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ARTICLE

The hierarchy in economics and its implications

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Abstract

This paper argues for two propositions. (I) Large asymmetries of power, status and influence exist between economists. These asymmetries constitute a hierarchy that is steeper than it could be and steeper than hierarchies in other disciplines. (II) This situation has potentially significant epistemic consequences. I collect data on the social organization of economics to show (I). I then argue that the hierarchy in economics heightens conservative selection biases, restricts criticism between economists and disincentivizes the development of novel research. These factors together constrain economics' capacity to develop new beliefs and reduce the likelihood that its outputs will be true.

Keywords: Hierarchy; economics; social organization of science; social epistemology

Introduction

Is the way that economics is organized conducive to the production of economic knowledge?

James Heckman and Sidharth Moktan (2020) recently highlighted the dominance of economics' 'Top 5' journals. Others have noted the outsize representation of economists from top-ranked departments among the authors and editors of those journals (Fourcade *et al.* 2015; Colussi 2018). I collect these issues together with others to highlight the many asymmetries of power, status and influence that exist between economists. In addition to (i) the dominance of the Top 5 and the concentration of (ii) authors and (iii) editors from a few universities in those journals, the top-ranked departments also train most of the discipline's (iv) governors and (v) awardees, (vi) individual star economists dominate networks of coauthorship and (vii) the discipline exhibits a strong prestige factor in hiring. Together these asymmetries constitute the hierarchy in economics.

I give reasons to believe that the hierarchy in economics is both steeper – the asymmetries are greater – than it could be and steeper than hierarchies in other

fields. I then highlight four reasons to worry about this increased degree of hierarchy in economics. Through (a) reinforcing conservative selection biases and (b) disincentivizing innovation, the steeper hierarchy in economics constrains the development of new beliefs from the discipline. By (c) restricting the exploration of alternatives, the steeper hierarchy reduces the justification we have for believing the outputs of economics. By (d) discouraging criticism, the steeper hierarchy makes it less likely that errors and faulty reasoning will be spotted. This reduces the likelihood that the outputs of economics will be true and so further reduces the justification we have for believing them. My descriptions of (a–d) will be qualitative. I will describe how the present organization of economics leads to (a–d) and describe the negative impact (a-d) have on the production of economic knowledge. I will not measure the effect size of (a–d) or weigh them off against trade-offs. My argument will, consequently, not constitute an all-things-considered judgement on the health of economics. The point is rather to describe the asymmetries that exist between economists (i–vii) and to spell out the mechanism by which these *social* features of economics impact the *epistemic* virtues of its outputs (a–d).

This way of proceeding achieves two things. First, by triangulating data from a range of sources, my overview of the asymmetries that exist between economists provides a wide-angle view on the issue of hierarchy in the discipline. Large disparities of power, status or influence due to social positioning are a general feature of economics that are manifested in many different factors, and not just an artefact of the Top 5. Those considering how the organization of economics can be improved should, consequently, cast their eyes beyond narrowly focusing on the dominance of the discipline's top journals, and consider the many ways in which asymmetries of power, status and influence are manifested together.

Second, although many social scientists have studied the social features of economic research, they have not discussed the normative implications of their findings in much detail. At the same time, philosophers of economics – the subfield that tends to discuss the practices in economics from a normative perspective – have been surprisingly mute on the social organization of the discipline. Philosophers have developed detailed arguments on particular methods, assumptions and measures used by economists (Mireles-Flores 2018). This is good work. But the absence of debate on the discipline-wide social determinants of economic knowledge is a mistake (Alexandrova *et al.* 2021). Sociologists, historians and economists have mapped out social features of economics that impact issues philosophers can and should comment on – political representation, justification, bias and reliability, to name just a few. This paper rectifies that omission by offering a starting point for discussing what, if anything, is problematic about the hierarchy in economics.

The paper proceeds as follows. In section 1, I describe the asymmetries of power, status and influence between economists (i–vii). In section 2, I offer four reasons to worry about the impact these asymmetries have on the production of economic knowledge (a–d). In section 3, I conclude by noting that although (i–vii) and (a–d) provide reasons to worry about the present state of hierarchy in economics, they do not provide an all-things-considered judgement on the health of the discipline. I also discuss how (i–vii) may be changed to mitigate (a–d).

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1. Economics is hierarchical

An organizational *hierarchy* is typically defined as a partial ordering of individuals, along one or more socially important dimensions, which effects the distribution of power, status and/or influence among those individuals (Magee and Galinsky 2008; Anderson and Brown 2010). The *steepness* of a hierarchy is normally defined as the degree of asymmetry between the individuals at its different rungs. The main claim I want to make in this paper is that the present steepness of economics' hierarchy enables a collection of epistemically problematic incentives and social dynamics. To make this argument, I first describe the ways in which the distribution of power, status and/or influence among economists is highly asymmetrical.

1.1. The Top 5

Publications (or lack thereof) in top journals play a central role in career success in most academic disciplines. In economics this is more acute, with five journals particularly dominant – they are the *American Economic Review* (*AER*), *Quarterly Journal of Economics* (*QJE*), *Econometrica* (*ECMA*), *Journal of Political Economy* (*JPE*) and *Review of Economic Studies* (*ReStud*).[1] Many economics departments in the USA set targets for junior academics to publish in the 'Top 5', with tenure often resting on little else.[2,3] Heckman and Moktan (2020) show that at the top 15 *US News World report* ranked economics departments, success in tenure decisions is strongly linked to Top 5 publications, with non-Top 5 papers playing a much less significant role.[4] Non-Top 5 journals are valued more highly outside the best ranked departments. But even then, Top 5 articles have much more impact. Controlling for total publications, gender, number of co-authors, ranking of graduate school and citations, Heckman and Moktan find that "it is more valuable to have a mediocre publication portfolio with T5 [Top 5] publications than an outstanding portfolio without any T5s" (2020: 429).

The importance of the Top 5 does not end at tenure. Top 5 papers are also instrumental in securing pay rises, research grants, requests for professional

[1]There is some dispute as to whether *ReStud* should count as one of the Top 5, or whether 5 should become 4. For now, at least, it is normally 5.

[2]My focus is on economics in the USA, and much of the data I will present reflects that focus. I will add some comments on how the situation concurs or differs in non-US departments, but my main goals are to sketch the hierarchy in US economics and describe its potential implications. This should not undermine the significance of what I say for two reasons. First, some of the data I will present (on concentrations in publishing, among award winners and in networks of co-authorship) applies globally. Second, US economics departments and institutions, and consequently their norms, tend to dominate economic research and thinking internationally (Markoff and Montecinos 1993; Fourcade-Gourinchas and Babb 2002; Coats 2005; Fourcade 2006; Backhouse and Fontaine 2010).

[3]Although tenure does not exist in the same form outside of the USA, targets for publications in the Top 5 also play a role in career success elsewhere. In top departments in the UK (Cambridge and LSE, for example), targets for Top 5 publications play a key role in early career reviews, which play a similar role to tenure decisions. Elsewhere in Europe, the Top 5 play an increasing role in the assessment of early career economists.

[4]Those that receive tenure publish a similar number of non-Top 5 papers as those that do not, but publish an average of between 2.7 (for the top five departments) and 1.6 (for departments ranked 6–15) more Top 5 papers.

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advice and speaking invitations. One would be hard pressed to find an economist who is not aware of the significance of the Top 5. This is highlighted in survey data. When asked to rank the influence of different factors in tenure and promotion decisions, economists choose Top 5 publications as the most important factor for success in all key career milestones – above letters or recommendation, non-Top 5 publications, citations, teaching evaluations, grants, book chapters and books (Heckman and Moktan 2020).

1.2. Authors and editors

Given the significance of the Top 5, it is striking that the authors in these journals are concentrated at a small number of universities. Colussi (2018) finds that, between 2000 and 2006, 25% of the authors in the top four economics journals – the Top 5 minus *ReStud* – were employed at just six universities (Harvard, Chicago, MIT, Stanford, Berkeley and Princeton), while 47% got their PhDs from the same universities. Baghestanian and Popov (2017) report a similar result and note that *alma mater* rankings are statistically significant predictors of the likelihood of publishing in the Top 5.

The cases of individual journals and universities are particularly striking. Wu (2007) shows that, between 2000 and 2003, 14% of the pages of the *JPE* were authored by economists from the University of Chicago (where the journal is based) and that 15% and 13% of the pages of *QJE* were authored by economists from MIT and Harvard, respectively (both in Cambridge, MA, where the journal is based). The eight departments that provide the most authors to these journals account for 40% of the pages of *JPE* and 58% of the pages of *QJE*. Even more striking, Colussi (2018) finds that those with PhDs from Harvard and MIT accounted for just under 50% of the authors in *QJE* in a similar period (2000–06). Updating these findings, Heckman and Moktan (2020) find that, between 2000 and 2016, 11.9% of the papers in the *AER* and 24.7% of the papers in *QJE* had at least one author affiliated with Harvard. They also found 14.3% of *JPE* papers had authors affiliated with Chicago.

Colussi (2018) suggests that this concentration of authorship is caused by connections to editors. The same six universities (Harvard, Chicago, MIT, Stanford, Berkeley and Princeton) provided 56% of the editors of the top four journals between 2000 and 2006. Moreover, PhDs from those universities accounted for 64% of the editors of the top four journals in the same period. The roles of MIT and Harvard PhDs are particularly striking, given that they provide 31% and 13% of the editors of these journals, respectively. That means that 44% of the editors of the top four journals got their PhDs from just two institutions based in the same town and thought to have similar philosophies. Even if Colussi's claim that this concentration of editors plays a causal role in the concentration of authors is incorrect, a picture emerges in which those that publish in and edit the most significant economics journals mainly come from the top departments. Even if there were no unfair advantages gained, that is even if all articles submitted were judged according to the same standards, those connected to just a few US departments seem to be afforded larger voices in

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economics' premier journals. Fourcade *et al.* (2015) note that, although top sociology departments provide the most authors to the top sociology journals, the degree of centralization in economics is greater.[5]

1.3. Governance

The influence of the few universities mentioned already is also evident in the governance of economics. Hoover and Svorenčík (2020) show that economists with their highest degrees from and/or employed at Harvard, MIT, Chicago, Columbia, Stanford and Princeton have dominated the 'electoral pool'[6] of the American Economic Association (AEA) since its inception. Moreover, they dominate more now than they did in the middle of the 20th century. Economists educated at Harvard, MIT, Chicago and Stanford, for example, accounted for just over 58% of the electoral pool between 1985 and 2019. Between 1950 and 1984 the four universities that provided the most candidates accounted for just over 50%.

Given that it is those that make it on to the Executive Committee that are the most influential, it is worth noting that between 1985 and 2019 just over 54% of the Executive Committee were employed at six universities, with just over 75% educated at the same six (Hoover and Svorenčík 2020: 85).[7] Fourcade *et al.* (2015) compare similar findings to the professional associations of other social sciences. Between 2010–14 they find that 72% of the AEA's Executive Committee came from the top five economics departments. This compares with 12% for the American Political Science Association (APSA) and 20% for the America Sociological Association (ASA).[8]

This centralization of governance is not without consequence. The AEA controls several of the most important economics journals, including the *AER, Journal of Economic Literature* (*JEL*) and *Journal of Economic Perspectives* (*JEP*). The *AER* is particularly notable because it accounts for a large chunk of the Top 5 papers published – between 35% and 41% for each year between 2011 and 2017 (Card and DellaVigna 2018). The association also plays a significant role in the job

[5]Between 2003 and 2012, employees at the top five economics departments accounted for 28.7% of all authors in JPE and 37.5% in QJE, compared with 22.3% in the *American Journal of Sociology*. Moreover, PhDs from the top five economics departments account for 45.4% and 57.6% of authors in JPE and QJE respectively, compared with 35.4% for the *American Journal of Sociology*. Fourcade *et al.* also note that the home advantage JPE and QJE seems to give economists in Chicago and Cambridge (MA) respectively is "virtually nonexistent in the main sociology journal edited out of a university department, the American Journal of Sociology" (2015: 99–100).

[6]Those nominated for election to the AEA's Executive Committee along with those on the committee that nominate them. Although theoretically possible, no candidate has been nominated by petition from the membership.

[7]These numbers are actually likely slightly higher, given that Columbia is included in the 'top 6' as defined by Hoover and Svorenčík on account of its performance in the period 1950–84, but Berkeley provided more members of the executive committee in the more recent period (1985–2019).

[8]This uses *US News* rankings from 2013. The US news rankings included six economics departments in the top five that year: Harvard, MIT, Chicago and Princeton tied for first, with Stanford and Berkeley joint fifth. Although Fourcade *et al.* do not note this anomaly, the numbers would not change much if we used six departments for political science and sociology.

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market, runs the annual meeting of the Allied Social Science Associations (ASSA) and hands out the prestigious John Bates Clark Medal.[9] After election, the AEA's President-Elect also appoints the Nomination Committee for the following year's executive committee elections. These factors together give the AEA leadership a large say in the individuals, themes and research that get attention within economics (Fourcade *et al.* 2015).

1.4. Individuals and awards

Famous individuals play a big role in economics. Goyal *et al.* (2006) highlight this by showing that the network of co-authorship in the discipline is highly unequal and dominated by 'interlinked stars'. The 100 most connected economists average 25 co-authors across a five-year period, whereas the average economist has 1.67 co-authors (a difference of 10 times the standard deviation). Well-connected stars score low on 'clustering', meaning that their collaborators tend to not collaborate with one another. They also score highly on 'inbetweenness', meaning that they frequently provide the shortest links between others in the network. These factors have two likely effects. Firstly, the role star economists play in connecting others gives them outsize influence on the research questions, frameworks and methodologies in the discipline. Secondly, the output of stars likely benefits from their networks and reinforces their influence.[10]

One way that individuals gain outsize influence in economics is via prizes. Offer and Söderberg (2016) show that those that are awarded Nobel prizes in economics are typically afforded greater voice and authority in the discipline, and that laureates receive significant citation boosts. Cherrier and Svorenčík (2020) note that defining figureheads who "could speak with authority on behalf of economists"[11] was an important part of the reasoning for the creation of the John Bates Clark Medal.

Given the extra voice afforded to winners, it is instructive to note that those that receive the top prizes typically come from a small collection of universities. Of the 40 John Bates Clark Medallists (up to 2018), one quarter got their undergraduate degrees from Harvard, half got their doctorates from Harvard or MIT (10 each) and almost 90% were employed at one of six universities at the time of their awards (Harvard (9), MIT (9), Chicago (7), Princeton (4), Stanford (3), Berkeley (3)) (Cherrier and Svorenčík 2020).[12] Nobel prize winners have more varied *alma maters* – with 29 institutions training the 86 laureates (up to 2020). This is

[9]The AEA's Executive Committee appoints the Committee on Honors and Awards that determines the nominees for the John Bates Clark Medal. The winners are then voted on by the Awards and Executive committees together.

[10]Given increases in the length of papers and in the time peer review takes (Ellison 2002), it is fair to assume that collaborations entail a significant amount of communication. Ductor *et al.* (2013) argue that this increases the research output of interlinked stars by keeping them close to the spread of important (or at least fashionable) ideas. This concurs with the fact that co-authorship connections and inbetweenness are positively correlated with research output (while clustering is negatively correlated with output).

[11]Memo by AEA President John S. Davis, 19 April 1944, quoted in Cherrier and Svorenčík (2020: 156).

[12]Cherrier and Svorenčík report until 2018. Adding the winners from 2019–22 increases these numbers for PhD institution (two from Harvard, two from MIT) and does not significantly alter the numbers for employed instituion (three out of four from the six universities listed).

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in part because the winners of the early prizes were trained before the discipline was as dominated by US departments as it is now (even then Harvard, MIT and Chicago account for 34 of the 86). Given this and given that Nobels are typically awarded late career, it is instructive to look at the doctoral institutions of recent laureates to get an idea of the present concentration of power in economics. Focussing on 20 years of awards from 2001, just under half of the 40 laureates got their doctorates from Harvard (10) or MIT (9). By comparison, in the same period 54 Nobels in physics were awarded, with the two universities that trained the most winners accounting for just nine of them (Harvard (5) and Berkeley or Nagoya (both 4)).[13] The Gini coefficient for the spread of where economics laureates were trained between 2001 and 2020 is 0.50, for physics it is 0.30.[14]

The domination of a small section of individual economists is not isolated to the academy. It also plays a role in who is heard in policy. Economists from the big universities dominate political appointments and policy forums. Rubinstein (2016), for example, draws attention to the recently created Booth Initiative on Global Markets (IGM) – a panel that is occasionally asked for an opinion on specific policy matters. The IGM declares that it includes distinguished scholars familiar to economists and the media. As Rubinstein notes "[A]ll fifty-one experts (yes, all of them) come from six universities (and you guessed them correctly: Harvard, MIT, Stanford, Yale, Princeton, and Chicago)" (2016: 166).

1.5. The job market

Hierarchy also plays a significant role in hiring within economics. Han (2003) shows that a 'prestige principle' – where departments hire from those similarly ranked or above – exists in many disciplines, but notes that economics is unique in two ways. First, the main 'faction' is more dominant in economics. There is one ordering, whereas other disciplines contain parallel orderings that may interpret prestige differently. Second, the prestige principle is stronger in economics.[15] Top economics departments are more likely to hire students from other top departments than are top departments in sociology, political science, history, psychology, English and mathematics.

For those that do not train at the top departments, the prestige factor in hiring is compounded by Oyer's (2006) claim that the ranking of an economist's first job has a causal effect on career success. He finds that candidates that initially place into

[13]Data on Nobel prize awardees was collected from https://www.nobelprize.org/, accessed 11 January 2021. I focus on where laureates were trained because by the time of their awards many laureates were no longer affiliated at the universities at which they did their award-winning work or spent much of their careers. Adding in awards from 2021 and 2022 lowers the percentage of awards to Harvard and MIT by a small amount but does not change the contrast to physics (the percentage of physics awards to Harvard, Berkeley and Nagoya alumni also goes down if you include 2021 and 2022).

[14]Note that the Gini coefficients only indicate the spread of awards among institutions that train laureates. If the many institutions that have not trained nobel laureates are added both numbers rise towards 1. Despite this, the coefficients do highlight that even among the most prestigious universities, those that train future Nobel laureates (33 universities trained physics laureates since 2001 and 15 trained economics laureates), economics prize winners are more likely to come from the very top than those in physics.

[15]This is also shown by Wu (2005).

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tenure track jobs are 55% more likely to secure tenure in a later year. And candidates that initially place into a top 50 department are 60% more likely to be at a top 50 department in a later year.[16]

Oyer suggests that this first job effect is in part caused by initial placements impacting productivity. He estimates that being placed in a school ranked 13th rather than 16th equates to one extra paper in 10 years for an economist who would normally publish 10–15 papers in 10 years. He also estimates that being placed at a top 50 school increases the probability of publishing in the Top 5 by 50%. But he notes that this explanation is not fully satisfactory. Indeed, Kim *et al.* (2009) have contested the idea that elite universities provide productivity gains. (They argue that most of the productivity gains that elite universities historically provided have dissipated due to changes in communication technology.) It is plausible that placing into a stronger department causes candidates to settle on more successful work patterns and gives them access to more fruitful ideas and collaborations. But it is also plausible that later search committees do not consider the possibility that a candidate's first placement may be in part due to how strong the job market was when they graduated, and instead see the higher prestige of their initial placement as a sign of underlying quality. An alternative explanation might be that other factors that make one attractive to search committees are increased by getting a higher ranked first job. A candidate that places into a higher ranked job is, for example, more likely to have ties to a Top 5 editor or someone involved in the governance of the AEA.

2. Reasons to worry

(i) Career advancement in economics is dominated by five journals. Economists connected to a small set of universities are much more likely to (ii) publish in or (iii) edit those journals. (iv) Economics' premier governing body, the AEA, is dominated by those trained at the same universities. (v) Awards that single out individuals to speak for the discipline tend to go to those trained at the same small group of universities.[17] (vi) A few star economists benefit from being central in networks of co-authorship. (vii) Economics exhibits a strong prestige factor in hiring, based on a single hierarchy, and the success of an economist's career is affected by the rank of the institution that first hires them. Collectively these factors paint a picture in which some economists, some institutions and

[16]To support the claim that the effect is *causal*, Oyer regresses the ranking of later jobs with 'job market health' when economists finish their PhD (using *Job Openings for Economists* (JOE) listings as a measure of job market health). Using this technique, Oyer claims to screen out differences between candidates and focus solely on the effects of their initial placement ranking.

[17]Harvard, Chicago, MIT, Stanford and Princeton are highly represented in all of the data presented above. The sixth most represented university has shifted over time from Columbia to Berkeley. So, where Columbia is part of the top six universities that Hoover and Svorenčík (2020) focus on for AEA governors, Berkeley places higher in the more recent data on editors, authors and awards. (For reasons I cannot discern, Rubinstein drops both of these departments in favour of Yale when listing his top six.) Given that five of the six have been consistent and the shift from Columbia to Berkeley is discernible (Hoover and Svorenčík 2020), this should not distract from the point that a small group of universities dominate.

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some journals are afforded more significance than others. Those at higher rungs of economics' hierarchy are more likely to engage in productive networks, more likely to be afforded larger platforms, more likely to win awards, more likely publish in and edit the big journals and more likely to have their influence felt in the running of the AEA. When combined with the prestige factor in hiring and the fact that an economist's first job has an impact on their later career progression, a pattern emerges in which those that get PhDs from the top universities – and likely degrees from the top universities, and come from privileged backgrounds before that (Chetty *et al.* 2017) – find it easier to secure influential roles, have their voices heard and reshape the discipline.[18]

What should we conclude from this? What, if anything, is wrong with the hierarchy in economics? Many of those cited above present their data with the clear implication that the issue they describe is a problem, but without a detailed discussion of what the problem is (see, for example, Fourcade *et al.* 2015). That is the gap I intend to fill. But before doing so, it is helpful to be clear on exactly what the phenomenon we are evaluating is.

Any partially ordered set can be a hierarchy. Given that no academic disciplines have perfectly equal distributions of power, status and influence, all are hierarchical to some degree. It should not be surprising that economics is also. I suggest that the data outlined above is interesting not because it shows that there is a hierarchy in economics, but because it shows that said hierarchy is notably steep. I mean two things by this. First, the hierarchy in economics seems to be steeper than in other disciplines. Where comparative data are available, it shows there are greater asymmetries between economists than between academics in other disciplines (this is the case for the asymmetries in publishing, governance, awards and the job market). Secondly, economics is more hierarchical than it could plausibly be. The discipline could be much less hierarchical without being perfectly equal. Tenure committees could do more to look beyond the Top 5, without completely jettisoning the idea that some journals are better than others. A wider distribution of talent could be represented in editorial roles and the AEA's governing body, without assuming that all universities are equal. And economists could partly relinquish faith in rankings and diminish the significance of their role in the job market.[19] In what follows, I will assess the potential effects of this increased degree of hierarchy – that is, I will describe a collection of incentives and social dynamics that are encouraged by steepening academic hierarchies and how they play out in economics. I will do this from the perspective of an uncontroversial goal: developing economic knowledge.

[18]In addition to hierarchy, there is lots of data available on how women and those from minority backgrounds are underrepresented in economics. These are important topics that deserve attention. Due to issues of space, I have chosen to focus on sketching the asymmetrical structure of power, status and influence within economics and leave the characteristics of those who occupy different rungs of the hierarchy to future work.

[19]The idea of comparing economics to where it could be is admittedly a little vague. But it suffices for my purposes. I want to discuss the epistemic implications of economics' present degree of hierarchy, rather than the implications of it not being fully egalitarian. The relevant phenomena are those that would disappear (or be mitigated) if the degree of hierarchy in economics were decreased (by making changes to (i–vii)) or if economics had a degree of hierarchy closer to that of other disciplines.

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2.1. New beliefs

Hierarchy restricts the production of new beliefs from economics, and in doing so, restricts the creation of new economic knowledge. There are two mechanisms by which this happens: *reinforcing conservative bias* and *disincentivizing innovation.*

2.1.1. Reinforcing conservative bias

Lamont (2009) notes that at many levels – evaluation of student work, admission to post graduate studies, hiring, acceptance of papers, awards of grants, invitations, etc. – academics favour work similar to their own.[20] This could be framed in terms of maximizing their own chances of success – it makes sense for academics to favour work that conforms to positions they have previously defended (Holst and Christensen 2018) – but it might also have other causes. Social psychologists, sociologists and economists have all noted that it is common for people to favour those that are like themselves.[21]

It is, thus, plausible to assume that selectors in economics – those who sit on tenure committees, those who determine conference programmes, those that edit journals, etc. – exhibit at least weak biases in favour of research similar to their own.[22] Unchecked, such biases can skew journals, departments, conferences and whole disciplines in a conservative direction with papers, job (and tenure) applicants, conference programmes and award and committee candidates with research profiles similar to selectors given an increased likelihood of prevailing. This can make it less likely that new ideas, theories and models without cheerleaders among existing selectors will emerge.[23]

This need not happen. Selection biases can be mitigated by the existence of reliable and unambiguous criteria for selection – a clear criteria for selection leaves less room for selector discretion, meaning that their biases are less likely to bite. Such criteria do not, however, seem to be readily available in economics. Take papers. Although some factors can be used to identify obviously flawed papers (internal contradictions, incomplete data, etc.), decisions over publication become more complicated when borderline work needs to be evaluated. In such cases, it is not clear what the criteria of acceptance should be. Creating an argument for the relevance of a specific methodology in a given context is important and there is often disagreement on which factors should be emphasized. Is it important that a paper modelling behavioural responses to the COVID-19 lockdowns presents a model that is simple? Explains a lot? Is calibrated by data to a particular degree? Even if there were an unambiguous scale for evaluating papers in economics, with some threshold for publication, a reliable test for determining whether or not papers pass that threshold would

[20]Also see Tellmann (2016) and Gallotti and De Domenico (2019).

[21]For a review of some of the literature on this effect see McPherson *et al.* (2001). Also see Currarini *et al.* (2010) and Centola (2011).

[22]This need not imply any great conspiracy. Selectors might strive for impartiality and be diligent, hardworking and principled, yet still admit weak biases.

[23]This is highlighted by studies that find journal editors and reviewers exhibit biases in favour of more prominent research programmes (for a review see Lee *et al.* 2013). Also see Luukkonen (2012) for a related discussion of conservative pressures in grant selections.

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still be required.[24] It is not clear that this is the case in economics.[25] The discipline is of course not alone in this situation. Sociology, anthropology, philosophy and many branches of the natural sciences do not seem to admit both a clear scale for selecting good work/people and a reliable test for scoring candidates on that scale. In the absence of strong selection criteria the conservative effect of biased selectors can be mitigated if their influence is limited or if their biases are diversified. In economics, both of these things are undermined by the steepness of the discipline's hierarchy.

Starting with publishing, there are three facts worth noting. First, given the impact the Top 5 has on career success, Top 5 editors have a disproportionate impact on selections in economics.[26] This amplifies any biases they may have. Second, the significance of just five journals means that the pool of influential editors is small. Third, editors in this already small pool are mostly trained at a small group of elite universities – as a reminder, six universities trained 64% of the editors of the top four journals. Whilst these three facts do not categorically show too little diversity among Top 5 selectors, they do at least indicate constraints on how diverse they might be. If the Top 5 were not so significant in other selections, then the preferences of their editors would not have as much influence. If the Top 5 were extended to a top 10 or 20, the pool of editors holding power would widen. If the Top 5 journals were less dominated by economists educated at a small subsection of universities, they would also likely bring more diverse intellectual perspectives.

A similar story can be told about other aspects of economics' hierarchy. The constraints on the diversity of Top 5 editors are compounded by the facts that those in governing positions, those that become figureheads through big prizes, and those whose expertise and opinion is sought after are often also Top 5 editors or at least come from the same universities. These factors all increase the influence of a small group of selectors and increase the likelihood that the preferences of those in that group will be similar. The hierarchy in economics, thus, heightens the consequences of conservative selection biases and undermines one way of mitigating them: diversification. In doing so it enhances the influence of the research preferences and styles common in the top universities and decreases the likelihood that new ideas will be able to find cheerleaders among key selectors.[27]

[24]This point is made by Akerlof and Michaillat (2017) with a model of tenure decisions over time. In the model, there are two paradigms. One paradigm is assumed to offer a better description of the world than the other and scientists following that paradigm are assumed to have better quality work on average. Akerlof and Michaillat show that in the absence of a strong test for determining which candidates do better work, biases by selectors in favour of their own paradigm can lead to dynamics in which disciplines can be stuck with the inferior paradigm.

[25]Akerlof and Michaillat support a claim like this by noting how regularly papers in economics are statistically under-powered for the effects they report (Ioannidis *et al.* 2017). One could also support this claim by pointing to the famous papers in economics that were originally rejected by a number of journals – Akerlof (1970), for example.

[26]This is one of the points Heckman and Moktan (2020) draw attention to – they worry that those outside the networks of editors are less likely to be granted tenure and survive in academia.

[27]This concurs with empirical studies, which show that organizations with steep hierarchies, in which those at the top have control on who else rises, tend to end up with more homogeneous patterns of thought. See Gruenfeld and Tiedens (2010) for a review.

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2.1.2. Disincentivizing innovation

The awareness among economists of a clear and consequential hierarchy serves to make competition in the discipline intense and stressful (Conley and Önder 2014; Akerlof 2020). A number of studies have offered reasons to believe that high-stakes competitive environments heighten risk-averse behaviour (Slovic *et al.* 1979; Loewenstein *et al.* 2001; Weber *et al.* 2002). Given this, it is reasonable to believe that many economists are discouraged by their environment from following paths with big chances of failure. Rather than following risky innovative paths, they are more likely to reason instrumentally and conform.

This risk-aversion is compounded by a number of perverse incentives. Starting with publishing again, the dominance of the Top 5 creates at least four incentives that pull away from novelty. First, the importance of the Top 5 incentivizes economists to follow known paths to Top 5 success. According to a former editor of two Top 5 journals (*JPE* and *ECMA*), Lars Hansen, this makes "high-quality follow up papers", rather than original research projects, more common (at ∼55–56 minutes of Heckman *et al.* 2017). Second, the importance of the Top 5 encourages the herd-following behaviour that creates fads, since economists must think about what is popular when deciding what to work on. Third, the dominance of the Top 5 incentivizes spending time polishing papers to satisfy reviewers over taking those papers elsewhere and moving on to new projects.[28] Fourth, the importance of the Top 5 incentivizes developing lines of research and writing papers on topics, in styles and using methods preferred by editors of the top journals.

If economists act on these incentives then they are less likely to explore new topics, more likely to follow others, likely to spend more time on each paper and more likely to tailor their work in the direction of already existing research. There are reasons to believe that many economists do act with such incentives in mind. Long review times (Ellison 2002, 2011), low acceptance rates,[29] and short tenure clocks combine with the dominance of the Top 5 to encourage individual economists to think strategically about the work they pursue. Many young economists will tell you that whether or not a piece of work would get into the Top 5 is at the forefront of their mind when starting a project.

Other aspects of economics' hierarchy deepen these issues. Given how significant first jobs are, it is important to choose doctoral research that is popular among Top 5 editors and those likely to be on hiring committees. Given how influential those at the top of the discipline are – as governors, spokespeople, editors or selectors – it makes sense to think carefully about how one's work can be tailored in a direction they might approve of, rather than follow one's own thoughts on what is most important. This is particularly problematic given that the need to think and act

[28]This is evidenced by increases in paper length (Card and DellaVigna 2013, 2018).

[29]In the five years between 2013 and 2017, the acceptance rate in the Top 5 journals ranged from 2.4% (QJE 2017) to 8.7% (ECMA 2013), with a median rate of 4.7% (Card and DellaVigna 2018). By comparison, in the same period, the acceptance rate in *Nature* ranged from 7.6% (2017) to 8.5% (2014), with a median of 7.8% (*Nature* data retrieved from https://www.nature.com/nature/for-authors/editorial-criteria-and-processes, 6 July 2020).

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instrumentally is likely to be stronger for early career economists, who might otherwise be hoped to be the most creative.

The hierarchy in economics also potentially dampens the supply of ideas from outside of the elite. The voices and preferences of those at the top dominate, and because of the prestige factor in hiring and the fact that those outside the top find it more difficult to publish in the top journals, there are fewer avenues available for those from lower down to rise up. This may discourage some from entering or continuing in economics.[30]

Thus, as well as constraining avenues for the uptake of new ideas, the hierarchy in economics constrains the production of such ideas. Together these constraints against the creation and uptake of new beliefs in economics suggest unseen absences – research and potentially whole topics that might have come to light in another environment may be missing because economics is too hierarchical.[31]

2.2. Truth and justification

One way of countering the argument above is to note that the development of scientific knowledge is not always helped by newness. Productive sciences tend to balance novelty and more workmanlike problem solving (Kuhn 1962; Weisberg and Muldoon 2009). The constraints on novelty in economics may be part of what is on aggregate an efficient system. A second counter-point could be that new beliefs are not in themselves sufficient for new knowledge. Truth and justification are an important part of knowledge in addition to belief.

I have two responses to these points. First, even though the development of scientific knowledge may require a balance between scientists that strike out in new directions and those that solve existing problems, and even though sciences require mechanisms for selecting the right propositions among those that are put forth, there is no evidence that biases in favour of the preferences of a select few and incentives against developing new ideas for the rest provide an adequate version of either. Second, the likelihood of truth and thus the justification of economic knowledge is also negatively affected by the steepness of the discipline's hierarchy. There are two ways in which this is the case.

[30]Organizations with steeper hierarchies tend to have members that are less satisfied and more inclined to leave (Anderson and Brown 2010).

[31]For real cases in which the social structure of economics seems to have marginalized particular forms of economics see Lee's (2009) history of heterodox economics and Bouchikhi and Kimberly's (2017) history of economics at Notre Dame. Both Akerlof and Heckman and Moktan make points similar to this in discussing the significance of the Top 5. Akerlof (2020) laments that the absence of reportage (in Heckman *et al.* 2017) and elsewhere points to a lack of work on narrative and how it motivates people to act. Heckman and Moktan argue that "An emphasis on publishing in the T5 discourages large-scale, data-intensive empirical projects that explore and report the sensitivity of estimates to alternative assumptions" (Heckman and Moktan 2020). But, as I have shown, the significance of the Top 5 is only one of several factors that constrain the supply and uptake of new ideas in economics. There are a whole set of hierarchical features of economics that result in this effect. In an earlier paper, Strassmann (1993) suggests something like this fuller point.

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2.2.1. Unconceived alternatives

The faith one places in the outputs of any science should be a function of whether or not we think that relevant alternatives have been considered. If we have reason to believe that superior theories, mechanisms, models or explanations were missed because they were never conceived then we have less reason to believe the outputs we are presented with (Stanford 2001, 2019).

Establishing that superior alternatives exist requires finding them and showing that they are superior. But given that unconceived alternatives are just that – unconceived – they cannot be shown to be superior. Whether the outputs of a science suffer from regularly failing to conceive of superior alternatives, thus, cannot be assessed in this way. There are, however, other ways of making such assessments. Different ways of practicing and institutionalizing science can affect the likelihood that alternatives will be considered by incentivizing certain behaviours and by elevating certain forms of research. It is plausible that the present degree of hierarchy in economics does just this. An environment that disincentivizes innovation and encourages sticking close to the research of lauded seniors likely affects how much of the space of possible theories is explored, increasing the chances that alternatives to what is eventually settled on will be missed.

2.2.2. Constraining critical feedback

As well as considering suitable alternatives, it is important that sciences develop checks for their outputs. All enquiry is fallible. Be they through reasoning mistakes, faulty data, incorrect auxiliary assumptions, or other issues, errors occur. No science is safe. This need not lead to some deep scepticism about scientific knowledge. But it does mean that the faith we place in specific knowledge claims should be a function of how likely we think that any errors in them have been picked up.

This is a key starting point for methodological debate. Methodologists regularly discuss how the techniques used by economists justify inferring the truth of the work they produce (see, for example, Mäki 2011). These are important discussions. But the degree to which economics *as a whole* produces justified or true propositions is not only a function of method. Social factors can alter the aggregate spread of true outputs from any science by shifting incentives and altering the ways in which candidates for knowledge are challenged and critiqued. One way that the latter can occur is through peer engagement. Peers can press each other's reasoning, question each other's background assumptions and suggest new ways of testing each other's claims against reality. Because these mechanisms of what we might call critical feedback make it more likely that falsehoods, inappropriate assumptions, biases and other failings will be corrected, propositions that are exposed to them are less likely to be false and thus better justified than those that are not (Longino 2002). Scientific knowledge may never be infallible, but at least its robustness can be increased by ensuring it is regularly challenged and critiqued.

This is not a new point, philosophers from Mill (1859), to Peirce (1998), to Longino (2002) have highlighted the importance of something like critical

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feedback to science. But it is a point that has so far been under-emphasized in social epistemology discussions on the optimal organization of science; and it is a point that is completely absent in discussions about economics. While methods for testing and standardizing individual pieces of research – common topics of economic methodology – are important, the effectiveness with which a science evaluates its outputs does not *only* rest on such methods. Via affecting the critical feedback within a scientific community, social factors can also aid or inhibit the proper evaluation of knowledge. It is this that the hierarchy in economics negatively affects.

The constraints on innovation discussed in section 2.1. are one way in which this happens. Innovative ideas, forms of measurement, observations, etc. can provide new ways of testing and evaluating existing knowledge. But constraints on innovation are not the only issue. The steepness of economics' hierarchy also has a direct effect on criticism. As already noted, stressful competitive environments like that found in economics tend to lead to risk-averse behaviour. As well as lowering the propensity of those outside the top of economics to work on risky new topics, this is also likely to make them less willing to criticize those higher up.

There is evidence that hierarchical organizations have this effect – steeper hierarchies discourage those with dissenting opinions from articulating them (Milanovich *et al.* 1998; Kish-Gephart *et al.* 2009). Romer (2016) points to something like this in economics. In delivering a wide-ranging critique of macroeconomics, Romer noted that although some of his colleagues agree with his criticisms in private, they would never do so in public for fear of reprisals. The intense competition in economics and the pressures and incentives internalized by economists from a young age, makes them unlikely to rock the boat.[32] To highlight this Romer noted that:

> After I criticized a paper by Lucas, I had a chance encounter with someone who was so angry that at first he could not speak. Eventually, he told me, "You are killing Bob." ... Several economists I know seem to have assimilated a norm that ... it is an extremely serious violation of some honor code for anyone to criticize openly a revered authority figure. (Romer 2016: 21)

Rodrik and Rubinstein have noted similar points – it is typically frowned upon to publicly criticize the work of other economists (WEA 2013; Rubinstein 2016).

Given the role that critical feedback plays in avoiding errors, the hierarchy in economics means that what is taken as knowledge in the discipline is less robustly checked and tested than it could have been. In combination with the fact that the present degree of hierarchy in economics plausibly makes it more likely that alternative theories/mechanisms/models will be missed, this makes the outputs of the discipline less likely to be true, and so less justified.

[32]See Strassmann and Polanyi (1995) for a discussion of how these incentives and pressures are internalized.

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3. Conclusion: evaluating the social organization of economics

Economics is more hierarchical than other disciplines and more hierarchical than it could be. Via (a) reinforcing conservative selection biases and (b) disincentivizing innovation, the steeper degree of hierarchy in economics lowers the uptake and supply of new beliefs in the discipline. Via (c) discouraging looking for alternatives and (d) curtailing critical feedback, the steeper hierarchy makes it less likely that the discipline's products will be true, reducing the justification we have for believing them.[33] The steeper hierarchy in economics, thus, affects all of the key components of knowledge: justification, truth and belief creation. Despite being a *social* feature, the increased hierarchy in economics has *epistemic* consequences.

One way of responding to this is to argue that the hierarchical relations I have described are justified by merit. I have two counterpoints. First, the limited data available on whether positions in economics' hierarchy are earned or based on a combination of luck and initial position points to the latter playing an important role. This is highlighted by the strong prestige factor in hiring and Oyer's work on first jobs. Second, (a–d) apply regardless. A small selection of economists are better heard in debates, more influential in decisions on what gets published, what gets discussed at conferences, how the job market is structured and how the AEA is run. Even if that subsection of economists were the best on some scale, the fact that they have such a large influence heightens conservative selection biases, incentivizes following their lead, reduces the likelihood that alternative theories and explanations will be explored and disincentivizes critical feedback.

A second way of responding to the points I have raised could be to suggest that I have been too one-sided. Are there not circumstances in which steep hierarchies can be beneficial? To this I offer a clarification. The issues I describe should be considered pro tanto reasons to worry about the present degree of hierarchy in economics. I have argued that the steeper hierarchy in economics encourages four mechanisms that lower the uptake and supply of new beliefs in and the justification of the outputs of the discipline. I have not argued that the hierarchy in economics has no other effects. Thus, although (a–d) should give us reason to worry about the present organization of economics, they do not constitute an all-things-considered judgement on the health of the discipline. (a–d) are best thought of as tendencies worth paying attention to in discussions of how economics should be organized. An all-things-considered judgement on the organization of the discipline should consider (a–d) in conjugation with calculations of their effect sizes and also consider trade-offs from changing the present situation – including any beneficial effects of the hierarchy in economics.

With that caveat aside, there are reasons to believe that the benefits steeper hierarchies are typically thought to offer may not be applicable to economics. Steeper hierarchies are thought to motivate their members to work towards the interests of the group by rewarding those that successfully climb them

[33]These mechanisms are not absolute. I have not argued that there is no innovation in economics or that there is no critical feedback between economists. Rather, the steeper hierarchy in economics engenders social dynamics that reduce the levels of innovation and critical feedback from where they might have been.

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(Cartwright and Zander 1953; Levine and Moreland 1990). The problem with applying this to the present case is that successful hierarchy climbing by individual economists does not seem to contribute to the wider community's goals. As argued above, the incentives created by economics' hierarchy run counter to both innovation and critical engagement. The hierarchy does not motivate economists to produce innovative and useful work or to carefully check the work of their colleagues, it motivates them to think instrumentally and keep their heads down.[34] Steeper hierarchies are also thought to make group decision-making more efficient by giving disproportionate control to members with superior abilities and reining in conflict. But it is questionable whether the goals of economics, or any science, are efficient and conflict-free decision-making. There is no evidence to suggest that efficient decision-making leads to more or better knowledge. Moreover, even if efficient and conflict-free decision-making were the goal of economics, studies that find steep hierarchies to be efficient tend to involve relatively simple, stable, unambiguous tasks. Whereas studies that look at more complicated group tasks, or tasks that require creativity, tend to find that steep hierarchies hinder rather than help performance.[35] These points do not mean that an all-things-considered judgement on the health of economics can now be made. Estimates of the magnitudes of all the different mechanisms involved – a large task – would be required for that. But it does give us some reason to believe that economics may, at present, be too hierarchical.[36]

If economics is too hierarchical, what might be done? High-ranking economists have started to discuss some of the issues described above. This is welcome. Although the discussion to date has been too narrowly focused on the Top 5. Hansen suggests that editors should be bossier, look for good ideas and rely less on referee reports (Heckman *et al.* 2017). This proposal may lower the amount of time it takes to publish in the Top 5 and may lower the effect that review has on homogenizing papers towards commonly held ideas. But it would do nothing about other problematic incentives, would not address the pressures against criticism and may even heighten the effects of conservative selection biases by giving even more power to journal editors. Heckman and Moktan (2020) suggest shifting away from the Top 5 to a pre-publication arXiv- or hybrid *PLoS ONE*-like model of review and publication. This would likely speed up review times and enable innovative ideas that might not make it through Top 5 review to

[34]There are also question marks on the effectiveness of this motivation effect. The available evidence goes both ways, but overall more studies have found that hierarchical structures have a negative effect on motivation than the reverse (Anderson and Brown 2010).

[35]Some small-scale laboratory studies find that hierarchical organizations do better at simple problem-solving tasks (Maier and Solem 1952; Shaw 1964). Other lab experiments have found the reverse to be true (Berdahl and Anderson 2005). A number of field experiments of more complex organizations have found that steeper hierarchies perform worse. See, for example, Ouchi's (2006) study of school districts that found that less centralized districts had better test scores, or Pfeffer and Langton's (1993) study that found greater wage disparities in academia are associated with lower productivity.

[36]We should also be careful not to go too far. It seems unlikely that the optimal organization for science is perfectly egalitarian, or that that would even be possible. Thus, although there are good reasons (if not completely unimpeachable reasons) to believe that economics is presently too hierarchical, that does not mean the discipline should aim for a complete absence of hierarchy.

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impact the field – thus mitigating some of the problematic incentives described in section 2. However, without equal attention to the other aspects of economics' hierarchy, such a model may increase rather than decrease asymmetries. Like most academics, economists use proxies to determine which papers deserve their attention. Journals provide one such proxy. Without journals, they are likely to lean on other proxies. Given the steepness of economics' hierarchy and the widespread belief that it is meritocratic, a pre-publication or hybrid model of publishing may lead to even greater asymmetries of attention, with the work of those at higher ranked universities (or those with big reputations) more likely to be read. This would likely be compounded by the abilities of higher ranked universities to market the ideas of their employees. There are problems with peer review, but that all papers are in principle read and evaluated by someone (even in the case of desk rejections) means that everyone gets a shot. This is preferable to a situation in which the only people read at all are those that dominate by virtue of their reputation and institutional backing. Heckman and Moktan also suggest a "shift from the current publications-based system of deciding tenure, to a system that emphasizes departmental peer review of a candidate's work" and that "the profession should deemphasize crass careerism and promote creative activity" (2020: 463). It is hard to disagree with either of these points. The former is a good idea but given time pressures it is unlikely to apply to job and grant applicants, who will still likely be judged on the rankings of their publications and previous institutions. The latter is not a solution but suggests support for the broad point I want to emphasize: the issue of hierarchy in economics runs much deeper than the Top 5 and requires more wide-ranging solutions than just tinkering with publication models.

So, what might be done? Readers hoping for a grand solution will be disappointed. Organizing science is hard. Despite criticizing the incompleteness of the solutions suggested by others, I have no complete alternative. The points I have made in this paper do, however, contribute to the search for a solution. My goal has been to highlight the various hierarchical practices in economics and describe why they are problematic from the perspective of developing economic knowledge. The issues I describe – conservative selection biases and incentives against innovation, alternative ideas and critical feedback – can be used to evaluate potential solutions. I offer three further comments. First, the consciousness raising that has begun is a helpful first step. The fact that economists tend to believe that hierarchy is a good thing and based on merit prevents change. But consciousness raising is limited and cannot be the solution alone. Second, in all of the issues discussed above it is the degree of asymmetry rather than the existence of an asymmetric ordering that matters. Other things being equal, if the degree of asymmetry in any factor were lessened then the overall steepness of the hierarchy would be reduced and the negative implications would likely lessen. A weaker prestige factor in hiring would make it easier for ideas to move from lower ranked universities to those higher up, likely diversifying the knowledge base in economics. A wider selection of important journals would diversify the pool of influential selectors. And so on. Small changes here and there can make a difference. Third, changes should,

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however, be made with care because the issues I have described are not easily separable. Other things are not likely to be equal. The hierarchy in economics has multiple features that feed off one another. Solutions that act on only one dimension, such as the dominance of the Top 5, may lead to the issues popping up in another form. Hansen's suggestion for mitigating some of the problematic incentives caused by the Top 5 and Heckman's suggestion of an arXiv-like system are not useless. The issue is taking them in isolation. It is not only the Top 5 that is an issue, but the wider hierarchical practices in economics that have manifested themselves in obsession over the Top 5. The different aspects of economics' hierarchy serve to reinforce each other. Solutions to the issues I describe should look to act on many factors at once. The key in doing this would be to ensure that the different features of economics' hierarchy, and any solutions to the issues caused by them, do not pull in the same direction and empower the same individuals or universities.

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