

Matched-Names Analysis Reveals No Evidence of Name-Meaning Effects: A Collaborative Commentary on Silberzahn and Uhlmann (2013)



Raphael Silberzahn¹, Uri Simonsohn², and Eric Luis Uhlmann³

¹Organisational Behaviour & Information Systems, Judge Business School, University of Cambridge;

²The Wharton School, University of Pennsylvania; and ³Management and Human Resources Department, HEC Paris School of Management

Received 4/1/14; Accepted 4/2/14

In an article recently published in this journal (Silberzahn & Uhlmann, 2013), two of the authors of the present commentary found that Germans whose last name has a noble meaning, henceforth referred to as a *noble surname*, such as *Kaiser* (“emperor”) or *König* (“king”), were more likely to hold managerial positions than Germans with other last names. However, further data collection and new analyses, reported in this collaborative commentary, indicate that the apparent name-meaning effect is more likely attributable to name frequency. That is, these findings suggest that the effects reported previously should not be interpreted as evidence of a causal effect of names on career outcomes.

Silberzahn and Uhlmann compared the share of Germans with noble surnames who are managers with the share of managers among Germans with the 100 most common surnames. This control group was selected to include surnames used throughout Germany, but this meant that noble surnames were compared with more frequent (i.e., common) names.

Name frequency could affect the estimated relationship between name meaning and career outcomes if name frequency were correlated with variables that were, in turn, correlated with career outcomes, such as socioeconomic status, urban/rural residency, and religion. More important, it turned out that an idiosyncratic feature of the social-networking Web site from which the data originated, www.xing.com, created a mechanical channel by which the relative share of managers with low-frequency last names was overestimated (see Supplement 1 in the Supplemental Material available online).

Silberzahn and Uhlmann sought to account for name frequency and other possible confounding variables

using generalized-estimating-equation regression (in the original submission) and hierarchical linear modeling (in the final published article). Both approaches, however, assume that the effect of name frequency on the probability of being a manager is linear. The skew in the distribution of frequency of German last names, and the nonlinear mechanism by which the database overestimates the share of individuals with low-frequency surnames who are managers, allowed the relationship between name meanings and career outcomes to survive linear controls.

Because of these issues, a matched-names analysis, in which each noble surname is compared with a set of similarly frequent names, is a better analytic approach than controlling for name frequency using regression or hierarchical linear modeling. For each noble surname, we identified a comparison set of 50 names that were similar in frequency (see Supplement 2 in the Supplemental Material). For example, *Baron*—one of the noble surnames—is ranked as the 1,016th most popular last name in Germany. *Faerber* and *Gerner*—ranked 1,015th and 1,017th, respectively—were 2 of the 50 control names used for *Baron*. When noble surnames were contrasted with the control names, the name-meaning effect was not observed.

For example, the data included 493 managers and 3,553 employees with the last name *Kaiser*, so 12.2% of

Corresponding Author:

Raphael Silberzahn, Organisational Behaviour & Information Systems, Judge Business School, University of Cambridge, Trumpington St., CB1 2AG Cambridge, United Kingdom
E-mail: rts27@cam.ac.uk

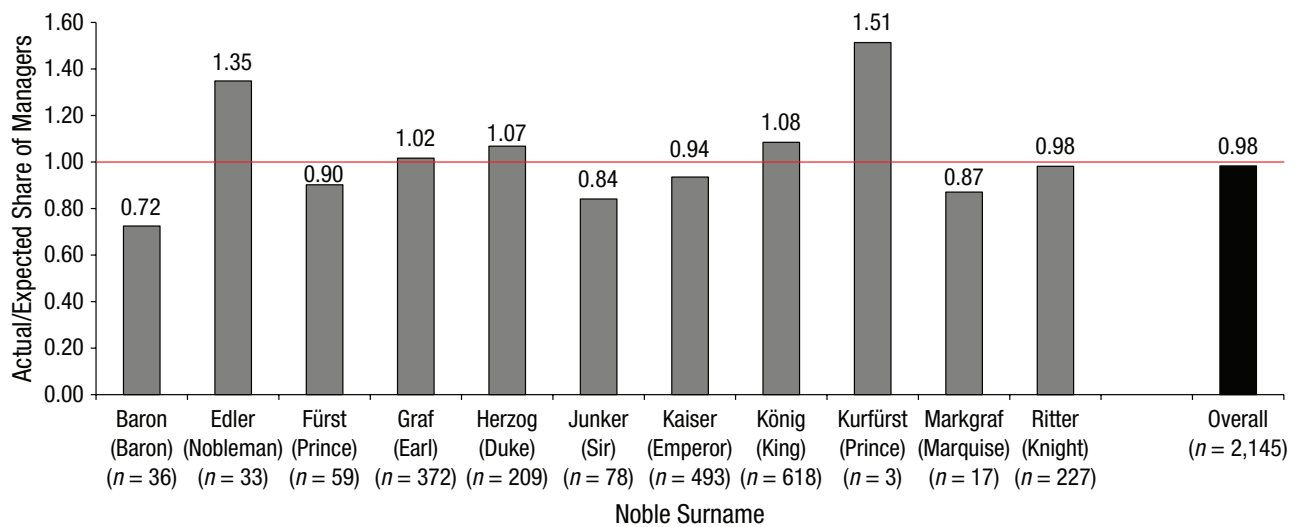


Fig. 1. Ratio of actual to expected share of managers with noble surnames. A ratio of 1 (horizontal line) indicates the absence of a name-meaning effect. The *n* below each bar indicates the number of managers with that name. The “Overall” bar shows the total number of managers and employees across all names.

Kaisers are managers. Among the 50 control names with the most similar overall frequency to *Kaiser*, there were 23,842 managers and 159,127 employees, so 13.0% of people with control names for *Kaiser* are managers. Dividing those percentages, we arrive at $12.2/13.0 = .94$. A name-meaning effect implies a ratio greater than 1. Figure 1 reports the results from analogous calculations for all noble surnames (see Supplement 3 in the Supplemental Material for further information). In aggregate, there was no name-meaning effect. People with noble surnames and people with matched control names are similarly likely to be managers.

The new data and the matched-names analysis reported here indicate that, at present, no significant relationship between the meaning of a person's name and his or her career outcomes can be confirmed. Potential name-meaning effects remain an interesting avenue for future research but currently lack empirical support. We hope this collaboration, in which disagreements gave rise to a joint data-driven effort, can be emulated by other researchers in the future.

Author Contributions

U. Simonsohn conducted the analyses and wrote the first draft of the manuscript. R. Silberzahn confirmed the analyses. R. Silberzahn, E. L. Uhlmann, and U. Simonsohn worked together to shape the final version of the manuscript. Author order is alphabetical.

Acknowledgments

This collaborative commentary is the result of a productive debate between the authors of the original article (R. Silberzahn and E. L. Uhlmann) and the second author (U. Simonsohn).

Declaration of Conflicting Interests

The authors declared that they had no conflicts of interest with respect to their authorship or the publication of this article.

Supplemental Material

Additional supporting information may be found at <http://pss.sagepub.com/content/by/supplemental-data>

Open Practices



All data have been made publicly available via Open Science Framework and can be accessed at <https://osf.io/stv79/>. The complete Open Practices Disclosure for this article can be found at <http://pss.sagepub.com/content/by/supplemental-data>. This article has received the badge for Open Data. More information about the Open Practices badges can be found at <https://osf.io/tvyxz/wiki/view/> and <http://pss.sagepub.com/content/25/1/3.full>.

Reference

Silberzahn, R., & Uhlmann, E. L. (2013). It pays to be Herr Kaiser: Germans with noble-sounding surnames more often work as managers than as employees. *Psychological Science*, *24*, 2437–2444. doi:10.1177/0956797613494851

*****SUPPLEMENTARY MATERIALS*****

**Matched Names Analysis Reveals No Evidence of Name Meaning
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Raphael Silberzahn
University of Cambridge

Uri Simonsohn
The Wharton School
University of Pennsylvania

Eric Luis Uhlmann
HEC Paris School of
Management

Outline

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Supplement 2. Selecting control names for matched-names analysis (pp.6-7)

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Supplement 1. Name-frequency and xing.com searches

Silberzahn and Uhlmann (2013) searched the German social networking site www.xing.com for members with a given last name, living in Germany, and identifying themselves as managers or employees (the English version of the site uses the word *executive* rather than manager). S&U restricted their data collection to German professionals for whom industry information was available to avoid including German government employees, for whom promotions are often based on seniority rather than personal characteristics. An additional reason was that in www.xing.com searches counts above $N=10,000$ are automatically rounded down to 10,000. For some control names, thus, accurate numbers would have not been available. Limiting data collection to German professionals for whom industry information was available allowed staying below the 10,000 limit and was intended to result in higher data quality. However, as detailed below, the S&U approach inadvertently overestimates the number of managers (relative to employees) with low frequency names.

The results page for xing.com queries include the first ten people with the requested last name and position. The information of interest is on the side of the page, indicating the aggregate membership information for the query (how many people in total have that last name). This additional information is what's actually used to generate the analyses. Figure S1 shows print-screens from the results for "Baron" as employee and executive.

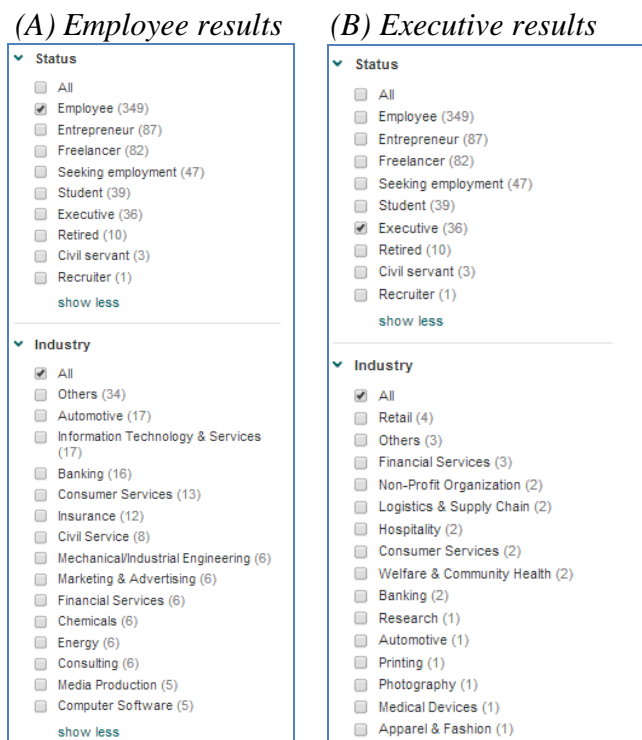


Figure S1. Print screen of search results for “Baron” in www.xing.com

Both panels show the same results under “Status,” those correspond to the actual total number of people last named *Baron* that report being employees, executives (i.e., managers), students, etc. at xing.com.

As noted above, S&U added up the numbers appearing under *Industry*. Those differ between (A) and (B) because they are the subsets of employees and executives respectively. So among *Baron* employees, 34 selected “Other” as their industry, 17 “Automotive,” etc. Xing.com only displays the 15 most frequent industries for the particular query so the sums will almost always be a subset of the total. For instance, if we add up the numbers of *Baron* employees with a specified industry, we get 163, less than half the actual total of 349.

Whereas all names were processed using the same procedure, this overestimated the number of managers among low-frequency names. Panel B in Figure S1 helps

illustrate this bias. Adding up all the *Baron* executives listing an industry we get to 28, more than half the actual number of 36. The sample contains 47% of employees but 78% of the managers; the procedure is biased towards a higher share of managers.

This problem is less severe for more common last names because for them both manager and employee estimates are similarly biased down, and hence the ratio of managers is less biased. Take *Becker*, the 7th most frequent last name in Germany. Figure S2 shows the print-screen results for that name. There are actually 8174 employees and 1220 managers with that name on the xing.com network. Using the subset that indicated a top-15 industry (e.g., for employees, 801+409+358..), we get only 3740 employees and 636 managers, still dramatic underestimates, but they are much more even: we observe 46% of *Becker* employees and 52% of *Becker* managers. For the low-frequency *Baron*, recall, these were 47% and 78%.

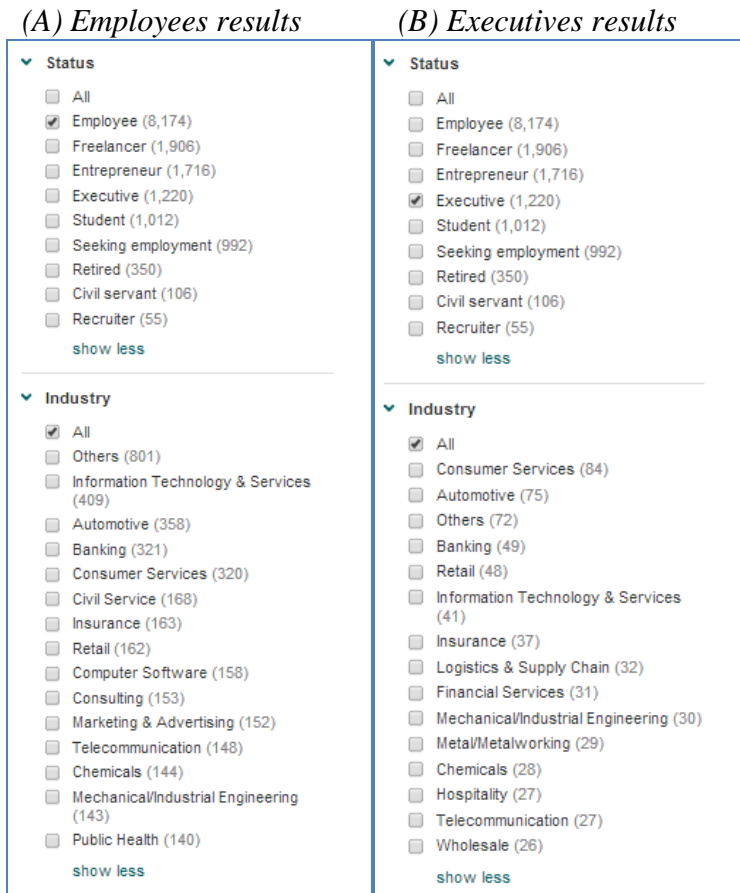


Figure S2. Print screen of search results for “Becker” in www.xing.com

Those two examples are not outliers. The median name in the top-100 most frequent names used by S&U as controls, estimates 46% as many employees as there really are and 53.5% as many managers as there really are. The median noble name, also estimates only 47% as many employees as there really are, but estimates 61% as many managers as there really are. The bias is nearly twice as pronounced for low frequency names.

Supplement 2. Selecting control names for matched names analysis

From the website <http://nachname.gofeminin.de/w/nachnamen/haeufigste-nachnamen-in-deutschland.html> we obtained the frequency of nearly 30,000 German last names. For each of the 11 noble last names we identified 50 similarly frequent last names.

The procedure consisted of selecting the 25 names ranked just above and just below each noble name as controls. For example, the noble name Herzog (“prince”) is ranked 176th most frequent. As controls for Herzog, therefore, we used last names ranked 151-175 and 177-201. Practical considerations led to a few deviations from this general approach, see details below. These decisions were all made before collecting the data, and were not revised after conducting the analyses.

First names. S&U eliminated first names so we did the same here. Given the large number of names we proceeded in a two-step automatized process. First, when creating the set of 50 controls for each noble name, if a last name jumped out as evidently also a first name we replaced it with a contiguous name. For example, *Karl* is ranked near *Herzog* in frequency but it is a first name so we did not include it and moved to the next most similarly frequent name.

We obtained a list of the most frequent ~1000 German first names and automatically dropped all control last name that appeared in that list. After this second step, each noble name has 48 control names on average. The posted spreadsheet has the entire list and the results at the individual name level (if after 4 attempts the scraper did not obtain the data for a control name, the control name was dropped, so some noble names have closer to 40 control names).

Non-ranked noble names. One of the noble names, *Kurfurst*, does not appear on the list of the nearly 30,000 most frequent last names. As controls for this name we chose 50 random names from the least frequent last names in the list.

Low-ranked noble names. Some of the noble names, e.g., *Edler*, are sufficiently infrequent that there were more than 50 other last names with the exact same number of individuals in Germany. We selected 50 last names at random among similarly frequent last names.

Koenig and Kaiser. These two noble names are very similarly ranked: 45th and 39th. Moreover, 2 of the 6 names between them are first names (Peter & Frank), so we used the same set of control names for both noble names.

Supplement 3. Explanations for posted Excel sheet with all data

The Excel spreadsheet contains four sheets, brief explanations for them are below.

(1) Fig 1

The calculations in these sheets and hence Figure 1 use the total numbers of employees and managers reported by xing.com.

Explanation of cells:

- Cells E6:H17 contain the total frequencies of employees and managers for the control names for each noble name. They are copy-pasted from the STATA output reprinted in cells T21:Z42. These STATA analyses, in turn, use the raw data from the sheet (3) *Fig1 Data*, see below.
- Cells J7:M17 contain the frequencies of employees and managers for the noble names. They are copy pasted from the third sheet (F1 data) as well.
- Cells P7:Q17 compute the % of managers for noble names and their controls
- Cells S7:S17 divides the two ratios and generates the values plotted in Figure 1.

(2) Fig 1 Data

- Column A has the last name of the person, column B is relevant for the control names, as it indicates which name the control is for. For example, row 19 shows that *Anderson* is a control for *Baron*.
- Columns C and D have the frequencies of employees and managers with each name. Again, these are the actual totals, not the ones obtained by industry.

(3) Name Frequency

Columns A-C were scraped from the website indicated in Row 1.

A: last name

B: ranking of the last name in terms of frequency (all ties given the same rank, next last name adds 1, so if there are three last names tied in third place, the next last name gets the 4th rank).

C: # of people with that last name in the database

Columns L-N are used to compute the median rank of noble names.

(4) Xing Bias

Used to compute the degree of bias discussed in Supplement 1

Columns B&C have the frequencies adding up the industry subtotals.

Columns F&G have the total actual frequencies.

Columns I&J indicate the % share covered by the industry total from the actual total

Some rows are missing. Those correspond for last names with more than 10,000 entries in xing.com. As noted earlier, the website does not give numbers above such a threshold (reporting instead “>10,000” and hence the calculations of interested cannot be performed.

Note that for Markgraf the total from the industries is HIGHER than the actual total, this is likely caused by people indicating more than one industry and being hence double-counted.