

Italian academia is a family business, statistical analysis reveals

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Unusually high clustering of last names within Italian academic institutions and disciplines indicates widespread nepotism in the country's schools, according to a new computational analysis.

By comparing the frequency of last names among more than 61,000 professors in medicine, engineering, law, and other fields, University of Chicago researcher Stefano Allesina found the pattern to be incompatible with unbiased, equal opportunity hiring. The analysis, published online in the journal [PLoS ONE](#), refutes the notion that recently publicized cases of academic nepotism in [Italy](#) were isolated incidents.

"It's not a few bad apples, it's really bad," said Allesina, PhD, assistant professor of ecology & evolution. "I found that in many disciplines there are much fewer names than you would expect to find at random, indicating a very, very high probability of nepotistic hires."

In recent years, several scandals have hit Italian academia over the hiring of close family members to prominent faculty positions at public universities. At the University of Bari, nine relatives from three generations of a single family are on the economics faculty, several newspapers reported last year. The chancellor of Sapienza University in Rome was recently investigated by an Italian news program after the hiring of his wife, son, and daughter to medical faculty positions.

To measure the full magnitude of nepotism in Italian academia, Allesina

turned to a public database created by the Italian Ministry of Education. Included was first and last name information for over 61,000 tenured professors from 94 institutions, along with their department and sub-discipline.

Allesina used the pool of last names to run a simple analysis of name frequency. More than 27,000 different last names appeared at least once in the dataset, and Allesina sought to test whether certain names appeared more often than expected in a given field. So he programmed the computer to conduct one million random drawings from the pool of names to see how probable it was to obtain the number of last names that exist in the real-life data.

For example, of the 10,783 faculty members working in medicine, 7,471 distinct last names were found. But in one million random drawings from the full pool of names, Allesina's program never came up with fewer than 7,471 unique names, indicating an improbable frequency of last names indicative of nepotistic hiring.

"It's very basic, anybody with a laptop can do this analysis," Allesina said. "I wanted to keep it as coarse-grained and simple as possible. Because then it's more powerful – if this works, anything else will work. Even this very simplistic analysis can find that some disciplines are above and beyond what one could expect."

Allesina repeated the computation for 28 academic fields, finding the highest likelihood of nepotism in industrial engineering, law, medicine, geography, and pedagogy. Fields with the distribution of names closest to random – and thus with the lowest likelihood of nepotism – were linguistics, demography, and psychology.

In another analysis, Allesina looked at the geographic distribution of nepotism across Italy. In this model, he tested the probability of sharing

a last name with another faculty member in the same field of study, and mapped those probabilities from the north to south of the country. The model discovered a stark north-to-south gradient, with the probability of nepotism increasing as one looked south, peaking on the island of Sicily.

The distribution mirrors similar negative statistics such as infant mortality, organized crime, and suicide rate that are higher in southern Italy compared to northern regions.

"For an Italian, this is not that surprising," Allesina said. "It is a narrative of two separate countries, where in the public sector we have more problems in the south."

The research suggests that nepotism is a pervasive problem in Italian academia, a blemish that undercuts the quality of advanced education in the country and drives professionals abroad when they fail to find job opportunities at home.

"In Italy, there is an enormous brain drain," Allesina said. "I think these kind of hiring practices contribute a lot to this brain drain and the fact that Italian universities are not ranked very high internationally."

The Italian government passed a university reform law in late 2010 to establish new rules for academic hiring and the distribution of grant money despite opposition from professors and students. Allesina said that his analysis could easily be repeated in the future to test whether the reforms truly reduced [nepotism](#) in the system, and hopes it will also be applied to other fields and countries where unfair hiring practices are suspected.

"I think this problem with the university is really the tip of the iceberg, a place where it's really apparent what the problems of Italy are," Allesina said. "But I wanted to keep the methods easy enough so that a researcher

can do it not just for universities, but for other places in the public sector. The government has all these numbers and names, if they wanted to do it they could."

Provided by University of Chicago Medical Center

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