Appendix: technical details

Finding the publications from each institution. The address field was used. The following queries were used for each institution:

1. natl tech univ athens
2. agr univ athens
3. univ athens not #1 not #2
4. univ macedonia
5. aristotle or aristotelian or thessaloniki or salonika not #4
6. tech univ crete
7. crete not #6
8. ioannina
9. patras
10. ionian
11. aegean
12. Panteion
13. harokpio or harokopeion
14. thessaly
15. thrace
16. peloponnese
17. univ piraeus
18. athens univ econ
19. yale
20. Univ delaware
21. London Sch Econ
22. NYU
23. univ aberdeen
24. univ york
25. univ essex
26. brunel univ
27. univ strathclyde
28. keele univ

There are caveats in the above search queries: a) search 3 for example excludes papers with coauthors from both univ athens and the other two institutions, b) search 7 includes a
few papers from places other than univ crete, such as TEI crete and Med Agron Inst. On the other hand, the search "univ crete" excludes papers from the university hospital which should be included and papers with primary affiliation the FORTH research center, where many university professors also have labs. Similarly, search 8 includes a few papers from institutions other than univ ioannina.

**Citations and Subject Categories.** The total number of citations for the papers from each institutions was calculated using the "Citation Report" feature of the WoS. These are citations from 2002 till the time that the study was conducted, i.e. 10/11/2007. The distribution of the papers into subject categories was done using the "Analyze" feature of the WoS.

**The field normalization.** Raw publication and citation counts cannot be used to compare universities that cover very different scientific disciplines. For example, Univ Athens is a comprehensive university, NTUA is an engineering school, and Panteion specializes in the Social Sciences. In this work they were corrected by dividing them by a "volume factor", a number that is proportional to the total number of publications in the WoS in the areas that the university covers. The VF was calculated in the following way:

1. WoS classifies all papers in 245 subject categories. The distribution of papers in these categories was estimated by performing an author search for "a* or b* or c* or ... (all letters)" and using the "Analyze" feature of the WoS. Because only 100,000 papers can be analyzed at a time, the search was repeated five times, for each of the years between 2002 and 2006. The results were averaged and then divided by the largest to obtain the relative volume $V(i)$ of papers in each subject category. The results are in file "SubjectCategories.xls".

2. For each institution the distribution of their papers into subject categories was calculated. The volumes $V(i)$ of the 20 most common subject categories are summed to obtain the
volume factor for that institutions. These results are in file "VolumeFactors.xls". These volume factors are divided by the largest number and listed in the ranking table. The results seem reasonable. Panteion, which focuses on Social Sciences, has the smallest VF of 0.25. This means that the total number of papers in the WoS in the areas it covers is 4 times smaller than that of a comprehensive university. Economics schools, such as OPA, Univ Macedonia, or Univ Piraeus have VF 0.28–0.41. The same VF is used to scale both publications and citations.