

## Research Article

# How to Thrive in Agricultural Economics PhD Programs: SAEA Emerging Scholar Award Winners' Experience and Advice

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## Abstract

Obtaining a PhD in agricultural economics can be stressful, and few studies offer holistic directions and advice to help students navigate PhD studies, particularly those seeking to transition into a research-intensive academic position. We surveyed and interviewed 21 agricultural economists who won the Emerging Scholar Award from the Southern Agricultural Economics Association between 2014 and 2021. We analyze their experiences to provide PhD students in agricultural economics with insights and tips for a career in academia. This article identifies patterns among these award winners' approaches to coursework, assistantships, working with mentors, teaching, research, technical writing, conferences, networking and job search, time management and work-life balance, and the transition to new positions. Drawing from our participants, the study also points out a few aspects where graduate programs can improve to enhance students' professional growth. Even though our target audience is current and prospective PhD students, we believe that this article is useful for postdoctoral researchers who are interested in faculty positions, junior faculty members who seek a smoother transition, and senior faculty members who are advising PhD students.

## 1 Introduction

The field of agricultural economics in the United States granted 1,235 doctoral degrees from 2010 to 2020 (National Center for Science and Engineering Statistics [NCSES] 2021, Table 13), with about 500 PhD students enrolled per year.<sup>1</sup> Between 2015 and 2020, the median years to completion since starting the doctoral program was about 5 years (NCSES 2021, Table 31). The PhD experience often includes stress, anxiety, and frustration, particularly among senior PhD students who face dissertation and job market pressures (Goodboy, Martin, and Johnson 2015; Woolston 2019; Bolotnyy, Basilico, and Barreira, 2022). However, few existing studies offer holistic directions and advice to students attempting to navigate this sometimes-tortuous professional growth period and the later transition to full-time academic positions. This article aims to fill this gap.

Several guides attempt to help PhD students in general economics. For instance, Eble's (2018) guidebook provides an overview of PhD programs in economics and education. McCloskey (2019) provides writing advice, and Thomson (2001) offers guidance on writing, presenting, and refereeing manuscripts. Cawley (2018) includes detailed guidance and advice regarding the job market for fresh PhDs, and Bolotnyy, Basilico, and Barreira (2022) provide recommendations to improve mental health. Weisbach (2021) provides early-career economists with a comprehensive guide of research, publishing, and career development. To date, no such specific guidance exists for agricultural economics. While overlaps exist between PhD studies in general economics and agricultural economics, important

<sup>1</sup> If we include PhD students in programs that grant degrees in applied economics, such as University of Minnesota and Auburn University, this number is even larger.

distinctions between the two exist (Perry 1998). Of the few publications that address PhD studies in agricultural economics, they mainly focus on mentorship style (Perry 1996), student productivity and mentorship (Hilmer and Hilmer 2007), students' departmental preferences (Mark, Lusk, and Daniel 2004), and skill sets and training prior to entering the PhD (Penn and Sandberg 2017). One exception is Bellemare (2022), who offers detailed advice on the many practical tools essential for applied and agricultural economists, including writing, presenting, publishing, obtaining funding, doing service, and advising. These studies are helpful to understand specific elements of PhD programs or junior faculty positions in applied and agricultural economics, but they often offer relatively little comprehensive guidance to help PhD students in agricultural economics better navigate graduate study and later transition to full-time positions.

To offer holistic directions and advice to students attempting to navigate through their PhD studies in agricultural economics, we interviewed 21 agricultural economists who won the Emerging Scholar Award of the Southern Agricultural Economics Association (SAEA) from 2014 to 2021. According to SAEA (2021a), the Emerging Scholar Awards "are designed to highlight the work of high-performing early-career professionals in our profession." Krishna Paudel, former SAEA President, described the selection of awardees as:

*"SAEA selects emerging scholars based on excellence in their field. For a teaching/research faculty, it looks at primarily journal articles and where those are published. For an extension faculty, it looks at the effectiveness of extension programs as well as their scholarly activities. SAEA does not have a ranking of journals that it uses to decide, but the SAEA executive board makes the final decision based on intense discussion after the initial ranking made by directors to finalize the list. Generally speaking, the final awardees are based on the consensus of the executive board members [of SAEA]."*<sup>2</sup>

Since the inauguration of the Emerging Scholar Award in 2014, SAEA has selected 24 awardees, as of 2021 (SAEA 2021b), 21 of whom participated in the study.<sup>3</sup> We employed surveys and semi-structured interviews to better understand each participant's experience as a PhD student and as a junior faculty member. We interviewed them to garner their insights about how current and future agricultural economics PhD students can thrive during their PhD study and as a junior faculty member. This article summarizes patterns among these award winners. It provides more relevant and specific advice to current and future agricultural economics PhD students aiming at academic careers than provided by existing studies tailored to economics PhDs generally or only a specific aspect of PhD study in agricultural economics.

Although the specific PhD experience and advice differ across the 21 participants, we still find several prominent themes. Specifically, the majority utilized their coursework strategically to generate conference presentations and publications. The average number of peer-reviewed publications of the participants at matriculation is 2.3, and the median is 2. About one third did not have peer-reviewed publications by graduation. Most paired with or switched to their eventual PhD advisors based on overlapping interests. All the participants found that mentorship was critical for their early success in research and writing, as found by Hilmer and Hilmer (2007). Moreover, we find that our participants improved their technical writing with help from their advisors or other faculty members. The participants all agreed that teaching experience as an independent instructor was critical for job search success. They stressed time management, advising that one should balance teaching effort and research

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<sup>2</sup> Personal e-mail communication.

<sup>3</sup> In line with our Institutional Review Board (IRB) protocol, we do not share our participants' names, degree-granting institutions, and current affiliations. Institutional Review Boards are administrative bodies, in this case within Auburn University, that protects the rights and welfare of human research subjects recruited to participate in research activities.

progress as PhD students. Most scholars mentioned that they were protective of their research (or study) time, striving for uninterrupted and focused research (or study) time. We found that four participants managed their PhD study as a nine-to-five job and were still successful. In terms of handling pressures during their PhD study, participants relied on physical exercise and friendships, and drew on support from fellow students. Participants shared that they were least prepared as junior faculty members to advise students, write grants, and meet service demands.

The contributions of this study are twofold. First, to the best of our knowledge, this is the first study that documents various aspects of agricultural economists' PhD study experience in the United States over the first two decades of the 21st century, including their transition from a PhD student to a new faculty member. The participants' experience and advice summarized in this article can aid current and future PhD students in agricultural economics. Second, the present study combines survey and semi-structured interviews that provide descriptive statistics and textual, more dialogical evidence (to be discussed in the next section), offering richer insight than previous studies (e.g., Penn and Sandberg 2017).

## 2 Methodology

Each participant agreed to meet via videoconference for approximately one hour. They began by taking a short survey, followed by a semi-structured interview.

### 2.1 Survey

The survey was designed to be completed in about five minutes via Qualtrics. Beyond basic information such as current appointment and the number of students they advised, it asked questions about their coursework, mentoring, research, writing, teaching, job search, time management, and stress management. This design allowed participants to reflect and formulate thoughts on various aspects of their PhD programs before beginning the semi-structured interview. For consistency, each interview began with the questionnaire.

The survey began with queries on how respondents were matched with their PhD advisor and the nature of the relationship with their advisor. Then, respondents were asked about the importance of and means to improve nontechnical skills such as time management and writing, opportunities and experience as a teaching assistant or instructor, the relevance of certain skills for obtaining a permanent position, and finally about their work-life balance. In total, the questionnaire consisted of eight multiple-choice questions, five sets of Likert scale questions, and two open-ended questions. The survey questions are listed in Item A of the online Supplementary Information (SI).

### 2.2 Semi-Structured Interviews

Semi-structured interviews, also sometimes referred to as co-constructed interviews, provide a crucial means for the interviewee, not just the interviewer, to direct what is important about the topic at hand (Orne and Bell 2015). Surveys or questionnaires often are praised for their ability to control for bias, where the subjectivity of the interviewer is assumed to be removed. However, surveys and questionnaires too are designed by people, and sometimes those doing the designing can ask less relevant or important questions. Interviews allow for rapport between interviewer and interviewee, lessening the sometimes-problematic power dynamic between researcher and subject (Deutscher, Pestello, and Pestello 1992).

Notably, positionality matters in interviews. For example, a more senior academic asking a junior person questions about their aspirations and strategies may result in different responses than two junior people discussing these issues together. Likewise, other sociodemographic differences between and among respondents as well as interviewers, like gender, sexuality, race, and class, can shape how they respond. The two economist co-authors conducted the majority of interviews. This positionality comes with notable strengths: they both are insiders, agricultural economics professors, and former

winners of the Emerging Scholar Award. Yet some respondents, knowing they are speaking to colleagues, may limit the candor of their responses in interviews and surveys, knowing that their colleagues will be studying their responses. This study received IRB approval at Auburn University (Protocol #20-256 EX 2007), and all participants were sent copies of an information letter. In line with the protocol, respondents’ information is anonymous. Since this is a small group of participants who are known in their discipline, we remove key identifying details in an effort to protect their identities.

Awardees were generally pleased and grateful for the opportunity to reflect on their experiences. Because of the interviewers’ insider status, we did not ask explicitly about mental health crises, discrimination, and other explicitly sensitive topics, unless raised by the interviewees themselves. The interview includes five sections of questions related to coursework, assistantship, mentorship, research, teaching, network, job search, time management, and work-life balance. The complete set of questions appear in Item B of the online SI.

### 2.3 Data Collection and Analysis

The survey and interview questions were vetted at a focus group held during the 2020 SAEA annual meeting in Louisville, Kentucky. The focus group featured nine participants (three postdoctoral researchers and six PhD candidates) from seven different universities (Auburn, Georgia, Kansas State, Kentucky, Louisiana State, Texas A&M, and Virginia Tech). Overall, this focus group viewed the survey and interview questions as appropriate. They were eager to learn advice from emerging scholars. Additionally, during spring 2020, the survey and semi-structured interview questions were piloted with two tenure-track junior faculty members at Auburn University and Louisiana State University to estimate the time required and to obtain feedback on the relevance of questions. It also enabled refinement of the script of the semi-structured interview. The 21 actual surveys and interviews occurred from September to December of 2020. An interview, including survey completion, typically took 60–70 minutes, excluding pre- and post-small talk. Each interview was recorded and transcribed, resulting in a total of about 200,000 words. Table 1 presents some summary characteristics of the participants.

**Table 1. Summary Characteristics of Participants (Number of Observations: 21)**

Characteristics	Mean	Std.	Min.	Max.
<b>Gender (0: male; 1: female)</b>	0.19	0.40	0	1
<b>Country of origin (0: USA; 1: international)</b>	0.24	0.44	0	1
<b>Current affiliation (0: non-R1 institutions; 1: R1 institutions)</b>	0.90	0.30	0	1
<b>Current position assignment (0: research/teaching; 1: extension)</b>	0.33	0.48	0	1
<b>Number of peer-reviewed publications by graduation year</b>	2.29	2.12	0	7
<b>Number of AJAE articles by graduation year<sup>1</sup></b>	0.05	0.22	0	1
<b>Number of years between PhD degree and master’s degree</b>	4.25	2.02	1	9
<b>Number of years between PhD degree and bachelor’s degree</b>	7.15	2.48	5	14

Note: <sup>1</sup> AJAE stands for *American Journal of Agricultural Economics*, the leading journal in the field of agricultural economics.

Before discussing the results, one caveat needs to be acknowledged. We identified our survey population as award winners, and we surveyed most of the population up to 2021 (87.5 percent response rate). Our study thus approaches those who received the award as offering particular insights to the PhD experience and later job placement. We do not have comparative data from those who did not receive the award. Because the participants are not representative of all faculty in the profession and

because we do not have a control group in the analysis, we do not intend to interpret the results as causal relationships.

### 3 Results

We present major themes that arose out of the survey and semi-structured interviews in chronological order typical of PhD programs in agricultural economics, starting with coursework and ending with transitioning into the role of a junior faculty member. The survey results are summarized in Table 2.

#### 3.1 Coursework: Intentional Balance with Support from Your Cohort

Regarding coursework, especially during the first two years of the PhD program, a few keywords such as “cohort,” “balance,” and “intentional” emerged from the interviews with our participants. About a quarter explicitly mentioned that they benefited significantly from interaction with fellow students in the same cohort to get through the coursework, particularly the first-year sequence of microeconomic theory, macroeconomics, and econometrics. One participant pointed out that while working with fellow students on the coursework is crucial, some degree of independence is important. Otherwise, dependency on your cohort, which can take root, may pose a barrier to independence of thought and scholarly innovation. This underscores the importance of balance between working independently and working collaboratively.<sup>4</sup>

Participants often mentioned “balance” in terms of coursework in the first two years and about their thoughts on taking additional courses in later years of PhD study. A few participants were conscious of the need to balance time spent on coursework versus research. They viewed some mandatory courses as less helpful to their future research, so they only spent enough time to pass those courses in order to save time for research. Except for a couple of individuals, all participants took additional courses beyond the minimum requirement mainly due to research needs or recommendations from advisors or other faculty members. Participants argued that additional courses provided the advantage of having well-rounded economic knowledge and of related tools. The disadvantage, however, is that one may become less focused in a specific area with less time devoted to research overall. Keeping this trade-off in mind, our participants’ advice was threefold: (a) take an additional course only when one requires specific tools needed for research or the material is difficult to learn independently; (b) for additional courses, rather than regular attendance, audit the sessions that are most relevant; and (c) identify what readily achievable graduate-level minors exist once one has decided to take additional courses.

Nearly half of our participants reflected on their intentional selection of PhD coursework, especially for field courses, in two aspects. First, they thought about the courses’ usefulness in their research. They acknowledged that having some research experience before starting their PhD study really helped them better understand, put into perspective, and apply the coursework content. Second, they developed their coursework papers into conference presentations and peer-reviewed publications. Most of the participants who mentioned that they utilized coursework intentionally had multiple peer-reviewed journal articles by their graduation, which helped differentiate them on the job market.

#### 3.2 Mentorship: Help Your Advisor Advise You

Mentorship is perhaps the most critical component for PhD study in agricultural economics because, unlike undergraduate education, PhD study involves much more interaction between mentors and graduate students (Perry 1996). Studies have shown that the quality of mentorship directly affects students’ early career research output (Long and McGinnis 1985; Hilmer and Hilmer 2007; Breuninger,

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<sup>4</sup> Note that other participants did not comment on the disadvantages of working collaboratively on coursework during the interview, and therefore, we do not have information in this regard.

Pferdmenges, and Pull 2012). Because a productive mentoring relationship requires engagement from both the advisor and student, our survey and interviews included questions related to matching and working with their PhD advisors.

**Table 2: Survey Results for Characteristics of Participants During Their PhD Programs (Percent) (Number of Observations: 21)**

<b>Advisor match based on:<sup>1</sup></b>	<b>Percent</b>
Overlapping interests	86
Funding and familiarity	20
Assigned	0
<b>Switched PhD advisors during PhD study:</b>	14
<b>Highest level of teaching experience:</b>	
None	0
Guest Lecture	10
Grader	14
Lab TA or instructor of record for 1 credit	19
Full course instructor of record	57
<b>Resources used to improve teaching:<sup>1</sup></b>	
University-level resources	43
Preparing Future Faculty program	5
Other faculty members	81
Fellow graduate students	62
<b>Resources used to improve writing:<sup>1</sup></b>	
University-level resources	33
Other faculty members	76
Fellow graduate students	52
<b>Family traits in the majority of the PhD program:</b>	
Single	19
Married/partner, without kids	48
Married/partner, with kids	24
Parents live nearby:	0
Other	5
<b>How much do you prioritize work-life balance?</b>	
Not at all	0
A little	5
Moderate	38
A lot	14
Very Much	43
<b>Compared to being a junior faculty, how stressful would you consider the last 2 years of your PhD program?</b>	
More stressful	9.5
Equally stressful	38.1
Less stressful	38.1
Much less stressful	14.3

Note: <sup>1</sup> For these questions, participants can choose multiple answers, so total percentage points exceed 100.

### 3.2.1 Matching with PhD Advisors

Our survey shows that about 86 percent of the respondents paired with their advisors based on overlapping research interest. Secondary and tertiary reasons are funding and familiarity, with 5 and 4 respondents selecting these two reasons, respectively.<sup>5</sup> Three out of the 21 participants switched their advisors for a better match over the course of their PhD program.

During the interviews, we asked how our participants were paired with their PhD advisors. Most of our participants (13 out of 21, about 62 percent) identified their PhD advisors before they joined a PhD program. Among these 13 participants, six were connected to their PhD advisors by their earlier advisors in their undergraduate or master's programs, and two were connected to their future PhD advisors at a conference or seminar. The remaining eight participants sought out their PhD advisors after they started their PhD study, with four participants doing so based on faculty members' research interests. Respondents mentioned that seminars where faculty members introduced their own research interests helped students identify PhD advisors. The remaining four participants among the eight worked with their PhD advisors due to funding availability and common research interests. Some of these eight participants found it difficult to identify an advisor. For instance, one participant stated that, "no one told me how to find an advisor."

We compared the group of participants who had identified their PhD advisors before joining their PhD programs versus those who did not. We examined the difference in (a) the number of peer-reviewed publications based on a number of metrics using the PhD completion year; (b) the number of years between a PhD and a master's degree; and (c) the number of years between a PhD and bachelor's degree. We found that the average number of publications by the graduation year of the former group and the latter group is 2.9 and 1.3, respectively, with *p*-value of the *t*-test on equality of means at 0.08. This result indicates that upon graduation, PhD students who determine their PhD advisor before they start the program tend to publish twice as much as those who do not identify their advisor before their program begins. Note that the participants' PhD programs had similar structures. They are all at land-grant universities, and all require qualifying exams within the first two or three semesters of PhD study. It is feasible that proactive students who seek out advisors before they begin their studies have a chance to become involved in publishable research earlier, with more publications upon graduation. However, we do not find statistical difference in the number of years of PhD study between the two groups.

### 3.2.2 Working with PhD Advisors

All participants believed that mentorship had a tremendous effect on their early career success. Their PhD advisors mentored them on various aspects of research, such as refining research ideas, positioning their research work in the literature, selecting appropriate methodologies, improving technical writing, and time management. Almost all participants stated that they received prompt and constructive feedback on their work from their PhD advisors. Some participants particularly mentioned that they benefited significantly from the mentorship role that kept them focused while working on their dissertations. Moreover, some participants found mentoring outside research beneficial, such as networking and learning how academia works.

Based on the degree of control that an advisor may impose on the student's research, Perry (1996) specified four types of mentoring approaches: command-and-control, heavy direction, light direction, and sink-or-swim. The first approach involves the most control from PhD advisors and the last involves the least. Based on their description of the role of mentorship in their PhD study, we believe that none of our participants had a command-and-control or sink-or-swim mentorship. They all worked closely with their PhD advisors but had various levels of freedom to work on their dissertations. For some of our participants, who largely developed their own research ideas for their dissertation, the role

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<sup>5</sup> Note that multiple reasons can be selected for this question about matching with advisors.

of mentorship lied in high-level or big-picture type of guidance. In such cases, PhD advisors helped the participants see a bigger picture of the research, drive the research to the most exciting directions, and identify the key contributions of the work to the literature.

When asked about what they did well as they worked with their advisors, our participants reflected on the following aspects. First, many of our participants believed that they helped leading the research process by being self-starting and self-motivated. They enjoyed freedom to develop their own research or choose specific techniques from various options for a given research project, with guidance and help from their PhD advisors. One of our participants described their research during the PhD study as “guided independent research.” Second, most of our participants recalled that they had frequent communications and meetings with their advisors during their PhD program, where the PhD students received prompt and constructive feedback from their advisors. Together with the self-starting and self-motivating characteristics of the students, these frequent communications and meetings resulted in high research productivity, demonstrated by peer-reviewed publications. Many of our participants explicitly mentioned that their personalities meshed well with their advisors’ and enjoyed mentorships that were also friendships. A few of our participants mentioned they engaged in some leisure activities with their PhD advisors such as hiking, camping, or card games. Through these activities, they learned things outside of research, such as networking and how academia works.

Several key points emerged from the interviews when our participants were asked about advice that they would provide to current or future PhD students about working with their advisors more efficiently. First, two participants suggested that before finding their PhD advisors, students should “search their soul” to identify their true research interests and evaluate their weaknesses and strengths. Students are then positioned to reach out to potential faculty members who fit their research interests and who are likely able to help them overcome their weaknesses for possible mentor-mentee matches. For instance, one of our participants realized that they needed more one-on-one time and more hands-on guidance on research and writing; therefore, they intentionally asked to work more with an advisor who could provide this type of mentorship. One of our participants suggested that, while working on a chapter of a dissertation, one should often set aside some time to think about high-level questions that are related to the research, such as “what is the most interesting and exciting point of this research?” and “how to better motivate this chapter?” One can also discuss these types of questions with their PhD advisors.

Second, several participants believed that communication is key to improving working relationships between students and advisors. Advice includes the quantity and quality of communications between students and advisors. In terms of quantity, or frequency, a few participants suggested weekly meetings, individually or as a group. Other participants mentioned that they benefited significantly from their advisors’ open-door policy under which they can meet their advisors whenever they see a need. Students should not be afraid to show their advisors their work, even when unfinished. In terms of communication quality or efficiency, two aspects stood out: activities associated with mentor-mentee meetings and documentation. One participant outlined how students could have more efficient meetings with their advisors:

*“... show up prepared to every meeting, know exactly what you want to get out of that meeting. ... I went in, I took notes, but then I digested the notes [after the meeting] in my office to know exactly what came out of that meeting, what were the next steps. ... After every meeting, set a couple of minutes aside to figure out what are the next steps that you are going to do.”*



Two participants mentioned that documentation in writing was critical during their PhD study. Careful, clear, and well-organized documentation of computer code and modeling is critical for quality control, transparency, and replicability. It is beneficial not only to other researchers but also to the students themselves because a project may take one year or longer to complete, and the students may work on it intermittently due to other obligations. Careful documentation helps students to recollect critical information about the project when it eventually resumes. Documentation can also be useful for organizing research ideas, recording data processing steps, and summarizing mentor-mentee meetings. A useful exercise after each meeting with advisors is digesting the content and planning for the next steps. Then, the student can write a summary about the meeting content, plan for the next steps, and then share these plans with all attendees. Documentation is also an excellent exercise for writing, a topic we discuss below.

Third, a consensus among our participants is that within a mentoring relationship, the students should take the initiative and lead the intellectual exploration. To find an advisor, students should not wait until advisors reach out to them. Instead, students should reflect on their research interests and reach out to advisors. Once matched with an advisor, the student should take initiative to “help your advisor advise you,” to “drive the intellectual process,” and to “work with your advisors but on yourself,” as two participants described. In practice, this means that the students should prepare themselves for every meeting with their advisors; send the materials to be discussed at least one day or even a week before the meeting; and summarize, reflect, and make plans after each meeting. When facing a hurdle during research, which is common during PhD studies, the students should not solely rely on their advisors to overcome the issue. One of our participants recollected his or her experience working with their advisor,

*“I did not just run down to my advisor’s office immediately when I got a problem. I typically went down there the next day and said something like, ‘This is the problem. I tried A, B, C, D, and E and I still can’t figure it out. ... I need some input [from you].’”*

Another participant commented,

*“I think you have to work independently, and then when you believe you’ve reached a certain threshold or level, then you get it evaluated and you get feedback.”*

However, to ensure progress with research, the student should not dwell on a research hurdle by themselves for too long (e.g., over a week) before they seek help from advisors. This makes for a delicate balance between when to work on the problem alone and when to seek help from advisors, which is to be managed by the collaborative effort of the student and their advisor.

Some other suggestions shared by our participants about working with advisors focused on mentor-mentee interactions within the mentoring relationship. First, they suggested that students should have open minds about feedback and criticism about research work without taking it personally. However, the students should also believe in themselves, be their own advocates, and “fight for what you really believe,” as one participant stated. Second, some of our participants suggested that knowing advisors informally was as important as knowing them formally. Students can learn something outside research in such relationships, but that is still critical for their career development, such as time management, networking, or even as general as how academia works.

Even though our participants had a high level of satisfaction regarding their mentoring experience, there were things that they wish they could have done better. These included asking more big-picture questions, taking on one or two more projects, aligning dissertation chapters better with advisors’ expertise, or even pushing the advisor harder for feedback.

### 3.3 Ways to Approach Research: Where to Start Is Different among Students and Faculty Members

We also asked about how our respondents as PhD students first and faculty members later explore a research idea and develop it into a project and perhaps a published paper. The answers show clear differences, in terms of exploring and developing a research idea into projects and publications, between PhD students and faculty members, as well as between faculty members with and without extension assignment. The majority of our participants worked as a research assistant during their PhD study. Therefore, they had a blueprint ready for at least part of their dissertation, and their tasks were mainly to ensure project deliverables by working with their advisors. For projects initiated by themselves during their PhD study, quite a few participants mentioned that they obtained the research ideas from reading literature, performing “small twists” on existing literature to get ideas for new papers. They then refined these ideas through interactions with their advisors and eventually carried through these research ideas and developed them into publications by working with their advisors. They also suggested that identifying ideas only from literature typically lead to marginal contributions and were not hypothesis-driven. As faculty, ideas were often obtained from the real world by reading newspapers or magazines or from conversations with colleagues or stakeholders. One of our participants elaborated how they explored research ideas and developed them into projects:

*“... in general, when I come up with a research idea that I think is intriguing, I write down some notes about it in a document. I have a document with all my research ideas. And I try to, at some point, maybe not right when I write it down, I will do a literature review and see whether this question has been answered before. If I start to think that this is a topic that’s really worth pursuing, then I’ll think about the data, and think about any sort of limitations, and I will write down a one-page abstract on what’s the research question, what’s the methodological approach, and what data I’m going to be using, and then I will ask myself if this paper is likely to be published in AJAE, or do I have a good feeling that it would be a good candidate for publication in AJAE. And if it really seems like it’s a feasible project in terms of the data and the empirical strategy, and topically it’s interesting enough that I feel like it has a legitimate shot at AJAE, then I’m gonna mentally move it to the papers that I would really like to pursue. When I have a little bit of time available for working on the project, and then I’ll start it. But I’m telling you this is my perspective now six years after graduating and I think that with a job market paper and with a dissertation, it should be a similar process. I don’t feel like I went through the exact same process back then, that [PhD study period] was more of like a conversation with my advisors about feasibility and working with him [on] the big grants that we have. But I think that the process should be very similar in terms of thinking about the research question, and then thinking about the feasibility doing research and judging the quality.”*

Regarding how to generate research ideas, our participants with extension assignments mentioned that it positioned them well in “taking on the ground problems and scaling them up” (a quote from one of our participants) to research questions that may have broader relevance to agriculture. In this case, the participant drew research ideas from issues faced by producers. Some of our participants who had no extension appointment mentioned that they obtain research ideas by working closely with extension colleagues. Most of our participants who had no extension appointment stated that they obtained research ideas from reading broadly, including newspapers, magazines, research articles, and from attending seminars, workshops, conferences, and from conversations with colleagues or stakeholders.<sup>6</sup>

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<sup>6</sup> Varian (1997) and Weisbach (2021) provide detailed discussions on how to generate research ideas or select research topics in economics.

When asked about what the most difficult part of research is, our participants provided a range of answers, indicating that the most challenging aspects of PhD programs vary widely. Five of our 21 participants mentioned that identifying a novel, interesting, and feasible research idea or abandoning a bad research idea was the hardest part in research. Another three participants shared that finding the appropriate methods for the analysis was the most difficult for them. Three participants identified writing is the most difficult part of the research process. Interestingly, two of our participants mentioned that every part of the research process was difficult. Two participants mentioned that data availability is the hardest part, whereas another two participants believed that knowing the time and place to stop doing the analysis was the most difficult. Other difficult aspects that our respondents referenced include (without a particular order): finding sufficient time to work on research as an assistant professor, making decisions on numerous small choices during research, obtaining funds, uncertainty of keeping changing models and analyses, being organized and compartmentalizing a research project into manageable tasks, and finally, going through the entire referee process and publishing the paper.

These varied understandings of difficulties in the research process can be interpreted in two ways. First, from a PhD student's perspective, they should not be discouraged or frustrated when research difficulties arise. This is because, as we listed above, every researcher experiences some challenges. Second, from an advisor's perspective, one should be aware that different students may have different aspects of the research process where they require more guidance and help.

### 3.4 Re-do PhD: Perfect PhD Experience Is Rare

For the question "what would you do differently if you had to re-do your PhD," we received a variety of answers. Three of our participants mentioned that they would like to strengthen their quantitative skills by taking more econometrics courses. Two stressed that they would like to identify what their true interests were and to think twice when participating in projects that might not align well with their true interests. Another six participants centered their answers on quality and quantity of publications, referencing that ideally, they would have preferred to have a few high-quality publications. For instance, three of the six participants answered that they would make sure to have papers under review, to publish more papers, or to participate in more projects. Another three answered that they would write papers aimed at a larger audience or higher quality and would not focus too much on publication quantity.

Other participants reflected on how they would have changed their PhD study, although there is not a clear pattern on how they would have done so. For instance, one participant wished they would have been more thorough in the literature review in order to avoid a major research setback. Two participants wished they could read and research more broadly, whereas another two participants wished they had been more focused on fewer projects and were not spread too thin. Finally, one participant would like more formal training on writing research papers. These experiences suggest a balancing act between quality and quantity, as well as breadth and depth of research. Fortunately, two participants mentioned that they do not know or would not change anything because they were very satisfied with their PhD experience. One stated,

*"I literally wouldn't change anything. I mean I had what I could define like the ideal trajectory for a PhD student [...] being able to build on a program of research, all in the same vein, being able to build in terms of rigor. Each paper was a little more rigorous, and each paper went to a higher quality journal. [...] To me, that's the ideal trajectory."*

### 3.5 Writing: Keep Writing and Rewriting

Eighteen out of twenty-one participants spoke how difficult writing has been for them. One of the participants believed that writing is perhaps the most undervalued tool in the PhD program because it is not typically taught in agricultural economics PhD programs. In the words of one participant, “bad writing will tank a brilliant paper.” Almost all the participants mentioned that their advisors helped the most to improve their writing by providing detailed comments and editing of their manuscripts. Other helpful resources for writing mentioned by our participants include help from other faculty members in the program (used by 76 percent of participants), fellow PhD students (used by 52 percent of participants), and writing workshops on campus (used by 33 percent of participants). English courses on technical writing or grammar, professional copy editors, relatives, writing club with fellow students, or even online writing tools also were of service.<sup>7</sup>

Among the many pieces of writing advice that our participants shared, in the words of one participant, “keep writing and rewriting” appears to be the most common suggestion. They believed that writing is a skill set that improves over time with regular practice, reflection, and help from many sources mentioned in the above paragraph. “Rewriting is as important as writing,” one of our participants remarked. We agree with the participant that the first draft of the paper needs not be perfect, and it will improve as it is rewritten, while receiving comments and suggestions from advisors, fellow students, seminar participants, or referees. Our participants suggested that when receiving feedback on writing, that like research content, students should not take criticism personally. Some participants suggested that a PhD student should write at least one paragraph every day. Additionally, students can utilize other more mundane and everyday settings to hone their writing skills, such as emails, meeting notes, and conference abstracts. One participant also shared an interesting writing strategy: “Formulate a cohesive argument in favor of something that you disagree with.” This exercise helps one to practice how to organize one’s thoughts, how to be persuasive, and how to be as clear as possible, as well as how to get across the main points of an argument. Another piece of advice included learning from reading. Reading can include classical writing examples in the field and can sometimes include poorly written working papers.<sup>8</sup> The latter can be as helpful as the former in terms of improving one’s writing, as they illustrate examples or cases that a student may want to avoid when they write their own papers. A few books on writing that were recommended by some of our participants include: Strunk and White (1999), Thomson (2001), Zinsser (2006), and McCloskey (2019). Moreover, Weisbach (2021) and Bellemare (2022) provide detailed guidance on writing papers in economics.

The introduction is arguably the most important part of a paper because it motivates the whole study and documents the main story in a paper. Two of our participants shared helpful thoughts on improving writing of introductions. One participant found that it is helpful to start with a very structured outline, which would assist students in organizing the flow of thoughts in the introduction. The participant commented, “It [introduction] should not be a matter of jumping around. Anyone should be able to get through this with relative ease and say I understand why we’re transitioning from paragraph to paragraph, [and] I see the core message from each paragraph.” The participant also mentioned that knowing the relevant literature helps in writing an introduction. The other participant provided an interesting metaphor that drew analogy between a research project and slaying a dragon, and offered one way to organize an introduction. They commented,

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<sup>7</sup> One participant mentioned that he or she used Hemingwayapp.com. The authors of this article declare that they have no relevant or material financial interests that relate to Hemingwayapp.com.

<sup>8</sup> The classical writing examples mentioned by some of our participants are: Cheung (1973), Weitzman (1998), Joshua Angrist’s works on causal inference, and some works by Richard Hornbeck.

*“... when you think about the introduction, think about it like there’s this dragon that has to be slayed. And so, what you want to do is to talk about this dragon and why it’s so terrible and why it’s so bad. And then you want to talk about how other people have tried to slay this dragon [but failed, or nobody has not noticed this bad dragon]. And then, you want to talk about why you can slay the dragon and why you’ve got the sword, the magic sword, that’s going to kill this dragon. I thought that illustrated to me what an introduction is supposed to be.”*

### 3.6 Teaching as a PhD Student: No More, No Less

We find that most of our participants had worked as both teaching assistants (TAs) and research assistants (RAs) and believed that both were helpful experiences. Moreover, most of the participants mentioned that they were assigned to a role of TA or RA, and they did not have much freedom to choose one of the assistantship forms.

While the level of teaching experience gained as a PhD student ranged widely, all of the participants reported having at least some teaching experience (Table 2). During interviews, nearly all participants agreed that obtaining teaching experience, especially the experience of teaching independently during PhD study is important for one’s career development, even though their eventual positions might not involve teaching. This was because, in addition to gaining teaching experience that would strengthen one’s curriculum vitae, one could also improve their communication and learning skills through teaching. However, teaching independently can be time-consuming for PhD students. Therefore, there are tradeoffs between gaining teaching experience and devoting more time to research or other activities. The consensus among the participants is that teaching one course for one semester would be sufficient for PhD students who are interested in research-oriented positions. Note that about 90 percent of the participants in this study are employed at universities classified as “R1: Doctoral Universities—Very high research activity” in the Carnegie Classification of Institutions of Higher Education. Because we tailored our survey population to award winners, nearly all at R-1 institutions, our results are less applicable for teaching intensive or nonacademic positions. For students who are interested in positions at non-R1 higher educational institutions, additional teaching likely has more weight.

In terms of improving teaching skills as a PhD student, the majority of our participants (81 percent) relied on faculty members who had similar teaching experience. This included observing the teaching of these faculty members, obtaining teaching materials and tips from them, as well as having them observe and comment on the participants’ teaching. About 62 percent of our participants obtained help in teaching from fellow students. Less than half of our participants (43 percent) utilized formal university-level resources such as teaching workshops to improve their teaching skills. Only one of our participants utilized the Preparing Future Faculty (PFF) program to improve their teaching skills.<sup>9</sup> Another participant mentioned a two-credit hour teaching seminar on the scholarship of teaching that they found extremely helpful. Our findings in this regard indicate that PhD students mainly rely on informal channels (e.g., faculty members and fellow students) to enhance their teaching and that they believed that these informal channels are more effective than formal ones.

On the timing of teaching during the PhD study, most participants gained teaching experience as an independent instructor in the later years of their programs. This timing matches when students are more likely to have additional flexibility in their schedules. However, one participant suggested early teaching experience in PhD programs saves time for research and the job search in later years.

<sup>9</sup> More details of the PFF program appear on its official website: <https://preparing-faculty.org/>.

### 3.7 Conferences, Networking, and Job Search: Present You and Your Research to the World

All our participants placed value on attending conferences as graduate students. They suggested attending as many sessions as possible at conferences as well as social events such as reunions and happy hours because they are great networking opportunities. When asked what the worst way would be to spend time at conferences, a consensus among our participants is spending too much time preparing one's own presentations at the cost of attending conference sessions. Our participants mentioned that for PhD students, attending sessions at conferences is a great way to learn about the current state of research, to generate research ideas, and learn how others explore research ideas and communicate them with an audience.

Our participants also emphasized the value of networking at conferences. A few of them mentioned that they benefited from their advisors introducing them to people during social events such as reunions or receptions. Some of our participants found that small conferences could be as beneficial as large conferences because students may receive extra attention. One participant mentioned that in order to encourage their students to meet other researchers across the profession, their students "are not allowed to hang out with people from the same school" at conferences. Another participant suggested adding one or two days before or after the conferences to explore the area where the conferences are held, and making sure one is fully engaged with the conference activities.

With respect to preparing for the job market, almost all of our participants believe that attending conferences and networking (with help from their advisors) are beneficial for job market candidates. Graduate students who plan to be on the job market in one or two years can also benefit from attending events (e.g., informal roundtable interviews) hosted by the Employment Center at the Agricultural and Applied Economics Association (AAEA). Regional associations also have similar opportunities to benefit from. However, our participants also emphasized that preparation for the job market starts on day one of PhD programs, and publications and job market papers are critical factors for job search success. Ideally, one would have several publications and a strong job market paper when they start the job search. When one is on the job market, interviewees suggested that the job candidate should be able to demonstrate expertise in their area, but without being defensive. Interviewees suggested that the candidate show a balanced research portfolio. As put by one participant, "Don't be a one-trick pony." Our participants encouraged PhD students to practice their job talks as much as possible. Moreover, because grants are increasingly important, gaining some grant application experience during PhD studies can be of service, although it is less important than some other factors (to be discussed below).

The survey allowed comparisons of the importance of various factors to job search success, with results shown in Table 3. These factors are ranked as follows: interview preparation, number of publications, and advisor's guidance are among the three most important elements, followed by networking, reputation of the department, and teaching experience. Consistent with the synthesis of the interviews, grant writing and a strong GPA score are the least important in terms of job search success.

Note that our interviews were conducted between September and December of 2020, when the job market was under severe constraints born by the COVID-19 pandemic. Based on Job Openings for Economists (JOE) listings, there were 1,074 openings listed from August 1 to January 31, 2021, 26 percent fewer openings (1,455) listed over the same period one year before (i.e., the major job market period right before the COVID-19 pandemic). We asked our participants for their advice on how to cope with the significant negative job market shock caused by the COVID-19 pandemic. Their advice centered on the following perspectives. First, a student could work with their advisor to stay in the PhD program for an additional year to strengthen their publication record or consider postdoctoral positions.

**Table 3: Importance of Following Elements to Obtain a Permanent Position in Academia (Number of Observations: 21)**

Element	Mean (Std. Dev.) <sup>1</sup>
Interview preparation	4.57 (0.68)
Peer-reviewed publications	4.48 (0.81)
Advisor’s guidance	4.19 (0.75)
Professional meetings/networking	3.86 (0.65)
Department’s rank/reputation	3.71 (0.72)
Teaching experience	3.14 (1.28)
Participate/exposure to grant writing	2.90 (0.77)
Have a near-perfect GPA	2.19 (0.93)

Note: 1 indicates “Not at all important,” 5 indicates “Extremely important.” No statistical difference detected for the three highest categories based on the Wilcoxon matched-pairs signed-rank test. Due to the small sample size ( $n = 21$ ), the results reported in Table 3 should be interpreted with caution. An anonymous reviewer mentioned that, based on their opinion and experience, letter of recommendation and department’s rank/reputation are critical for job market success, because large amount of noise exists in the job market for junior economists, and these two elements offer clearer signals to potential employers.

They emphasized continuing to work on projects that one is passionate about and enjoys doing, so that the student can be better prepared when the job market rebounds.<sup>10</sup> Second, participants encouraged students to be flexible and keep an open mind, as there are many paths to accomplish what one wants to do. Third, during the pandemic when social distance was the “new normal” and in-person interaction opportunities had been significantly reduced, one could seek new ways to network, such as building a personal website or engaging on social media.

### 3.8 Time Management and Work-Life Balance: The Two Come Hand-in-Hand

Our participants were intentional of their time management. This in part stems from family structure. The majority of our sample balanced family with work: nearly half had a spouse, and a quarter had a spouse and children during their studies. Only a fifth of our participants were single for the major duration of their PhD studies (Table 2). At least at some stage of their PhD study, four of our participants managed their PhD study as a 9am-to-5pm job and were still successful. We find that the advice we received is highly consistent across all our participants, involving planning, organizing, and controlling, some of the basic functions of management.<sup>11</sup> In terms of planning, one participant shared that they followed “SMART” goals: goals that are Specific, Measurable, Achievable, Realistic, and Timely. Another participant suggested that one should avoid the planning fallacy where planning underestimates the time needed to complete a task. For organizing, our participants emphasized that one should protect their most productive time for research and writing, and use their less productive time for less important things (e.g., emails). For controlling, since research and writing need long periods of concentration, our participants suggested that one should minimize interruptions and distractions, such as closing email windows and turning off cell phones.<sup>12</sup> A common piece of advice regarding time management was: “when you go to work, you work.” Staying in the office for a long time does not

<sup>10</sup> Fortunately, over August 1, 2021, to January 31, 2022, the job openings listed on JOE was 1,454, only one opening less than that over August 1, 2019, to January 31, 2020.

<sup>11</sup> Robbins and Coulter (2021) provide detailed discussion about four basic functions of management: Planning, organizing, leading, and controlling in their popular textbook, *Management* (15th edition).

<sup>12</sup> For more discussion about improving efficiency at work, we refer readers to Covey (1989) and Newport (2016).

necessarily imply high productivity due to distractions and diminishing returns of additional hours. Finally, one should carefully plan their activities and stick with their plans, with frequent reflection on whether the time is well-spent and evidence of reasonable progress is being made.

Regarding work-life balance, our survey results show that 95 percent of the participants prioritize it, and 57 percent of them prioritize it “a lot” or “very much.” Our participants believe that time management and work-life balance go hand-in-hand. That is, on one hand, to achieve work-life balance, one must manage time very well; and on the other hand, work-life balance will help reduce stress from PhD study and improve work efficiency. Pertaining to work-life balance and stress management during PhD study, two elements emerged from the responses of our participants: physical exercise and social connections. The advice suggested that one should make sure to carve out time regularly for physical exercise that they enjoy because research work is “a marathon, not a sprint.” It would be even better, as one participant suggested, if one could combine physical exercise together with social connections, such as playing basketball or tennis together with friends. One participant shared,

*“... it's amazing how better life is when you have somebody that you are complaining about the same thing. ... and having a good cohort will save you a lot of those stressors.”*

One participant also mentioned that PhD students should be mindful of their stress level, and not to hesitate to seek professional help from university health services if feeling that the stress is unmanageable.

### **3.9 Biggest Surprise as a Junior Faculty Member: Grant Writing, Student Advising, and Multitasking in an Unstructured Working Environment**

About half of our participants considered their junior faculty life more stressful than their last two years of their PhD study. Grant writing, graduate student advising, multitasking, and unstructured working environment are the major surprises for our participants when they just transitioned from their PhD or postdoctoral study to new positions (mainly faculty positions). First, only a couple of our participants had grant-writing experience before they started their faculty positions. On the other hand, obtaining extramural grants is becoming increasingly important for faculty members in agricultural economics. Therefore, most of our participants felt unprepared for and stressed by this task at the early stage of their junior faculty position. They wished that they could have accumulated some grant-writing experience during their PhD study. Some of our participants mentioned that working as a co-project investigator (Co-PI) with experienced colleagues on some grant applications is a good way to start. Attending grant-writing workshops is helpful as well.

Second, it is unsurprising that some of our participants viewed graduate student advising as one of their “biggest surprises,” because none of the participants had such experience before they started their faculty positions. One could advise students by reflecting on their own PhD study experience. However, every student is different and what worked for the (new) advisor may not work for the students. One of our participants suggested that, just like accumulating grant-writing experience for a junior faculty member, one could co-advise a student with a more experienced colleague to gain experience. Moreover, we hope that this article’s “Mentorship” section may help new advisors.<sup>13</sup>

Third, when compared with a PhD student whose key task is a dissertation, a faculty member may constantly find him or herself in a place where, in the words of one respondent, “so many things from all directions need your attention.” In addition to research, a faculty member has responsibilities for teaching, advising, outreach or extension, grant writing, and service. This is perhaps why some of our participants noted that the sharp increase in the number of responsibilities and time demands was the biggest surprise to them. As a result, time management becomes even more critical for a faculty member than for a PhD student.

<sup>13</sup> Both Weisbach (2021) and Bellemare (2022) include a chapter on advising in their books.



Fourth, a few of our participants mentioned that the biggest surprise to them as a junior faculty member was their unstructured working environment that came with substantial freedom and independence. For instance, one participant mentioned that in the first few months of their junior faculty career, perhaps nobody in the department noticed that they were there. Indeed, together with the extensive responsibilities discussed above, a faculty position also involves a considerable level of freedom and independence, but also can create isolation that a newly minted PhD might find difficult to handle. Faculty can do more to welcome new colleagues into their departments and help them feel less isolated. Likewise, new faculty members can use this time to work on dissertation chapters and get them published, as well as to meet with new colleagues, as suggested by our participants.

## 4 Conclusions

We distilled the experiences shared by 21 SAEA Emerging Scholar Awardees, aiming to provide current and prospective PhD students in agricultural economics with insights and tips for a fruitful early career. Beyond helping PhD students, we believe this article benefits postdoctoral researchers aiming at faculty positions, junior faculty members who seek a smooth transition, and senior faculty members who are advising PhD students. These strategies, especially working with mentors, time management, and working through a research project, can help PhD students in other disciplines or those looking for nonacademic career routes.

As a summary, the experiences of our participants indicate the following. First, one should be intentional and utilize PhD coursework in terms of publications and presentations. Second, when working with their advisors, students should take the initiative to lead the intellectual process and maintain efficient communication with advisors. Third, writing can be difficult for many PhD students, and improving writing takes time and may require help from various sources. A major way to improve writing is to keep on writing and get feedback from advisors, fellow students, or other sources. Fourth, teaching experience is important for the job search, but one has to balance the time devoted to teaching and research. Fifth, time management is key to productivity; one should identify a time management strategy that fits them. Sixth, encouraging work-life balance such as physical exercise and socializing helps manage stress during PhD studies. Finally, the biggest surprises during the transition into faculty positions included grant writing, student advising, multitasking, and an unstructured working environment.

The PhD study experience shared by our participants indicates that graduate programs can improve some aspects to enhance students' professional growth. First, since writing is a hurdle for many PhD students, departments or programs may consider integrating writing into formal training of PhD programs, such as including it in research method courses or a second-year paper. Second, departments can facilitate the match between advisors and students by conducting workshops where both faculty members and students present their research work and interests. Third, exposing advanced PhD students to grant writing and graduate student advising will be helpful for their professional growth.

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