. Vibrational Spectroscopy differs in that nearly two thirds of its elite always lived in the U.S. Moreover, the U.S. gained three members but also lost two. Generally, migration currents are much weaker than in the Angiotensin case.

Although this summary does not do justice to the study, one important conclusion is that, at the specialty level, the elite brain drain and, more generally, migration currents, appears to be field specific. Consequently, it can be assumed that reasons for migrating are also field specific—a lesson that may be lost if we base science policy on a general assessment of a country's science system and general descriptions of working conditions. Similarly, the consequences of losing a specialty's elite members are easier to describe than those of losing a set of excellence scientist in a broad field in a given country. As Laudel emphasizes, the first loss typically means that the national specialty becomes uncoupled from frontier science; quality standards might no longer be enforced nationally; the country may no longer be able to recruit or train the best young scientists in the field, and an important channel of communicating societal interests to those who govern the specialty gets lost. At what stage the accumulation of these effects may affect the national science system as a whole remains to be determined case by case. On the other hand, although the loss of excellent scientists is always undesirable, the functional consequences for specific specialties within a broad field are harder to assess.

Thus, in order to identify the elite migration that can affect a country's science functionally, and in order to design field-specific measures to offset field-specific causes for migration, we need to reproduce

Ludel's exercise for, say several hundred specialties –a grueling task that has not been addressed in the literature.<sup>26</sup> The reasons are multiple.

Firstly, there is no generally agreed-upon Map of Science that builds from a well-defined set of specialties towards other aggregate levels (see *inter alia* Small, 1999, Boyack *et al.*, 2005, Leydesdorff, 2004, 2006, Leydesdorff and Rafols, 2009, and Waltman *et al.*, 2010 as well as the references they contain). Therefore, most of the few elite studies available only differentiate very roughly between broad fields. For example, Stephan and Levin (2001) distinguish life sciences, physical sciences, mathematical and computer sciences, earth and environmental sciences, and engineering, while Weinberger and Galeson (2005) and Hunter *et al.* (2009) focus on economics and physics, respectively.

Secondly, existing studies are unable to take into account the functional aspects characterizing an elite that sociologists have emphasized. Instead, they limit the identification of elites to outstanding performance of three types. (i) High academic recognition, such as Nobel prizes (Zuckerman, 1977, Weinberger and Galeson, 2005, and Hunter *et al.*, 2009), or membership in the National Academy of Sciences or the national Academy of Engineering in the U.S. (Stephan and Levin, 2001). (ii) Authors of the 250 most-cited papers according to the Institute for Scientific Information (Stephan and Levin, 2001, Bauwens *et al.*, 2008, and Hunter *et al.*, 2009). (iii) Authors of citation classics, hot papers, and highly cited patents, and scientists that have played a key role in launching biotechnology firms (Stephan and Levin, 2001).

As indicated in the Introduction, in this paper we identify the elite in Economics with a set of highly productive economists according to a methodology explained in Section II.1 in the text, and justified in the next Sub-section.

### **B. The methodological criteria followed in this paper to identify an elite**

Our defense of the methodological criteria adopted in this paper in the identification of several elites in Economics follows the same numbering system used in Section II.1 of the paper.

1. Both in the U.S., the EU, and other parts of the world, Economics & Business are closely related but separate academic disciplines generally organized into Economics Departments and Business Schools. Of course, a good number of the scholars working in the former might be engaged into research on Finance, Management, and other traditional Business topics. However, as members of Economics departments, we will consider them as professionals mainly devoted to Economics. Similarly, many scholars working in Business Schools, other academic departments, research institutes, central banks, or international organizations are regularly doing good research in Economics. However, with the exceptions discussed below, they are excluded from this study.

2. We have compared the list of top 81 Economics departments in the world according to the Econphd (2004) university ranking adopted in this paper with the first 81 economics departments listed in three other equally acceptable university rankings.<sup>27</sup> The main conclusion is that, apart from differences in

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<sup>26</sup> Note that, in many sciences, a disaggregated analysis at the specialty level may very well lead to many scientists belonging to two or more elite specialties.

<sup>27</sup> The first two are based on the mean rank over 11 different rankings, and the mean rank that would result when only taking the five, 25, and 50 best performing scholars, thereby (partially) correcting for the size-bias of the first (Tables 9 and 13 in Coupé, 2003, respectively). The third ranking is based on the publications in 1995-1999 in the top 30 journals in the Kalaitzidakis *et al.* (2003) journal ranking. For a discussion of these and other alternative rankings, see Ruiz-Castillo (2008).

the order in which each institution appears in the various rankings, our list has between 70 and 73 departments in common with each of the three other lists.

Three additional rankings of a more limited coverage should be mentioned. Firstly, Winkler *et al.* (2011) classify 771 four-year colleges and universities distinguished by the Carnegie Foundation (1994) in the U.S. into several groups. All of the 30 members of the top group, and 22 out of the 25 members of the second group among those granting Ph.D.s belong to our list. Secondly, Amir and Knauff (2008) rank 58 Economics departments worldwide in terms of graduate education in 2006. The first 36 institutions in this ranking are included in ours, while only eight institutions –five of them from the EU, one from the U.S., and two from the RW– of the remaining 22 are missing in our list. Finally, Van Bouwelle and Veugelers (2014) compile a list of “top institutes” using three different rankings. All of the 11 super-top, 21 mid-top, and eight sub-top institutions in Canada, the U.S., and Europe listed in their Table I are also included in our list. Therefore, we conclude that our 81 institutions constitute a useful sample of the best Economics departments in the world in 2007.

3. Whenever educational information could not be found through Internet, we wrote to the person in question. Many people answered providing the required information. Otherwise, we proceeded as follows. There were 30 cases in which we lacked information on a person’s B.A., but the nationality could be safely inferred from the remaining information on the person’s last name, the country where s/he did her Ph.D., and the country where s/he worked in 2007. One person –whose nationality was known– never obtained an undergraduate degree. On the other hand, for people whose higher university degree is an M.A. (mainly older people working in the UK), academic age is counted from that date up to 2007. For the only scholar that never obtained a Ph.D. or an M.A., academic age is counted from the B.A. up to 2007. In the 29 cases where the only missing data is the date of the Ph.D., this piece of information was imputed taking into account the first published Working Paper or professional article.

4. As we said in Section II, we are constrained to measure productivity by weighting the number of articles published in four journal classes. Classes A, B and C consist of five, 34, and 47 journals, respectively, while class D consists of all other journals in the periodical literature. In brief, starting from the top 63 journals in the Kalaitzidakis *et al.* (2003) journal ranking, the different classes have been constructed taking also into account the rankings in Lubrano *et al.* (2003), and Kodrzycki and Yu (2006). The details, as well as a listing of all journals are in Appendix II in the SM Section. We construct a quality index  $Q$  for each researcher by applying the following rather elitist weighting system: class A, 40 points; class B, 15 points, class C, 7 points, and class D, 1 point.<sup>28</sup>

6. As indicated in Section II.1, we suggest to work with elites of different sizes: (i) a group of 833 researchers among the 2,530 with at least one publication with a  $Q$  index above the mean  $\mu_1 = 307.3$ ; (ii) 302 researchers with  $Q$  greater than  $\mu_2 = 707.4$ , and (iii) 111 researchers with  $Q$  greater than  $\mu_3 = 1,165.2$ . We have compared the distribution of  $Q$  with the distribution  $P$  of the total number of publications of all classes. The corresponding means are  $m_1 = 27$ ,  $m_2 = 59.2$ , and  $m_3 = 96.4$ . As observed in Table B in Appendix III in the SMS, the skewness of  $P$  is practically the same as the skewness of  $Q$  (compare with

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<sup>28</sup> Oster and Hamermesh (1998) use the Laband and Piette (1994) weights that, as in our case, distinguish strongly between journals. Rauber and Ursprung (2008) use the Combes and Linneman (2003) weights that lie between unity for five top journals, 2/3 for sixteen journals, down to 1/12 for the lowest quality journals –a more egalitarian scheme than our own. Coupé *et al.* (2006) use the average of the rankings based on different weighting schemes computed in Coupé (2003). In order to assess the different degree of elitism involved, Henrekson and Waldenström (2011) display the cumulative distribution of the weights attributed in three important measures of journal quality. For a classification of different schemes in an elitist-egalitarian axis, see Ruiz-Castillo (2008).

Table 1 in the text): the mean  $m_1$  is 17 percentage points to the right of the median, and 11% of all individuals with a number of publications above  $m_2$  account for approximately 40% of all publications. Furthermore, the coefficient of correlation between  $P$  and  $Q$  is 0.79. However, in so far as  $Q$  weights differently publications in journal classes A, B, C, and D, cardinal differences between any pair of individuals according to  $Q$  would dramatize productivity differences among them relative to cardinal differences according to  $P$ . Therefore, we believe that it is preferable to work with index  $Q$  rather than  $P$ .

On the other hand, we have experimented with a less elitist weighting system in which journals of class A, B, C, and D receive 20, 10, 5, and 1 point, respectively. The corresponding cutting points separating the three Elites are  $\mu'_1 = 187.6$ ;  $\mu'_2 = 419.8$ , and  $\mu'_3 = 670.1$ . The main consequence is that a relatively small number of individuals lose their status, while a few others improve their situation. In particular, 35 individuals disappear from Elite III, seven go from Elite II to Elite III, and five go from Elite I to Elite II. In turn, 44 new individuals become part of Elite III, 23 go from Elite III to Elite II, and eight go from Elite II to Elite I. In net terms, Elite III increases by 9 individuals, or 1%; Elite II by 16, or 4.8%, and Elite I by three, or 2.4%. In brief, changing the journal weighting system in a less elitist direction does not dramatically alter the identity of the most productive researchers. We believe that the more demanding members of the profession may agree with us that the change is not worth it. Therefore, in the sequel we stick to the original, more discriminating weighting system in which the most productive scholars among those in the top 81 Economics departments with at least one publication are 111, 302, and 833.

7. As indicated in the text, of the 75 Econometric Society Fellows included into the elites 34 belong to Business Schools. The remaining 41 scholars belong to 29 different institutions. However, to simplify matters, they have been classified into three categories, namely, Economic departments in the U.S. (13 people), Europe (15 people), or the RW (13 people). Thus, the 2,780 individuals in our final dataset are classified into 85 categories: the 81 original Economics departments, plus four types of institutions for the ESFs. The complete listing of institutions, together with information on the number of faculty members and their publications in classes A to D, is in Table A in Appendix III in the SMS. This table also lists some other Economics departments that often appear among the world best according to the rankings described in point 2 above. Although not included in this paper, these institutions are not very far away from the top 81 departments according to Econphd (2004).

Finally, as indicated in Section II.1, the members of Elites I, II, and III are listed in Appendix IV in the SMS.

## APPENDIX II

### A CLASSIFICATION OF JOURNALS INTO FOUR GROUPS

The following three references, whose merits will not be discussed here, have been taken into account.

1. Kalaitzidakis *et al.* (2003) rank 159 journals from the Economics section of the SSCI (*Social Science Citation Index*) on the basis of the citations received during 1998 by the papers published during 1994-1998. The procedure takes into account the relative importance of the journal making each citation, and does not include self-citations, namely, citations made by one journal to papers published in that same journal.

2. Lubrano *et al.* (2003) follow a mixed strategy: they start by entrusting to one of their members, Alan Kirman, the ranking of 505 journals that come from the 680 journals in *EconLit* after eliminating those with fewer than ten articles in ten years. In a second phase, they gathered information on the number of citations which 307 journals receive. Finally, they asked Professor Kirman to modify his original ranking in light of this information. The result is a grouping of all the journals in six classes that contain six journals with ten points, 17 with eight (except for one with seven), 45 with six, and the remaining 437 with four, two, or one point. For certain purposes, these authors select the 68 journals with six or more points.

3. Kodrzycki and Yu (2006) are the first to apply the method axiomatized by Palacios-Huerta and Volij (2004) to a large set of journals.

We are interested in classifying relevant international journals into three groups, classes A, B, and C, including all remaining journals in class D. Hopefully the first 60 or 70 journals in each of the 4 rankings already introduced are sufficiently overlapping.

- We start from the first 30 journals in Kalaitzidakis *et al.* (2003). Class A, consisting of 5 journals, needs little justification.

- There remain 25 journals from the initial list. To these, we add 4 top journals in non-Economics areas that are assigned eight (or seven) points in Lubrano *et al.* (2003): *American Political Science*, *JASA*, *Michigan Law Review*, and *Yale Law Journal*. Then we bring in four journals highly classified in Kodrzycki and Yu (2006), namely, those journals whose average rank goes from 3.5 to 23 according to these authors: *Journal of Finance*, *Journal of Money Credit and Banking*, *Brookings Papers*, and *Journal of Economic Growth*. Class B is formed with these  $25 + 4 + 4 = 33$  journals.

- Next, we consider the 34 journals ranked 31 to 64 in Kalaitzidakis *et al.* (2003). First, we add three journals with six points in Lubrano *et al.* (2003), clearly within the first 80 in Kodrzycki and Yu (2006), and within ranks 71-73 in Kalaitzidakis *et al.* (2003): *Journal of Economics and Management Strategy*, *Journal of Health Economics*, and *Regional Science and Urban Economics*. Two more journals with six points in Lubrano *et al.* (2003) are included: *Macroeconomic Dynamics* and *Industrial and Labor Relations Review*. Second, we include eight journals whose average rank in Kodrzycki and Yu (2006) is within the 7-37 range: 2 Macro journals - *NBER Macroeconomic Annual* and *Review of Economic Dynamics*- five Business and Financial Economics journals - *Journal of Business*, *Journal of Accounting Economics*, *Review of Financial Studies*, *Journal of Financial Intermediaries*- and *Economic Policy*. Therefore, class C is formed by  $47 = 34 + 5 + 8$  journals.

- In brief, as indicated in the text, starting from the top 64 Kalaitzidakis *et al.* (2003) journals we have reached a total of  $5 + 34 + 47 = 86$  journals in classes A, B, and C, respectively, paying attention to the other rankings.

We exclude six journals with six points in Lubrano *et al.* (2003) -that do not appear at all in the other classifications- and five journals with average rank between 60 and 70 in Kodrzycki and Yu (2006).

#### Class A

*American Economic Review*  
*Econometrica*  
*Journal of Political Economy*  
*Quarterly Journal of Economics*  
*Review of Economic Studies*.

**Class B**

*American Political Science Review*  
*Brookings Papers on Economic Activity*  
*Econometric Theory*  
*Economic Journal*  
*Economic Theory*  
*Economics Letters*  
*European Economic Review*  
*Games and Economic Behavior*  
*International Economic Review*  
*Journal of Applied Econometrics*  
*Journal of Business and Economic Statistics*  
*Journal of Econometrics*  
*Journal of Economic Dynamics and Control*  
*Journal of Economic Growth*  
*Journal of Economic Literature*  
*Journal of Economic Perspectives*  
*Journal of Economic Theory*  
*Journal of Environmental Economics and Management*

*Journal of the European Economic Association*  
*Journal of Finance*  
*Journal of Financial Economics*  
*Journal of Human Resources*  
*Journal of International Economics*  
*Journal of Labor Economics*  
*Journal of Monetary Economics*  
*Journal of Money, Credit and Banking*  
*Journal of Public Economics*  
*Journal of the American Statistical Association*  
*Michigan Law Review*  
*Oxford Bulletin of Economics and Statistics*  
*Rand Journal of Economics*  
*Review of Economics and Statistics*  
*Scandinavian Journal of Economics*  
*Yale Law Journal*

**Class C**

*American Journal of Agricultural Economics*  
*Applied Economics*  
*Canadian Journal of Economics*  
*Contemporary Economic Policy*  
*Economic Inquiry*  
*Economic Policy*  
*Economic Record*  
*Economica*  
*Explorations in Economic History*  
*IMF Staff Papers*  
*Industrial and Labor Relations Review*  
*International Journal of Game Theory*  
*International Journal of Industrial Organization*  
*Journal of Accounting Economics*  
*Journal of Banking and Finance*  
*Journal of Business*  
*Journal of Comparative Economics*  
*Journal of Development Economics*  
*Journal of Economic Behavior and Organization*  
*Journal of Economic History*  
*Journal of Economics and Management Strategies*  
*Journal of Financial and Quantitative Analysis*  
*Journal of Financial Intermediaries*  
*Journal of Health Economics*

*Journal of Industrial Economics*  
*Journal of Institutional and Theoretical Economics*  
*Journal of International Money and Finance*  
*Journal of Law, Economics and Organization*  
*Journal of Law and Economics*  
*Journal of Mathematical Economics*  
*Journal of Population Economics*  
*Journal of Risk and Uncertainty*  
*Journal of Urban Economics*  
*Land Economics*  
*Macroeconomic Dynamics*  
*National Tax Journal*  
*NBER Macroeconomics Annual*  
*Oxford Economic Papers*  
*Public Choice*  
*Regional Science and Urban Economics*  
*Review of Economic Dynamics*  
*Review of Financial Studies*  
*Social Choice and Welfare*  
*Southern Economic Journal*  
*Theory and Decision*  
*World Bank Economic Review*  
*World Development*



**APPENDIX III**

**SOME DESCRIPTIVE STATISTICS**

**Table A. Publications in journals of class A, B, C and D, and quality index for 2,705 faculty members at 81 Economics Departments and 75 Econometric Society Fellows at other institutions in 2007**

	Number of scholars		Number of publications				Quality Index, Q	
	Total	Without any Publication	A	B	C	D		Total
	(1)	(2)	(3)	(4)	(5)	(6)		(7)
<b>A. 81 TOP ECONOMICS DEPARTMENTS:</b>								
<b>(Ordered according to the Econphd (2004) ranking)</b>								
	2,705	175	9,595	20,261	10,260	28,255	68,371	777,530
<b>U.S.1</b>								
1 Harvard University	55	0	842	914	299	862	2,917	50,046
2 University of Chicago	30	1	291	294	110	254	949	16,964
3 MIT	40	2	602	593	208	948	2,351	35,171
4 U. of California, Berkley	58	1	463	660	286	754	2,163	30,890
5 Princeton University	54	4	509	642	172	826	2,149	31,848
6 Stanford University	42	4	314	316	100	318	1,048	18,218
7 Northwestern University	35	4	230	307	87	279	903	14,606
8 University of Pennsylvania	30	1	215	358	89	162	824	14,666
9 Yale University	42	6	350	518	145	706	1,719	23,346
10 New York University	44	1	348	529	129	524	1,530	23,153
11 U. of California, LA	45	2	213	250	182	379	1,024	13,741
13 Columbia University	45	0	388	529	209	565	1,691	25,274
14 U. of Wisconsin, Madison	30	5	86	238	74	154	552	7,608
15 Cornell University	32	1	156	393	182	472	1,203	13,699
16 University of Michigan	54	6	216	348	145	443	1,152	15,173
<b>U.S.2</b>								
17 University of Maryland	39	2	145	257	229	304	935	11,333
19 U. of Texas, Austin	33	2	114	243	120	328	805	9,253
21 U. of Cal., San Diego	40	3	180	394	103	318	995	14,046
22 University of Rochester	19	3	57	101	51	100	309	4,201
23 Ohio State University	39	2	139	292	170	344	945	11,304
25 U. of Illinois, Urbana	27	2	45	176	91	209	521	5,195
26 Boston University	38	4	157	240	129	189	715	10,843
27 Brown University	28	3	125	184	150	128	587	8,788
28 U. California, Davis	31	1	55	191	158	240	644	6,253
29 University of Minnesota	26	3	126	191	50	101	468	8,306
32 U. of Southern California	31	4	87	285	160	652	1,184	9,367
33 Michigan State U.	44	1	101	328	182	340	951	10,392
35 Duke University	43	0	148	296	174	554	1,172	11,958

38	PA State University	24	2	65	154	84	191	494	5,605
40	Carnegie Mellon U.	23	1	57	103	31	74	265	4,085
41	U. of North Carolina	24	2	22	144	69	240	475	3,694
42	Boston College	26	1	69	223	114	222	628	7,011
43	CA Institute of Technology	17	0	88	162	74	136	460	6,530
44	Texas A and M	25	1	50	161	103	183	497	5,216
49	University of Indiana	26	2	27	140	111	159	437	4,005
51	Johns Hopkins	14	0	80	171	54	104	409	6,193
52	Rutgers University	33	1	41	153	157	336	687	5,213
53	University of Virginia	32	4	67	157	126	142	492	5,933
54	Vanderbilt University	34	1	95	275	227	529	1,126	9,816
55	Georgetown University	25	2	45	175	63	73	356	4,876
56	Arizona State University	28	3	59	244	171	344	818	7,390
57	University of Arizona	25	6	39	87	72	103	301	3,400
58	Dartmouth College	29	2	45	136	123	234	538	4,812
60	University of Washington	25	1	82	271	140	181	674	8,366
62	Iowa State University	44	0	34	218	362	809	1,423	7,611
63	Washington U., St Louis	30	1	133	246	177	220	776	10,292
67	Purdue University	20	5	29	87	86	184	386	3,165
70	University of Pittsburgh	25	5	36	142	50	174	402	4,044
72	University of Iowa	18	3	31	139	53	77	300	3,720
75	Rice University	19	1	63	151	91	206	511	5,537
77	U. of California, Irvine	25	3	23	143	136	238	540	4,119
78	University of Florida	18	1	30	109	93	269	501	3,662
<b>EU1</b>									
12	London Sch. of Economics	55	4	189	421	116	441	1,167	15,012
18	Toulouse University	78	0	126	421	203	830	1,580	13,403
24	Tilburg University	54	2	39	377	301	1,238	1,955	10,259
31	Oxford University	44	1	153	395	177	634	1,359	13,741
34	University of Warwick	44	2	88	393	204	375	1,060	11,014
37	University of Amsterdam	39	1	19	202	125	333	679	4,873
39	Cambridge University	31	1	70	207	73	342	692	6,685
<b>EU2</b>									
45	European Institute	12	1	23	152	49	161	385	3,655
46	U. Carlos III, Spain	56	5	15	191	81	377	664	4,328
47	Univ. College London	35	2	120	292	103	376	891	10,174
48	University of Essex	30	2	30	148	73	95	346	3,953
59	Stockholm University	18	0	23	86	51	216	376	2,732
65	University of York	42	1	24	139	87	398	648	3,965
66	U. Pompeu Fabra	39	3	48	143	54	428	673	4,817
68	University of Nottingham	47	0	30	305	211	847	1,393	7,888
71	Stockholm School of Ecs.	15	1	16	86	68	332	502	2,670
73	Erasmus University	22	1	15	149	95	410	669	3,815
74	University of Copenhagen	46	4	10	179	71	317	577	3,828
76	Catholic Univ. of Louvain	40	0	24	221	140	678	1,063	5,793
79	U. Aut3noma, Barcelona	37	4	15	98	68	416	597	2,894
80	Free Univ. of Amsterdam	23	2	11	115	55	183	364	2,678
81	University of Bonn	26	5	56	147	104	517	824	5,586

**RW**

20	Univ. of British Columbia	30	3	73	188	110	160	531	6,560
36	University of Tel Aviv	16	1	58	205	70	122	455	5,937
61	University of Toronto	53	8	99	255	190	402	946	9,327
64	Hebrew University	26	0	133	219	157	408	917	9,955
30	Queen's University	26	3	42	213	120	143	518	5,738
50	University of Montreal	23	1	18	160	122	155	455	4,007
69	Hong Kong University	15	1	16	97	31	40	184	2,321

**B. ECONOMETRIC SOCIETY**

<b>FELLOWS AT:</b>	75	0	935	1,388	563	3,357	6,243	64,955
Other U.S. Economics Depts.	13	0	282	290	174	828	1,574	17,502
Other EU Economics Depts.	15	0	121	223	87	905	1,336	9,612
Other RW Economics Depts.	13	0	77	222	67	257	623	7,069
Business Schools	34	0	455	653	235	1,367	2,710	30,772
<b>TOTAL</b>	<b>2,780</b>	<b>175</b>	<b>10,532</b>	<b>21,666</b>	<b>10,831</b>	<b>31,649</b>	<b>74,678</b>	<b>842,905</b>

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**UNIVERSITIES OFTEN MENTIONED IN OTHER RANKINGS BUT NOT INCLUDED IN THIS PAPER (Econphd, 2004, ranking):**

University of Syracuse (82)

University of California, Santa Barbara (83)

Australian National University (84)

University of Colorado, Boulder (87)

Virginia Polytechnic Institute (95)

University of Southampton (96)

University of Western Ontario (103)

**Table B.** The skewness of the *P* index distribution for the 2,533 Economists in the best 81 Economics departments with at least one publication in 2007

Percentage of Individuals				Percentage of Quality Points			
In Category:				Accounted for By Category:			
1	2	3	4	1	2	3	4
67.1	21.9	7.6	3.4	27.6	32.8	21.1	18.5

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**Category 1** = individuals with low productivity, smaller than or equal to  $m_1 = 27.0$

**Category 2** = individuals with an intermediate productivity, above  $m_1$  and smaller or equal to  $m_2 = 59.2$

**Category 3** = individuals with a remarkable productivity, above  $m_2$  and smaller or equal to  $m_3 = 96.4$

**Category 4** = individuals with an outstanding productivity above  $m_3$ ,

where:  $m_1$  = mean of the n° papers distribution;

$m_2$  = mean n° papers of individuals with n° papers above  $m_1$ ,

$m_3$  = mean n° papers of individuals with n° papers above  $m_2$ .

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**Table C. The distribution of educational and research institutions for the partition of the world into the U.S., the European Union (EU), and the Rest of the World (RW)**

	Total Sample			Elite III			Elite II			Elite I		
	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ
<b>U.S.</b>	246	77	63	131	50	63	64	31	52	31	24	32
<b>EU</b>	221	126	33	105	58	33	35	20	17	14	7	7
<b>RW</b>	191	31	17	83	14	17	33	8	11	13	3	2
<b>Total</b>	<b>658</b>	<b>234</b>	<b>113</b>	<b>319</b>	<b>112</b>	<b>113</b>	<b>132</b>	<b>59</b>	<b>80</b>	<b>58</b>	<b>34</b>	<b>41</b>

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**CJ** = Current job in 2007

Table D. Institutions where elite university professors are trained

TOTAL SAMPLE. Current job in 2007 at:

		Top 10-U.S.	Rest-U.S.	Top 2-EU	Rest-EU	RW	TOTAL
		(1)	(2)	(3)	(4)	(5)	(6)
<u>Ph.D. obtained in:</u>							
1.	Harvard	69	88	9	8	8	182
2.	MIT	69	98	3	12	5	187
3.	U. of Chicago	27	81	-	4	12	124
4.	Princeton U.	33	60	7	6	16	122
5.	Stanford U.	36	67	6	8	15	132
6.	UCA, Berkeley	20	77	8	7	10	122
7.	Northwestern U.	14	51	1	13	10	89
8.	U. of Pennsylvania	6	50	1	8	2	67
9.	Yale U.	28	58	5	4	7	102
10.	U. of Minnesota	20	41	-	10	10	81
	Top Ten U.S.	322	671	40	80	95	1,208
11.	Rest U.S.	60	414	6	73	32	585
	TOTAL U.S.	382	1,085	46	153	127	1,793
12.	LSE + Oxford U.	10	25	32	59	6	132
13.	Rest EU	16	63	14	475	8	576
	TOTAL EU	26	88	46	534	14	708
14.	RW	3	30	2	27	46	108
	TOTAL	411	1,203	94	714	187	2,609

**ELITE III. Current job in 2007 at:**

	<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	45	37	6	2	90
2. MIT	53	41	6	4	104
3. U. of Chicago	17	44	-	4	65
4. Princeton U.	21	23	3	7	54
5. Stanford U.	23	20	5	4	52
6. UCA, Berkeley	13	24	5	2	44
7. Northwestern U.	5	16	1	1	23
8. U. of Pennsylvania	3	12	1	1	17
9. Yale U.	18	21	2	1	42
10. U. of Minnesota	14	15	3	-	32
Top Ten U.S.	212	253	32	26	523
11. Rest U.S.	33	126	12	10	181
TOTAL U.S.	245	379	44	36	704
12. LSE + Oxford U.	8	11	27	4	50
13. Rest EU	9	22	83	2	116
TOTAL EU	17	33	110	6	166
14. RW	-	11	6	24	41
<b>TOTAL</b>	<b>262</b>	<b>423</b>	<b>160</b>	<b>66</b>	<b>911</b>

**ELITE II. Current job in 2007 at:**

	Top 10-U.S.	Rest-U.S.	Rest-EU	RW	TOTAL
	(1)	(2)	(3)	(4)	(5)
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	30	14	2	-	46
2. MIT	36	17	4	3	60
3. Next 8 U.S.	51	42	6	3	102
4. Rest U.S.	18	35	2	2	57
<b>TOTAL U.S.</b>	135	108	14	8	265
5. LSE + Oxford U.	6	6	7	1	20
6. Rest EU	4	6	20	2	32
<b>TOTAL EU</b>	10	12	27	3	52
7. RW	-	6	4	7	17
					334
<b>TOTAL</b>	<b>145</b>	<b>126</b>	<b>45</b>	<b>18</b>	

**ELITE I. Current job in 2007 at:**

	Top 10-U.S.	Rest-U.S.	Rest-EU	RW	TOTAL
	(1)	(2)	(3)	(4)	(5)
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	15	7	1	-	23
2. MIT	23	6	1	1	31
3. Next 8 U.S.	19	8	-	1	28
4. Rest U.S.	6	10	2	-	18
<b>TOTAL U.S.</b>	63	31	4	2	100
5. LSE + Oxford U.	5	2	4	-	11
6. Rest EU	4	3	2	-	9
<b>TOTAL EU</b>	9	5	6	-	20
7. RW	-	2	1	-	3
<b>TOTAL</b>	<b>72</b>	<b>38</b>	<b>11</b>	<b>2</b>	<b>123</b>



Table E. Origins and Destinations. The Big Picture

A. TOTAL SAMPLE

ORIGINS	DESTINATIONS		Stayers	Brain Circulation		
B.A. in U.S. = 1,018  (1 + 2)	1. Remain in U.S.	960 =	943	+	17	
			To EU		To RW	
	2. Brain Drained	58 =	38	+	20	
			From EU		From RW	
	3. Brain Gain	652 =	261	+	391	
	4. Current Job in U.S. = 1 + 3:	1,612				
	5. Net Brain Gain = 3 - 2	594 =	223	+	371	
B.A. in EU = 966  (1 + 2)	1. Remain in EU	516 =	387	+	129	
			To U.S		To RW	To EU
	2. Brain Drained	450 =	261	+	37	+ 152
			From U.S.		From RW	From RW
	3. Brain Gain	290 =	38	+	100	+ 152
	4. Current Job in EU = 1 + 3	806				
	5. Net Brain Gain = 3 - 2	- 160 =	- 223	+	63	
B.A. in RW = 621  (1 + 2)	1. Remain in RW	100 =	31	+	69	
			To U.S		To EU	To RW
	2. Brain Drained	521 =	391	+	100	+ 30
			From U.S.		From EU	From RW
	3. Brain Gain	87 =	20	+	37	+ 30
	4. Current Job in RW = 1 + 3	187				
	5. Net Brain Gain = 3 - 2 =	- 434 =	- 371	-	63	

**B. ELITE III**

**ORIGINS**

**B.A. in U.S. = 457**

(1 + 2)

**DESTINATIONS**

- 1. Remain in U.S. 442 =
- 2. Brain Drained 15 =
- 3. Brain Gain 242 =
- 4. Current Job in U.S. = 1 + 3 684
- 5. Net Brain Gain = 3 - 2 227 =

**Stayers      Brain Circulation**

432 + 10

**To EU      To RW**

11 + 4

**From EU      From RW**

93 + 149

**B.A. in EU = 240**

(1 + 2)

- 1. Remain in EU 114 =
- 2. Brain Drained 126 =
- 3. Brain Gain 44
- 4. Current Job in EU = 1 + 3 158
- 5. Net Brain Gain = 3 - 2 - 82 =

**Stayers      Brain Circulation**

77 + 37

**To U.S.      To RW      To EU**

93 + 11 + 22

**From U.S.      From RW      From EU**

11 + 11 + 22

- 82 + 0 + 0

**B.A. in RW = 211**

(1 + 2)

- 1. Remain in RW 47 =
- 2. Brain Drained 164 =
- 3. Brain Gain 19 =
- 4. Current Job in RW = 1 + 3 66
- 5. Net Brain Gain = 3 - 2 - 145 =

**Stayers      Brain Circulation**

18 + 29

**To U.S.      To EU      To RW**

149 + 11 + 4

**From U.S.      From EU      From EU**

4 + 11 + 4

- 145 - 0

**C. ELITE II**

<b>ORIGINS</b>	<b>DESTINATIONS</b>		<b>Stayers</b>	<b>Brain Circulation</b>		
<b>B.A. in U.S. = 192</b>  (1 + 2)	<b>1. Remain in U.S.</b>	187 =	181	+	6	
			<b>To EU</b>		<b>To RW</b>	
	<b>2. Brain Drained</b>	5 =	3	+	2	
			<b>From EU</b>		<b>From RW</b>	
	<b>3. Brain Gain</b>	83 =	28	+	55	
	<b>4. Current Job in U.S. = 1 + 3</b>	270				
	<b>5. Net Brain Gain = 3 – 2</b>	78 =	26	+	53	
<b>B.A. in EU = 73</b>  (1 + 2)			<b>Stayers</b>	<b>Brain Circulation</b>		
	<b>1. Remain in EU</b>	33 =	18	+	15	
			<b>To U.S</b>		<b>To RW</b>	<b>To EU</b>
	<b>2. Brain Drained</b>	40 =	28	+	5	+ 7
			<b>From U.S.</b>		<b>From RW</b>	<b>From EU</b>
	<b>3. Brain Gain</b>	11 =	3	+	1	+ 7
	<b>4. Current Job in EU = 1 + 3</b>	44				
	<b>5. Net Brain Gain = 3 – 2</b>	-29 =	-25	-	4	
<b>B.A. in RW = 67</b>  (1 + 2)			<b>Stayers</b>	<b>Brain Circulation</b>		
	<b>1. Remain in RW</b>	11 =	6	+	5	
			<b>To U.S</b>		<b>To EU</b>	<b>To RW</b>
	<b>2. Brain Drained</b>	56 =	55	+	1	+ 0
			<b>From U.S.</b>		<b>From EU</b>	<b>From RW</b>
	<b>3. Brain Gain</b>	7 =	2	+	5	+ 0
	<b>4. Current Job in RW = 1 + 3</b>	18				
	<b>5. Net Brain Gain = 3 – 2</b>	-49 =	-53	+	4	

**D. ELITE I**

<b>ORIGINS</b>	<b>DESTINATIONS</b>	<b>Stayers</b>	<b>Brain Circulation</b>			
<b>B.A. in U.S. = 81</b>  (1 + 2)	<b>1. Remain in U.S.</b>	79 =	74	+	5	
			<b>To EU</b>		<b>To RW</b>	
	<b>2. Brain Drained</b>	2 =	2	+	0	
			<b>From EU</b>		<b>From RW</b>	
	<b>3. Brain Gain</b>	31 =	12	+	19	
<b>4. Current Job in U.S. = 1 + 3</b>	110					
<b>5. Net Brain Gain = 3 - 2</b>	29 =	10	+	19		
<b>B.A. in EU = 21</b>  (1 + 2)	<b>1. Remain in EU</b>	8 =	5	+	3	
			<b>To U.S</b>		<b>To RW</b>	<b>To EU</b>
	<b>2. Brain Drained</b>	13 =	12	+	0	+ 1
			<b>From U.S.</b>		<b>From RW</b>	<b>From EU</b>
	<b>3. Brain Gain</b>	3 =	2	+	0	+ 1
<b>4. Current Job in EU = 1 + 3</b>	11					
<b>5. Net Brain Gain = 3 - 2 =</b>	- 10 =	- 10	+	0		
<b>B.A. in RW = 21</b>  (1 + 2)	<b>1. Remain in RW</b>	2 =	0	+	2	
			<b>To U.S</b>		<b>To EU</b>	
	<b>2. Brain Drained</b>	19 =	19	+	0	
			<b>From U.S.</b>		<b>From EU</b>	
	<b>3. Brain Gain</b>	0 =	0	+	0	
<b>4. Current Job in RW = 1 + 3</b>	2					
<b>5. Net Brain Gain = 3 - 2</b>	- 19 =	- 19	-	0		

Table F. A comparison between the most highly cited mathematicians and economists in Elite II

A. The funneling effect towards the U.S.

	Mathematicians			Elite II		
	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ
U.S.	112	198	233	192	263	270
EU	114	110	73	73	52	44
RW	87	29	31	67	16	18
Missing	24	-	-	-	1	-
<b>Total</b>	337	337	337	332	332	332

B. Nationality and Ph.D.

Nationality	Ph.D., Mathematicians				Ph.D., Elite II				
	U.S.	EU	RW	Total	U.S.	EU	RW	Missing	Total
U.S.	111	1	0	112	185	6	1	-	192
EU	23	91	0	114	28	39	5	1	73
RW	52	9	26	87	50	7	10	-	67
Missing	12	9	3	24	-	-	-	-	-
<b>Total</b>	198	110	29	337	263	52	16	1	332

C. Ph.D. and destinations

Ph.D.	Destinations, Mathematicians				Destinations, Elite II			
	U.S.	EU	RW	Total	U.S.	EU	RW	Total
U.S.	180	6	12	198	242	13	8	263
EU	37	65	8	110	22	27	3	52
RW	16	2	11	29	6	3	7	16
Missing	-	-	-	-	-	1	-	1
<b>Total</b>	233	73	31	337	270	44	18	332

**D. Nationality and destinations**

<b>Nationality</b>	<b>Destinations, Mathematicians</b>				<b>Destinations, Elite II</b>			
	<b>U.S.</b>	<b>EU</b>	<b>RW</b>	<b>Total</b>	<b>U.S.</b>	<b>EU</b>	<b>RW</b>	<b>Total</b>
<b>U.S.</b>	107	3	2	112	187	3	2	192
<b>EU</b>	50	62	2	114	28	40	5	73
<b>RW</b>	61	2	24	87	55	1	11	67
<b>Missing</b>	15	6	3	24	-	-	-	-
<b>Total</b>	233	73	31	337	270	44	18	332

**D. Nationality and destinations**

<b>Nationality</b>	<b>Destinations, Mathematicians</b>				<b>Destinations, Elite II</b>			
	<b>U.S.</b>	<b>EU</b>	<b>RW</b>	<b>Total</b>	<b>U.S.</b>	<b>EU</b>	<b>RW</b>	<b>Total</b>
<b>U.S.</b>	107	3	2	112	187	3	2	192
<b>EU</b>	50	62	2	114	28	40	5	73
<b>RW</b>	61	2	24	87	55	1	11	67
<b>Total</b>	218	67	28	313	270	44	18	332

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**Table G. The funneling effect for a partition of the world into the U.S., the European Union (EU), and the Rest of the World (RW) in the young people case**

	Total Sample			Elite III		
	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ
<b>A. People</b>						
U.S.	478	1,099	954	146	287	277
EU	769	544	643	135	82	84
RW	467	71	117	102	14	22
<b>Missing</b>	0	0	0	0	0	0
<b>Total</b>	1,714	1,714	1,714	383	383	383

**B. Countries**

(besides the U.S.)

EU	14	11	10	14	8	10
RW	46	12	7	19	4	7
<b>Total</b>	60	23	17	33	12	17

**C. Quality Points**

Percentage Distribution

U.S.	68.4	75.0
EU	25.3	20.0
RW	6.3	5.0
<b>Total</b>	100.0	100.0

CJ = Current Job In 2007

Table H. Institutions where elite university professors are trained in the young people case

		<b>TOTAL SAMPLE. <u>Current job in 2007 at:</u></b>				
		<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
		<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>						
1.	Harvard	36	48	13	3	100
2.	MIT	39	52	11	1	103
	1 + 2 =	75	100	24	4	203
3.	Rest Top Ten U.S.	110	301	71	57	539
4.	Other U.S.	36	229	69	23	357
	<b>TOTAL U.S.</b>	<b>221</b>	<b>360</b>	<b>164</b>	<b>84</b>	<b>1,099</b>
5.	EU	14	62	459	9	544
6.	RW	3	24	20	24	71
	<b>TOTAL</b>	<b>238</b>	<b>716</b>	<b>643</b>	<b>117</b>	<b>1,714</b>

		<b>ELITE III. <u>Current job in 2007 at:</u></b>				
		<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
		<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>						
1.	Harvard	18	17	4	0	39
2.	MIT	24	13	12	0	49
	1 + 2 =	42	30	16	0	88
3.	Rest Top Ten U.S.	48	76	11	7	142
4.	Other U.S.	11	46	5	5	67
	<b>TOTAL U.S.</b>	<b>101</b>	<b>152</b>	<b>32</b>	<b>12</b>	<b>297</b>
5.	EU	5	13	61	3	82
6.	RW		6	1	7	14
	<b>TOTAL</b>	<b>106</b>	<b>171</b>	<b>94</b>	<b>22</b>	<b>393</b>



Table I. Partition of the people originating in each geographical area into stayers and movers (brain circulation and brain drain), and partition of those working in each area in 2007 into nationals (stayers and brain circulation) and foreigners (brain gain) in the young people case

**TOTAL SAMPLE**

	Brain Stayers	Brain Circulation	Brain Drain	Total by origin = (1) + (2) + (3)	Brain Gain	Working in the area in 2007 = (1) + (2) + (4)
Area	(1)	(2)	(3)		(4)	
U.S.	429	8	41	478	517	954
EU	291	98	380	769	254	643
RW	14	38	415	467	65	117
<b>TOTAL</b>	<b>734</b>	<b>144</b>	<b>836</b>	<b>1,714</b>	<b>836</b>	<b>1,714</b>

**ELITE III**

	Brain Stayers	Brain Circulation	Brain Drain	Total by origin = (1) + (2) + (3)	Brain Gain	Working in the area in 2007 = (1) + (2) + (4)
Area	(1)	(2)	(3)		(4)	
U.S.	135	3	8	146	139	277
EU	41	17	77	135	26	84
RW	5	9	88	102	8	22
<b>TOTAL</b>	<b>181</b>	<b>29</b>	<b>173</b>	<b>383</b>	<b>173</b>	<b>383</b>

Table L. Nationalities in the young people's total sample

	Current job (1)	Brain drain (2)	Total (3)	Percentage distribution (4)
<b>A. Countries with some department in the sample</b>				
1. U.S.	437	40	477	27.8%
European Union	377	260	637	37.2%
2. UK	89	45	134	
3. France	59	44	103	
4. Netherlands	86	12	98	
5. Spain	70	32	102	
6. Germany	11	66	77	
7. Belgium	27	24	51	
8. Denmark	24	17	41	
9. Sweden	20	10	30	
Rest of the World	53	129	182	10.6%
10. Canada	22	47	69	
11. Israel	19	32	51	
12. China	8	50	58	
A'. Econ. Society Fellows <sup>a</sup>	5	-	5	
<b>B. Countries with no department in the sample</b>		418	418	24.4%
13. Italy		98	98	
14. India		45	45	
15. Other countries <sup>c</sup>		275	275	
<b>TOTAL</b>		-	1,714	100.0%

<sup>a</sup> EU: Finland (1); RW: Japan (2), India (1), Norway (1)

<sup>b</sup> Turkey (29), South Korea (26), Argentina (23), Japan (22), Australia (19), Russia (19), Greece (12), Brazil (13), Switzerland (11), Portugal (10), Austria (7), Hungary (8), Chile (8), Ireland (8), México (8), Poland (5), Colombia (6), New Zealand (1), Uruguay (4), Finland (1), Norway (2), Perú (3), Taiwan (3), Belarus (2), Costa Rica (2), Singapore (1), Other (31)

APPENDIX IV

MEMBERS OF ELITES I, II, AND III IN THE TOTAL SAMPLE

ELITE I

Name	$Q$ index	Nationality	Current Job	Name	$Q$ index	Nationality	Current Job
1 Stiglitz, Joseph	5,135	U.S.	Columbia University	43 Fudenberg, Drew	1,568	U.S.	Harvard University
2 Samuelson, Paul	4,866	U.S.	MIT	44 Aghion, Philippe	1,553	France	Harvard University
3 Feldstein, Martin	4,089	U.S.	Harvard University	45 Sen, Amartya	1,547	India	Harvard University
4 Baumol, William	3,815	U.S.	New York University	46 Auerbach, Alan	1,532	U.S.	U. of Cal., Berkeley
5 Phillips, Peter	3,079	New Zealand	Yale University	47 Blundell, Richard	1,525	UK	Univ. College London
6 Turnovsky, Stephen	2,733	New Zealand	U. of Washington	48 Acemoglu, Daron	1,520	UK	MIT
7 Smith, Vernon	2,698	U.S.	George Mason U.	49 Hausman, Jerry	1,519	U.S.	MIT
8 Tirole, Jean	2,691	France	Toulouse University	50 Mankiw, Gregory	1,510	U.S.	Harvard University
9 Fisher, Franklin	2,637	U.S.	MIT	51 Plott, Charles	1,504	U.S.	Cal. Inst. of Technol
10 Solow, Robert	2,580	U.S.	MIT	52 Becker, Gary	1,493	U.S.	University of Chicago
11 Ray, Debraj	2,489	India	New York University	53 List, John	1,464	U.S.	University of Chicago
12 Helpman, Elhanan	2,487	Israel	Harvard University	54 Ashenfelter, Orley	1,460	U.S.	Princeton University
13 Shleifer, Andrei	2,433	U.S.	Harvard University	55 Pesaran, Hashem	1,454	UK	U. of Southern Calif
14 Heckman, James	2,413	U.S.	University of Chicago	56 Mcallum, Bennett	1,451	U.S.	Carnegie Mellon U.
15 Chow, Gregory	2,260	U.S.	Princeton University	57 Viscusi, Kip	1,450	U.S.	Vanderbilt University
16 Barro, Robert	2,224	U.S.	Harvard University	58 Fama, Eugene	1,447	U.S.	University of Chicago
17 Arrow, Kenneth	2,184	U.S.	Stanford University	59 Epstein, Larry	1,445	Canada	Boston University
18 Zeckhauser, Richard	2,068	U.S.	John F. Kennedy School	60 Buchanan, James	1,433	U.S.	George Mason U.
19 Blanchard, Olivier	2,064	France	MIT	61 Engle, Robert	1,425	U.S.	U. of Cal., San Diego
20 Rosenzweig, Mark	2,056	U.S.	Yale University	62 Blackorby, Chuck	1,424	U.S.	University of Warwick
21 Diamond, Peter	2,043	U.S.	MIT	63 Deaton, Angus	1,424	UK	Princeton University
22 Dixit, Avinash	2,039	India	Princeton University	64 Besley, Tim	1,422	UK	LSE
23 Roth, Alvin	2,011	U.S.	Harvard University	65 Fair, Ray	1,411	U.S.	Yale University
24 Sargent, Thomas	1,982	U.S.	New York University	66 Murphy, Kevin	1,408	U.S.	University of Chicago
25 Razin, Assaf	1,908	Israel	Cornell University	67 Bernheim, Douglas	1,401	U.S.	Stanford University
26 Maskin, Eric	1,891	U.S.	Inst. of Adv. Studies	68 Newey, Whitney	1,392	U.S.	MIT
27 Jorgenson, Dale	1,873	U.S.	Harvard University	69 Krueger, Alan	1,391	U.S.	Princeton University
28 Poterba, James	1,845	U.S.	MIT	70 Williamson, Oliver	1,379	U.S.	U. of Cal., Berkeley
29 Andrews, Donald	1,780	Canada	Yale University	71 Schmalensee, Richard	1,374	U.S.	MIT
30 Weitzman, Martin	1,696	U.S.	Harvard University	72 Hamermesh, Daniel	1,365	U.S.	U. of Texas, Austin
31 Grossman, Gene	1,689	U.S.	Princeton University	73 Card, David	1,345	Canada	U. of Cal., Berkeley
32 Summers, Lawrence	1,670	U.S.	Harvard University	74 Hart, Oliver	1,344	UK	Harvard University
33 Schmidt, Peter	1,662	U.S.	Michigan State U.	75 Postlewaite, Andrew	1,333	U.S.	U. of Pennsylvania
34 Svensson, Lars	1,652	Sweden	Princeton University	76 Prescott, Edward	1,332	U.S.	Arizona State Univer
35 Alesina, Alberto	1,648	Italy	Harvard University	77 Lazear, Edward	1,330	U.S.	Stanford University
36 Shubik, Martin	1,619	Canada	Yale University	78 Phelps, Edmund	1,328	U.S.	Columbia University
37 Sheshinski, Eytan	1,606	Israel	Hebrew University	79 Lindbeck, Assar	1,324	Sweden	Stockholm University
38 Pollak, Robert	1,603	U.S.	Washington U., St Louis	80 Robinson, Peter	1,319	UK	LSE
39 Lewis, Tracy	1,599	U.S.	Duke University	81 Kagel, John	1,318	U.S.	Ohio State University
40 Samuelson, Larry	1,589	U.S.	Yale University	82 Campbell, John	1,314	UK	Harvard University
41 Akerlof, George	1,583	U.S.	U. of Cal., Berkeley	83 Kremer, Michael	1,311	U.S.	Harvard University
42 Calvo, Guillermo	1,574	Argentina	Columbia University	84 Freeman, Richard	1,303	U.S.	Harvard University

85	Manski, Charles	1,301	U.S.	Northwestern University	105	Jones, Ronald	1,223	U.S.	University of Roches
86	Glaeser, Edward	1,298	U.S.	Harvard University	106	Wright, Randall	1,221	Canada	U. of Pennsylvania
87	Milgrom, Paul	1,297	U.S.	Stanford University	107	Laroque, Guy	1,218	France	Univ. College Londo
88	Jackson, Matthew	1,297	U.S.	Stanford University	108	Crawford, Vincent	1,214	U.S.	U. of Cal., San Diego
89	Lucas, Robert	1,296	U.S.	University of Chicago	109	Green, Jerry	1,212	U.S.	Harvard University
90	Jovanovic, Boyan	1,295	UK	New York University	110	Granger, Clive	1,211	UK	U. of Cal., San Diego
91	Smith, Kerry	1,286	U.S.	Arizona State University	111	Cutler, David	1,207	U.S.	Harvard University
92	Bhagwati, Jagdish	1,284	UK	Columbia University	112	Kotlikoff, Laurence	1,202	U.S.	Boston University
93	Caballero, Ricardo	1,282	Chile	MIT	113	Dreze, Jacques	1,202	Belgium	CORE, Belgium
94	Nordhaus, William	1,279	U.S.	Yale University	114	Palfrey, Thomas	1,200	U.S.	Cal. Institute of Tech
95	Gordon, Robert	1,273	U.S.	Northwestern University	115	Katz, Lawrence	1,199	U.S.	Harvard University
96	Levine, David	1,268	U.S.	Washington U., St Louis	116	Bardhan, Pranab	1,193	India	U. of Cal., Berkeley
97	Obstfeld, Maurice	1,265	U.S.	U. of Cal., Berkeley	117	Rosen, Harvey	1,190	U.S.	Princeton University
98	Abel, Andrew	1,262	U.S.	U. of Pennsylvania	118	Diewert, Erwin	1,188	Canada	U. of British Columb
99	Karni, Edi	1,254	Israel	Johns Hopkins	119	Stein, Jeremy	1,187	U.S.	Harvard University
100	Hendry, David	1,252	UK	Oxford University	120	Howitt, Peter	1,186	Canada	Brown University
101	White, Halbert	1,246	U.S.	U. of Cal., San Diego	121	Lee, Lung-Fei	1,182	China	Ohio State University
102	Behrman, Jere	1,243	U.S.	U. of Pennsylvania	122	Diebold, Francis	1,179	U.S.	U. of Pennsylvania
103	Nickell, Stephen	1,242	UK	Oxford University	123	Polemarchakis, Herakles	1,170	U.S.	University of Warwic
104	Rubinstein, Ariel	1,240	Israel	New York University					

## ELITE II

Name	Q index	Nationality	Current Job	Name	Q index	Nationality	Current Job		
124	Mas-Colell, Andreu	1,161	Spain	U. Pompeu Fabra	152	Kurz, Mordecai	1,053	Israel	Stanford University
125	Leamer, Edward	1,158	U.S.	U. of California, LA	153	Shiller, Robert	1,052	U.S.	Yale University
126	Slemrod, Joel	1,156	U.S.	University of Michigan	154	Harberger, Arnold	1,048	U.S.	U. of California, LA
127	Siegfried, John	1,153	U.S.	Vanderbilt University	155	Persson, Torsten	1,041	Sweden	LSE
128	Borjas, George	1,152	U.S.	J. F. Kennedy School	156	Chiappori, P.A.	1,035	France	Columbia University
129	Rotemberg, Julio	1,150	U.S.	Harvard University	157	Sadka, Efraim	1,027	Israel	University of Tel Aviv
130	Stock, James	1,147	U.S.	Harvard University	158	Scheinkman, José	1,026	Brazil	Princeton University
131	Weisbrod, Burton	1,145	U.S.	Northwestern University	159	Gruber, Jonathan	1,022	U.S.	MIT
132	Cooper, Russell	1,144	U.S.	U. of Texas, Austin	160	Sandmo, Agnar	1,017	Norway	Norwegian Sch. of Ecs.
133	Judd, Kenneth	1,141	U.S.	Hover Institution	161	Dufour, Jean-Marie	1,016	Canada	McGill University
134	Srinivasan, T.N.	1,140	India	Yale University	162	Mookherjee, Dilip	1,001	India	Boston University
135	Lewbel, Arthur	1,139	U.S.	Boston College	163	Rogoff, Kenneth	997	U.S.	Harvard University
136	Gale, Douglas	1,122	Canada	New York University	164	Pissarides, Ch.	996	UK	LSE
137	Dasgupta, Partha	1,116	India	Cambridge University	165	Shavell, Steven	994	U.S.	Harvard Law School
138	Blinder, Alan	1,112	U.S.	Princeton University	166	Sappington, David	991	U.S.	University of Florida
139	Moulin, Hervé	1,111	France	Rice University	167	Holmström, Bengt	990	Finland	MIT
140	Mitra, Tapan	1,100	India	Cornell University	168	Currie, Janet	988	Canada	Columbia University
141	Nerlove, Marc	1,090	U.S.	U. of Maryland	169	Eaton, Jonathan	984	U.S.	New York University
142	Wolpin, Kenneth	1,089	U.S.	U. of Pennsylvania	170	Sandler, Todd	983	U.S.	U. of Southern Californi
143	Holt, Charles	1,085	U.S.	University of Virginia	171	Kreinin, Mordechai	979	Israel	Michigan State U.
144	Pattanaik, Prasanta	1,079	India	U. California, Riverside	172	Neary, J.Peter	979	Ireland	Oxford University
145	McAfee, R.-Preston	1,078	U.S.	Cal. Institute of Tech.	173	Hansen, Lars	979	U.S.	University of Chicago
146	Nelson, Charles	1,076	U.S.	U. of Washington	174	Kiefer, Nicholas	975	U.S.	Cornell University
147	Newbery, David	1,076	UK	Cambridge University	175	Levitt, Steven	968	U.S.	University of Chicago
148	Kehoe, Patrick	1,072	U.S.	University of Minnesota	176	Horowitz, Joel	966	U.S.	Northwestern University
149	Roberts, D. John	1,071	Canada	Stanford University	177	Brock, William	964	U.S.	U. of Wisconsin, Mad.
150	Baron, David	1,061	U.S.	Stanford University	178	Morris, Stephen	961	UK	Princeton University
151	Shapiro, Carl	1,054	U.S.	U. of Cal., Berkeley	179	Sonnenschein, Hugo	960	U.S.	University of Chicago

180	Taylor, John	958	U.S.	Stanford University	233	Rochet, Jean-Charles	849	France	Toulouse University
181	Burmeister, Edwin	957	U.S.	Duke University	234	Hellwig, Martin F.	842	Germany	University of Bonn
182	Bolton, Patrick	955	France	Columbia University	235	West, Kenneth	841	U.S.	U. of Wisconsin
183	Bergstrom, Ted	952	U.S.	U. of Cal., Santa Barbara	236	Pakes, Ariel	839	Israel	Harvard University
184	Farrell, Joseph	951	UK	U. of Cal., Berkeley	237	Hsiao, Cheng	835	Taiwan	U. of Southern Cal.
185	Varian, Hal	950	U.S.	U. of Cal., Berkeley	238	Goldin, Claudia	833	U.S.	Harvard University
186	Moffitt, Robert	948	U.S.	Johns Hopkins	239	Taylor, Mark	831	UK	University of Warwick
187	Friedman, Benjamin	948	U.S.	Harvard University	240	Rustichini, Aldo	828	Italy	University of Minnesota
188	Panzar, John	947	U.S.	Northwestern University	241	Hall, Robert	828	U.S.	Stanford University
189	Townsend, Robert	939	U.S.	University of Chicago	242	Benhabib, Jess	827	Turkey	New York University
190	Romer, David	939	U.S.	U. of Cal., Berkeley	243	Joskow, Paul	824	U.S.	MIT
191	Eichenbaum, Martin	938	Canada	Northwestern University	244	Mirman, Leonard	822	U.S.	University of Virginia
192	Edwards, Sebastian	934	Chile	U. of California, LA	245	Davidson, Russell	819	UK	Aix-en-Provence
193	Berndt, Ernst	933	U.S.	University of Chicago	246	Galor, Oded	818	Israel	Brown University
194	Cooley, Thomas	933	U.S.	New York University	247	Salant, Stephen	815	U.S.	University of Michigan
195	Banerjee, Abhijit	929	India	MIT	248	Wilson, Robert	806	U.S.	Stanford University
196	Wise, David	928	U.S.	J. F. Kennedy School	249	Day, Richard	804	U.S.	U. of Southern Cal.
197	Imbens, Guido	926	Netherlands	Harvard University	250	Haltiwanger, John	801	U.S.	University of Maryland
198	Ehrenberg, Ronald	920	U.S.	Cornell University	251	Gertler, Mark	801	U.S.	New York University
199	Schmeidler, David	918	U.S.	Ohio State University	252	Williamson, Jeffrey	801	U.S.	Harvard University
200	McFadden, Daniel	912	U.S.	U. of Cal., Berkeley	253	Guesnerie, Roger	798	France	EHESS - Paris
201	Levin, Dan	911	Israel	Ohio State University	254	Vives, Xavier	798	Spain	IESE
202	Aumann, Robert	910	U.S.	Hebrew University	255	Scotchmer, Suzanne	796	U.S.	U. of Cal., Berkeley
203	Sachs, Jeffrey	903	U.S.	Columbia University	256	Malkiel, Burton	796	U.S.	Princeton University
204	Atkinson, Tony	902	UK	Oxford University	257	Oswald, Andrew	794	UK	University of Warwick
205	Feenstra, Robert	898	Canada	U. California, Davis	258	Chichilnisky, G.	793	Argentina	Columbia University
206	Zilcha, Itzhak	897	Israel	University of Tel Aviv	259	Boadway, Robin	792	Canada	Queen's University
207	Honkapohja, Seppo	895	Finland	Cambridge University	260	Willig, Robert	792	U.S.	Princeton University
208	Saving, Thomas	895	U.S.	Texas A and M	261	Shapiro, Matthew	791	U.S.	University of Michigan
209	Basu, Kaushik	894	India	Cornell University	262	Laitner, John	790	U.S.	University of Michigan
210	Sims, Christopher	892	U.S.	Princeton University	263	Henderson, Vernon	788	Canada	Brown University
211	Pestieau, Pierre	890	Belgium	Catholic U. of Louvain	264	Cooper, Richard	786	U.S.	Harvard University
212	Spence, Michael	889	U.S.	Stanford University	265	Riley, John	785	New Zealand	U. of California, LA
213	Bovenberg, Lans	888	Netherlands	Tilburg University	266	Krugman, Paul	785	U.S.	Princeton University
214	Krueger, Anne	887	U.S.	Johns Hopkins	267	Trivedi, Pravin	783	UK	University of Indiana
215	King, Robert	887	U.S.	Boston University	268	Roll, Richard	781	U.S.	U. of California, LA
216	Burdett, Kenneth	885	UK	U. of Pennsylvania	269	Boskin, Michael	780	U.S.	Stanford University
217	Myerson, Roger	884	U.S.	University of Chicago	270	Kalai, Ehud	779	U.S.	Northwestern University
218	Gourieroux, Ch.	883	France	University of Toronto	271	Shell, Karl	779	U.S.	Cornell University
219	Gallant, Ronald	883	U.S.	Duke University	272	Fullerton, Don	777	U.S.	U. of Texas, Austin
220	Malcomson, James	883	UK	Oxford University	273	Ours, Jan-van	776	Netherlands	Tilburg University
221	Radner, Roy	882	U.S.	New York University	274	Peleg, Bezalel	776	Israel	Hebrew University
222	MacKinnon, James	882	UK	Queen's University	275	Anderson, James	776	U.S.	Boston College
223	Angrist, Joshua	875	U.S.	MIT	276	Crémer, Jacques	775	France	Toulouse University
224	Coate, Steve	871	UK	Cornell University	277	Kelejian, Harry	774	U.S.	University of Maryland
225	Browning, Martin	870	UK	Oxford University	278	Bernhardt, Dan	774	U.S.	U. of Illinois, Urbana
226	Bulow, Jeremy	869	U.S.	Stanford University	279	Martimort, David	772	France	Toulouse University
227	Keane, Michael	869	U.S.	U. of New South Wales	280	Hubbard, Robert	771	U.S.	Columbia University
228	Caplin, Andrew	864	UK	New York University	281	Thomson, William	769	U.S.	University of Rochester
229	Matsuyama, K.	862	Japan	Northwestern University	282	Bossert, Walter	768	Germany	University of Montreal
230	Duffie, Darrell	859	Canada	Stanford University	283	Klein, Lawrence	767	U.S.	U. of Pennsylvania
231	Shoven, John	850	U.S.	Stanford University	284	Wakker, Peter	767	Netherlands	Erasmus University
232	Benabou, Roland	850	France	Princeton University	285	Rubinfeld, Daniel	765	U.S.	U. of Cal., Berkeley

286	Camerer, Colin	765	U.S.	Cal. Inst. of Technology	311	Sloan, Frank	735	U.S.	Duke University
287	Mailath, George	763	Australia	U. of Pennsylvania	312	Qi, Li	735	China	Texas A and M
288	Rogerson, Richard	762	Canada	Arizona State University	313	Hammond, Peter	733	UK	University of Warwick
289	Gordon, Roger	762	U.S.	U. of Cal., San Diego	314	Christiano, Lawrence	732	U.S.	Northwestern University
290	Franses, Philip-Hans	761	U.S.	Erasmus University	315	Engel, Charles	731	U.S.	U. of Wisconsin, Mad.
291	Neumark, David	760	U.S.	U. of California, Irvine	316	Dhrymes, Phoebus	729	U.S.	Columbia University
292	Moore, John	759	UK	U. Edinburgh, Scotland	317	Linton, Oliver	728	UK	LSE
293	Greenwood, Jeremy	758	Canada	U. of Pennsylvania	318	D'Aspremont, C.	728	Belgium	Catholic U. of Louvain
294	Ng, Serena	758	Canada	Columbia University	319	Dekel-Tabak, Eddie	728	Israel	Northwestern University
295	Pencavel, John	756	UK	Stanford University	320	Luetkepohl, Helmut	726	Germany	European Institute
296	Yitzhaki, Shlomo	753	Israel	Hebrew University	321	Ghysels, Eric	724	Belgium	U. of North Carolina
297	Quigley, John	750	U.S.	U. of Cal., Berkeley	322	Gilbert, Richard	723	U.S.	U. of Cal., Berkeley
298	Bourguignon, F.	749	France	EHESS - Paris	323	Jehiel, Philippe	722	France	Univ. College London
299	Drazen, Allan	747	U.S.	University of Maryland	324	Wolff, Edward	719	U.S.	New York University
300	Binmore, Kenneth	746	UK	Univ. College London	325	Temin, Peter	715	U.S.	MIT
301	Chari, V.V.	745	India	University of Minnesota	326	Ethier, Wilfred	715	U.S.	U. of Pennsylvania
302	Schotter, Andrew	745	U.S.	New York University	327	Devereux, Michael	714	Ireland	U. of British Columbia
303	Chipman, John	745	Canada	University of Minnesota	328	Riordan, Michael	714	U.S.	Columbia University
304	Hart, Sergiu	744	Israel	Hebrew University	329	MacDonald, Glenn	714	Canada	Washington U., St Louis
305	Nishimura, Kazuo	744	Japan	Kyoto University, Japan	330	MacLeod, W.	712	Canada	Columbia University
306	Bagwell, Kyle	741	U.S.	Columbia University	331	Eichengreen, Barry	710	U.S.	U. of Cal., Berkeley
307	Geanakoplos, John	739	U.S.	Yale University	332	Van-der-Ploeg, Rick	709	UK	European Institute
308	Perron, Pierre	737	Canada	Boston University					
309	Greenaway, David	737	UK	U. of Nottingham					
310	Anderson, Simon	736	UK	University of Virginia					

### ELITE III

Name	$Q$ index	Nationality	Current Job	Name	$Q$ index	Nationality	Current Job		
333	Richard, Jean-Francois	706	Belgium	University of Pittsburgh	355	Andreoni, James	683	U.S.	U. of Cal., San Diego
334	Cass, David	706	U.S.	U. of Pennsylvania	356	Hahn, Jinyong	683	South Korea	U. of California, LA
335	Katz, Michael	705	U.S.	U. of Cal., Berkeley	357	Meghir, Costas	682	UK	Univ. College London
336	Timmermann, Allan	705	UK	U. of Cal., San Diego	358	Oates, Wallace	682	U.S.	University of Maryland
337	Smith, Richard	701	UK	Cambridge University	359	Barberà, Salvador	681	Spain	U. Autònoma, Barcelona
338	Stoker, Thomas	697	U.S.	MIT	360	Sobel, Joel	681	U.S.	U. of Cal., San Diego
339	Reinganum, Jennifer	696	U.S.	Vanderbilt University	361	Deardorff, Alan	681	U.S.	University of Michigan
340	Judge, George	696	U.S.	U. of Cal., Berkeley	362	Rebelo, Sergio	679	Portugal	Northwestern University
341	Hansen, Bruce	695	U.S.	U. of Wisconsin	363	Le-Breton, Michel	679	France	Toulouse University
342	Glazer, Amihai	694	U.S.	U. of California, Irvine	364	Wallace, Neil	678	U.S.	PA State University
343	Bollerslev, Tim	694	Denmark	Duke University	365	Bresnahan, Timothy	677	U.S.	Stanford University
344	Hildenbrand, Werner	692	Germany	University of Bonn	366	Poirier, Dale	675	U.S.	U. of California, Irvine
345	Kahneman, Daniel	690	Israel	Princeton University	367	Sutton, John	674	Ireland	LSE
346	Layard, Richard	690	UK	LSE	368	Whinston, Michael	672	U.S.	Northwestern University
347	Kirman, Alan	689	UK	Aix-en-Provence, France	369	Sala-i-Martin, Xavier	671	Spain	Columbia University
348	Hamilton, James	689	U.S.	U. of Cal., San Diego	370	Barzel, Yoram	670	Israel	U. of Washington
349	Gul, Faruk	687	Turkey	Princeton University	371	Segal, Uzi	669	Israel	Boston College
350	Rabin, Matthew	686	U.S.	U. of Cal., Berkeley	372	Goeree, Jacob	666	Netherlands	CA Institute of Tech.
351	Klemperer, Paul	685	UK	Oxford University	373	Kapteyn, A.	662	Netherlands	Tilburg University
352	Zame, William	685	U.S.	Columbia University	374	Nugent, Jeff	661	U.S.	U. of Southern California
353	Stern, Nicholas	684	UK	LSE	375	Wolinsky, Asher	660	Israel	Northwestern University
354	Rothschild, Michael	683	U.S.	Princeton University	376	Ball, Laurence	658	U.S.	Johns Hopkins

377	Shin, Hyun	658	UK	Princeton University	428	Shi, Shouyong	596	China	University of Toronto
378	Koenker, Roger	658	U.S.	U. of Illinois, Urbana	429	Galí, Jordi	596	Spain	J. Pompeu Fabra
379	Roland, Gérard	655	Belgium	U. of Cal., Berkeley	430	Eden, Ben	596	Israel	Vanderbilt University
380	Ellison, Glenn	655	U.S.	MIT	431	Lockwood, Ben	595	UK	University of Warwick
381	Gilboa, Itzhak	655	Israel	University of Tel Aviv	432	Cowell, Frank	595	UK	LSE
382	Ramsey, James	654	Canada	New York University	433	Stahl, Dale	594	U.S.	U. of Texas, Austin
383	Saint-Paul, Gilles	653	France	Toulouse University	434	Mundlak, Yair	592	U.S.	Hebrew University
384	Fernandez, Raquel	652	U.S.	New York University	435	Altonji, Joseph	591	U.S.	Yale University
385	Cochrane, John	652	U.S.	University of Chicago	436	McKinnon, Ronald	591	Canada	Stanford University
386	Azariadis, Costas	651	Greece	Washington U., St Louis	437	Benassy, Jean Pascal	590	France	EPREMAP, France
387	Wolfe, Barbara	651	U.S.	U. of Wisconsin	438	Hamada, Koichi	590	Japan	Yale University
388	Reny, Philip	650	Canada	University of Chicago	439	Krusell, Per	589	Sweden	Princeton University
389	Durlauf, Steven	648	U.S.	U. of Wisconsin	440	Cremer, Helmuth	588	Belgium	Toulouse University
390	Nadiri, M.	647	U.S.	New York University	441	Singleton, Kenneth	587	U.S.	Stanford University
391	Machin, Stephen	647	UK	Univ. College London	442	Rogerson, William	587	Canada	Northwestern University
392	Blank, Rebecca	647	U.S.	University of Michigan	443	Kehoe, Timothy	587	U.S.	University of Minnesota
393	Moldovanu, Benny	645	Israel	University of Bonn	444	Sickles, Robin	586	U.S.	Rice University
394	Tauchen, George	642	U.S.	Duke University	445	Mundell, Robert	585	Canada	Columbia University
395	Muellbauer, John	641	UK	Oxford University	446	Gibbons, Robert	585	U.S.	MIT
396	Peters, Mike	639	Canada	U. of British Columbia	447	Staiger, Robert	584	U.S.	Stanford University
397	Solon, Gary	638	U.S.	Michigan State U.	448	Suzumura, Kotaro	582	Japan	Hitotsubashi University
398	Brueckner, Jan	638	U.S.	U. of California, Irvine	449	Rey, Patrick	581	France	Toulouse University
399	Fuller, Wayne	637	U.S.	Iowa State University	450	Portes, Richard	580	U.S.	London Business School
400	Venables, Tony	634	UK	Oxford University	451	Bond, Eric	580	U.S.	Vanderbilt University
401	Fershtman, Chaim	633	Israel	University of Tel Aviv	452	Kelley, Allen	579	U.S.	Duke University
402	Che, Yeon-Koo	631	South Korea	Columbia University	453	Thurow, Lester	579	U.S.	MIT
403	Leiderman, Leonardo	628	Israel	University of Tel Aviv	454	Powell, James	576	U.S.	U. of Cal., Berkeley
404	Qian, Yingyi	628	China	U. of Cal., Berkeley	455	Hinich, Melvin	574	U.S.	U. of Texas, Austin
405	Bisin, Alberto	627	Italy	New York University	456	Skinner, Jonathan	571	U.S.	Dartmouth College
406	Stokey, Nancy	627	U.S.	University of Chicago	457	Eckstein, Zvi	571	Israel	University of Minnesota
407	Balasko, Yves	626	France	University of York	458	Weymark, John	569	Canada	Vanderbilt University
408	Dolado, Juanjo	623	Spain	U. Carlos III	459	Diamond, Douglas	567	U.S.	University of Chicago
409	Shapley, Lloyd	623	U.S.	U. of California, LA	460	Vuong, Quang	567	France	PA State University
410	Loury, Glenn	621	U.S.	Brown University	461	Shaked, Avner	567	Israel	University of Bonn
411	Gollier, Christian	620	Belgium	Toulouse University	462	Morgan, John	566	U.S.	U. of Cal., Berkeley
412	Godfrey, Leslie	620	UK	University of York	463	Moretti, Enrico	566	Italy	U. of Cal., Berkeley
413	Brown, Donald	619	U.S.	Yale University	464	Kocherlakota, Narayana	565	U.S.	University of Minnesota
414	Epple, Dennis	619	U.S.	Carnegie Mellon U.	465	Young, Peyton	563	U.S.	Oxford University
415	Ridder, Geert	616	Netherlands	U. of Southern California	466	Costa, Dora	560	U.S.	U. of California, LA
416	Harrington, Joseph	614	U.S.	Johns Hopkins	467	Wooldridge, Jeffrey	559	U.S.	Michigan State U.
417	Thompson, Earl	613	U.S.	U. of California, LA	468	Grant, Simon	556	Australia	Rice University
418	Wickens, Michael	610	UK	University of York	469	Blume, Lawrence	556	U.S.	Cornell University
419	Attanasio, Orazio	609	Italy	Univ. College London	470	Woodland, Alan	555	Australia	U. of New South Wales
420	Levine, Ross	609	U.S.	Brown University	471	van-der-Klundert, T.	555	Netherlands	Tilburg University
421	Chamberlain, Gary	607	U.S.	Harvard University	472	Jones, Charles	554	U.S.	U. of Cal., Berkeley
422	Lang, Kevin	606	UK	Boston University	473	Paxson, Christina	553	U.S.	Princeton University
423	Tower, Edward	603	U.S.	Duke University	474	Serrano, Roberto	550	Spain	Brown University
424	Leahy, John	601	U.S.	New York University	475	Adelman, Irma	549	U.S.	U. of Cal., Berkeley
425	Lapan, Harvey	600	U.S.	Iowa State University	476	Cropper, Maureen	548	U.S.	University of Maryland
426	van-den-Berg, Gerard	600	Netherlands	Free U. of Amsterdam	477	Harvey, Andrew	546	UK	Cambridge University
427	Majumdar, Mukul	599	India	Cornell University	478	Kolm, Serge-Christ.	546	France	EHESS - Paris

479	Slade, Margaret	542	U.S.	University of Warwick	530	Chesher, Andrew	502	UK	Univ. College London
480	Satterthwaite, Mark	541	U.S.	Northwestern University	531	Swinkels, Jeroen	502	Canada	Washington U., St Louis
481	Klevorick, Alvin	541	U.S.	Yale University	532	Brown, Charles	501	U.S.	University of Michigan
482	Perry, Motty	541	Israel	University of Essex	533	Weil, David	501	U.S.	Brown University
483	Easley, David	540	U.S.	Cornell University	534	Bai, Jushan	498	China	New York University
484	Yellen, Janet	539	U.S.	U. of Cal., Berkeley	535	Gahvari, Firouz	498	U.S.	U. of Illinois, Urbana
485	Wilson, John	538	U.S.	Michigan State U.	536	Magnus, J.R.	495	Netherlands	Tilburg University
486	Case, Anne	536	U.S.	Princeton University	537	Zhou, Lin	495	China	Arizona State University
487	Abreu, Dilip	535	India	Princeton University	538	Harris, Christopher	493	UK	Cambridge University
488	Porter, Robert	535	Canada	Northwestern University	539	Robert C. Merton	492	U.S.	Harvard University
489	Burkhauser, Richard	535	U.S.	Cornell University	540	Johnson, William	491	U.S.	University of Virginia
490	Harris, Milton	534	U.S.	University of Chicago	541	Samet, Dov	489	Israel	University of Tel Aviv
491	Kanbur, Ravi	533	UK	Cornell University	542	Sheffrin, Steven	489	U.S.	U. California, Davis
492	Woodford, Michael	531	U.S.	Columbia University	543	Wang, Ping	488	Taiwan	Washington U., St Louis
493	Startz, Richard	531	U.S.	U. of Washington	544	Margo, Robert	487	U.S.	Boston University
494	Beaudry, Paul	529	Canada	U. of British Columbia	545	Pesendorfer, W.	487	Austria	Princeton University
495	Baillie, Richard	529	UK	Michigan State U.	546	Tian, Guoqiang	486	China	Texas A and M
496	Bound, John	529	U.S.	University of Michigan	547	Stafford, Frank	485	U.S.	University of Michigan
497	Wooders, Myrna	528	Canada	University of Warwick	548	Hines, James	485	U.S.	University of Michigan
498	Canova, Fabio	526	Italy	U. Pompeu Fabra	549	Kornai, Janos	485	Hungary	Harvard University
499	Ordovery, Janusz	524	Poland	New York University	550	Hopenhayn, Hugo	484	Argentina	U. of California, LA
500	Mortensen, Dale	523	U.S.	Northwestern University	551	Van-Reenen, John	483	UK	LSE
501	Easterly, William	522	U.S.	New York University	552	Kiyotaki, Nobuhiro	483	Japan	Princeton University
502	Canzoneri, Matthew	522	U.S.	Georgetown University	553	Vickers, John	482	UK	Oxford University
503	Driskill, Robert	521	U.S.	Vanderbilt University	554	Engel, Eduardo	481	Chile	Yale University
504	Reinhart, Carmen	521	U.S.	University of Maryland	555	Romano, Richard	481	U.S.	University of Florida
505	Dybvig, Philip	521	U.S.	Washington U., St Louis	556	Levinsohn, James	481	U.S.	University of Michigan
506	Todd, Petra	519	U.S.	U. of Pennsylvania	557	Mayshar, Joram	480	Israel	Hebrew University
507	Vohra, Rajiv	519	India	Brown University	558	Eeckhoudt, Louis	479	Belgium	Catholic U. of Louvain
508	Cole, Harold	518	U.S.	U. of Pennsylvania	559	Lee, Ronald	479	U.S.	U. of Cal., Berkeley
509	Whiteman, Charles	517	U.S.	University of Iowa	560	Putterman, Louis	479	U.S.	Brown University
510	Jones, Larry	517	U.S.	University of Minnesota	561	Ok, Efe	479	Turkey	New York University
511	Thomas, Jonathan	516	Netherlands	U. Edinburgh, Scotland	562	van-Damme, Eric	478	Netherlands	Tilburg University
512	Hartwick, John	515	Canada	Queen's University	563	Ham, John	477	Canada	U. of Southern California
513	Schelling, Thomas	515	U.S.	University of Maryland	564	Smith, Jeffrey	476	U.S.	University of Michigan
514	Bryant, John	514	U.S.	Rice University	565	Wallis, Kenneth	474	UK	University of Warwick
515	Bordo, Michael	513	Canada	Rutgers University	566	Honore, Bo	474	Denmark	Princeton University
516	Roemer, John	513	U.S.	Yale University	567	Gronau, Reuben	474	Israel	Hebrew University
517	Hayasi, Fumio	512	Japan	University of Tokyo	568	Quah, Danny	474	U.S.	LSE
518	Noussair, Charles	509	U.S.	Tilburg University	569	Bronars, Stephen	474	U.S.	U. of Texas, Austin
519	Duflo, Esther	509	France	MIT	570	Sonmez, Tayfun	473	Turkey	Boston College
520	Falvey, Rod	508	New Zealand	U. of Nottingham	571	Romer, Christina	473	U.S.	U. of Cal., Berkeley
521	Berry, Steven	507	U.S.	Yale University	572	Anderson, Robert	470	Canada	U. of Cal., Berkeley
522	Matthews, Steven	507	U.S.	U. of Pennsylvania	573	Betancourt, Roger	469	U.S.	University of Maryland
523	Krishna, Kala	507	India	PA State University	574	Gottschalk, Peter	469	U.S.	Boston College
524	Dusanski, Richard	506	U.S.	U. of Texas, Austin	575	Chib, Siddhartha	468	India	Washington U., St Louis
525	Maggi, Giovanni	506	Italy	Yale University	576	Greenstone, Michael	468	U.S.	MIT
526	Svejnar, Jan	505	U.S.	University of Michigan	577	Starr, Ross	468	U.S.	U. of Cal., San Diego
527	Yannelis, Nicholas	504	Greece	U. of Illinois, Urbana	578	Prucha, Ingmar	466	Austria	University of Maryland
528	Wan, Henry	503	China	Cornell University	579	Cason, Timothy	465	U.S.	Purdue University
529	Dubey, Pradeep	502	India	SUNY, Stony Brook	580	Hulten, Charles	464	U.S.	University of Maryland



581	Leybourne, Steve	462	UK	U. of Nottingham	632	Matsushima, Hitoshi	430	Japan	University of Tokyo
582	Ramey, Garey	462	U.S.	U. of Cal., San Diego	633	Holmes, Thomas	429	U.S.	University of Minnesota
583	Evans, Paul	461	U.S.	Ohio State University	634	Hendricks, Kenneth	428	Canada	U. of Texas, Austin
584	Farmer, Roger	461	UK	U. of California, LA	635	Schiantarelli, Fabio	426	Italy	Boston College
585	Kennan, John	461	Ireland	U. of Wisconsin	636	Santos-Silva, João	426	Portugal	University of Essex
586	Moreaux, Michel	460	France	Toulouse University	637	Coles, Melvyn	425	UK	University of Essex
587	Lizzeri, Alessandro	460	Italy	New York University	638	Pasinetti, Luigi	424	Italy	Catholic U. Milan, Italy
588	Carroll, Christopher	459	U.S.	Johns Hopkins	639	Williamson, Stephen	424	Canada	Washington U., St Louis
589	Autor, David	458	U.S.	MIT	640	Huffman, Wallace	423	U.S.	Iowa State University
590	Huck, Steffen	457	Germany	Jniv. College London	641	Shapiro, Harold	422	Canada	Princeton University
591	Fields, Gary	457	U.S.	Cornell University	642	Machina, Mark	421	U.S.	U. of Cal., San Diego
592	Siow, Aloysius	456	U.S.	University of Toronto	643	Manning, Alan	420	UK	LSE
593	Hanson, Gordon	454	U.S.	J. of Cal., San Diego	644	Bils, Mark	420	U.S.	University of Rochester
594	Ríos-Rull, José-Víctor	453	Spain	University of Minnesota	645	Duffy, John	419	U.S.	University of Pittsburgh
595	Darby, Michael	452	U.S.	U. of California, LA	646	Winter, Sidney	418	U.S.	U. of Pennsylvania
596	Segal, Ilya	452	Russia	Stanford University	647	Okuno-Fujiwara, M.	418	Japan	University of Tokyo
597	Merlo, Antonio	451	Italy	U. of Pennsylvania	648	Ireland, Peter	417	U.S.	Boston College
598	Ramey, Valerie	451	U.S.	U. of Cal., San Diego	649	Salanié, Bernard	417	France	Columbia University
599	Daughety, Andrew	451	U.S.	Vanderbilt University	650	Huizinga, Harry	417	U.S.	Tilburg University
600	Kimball, Miles	450	U.S.	University of Michigan	651	Foges, Francoise	416	Belgium	U. Paris IX (Dauphine)
601	Laibson, David	450	U.S.	Harvard University	652	Edlin, Aaron	416	U.S.	U. of Cal., Berkeley
602	Guilkey, David	450	U.S.	U. of North Carolina	653	Weinstein, David	416	U.S.	Columbia University
603	Vogelsang, Timothy	449	U.S.	Michigan State U.	654	Blau, David	416	U.S.	Ohio State University
604	Gaudet, Gérard	448	Canada	University of Montreal	655	Albrecht, Jim	416	U.S.	Georgetown University
605	Silvestre, Joaquim	446	Spain	U. California, Davis	656	Rust, John	416	U.S.	University of Maryland
606	Pesando, James	446	Canada	University of Toronto	657	Casella, Alessandra	416	Italy	Columbia University
607	Park, Joon	446	South Korea	Texas A and M	658	Johannesson, Magnus	415	Sweden	Stockholm Sch. of Ecs.
608	Ohanian, Lee	445	U.S.	U. of California, LA	659	McCulloch, J.Huston	415	U.S.	Ohio State University
609	Lipman, Barton	445	U.S.	Boston University	660	Davidson, Carl	415	U.S.	Michigan State U.
610	Hay, George	444	U.S.	Cornell University	661	Miller, Robert-A.	415	Australia	Carnegie Mellon U.
611	Cornes, Richard	443	UK	U. of Nottingham	662	Bera, Anil	415	India	U. of Illinois, Urbana
612	Mullainathan, Sendhil	443	U.S.	Harvard University	663	Watson, Joel	413	U.S.	U. of Cal., San Diego
613	Kimbrough, Kent	442	U.S.	Duke University	664	Peck, James	412	U.S.	Ohio State University
614	Klenow, Pete	442	U.S.	Stanford University	665	Demange, Gabrielle	410	France	EHESS - Paris
615	Swanson, Norman	442	Canada	Rutgers University	666	Snyder, James	410	U.S.	MIT
616	Ito Takatoshi	441	Japan	University of Tokyo	667	Booth, Alison	409	Australia	University of Essex
617	Grabowski, Henry	441	U.S.	Duke University	668	Lagunoff, Roger	409	U.S.	Georgetown University
618	Becker, Robert	441	U.S.	University of Indiana	669	Vries, Casper-De	407	Netherlands	Erasmus University
619	Fan, Jianqing	441	China	Princeton University	670	Taylor, Robert	407	UK	U. of Nottingham
620	Guiso, Luigi	440	Italy	European Institute	671	Smith, Lones	407	Canada	University of Michigan
621	Selten, Reinhard	439	Germany	University of Bonn	672	DeJong, David	406	U.S.	University of Pittsburgh
622	Clarida, Richard	439	U.S.	Columbia University	673	Fogel, Robert	406	U.S.	University of Chicago
623	Thomas, Duncan	437	UK	U. of California, LA	674	Saez, Emmanuel	406	France	U. of Cal., Berkeley
624	Athey, Susan	436	U.S.	Harvard University	675	Chen, Xiaohong	405	China	New York University
625	Lo, Andrew	436	U.S.	MIT	676	Baxter, Marianne	404	U.S.	Boston University
626	Barron, John	436	U.S.	Purdue University	677	Albert-Ma, Ching-to	404	China	Boston University
627	Klepper, Steven	433	U.S.	Carnegie Mellon U.	678	Ogaki, Masao	404	Japan	Ohio State University
628	Ireland, Norman	432	UK	University of Warwick	679	Welch, Ivo	404	U.S.	Brown University
629	Winter, Eyal	431	Israel	Hebrew University	680	Shimer, Robert	403	U.S.	University of Chicago
630	Elliott, Graham	431	Australia	U. of Cal., San Diego	681	Milne, Frank	403	Australia	Queen's University
631	Choi, Jay	430	South Korea	Michigan State U.	682	Hercowitz, Zvi	402	Israel	University of Tel Aviv

683	Rose, Nancy	401	U.S.	MIT	734	Berliant, Marcus	382	U.S.	Washington U., St Louis
684	Aoki, Masahiko	401	Japan	University of Chicago	735	Mulligan, Casey	381	U.S.	University of Chicago
685	Bruce, Neil	401	Canada	U. of Washington	736	Sjostrom, Tomas	381	Sweden	Rutgers University
686	Smith, Gregor	401	Canada	Queen's University	737	Kortum, Samuel	381	U.S.	University of Chicago
687	Sprumont, Yves	400	Belgium	University of Montreal	738	Moroney, John	381	U.S.	Texas A and M
688	Zenou, Yves	400	France	Stockholm University	739	Florens, Jean-Pierre	381	France	Toulouse University
689	White, Michelle	400	U.S.	U. of Cal., San Diego	740	Mathewson, Frank	380	Canada	University of Toronto
690	Brito, Dagobert	400	U.S.	Rice University	741	Uhlig, Harald	380	Germany	University of Chicago
691	Desai, Padma	399	India	Columbia University	742	Stern, Steven	379	U.S.	University of Virginia
692	Deneckere, Raymond	399	Belgium	U. of Wisconsin	743	Ausubel, Lawrence	379	U.S.	University of Maryland
693	Davis, Donald	399	U.S.	Columbia University	744	Findlay, Ronald	379	Birmania	Columbia University
694	van-Dijk, Herman	398	Netherlands	Erasmus University	745	Imrohoroglu, Ayse	379	Turkey	U. of Southern California
695	Angeletos, G. M.	398	Greece	MIT	746	Donald, Stephen	379	Australia	U. of Texas, Austin
696	Hermalin, Benjamin	398	U.S.	U. of Cal., Berkeley	747	Beetsma, R.	378	Netherlands	University of Amsterdam
697	Boldrin, Michele	396	Italy	Washington U., St Louis	748	Corbae, Dean	378	U.S.	U. of Texas, Austin
698	Araujo, Aloisio	396	Brazil	IMPA & FGV, Brazil	749	Goulder, Lawrence	378	U.S.	Stanford University
699	Bergemann, Dirk	396	Germany	Yale University	750	Tsiddon, Daniel	377	Israel	University of Tel Aviv
700	Raa, Thijs	396	Netherlands	Tilburg University	751	Chamley, Christophe	377	France	Boston University
701	Tornell, Aaron	396	Mexico	U. of California, LA	752	Falk, Armin	376	Germany	University of Bonn
702	Olsen, Randy	395	U.S.	Ohio State University	753	Magill, Michael	376	UK	U. of Southern California
703	Irwin, Douglas	395	U.S.	Dartmouth College	754	Shephard, Neil	376	UK	Oxford University
704	Levin, Richard	395	U.S.	Yale University	755	Craine, Roger	376	U.S.	U. of Cal., Berkeley
705	Neyman, Abraham	394	Israel	Hebrew University	756	Kovenock, Dan	376	Israel	Purdue University
706	Gersovitz, Mark	394	Canada	Johns Hopkins	757	Krishna, Vijay	374	India	PA State University
707	Williams, Steven	394	U.S.	U. of Illinois, Urbana	758	Hennessy, David	374	Ireland	Iowa State University
708	Aliprantis, C.D.	394	Greece	Purdue University	759	Borts, George	373	U.S.	Brown University
709	Ploberger, Werner	393	Austria	Washington U., St Louis	760	Engers, Maxim	373	South Africa	University of Virginia
710	Roberts, Kevin	393	UK	Oxford University	761	Roberts, Mark	370	U.S.	PA State University
711	Atkeson, Andrew	392	U.S.	U. of California, LA	762	Vroman, Susan	369	U.S.	Georgetown University
712	Schultz, Christian	392	Denmark	U. of Copenhagen	763	Marshall, Robert	368	U.S.	PA State University
713	Kahn, Matthew	392	U.S.	U. of California, LA	764	Cramton, Peter	368	U.S.	University of Maryland
714	Schwab, Robert	391	U.S.	University of Maryland	765	van-Wincoop, Eric	366	Netherlands	University of Virginia
715	Lucas, Robert-E.B.	391	UK	Boston University	766	Boyer, Marcel	365	Canada	University of Montreal
716	Taber, Christopher	390	U.S.	U. of Wisconsin	767	Lach, Saul	365	Israel	Hebrew University
717	Neumann, George	390	U.S.	University of Iowa	768	Knight, John	365	South Africa	Oxford University
718	Chew, Soo-Hong	390	UK	Hong Kong University	769	Zimmermann, Klaus	365	Germany	University of Bonn
719	Kandori, Michihiro	389	Japan	University of Tokyo	770	Glazer, Jacob	364	Israel	University of Tel Aviv
720	DiNardo, John	388	U.S.	University of Michigan	771	Kubler, Felix	364	Germany	U. of Pennsylvania
721	Hotz, Joseph	388	U.S.	Duke University	772	Weibull, Jörgen	364	Sweden	Stockholm Sch. of Ecs.
722	Mieszkowski, Peter	388	Canada	Rice University	773	Beenstok, Michael	364	UK	Hebrew University
723	Marvel, Howard	386	U.S.	Ohio State University	774	Starmer, Chris	363	UK	U. of Nottingham
724	Vegh, Carlos	386	Uruguay	University of Maryland	775	Gregory, Allan	362	Canada	Queen's University
725	Courant, Paul	386	U.S.	University of Michigan	776	Watts, Michael	362	U.S.	Purdue University
726	Walker, Mark	385	U.S.	University of Arizona	777	Walker, Ian	362	UK	University of Warwick
727	Foster, James	385	U.S.	Vanderbilt University	778	Admati, Anat	361	Israel	Stanford University
728	Silberberg, Eugene	384	U.S.	U. of Washington	779	Faust, Jon	361	U.S.	Johns Hopkins
729	Uribe, Martin	384	Argentina	Duke University	780	Trefler, Daniel	360	Canada	University of Toronto
730	Hosios, Arthur	384	Canada	University of Toronto	781	Kooreman, Peter	359	Netherlands	Tilburg University
731	Biais, Bruno	383	France	Toulouse University	782	Lavy, Victor	359	Israel	Hebrew University
732	Sen, Arunava	383	India	Indian Stat. Institute	783	Sieg, Holger	357	Germany	Carnegie Mellon U.
733	Hendel, Igal	383	Israel	Northwestern University	784	Seidmann, Daniel	356	UK	U. of Nottingham

785	Murrell, Peter	356	UK	University of Maryland	836	Wren-Lewis, Simon	336	UK	Oxford University
786	Young, Alwyn	356	U.S.	LSE	837	Meyer, Jack	335	U.S.	Michigan State U.
787	Gardner, Roy	356	U.S.	University of Indiana	838	Tesfatsion, Leigh	334	U.S.	Iowa State University
788	Manuel Arellano	355	Spain	CEMFI, Spain	839	Camera, Gabriele	334	Italy	University of Iowa
789	Taylor, Alan	354	UK	U. California, Davis	840	Osborne, Martin	334	UK	University of Toronto
790	Medoff, James	353	U.S.	Harvard University	841	McLennan, Andrew	334	U.S.	U. Queensland, Australia
791	Jensen, Henrik	352	Denmark	U. of Copenhagen	842	Alvarez, Fernando	333	Argentina	University of Chicago
792	Black, Sandra	352	U.S.	U. of California, LA	843	Jullien, Bruno	333	France	Toulouse University
793	Schmitt-Grohe, S.	351	Germany	Duke University	844	Manelli, Alejandro	333	Argentina	Arizona State University
794	Rauch, James	351	U.S.	U. of Cal., San Diego	845	Klein, Roger	333	U.S.	Rutgers University
795	Duggan, John	351	U.S.	University of Rochester	846	MaCurdy, Thomas	333	U.S.	Stanford University
796	Diba, Behzad	350	Iran	Georgetown University	847	Brandenburger, Adam	332	UK	New York University
797	McElroy, Marjorie	350	Canada	Duke University	848	O'Donoghue, Edward	331	U.S.	Cornell University
798	Bhaskar, V.	350	India	Univ. College London	849	Martin, Lawrence	331	U.S.	Michigan State U.
799	McCafferty, Stephen	349	U.S.	Ohio State University	850	Dutta, Prajit	331	India	Columbia University
800	Maccini, Louis	349	U.S.	Johns Hopkins	851	Sacerdote, Bruce	331	U.S.	Dartmouth College
801	Baer, Werner	349	U.S.	U. of Illinois, Urbana	852	Casas, Francois	330	Egypt	University of Toronto
802	Manove, Michael	348	U.S.	Boston University	853	Bergin, James	329	Ireland	Queen's University
803	Brada, Josef	348	U.S.	Arizona State University	854	Williams, Arlington	329	U.S.	University of Indiana
804	Disney, Richard	347	UK	U. of Nottingham	855	Gustman, Alan	329	U.S.	Dartmouth College
805	Wright, Gavin	346	U.S.	Stanford University	856	De Jong, Robert	329	Netherlands	Ohio State University
806	Caselli, Francesco	346	Italy	LSE	857	Werning, Iván	28	Argentina	MIT
807	Ait-Sahalia, Yacine	346	France	Princeton University	858	Ravikumar, B.	327	India	University of Iowa
808	Chang, Roberto	345	Peru	Rutgers University	859	Armstrong, Mark	327	UK	Univ. College London
809	Zeira, Joseph	345	Israel	Hebrew University	860	Swank, Otto	327	Netherlands	Erasmus University
810	Kiviet, Jan-F.	344	Netherlands	University of Amsterdam	861	Ruud, Paul	326	Canada	U. of Cal., Berkeley
811	Anderson, Gordon	343	UK	University of Toronto	862	Wilson, Charles	326	U.S.	New York University
812	Cogley, Timothy	343	U.S.	U. California, Davis	863	Konishi, Hideo	325	Japan	Boston College
813	Kilian, Lutz	343	Germany	University of Michigan	864	Sanders, Seth	324	U.S.	University of Maryland
814	Masson, Robert	342	U.S.	Cornell University	865	Perez-Castrillo, David	324	Spain	U. Autónoma, Barcelona
815	Matzkin, Rosa	342	Israel	U. of California, LA	866	Kim, Chang-Jin	324	South Korea	U. of Washington
816	Moschini, Giancarlo	342	Italy	Iowa State University	867	Hoffman, Dennis	324	U.S.	Arizona State University
817	Orazem, Peter	342	U.S.	Iowa State University	868	Matusz, Steven	323	U.S.	Michigan State U.
818	Gale, Ian	342	Canada	Georgetown University	869	Dufwenberg, Martin	323	Sweden	University of Arizona
819	Renault, Eric	341	France	U. of North Carolina	870	Corsetti, Giancarlo	323	Italy	European Institute
820	Wheaton, William	341	U.S.	MIT	871	Gilligan, Tom	323	U.S.	U. of Southern California
821	Tamer, Elie	340	U.S.	Northwestern University	872	Goldberg, Pinelopi	323	Germany	Princeton University
822	Nijman, T.E.	340	Netherlands	Tilburg University	873	Sonnemans, Joep	323	Netherlands	University of Amsterdam
823	Potters, Jan	340	Netherlands	Tilburg University	874	Chernozhukov, Victor	323	Belarus	MIT
824	van-Soest, A.H.O.	340	Netherlands	Tilburg University	875	Volij, Oscar	323	Argentina	Iowa State University
825	Persico, Nicola	340	Italy	New York University	876	Valimaki, Juuso	322	Finland	U. Helsinki, Finland
826	Mariotti, Thomas	339	France	Toulouse University	877	Shannon, Chris	322	U.S.	U. of Cal., Berkeley
827	Benoit, Jean-Pierre	339	U.S.	New York University	878	Segerstrom, Paul	322	U.S.	Stockholm Sch. of Ecs.
828	Ellingsen, Tore	338	Norway	Stockholm Sch. of Ecs.	879	Lombra, Raymond	320	U.S.	PA State University
829	Hsieh, Chang-Tai	338	U.S.	U. of Cal., Berkeley	880	Lemieux, Thomas	320	Canada	U. of British Columbia
830	Börgers, Tilman	338	Germany	University of Michigan	881	Flinn, Christopher	320	U.S.	New York University
831	Hong, Han	337	China	Stanford University	882	Vytlačil, Edward	319	U.S.	Columbia University
832	Weintraub, E.-Roy	337	U.S.	Duke University	883	Parks, Robert	318	U.S.	Washington U., St Louis
833	Burnside, Craig	337	Canada	Duke University	884	de la Croix, David	318	Belgium	Catholic U. of Louvain
834	Blanchflower, David	336	UK	Dartmouth College	885	Cripps, Martin	318	UK	Univ. College London
835	Bierens, Herman	336	Netherlands	PA State University	886	Rossi-Hansberg, E.	317	Mexico	Princeton University

887	Prat, Andrea	317	Italy	LSE
888	Wiggins, Steven	317	U.S.	Texas A and M
889	Ochs, Jack	316	U.S.	University of Pittsburgh
890	Amir, Rabah	316	U.S.	University of Arizona
891	Goyal, Sanjeev	316	India	Cambridge University
892	Scarf, Herbert	315	U.S.	Yale University
893	Foster, Andrew	315	U.S.	Brown University
894	Xiao, Zhijie	314	China	Boston College
895	Manuelli, Rodolfo	313	Argentina	U. of Wisconsin
896	Eswaran, Mukesh	313	India	U. of British Columbia
897	Miguel, Edward	313	U.S.	U. of Cal., Berkeley
898	Phelan, Christopher	313	U.S.	University of Minnesota
899	Dominguez, Kathryn	312	U.S.	University of Michigan
900	Hansen, Gary	312	U.S.	U. of California, LA
901	Corchón, Luis	311	Spain	U. Carlos III, Spain
902	Imrohoroglu, S.	310	Turkey	U. of Southern California
903	Border, Kim	310	U.S.	CA Institute of Tech.
904	Levin, Jonathan	310	U.S.	Stanford University
905	Meyer, Margaret	309	U.S.	Oxford University
906	Tesar, Linda	309	U.S.	University of Michigan
907	Choi, In	308	South Korea	Hong Kong University
908	Haan, Wouter-den	308	Netherlands	University of Amsterdam

## APPENDIX V

### MEMBERS OF ELITES I, II, AND III AMONG THE YOUNGER POPULATION

#### ELITE I

Name	Q index	Nationality	Current Job	Name	Q index	Nationality	Current Job
1 Ray, Debraj	2489	India	New York University	13 Card, David	1345	Canada	U. of California, Berkley
2 Shleifer, Andrei	2433	U.S.	Harvard University	14 Campbell, John	1314	UK	Harvard University
3 Poterba, James	1845	U.S.	MIT	15 Kremer, Michael	1311	U.S.	Harvard University
4 Alesina, Alberto	1648	Italy	Harvard University	16 Glaeser, Edward	1298	U.S.	Harvard University
5 Aghion, Philippe	1553	France	Harvard University	17 Jackson, Matthew	1297	U.S.	Stanford University
6 Acemoglu, Daron	1520	UK	MIT	18 Caballero, Ricardo	1282	Chile	MIT
7 Mankiw, Gregory	1510	U.S.	Harvard University	19 Wright, Randall	1221	Canada	University of Pennsylvania
8 List, John	1464	U.S.	University of Chicago	20 Cutler, David	1207	U.S.	Harvard University
9 Besley, Tim	1422	UK	London Sch. of Economics	21 Katz, Lawrence	1199	U.S.	Harvard University
10 Murphy, Kevin M.	1408	U.S.	University of Chicago	22 Stein, Jeremy	1187	U.S.	Harvard University
11 Newey, Whitney	1392	U.S.	MIT	23 Diebold, Francis	1179	U.S.	University of Pennsylvania
12 Krueger, Alan	1391	U.S.	Princeton University				

#### ELITE II

Name	Q index	Nationality	Current Job	Name	Q index	Nationality	Current Job
24 Stock, James	1147	U.S.	Harvard University	48 Rustichini, Aldo	828	Italy	University of Minnesota
25 Lewbel, Arthur	1139	U.S.	Boston College	49 Galor, Oded	818	Israel	Brown University
26 Kehoe, Patrick	1072	U.S.	University of Minnesota	50 Vives, Xavier	798	Spain	IEESE
27 Persson, Torsten	1041	Sweden	London Sch. of Economics	51 Shapiro, Matthew	791	U.S.	University of Michigan
28 Gruber, Jonathan	1022	U.S.	MIT	52 Ours, Jan-van	776	Netherlands	Tilburg University
29 Currie, Janet	988	Canada	Columbia University	53 Bernhardt, Dan	774	U.S.	U. of Illinois, Urbana
30 Levitt, Steven	968	U.S.	University of Chicago	54 Martimort, David	772	France	Toulouse University
31 Morris, Stephen	961	UK	Princeton University	55 Hubbard, Robert	771	U.S.	Columbia University
32 Bolton, Patrick	955	France	Columbia University	56 Bossert, Walter	768	Germany	University of Montreal
33 Romer, David	939	U.S.	U. of California, Berkley	57 Wakker, Peter	767	Netherlands	Erasmus University
34 Banerjee, Abhijit	929	India	MIT	58 Mailath, George	763	Australia	University of Pennsylvania
35 Imbens, Guido	926	Netherlands	Harvard University	59 Rogerson, Richard	762	Canada	Arizona State University
36 Bovenberg, Lans	888	Netherlands	Tilburg University	60 Franses, Ph.-Hans	761	U.S.	Erasmus University
37 Angrist, Joshua	875	U.S.	MIT	61 Neumark, David	760	U.S.	U. of California, Irvine
38 Coate, Steve	871	UK	Cornell University	62 Moore, John	759	UK	U. Edinburgh, Scotland
39 Browning, Martin	870	UK	Oxford University	63 Ng, Serena	758	Canada	Columbia University
40 Keane, Michael	869	U.S.	U. of New South Wales	64 Greenwood, Jeremy	758	Canada	University of Pennsylvania
41 Caplin, Andrew	864	UK	New York University	65 Bagwell, Kyle	741	U.S.	Columbia University
42 Matsuyama, Kiminori	862	Japan	Northwestern University	66 Greenaway, David	737	UK	University of Nottingham
43 Duffie, Darrell	859	Canada	Stanford University	67 Perron, Pierre	737	Canada	Boston University
44 Benabou, Roland	850	France	Princeton University	68 Anderson, Simon	736	UK	University of Virginia
45 Rochet, Jean-Charles	849	France	Toulouse University	69 Li, Qi	735	China	Texas A and M
46 West, Kenneth	841	U.S.	U. of Wisconsin, Madison	70 Engel, Charles	731	U.S.	U. of Wisconsin, Madison
47 Taylor, Mark	831	UK	University of Warwick	71 Dekel-Tabak, Eddie	728	Israel	Northwestern University

72	Linton, Oliver	728	UK	London Sch. of Econ.	714	Ireland	Univ. of British Columbia
73	Ghysels, Eric	724	Belgium	U. of North Carolina	712	Canada	Columbia University
74	Jehiel, Philippe	722	France	Univ. College London			

### ELITE III

	Name	Q index	Nationality	Current Job	Name	Q index	Nationality	Current Job	
77	Timmermann, Allan	705	UK	U. of Cal., San Diego	120	Shi, Shouyong	596	China	University of Toronto
78	Smith, Richard	701	UK	Cambridge University	121	Gali, Jordi	596	Spain	U. Pompeu Fabra
79	Hansen, Bruce	695	U.S.	U. of Wisconsin, Mad.	122	Krusell, Per	589	Sweden	Princeton University
80	Bollerslev, Tim	694	Denmark	Duke University	123	Cremer, Helmuth	588	Belgium	Toulouse University
81	Hamilton, James	689	U.S.	U. of Cal., San Diego	124	Gibbons, Robert	585	U.S.	MIT
82	Gul, Faruk	687	Turkey	Princeton University	125	Staiger, Robert	584	U.S.	Stanford University
83	Rabin, Matthew	686	U.S.	U. of California, Berkley	126	Rey, Patrick	581	France	Toulouse University
84	Klemperer, Paul	685	UK	Oxford University	127	Skinner, Jonathan	571	U.S.	Dartmouth College
85	Hahn, Jinyong	683	South Korea	U. of California, LA	128	Morgan, John	566	U.S.	U. of California, Berkley
86	Andreoni, James	683	U.S.	U. of Cal., San Diego	129	Moretti, Enrico	566	Italy	U. of California, Berkley
87	Meghir, Costas	682	UK	Univ. College London	130	Kocherlakota, N.	565	U.S.	University of Minnesota
88	Le-Breton, Michel	679	France	Toulouse University	131	Costa, Dora	560	U.S.	U. of California, LA
89	Rebelo, Sergio	679	Portugal	Northwestern University	132	Wooldridge, Jeffrey	559	U.S.	Michigan State U.
90	Whinston, Michael	672	U.S.	Northwestern University	133	Grant, Simon	556	Australia	Rice University
91	Sala-i-Martin, Xavier	671	Spain	Columbia University	134	Jones, Charles	554	U.S.	U. of California, Berkley
92	Segal, Uzi	669	Israel	Boston College	135	Paxson, Christina	553	U.S.	Princeton University
93	Goeree, Jacob	666	Netherlands	CA Inst. of Technology	136	Serrano, Roberto	550	Spain	Brown University
94	Shin, Hyun	658	UK	Princeton University	137	Perry, Motty	541	Israel	University of Essex
95	Ball, Laurence	658	U.S.	Johns Hopkins	138	Case, Anne	536	U.S.	Princeton University
96	Ellison, Glenn	655	U.S.	MIT	139	Abreu, Dilip	535	India	Princeton University
97	Roland, Gérard	655	Belgium	U. of California, Berkley	140	Woodford, Michael	531	U.S.	Columbia University
98	Gilboa, Itzhak	655	Israel	University of Tel Aviv	141	Bound, John	529	U.S.	University of Michigan
99	SAINT-PAUL, Gilles	653	France	Toulouse University	142	Beaudry, Paul	529	Canada	U. of British Columbia
100	Cochrane, John	652	U.S.	University of Chicago	143	Canova, Fabio	526	Italy	U. Pompeu Fabra
101	Fernandez, Raquel	652	U.S.	New York University	144	Easterly, William	522	U.S.	New York University
102	Reny, Philip	650	Canada	University of Chicago	145	Reinhart, Carmen	521	U.S.	University of Maryland
103	Durlauf, Steven	648	U.S.	U. of Wisconsin, Mad.	146	Vohra, Rajiv	519	India	Brown University
104	Machin, Stephen	647	UK	Univ. College London	147	Todd, Petra	519	U.S.	U. of Pennsylvania
105	Blank, Rebecca	647	U.S.	University of Michigan	148	Cole, Harold	518	U.S.	U. of Pennsylvania
106	Moldovanu, Benny	645	Israel	University of Bonn	149	Jonathan, Thomas	516	Netherlands	U. Edinburgh, Scotland
107	Solon, Gary	638	U.S.	Michigan State U.	150	Noussair, Charles	509	U.S.	Tilburg University
108	Venables, Tony	634	UK	Oxford University	151	Duflo, Esther	509	France	MIT
109	Fershtman, Chaim	633	Israel	University of Tel Aviv	152	Krishna, Kala	507	India	PA State University
110	Che, Yeon-Koo	631	South Korea	Columbia University	153	Berry, Steven	507	U.S.	Yale University
111	Qian, Yingyi	628	China	U. of California, Berkley	154	Maggi, Giovanni	506	Italy	Yale University
112	Bisin, Alberto	627	Italy	New York University	155	Yannelis, Nicholas	504	Greece	U. of Illinois, Urbana
113	Dolado, Juanjo	623	Spain	U. Carlos III, Spain	156	Swinkels, Jeroen	502	Canada	Washington U., St Louis
114	Gollier, Christian	620	Belgium	Toulouse University	157	Weil, David	501	U.S.	Brown University
115	Harrington, Joseph	614	U.S.	Johns Hopkins	158	Bai, Jushan	498	China	New York University
116	Attanasio, Orazio	609	Italy	Univ. College London	159	Zhou, Lin	495	China	Arizona State University
117	Levine, Ross	609	U.S.	Brown University	160	Harris, Christopher	493	UK	Cambridge University
118	Leahy, John	601	U.S.	New York University	161	Wang, Ping	488	Taiwan	Washington U., St Louis
119	van-den-Berg, Gerard	600	Netherlands	Free U. of Amsterdam	162	Pesendorfer, W.	487	Austria	Princeton University

163	Tian, Guoqiang	486	China	Texas A and M	211	Holmes, Thomas	429	U.S.	University of Minnesota
164	Hines, James	485	U.S.	University of Michigan	212	Santos-Silva, João	426	Portugal	University of Essex
165	Hopenhayn, Hugo	484	Argentina	U. of California, LA	213	Coles, Melvyn	425	UK	University of Essex
166	Kiyotaki, Nobuhiro	483	Japan	Princeton University	214	Williamson, Stephen	424	Canada	Washington U., St Louis
167	Van-Reenen, John	483	UK	London Sch. of Ecs.	215	Manning, Alan	420	UK	London S. of Economics
168	Vickers, John	482	UK	Oxford University	216	Bils, Mark	420	U.S.	University of Rochester
169	Engel, Eduardo	481	Chile	Yale University	217	Duffy, John	419	U.S.	University of Pittsburgh
170	Levinsohn, James	481	U.S.	University of Michigan	218	Ireland, Peter	417	U.S.	Boston College
171	Ok, Efe	479	Turkey	New York University	219	Huizinga, Harry	417	U.S.	Tilburg University
172	van-Damme, Eric	478	Netherlands	Tilburg University	220	Salanié, Bernard	417	France	Columbia University
173	Smith, Jeffrey	476	U.S.	University of Michigan	221	Rust, John	416	U.S.	University of Maryland
174	Quah, Danny	474	U.S.	London S. of Economics	222	Forges, Françoise	416	Belgium	U. Paris IX
175	Bronars, Stephen	474	U.S.	U. of Texas, Austin	223	Edlin, Aaron	416	U.S.	U. of California, Berkley
176	Honore, Bo	474	Denmark	Princeton University	224	Casella, Alessandra	416	Italy	Columbia University
177	Romer, Christina	473	U.S.	U. of California, Berkley	225	Weinstein, David	416	U.S.	Columbia University
178	Sonmez, Tayfun	473	Turkey	Boston College	226	Johannesson, Magnus	415	Sweden	Stockholm S. of Ecs.
179	Greenstone, Michael	468	U.S.	MIT	227	Bera, Anil	415	India	U. of Illinois, Urbana
180	Chib, Siddhartha	468	India	Washington U., St Louis	228	Watson, Joel	413	U.S.	U. of Cal., San Diego
181	Cason, Timothy	465	U.S.	Purdue University	229	Peck, James	412	U.S.	Ohio State University
182	Ramey, Garey	462	U.S.	U. of Cal., San Diego	230	Snyder, James	410	U.S.	MIT
183	Leybourne, Steve	462	UK	U. of Nottingham	231	Booth, Alison	409	Australia	University of Essex
184	Lizzeri, Alessandro	460	Italy	New York University	232	Lagunoff, Roger	409	U.S.	Georgetown University
185	Carroll, Christopher	459	U.S.	Johns Hopkins	233	De Vries, Casper	407	Netherlands	Erasmus University
186	Autor, David	458	U.S.	MIT	234	Taylor, Robert	407	UK	U. of Nottingham
187	Huck, Steffen	457	Germany	Univ. College London	235	Smith, Lones	407	Canada	University of Michigan
188	Hanson, Gordon	454	U.S.	U. of Cal., San Diego	236	DeJong, David	406	U.S.	University of Pittsburgh
189	Ríos-Rull, José-Víctor	453	Spain	University of Minnesota	237	Saez, Emmanuel	406	France	U. of California, Berkley
190	Segal, Ilya	452	Russia	Stanford University	238	Chen, Xiaohong	405	China	New York University
191	Merlo, Antonio	451	Italy	U. of Pennsylvania	239	Ogaki, Masao	404	Japan	Ohio State University
192	Ramey, Valerie	451	U.S.	U. of Cal., San Diego	240	Baxter, Marianne	404	U.S.	Boston University
193	Laibson, David	450	U.S.	Harvard University	241	Welch, Ivo	404	U.S.	Brown University
194	Kimball, Miles	450	U.S.	University of Michigan	242	Ma, Albert	404	China	Boston University
195	Vogelsang, Timothy	449	U.S.	Michigan State U.	243	Shimer, Robert	403	U.S.	University of Chicago
196	Park, Joon	446	South Korea	Texas A and M	244	Smith, Gregor	401	Canada	Queen's University
197	Lipman, Barton	445	U.S.	Boston University	245	Rose, Nancy	401	U.S.	MIT
198	Ohanian, Lee	445	U.S.	U. of California, LA	246	Zenou, Yves	400	France	Stockholm University
199	Mullainathan, Sendhil	443	U.S.	Harvard University	247	Sprumont, Yves	400	Belgium	University of Montreal
200	Klenow, Pete	442	U.S.	Stanford University	248	Davis, Donald	399	U.S.	Columbia University
201	Swanson, Norman	442	Canada	Rutgers University	249	Deneckere, Raymond	399	Belgium	U. of Wisconsin, Mad.
202	Fan, Jianqing	441	China	Princeton University	250	Angeletos, G-Marios	398	Greece	MIT
203	Clarida, Richard	439	U.S.	Columbia University	251	Hermalin, Benjamin	398	U.S.	U. of California, Berkley
204	Thomas, Duncan	437	Zimbabwe	U. of California, LA	252	Van-Dijk, Herman	398	Netherlands	Erasmus University
205	Lo, Andrew	436	U.S.	MIT	253	Tornell, Aaron	396	Mexico	U. of California, LA
206	Athey, Susan	436	U.S.	Harvard University	254	Bergemann, Dirk	396	Germany	Yale University
207	Elliott, Graham	431	Australia	U. of Cal., San Diego	255	Boldrin, Michele	396	Italy	Washington U., St Louis
208	Winter, Eyal	431	Israel	Hebrew University	256	Irwin, Douglas	395	U.S.	Dartmouth College
209	Choi, Jay	430	South Korea	Michigan State U.	257	Schultz, Christian	392	Denmark	U. of Copenhagen
210	Matsushima, Hitoshi	430	Japan	University of Tokyo	258	Kahn, Matthew	392	U.S.	U. of California, LA

259	Atkeson, Andrew	392	U.S.	U. of California, LA	307	Diba, Behzad	350	Iran	Georgetown University
260	Taber, Christopher	390	U.S.	U. of Wisconsin, Mad.	308	Caselli, Francesco	346	Italy	London S. of Economics
261	Kandori, Michihiro	389	Japan	University of Tokyo	309	Ait-Sahalia, Yacine	346	France	Princeton University
262	DiNardo, John	388	U.S.	University of Michigan	310	Chang, Roberto	345	Peru	Rutgers University
263	Vegh, Carlos	386	Uruguay	University of Maryland	311	Zeira, Joseph	345	Israel	Hebrew University
264	Uribe, Martin	384	Argentina	Duke University	312	Kiviet, Jan-F.	344	Netherlands	U. of Amsterdam
265	Hendel, Igal	383	Israel	Northwestern University	313	Kilian, Lutz	343	Germany	U. of Michigan
266	Sem, Arunava	383	India	Indian Stat. Institute	314	Cogley, Timothy	343	U.S.	U. Cal., Davis
267	Biais, Bruno	383	France	Toulouse University	315	Orazem, Peter	342	U.S.	Iowa State U.
268	Kortum, Samuel	381	U.S.	University of Chicago	316	Moschini, Giancarlo	342	Italy	Iowa State U.
269	Sjostrom, Tomas	381	Sweden	Rutgers University	317	Gale, Ian	342	Canada	Georgetown U.
270	Mulligan, Casey	381	U.S.	University of Chicago	318	Matzkin, Rosa	342	Israel	UCLA
271	Uhlig, Harald	380	Germany	University of Chicago	319	Renault, Eric	341	France	U. of N. Carolina
272	Donald, Stephen	379	Australia	U. of Texas, Austin	320	Tamer, Elie	340	U.S.	Northwestern U.
273	Stern, Steven	379	U.S.	U. of Virginia	321	Persico, Nicola	340	Italy	New York U.
274	Imrohoroglu, Ayse	379	Turkey	U. of Southern Cal.	322	Nijman, T.E.	340	Netherlands	Tilburg University
275	Ausubel, Lawrence	379	U.S.	University of Maryland	323	Potters, Jan	340	Netherlands	Tilburg University
276	Corbae, Dean	378	U.S.	U. of Texas, Austin	324	van-Soest, A.H.O.	340	Netherlands	Tilburg University
277	Beetsma, R.	378	Netherlands	U. of Amsterdam	325	Mariotti, Thomas	339	France	Toulouse University
278	Tsiddon, Daniel	377	Israel	University of Tel Aviv	326	Benoit, Jean-Pierre	339	U.S.	New York U.
279	Falk, Armin	376	Germany	University of Bonn	327	Börgers, Tilman	338	Germany	U. of Michigan
280	Kovenock, Dan	376	Israel	Purdue University	328	Ellingsen, Tore	338	Norway	Stockholm S. of Ecs.
281	Shephard, Neil	376	UK	Oxford University	329	Hsieh, Chang-Tai	338	U.S.	U. of Cal., Berkley
282	Krishna, Vijay	374	India	PA State University	330	Hong, Han	337	China	Stanford University
283	Hennessy, David	374	Ireland	Iowa State University	331	Burnside, Graig	337	Canada	Duke University
284	Engers, Maxim	373	South Africa	University of Virginia	332	Blanchflower, David	336	UK	Dartmouth College
285	Marshall, Robert	368	U.S.	PA State University	333	Camera, Gabriele	334	Italy	University of Iowa
286	Cramton, Peter	368	U.S.	University of Maryland	334	Jullien, Bruno	333	France	Toulouse University
287	van-Wincoop, Eric	366	Netherlands	University of Virginia	335	Alvarez, Fernando	333	Argentina	University of Chicago
288	Zimmermann, Klaus	365	Germany	University of Bonn	336	Manelli, Alejandro	333	Argentina	Arizona State University
289	Lach, Saul	365	Israel	Hebrew University	337	Brandenburger, A.	332	UK	New York University
290	Kubler, Felix	364	Germany	U. of Pennsylvania	338	Dutta, Prajit	331	India	Columbia University
291	Glazer, Jacob	364	Israel	University of Tel Aviv	339	Sacerdote, Bruce	331	U.S.	Dartmouth College
292	Starmer, Chris	363	UK	U. of Nottingham	340	O'Donoghue, E.	331	U.S.	Cornell University
293	Admati, Anat	361	Israel	Stanford University	341	Bergin, James	329	Ireland	Queen's University
294	Faust, Jon	361	U.S.	Johns Hopkins	342	De Jong, Robert	329	Netherlands	Ohio State University
295	Trefler, Daniel	360	Canada	University of Toronto	343	Werning, Iván	328	Argentina	MIT
296	Kooreman, Peter	359	Netherlands	Tilburg University	344	Ravikumar, B.	327	India	University of Iowa
297	Sieg, Holger	357	Germany	Carnegie Mellon U.	345	Armstrong, Mark	327	UK	Univ. College London
298	Young, Alwyn	356	U.S.	London S. of Economics	346	Swank, Otto	327	Netherlands	Erasmus University
299	Arellano, Manuel	355	Spain	CEMFI, Spain	347	Konishi, Hideo	325	Japan	Boston College
300	Taylor, Alan	354	UK	U. California, Davis	348	Sanders, Seth	324	U.S.	University of Maryland
301	Jensen, Henrik	352	Denmark	U. of Copenhagen	349	Perez-Castrillo, D.	324	Spain	U. Autónoma de Barc.
302	Black, Sandra	352	U.S.	U. of California, LA	350	Kim, Chang-Jin	324	South Korea	University of Washington
303	Schmitt-Grohe, S.	351	Germany	Duke University	351	Matusz, Steven	323	U.S.	Michigan State U.
304	Duggan, John	351	U.S.	University of Rochester	352	Chernozhukov, V.	323	Russia	MIT
305	Rauch, James	351	U.S.	U. of Cal., San Diego	353	Corsetti, Giancarlo	323	Italy	European Institute
306	Bhaskar, V.	350	India	Univ. College London	354	Gilligan, Tom	323	U.S.	U. of Southern California



355	Goldberg, Pinelopi	323	Germany	Princeton University	370	Amir, Rabah	316	U.S.	U. of Arizona
356	Dufwenberg, Martin	323	Sweden	University of Arizona	371	Foster, Andrew	315	U.S.	Brown University
357	Sonnemans, Joep	323	Netherlands	U. of Amsterdam	372	Xiao, Zhijie	314	China	Boston College
358	Volij, Oscar	323	Argentina	Iowa State University	373	Miguel, Edward	313	U.S.	U. of Cal., Berkley
359	Segerstrom, Paul	322	U.S.	Stockholm S. of Ecs.	374	Phelan, Ch.	313	U.S.	U. of Minnesota
360	Shannon, Chris	322	U.S.	U. of Cal., Berkley	375	Manuelli, Rodolfo	313	Argentina	U. of Wisconsin, Mad.
361	Valimaki, Juuso	322	Finland	U. Helsinki	376	Hansen, Gary	312	U.S.	U. of California, LA
362	Flinn, Christopher	320	U.S.	New York University	377	Dominguez, K.	312	U.S.	U. of Michigan
363	Lemieux, Thomas	320	Canada	U. of British Columbia	378	Levin, Jonathan	310	U.S.	Stanford University
364	Vytlačil, Edward	319	U.S.	Columbia University	379	Imrohoroglu, S.	310	Turkey	U. of Southern Cal.
365	Cripps, Martin	318	UK	Univ. College London	380	Tesar, Linda	309	U.S.	University of Michigan
366	De la Croix, David	318	Belgium	Catholic U. of Louvain	381	Meyer, Margaret	309	U.S.	Oxford University
367	Prat, Andrea	317	Italy	London S. of Ec.	382	Den Haan, Wouter	308	Netherlands	U. of Amsterdam
368	Rossi-Hansberg, E.	317	Mexico	Princeton University	383	Choi, In	308	South Korea	Hong Kong University
369	Goyal, Sanjeev	316	India	Cambridge University					

Table 1. The skewness of productivity distributions

A. The case of the 2,530 economists in the top 81 departments with at least one publication in 2007 when productivity is measured by the quality index  $Q$

	Percentage of individuals				Percentage of quality points			
	in category:				accounted for by category:			
	1	2	3	4	1	2	3	4
Quality index, $Q$	67.1	21.4	7.1	4.4	24.2	32.2	20.2	23.4

---

Category 1 = individuals with low productivity, smaller than or equal to  $\mu_1 = 307.3$

Category 2 = individuals with an intermediate productivity, above  $\mu_1$  and smaller or equal to  $\mu_2 = 707.4$

Category 3 = individuals with a remarkable productivity, above  $\mu_2$  and smaller or equal to  $\mu_3 = 1,165.2$

Category 4 = individuals with an outstanding productivity above  $\mu_3$ ,

where:  $\mu_1$  = mean of the productivity distribution;

$\mu_2$  = mean productivity of individuals with productivity above  $\mu_1$ ,

$\mu_3$  = mean productivity of individuals with productivity above  $\mu_2$ .

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B. The case of Economics & Business and other scientific fields in Ruiz-Castillo & Costas (2014) when productivity is measured as the number of articles per author. Successful authors with productivity above the mean

	Percentage of individuals			Percentage of total articles		
	in category:			accounted for by category:		
	1	2	3	1	2	3
Economics & Business	68.7	20.8	10.5	43.3	27.8	28.9
Average over 30 fields	71.4	19.8	8.8	41.4	27.4	31.1
Std. deviation	2.4	1.7	1.1	4.1	1.5	3.5

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**Table 2. Demographic characteristics for different samples**

<b>GENDER</b>	<b>TOTAL SAMPLE</b>		<b>ELITE III</b>		<b>ELITE II</b>		<b>ELITE I</b>	
	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>
<b>Female</b>	358	13.7	48	5.3	6	1.8	0	0

<b>AGE FROM PH.D</b>	<b>TOTAL SAMPLE</b>		<b>ELITE III</b>		<b>ELITE II</b>		<b>ELITE I</b>	
	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>	<b>Number</b>	<b>%</b>
<b>≤ 16</b>	1,224	46.9	133	14.6	16	4.8	5	4.01
<b>17 – 32</b>	930	35.7	483	53.0	156	46.7	44	35.7
<b>33 – 40</b>	326	12.5	197	21.6	107	32.0	45	36.6
<b>&gt; 40</b>	129	4.9	98	10.8	55	16.5	29	23.6
<b>Total</b>	2,609	100.0	911	100.0	334	100.0	123	100.0

**Table 3. Nationalities in the total sample**

	<b>Current job in 2007</b>	<b>Brain drain</b>	<b>Total</b>	<b>Percentage distribution</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>
<b>A. Countries with some department in the sample</b>				
<b>1. U.S.</b>	960	58	1,018	39.1%
<b>European Union</b>	512	308	820	31.4%
<b>2. UK</b>	143	80	223	
<b>3. France</b>	73	55	123	
<b>4. Netherlands</b>	105	15	120	
<b>5. Spain</b>	83	33	116	
<b>6. Germany</b>	17	69	86	
<b>7. Belgium</b>	33	27	60	
<b>8. Denmark</b>	32	17	49	
<b>9. Sweden</b>	24	12	36	
<b>Rest of the World</b>	100	181	281	10.8%
<b>10. Canada</b>	45	79	124	
<b>11. Israel</b>	35	48	83	
<b>12. China</b>	9	54	63	
<b>13. Econ. Society Fellows<sup>a</sup></b>	13	-	13	
<b>B. Countries with no department in the sample</b>		486	486	18.7%
<b>14. Italy</b>		101	101	
<b>15. India</b>		66	66	
<b>16. Other countries<sup>b</sup></b>		173	173	
<b>TOTAL</b>		-	2,605	100.0%

<sup>a</sup> EU: Finland (1), Italy (1); RW: Japan (7), Brazil (1), India (1), Norway (1)

<sup>b</sup> Turkey (30), Argentina (27), South Korea (27), Australia (25), Japan (24), Russia (19), Greece (15), Brazil (14), Switzerland (12), Portugal (10), Austria (9), Hungary (9), Chile (8), Ireland (8), México (8), Poland (7), Colombia (6), New Zealand (6), Uruguay (4), Ukraine (4), Egypt (3), Finland (3), Iran (3), Jamaica (3), Norway (3), Perú (3), Taiwan (3), Belarus (2), Costa Rica (2), Singapore (2), South Africa (2), Armenia (1), Birmania (1), Bulgaria (1), Estonia (1), Ghana (1), Nigeria (1), Rumania (1), Slovenia (1), Uzbekistan (1), Venezuela (1).

Table 4. The funneling effect for a partition of the world into the U.S., the European Union (EU), and the Rest of the World (RW)

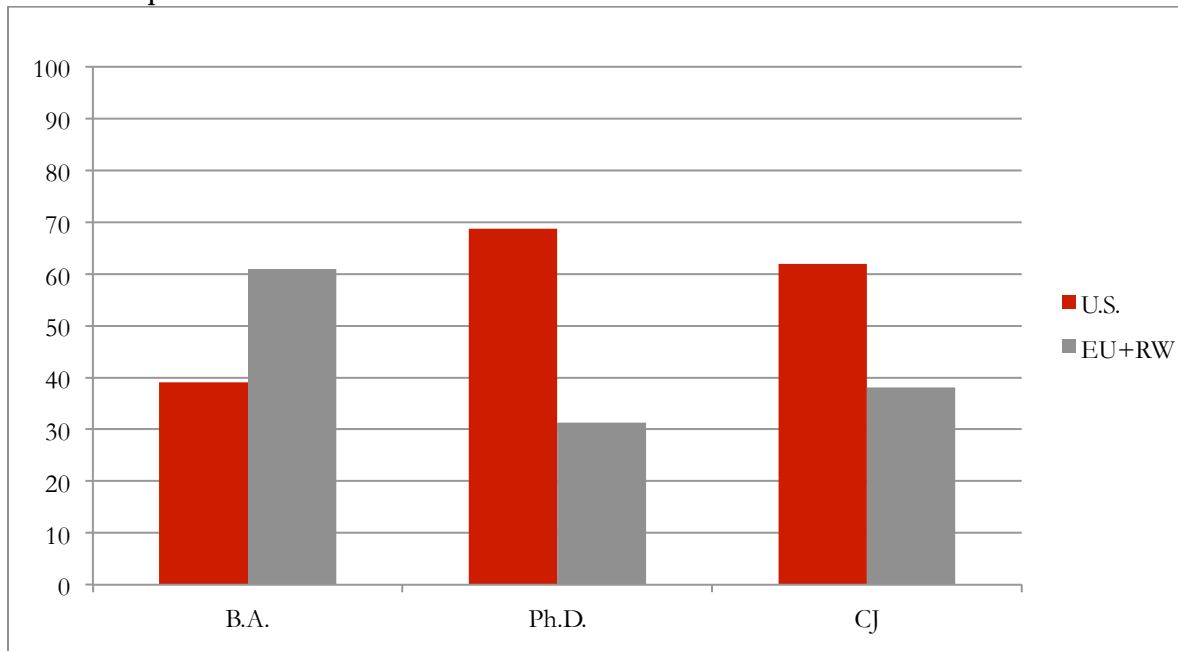
A. People	Total sample			Elite III			Elite II			Elite I		
	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ	B.A.	Ph.D.	CJ
U.S.	1,019	1,790	1,612	458	702	684	192	263	270	81	100	110
EU	965	707	806	239	165	158	73	52	44	21	20	11
RW	621	107	187	211	40	66	67	16	18	21	3	2
Missing	0	1	0	0	1	0	0	1	0	0	0	0
<b>Total</b>	<b>2,605</b>	<b>2,604</b>	<b>2,605</b>	<b>908</b>	<b>907</b>	<b>908</b>	<b>332</b>	<b>331</b>	<b>332</b>	<b>123</b>	<b>123</b>	<b>123</b>

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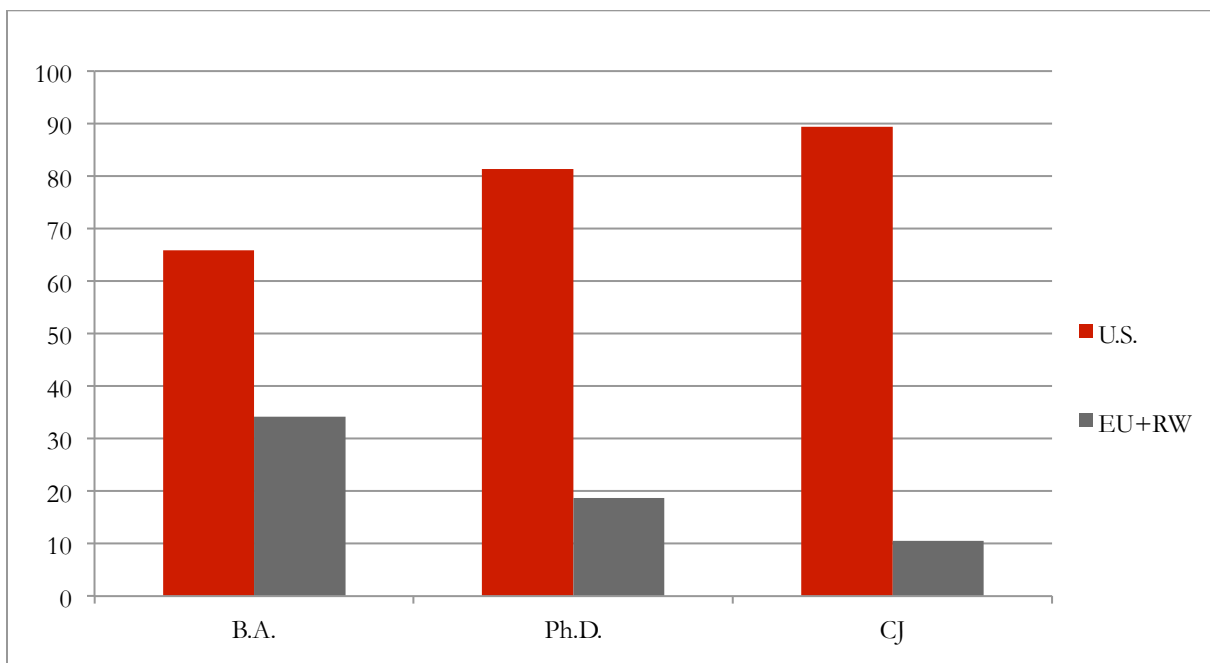
B. Countries (besides the U.S.)												
EU	14	12	10	14	11	10	10	7	8	5	3	4
RW	47	12	10	24	7	10	13	5	7	7	3	2
<b>Total</b>	<b>61</b>	<b>24</b>	<b>20</b>	<b>38</b>	<b>18</b>	<b>20</b>	<b>23</b>	<b>11</b>	<b>15</b>	<b>12</b>	<b>6</b>	<b>6</b>

CJ = Current Job In 2007

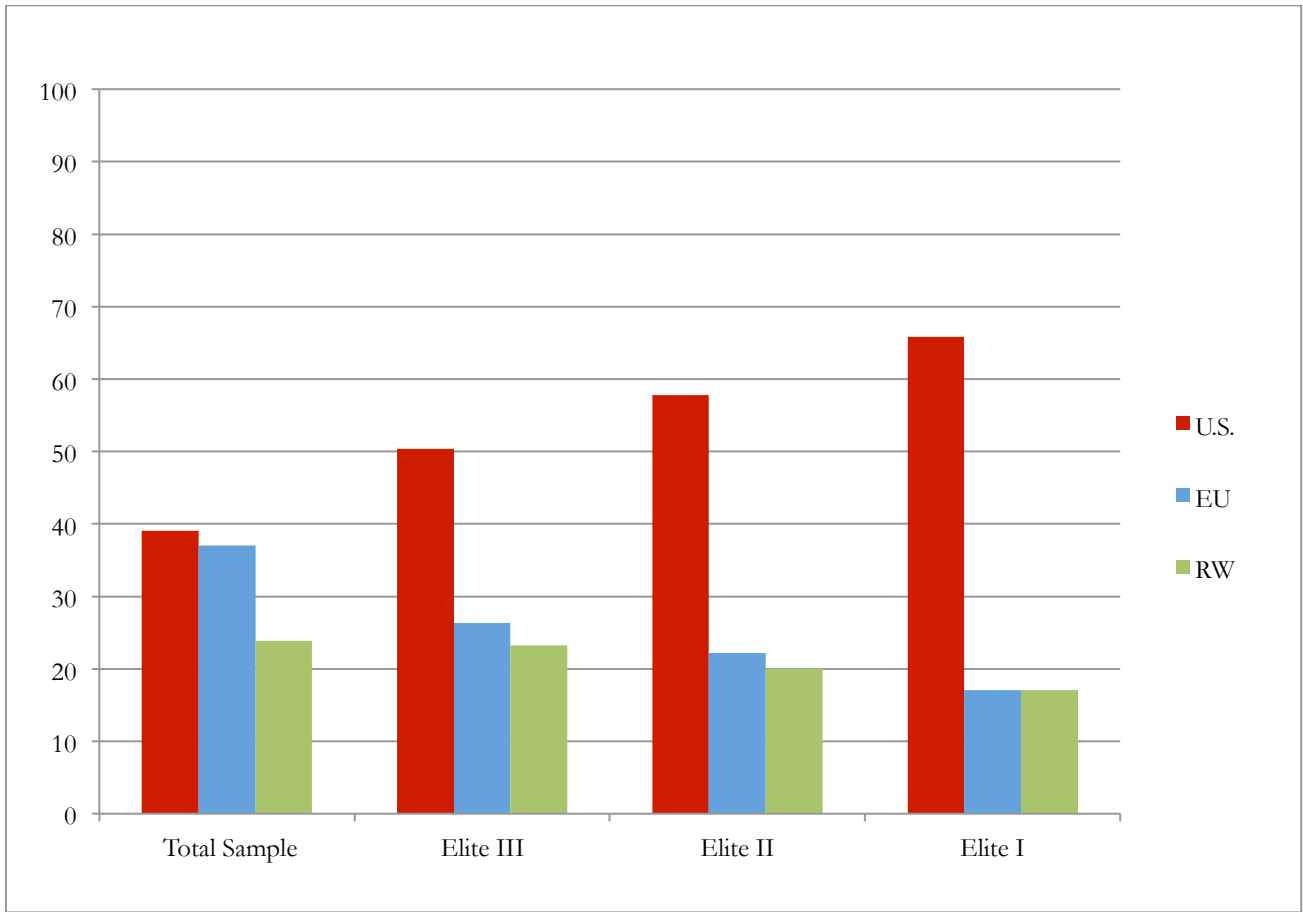
**A. Total sample**



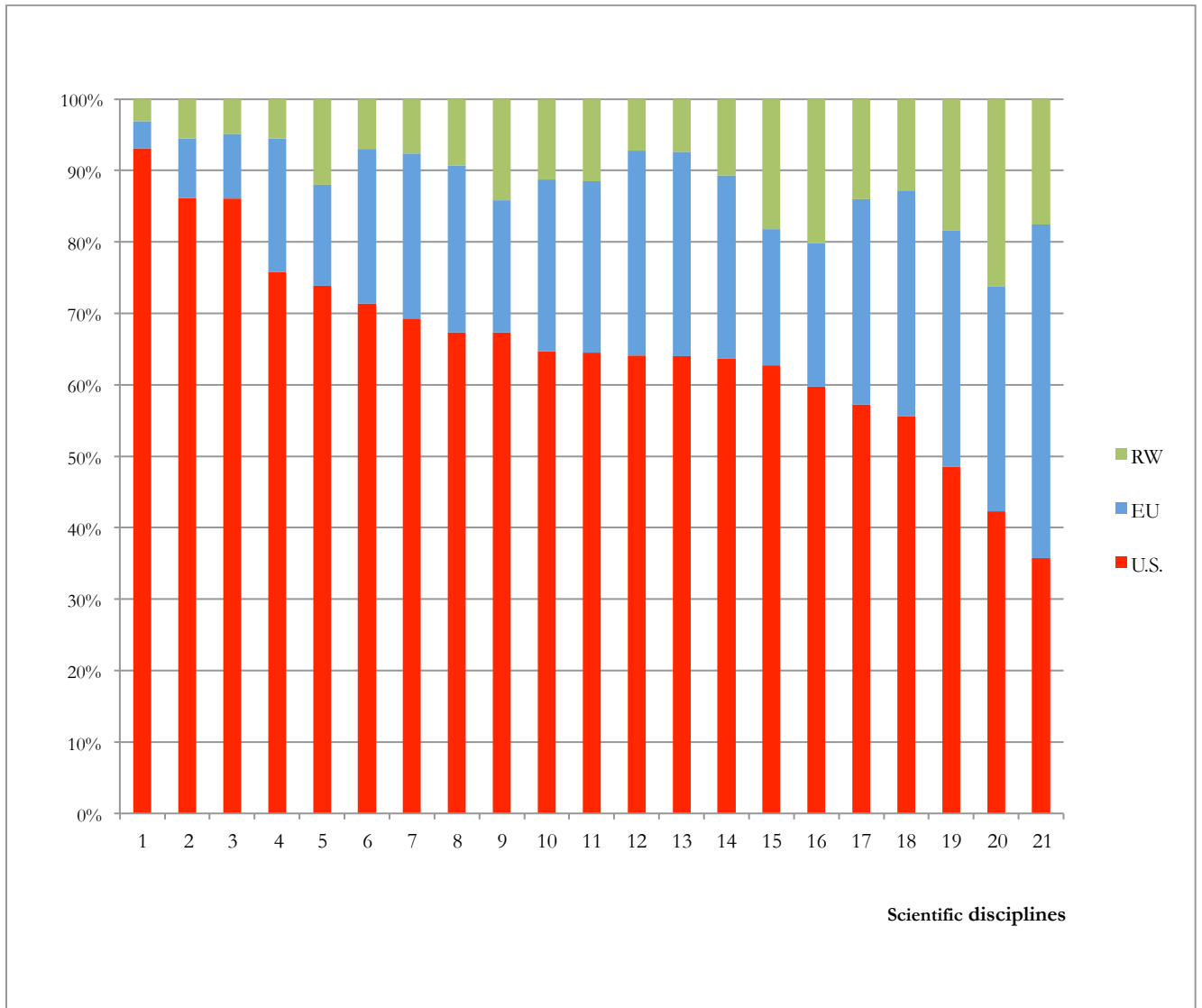
**B. Elite I**



**Figure 1. The funneling effect. Percentage of people in Elite III and Elite I obtaining a B.A., a Ph.D., and working in 2007 inside and outside the U.S.**



**Figure 2. Consequences of the funneling effect. Percentage of people in different samples working in 2007 in the three geographical areas**

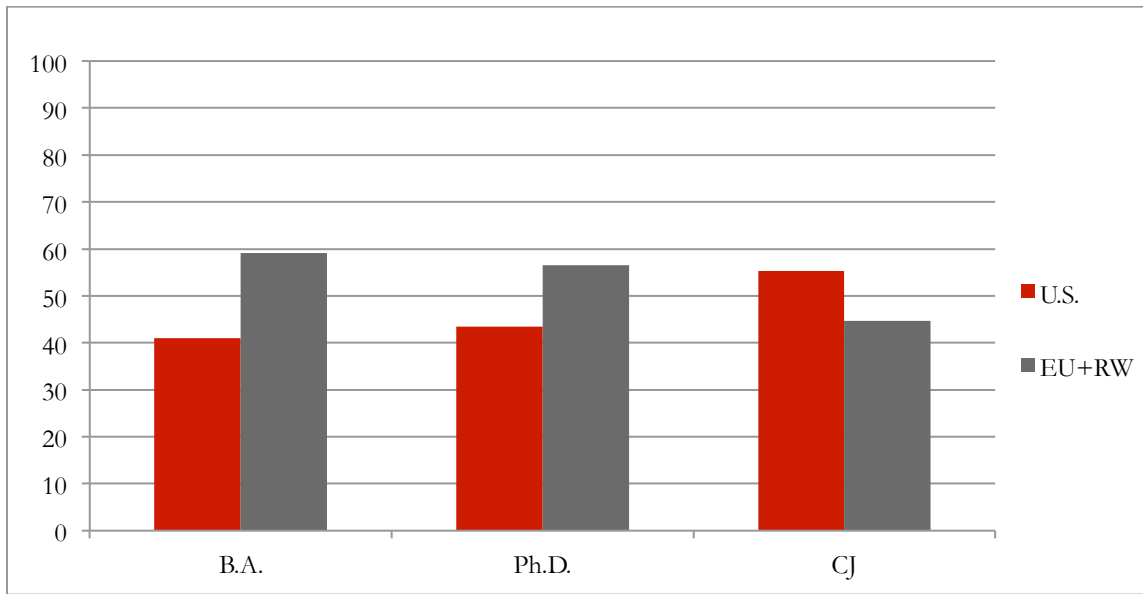


(1) Social Sciences, General (2) Economics & Business (3) Psychology & Psychiatry (4) Clinical Medicine (5) Computer Science (6) Molecular Biology & Genetics (7) Geosciences (8) Mathematics (9) Engineering (10) Space Sciences (11) Ecology & Environment (12) Microbiology (13) Neuroscience (14) Immunology (15) Biology & Biochemistry (16) Materials Science (17) Chemistry (18) Physics (19) Plant & Animal Science (20) Agricultural Sciences (21) Pharmacology

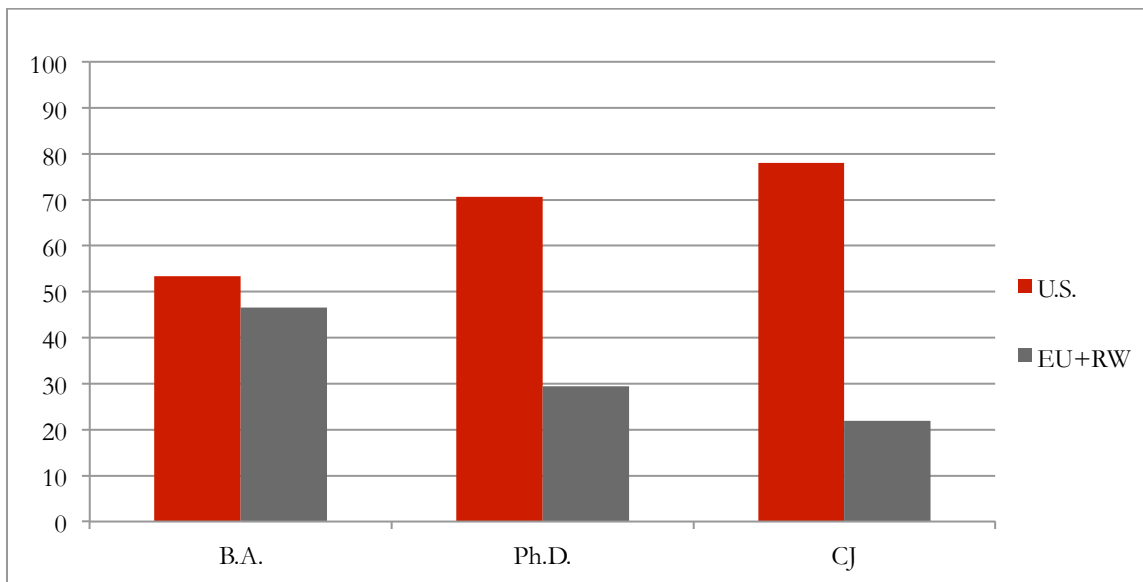
**Figure 3. Percentage distribution of the elite in different scientific disciplines working in 1999 in three geographical areas: the U.S., the EU, and the RW (Table 4.A in Panaretos & Malesios, 2012)**



**A. Elite III**



**B. Elite I**



**Figure 4. The clustering effect. Percentage of institutions in Elite III and Elite I where people inside and outside the U.S. obtain a B.A., a Ph.D., and work in 2007**

Table 5. Institutions where elite university professors are trained

<b>TOTAL SAMPLE. <u>Current job in 2007 at:</u></b>					
	<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	69	88	17	8	182
2. MIT	69	97	14	5	185
1 + 2 =	138	185	31	13	367
3. Rest Top Ten U.S.	183	485	88	82	838
4. Rest U.S.	60	414	79	32	585
<b>TOTAL U.S.</b>	<b>381</b>	<b>1,084</b>	<b>198</b>	<b>127</b>	<b>1,790</b>
5. EU.	26	88	579	14	707
6. RW	3	30	28	46	107
<b>TOTAL</b>	<b>410</b>	<b>1,202</b>	<b>805</b>	<b>187</b>	<b>2,604</b>

<b>ELITE III. <u>Current job in 2007 at:</u></b>					
	<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	45	37	6	2	90
2. MIT	53	41	5	4	103
1 + 2 =	98	78	11	6	193
3. Rest Top Ten U.S.	113	175	20	20	328
4. Rest U.S.	33	126	12	10	181
<b>TOTAL U.S.</b>	<b>244</b>	<b>379</b>	<b>43</b>	<b>36</b>	<b>702</b>
5. EU.	17	33	109	6	165
6. RW		11	5	24	40
<b>TOTAL</b>	<b>261</b>	<b>423</b>	<b>157</b>	<b>66</b>	<b>907</b>

**ELITE II. Current job in 2007 at:**

	<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	30	14	2		46
2. MIT	36	17	3	3	59
1 + 2 =	66	31	5	3	105
3. Rest Top Ten U.S.	50	42	6	3	101
4. Rest U.S.	18	35	2	2	57
<b>TOTAL U.S.</b>	134	108	13	8	263
5. EU.	10	12	27	3	52
6. RW		6	3	7	16
<b>TOTAL</b>	144	126	43	18	331

**ELITE I. Current job in 2007 at:**

	<b>Top 10-U.S.</b>	<b>Rest-U.S.</b>	<b>EU</b>	<b>RW</b>	<b>TOTAL</b>
	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>	<b>(4)</b>	<b>(5)</b>
<b><u>Ph.D. obtained in:</u></b>					
1. Harvard	15	7	1		23
2. MIT	23	6	1	1	31
1 + 2 =	38	13	2	1	54
3. Rest Top Ten U.S.	19	8	0	1	28
4. Rest U.S.	6	10	2		18
<b>TOTAL U.S.</b>	63	31	4	2	100
5. EU.	9	5	6	0	20
6. RW		2	1		3
<b>TOTAL</b>	72	38	11	2	123

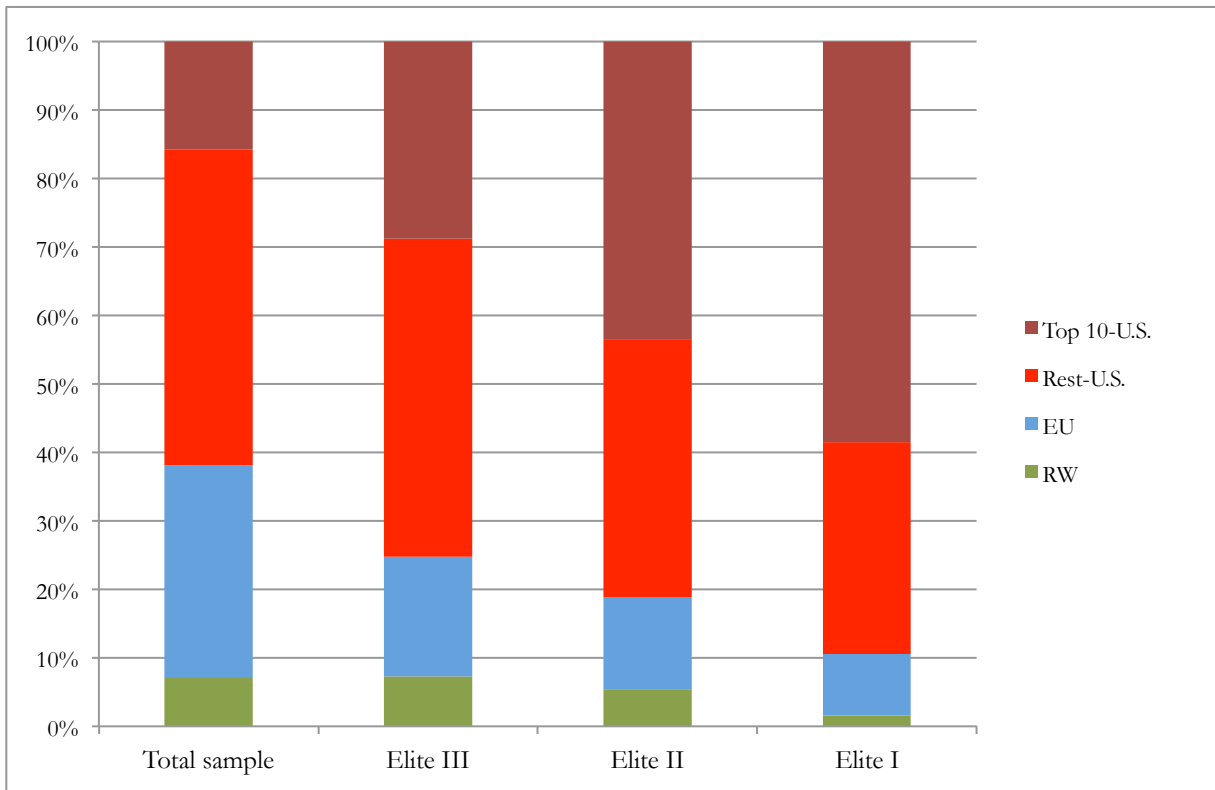


Figure 5.A. The clustering towards U.S. institutions in 2007 in different samples

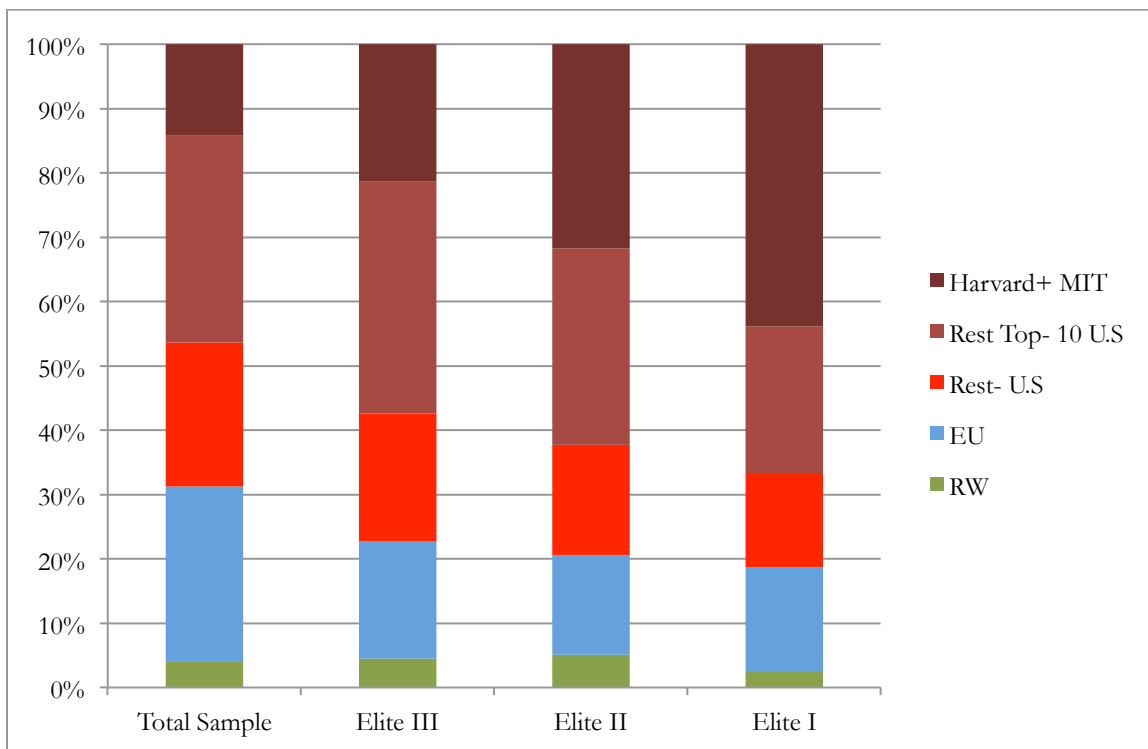


Figure 5.B. The types of graduate schools attended by economists in the different samples

Table 6. Geographical Mobility

	Total sample	Elite III	Elite II	Elite I
<u>Number of people</u>				
STAYERS	1,360	526	204	79
<b>MOVERS:</b>				
A. Brain circulation	215	76	26	10
<b>B. Brain drain:</b>				
1. Late movers	202	63	26	11
2. Frequent movers	236	37	11	3
3. Regular movers	592	206	65	20
<b>TOTAL</b>	2,605	908	332	123
<u>Percentage distribution</u>				
STAYERS	52.2	57.9	61.4	64.2
<b>MOVERS:</b>				
A. Brain circulation	8.2	8.4	7.8	8.1
<b>B. Brain drain:</b>				
1. Regular movers	22.7	22.7	19.6	16.3
2. Frequent movers	9.1	4.1	3.3	2.4
3. Late movers	7.7	6.9	7.8	8.9
<b>TOTAL</b>	100.0	100.0	100.0	100.0

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**Regular movers** = Those who study the Ph.D. abroad but come back to hold a job in 2007 in the country of origin

**Frequent movers** = Those who obtain a B.A., a Ph.D., and hold a job in 2007 in three different countries

**Late movers** = Those who move abroad after the Ph.D.

Table 7. Partition of the people originating in each geographical area into stayers and movers (brain circulation and brain drain), and partition of those working in each area in 2007 into nationals (stayers and brain circulation) and foreigners (brain gain)

<b>TOTAL SAMPLE</b>						
	<b>Stayers</b>	<b>Brain circulation</b>	<b>Brain drain</b>	<b>Total by origin = (1) + (2) + (3)</b>	<b>Brain gain</b>	<b>Working in the area in 2007 = (1) + (2) + (4)</b>
<b>Area</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>		<b>(4)</b>	
U.S.	943	17	58	1,018	652	1,612
EU	387	129	450	966	290	806
RW	31	69	521	621	87	187
<b>TOTAL</b>	<b>1,361</b>	<b>215</b>	<b>1,029</b>	<b>2,605</b>	<b>1,029</b>	<b>2,605</b>

<b>ELITE III</b>						
	<b>Stayers</b>	<b>Brain circulation</b>	<b>Brain drain</b>	<b>Total by origin = (1) + (2) + (3)</b>	<b>Brain gain</b>	<b>Working in the area in 2007 = (1) + (2) + (4)</b>
<b>Area</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>		<b>(4)</b>	
U.S.	432	10	15	457	242	684
EU	77	37	126	240	44	158
RW	18	29	164	211	19	66
<b>TOTAL</b>	<b>527</b>	<b>76</b>	<b>305</b>	<b>908</b>	<b>305</b>	<b>908</b>

<b>ELITE II</b>						
	<b>Stayers</b>	<b>Brain circulation</b>	<b>Brain drain</b>	<b>Total by origin = (1) + (2) + (3)</b>	<b>Brain gain</b>	<b>Working in the area in 2007 = (1) + (2) + (4)</b>
<b>Area</b>	<b>(1)</b>	<b>(2)</b>	<b>(3)</b>		<b>(4)</b>	
U.S.	181	6	4	191	83	270
EU	18	15	41	74	11	44
RW	6	5	56	67	7	18
<b>TOTAL</b>	<b>205</b>	<b>26</b>	<b>101</b>	<b>332</b>	<b>101</b>	<b>332</b>

**ELITE I**

<b>Area</b>	<b>Stayers (1)</b>	<b>Brain circulation (2)</b>	<b>Brain drain (3)</b>	<b>Total by origin = (1) + (2) + (3)</b>	<b>Brain gain (4)</b>	<b>Working in the area in 2007 = (1) + (2) + (4)</b>
<b>U.S.</b>	74	5	2	81	31	110
<b>EU</b>	5	3	13	21	3	11
<b>RW</b>	0	2	19	21	0	2
<b>TOTAL</b>	<b>79</b>	<b>10</b>	<b>34</b>	<b>123</b>	<b>34</b>	<b>123</b>

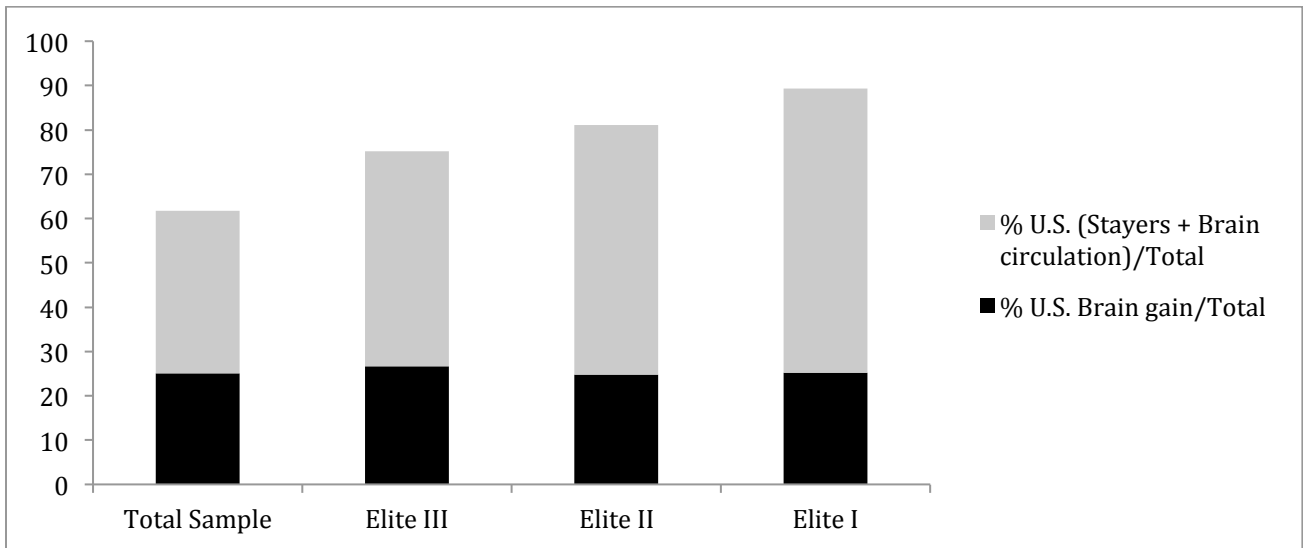


Figure 6.A. Percentage of U.S. nationals (U.S. stayers + U.S. brain circulation), and foreigners (U.S. brain gain) relative to the total number of economists in the different samples

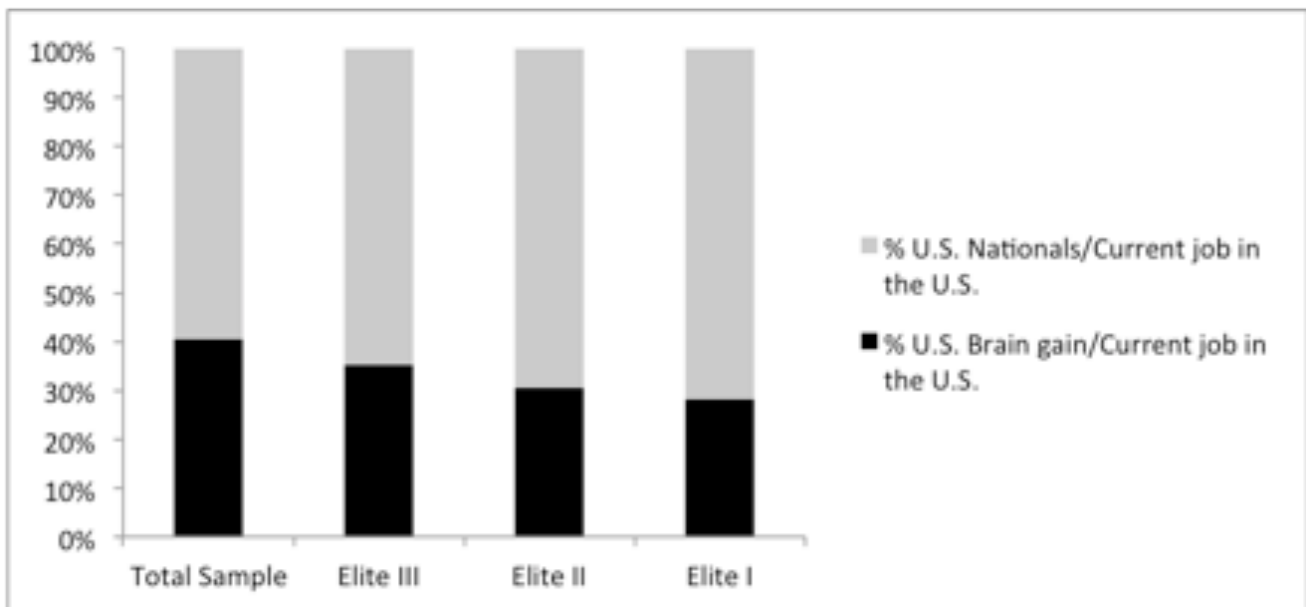
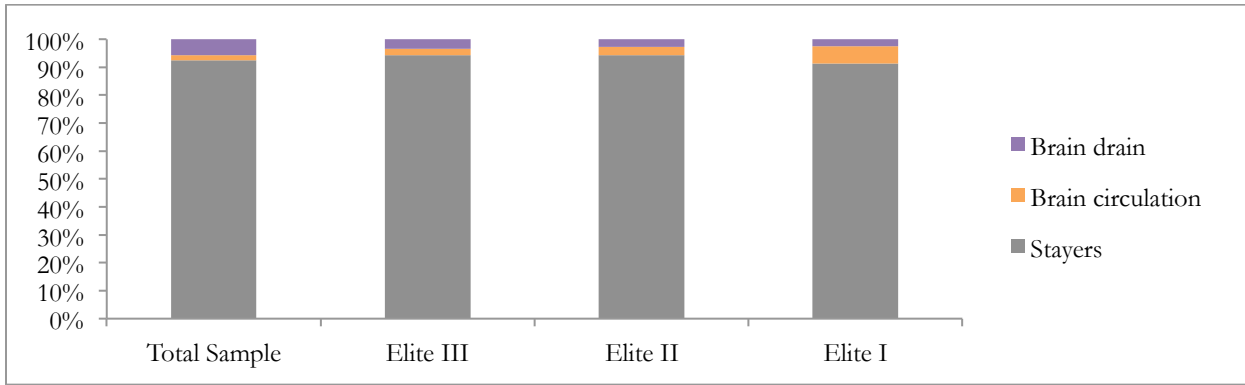


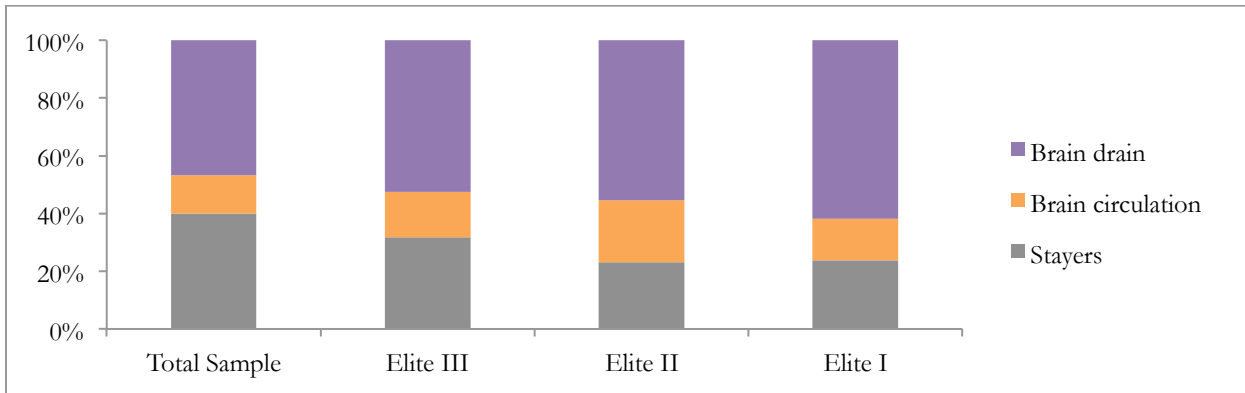
Figure 6.B. Percentage of U.S. nationals (stayers + brain circulation) and foreigners (U.S. brain gain) relative to those working in 2007 in the U.S. in the different samples



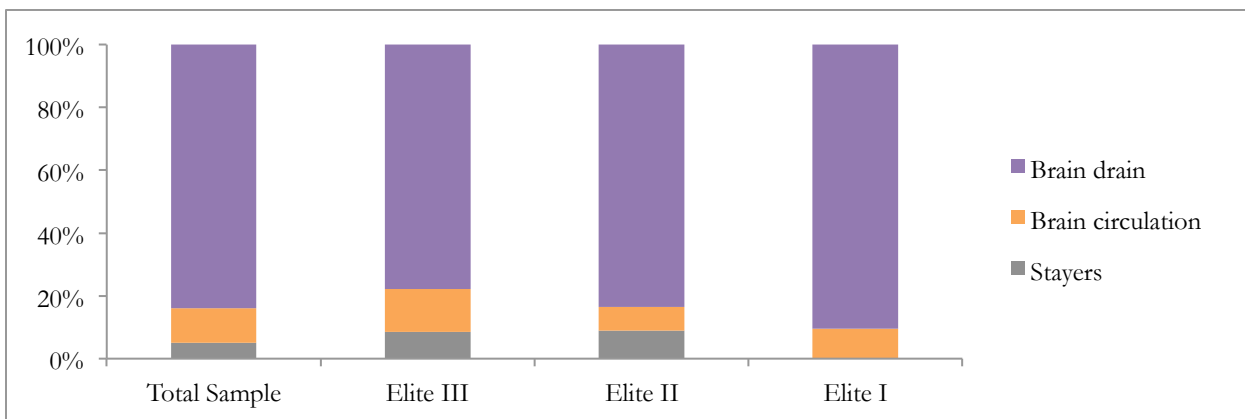
**A. Country of B.A. = U.S**



**B. Country of B.A. = EU**



**C. Country of B.A. = RW**



**Figure 7. Distribution of U.S., EU, and RW nationals into movers (brain drain + brain circulation) and stayers in the different samples**

Table 8.A. The allocation of the total quality points according to the institutions where economists work in 2007.  
Percentage distribution

**GEOGRAPHICAL**

<b>AREAS:</b>	<b>TOTAL SAMPLE</b>	<b>ELITE III</b>	<b>ELITE II</b>	<b>ELITE I</b>
Harvard + MIT	10.5	12.9	19.2	29.9
Other top ten U.S.	23.3	27.2	32.5	34.8
Rest of U.S.	41.8	39.4	32.7	26.1
<b>TOTAL U.S.</b>	<b>75.6</b>	<b>79.5</b>	<b>84.4</b>	<b>90.8</b>
EU	18.2	14.9	11.4	7.8
RW	6.2	5.6	4.2	1.4
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Table 8.B. The allocations of people and the total quality points according to the geographical area where economists are born.  
Percentage distributions

	<b>TOTAL SAMPLE</b>		<b>ELITE III</b>		<b>ELITE II</b>		<b>ELITE I</b>	
	<b>Number of people</b>	<b>Quality points</b>	<b>Number of people</b>	<b>Quality points</b>	<b>Number of people</b>	<b>Quality points</b>	<b>Number of people</b>	<b>Quality points</b>
<b>NATIONALITY:</b>								
U.S.	39.1	51.8	50.3	55.3	57.5	61.0	65.8	67.4
Stayers + br. circ.	36.8	50.0	48.7	53.7	56.3	59.7	64.2	66.1
Brain drain	2.3	1.8	1.6	1.5	1.2	1.3	1.6	1.3
EU	37.1	26.2	26.4	23.2	22.3	19.4	17.1	15.2
Stayers + br. circ.	19.8	15.5	12.5	12.8	9.9	10.1	6.5	6.5
Brain drain	17.3	10.7	13.9	10.4	12.4	9.3	10.6	8.7
RW	23.8	22.0	23.3	21.5	20.2	19.6	17.1	17.4
Stayers + br. circ.	3.8	4.6	5.2	4.3	3.3	2.7	1.6	1.4
Brain drain	20.0	17.4	18.1	17.2	16.9	16.9	15.5	16.0
<b>Total</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>	<b>100.0</b>

Figure 8.A. The research gap according to the institutions where economists work in 2007

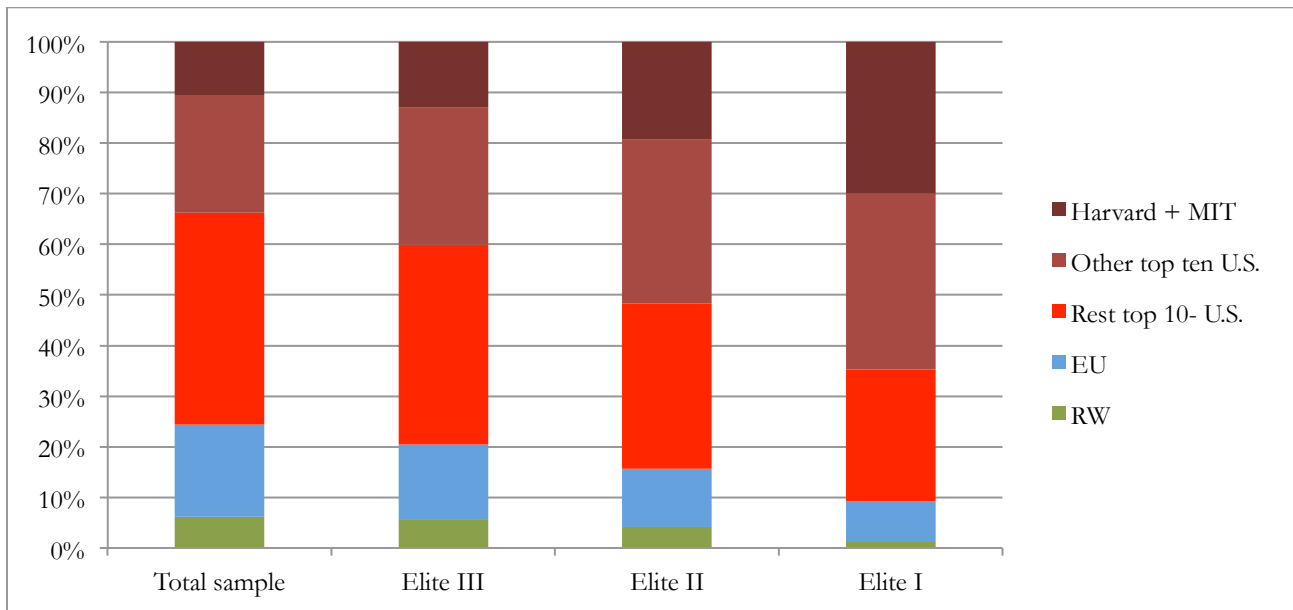
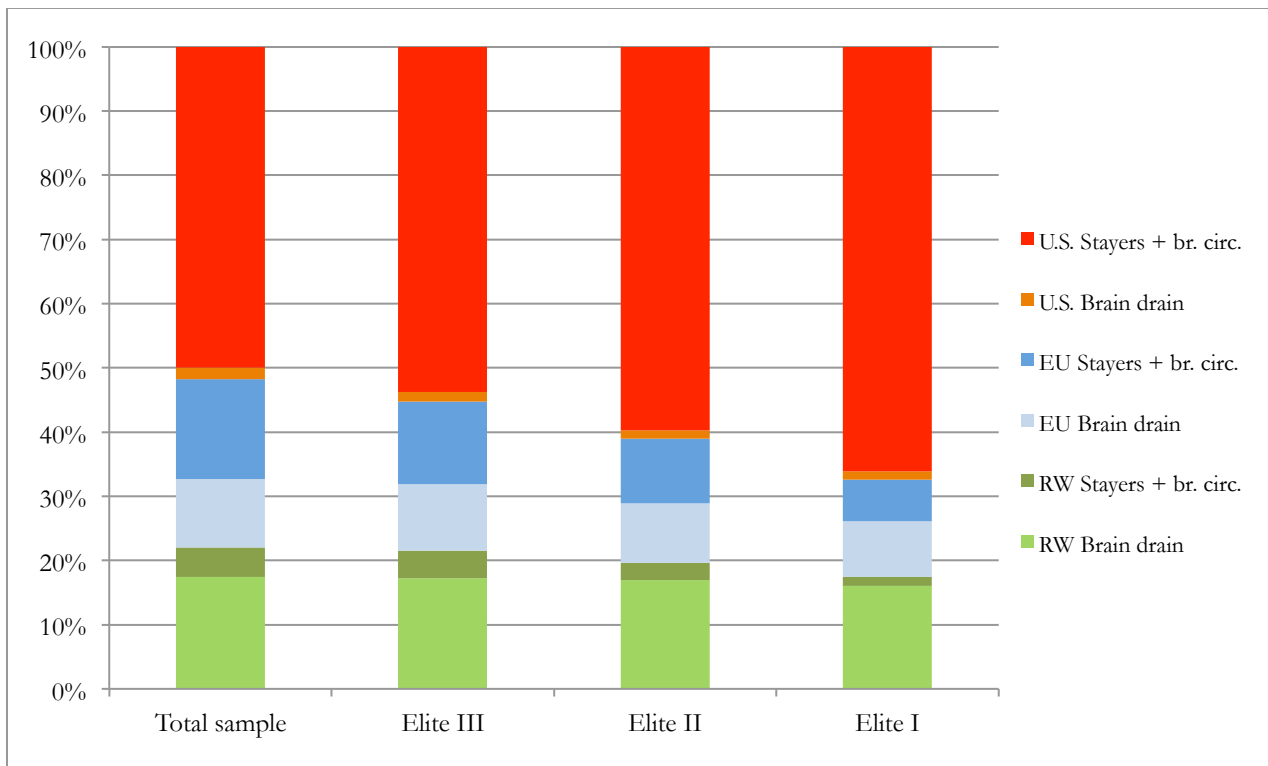
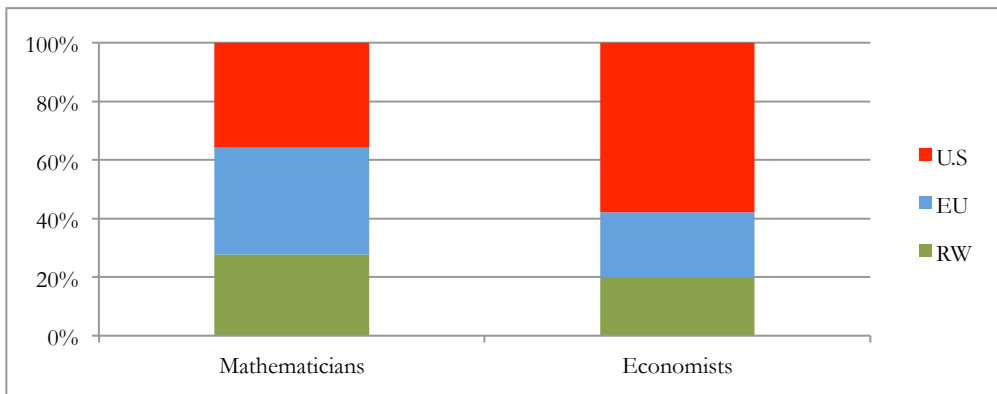


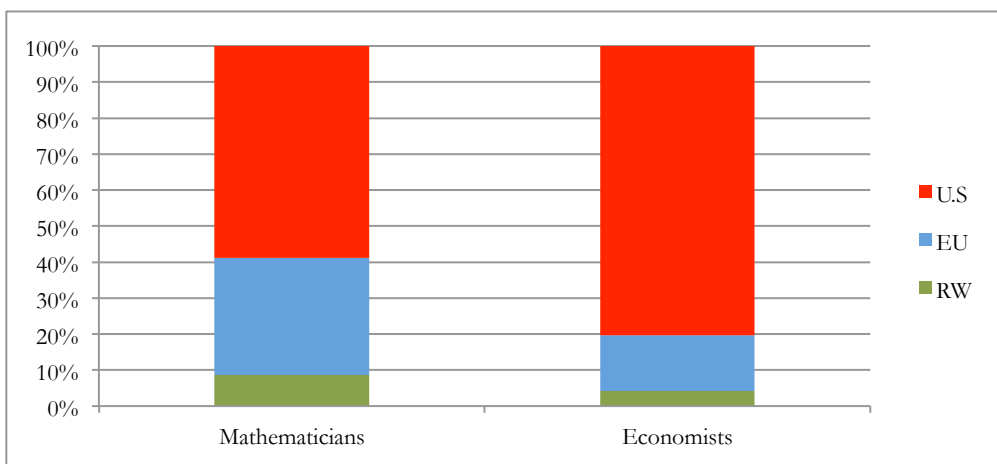
Figure 8.B. The research gap according to the geographical area where economists are born



**Figure 8. The research gap between the U.S. and the other geographical areas**  
**A. Nationality (or country where economists and mathematicians obtain a B.A. or a BSc., respectively)**



**B. Geographical area where economists and mathematicians born in the EU or the RW obtain a Ph.D.**



**C. Geographical area where economists and mathematicians hold their current job**

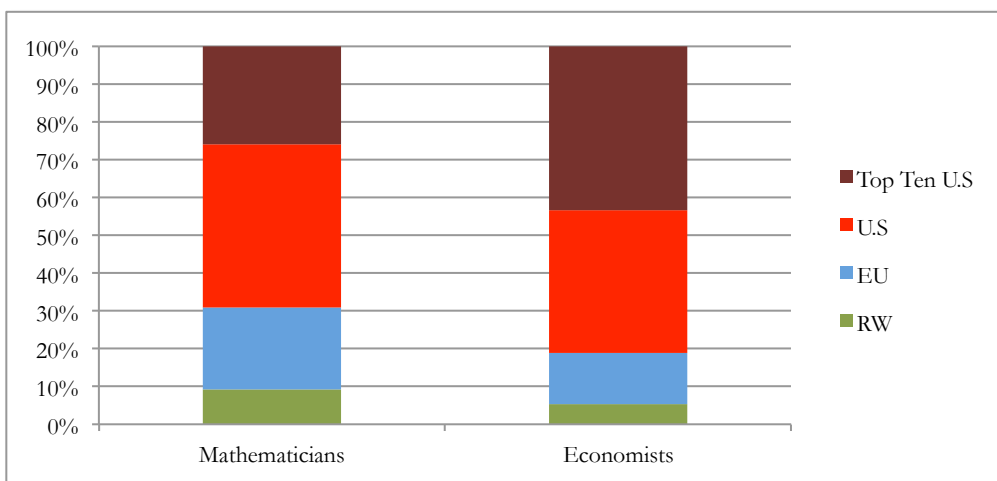
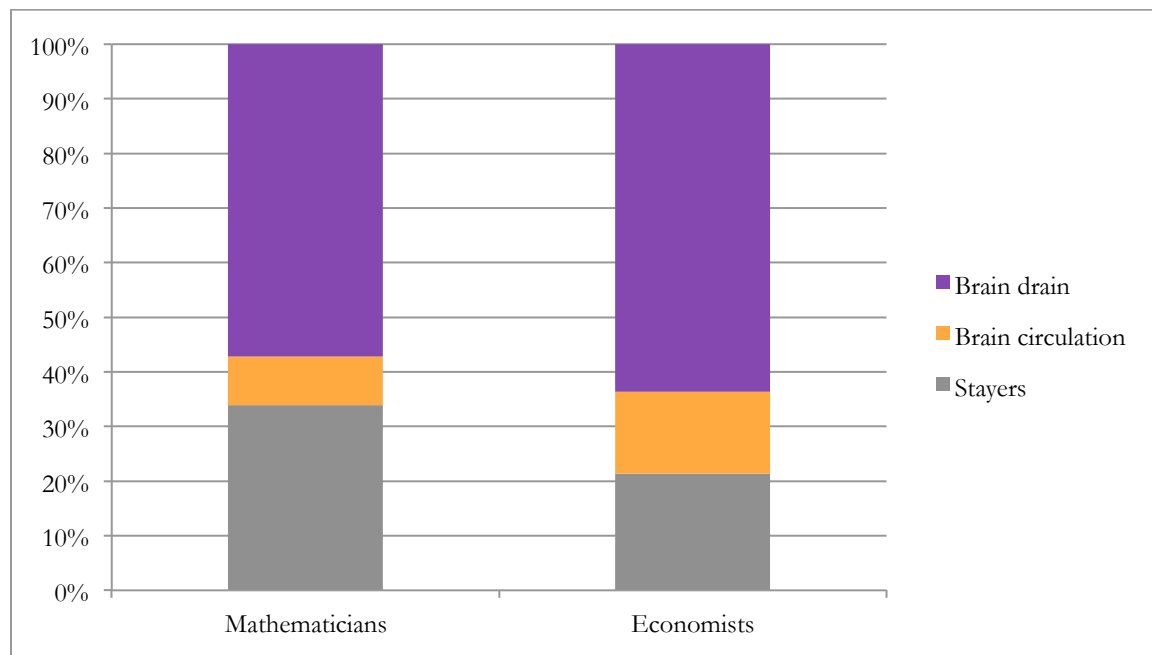


Figure 9. Geographical area where Elite II economists and highly cited mathematicians obtain a B.A. or a B.Sc., a Ph.D., and where they are working at academic institutions in 2007 and 1999, respectively

A. Distribution of highly cited mathematicians and Elite II economists into stayers, brain circulation, and brain drain



B. U.S. nationals *versus* foreigners (U.S. brain gain, or brain drain from the EU and the RW towards the U.S.) among those currently working in the U.S.

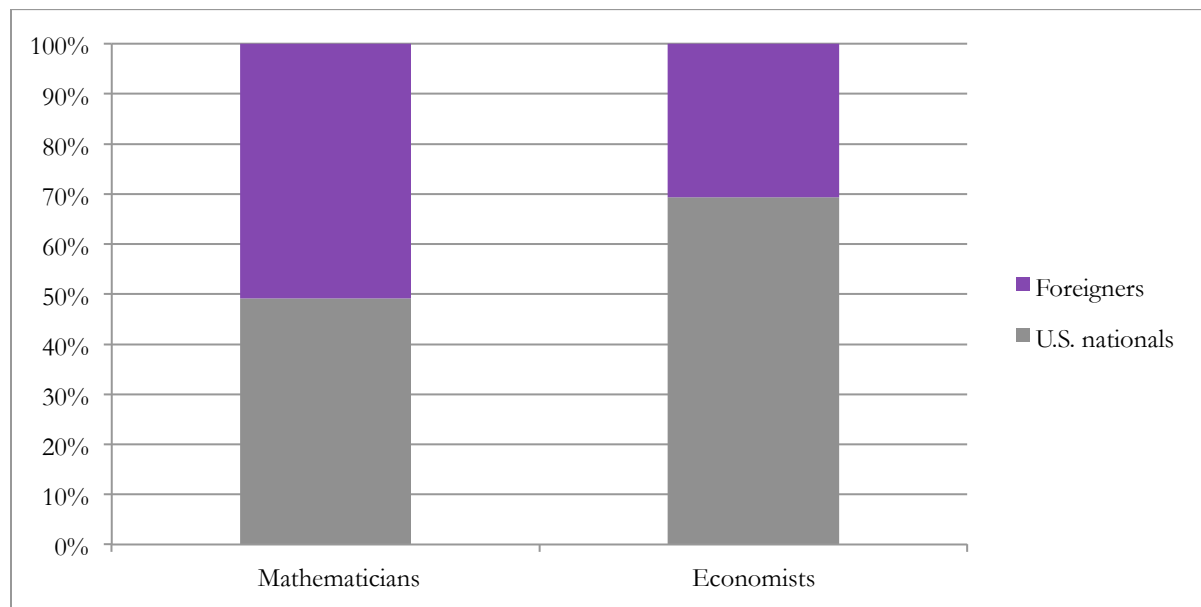


Figure 10. Percentage distribution into stayers, brain circulation, and brain drain, as well as U.S. nationals *versus* foreigners among those currently working in the U.S. Highly cited mathematicians and Elite II economists working at academic institutions in 2007 and 1999, respectively.

Table 9. The characteristics of the original 2,605 economists *versus* the characteristics of the 1,714 young people

A. Percentage distribution of the people classified by their nationality (country where they obtained the B.A.) and the current job (CJ) in 2007 in the partition of the world into three geographical areas: the U.S., the European Union (EU), and the Rest of the World (RW)

Geogr. areas	ORIGINAL SET				YOUNG PEOPLE			
	Total sample		Elite III		Total sample		Elite II	
	B.A.	CJ	B.A.	CJ	B.A.	CJ	B.A.	CJ
U.S.	39.1	61.9	50.4	75.3	27.9	55.7	38.1	72.3
EU	37.1	30.9	26.3	17.4	44.9	37.5	35.3	21.9
RW	23.8	7.2	23.4	7.3	27.2	6.8	26.6	5.8
<b>Total</b>	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0

B. Percentage distributions of quality points by geographical areas

Geogr. areas	ORIGINAL SET		YOUNG PEOPLE	
	Total sample	Elite III	Total sample	Elite III
U.S.	75.6	90.9	68.4	75.0
EU	18.1	7.8	25.3	20.0
RW	6.2	1.4	6.3	5.0
<b>Total</b>	100.0	100.0	100.0	100.0

C. The clustering towards U.S. institutions

	ORIGINAL SET		YOUNG PEOPLE	
	Total sample	Elite III	Total sample	Elite III
a. CJ in the U.S. top ten	15.8%	28.8%	13.9%	27.0%
b. Ph.D. in the U.S. top ten	46.3%	57.4%	43.3%	58.5%
c. Ph.D. in Harvard and MIT	14.1%	21.3%	10.7%	22.4%
d. Insularity in the U.S. <sup>1</sup>	78.3%	80.8%	77.7%	84.9%
e. Insularity in the EU <sup>2</sup>	71.9%	69.4%	71.4%	64.9%

<sup>1</sup>Percentage of economists working in 2007 in the top ten U.S. universities that obtain a Ph.D. in some of these universities

<sup>2</sup>Percentage of economists working in 2007 in the EU universities that obtain a Ph.D. in some of these universities

**D. Geographical mobility**

	<b>ORIGINAL SET</b>		<b>YOUNG PEOPLE</b>	
	<b>Total sample</b>	<b>Elite III</b>	<b>Total sample</b>	<b>Elite III</b>
<b>a. Brain circulation</b>	8.2%	8.3%	8.3%	7.5%
<b>b. Brain drain</b>	39.5%	33.5%	44.8%	45.2%
<b>c. Movers = a + b</b>	47.7%	41.8%	57.2%	52.7%
<b>d. U.S stayers</b>	36.2%	47.6%	25.9%	35.4%
<b>e. U.S. brain gain</b>	25.0%	26.6%	30.2%	36.3%
<b>e. EU brain gain</b>	11.1%	4.8%	14.8%	6.8%

**E. Percentage distribution of economists by country of origin in the total sample, in %**

	<b>ORIGINAL SET</b>	<b>YOUNG PEOPLE</b>
<b>I. Countries with some department in the sample</b>		
<b>U.S.</b>	39.1	27.8
<b>EU</b>	31.4	37.2
<b>RW</b>	10.8	10.6
<b>II. Countries with no department in the sample (all geographical areas)</b>		
<b>Total</b>	100.0	100.0