**Supplementary Materials**

**Correlating World University Ranks with Impact Ranks**

To assess if there are any associations between university prestige and contribution to sustainable development, I collected data on university ranks from [www.timeshighereducation.com](http://www.timeshighereducation.com) for the years 2019-2021 (the years when data was available for both World University Ranks and Impact Ranks). Times Higher Education yearly collects data across more than 1600 academic institutions to rank them, based on indicators of teaching, research, citations, international outlook, and industry income. The bulk of the score (90%) comes from teaching, research, and citation, and over half of the teaching and research scores are based on reputation surveys. Through phenomena such as the Matthew effect, the chaperone effect, and editors using name-prestige as a variable in determining what to publish (discussed in text), citations themselves are highly reflective of reputation ([Larivière and Gingras, 2010](#_ENREF_1);[Vazire, 2017](#_ENREF_3);[Sekara et al., 2018](#_ENREF_2)). Thus, the World University Ranks as a measure of university excellence is largely a measure of perceived prestige and reputation. I also collected data from Times Higher Education for their Impact Rankings, which are supposed to measure global universities’ ability to contribute to the UN SDGs. These ranks are scored based on indicators across four broad areas: research, stewardship (treatment of physical and social resources), outreach, and teaching. It is important to note that the teaching category isn’t used in all 17 SDG ranks, and that there is overlap with themes between the World University Ranks and the Impact Ranks (mostly in how “research” is measured – counting numbers of papers in “top” journals – and it’s prominence in both rankings). The similarity between the scoring of both sets of rankings should lead to positive correlations between these rank scores. However, the Impact Rankings also reflect university contributions to objective, real world outcomes, such as reporting the amount of recycled waste (for SDG 12 – Responsible Consumption and Production) and having interventions to prevent hunger in students (for SDG 2 – Zero Hunger). These real world impacts differ from the World University Rankings and may lead to differences (and lack of correlation) with the World University Ranks. The educational components of these rankings often relate to outreach, such as educational programs on aquatic ecosystems for local and other communities (for SDG 14 – Life Below Water). The Impact Rankings also have an “overall ranking” combining scores across all 17 SDG areas.

With the data collected, I conducted Spearman correlation tests on the rankings (a correlation test for rank data). I relied on an alpha value of 0.05 to determine if correlations were significant. For both the World University Ranks and the Impact Ranks, Times Higher Education has groupings of universities above a certain rank. For example, above World University Rank 200, universities are ranked as being part of the 201-250 cluster (or higher) and not given a specific rank. In order to include only precise data and not introduce noise from rank clusters, I only included universities that had specific ranks for both the World University Ranks and the Impact Rankings among the top 200 ranked universities according to the World University Ranks (since beyond this universities do not have specific rankings). Not all universities provided data for both World University Ranks and Impact Rankings. For example, many American “ivy league schools” and prestigious UK schools, such as Harvard, Oxford, Stanford, and Cambridge did not provide data for Impact Rankings, despite usually topping the World University Rankings.

If correlations were found to be significant, I further explored the association to determine if the correlation was spurious. I determined if any data points had disproportionate leverage (acting as outliers in the correlation) through calculating cook’s distance and re-testing the correlation without the datapoint(s) in question. I also calculated the correlation across years to determine if the correlation was stable across time.

Correlations for 2021 are presented in Figure 1 (in main text) because they are most recent and contain the largest sample. Below are correlations for 2020 (Figure S1) and 2019 (Figure S2). Similar to the findings for 2021, correlations were overall not significant in 2020 and 2019. In 2020 there were two significant associations found between World University Rankings and specific Impact Ranks. These correlations were found for SDG 9: Industry, Innovation and Infrastructure, and for SDG 11: Sustainable Cities and Communities. However, the association between World University Ranks and SDG 11 is no longer significant after removing the datapoint with greatest leverage (r = 0.42, p=0.34), indicating that the initial finding of a significant positive correlation was likely spurious. However, the 2020 correlation between World University Ranks and SDG 9 remain after removing datapoints with high leverage (r = 0.87, p=0.004). Regardless, there are other reasons to think this association is spurious. First, in both 2019 and 2021, no significant correlation was found between World University Rank and SDG 9, and both of these years had greater sample size (and therefore more degrees of freedom) than 2020. This lack of consistency between years indicates that this correlation is not stable and the finding in 2020 is likely spurious. Second, the number of datapoints actually decreased from 2019 to 2020, even though more universities provided data for the Impact Rankings. The reason fewer datapoints are shown here is because, while the top universities – according to the World University Rankings – is somewhat stable year to year (the same universities tend to occupy the top ranks year after year), the Impact Rankings are less so. In 2020 fewer universities within the top 200 World University Ranks had precise Impact rankings compared with 2019. That is, compared to 2019, more top-200 universities were ranked in worse-ranked clusters (so did not have precise ranks) and these imprecise ranks were not included in this analysis. The combination of relatively stable World University Rankings across years with relatively unstable Impact Rankings across years further suggests that there are no meaningful associations between the World University Ranks and the Impact Ranks.



Figure S1. The relationships between world university ranks and world impact ranks (contributions to the Sustainable Development Goals) in 2020. Significant correlations have bolded statistics inset in the figures.



Figure S2. The relationships between world university ranks and world impact ranks (contributions to the Sustainable Development Goals) in 2019. Times Higher Education did not collect data on SDGs 1, 2, 5, 6, 7, 14, and 15 in 2019 so no associations could be assessed.

**Literature Cited**

Larivière, V., and Gingras, Y. (2010). The impact factor's Matthew Effect: A natural experiment in bibliometrics. *Journal of the American Society for Information Science and Technology* 61**,** 424-427.

Sekara, V., Deville, P., Ahnert, S.E., Barabási, A.-L., Sinatra, R., and Lehmann, S. (2018). The chaperone effect in scientific publishing. *Proceedings of the National Academy of Sciences* 115**,** 12603-12607.

Vazire, S. (2017). Our obsession with eminence warps research. *Nature News* 547**,** 7.