

The Contribution of the Online Agricultural and Resource Economics Seminar to Diversity, Equity, Inclusion, and Belonging in Agricultural and Applied Economics*

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Abstract

In the early days of the COVID-19 pandemic, we launched the Online Agricultural and Resource Economics Seminar (OARES) in an ostensible effort to maintain a semblance of normalcy in agricultural and applied economics. Our goal with the OARES was to break down the privilege barrier in two ways: by (i) featuring research mainly by junior, female, or minority scholars, and (ii) bringing frontier research to those who may not have had access to a regular seminar series prior to the pandemic. We thus discuss the contribution of the OARES to diversity, equity, inclusion, and belonging in agricultural and applied economics.

Keywords: Diversity, Equity, Inclusion, Economics, Agricultural Economics

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“That, as we enjoy great advantages from the inventions of others, we should be glad of an opportunity to serve others by any invention of ours; and this we should do freely and generously.”

– *The Autobiography of Benjamin Franklin.*

“You never let a serious crisis go to waste ... It’s an opportunity to do things that you think you could not do before.”

– Rahm Emanuel, 55th mayor of Chicago.

1 Introduction

When it comes to diversity, equity, inclusion, and belonging, the economics profession suffers from important shortcomings. Relative to business, the humanities, other social sciences, and science, technology, engineering, and math (STEM) disciplines, economics awards a lower share of bachelor’s and doctorate degrees to women and underrepresented minorities—with differences ranging from 10 to 25 percentage points (Bayer and Rouse, 2016). Agricultural and applied economics, whether one views it as a field of economics or as an adjacent but altogether distinct discipline, also suffers from similar shortcomings.¹ In agricultural and applied economics departments, women and underrepresented minorities make up just one out of every four full professors in majority research appointments (Hilsenroth et al., 2022). Moreover, although the percentage of doctorates awarded to Blacks is higher in agricultural and applied economics than in economics, that percentage has declined over the last few decades (Moser, 2021), at a time when the percentage of doctorates awarded to Blacks was increasing on average in disciplines other than economics.

These disparities suggest that the economics profession (and, for our purposes, agricultural and applied economics) is not some sort of free-thinking, meritocratic utopia, but that it has biases stemming from racism and sexism, among other sources. This is unjust and ultimately hinders the research endeavor by limiting its scope. For example, a recent special issue of this journal highlights the contributions of women to the agricultural and

¹We use the expression “agricultural and applied economics” to refer to what was formerly known as agricultural economics. Thus, agricultural and applied economics collectively refers primarily to economists trained at land-grant institutions working on topics related to agriculture, the environment, food, international development, and natural resources. To a lesser extent, it also refers to economists trained outside of but working in agricultural and applied economics departments on topics related to agriculture, the environment, food, international development, and natural resources.

applied economics profession (Offutt and McCluskey, 2022), specifically on topics relating to food safety and nutrition (Unnevehr, Caswell and Kinsey, 2022), environmental and natural resources (Segerson, Kling and Bockstael, 2022), and contributions at federal agencies (Evans and Bohman, 2022).

In the spring of 2020, during the early months of the SARS-CoV-2 (i.e., COVID-19) pandemic, as in-person components of workaday life moved online to the extent possible, we launched the Online Agricultural and Resource Economics Seminar (OARES) with two goals in mind. First, we wanted to provide an outlet for sharing and learning about new agricultural and applied economics research at a time when academic seminars stopped meeting in person. Second, we wanted to feature for the most part research by junior, female, or minority scholars in an effort to foster diversity, equity, inclusion, and belonging in agricultural and applied economics. At its founding, we held no expectation for how long the OARES would last. "A few months, until things return to the way they were," we naively thought. As we write this nearly two years later, we are entering our fourth semester of the OARES, having facilitated 74 research presentations and a handful of panels. We reflect here on the OARES and evaluate the achievement of our goals to foster diversity, equity, inclusion, and belonging in agricultural and applied economics, and thus within the larger economics profession.

Before we go further, a few preliminary remarks are in order. First, our discussion of diversity, equity, inclusion, and belonging focuses primarily on gender and race. But diversity, equity, inclusion, and belonging necessarily require a broader consideration of issues relating to (but not limited to) gender identity, sexual orientation, socio-economic status, ethnicity, nationality, disability, religion, age, and whether one is a first-generation college student.² Our reflections here are constrained by the information we are able to systematically collect about our seminar participants.

Second, our focus on gender *and* race requires careful consideration of intersectionality and the reality that gender and racial identities are not mutually exclusive. Following Hilsenroth et al. (2022), this leads us to use the phrase "white women and underrepresented minority women and men" for the remainder of this paper which, while perhaps not the most elegant, has the merit of being accurate.

Third, unless otherwise noted, we define underrepresented minorities as all nonwhite individuals. We realize that not all minorities are necessarily underrepresented in the economics profession in general or in agricultural and applied economics specifically. But

²On the latter, see Schultz and Stansbury (2022), who show that economics PhD recipients in economics are more less likely to have university-educated parents than PhD recipients in other disciplines.

while the degree of representation varies across race and ethnicity, given the historical context of the United States, all nonwhite individuals could potentially face bias, discrimination, or undue constraints on career advancement.

Our reflection of the OARES complements a similar reflection of the Structural Transformation of African Agriculture and Rural Spaces (STAARS) fellowship program discussed by [Schreiber et al. \(2022\)](#). The remainder of this paper is organized as follows. In the next section, we present four motivating facts that inspire effort to promote diversity, equity, inclusion, and belonging within each of our own spheres of influence in agricultural and applied economics. Section 3 then shares our reflection on the OARES by documenting descriptive statistics about the seminar series and discussing the lessons learned. Section 4 concludes.

2 Four Motivating Facts

Before we discuss the OARES, we document four motivating facts about diversity, equity, inclusion, and belonging in the economics profession generally and in agricultural and applied economics specifically.

The last five years witnessed a rapid growth in scholarship documenting gender and racial disparities in economics. The motivating facts we discuss here draw from the efforts of many researchers who have carefully documented—often at a high opportunity cost to themselves in terms of their usual scholarship—disparities by gender, race, or both across a number of areas including promotion and tenure, publishing, and academic presentations. This includes the work of [Wu \(2020\)](#) documenting misogynistic and hostile language on an anonymous online economics discussion board, a 2019 *Journal of Economic Perspectives* symposium on women in economics ([Lundberg and Stearns, 2019](#); [Buckles, 2019](#); [Boustan and Langan, 2019](#)), the work of [Doleac, Hengel and Pancotti \(2021\)](#) documenting who gets invited to academic seminars in the economics profession, findings from a pair of surveys conducted in 2019 focusing on agricultural and applied economics ([Hilsenroth et al., 2022](#)), and the work of [Moser \(2021\)](#) on Blacks in agricultural and applied economics. We list four motivating facts below, but encourage all readers to spend time reading and reflecting on each of the studies cited in this section.

Motivating Fact 1: Economics has a "leaky pipeline." Although over half of all undergraduate students in the United States are women, women represent less than one third of economics majors ([Lundberg and Stearns, 2019](#)),³ and respectively 23 and 14 percent of

³The representation of women in undergraduate programs in Europe is not significantly better, at around

associate and full professors in economics are women (Buckles, 2019). Further evidence of a leaky pipeline—the phenomenon whereby specific groups of individuals fail to pursue graduate studies—or stalled professional progress in economics is documented and discussed by Lundberg and Stearns (2019). Evidence of a leaky pipeline also persists in agricultural and applied economics departments. Across all types of tenure-track appointments (e.g., majority extension, teaching, or research), the share of women and underrepresented minority women and men declines from the assistant professor level to the full professor level (Hilsenroth et al., 2022). For example, among majority research appointments at the assistant professor level, 23 percent are white women, 12 percent are underrepresented men, and 9 percent are underrepresented women. At the full professor level, 14 percent are white women, 7 percent are underrepresented men, and 4 percent are underrepresented women.

Motivating Fact 2: Economics is unwelcoming and hostile. A widely discussed study by Wu (2020) finds evidence of misogynistic language on an anonymous online economics discussion board. Wu’s analysis highlights the role of an unwelcoming culture as an explanation for persistent disparities in the economics profession. Additionally, according to responses to a 2019 survey of members of the Agricultural and Applied Economics Association (AAEA), 15 percent of respondents reported experiencing sexual harassment within their workplace, with women (28 percent), Black women (43 percent), and Hispanic women (50 percent) members reporting the highest rates of sexual harassment (Hilsenroth et al., 2022). In contrast, Asian women report the lowest rate of sexual harassment (6 percent) according to the same article.

Motivating Fact 3: Gender gaps persist in employment prestige and quality. While there is no gap between men and women who graduated from the same program in their propensity to be offered and accept a faculty position, conditional on accepting a faculty position, men are employed by higher-ranked departments (Boustan and Langan, 2019). Similarly, Hilsenroth et al. (2022) find that white women and underrepresented minority women and men represent a larger share of non-tenure-track majority research positions at every level (e.g., assistant, associate, and full professor) than tenure-track majority research positions in agricultural and applied economics departments. For instance, white women and underrepresented minority women and men account for 65 percent in non-tenure-track, majority research assistant professor appointments but only 44 percent in tenure-track, majority research assistant professor appointments. More recent analysis of administrative data from agricultural and applied economics departments by Hilmer and

38 percent (Megalokonomou, Vidal-Fernández and Yengin, 2021).

Hilmer (2022) finds that, in 2019, there was no statistical difference between male and female salaries conditional on experience, seniority, published articles, citations, and rank. Of course, the absence of evidence does not necessarily imply evidence of the absence of a salary gap. In particular, if there is a leaky pipeline (Lundberg and Stearns, 2019; Buckles, 2019) and persistent gender gaps in experience, seniority, and published articles (Juraqulova, McCluskey and Mittelhammer, 2022) and, as a result, female professors earn lower salaries, then the lack of a gap in salaries between male and female professor at agricultural and applied economics departments, found by Hilmer and Hilmer (2022), may be obscured by controlling for mediating variables that are themselves intermediate outcomes.⁴

Motivating Fact 4: Seminar speakers lack diversity. Documenting the demographic characteristics of academic seminar speakers from 2014 through 2019, Doleac, Hengel and Pancotti (2021) classify speakers as being an underrepresented minor if they are black, Latinx, or Native American who grew up in the US. This is a relatively restrictive definition that does not count economists living and working in the United States who grew up abroad and may identify as a minority. Nevertheless, the authors find that 98.9 percent of seminars were given by a non-underrepresented minority and over three out of every four seminars are given by men.⁵ This disparity is critical in part because there is a gender gap favoring men in self-promotion to begin with (Exley and Kessler, 2022), which may persist because women may choose an optimal level of self-promotion in the face of harsher backlash when they promote their own skills and accomplishments. Finally, only 56 percent of respondents to a 2019 survey of AAEA members reported that their department seminar series featured a diverse set of external speakers (Hilsenroth et al., 2022).

Reflecting on these four motivating facts makes one detail clear. Issues relating to diversity, equity, inclusion, and belonging in the broader economics profession also persist in agricultural and applied economics, which is not an exception. Instead, the data collected by Hilsenroth et al. (2022) highlight that the "leaky pipeline," hostility, gender gaps in employment, and lack of diversity in seminars documented to persist in the economics profession also persist in agricultural and applied economics.

⁴This is akin to discussions about the validity of controlling for a variable such as occupation in a Mincerian wage regression estimating the returns to schooling (Angrist and Pischke, 2008). That is, part of the reason that education increases wages is by leading more graduates to choose different (and possibly higher-earning) occupations. Therefore, controlling for occupation in a wage regression may obscure wage inequality that persists precisely because education leads to different occupation choices.

⁵Here it is worth noting that a seminar series that is 25 percent female may indeed be representative of the gender ratio in economics and in agricultural and applied economics (Buckles, 2019; Lundberg and Stearns, 2019; Hilsenroth et al., 2022). However, representation of the skewed gender ratio of the profession likely does not achieve goals of diversity, inclusion, equity, and belonging as articulated by most.

3 The Online Agricultural and Resource Economics Seminar

We launched the OARES on May 6, 2020, with a presentation by Leah Bevis, who was then an assistant professor at Ohio State. Less than two months earlier, all in-person meetings, classes, and academic seminars had gone virtual because of the COVID-19 pandemic. We started with an audience of 150 people and, from that point on, the OARES was off and running. We facilitated presentations nearly every week for over a year until June 2021, when we decided to take the summer off. We then restarted the OARES in September 2021 for the fall semester. At the time of revising this paper, we have just seen the last of the spring 2022 OARES speakers, and we have to start again in fall 2022.

In this section, we first present and discuss some descriptive statistics about the OARES. These descriptive statistics take the form of simple summary statistics, descriptive regression analysis, and a current list of published papers that have been previously presented in the OARES. We then discuss several key lessons from the first two years of the OARES that we feel are particularly valuable for agricultural and applied economics as a whole.

3.1 Descriptive Statistics

We first document simple summary statistics about the size of the OARES audience and the demographic characteristics and seniority of OARES presenters. Table 1 reports the mean and standard deviation as well as the minimum and maximum values of attendance, and of demographic characteristics and the seniority of presenters.⁶ Over the first 74 presentations in the OARES, we averaged an attendance of 52 people with a standard deviation of 30, highlighting a high level of variance in our attendance numbers. The highest attendance total was our first presentation, with 150 people present. Our lowest attendance total was 14 people. Over 60 percent of our presenters are female. A little less than half of presenters are non-white, at 43 percent. Digging deeper, eight percent of speakers are Black, and 15 percent are Hispanic. Finally, over 80 percent of our presenters are pre-tenure.⁷

A few details about these summary statistics are worth highlighting. First, our average attendance is larger than many if not most regular, in-person departmental seminars. This demonstrates the possibility of expanded reach associated with virtual presentations. To

⁶We use the term "pre-tenure" to denote whether a presenter was an assistant professor if in a tenure-track position and to denote similar early-career categories of employment at non-academic research institutions such as the USDA's Economic Research Service, the International Food Policy Research Institute, or the World Bank.

⁷Our analysis focuses on the (single) presenter of each paper in the OARES rather than on each paper's (potentially many) coauthors. This necessarily obscures cases of diverse coauthor groups where the OARES presenter and other coauthors do not share demographic or seniority characteristics.

be sure, we miss out on informal discussions, lunches with graduate students, dinners with faculty, and other components that are integral to the in-person academic seminar experience, but there are gains associated with a virtual format, which we discuss below. Second, according to data collected by [Hilsenroth et al. \(2022\)](#), 32 percent of assistant professors in majority research appointments at agricultural and applied economics departments are women and 21 percent are non-white. While the OARES assuredly over-represents women and non-white members of our field, an over-representation of historically marginalized groups is worthwhile and perhaps even necessary to reduce the gender and racial gaps in career advancement.

The relatively high variance in attendance begs the question: Do presenters' demographic characteristics and seniority predict attendance? In [Table 2](#) we investigate this question by presenting some descriptive evidence. Specifically, we estimate a simple linear regression with attendance as our dependent variable.⁸ We include a linear time trend, a quadratic time trend, and month fixed effects in each of the regressions shown in [Table 2](#) to control for both prevailing trends and seasonal patterns in attendance over time. In columns (1) through (3) we include, one at a time, each of the three demographic and seniority variables shown in [Table 1](#). In column (4), we include each of these variables together in one regression. In most columns, we find that the gender, race, and seniority of the presenter do not predict attendance at any of the conventional levels of statistical significance. The linear and quadratic time trends remain statistically significant in all columns. When considering only a linear time trend (not shown), we find that on average, OARES attendance falls by roughly two individuals per presentation. This is likely due to a progressive return to the office taking place over the last few years.

Month fixed effects also demonstrate an important seasonal pattern of attendance. Relative to January, the excluded month, seminars in June and July are the the least attended. This observation led us to take the summers of 2021 and 2022 off to give our audience (and ourselves) some time to rest.

If demographic characteristics and seniority largely fail to predict attendance, does the topic of a seminar? We investigate this question in [Table 3](#). We code each seminar topic into three mutually-exclusive categories: (i) development, environment, or agriculture-food. In reality, these categories often overlap with each other in complicated ways, but we consider here the dominant topic category for the sake of simplicity. Seminars in the development topic area tend to have a slightly larger attendance, a finding significant at

⁸We use Newey-West (i.e., heteroskedasticity- and autocorrelation-consistent) standard errors with the error structured assumed to be autocorrelated up to one lag.

less than the 10 percent level, but seminars on environment and agriculture-food topics do not.

Thus, taking the results from Tables 2 and 3 together, it seems that the timing of the seminar—both within a given year and over time—is the most robust predictor of attendance in the OARES, at least relative presenter demographics and seniority or seminar topic area. Figure 1 plots the nonlinear attendance trend over time and shows that the first several months of the OARES witnessed a large variance in attendance, but since then attendance numbers have settled and held steady between roughly 30 and 40 people per week. Although this equilibrium number of attendees is lower than the average attendance statistic reported in Table 1, it still remains higher than most in-person departmental academic seminars in agricultural and applied economics departments.

Finally, in Table 4 we list published articles that were formerly presented in the OARES. Because of the long time frame associated with academic publishing, the majority of papers previously presented in the OARES over the last two years remain unpublished as of writing this article. We can nevertheless identify 17 published articles that were previously presented in the OARES. These articles, listed in alphabetical order of the first author’s last name, are listed in Table 4. In addition to these 17 published articles, one paper (Jha and Leslie, 2021) is at the revise & resubmit stage at the *American Economic Review* at the time we are writing.

A few notes about this publication record are necessary. First, we claim no causal impact on the success of these papers, which we entirely attribute to the authors. We clearly cannot attribute the successful publication of these papers to their presentation in the OARES, and we do not intend to imply such a conclusion. Second, these publications are in relatively high-ranking general-interest and field journals. Third, as befits an agricultural and applied economics seminar, eight of the papers in Table 4 are published in agricultural and applied economics journals, including five in the *American Journal of Agricultural Economics*.⁹ Finally, nine and eight of these 17 published papers were respectively presented in the OARES by women and underrepresented minority women and men. Taken together, and as we discuss in more detail below, this is evidence against the notion that there is a trade-off between efforts to promote diversity, equity, inclusion, and belonging on the one hand and research quality on the other.

⁹Only one of the five articles published in the *American Journal of Agricultural Economics* (i.e., Hutchins (2022)) was handled by Bellemare.

3.2 Lessons Learned

Our experience founding and organizing the OARES as well as the foregoing descriptive statistics lead to the following list of seven lessons learned.

1. There is a demand for a diverse seminar series. The descriptive statistics in Table 1 show an average of 52 attendees per meeting of the OARES. While this number is highly variable, with a maximum of 150 attendees (for the first OARES seminar, held in May 2020) and a minimum of 14 attendees, even this latter number compares favorably with the attendance of some in-person seminars. This is notable given that none of our attendees hold an institutional obligation to the OARES, as many do to their own departmental seminar series. Moreover, given the format of the OARES, only the two of us have access to the full list of attendees and, unless someone asks a question, there is no way for anyone else to know whether someone has attended any session of the OARES. Presumably, attendees choose to attend the OARES because they expect that the content will at least be worth the value of an hour of their time or because they want to invest in the sustained success of the OARES. Whichever is the case, it is clear that there is sufficient demand for a seminar series that features the high-quality research of a diverse set of agricultural and applied economists. In the context of the nearly half of AAEA members who reported that their department seminar series could be more diverse ([Hilsenroth et al., 2022](#)), this perhaps suggests that departmental seminars at agricultural and applied economics departments would do well to feature a more diverse set of speakers.

2. There is no diversity–merit trade-off. In their recent article on the status of women and minority faculty in agricultural and applied economics for this journal, [Hilsenroth et al. \(2022\)](#) write:

... a pervasive fallacy is that there is a tradeoff between diversity and intellectual rigor, or that diversity is antithetical to merit—the classic "diversity-as-deficit" stereotype ([Mukherjee Reed, 2021](#)). This framing "promotes an exclusive myth of meritocracy" ([Mukherjee Reed, 2021](#)), which is based on individualism, ignores systematic exclusions of certain groups, and assigns deficient traits to them, and further reinforces exclusion and inequality.

The results in Table 2 are clear: There is no relationship between whether a speaker is female, Black, Hispanic, or junior on the one hand and attendance on the other hand. This is true whether one looks at each of these right-hand side variables jointly or individually. Treating attendance at a seminar as a proxy for the quality of the research presented

at that seminar,¹⁰ suggests that the promotion of diversity, equity, inclusion, and belonging in agricultural and applied economics does not come at the cost of research quality. Additionally, as shown in Table 4, papers previously presented in the OARES are being published in top general interest and field journals.

Observing no trade-off between efforts to promote diversity, equity, inclusion, and belonging and research quality implies that we can effectively "do both." For us this means that when we invite individuals to present in the OARES, we ask them to share some of the research that they've been working on recently because their research is of relatively high-quality and should be shared with a wide audience. Although fostering diversity, equity, inclusion, and belonging is an explicit goal of the OARES, it need not be the core motivating factor in our invitations. Despite the biased systems embedded within the economics profession and, specifically, agricultural and recourse discussed in Section 2, a diverse set of researchers are continually conducting high-quality research.

3. While consistency is important, people can and do adapt. Having no experience with online seminars prior to our launching of the OARES, we had no idea how people whose professional lives had been entirely moved online would react to the idea of an online seminar series, and of yet another thing they had to be online for. We felt that holding the OARES at a consistent time and day would be an important feature. At a time when almost nothing was certain, perhaps the OARES seminar could provide a regular rhythm.

While this consistency almost certainly helps our regular attendees plan for and incorporate the OARES into their weekly schedule, due to changes in our own schedules, we have had to change the time or day of the OARES a few times over the past four semesters. These changes in the schedule of the OARES do not seem to be noticeable in our attendance data, which demonstrates the adaptability of people to change in their schedules.

Additionally, a colleague wrote to us early on suggesting that we shorten the duration of the seminar from 90 to 60 minutes, citing concerns about "Zoom fatigue." As it turns out, these concerns were misguided. As Figure 1 shows, attendance has stabilized at an average of between 30 and 40 attendees after about our fortieth seminar, and the modal attendee stays for the duration of the seminar. Moreover, Figure 2 plots interest in the phrase "Zoom fatigue" over the period from January 1, 2020 to March 15, 2022. Somewhat counterintuitively, interest in "Zoom fatigue" spiked early on during the pandemic, ostensibly in response to lockdowns, but it has waned since then to settle at a relatively

¹⁰This by revealed preference and the relatively uncontroversial assumption that, *ceteris paribus*, people prefer to spend their time attending higher- rather than lower-quality talks.

low level. This is likely because people have become more accepting of online meetings, if not more likely to embrace them altogether because those meetings significantly lower the transactions costs associated with interacting with others even relative to the benchmark of pre-pandemic in-person meetings. Time will tell how long the OARES continues to exist as a premier seminar series in agricultural and applied economics, but it seems to hold value even beyond the lockdowns associated with the COVID-19 pandemic.

4. Attendance is unrelated to research topic area. Possibly both due to the fact that development topics tend to hold a more robust international audience than US-centric research topics, and perhaps due to our own personal research interests, we initially thought that attendance would notably vary based on research topic area. As we see in Table 3, however, research topic areas only weakly predict attendance at any of the conventional levels of statistical significance. The fact that we do not see attendance dramatically follow variation in the topic area of seminar presentations suggests that regular attendees are invested in the OARES for reasons other than their own personal research interests.

5. Attendance follows seasons. While perhaps not immediately observable in Figure 1, the month fixed effects in Tables 2 and 3 highlight an important pattern in our attendance data. Attendance in the OARES dropped dramatically in the months of June and July. The revealed preference of many regular OARES attendees is to not attend seminars during the summer. This could be due to summer vacation schedules, increased research commitments, or a simple need for a break from the typical rhythm of the academic semester. Observing this pattern, we chose to take a break in the summer of 2021 and are planning on taking another one in the summer of 2022. Despite the break we took in 2021, attendance at the OARES continued in the fall as if we had never taken a break.

6. Marginal benefit exceeds marginal cost. Compared with the many tasks involved in organizing a regular in-person seminar series (which can involve things as varied and un-scholarly as scheduling, coordinating travel, booking hotels, organizing meetings, making restaurant reservations, facilitating meals with students and faculty, and processing reimbursements; see Bellemare (2022)), organizing the OARES is easy work in that it involves only scheduling, sending out emails that serve both to advertise the talks and allow participants to register for them, setting up each seminar as a webinar, attending and moderating each seminar, and uploading the video of each seminar to the YouTube OARES channel in addition to the cost of the Zoom subscription used to run the seminar. All in all, the time commitment for the two of us combined is about four hours per week. Most of the cost, then, consists of the opportunity cost of our time.

In terms of financial costs, while it may have been possible to seek funding for the

OARES from the AAEA or to fund it using funding available at our own institutions, from the very beginning we wanted the OARES to be financially independent. Part of this was by necessity, as one of us was about to start working for the USDA's Economic Research Service. Part of this was also because the other sat on the board of directors of the Agricultural and Applied Economics Association (AAEA) and had just started co-editing the *American Journal of Agricultural Economics* at that time, and we wanted to make sure that participants and attendees knew there was no link between the OARES and the AAEA, its journals, the US Government, or the USDA. Another part of our motivation to keep the OARES independent was that we wanted to make sure that neither of our employers would ever tell us how to run the OARES. Ultimately, this shows that it is possible to create a great deal of value for the public good at a relatively low cost.

7. Fostering diversity, equity, inclusion, and belonging by building community. Although we initially founded the OARES with the aim of organizing a seminar series, in doing so a community emerged. The OARES is a place where each week a different person shares their research, and although many attendees do not attend each and every week, there is a core group of individuals who are regular attendees. These people have played an integral role in creating an inclusive and supportive environment where a diverse set of researchers can share their research and receive constructive, rather than hostile, feedback. This community, if we can call it that, formed organically and primarily because of the investment of regular attendees. This commitment is just as essential as our effort as co-organizers to create and sustain the OARES.

4 Conclusion

We have discussed how the Online Agricultural and Resource Economics Seminar has contributed to diversity, equity, inclusion, and belonging in agricultural and applied economics. To do so, we have started by listing four motivating facts about diversity, equity, inclusion, and belonging in economics generally and in agricultural and applied economics more specifically. We have then discussed the particulars of the OARES, starting with descriptive statistics about invited speakers and seminar attendance, and following up with the lessons we have learned from two years of organizing the OARES.

Our discussion of the contribution of the OARES to diversity, equity, inclusion, and belonging in agricultural and applied economics is necessarily limited, both in terms of external validity and in terms of internal validity. On the external validity front, our discussion is limited by the fact that we have only featured 74 speakers so far, and our findings

and lessons learned may or may not apply outside of the particular context of the OARES. On the internal validity front, none of the regression results presented here are causally identified given the endogenous choice of whom we invite to present at the OARES. Perhaps more importantly, our discussion is limited to diversity in terms of gender, race, and seniority.

But this does not mean that we cannot draw lessons from the first two years of the OARES. Among other things, it looks as though (i) there is a demand for diversity, (ii) there is no trade-off between diversity and merit, (iii) people can and do adapt to new circumstances, (iv) research topic is unrelated to attendance, (v) attendance follows predictable seasonal patterns, (vi) the marginal benefit of organizing the OARES exceeds the marginal cost, and (vii) we can foster diversity, equity, inclusion, and belonging by building community.

We wish to close on this last lesson learned, which goes beyond the OARES. Collective community building seems like a useful means of fostering diversity, equity, inclusion, and belonging in each of our individual spheres of influence. Whatever our position within agricultural and applied economics, from the newest graduate-student member to the most senior of AAEEA Fellows, everyone has a role to play in building community. This is especially so in the context of an association like AAEEA which, in contrast to some other professional associations, prides itself on being a big tent. Community building can be done through the classes we teach, the research groups we run, the committees we sit on, and the many other areas of our work. For example, [Schreiber et al. \(2022\)](#) discuss the development of the Structural Transformation of African Agriculture and Rural Spaces (STAARS) fellowship program as another type of community-building work that helps promote diversity, equity, inclusion, and belonging. Agricultural and applied economists may not be trained to build community, but doing so is nevertheless an effective means for fostering diversity, equity, inclusion, and belonging, and building community might also contribute to improving the quality of scholarship. It is especially incumbent on a profession like agricultural and applied economics which, born of federal fiat and still depending on federal largesse to this day, to be representative of the people whose tax dollars finance it.

TABLE 1: Summary Statistics

	(1)	(2)	(3)	(4)
	Mean	(Std. Dev.)	Minimum	Maximum
Attendance	52.41	(29.95)	14	150
Female (= 1)	0.62	(0.49)	0	1
Black (= 1)	0.08	(0.27)	0	1
Hispanic (= 1)	0.15	(0.36)	0	1
White (= 1)	0.57	(0.50)	0	1
Pre-tenure (= 1)	0.80	(0.40)	0	1

Notes: These summary statistics draw from the first 74 presentations in the OARES, between May 6, 2020 and May 6, 2022.

TABLE 2: Attendance and Presenter Characteristics

	(1)	(2)	(3)	(4)
	Attendance	Attendance	Attendance	Attendance
Female	6.136 (4.701)			4.821 (4.665)
Black		-6.694 (5.537)		-5.998 (6.461)
Hispanic		-9.662* (5.467)		-8.655 (5.244)
Pre-tenure			-5.962 (5.821)	-5.373 (6.149)
Linear time trend	-2.688*** (0.528)	-2.690*** (0.520)	-2.735*** (0.584)	-2.536*** (0.551)
Quadratic time trend	0.0197*** (0.00569)	0.0199*** (0.00554)	0.0202*** (0.00625)	0.0175*** (0.00603)
February	-12.29 (9.680)	-8.395 (9.403)	-8.532 (9.682)	-7.622 (10.61)
March	-15.89 (10.61)	-10.46 (10.04)	-12.13 (10.33)	-10.70 (10.99)
April	-8.155 (9.796)	-4.690 (9.658)	-4.189 (9.809)	-3.738 (10.43)
May	-17.00 (10.65)	-13.96 (10.59)	-15.33 (10.77)	-12.50 (11.51)
June	-37.99*** (14.02)	-37.13** (14.86)	-35.92** (15.57)	-35.86** (14.84)
July	-54.52*** (11.98)	-51.60*** (12.35)	-51.42*** (13.24)	-49.46*** (13.41)
August	-18.91 (14.46)	-18.56 (14.24)	-17.77 (14.13)	-17.51 (14.86)
September	18.01 (11.48)	19.01 (11.40)	20.20* (11.24)	20.49 (12.36)
October	12.57 (12.60)	14.66 (12.32)	14.82 (12.52)	14.90 (13.29)
November	5.651 (14.07)	9.669 (11.67)	6.836 (13.71)	11.17 (13.71)
December	2.880 (8.629)	7.743 (9.729)	4.370 (8.755)	8.464 (10.07)
Joint test				0.211
Observations	74	74	74	74

Notes: The mean of the dependent variable is 52.41. The joint test of statistical significance tests whether the covariates Female, Black, Hispanic, Pre-tenure are jointly equal to zero. Newey-west standard errors with a lag of one are reported in the parentheses.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

TABLE 3: Attendance and Research Topic Area

	(1) Attendance	(2) Attendance	(3) Attendance
Development	6.289* (3.690)		
Environment		-1.674 (4.079)	
Ag-Food			-5.699 (3.873)
Linear time trend	-2.749*** (0.545)	-2.819*** (0.557)	-2.730*** (0.543)
Quadratic time trend	0.0215*** (0.00580)	0.0216*** (0.00592)	0.0210*** (0.00568)
February	-9.506 (8.665)	-10.49 (8.891)	-11.01 (8.928)
March	-14.38 (9.445)	-13.58 (10.14)	-15.64 (9.791)
April	-7.359 (8.634)	-6.508 (9.226)	-8.041 (8.992)
May	-16.49 (9.939)	-16.81 (10.30)	-17.78* (10.12)
June	-35.62** (14.61)	-37.32** (15.15)	-37.00** (14.27)
July	-51.51*** (11.51)	-53.94*** (11.63)	-53.00*** (12.17)
August	-15.49 (14.43)	-17.65 (13.88)	-20.25 (13.88)
September	19.74* (10.37)	18.71* (10.89)	18.06* (10.50)
October	14.81 (11.82)	14.43 (12.52)	11.74 (12.08)
November	7.064 (12.04)	5.118 (12.67)	6.857 (12.22)
December	4.646 (7.700)	3.798 (8.554)	1.609 (7.708)
Observations	74	74	74

Notes: The mean of the dependent variable is 52.41. Newey-west standard errors with a lag of one are reported in the parentheses.* $p < 0.10$, ** $p < 0.05$, *** $p < 0.01$.

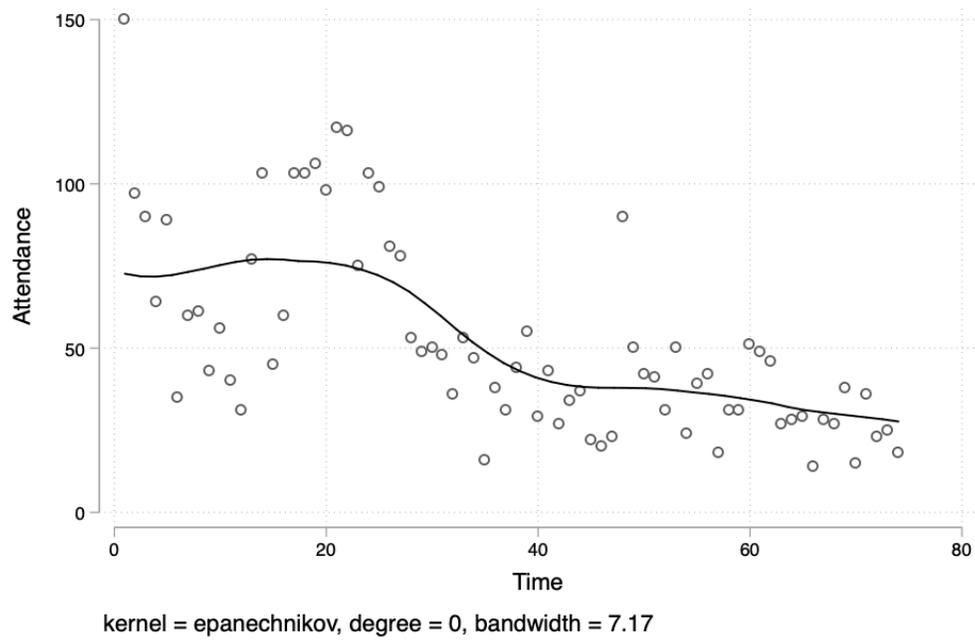


FIGURE 1: Non-linear Attendance Trend

TABLE 4: Published Papers Formerly Presented in the OARES

(1) Citation	(2) Presenter	(3) Journal
Adalja, Lichtenberg and Page (2021)	Aaron Adalja	<i>American Journal of Agricultural Economics</i>
Arellano-Gonzalez et al. (2021)	Frances Moore	<i>Environmental Research Letters</i>
Beg (2021)	Sabrin Beg	<i>Journal of the European Economic Association</i>
Bloem (2021)	Jeffrey Bloem	<i>Economic Development and Cultural Change</i>
Connor, Rejesus and Yasar (2021)	Lawson Connor	<i>Applied Economic Perspectives & Policy</i>
Cuadros-Meñaca, Thomsen and Nayga Jr (2022)	Andres Cuadros-Meñaca	<i>Economics of Education Review</i>
Filmer et al. (2021)	Eeshani Kandpal	<i>Review of Economics and Statistics</i>
Hidrobo, Mueller and Roy (2021)	Valerie Mueller	<i>American Journal of Agricultural Economics</i>
Hutchins (2022)	Jared Hutchins	<i>American Journal of Agricultural Economics</i>
Janzen et al. (2021)	Aleks Schaefer	<i>Applied Economic Perspectives & Policy</i>
Josephson, Kilic and Michler (2021)	Anna Josephson	<i>Nature Human Behavior</i>
Lee (2021)	Yu Na Lee	<i>American Journal of Agricultural Economics</i>
LoPalo (2022)	Melissa LoPalo	<i>American Economic Journal: Applied Economics</i>
Michelson et al. (2021)	Hope Michelson	<i>Journal of Development Economics</i>
Nuno-Ledesma (2021)	José Nuño-Ledesma	<i>American Journal of Agricultural Economics</i>
Salemi (2021)	Colette Salemi	<i>Journal of Development Economics</i>
Villacis, Alwang and Barrera (2022)	Alexis Villacis	<i>Agribusiness</i>

Notes: This list of publications is as of March 2022.

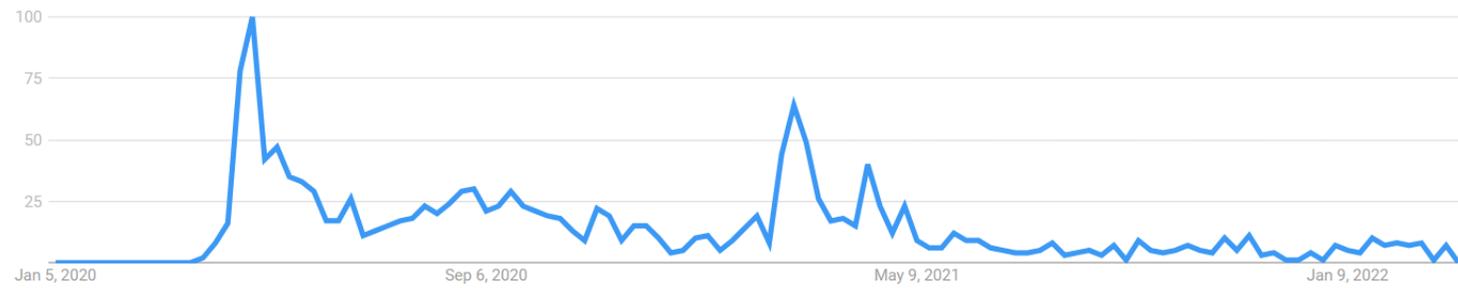


FIGURE 2: Interest in “Zoom fatigue” from January 1, 2020 until March 15, 2022 in the United States. (Source: Google Trends)

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