Graduate Student Mental Health:

Lessons from American Economics Departments[*]

Paul Barreira,[†] Matthew Basilico,[‡] Valentin Bolotnyy[§]

Harvard University

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Abstract

We study the mental health of graduate students at Economics PhD programs in the U.S. Using clinically validated surveys, we find that 18% of graduate students experience moderate or severe symptoms of depression and anxiety - more than three times the population average - and 11% report suicidal ideation in a two-week period. The average PhD student reports greater feelings of loneliness than does the average retired American. Only 26% of Economics students report feeling that their work is useful always or most of the time, compared with 70% of Economics faculty and 63% of the working age population. Depression and symptoms of anxiety increase with time in the program: 25% of students in years 5+ of their programs experience moderate or severe symptoms of depression or anxiety compared with 14.5% of first-year students. Many students with significant symptoms of mental distress are not in treatment. We provide recommendations for students and faculty on ways to improve student work conditions, productivity, and mental health.

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1 EXECUTIVE SUMMARY

The objectives of the study were to (1) understand the prevalence and severity of mental health issues in Economics PhD programs; (2) understand what students are thinking, feeling, and experiencing during their programs; (3) understand how the thoughts, feelings, and experiences are related to student mental health; and (4) make recommendations on steps programs can take to improve student mental health. The 8 programs participating in the study were: Columbia University, Harvard University, University of Michigan, Massachusetts Institute of Technology (MIT), Princeton University, UC Berkeley, UC San Diego, and Yale University.

Below, we summarize our main findings for each objective.

1.1 Prevalence and Severity of Mental Health Issues

- About 18% of students are experiencing moderate to severe symptoms of depression and anxiety. The comparable national rate for depression is 5.6% and 3.4-3.6% for those aged 25-34 (Kocalevent et al. (2013)). A study of the German population found the comparable national rate for anxiety to be 5% (Lowe et al. (2008)).

- 11% of students (56 people) reported having suicidal thoughts on at least several days within the last two weeks.

- 25% of students have at some point in their lives been diagnosed with a mental health issue by a professional. 13% were diagnosed before starting the PhD program, 12% were diagnosed after.

- Of those experiencing moderate to severe symptoms of depression, only 27% are currently receiving treatment for depression. 21% of those experiencing moderate to severe symptoms of anxiety are receiving treatment for anxiety, and only 27% of those who have contemplated suicide in the last 2 weeks are receiving any form of mental health treatment.

- The prevalence of depression and anxiety symptoms among Economics PhD students is

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comparable to the prevalence found in incarcerated populations.

- Loneliness and isolation are major issues. The average Economics PhD student feels considerably lonelier and more isolated than a retired American.

- Women and international students have a higher prevalence of mental health issues than men and U.S. students, respectively.

- The majority of those who are currently receiving mental health treatment are not experiencing moderate or severe symptoms of anxiety or depression. In other words, contrary to social stigma, seeing a mental health professional is not the same thing as having poor mental health. Many of those who seek help are doing better than those who do not.

- Although students generally have a good understanding of whether their own mental health is good or poor, they overestimate how well they are doing relative to other students. For example, of those who reported suicidal thoughts in the last two weeks, 26% thought their mental health was better than average.

1.2 Student Experiences in Their Programs

- Economics students have biggest regrets about how they organize their time and how they engage with their studies. This is in contrast to natural science PhD students, whose biggest regrets are their area of study and their advisers.

- Only 26% of Economics students report feeling like their work is useful always or most of the time, compared to 70% of Economics faculty and 63% of the entire working age population. Only 19% of Economics students feel that they have opportunities to make a positive impact on their community or society compared to 58% of faculty and 53% of the population.

- 62% of students worry always or most of the time about work when not working, compared to 60% of faculty members. 20.5% of students find themselves too tired for activities in private life always or most of the time, compared to 23% of faculty.

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- 13% of students said they seriously contemplated quitting the PhD program once in the past 2 weeks, with an additional 9.5% considering doing so over two or more days.

- While 96% of students say they met with their main adviser at least once in the last 2 months, students report fear of making a bad impression, doubt about the quality of their thoughts and ideas, and lack of progress since the previous meeting as the biggest impediments to meeting with advisers more frequently.

- Many students report being unable to be honest and open with their advisers about the difficulties they are experiencing. Ordered by the gap between desired honesty and actual honesty, from largest to smallest, the top 5 issues are: (1) non-academic career options, (2) preparing for the job market, (3) research progress, (4) issues with other advisers, (5) issues arising from co-authorship with the faculty member.

- Few students feel comfortable raising their hand in a seminar setting. Only 19% of women would be comfortable doing so, compared to 35% of men. No gap exists between U.S. and international students.

- There is a lack of options for students when they are experiencing an issue with advising. Only 42% say they would know where to turn for help with advising if an issue arose.

- 16% of students have experienced some form of sexual harassment in their department since becoming a PhD student.

- 21.5% of women have experienced sexual harassment compared to 13% of men; 21% of U.S. students, compared to 11% of international students.

- 62.5% of the instances of sexual harassment were perpetrated by another graduate student, while 19% came from a professor.

1.3   Mental Health and Student Experiences

- Older cohorts have worse mental health than younger cohorts. 14.5% of the first-year students are experiencing moderate to severe symptoms of depression and anxiety, com-

pared to 25% of those who are in years 5+ in their program. Similarly, 7% of the first-year students report contemplating suicide in the last 2 weeks, compared to 13% of those in years 5+.

- 27% of those who said they regret doing the PhD and 20% of those who regret their choice of advisers report contemplating suicide in the last 2 weeks. In contrast, those who wish they had engaged more with their studies and organized time more effectively have substantially lower rates of suicidal ideation (11%). 7% of students who said they have no regrets about graduate school contemplated suicide in the last 2 weeks.

- Students who perceive their peers as competitive, who do not have very good friends in the department, and who in general do not have many people with whom they can openly discuss their private feelings without having to hold back have worse mental health.

- The size of one's problem set group in the first year and whether or not a student co-authors with other students or faculty are not correlated with our measures of depression or anxiety. Students who have larger study groups and who do co-author are, though, less likely to feel lonely and isolated.

- Mental health issues do not appear to be affecting students with different values in life differently. In particular, students who believe that tenure at an academic institution is very important for their success in life are not more or less likely to have mental health issues than students who believe that income or recognition or a family are very important for success in life.

- Having sources of meaning and usefulness appears to be crucial to mental health. Those who have goals to aspire to, feelings of doing useful work, sense of accomplishment, and opportunities to make a positive impact on their surroundings have better mental health than those who do not. At the same time, when work fatigue and worries negatively affect activities in private life, mental health is worse as well.

- Those with worse mental health also have worse performance. They are less likely

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to voice a thought in a seminar, slightly more likely to have worse first-year grades, and substantially more likely to be seriously contemplating leaving the program. They are also more pessimistic about how well they have done and will do in their courses, teaching, presentations, and research.

- Students who talk to faculty that care about their success and care about them as a person have better mental health than students who do not.

- The frequency with which students meet with their main adviser or with faculty more broadly is not correlated with mental health.

- Students who say they avoid meetings with faculty because those meetings are unpleasant have worse mental health than students who do not feel that meetings are unpleasant. Students for whom fear of the consequences of a bad impression, or doubt about the quality of their work, or lack of progress since the previous meeting are viewed as big impediments to talking to faculty also have worse mental health than those students who do not have such impediments.

- While students who cannot honestly and openly discuss mental health with their adviser have worse mental health, it is also true that students who cannot openly discuss problems with presentations, teaching, research progress, preparing for the job market, considering non-academic jobs, etc. also have worse mental health.

- Whether a student went straight through from his or her undergraduate program into graduate school or whether a student took many or few math courses before graduate school has no bearing on that student's mental health.

- A student's level of engagement with social media, measured in the number of times he or she checks Facebook per day, is also unrelated to mental health.

1.4   Recommendations for Improvement

- Encourage students to take on research or activities that provide a sense of meaning and usefulness to them in the short term. Help students hedge against failure.

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- Provide continuous engagement, making clear to students that someone cares about their success in the program.

- Measure success in different ways to lessen feelings of job insecurity. Support students in preparing the best possible job market paper and dissertation regardless of the students' ambitions or career preferences.

- Communicate with students clearly and frequently.

- Encourage and empower student initiatives to improve work conditions and collegiality.

- Make the coursework years as useful and relevant to the research years as possible.

- Destigmatize conversations about failures, big and small. Destigmatize getting help.

- Create a channel through which faculty can receive constructive feedback on advising. Encourage students and advisers to have conversations about the kind of advising relationship they would like to have.

- If sensing that a student is having trouble, be patient, supportive, and empathetic. Follow up with the student to show you care and to ensure that the student is getting the support he or she needs. Know what resources are out there and help the student access them.

- Discuss failure with advisees early on and commit to being their supportive adviser first and their evaluator second.

- Use the data in this study to encourage students to access mental health resources. Partner with your university's counseling center to educate students and faculty and to publicize clinical services. Let students know that their mental health and wellbeing is a priority for you and should be a priority for them.

2 INTRODUCTION

A suicide in the MIT Economics PhD program in 2015 generated town halls and moments of reflection for Economics faculty and students in the Cambridge, MA area. One response

to the tragedy was an effort by the authors, two of whom are PhD students in the Harvard Economics Department, to collect data on the prevalence and severity of mental health issues in Economics programs and to better understand the environmental factors that might be contributing positively or negatively to student mental health.

With the support of members of the American Economic Association's (AEA) Executive Committee, Department Chairs, and Deans of Graduate Study of each department, the authors administered online surveys at 8 economics departments: Columbia University, Harvard University, University of Michigan, MIT, Princeton University, UC Berkeley, UC San Diego, and Yale University.

The study consisted of two student surveys, one about 25 minutes in length administered in the Fall of 2017 and a 10-minute follow-up administered in the Spring of 2018. A week before the launch of the initial survey, each Department Chair e-mailed his or her students with an endorsement of the study, making clear that responses would be strictly confidential and promising that the results would be taken seriously. 1185 Economics PhD students received the first survey via e-mail and 513 of them (43%) participated. Concurrently with the first student survey, Department Chairs sent their faculty members a short survey that asked mostly about their experiences with students, the work environment, and reflections on how to help students struggling with mental health issues. Of the approximately 448 faculty members who received the survey, 187 (42%) participated. We did not provide financial participation incentives for any of the surveys.

This paper summarizes key findings from the two student surveys and the faculty survey. We discuss the prevalence and severity of mental health issues among economics graduate students and then explore how various student experiences could be having a positive or negative effect on mental health.

Our analyses come at a time when the prevalence of suicide and mental health issues in the U.S. is rising (Routledge (2018), CDC (2018), Weinberger et al. (2018)), with the former U.S. Surgeon General declaring a "loneliness epidemic"(Murthy (2017)), and the British government creating a Minister for Loneliness (Yeginsu (2018)). Research is also shedding light on the

serious implications of these trends. For example, a 2010 meta-analysis of 148 studies of more than 300,000 individuals has shown that living with loneliness increases one's odds of an early death by 45%, similar to the effect that smoking 15 cigarettes a day has on life expectancy. Loneliness is also correlated with a higher probability of having cardiovascular disease and dementia and, as we also corroborate in this paper, of suffering from depression and anxiety (Holt-Lunstad et al. (2010)). In the workplace, mental health issues reduce task performance, reasoning, decision-making, and creativity (Ozcelik and Barsade (2011)).

The issues that we focus on in this paper are issues of debilitating psychological pain, far above and beyond any healthy levels of stress or anxiety that can actually help us excel. While our work does not diagnose students, it points to the wide prevalence of symptoms that prevent them from fulfilling a number of key functions and activities: the ability to learn; the ability to feel, express, and manage a range of positive and negative emotions; the ability to form and maintain good relationships with others; and the ability to cope with and manage change and uncertainty. Even if undiagnosed, students experiencing symptoms that prevent them from fulfilling these functions are experiencing poor mental health and are thus very much a focus of our work.

It is also important to note that the issues we analyze do not only affect "the most brilliant" or "the most privileged." As Richard Layard and David Clark document in their 2015 book, those with the highest IQs (IQs 120 and over) have the lowest prevalence of depression and anxiety disorder, about as low as the prevalence of the illnesses for those whose IQ is below 80 (Layard and Clark (2015)). Similarly, while mental health issues are more prevalent among lower socioeconomic classes, the problem, as the authors emphasize, "is very much present in all classes."

While the prevalence of mental health issues appears to be higher among economics PhD students upon entry into graduate school than in the general population, we also find evidence that characteristics of the programs themselves can make things worse. We analyze a wide range of program characteristics that include student relationships with each other and with advisers, student experiences in seminars and in meetings, and the availability and usefulness

of resources. We also collect information on student experiences with sexual harassment in their departments. And we complement student reflections on their experiences with a survey of the faculty. Our hope is that, taken together, these analyses can lead us as a discipline to take more evidence-based steps to help both students and faculty thrive.

3 BACKGROUND CHARACTERISTICS

Before we proceed to our main results, we want to highlight some background characteristics of the Economics PhD students participating in this study (see Table 1).

35% of the students are women. 86% are between 20 and 29 years old. 61% identify as White, 26% as Asian or Asian American, and 12% as Hispanic or Latino. African Americans, Native Hawaiians, and American Indians make up the remaining 1% of students.

46% of the students are U.S. citizens, while 54% are not. Relatedly, English is not the first language for 49% of the students.

31% are single, while 55% are married or are in a long-term committed relationship. 9% say they are dating and 4% are in casual relationships. 90% are heterosexual.

28% of students live alone. That number is the same for men and women, but there is a substantial difference between U.S. students and international students: 23% of U.S. students live alone, compared to 32% of international students. 4.3% of male students have children, compared to 3.4% of female students. 4.7% of U.S. students have children, compared to 3.3% of those who are not U.S. citizens.

76% have parents who are married and 19% have parents who are divorced, numbers that are higher than the U.S. adult averages (as of 2014, 48% of U.S. adults were married and 13% were divorced).[1] 59% of students have fathers with graduate degrees and 91% have a father with some college education. Similarly, 49% of students have a mother with a graduate degree and 89% have a mother with some college education. When it comes to the graduate degrees, 7% of students have a father with an Economics PhD and 2% have a mother with one. 35% have a father with some PhD and 22% have a mother with a PhD.

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[1]http://www.pewresearch.org/fact-tank/2018/03/19/share-of-married-adults-varies-widely-across-u-s-religious-groups/

Women are more likely than men to have a father or mother with a graduate degree. Strikingly, U.S. citizens are much more likely to have a parent with a graduate degree than non-U.S. citizens. 75% of U.S. students have a father with a graduate degree and 65% have a mother with a graduate degree, compared to 46% and 35% for non-U.S. citizens, respectively. Only 3% of U.S students have a father with a high school or below level of education, compared to 15% of non-U.S. students.

46.5% of students did their undergraduate study at a non-U.S. university. An additional 29% went to a large private U.S. university, 13% to a public U.S. university, and 11% to a small liberal arts college. Of the 8 PhD programs in our sample, 3 are at public U.S. universities.

Only 24% of students went straight through from their undergraduate institution into the Economics PhD program and that number is similar for men, women, U.S. citizens, and non-U.S. citizens. 3% report not having taken any math courses between the start of undergraduate study and the start of their PhD program, while 52.5% say they took 7 or more math courses in that stretch.

76% said they worked for compensation over the last 2 months, with 79% of international students doing so compared to 72.5% of U.S. students.

4   OVERALL MENTAL HEALTH TAKEAWAYS

Standard clinical screens for depression (PHQ-9) and anxiety (GAD-7) disorders show a high prevalence of moderate to severe mental health symptoms among Economics PhD students (Kroenke and Spitzer (2002) and Spitzer et al. (2006)). As Table 7 shows, about 18% of students score 10 or higher on the screens and would likely be diagnosed with depression or anxiety disorder upon seeing a mental health professional.[2] 11% of Economics students (56 people) report having suicidal thoughts on at least several days within the last two weeks and 12% were deemed at increased risk for suicide by a survey instrument with a one-year look back (for more on SBQR, see Osman et al. (2001)). With a few exceptions, the prevalence of these issues is generally higher for women than men and higher for international students than

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[2]Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with depression (PHQ-9) or anxiety disorder (GAD-7).

U.S. citizens. Notably, non-U.S. citizens have suicidality rates that are 1.5 times as high as those of U.S. citizens (8.5% vs. 13.2%) and considerably higher shares of women (42%) have issues with eating patterns than men (26%).

For comparison, the rate in the general U.S. population of depression and anxiety disorders is about 5%(Kocalevent et al. (2013)). A 2017 World Health Organization study put the highest regional rate of depression disorder at 5.4% in Africa and the highest rate of anxiety disorder at 5.8% in the Americas (WHO (2017)). Furthermore, a study of an incarcerated U.S. population showed a self-reported rate of depression of 26%, while another study of severe depression in prisons worldwide put that number at 10% for men and 14% for women (Fazel et al. (2016) and Yi et al. (2017)).

A quarter of the students report being diagnosed by a professional with a mental health issue, 13% prior to starting their PhD program and 12% after starting their program. About 23% are currently receiving some form of mental health treatment: 10% for anxiety, 8% for depression, and 5.5% for some other mental health issue. Still, the share of those receiving treatment is low when we consider the prevalence of serious mental health issues. Of those scoring above a 10 on the PHQ-9, only 27% are receiving treatment for depression and 21% of those scoring above a 10 on the GAD-7 are receiving treatment for anxiety disorder. Strikingly, of those who have contemplated suicide in the last 2 weeks, only 27% are currently receiving some form of treatment (Tables 8 and 9).

Students report getting adequate amounts of sleep on 3.9 of the last 7 days and 36% report that sleepiness is a significant problem for them (Table 15). Almost 80% of students do not meet the American College of Sports Medicine, Center for Disease Control and Prevention, and American Heart Association recommendations for exercise levels (see Haskell et al. (2007) for recommended levels). 32% of students screened as having an eating disorder (Table 7). 61% of students experience frequent or intense impostor syndrome symptoms and 23% of students agreed or strongly agreed with the statement "I feel I do not have much to be proud of." 41% of students felt overwhelmed by the work they had to do on 4 or more of the last 7 days. Loneliness is also an issue among Economics PhD students, with the average student

finding himself or herself considerably lonelier than the average retired American. The mean Economics PhD score on the UCLA 3-item loneliness scale was 5.2, with a standard deviation of 1.8 (Table 15). For a sample of over 2,000 retired Americans in 2002, that score was 3.9, with a standard deviation of 1.3 (Hughes et al. (2004)).[3]

As Table 16 demonstrates, all of these measures are correlated with each other in the direction one would expect, with a few exceptions. Somewhat surprisingly, whether or not a student meets the exercise recommendations is not statistically significantly correlated with the PHQ-9 measure of depressive symptoms. Our ADHD measure (see Kessler et al. (2005)) is also not correlated with the PHQ-9. Alcohol usage, while elevated, is also not correlated with mental health outcomes, suggesting, encouragingly, that students are generally not drinking with the aim of self-medicating (see Bohn et al. (1995) for more on the alcohol usage screen).

5 Experiences with Mental Health Issues in Graduate School

Most students have a good sense of the quality of their mental health. Of those students who score 10 or higher on the PHQ-9, 86% correctly rate their mental health as fair or poor. 83% of students who have reported having suicidal thoughts within the last two weeks deem their mental health as fair or poor. While encouraging, these percentages are still lower than would be desired.

Though students seem to generally have a good grasp of the state of their own mental health, many overestimate how well they are doing relative to others in their department. Of those who scored worse than average on the PHQ-9, 45% said they thought their mental health was better than average. Of those who reported suicidal thoughts in the last two weeks, 26% thought they were doing better than average. The Lake Wobegon Effect of illusory superiority seems to be present in our setting as well, when the question of interest is mental health.

87% say that they would know where to turn for help if experiencing a mental health issue, but only 55% say that in this case they would be moderately likely or very likely to actually turn to someone for help (Table 34). Of those who scored above a 10 on the PHQ-9, 83%

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[3]The 2002 Health and Retirement Study (HRS) surveyed individuals with a mean age of 66.5 (SD=10.2).

said they would know where to turn for help and 56% said they would be likely to do so. Of those reporting suicidal thoughts, the respective percentages were even lower, at 74% and 52%. These numbers suggest that there is still work to do to convey the value of external support and to destigmatize its use for mental health issues.

For those who had experienced a mental health issue in the last two months, the individuals to whom students turned to for help were, in order of popularity: family members (turned to by 163 students), friends outside of the department (163), friends in the department (121), mental health professionals at the university (114), no one (71), mental health professionals outside of the university (51), department faculty (11), and department staff (6).

We also asked students who turned to each source of support to rate how helpful it was for addressing their mental health issue. In order of helpfulness, with the share of students reporting moderately to very helpful in parentheses: department staff (83%), department faculty (78%), mental health professionals outside of the university (72%), friends in the department (69%), friends outside of the department (69%), family members (69%), mental health professionals at the university (57%).

Of course these rankings are conditional, since students may not turn to someone for help in the first place if they think that the probability of helpfulness is low. However, we think they give a useful comparison of how well these various sources of support provide for those who choose to lean on them. For most students, their social support network is the first and most important line of defense when faced with mental health issues. Students would thus do well to maintain and cultivate strong social relationships within and outside of their department, using them as a way to prevent isolation and resolve mental health issues as they arise. While university mental health services are also crucial, these results suggest that there is room for improvement in the quality of the services provided.

While those who are receiving some form of mental health treatment are more likely than the general student pool to score highly on screens like the PHQ-9 and GAD-7, there is an important caveat. The majority of those in treatment are *not* in the danger zones for depression, anxiety, and suicidality. 55% of those who say they are currently receiving treatment are

scoring less than 10 on the PHQ-9, 68% are scoring less than 10 on the GAD-7, and 60.5% are scoring less than 7 on the SBQR. This is likely a result of both selection – students with good overall mental health are more likely to take care of themselves and reach out to a professional for help when they need it – and treatment actually working. Either way, while social stigma might suggest that those who are using mental health services have worse mental health than those who do not, in many cases the exact opposite is true.

6 Comparative Look at Work Experiences

According to the RAND 2015 American Working Conditions Survey, 56% of American workers say that they have very good friends at work (Maestas et al. (2015)). 73% of Economics PhD students report having very good friends in the department and 72% of Economics faculty do as well. When it comes to satisfaction with the PhD experience, Economics programs look very similar to those in the natural sciences and engineering, as captured by a 2017 *Nature* study of more than 5,700 natural science and engineering PhD students worldwide (Woolston (2017)). As Figure 1 shows, Economics PhD students are slightly more dissatisfied with their PhD experience, but the differences are negligible.

The differences are also negligible when it comes to the number of hours that PhD students report working in a typical week (Figure 2). However, when we asked Economics students what they would do differently if they were starting their program right now, we got starkly different responses from those in the *Nature* study (Figure 3).

While many in the natural sciences and engineering would have changed advisers or area of study, those areas were not of major concern to Economics students. 36% of the Economics students would have wanted to organize their time more effectively, compared to just 1% of students in the natural sciences and engineering who saw that as a concern. This, perhaps, is the clearest illustration of how much more unstructured Economics research is than research in the natural sciences and engineering. The fact that 21% of Economics students would have engaged more with their studies (compared to just 1% for those in the natural sciences) suggests that Economics students generally feel less prepared by their graduate coursework for the research stage of their programs. On the other hand, the unstructured nature of Economics

research that allows students to have more control over what they study is consistent with our finding that students are considerably less likely to regret their choice of advisers and areas of study than those in the natural sciences.

We can also compare the work experiences of Economics PhD students with the general population. In 2015, RAND used its American Life Panel, a nationally representative sample of individuals in the United States who have agreed to take regular online surveys, to administer the American Working Conditions Survey (see Maestas et al. (2015)). We asked the PhD students and faculty in our sample some of the same questions about working conditions, allowing for useful comparison.

Across occupations in the United States, about 60% of men and women with a college degree and ages between 25 and 35 report experiencing satisfaction of work well done always or most of the time. In contrast, 37% of Economics PhD students report experiencing this satisfaction always or most of the time (Table 25). When Economics faculty were posed this same question in the supplemental survey sent to faculty, 77% said they experienced this satisfaction always or most of the time.

26% of Economics students report experiencing the feeling of doing useful work always or most of the time, compared to 70% of Economics faculty and 63% of the entire working age population. Perhaps most strikingly, only 19% of Economics students feel that they have opportunities to make a positive impact on their community or society compared to 58% of faculty and 53% of the population. Additionally, only 40% of PhD students feel they have opportunities to fully use their talents always or most of the time, compared to 85% of faculty and 53% of the population.

The PhD program thus appears to be distinct from the average occupation and from the Economics professorship in the rarity with which one experiences satisfaction, usefulness, and meaningfulness. Whereas faculty often have a set research agenda, students to advise, and courses in their field to teach, Economics PhD students are more likely to be wanderers in an unstructured environment without a regular sense of purpose. When asked what is most important for their sense of success in life, students put having a family first and knowing that

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they have made a useful contribution to the world second, above the importance of getting tenure at an academic institution (Table 19). It is perhaps, then, not surprising that spending so much time in an environment that often does not produce a sense of usefulness could worsen mental health and push students into a self-perpetuating cycle of discouragement and disengagement. Reflecting this hypothesis, 13% of students said they seriously contemplated quitting the PhD program once in the past 2 weeks, with an additional 9.5% considering doing so over two or more days (Table 27).

The survey results on how students and faculty feel about their work are all the more striking given other similarities in experiences for students and faculty. 62% of students worry always or most of the time about work when not working, compared to 60% of faculty members. 20.5% of students find themselves too tired for activities in private life always or most of the time, compared to 23% of faculty (Table 26). The intensity of the work and the stresses that come with it thus do not seem to abate with professorship, while satisfaction, usefulness, and meaning increase. While this could be a result of selection, with those who find academic research satisfying, useful, and meaningful going into and staying in academia, it is important to note that faculty generally are having different experiences with their work than most students. Although we frequently talk about academic professorship as a natural extension of the PhD, it is in reality a combination of a distinct experience and a distinct group of people from those participating in PhD programs.

7 Departmental Experiences: A Deeper Look

To learn more about the Economics PhD environment, we asked students detailed questions about their interactions with their peers and with their studies. Table 17 shows that 66% of students view their peers as not competitive at all or only somewhat competitive and, as we mentioned before, 73% of students say they have very good friends in the department. Still, a sizable number of students feel isolated and out of place. 3% of students say that they never turn to someone in their personal life when they face a problem or worry and 6% (30 students) say they have zero people in their personal life with whom they can talk about their most private feelings. Another 15% (75 students) say that there is only one person in their personal

life with whom they can be so open. 17.5% of students say they often lack companionship and 16% say they often feel isolated from others.

Collaboration with other students, while widespread, is also elusive for a significant number of students. 29% said they mostly worked (or are working) alone on 1st year problem sets and 63% only have solo-authored projects. 11% of students do not spend any time working at their department (Table 24). Though seminars bring students and faculty together, most students do not feel comfortable engaging. Only 29% of students say they are moderately or very comfortable voicing a thought in a seminar setting, and 77% of students would only raise their hand if they were moderately or very certain about the high quality of their thought (Table 21). Women feel an especially high barrier to participation in seminars: only 19% of women would be comfortable voicing a thought in a seminar compared to 35% of men. No gap exists, however, between international students and students who are U.S. citizens. Interestingly, 77% of men and 77% of women would have to feel certain about the high quality of their thoughts before they voice them (Table 23). This suggests that either women have a higher internal bar for what is a high quality thought than men or there are other factors affecting their comfort levels in seminars. Or both.

Student relationships with their faculty advisers are also nuanced. When it comes to meeting in a formal setting, 96% of students say they saw their main adviser at least once in the last 2 months, with the mode number of meetings being 2 (Table 30). 86% met at least once with their second adviser and 67% met at least once with their third adviser. Asked about the most significant impediments to the frequency with which they meet with faculty, students pointed to fear of consequences of a bad impression, doubt about the quality of their ideas, questions, and thoughts, and lack of progress on to-dos from the previous meeting. Only 8% of students said that meetings being unpleasant or not useful were significant impediments and only 17% said that difficulty with scheduling was a significant impediment (Table 31).

As with seminars, these numbers suggest that more could be done to help advising meetings look more like their conceptual ideals. Faculty could generally improve advising by treating each meeting and seminar as a constructive learning experience meant to help the student

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grow and not as an evaluative session with job market implications. Leaving any job market assessments for the very end of a student's graduate career, and committing to take the whole trajectory of the student's experience into account, could go a long way in improving student engagement and possibly mental health as well.

While most students have good, helpful relationships with their advisers, many do not have substantial support. 16% of students think that their advisers do not care at all or care only somewhat about the success of their research (Table 28). 27% of women and 34.5% of men say that their advisers do not care about them as a person. A gap also exists between U.S. students (29%) and international students (34%). Only 19% of students say it's moderately or very easy for them to talk to their advisers about non-academic career options. 18% do not have a professional role model among the faculty in the department. 40% of men say they have 3 or more such role models compared to 33.5% of women (Table 32). 36% of students report that no faculty member had initiated an informal conversation with them about how they were doing academically or personally in the last 2 months.[4] 40% of international students report not having such faculty interactions, compared to 32% of U.S. students.

We also asked students how honest they would like to be with their advisers about a range of difficulties and how honest they currently can be with their advisers about those difficulties (Table 29). The difficulties were, by gap between desired levels of openness and actual levels of openness[5]: (1) non-academic career options, (2) preparing for the job market, (3) research progress, (4) issues with other advisers, (5) issues arising from co-authorship with the faculty member, (6) presentations, (7) refereeing, (8) co-authoring with other students, (9) teaching, (10) decision to get a PhD, (11) mental health, (12) decisions related to starting a family, (13) other personal life issues.

Although fewer than 10% of students say that they can be very honest with their advisers about issues with mental health, starting a family, or other things in their personal life, few

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[4]The initial survey was administered in November, so the last 2 months would have been September and October. We also asked this question in our follow-up survey in May where 39% of students reported not having any informal conversations initiated by faculty about how they were doing in the last 2 months.

[5]We calculate this gap by taking the percent of students saying they *would like* to be very honest with their advisers about the topic and subtracting the percent of students saying they *can* be very honest with their advisers about it.

students want to discuss these issues openly with their advisers. This is true for both men and women, international and U.S. students.[6] As the evidence for seminars and impediments to meetings with faculty also suggests, it's the professor's dual role as adviser and evaluator that seems to be a key part of the problem. As we detail in the next section on correlations of mental health outcomes with environmental factors, the inability to openly discuss professional issues with advisers is strongly positively correlated with worse student mental health.

There also appears to be a lack of options for students when they are experiencing an issue with advising. 42% of students say that they would know where to turn for help with advising and only 36% say they would be moderately likely or very likely to seek out help if an issue arose. Given the role of evaluator that faculty are playing, it may be difficult for students to see a way to address advising issues constructively and without negative consequences. By creating an honest relationship with students and coming to a mutual agreement with them on the most helpful advising practices, faculty could conceivably both improve student mental health and the usefulness of the meetings.

8 Sexual Harassment

In order to obtain a more complete picture about the departmental environment, we also asked questions about sexual harassment. Specifically, we wanted to know what share of students have experienced some form of sexual harassment from someone associated with their economics department, what form that harassment took, and who perpetrated it. For comparability purposes, we used the exact phrasing for these questions that was employed by the Association of American Universities (AAU) Climate Survey on Sexual Assault and Sexual Misconduct in 2015 (see Cantor et al. (2017)). The preamble to the questions emphasized that the situations the students should be thinking about are ones that interfered with their work, limited their ability to participate in their program, or created a hostile work environment.

16% of students experienced some form of sexual harassment in their department since becoming a PhD student. 21.5% of women had experienced harassment compared to 13% of

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[6]Women and international students are slightly more likely to want to discuss mental health very honestly with their advisers than men and U.S. students, respectively.

men; 21% of U.S. citizens experienced harassment, compared to 11% of international students. 62.5% of the instances of harassment were perpetrated by another graduate student, while 19% came from a professor and about 10% from someone the student did not know. Advisers, undergraduates, and others affiliated with the department make up the remaining 9% of sexual harassment experiences.[7] For context, the AAU survey revealed that about 44% of women in graduate or professional programs had experienced some form of sexual harassment, compared to 30% of men.

The experiences, in order of most common to least common, were: (1) sexual remarks, jokes, or stories that were insulting or offensive to you, (2) inappropriate or offensive comments about your or someone else's body, appearance, or sexual activities, (3) crude or gross sexual comments or tried to get you to talk about sexual matters when you did not want to, (4) requests to go out for dinner, have drinks, or have sex even though you said, "No", and (5) Email(s), text(s), phone call(s), or instant message(s) with offensive sexual remarks, jokes, stories, pictures, or videos that you did not want to receive.

More work needs to be done, especially among the graduate students themselves, to reduce the prevalence of harassment in our departments. As Table 38 shows, experiences with sexual harassment in the department are generally uncorrelated with mental health outcomes. We do, however, see a weak positive correlation between experiencing sexual harassment and having an eating disorder.

9   Cross Tabulations and Correlations

What is the connection between these work conditions and experiences and student mental health? In line with other studies of the effects of workplace conditions on mental health, our work provides suggestive evidence of a strong relationship (Woo and Postolache (2008). One such piece of evidence is that of those who scored above a 10 on the PHQ-9, 19% were diagnosed with a mental health issue before starting their program and 26% were diagnosed after starting their program. Similarly, of those who contemplated suicide in the past 2

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[7]It is possible that students who say that they have experienced sexual harassment from professors but not from advisers are doing so because those professors are no longer their advisers.

weeks, 12.5% were diagnosed before starting their program, while 21% were diagnosed after. Put slightly differently, of those who were diagnosed after starting their program, 19% have contemplated suicide in the past 2 weeks; of those who were diagnosed before the PhD, 10% contemplated suicide in the past 2 weeks (Table 10). Thus, those who were diagnosed as PhD students are more likely to have worse mental health today than those diagnosed before the PhD program.

Another piece of evidence is the fact that older cohorts of students have worse mental health than younger cohorts. 14.5% of the first-year students are scoring above a 10 on the PHQ-9 (in November of their first year), with the number climbing to 25% for those who are in years 5+. The numbers are similar for anxiety: 12% are scoring above a 10 in the first-year, compared to 24% for those in years 5+. When it comes to suicidal ideation, 7% of the first-years report contemplating suicide in the last 2 weeks, compared to 13% of those in years 5+ (Tables 12-14).

We find further evidence when looking at ANOVA tests of mean differences of depression (PHQ-9), anxiety (GAD-7), suicidality (SBQR), and other scores that we performed across background characteristics and experiences. We can reject the hypothesis that the means are identical across groups for all but a few of the background characteristics and experiences. Most notably, if we sort people into groups by what they said they would do differently if they were starting their PhD program over, we can reject at the 1% level that the mental health score means are the same (Table 11). Of those who say that they would change their area of study, 28% contemplated suicide in the last 2 weeks. 27% of those who said they would not pursue a PhD at all, 24% of those who said they would study at another institution, and 20% who would change their advisers also contemplated suicide in the last 2 weeks.[8] Even though, as we discussed earlier, the most common responses from economics students on what they would do differently was to engage more with study and organize time more effectively, both groups of students have a substantially lower share of students (11%) that have contemplated suicide. Those who say they would change nothing about their graduate school experience have the lowest rate of suicidal ideation, at 7%. These trends are also present for our other measures

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[8]Students could select more than one option for what they would do differently.

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of mental health.[9] While it's possible that poor mental health is the cause of graduate school regrets and not the other way around, it's not clear why depression or anxiety or suicidality would cause some regrets but not others. Regardless of the direction of causality, it's clear that one's mental health and one's graduate school experience are closely linked.

Correlating student experiences in their departments with their mental health provides us with additional evidence of this link. The more competitive students think their peers are with each other, the worse their mental health. Having more very good friends at the Economics Department is correlated with better mental health, as is having more people in general with whom a student can openly discuss his private feelings without having to hold back (Table 17). Supportive and collaborative classmates, people who understand the PhD experience, and others who can be trusted to have the student's best interests in mind appear to be extremely valuable tools for mitigating shocks to mental health.

It is important to point out, however, that such friendships might not be formed in the settings we would expect. The size of one's problem set study group in the first year is not correlated with depression or anxiety later in the program. Neither are co-authorship with other students or with faculty. The more days a student works per week in the Economics Department building, the better his mental health, although the relationship is weak and barely significant. So, it seems, such friendships and source of support emerge in other ways. What we can say, however, is that study group size, co-authorship, and number of days spent working in the department per week are negatively correlated with feelings of loneliness and isolation (Table 24).

Mental health issues do not appear to be affecting students with different values in life differently. In particular, as Table 19 demonstrates, students who believe that tenure at an academic institution is very important for their success in life are not more or less likely to have mental health issues than students who believe that income or recognition or a family are very important for success in life. We see this as an important finding, suggesting that it is not possible to use a student's aspirations and values to predict his mental health.

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[9]It's also worth noting that we find those who live alone have a statistically higher probability of having contemplated suicide in the last two weeks (16% vs. 9%). The same is true when we compare those who are gay or lesbian with those who are heterosexual (21% vs. 9%).

In addition to strong social support, having sources of meaning and usefulness appears to be crucial to mental health. Those who have goals to aspire to, feelings of doing useful work, sense of accomplishment, and opportunities to make a positive impact on their surroundings have better mental health than those who do not (Table 25). At the same time, when work fatigue and worries negatively affect activities in private life, mental health is worse (Table 26). Students who have difficulties making ends meet financially are also more likely to be having mental health problems. Those with worse mental health also have worse performance in their programs. They are less likely to voice a thought in a seminar, slightly more likely to have worse first-year grades, and substantially more likely to be seriously contemplating leaving the program (Tables 21 and 36). They are also more pessimistic about how well they have done and will do in their courses, teaching, presentations, and (especially) research (Table 20).

A student's advising relationship also appears to be tightly related to his mental health, likely through both the social support channel and the usefulness of work channel. Students who talk to faculty that care about their success and care about them as a person have better mental health than students who do not (Table 28). While the number of meetings that students have with their main adviser or with faculty more broadly is not correlated with mental health (Table 30), the nature of those meetings is. Students who say they avoid meetings with faculty because those meetings are unpleasant have worse mental health than students who do not feel that meetings are unpleasant. Students for whom fear of the consequences of a bad impression, or doubt about the quality of their work, or lack of progress since the previous meeting are big impediments to talking to faculty also have worse mental health than those students who do not have such impediments. In contrast, students whose biggest issues with meetings are that they are too short or too difficult to schedule do not have worse mental health than students for whom those factors are not problems (Table 31).

How honest a student can be with his adviser about the difficulties he is experiencing in the program is also correlated with that student's mental health. We dove deeply into those difficulties, asking students to tell us how honest they can be with their advisers about problems that ranged from research progress and presentations to mental health and starting

a family. While students who cannot honestly and openly discuss mental health with their adviser have worse mental health, it is also true that students who cannot openly discuss problems with presentations and research progress also have worse mental health. Openness on teaching, preparing for the job market, considering non-academic jobs, and reflecting on whether doing the PhD was the right decision are all also correlated with student mental health (Table 29).

Whether it is the student's mental health problems that are causing a lack of honesty and openness in advising relationships or it is the lack of honesty and openness that is causing the mental health problems, it is clear that many students could be having better relationships with their advisers. These results are especially striking since few students say that they regret the field that they have selected or their advisers. To us, this suggests that allowing students to move easily across fields and advisers, something that many departments already do, is not enough. Given the tenure incentives for faculty and the low weight that departments generally put on teaching and advising, a free advising market does not generate the necessary competitive forces that would improve student-adviser relationships across the board.

Creating a channel for faculty to receive constructive feedback on their advising, perhaps by allowing anonymous student evaluations of each faculty's advising strengths and weakness that are collated over a several year period, could help each faculty member understand what he or she can do better. If our results are any indication, a substantial part of that improvement will be in figuring out ways to better balance the role of adviser and evaluator so as to facilitate honest and open conversations with students. Social or even financial incentives for such advising could also be explored. Certainly, a change in culture to the point where students and advisers can openly and harmlessly agree on an advising relationship that works best for both parties, could go a long way. If the arrow of causality points the other way, then making a concerted effort to improve student mental health could also improve advising relationships and productivity in the process.

It is also worth noting here that whether a student went straight through from his undergraduate program into graduate school or whether a student took many or few math courses

before graduate school has no bearing on that student's mental health in graduate school (Table 35). Worse first-year grades are slightly positively correlated with worse mental health later in the program (Table 36). And a student's level of engagement with social media, measured in the number of times he checks his Facebook account per day, is also unrelated to his mental health (Table 18).

10   CONCLUSION

Our survey of 8 graduate departments of Economics establishes several important features of graduate student mental health and its relationship to student experience. A poor state of mental health affects a notable portion of graduate students. Moderate or severe symptoms of depression and anxiety are prevalent among graduate students (18%), with rates that more than triple those of the general population. Over a tenth of students report having suicidal ideation on at least several days over the past two weeks. The average PhD student in our study reports more feelings of loneliness than does the average retired American. Many individuals with significant symptoms of mental distress are not currently in treatment. Although 90 percent of students with moderate or severe symptoms of depression would be expected to have diagnosable clinical disease, only 27% of these students are currently in treatment for depression. Students often feel limited meaning in their work and in their ability to make a positive impact on their community. 19% of economics students feel that they have opportunities to make a positive impact on their community or society, whereas 58% of faculty and 53% of the population report feeling they have these opportunities. 21.5% of women and 13% of men have experienced sexual harassment in their department.

Mental health has notable correlates with student experiences. Students in later years are more likely to have high levels of depressive or anxious symptoms. 25% of students in years in years 5+ of their programs experience moderate or severe symptoms of depression and anxiety, compared to 14.5% of first-year students. Students who express higher levels of regret about pursuing a PhD have higher rates of mental health distress. 27% of those who regret pursuing a PhD contemplated suicide in the past two weeks, versus 7% of those who expressed no regrets about graduate school.

Below, we include our recommendations for steps students and faculty and department leadership can take to improve work conditions and student mental health. We end with free-form advice that faculty submitted through the supplemental faculty survey.

11 RECOMMENDATIONS

11.1 Help students hedge against failure.

Right now, we as a discipline emphasize the one job market paper very heavily. Students, in their search for the holy grail project, are encouraged only to spend time on high risk–high reward projects. For many, years and years of failure accumulate into a sense of uselessness and meaninglessness of one's work, which culminates in the job market year, the year when a student puts his one project (or lack thereof) on display for all to evaluate. Inevitably, the question that the market is asking is "what have you done with 6 years?", forcing the student into often heart wrenching reflection of his or her worth.

From a departmental perspective, we recommend:

- Encouraging students to work on the subjects that give them meaning and that they feel are useful.

- Encouraging work on more than one project at a time, so that experiences of failure in one project can be hedged by the experiences of progress in others.

- Encouraging students to get involved in activities they find meaningful and useful outside of research. That might mean volunteering in the department's graduate student association to organize professional development workshops or helping organize a social event. It might also mean doing work in the local community or helping family and loved ones with their challenges. The main objective is to strengthen social connections and find other sources of meaning that help students hedge against inevitable research failures.

As a discipline, we could encourage students to not put all of their eggs into one research basket by signaling that a portfolio of projects, and not just one paper, will be valued on the

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job market. This should help students feel that projects #2 and #3, projects on which they spent a lot of time but which did not turn into homeruns, are still useful and were not just a waste of time. This signal should be possible to send even while preserving the market's focus on the student's best paper.

11.2 Provide continuous engagement, making clear to students that someone cares about their success in the program.

We have presented suggestive evidence here that loneliness and isolation, combined with frequent experiences of failure, are contributing to poor graduate school mental health. As renowned social neuroscientists John Cacioppo and William Patrick put it, "loneliness becomes an issue of serious concern only when it settles in long enough to create a persistent, self-reinforcing loop of negative thoughts, sensations, and behaviors"(Cacioppo and Patrick (2009)). The key, then, is to help students avoid this persistent and self-reinforcing loop.

Here are some concrete suggestions for how departments can do so:

- Encourage faculty to check in on students once in a while. If a student used to visit the faculty member in office hours but has inexplicably stopped, a brief e-mail from the faculty member asking "how are things going?" could go a long way. Similarly, something as simple as stopping a familiar student in the hallway and asking her how things are going could also be helpful. It is often hard to tell from a student's exterior demeanor if she is feeling stuck and alone, but the odds that she is are quite high.

- If a student's research interests are changing or if the adviser is for whatever other reason unable to be helpful, the adviser should help the student transition to another source of support. The student should always have someone she can talk to about research, especially when things are not going well and when there is a lack of direction. Departments should try to cultivate a culture in which advisers across fields triage and work together to ensure that no student is disengaged from the professional support system.

- Let students know that you care about their wellbeing and that their self-care is essential

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to their academic success. In addition to encouraging direct attention to mental health, encourage good exercise and sleep habits. Nearly 80% of the students we surveyed are not getting the recommended amounts of exercise and the average student is only sleeping well on 3.7 of 7 nights each week. Remind students that the PhD is a marathon rather than a sprint and requires good health.

11.3 Measure success in different ways to lessen feelings of job insecurity.

In their book, *Thrive*, Richard Layard and David Clark note that "As social animals, people need to be needed-by their families and by the community around them. Work can also provide an important source of feeling needed. By contrast, unemployment and job insecurity are well-documented sources of mental illness, and unemployment is a condition to which most people do not adapt as it continues." They add: "But work alone is not enough-the environment at work is also important for mental health. We know that some workplaces are hellish to work in. A hostile work environment can easily cause a mental collapse."

A PhD program is a 5+ year experience of job insecurity. Even in economics, where the job prospects are currently quite good relative to most other academic disciplines, the persistent uncertainty over whether one will have a job at the end of it all can be excruciating.

Here are our suggestions for how to lessen that job insecurity:

- Make clear to students at the very beginning of the program that the faculty and the department will support them on whatever professional path they choose. This commitment could be conditioned on the student successfully fulfilling the basic requirements of the PhD program, but it most importantly needs to convey that there are many professional paths to success. We believe that the world would be better off if there were more PhD economists in government, in politics, and in finance, working from the inside to improve our school systems, our medical systems, and our prison systems. More and more, the presence of administrative data can allow institutions and agencies to make themselves more effective and efficient, but that often can only happen if the work is

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approached with a researcher's rigor that our PhD programs teach so well. Knowing early on that the PhD program and its faculty will support a student and her work even if her desired path is non-academic (or one that puts teaching ahead of research) can alleviate a lot of students' job insecurity.

- Relatedly, departments should strive to be spaces where students can honestly discuss career options that do not involve academic research. Illustratively, the authors have heard of students interested in non-academic research careers organizing a meeting in secret outside of their economics department out of fear of what their advisers (and peers) would think. If I am aware that my adviser will help me write the best possible dissertation and will support my career ambitions no matter what they are, my job insecurities are likely to torment me much less. Similarly, if the faculty firmly aim to establish this type of support as the culture of the department, students will emulate it in their own interactions and further establish a supportive environment. We encourage advisers to have open, honest conversations with their advisees on this topic, and to make such commitments to their students as early in the advising relationship as possible.

11.4   Communicate with students clearly and frequently.

In an environment where advisers are both helpers and evaluators, it is important to have a culture of transparency and fairness. A student's awareness of fellowship opportunities should not depend on whether his main adviser is on leave this semester or not. If seminar slots or slots for lunch with visiting faculty need to be rationed, the ways in which those spots are rationed should be transparent to all and as fair as possible. Any departmental reforms should be communicated clearly and effectively (perhaps via an e-mail from the Chair). Suspicions, intrigue, and perceptions (accurate or not) of favoritism that is unrelated to the quality of one's work, can all diminish the quality of the work environment and worsen mental health. The more students and faculty feel like they are on the same page and on the same team, the better. Encouraging students to communicate their concerns, desired reforms, and questions to the faculty in an organized and continuous manner (perhaps through an elected graduate

student representative) can also help the environment feel more collaborative. Students should also be encouraged and supported when they show initiative to improve work conditions for themselves.

11.5 Prioritize and address sexual harassment within your program.

Our survey confirms a striking prevalence of sexual harassment in economics departments. Department chairs and Deans of Graduate Study should, to the extent that they are not doing so already, take initiative to have student experiences and concerns around sexual harassment heard. Doing so will allow the department to address issues particular to their own culture and environment. Inviting university Title IX coordinators and other professionals for town hall conversations with students would be one such good initiative. Informing students about reporting options and ways they can obtain support, while making clear to students that the department makes the absence of sexual harassment a priority, could go a long way. The majority of sexual harassment in Economics departments comes from other graduate students, so while addressing sexual harassment in faculty-student dynamics is important, departments should set the right tone and expectations for peer-to-peer conduct.

11.6 Make the coursework years as useful and relevant to the research years as possible.

Many students, considerably more than PhD students in the natural sciences, reported regrets about their engagement with coursework. We are not interpreting these responses to mean that economics students take their coursework less seriously than natural science PhD students and then regret this during the research years. Rather, we see this as a testament to economics students generally feeling that they could have been better prepared for their research years. Anecdotal evidence of students feeling like they only have to use a small share of what they learned in the first year when doing their research gives us additional confidence in this interpretation. While students will inevitably need to pick up a lot of skills and concepts on the go, we believe that existing curriculums could be enhanced to better meet student needs

and diminish later-year regrets and anxieties.

The Harvard Economics Department, for example, has organized a faculty committee tasked with reforming the first-year curriculum to that end, an effort that we support. Infusing the coursework, perhaps in the second year, with workshops on how to present well, how to teach or TA or grade well, how to code well, how to write a research paper well, and how to establish research relationships with agencies or firms, would also undoubtedly be valuable to students. Information on campus resources (related to mental health, sexual harassment, improving study habits, or anything else) and the department's encouragement of students to use them should also be communicated as clearly as possible.

11.7   Destigmatize conversations about failures and destigmatize getting help.

All too often, our relationships do not go deeper than "Hi, how're you?" -- "Good, thanks, how're you?". Recognizing, without sugar coating, that failing analyses, meaninglessness, and psychological strain is the norm for many around us is a crucial cultural step for our departments. In addition to enacting structural changes to programs, we recommend that Chairs and Deans of Graduate Study make a point to create a culture where honesty about failure is not looked down upon. Too many students today are islands of depression and anxiety in an environment where the tools of support have too much stigma attached to them to be widely effective. Lower stigma, among students and faculty, will allow us to better help each other succeed and bounce back from failure.

11.8   Create a channel through which faculty can receive constructive feedback on advising.

58% of students do not know whom to turn to for help if they have an issue with advising and 64% say they would be unlikely or only somewhat likely to turn to someone for help if they had an issue with advising. While faculty are regularly evaluated by students on their teaching, many departments do not have mechanisms, outside of tenure, through which students can provide feedback on advising. We recommend that departments establish clear expectations

from an advising relationship, communicate those expectations to faculty and students, and openly encourage students and advisers to have conversations about what is and what is not working. Another approach would be to allow anonymous student evaluations of each faculty's advising strengths and weakness that are collated over a several year period. This feedback could then be used to help faculty better understand what he or she can do to improve and to help department leadership address issues in a private setting.

11.9 Use the data in this study to empower students and faculty in your department to come up with solutions specific to your community.

Present these data to students and encourage brainstorming of creative ways that students and faculty can support each other. Make clear that student mental health and wellbeing is a priority for you and should be a priority for the students. Let students know that well thought-out initiatives that have student interest will also have your support. Work with the university to obtain funding for these initiatives where it would be helpful. Student-led initiatives to have therapy animal visits, meditation sessions, sports tournaments, and peer mental health liaisons are among the initiatives we have seen come out of conversations around mental health.

11.10 Partner with your university's counseling center.

Most universities have counseling centers with mental health professionals whose job is to address a lot of the issues we observe among graduate students. Partner with your university's counseling center to educate students and faculty and to publicize clinical services. Bring professionals in for conversations with students that are informed by the data in this study and by the students' own experiences. For example, the Let's Talk! Program at Harvard University (emulating similar ones at numerous other universities), which involves a mental health professional holding walk-in hours at or close to particular departments, came out of such conversations.

11.11 Faculty Recommendations on Working with Students Who Are Experiencing Mental Health Issues

- "Listen, be kind, advise them to go to counselling, say that getting treated is no more shameful than wearing glasses, listen some more"

- "Be empathetic, patient, and understanding - and refer them to mental health professionals."

- "Engage with the student. Show empathy. Relate own experiences."

- "Try not to equate a difficulty getting things done with laziness."

- "Be supportive but also encourage the student to access the resources available on campus, including trained mental health professionals."

- "Direct them to school mental health services, many have no idea it exists, or would not consider this an option for cultural reasons etc. Telling them this is completely normal and a widely used resource has been helpful in the past in my experience. Students have taken it up and have found it helpful."

- "Be patient with them, give them time to sort out issues, and help give them a long run perspective on things so that they're not so worried about short term achievements / immediate research progress"

- "Listen carefully, be supportive, and remember that with appropriate support the student's mental health issue does not need to be a barrier to success in PhD and beyond."

- "The key in all cases is followup...absolutely essential. Do not wait. A same-day follow up call shows that you care. There is a real risk that without that the student will continue a downhill spiral and do nothing, until it gets much worse."

- "Address it right away, don't wait for it to become extreme. Don't try to talk to the student as a therapist, but do (strongly) encourage him/her to go to therapy --- most

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likely the campus offers some decent free service. Tell them that it is absolutely normal, that even successful and bright people go through dark times."

- "Become familiar with resources available on campus for support and direct students to those resources."

- "Try to open lines of communication so that the student can talk with you without feeling that this will impact their academic standing or progress; urge the student to reach out to mental health professionals; try to help the student find a support network, whether making contact with family, talking with friends, or contacting a religious leader; reassure the student by explaining that many students face -- and overcome -- mental health issues"

- "I think it's difficult from a faculty perspective to see the difference between lack of progress because of (a) lack of effort and (b) a mental health issue that prevents focus/etc. I think discussion and training on this distinction is crucial."

- "I don't have great advice, but I think this is a seriously under appreciated problem. All departments should have clear procedures for what professors should do if they think a student could use help in this domain (which I believe many do), so that students can get help without being stigmatized"

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Tables

Table 1: Background Statistics

	All	Male	Female	US Citizen	Non-US Citizen
Gender Identity					
Man	64.7%	100.0%	0.0%	66.4%	63.4%
Woman	34.7%	0.0%	100.0%	32.3%	36.6%
Other	0.6%	0.0%	0.0%	1.3%	0.0%
Age					
Younger than 20	0%	0%	0%	0%	0%
20-24	18.8%	18.8%	19.2%	22.2%	15.8%
25-29	66.9%	63.5%	72.3%	64.1%	69.2%
30-34	13.3%	16.7%	7.3%	13.2%	13.6%
35 or older	1.0%	0.9%	1.1%	0.4%	1.5%
Race					
American Indian or Alaska Native	0.5%	0.8%	0%	0.4%	0.7%
Asian or Asian American	26.0%	21.8%	34.2%	18.1%	32.7%
Hispanic or Latino	11.7%	12.1%	11.1%	5.2%	17.2%
Black or African American	0.5%	0.3%	1.1%	0.4%	0.7%
Native Hawaiian or Other Pacific Islander	0.2%	0%	0.5%	0.4%	0%
White	61.1%	65.0%	53.2%	75.5%	48.8%
US Citizenship					
US citizen	46.3%	47.4%	43.2%	100.0%	0%
Non-US citizen	53.7%	52.6%	56.8%	0%	100.0%
English Language					
English is first language	50.9%	53.5%	45.5%	91.1%	15.8%
English is not first language	49.1%	46.5%	54.5%	8.9%	84.2%
Disability					
Disability	1.6%	1.8%	0.6%	3.0%	0.4%
No disability	98.4%	98.2%	99.4%	97.0%	99.6%
Sexual Orientation					
Heterosexual	90.1%	89.7%	92.5%	88.9%	91.1%
Bisexual	4.9%	4.0%	6.9%	6.4%	3.7%
Gay or lesbian	4.3%	6.4%	0.6%	3.4%	5.2%
Relationship Status					
Single	31.3%	31.3%	30.9%	30.8%	31.7%
Casual	3.7%	4.3%	2.9%	4.3%	3.3%
Dating	9.3%	10.3%	7.4%	6.4%	11.4%
Long-term/Committed	36.4%	34.3%	40.6%	39.3%	34.3%
Married	18.7%	19.5%	17.1%	18.4%	18.8%
Divorced	0%	0%	0%	0%	0%
Other	0.6%	0.3%	1.1%	0.9%	0.4%
Living Alone					
Living alone	28.4%	28.0%	28.2%	22.6%	32.2%
Not living alone	71.6%	72.0%	71.8%	77.4%	67.8%
Children					
One or more	3.9%	4.3%	3.4%	4.7%	3.3%
None	96.1%	95.7%	96.6%	95.3%	96.7%
Parental Relationship Status					
Never married	2.1%	1.5%	3.4%	0%	4.0%
Married	76.0%	75.8%	76.3%	78.3%	74.0%
Divorced or separated	18.8%	19.4%	17.5%	19.6%	17.9%
Other	3.1%	3.3%	2.8%	2.1%	4.0%

Table 1: (Cont.) Background Statistics

	All	Male	Female	US Citizen	Non-US Citizen
Father - Highest degree earned					
High school or below	9.2%	10.0%	8.0%	2.6%	15.1%
Associate	2.7%	3.0%	2.3%	1.7%	3.7%
Bachelor's	29.2%	30.9%	25.0%	20.9%	35.7%
Graduate degree	58.9%	56.1%	64.8%	74.9%	45.6%
Father - Graduate degrees					
MBA	13.3%	12.9%	14.2%	17.0%	7.7%
Other Master's	31.7%	32.7%	29.1%	24.5%	42.3%
MD	10.9%	12.4%	8.7%	8.5%	14.6%
JD	6.3%	7.9%	3.9%	8.5%	3.1%
Economics PhD	6.9%	5.9%	8.7%	6.5%	7.7%
Other PhD	27.8%	26.2%	30.7%	33.0%	20.0%
Other	3.0%	2.0%	4.7%	2.0%	4.6%
Mother - Highest degree earned					
High school or below	10.7%	12.1%	8.5%	3.8%	16.8%
Associate	6.6%	6.1%	7.9%	4.3%	8.4%
Bachelor's	33.8%	35.8%	30.5%	26.8%	39.6%
Graduate degree	48.8%	46.1%	53.1%	65.1%	35.2%
Mother - Graduate degrees					
MBA	10.4%	10.3%	10.0%	10.8%	9.9%
Other Master's	46.5%	48.5%	42.0%	48.5%	42.6%
MD	13.0%	13.9%	12.0%	12.0%	14.9%
JD	4.8%	4.8%	5.0%	4.8%	5.0%
Economics PhD	2.2%	1.8%	3.0%	3.0%	1.0%
Other PhD	20.1%	17.0%	26.0%	18.6%	22.8%
Other	3.0%	3.6%	2.0%	2.4%	4.0%
Undergrad institution					
Small liberal arts college (US)	11.0%	8.8%	14.7%	19.6%	3.7%
Public university (US)	12.7%	14.0%	10.2%	23.0%	3.7%
Private university (US)	29.2%	29.5%	28.2%	52.3%	9.5%
Non-U.S. university	46.5%	47.1%	46.3%	5.1%	82.1%
Other	0.6%	0.6%	0.6%	0%	1.1%
Math courses btw. start of undergrad & PhD					
0	2.9%	2.1%	4.5%	3.0%	2.9%
1 or 2	6.5%	6.4%	6.2%	5.6%	7.3%
3 or 4	18.6%	17.9%	20.5%	19.3%	17.6%
5 or 6	19.4%	17.3%	23.3%	18.0%	20.9%
7+	52.5%	56.2%	45.5%	54.1%	51.3%
Straight from undergraduate to PhD?					
Yes	24.3%	23.5%	26.0%	24.8%	23.4%
No	75.7%	76.5%	74.0%	75.2%	76.6%
Positions for compensation in the last two months					
Teaching Assistant	34.3%	33.9%	34.8%	28.5%	39.0%
Research Assistant	22.1%	23.3%	20.4%	21.8%	22.6%
Grader	6.1%	6.1%	6.3%	5.0%	7.2%
Resident Assistant	0.9%	1.2%	0.5%	1.0%	0.9%
Private tutor	6.3%	6.4%	6.3%	8.1%	4.9%
Non-academic data scientist	0.9%	0.9%	0.9%	1.3%	0.6%
Other	5.2%	5.4%	4.5%	6.7%	3.7%
Did not work for compensation	24.1%	22.8%	26.2%	27.5%	21.2%

Table 2: Total invited and responding survey participants by university

Programs	Total Students	Response per program	Response rate	% of all responses
UC Berkeley	131	71	54.2%	13.8%
Columbia	154	71	46.1%	13.8%
Harvard	202	73	36.1%	14.2%
MIT	130	76	58.5%	14.8%
Princeton	129	55	42.6%	10.7%
UC San Diego	128	50	39.1%	9.7%
U of Michigan	188	66	35.1%	12.9%
Yale	123	51	41.5%	9.9%
Total	1185	513	43.3%	100.0%

Table 3: Total responding survey participants by graduate year in program

Grad Year in Program	Response per year	% Response per year
1	99	19.3%
2	104	20.3%
3	77	15.0%
4	89	17.3%
5	82	16.0%
6+	62	12.1%
Total	513	100.0%

Table 4: What do you consider to be your primary field?

	Number	Percent
Behavioral	16	3.4%
Development	52	11.1%
Econometrics	14	3.0%
Economic History	3	0.6%
Finance	19	4.1%
I don't know	31	6.6%
Industrial Organization	24	5.1%
Labor	99	21.1%
Macroeconomics	82	17.5%
Other	22	4.7%
Political Economy	58	12.4%
Public	38	8.1%
Theory	0	0.0%
Trade	11	2.3%
Total	469	100.0%

Table 5: Prevalence and severity of depressive symptoms (PHQ-9)

PHQ-9 Score	Category	All (N=504)	Male (N=323)	Female (N=175)	US Citizen (N=229)	Non-US Citizen (N=270)
0 - 4	Minimal depression	44.6%	47.4%	40.6%	45.9%	44.1%
5 - 9	Mild depression	37.7%	36.2%	41.1%	37.1%	38.5%
10 - 14	Moderate depression	11.9%	11.8%	12.0%	11.8%	12.2%
15 - 19	Moderately severe depression	4.4%	3.7%	4.6%	3.5%	4.4%
20 or greater	Severe depression	1.4%	0.9%	1.7%	1.7%	0.7%

Note: PHQ-9 score captures depressive symptoms. Symptom intensity increases as PHQ-9 scores increase. Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with depression. Table shows percent of each category of students scoring in each PHQ-9 score range.

Table 6: Prevalence and severity of anxious symptoms (GAD-7)

GAD-7 Score	Category	All (N=510)	Male (N=327)	Female (N=177)	US Citizen (N=233)	Non-US Citizen (N=272)
0 - 4	No anxiety	51.2%	56.0%	43.5%	51.1%	52.2%
5 - 9	Mild anxiety	31.2%	28.1%	37.3%	32.6%	29.8%
10 - 14	Moderate anxiety	13.3%	12.2%	14.1%	12.4%	14.0%
15 or greater	Severe anxiety	4.3%	3.7%	5.1%	3.9%	4.0%

Note: GAD-7 measures anxious symptoms. Symptom intensity increases as GAD-7 scores increase. Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with anxiety disorder. Table shows percent of each category of students scoring in each GAD-7 score range.

Table 7: Percent of students scoring above critical thresholds

Category	All	Male	Female	US Citizen	Non-US Citizen
Depression (PHQ-9)	17.7%	16.4%	18.3%	17.0%	17.4%
Anxiety (GAD-7)	17.6%	15.9%	19.2%	16.3%	18.0%
Suicidality 2-weeks	11.3%	11.6%	10.2%	8.5%	13.2%
Suicidality 1-year	12.0%	12.0%	10.9%	7.8%	15.2%
Eating Disorder	31.8%	26.1%	41.8%	37.9%	26.4%
ADHD	26.8%	28.0%	24.9%	23.7%	29.3%
Physical Exercise	79.0%	80.7%	75.6%	78.2%	79.6%
Alcohol	57.4%	56.5%	59.2%	59.4%	55.9%

Note: Table shows percent of students scoring above thresholds for concern. Depression and Anxiety show those scoring 10 or higher on the PHQ-9 and GAD-7, respectively. Suicidality 2-weeks are those reporting contemplating suicide on at least several days in the last two weeks, as captured by the last question on the PHQ-9. Suicidality 1-year are those scoring 7 or higher on the SBQR suicidality screen which contains 1-year look-back questions. Eating Disorder and ADHD report percentages of those scoring in concerning territory for issues with eating patterns and with Attention Deficit Hyperactivity Disorder, respectively. Physical Exercise shows percentages of those not meeting American College of Sports Medicine, Center for Disease Control and Prevention, and American Heart Association recommendations for exercise levels. Alcohol shows percentages of those drinking more than recommended amounts, as captured by the AUDIT-C screen.

Table 8: Number and percentage of respondents receiving treatment for depression, anxiety, or any mental health issue

Panel A: Depression

PHQ-9 Score	Category	Number	Number in Treatment	Percent in Treatment
0 to 4	none-minimal	225	5	2.2%
5 to 9	mild	190	16	8.4%
10 to 14	moderate	60	11	18.3%
15 to 19	moderately-severe	22	4	18.2%
>=20	severe	7	2	28.6%

Panel B: Anxiety

GAD-7 Score	Category	Number	Number in Treatment	Percent in Treatment
0 to 4	none-minimal	261	11	4.2%
5 to 9	mild	159	19	11.9%
10 to 14	moderate	68	15	22.1%
>=15	severe	22	4	18.2%

Panel C: Suicidality

PHQ-9 Final Question Score	Category	Number	Number in Treatment	Percent in Treatment
0	not at all	448	61	13.6%
>= 1	more than zero days	56	15	26.8%

Note: PHQ-9 measures depressive symptoms. GAD-7 measures anxious symptoms. Symptom intensity increases as PHQ-9 and GAD-7 scores increase. Mental health professionals use a score of 10 on the PHQ-9 and the GAD-7 as a cutoff when diagnosing individuals with depression or anxiety disorder, respectively. The PHQ-9 Final Question measures suicidality by asking on how many days over the past two weeks a student was bothered by suicidal thoughts. Treatment in Panel A means treatment for depression; in Panel B, treatment for anxiety; in Panel C, treatment for any mental health issue.

Table 9: Percentage of respondents, by demographic characteristic, who are receiving treatment for depression, anxiety, or any mental health issue

Panel A: Percentages in Treatment for Depression

PHQ-9 Score	Category	All	Male	Female	US Citizen	Non-US Citizen
0 - 4	Minimal depression	2.2%	2.6%	1.4%	1.9%	2.5%
5 - 9	Mild depression	8.4%	9.4%	6.9%	11.8%	5.8%
10 - 14	Moderate depression	18.3%	10.5%	28.6%	25.9%	12.1%
15 - 19	Moderately severe depression	18.2%	16.7%	25.0%	25.0%	16.7%
20 or greater	Severe depression	28.6%	66.7%	0.0%	25.0%	50.0%
	All	7.5%	7.1%	8.0%	9.6%	5.9%

Panel B: Percentages in Treatment for Anxiety

GAD-7 Score	Category	All	Male	Female	US Citizen	Non-US Citizen
0 - 4	No anxiety	4.2%	4.4%	3.9%	5.0%	3.5%
5 - 9	Mild anxiety	11.9%	12.0%	12.1%	15.8%	8.6%
10 - 14	Moderate anxiety	22.1%	25.0%	16.0%	31.0%	15.8%
15 or greater	Severe anxiety	18.2%	8.3%	33.3%	33.3%	9.1%
	All	9.6%	9.2%	10.2%	12.9%	7.0%

Note: PHQ-9 measures depressive symptoms. GAD-7 measures anxious symptoms. Symptom intensity increases as PHQ-9 and GAD-7 scores increase. Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with depression or anxiety disorder, respectively.

Table 10: Mental health diagnosis and mental health scores

Panel A: PHQ-9

Score	Category	Diagnosed Before	Diagnosed After
0 to 4	none-minimal	34.8%	27.9%
5 to 9	mild	39.4%	34.4%
10 to 14	moderate	16.7%	24.6%
15 to 19	moderately-severe	7.6%	9.8%
>=20	severe	1.5%	3.3%

Panel B: GAD-7

Score	Category	Diagnosed Before	Diagnosed After
0 to 4	none-minimal	43.3%	36.1%
5 to 9	mild	34.3%	34.4%
10 to 14	moderate	17.9%	19.7%
>=15	severe	4.5%	9.8%

Panel C: PHQ-9 Final Question

Score	Category	Diagnosed Before	Diagnosed After
0	not at all	89.4%	80.3%
>= 1	more than zero days	10.6%	19.7%

Note: Table shows the percentage of students diagnosed with a mental health issue before starting the PhD program and percentage of students diagnosed after starting the PhD program who are scoring in each PHQ-9, GAD-7, and PHQ-9 Final Question category. Those who score 10 or higher on the PHQ-9 or the GAD-7 would, with a 90% probability, be diagnosed with depression or anxiety disorder, respectively, upon seeing a mental health professional. The final question on the PHQ-9 asks: Over the last two weeks, how often have you been bothered by any of the following problems? - Thoughts that you would be better off dead or of hurting yourself in some way.

Table 11: Regrets and mental health

	PHQ-9	GAD-7	PHQ-9 Final Question	SBQR
Change area of study	9.06 (σ=5.75)	7.39 (σ=5.55)	0.28 (σ=0.45)	4.65 (σ=2.63)
Change adviser(s)	8.03 (σ=6.25)	7.65 (σ=5.59)	0.20 (σ=0.40)	4.23 (σ=2.77)
Not pursue a PhD at all	8.64 (σ=5.06)	7.68 (σ=4.79)	0.27 (σ=0.44)	4.54 (σ=2.52)
Engage more with study	6.47 (σ=4.51)	5.19 (σ=4.07)	0.11 (σ=0.32)	3.68 (σ=2.38)
Study at another institution	7.98 (σ=6.13)	6.54 (σ=4.43)	0.24 (σ=0.43)	4.55 (σ=2.30)
Organize time more effectively	6.24 (σ=4.50)	5.39 (σ=4.23)	0.11 (σ=0.31)	3.62 (σ=2.20)
Nothing	4.31 (σ=4.12)	4.23 (σ=3.98)	0.07 (σ=0.26)	3.51 (σ=2.36)
Other	5.91 (σ=4.52)	5.58 (σ=4.30)	0.09 (σ=0.28)	3.77 (σ=2.26)
ANOVA Test Statistic	6.72	5.16	3.92	2.62
p-value	0.000	0.000	0.000	0.011

Note: Table shows mean scores on screens for depression (PHQ-9), anxiety (GAD-7), suicidal ideation in the last 2 weeks (PHQ-9 Final Question), and suicidal ideation in the last year (SBQR). PHQ-9 and GAD-7 scores range from 1 (least severe) to 20+ (most severe). Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with depression (PHQ-9) or anxiety disorder (GAD-7). A score of 7 or above on the SBQR reflects elevated risk of suicide. PHQ-9 Final Question numbers show shares of students reporting suicidal ideation on at least several days in the past 2 weeks. Standard deviations are in parentheses. Table columns show answer options students had to the question: What would you do differently right now if you were starting your program? ANOVA test statistics and p-values for comparisons of student means between answer choices are also shown.

Table 12: Depressive symptoms by year in program

Panel A: All

PHQ-9	Category	G1	G2	G3	G4	G5	G6+
0 to 4	Minimal depression	45.8%	46.2%	44.7%	50.0%	40.7%	37.3%
5 to 9	Mild depression	39.6%	38.5%	39.5%	37.2%	34.6%	37.3%
10 to 14	Moderate depression	10.4%	12.5%	11.8%	7.0%	16.0%	13.6%
15 to 19	Moderately severe depression	3.1%	1.9%	1.3%	5.8%	7.4%	8.5%
>=20	Severe depression	1.0%	1.0%	2.6%	0.0%	1.2%	3.4%

Panel B: Male

PHQ-9	Category	G1	G2	G3	G4	G5	G6+
0 to 4	Minimal depression	55.0%	48.5%	50.0%	50.9%	38.0%	37.5%
5 to 9	Mild depression	26.7%	39.7%	40.0%	41.5%	34.0%	37.5%
10 to 14	Moderate depression	13.3%	10.3%	8.0%	5.7%	20.0%	12.5%
15 to 19	Moderately severe depression	3.3%	1.5%	0.0%	1.9%	8.0%	10.0%
>=20	Severe depression	1.7%	0.0%	2.0%	0.0%	0.0%	2.5%

Panel C: Female

PHQ-9	Category	G1	G2	G3	G4	G5	G6+
0 to 4	Minimal depression	30.6%	42.4%	34.6%	50.0%	46.7%	38.9%
5 to 9	Mild depression	61.1%	36.4%	38.5%	31.2%	36.7%	38.9%
10 to 14	Moderate depression	5.6%	15.2%	19.2%	9.4%	10.0%	16.7%
15 to 19	Moderately severe depression	2.8%	3.0%	3.8%	9.4%	3.3%	5.6%
>=20	Severe depression	0.0%	3.0%	3.8%	0.0%	3.3%	0.0%

Panel D: US Citizen

PHQ-9	Category	G1	G2	G3	G4	G5	G6+
0 to 4	Minimal depression	45.8%	50.0%	35.1%	54.1%	50.0%	35.7%
5 to 9	Mild depression	33.3%	35.4%	48.6%	27.0%	36.7%	46.4%
10 to 14	Moderate depression	12.5%	12.5%	10.8%	10.8%	13.3%	10.7%
15 to 19	Moderately severe depression	6.2%	0.0%	0.0%	8.1%	0.0%	7.1%
>=20	Severe depression	2.1%	2.1%	5.4%	0.0%	0.0%	0.0%

Panel E: Non-US Citizen

PHQ-9	Category	G1	G2	G3	G4	G5	G6+
0 to 4	Minimal depression	45.8%	42.6%	53.8%	47.9%	36.0%	40.0%
5 to 9	Mild depression	45.8%	40.7%	30.8%	45.8%	34.0%	30.0%
10 to 14	Moderate depression	8.3%	13.0%	12.8%	4.2%	18.0%	16.7%
15 to 19	Moderately severe depression	0.0%	3.7%	2.6%	2.1%	10.0%	10.0%
>=20	Severe depression	0.0%	0.0%	0.0%	0.0%	2.0%	3.3%

Note: PHQ-9 measures depressive symptoms. Symptom intensity increases as PHQ-9 scores increase. Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with depression.

Table 13: Anxiety symptoms by year in program

Panel A: All

GAD-7	Category	G1	G2	G3	G4	G5	G6+
0 - 4	No anxiety	57.1%	60.6%	53.2%	45.5%	46.9%	35.0%
5 - 9	Mild anxiety	30.6%	26.9%	27.3%	36.4%	32.1%	36.7%
10 - 14	Moderate anxiety	9.2%	10.6%	14.3%	13.6%	16.0%	20.0%
>=15	Severe anxiety	3.1%	1.9%	5.2%	4.5%	4.9%	8.3%

Panel B: Male

GAD-7	Category	G1	G2	G3	G4	G5	G6+
0 - 4	No anxiety	60.0%	70.6%	54.9%	49.1%	50.0%	41.5%
5 - 9	Mild anxiety	30.0%	22.1%	25.5%	34.5%	24.0%	36.6%
10 - 14	Moderate anxiety	5.0%	5.9%	15.7%	14.5%	20.0%	17.1%
>=15	Severe anxiety	5.0%	1.5%	3.9%	1.8%	6.0%	4.9%

Panel C: Female

GAD-7	Category	G1	G2	G3	G4	G5	G6+
0 - 4	No anxiety	52.6%	42.4%	50.0%	40.6%	43.3%	22.2%
5 - 9	Mild anxiety	31.6%	36.4%	30.8%	40.6%	46.7%	38.9%
10 - 14	Moderate anxiety	15.8%	18.2%	11.5%	9.4%	6.7%	27.8%
>=15	Severe anxiety	0.0%	3.0%	7.7%	9.4%	3.3%	11.1%

Panel D: US Citizen

GAD-7	Category	G1	G2	G3	G4	G5	G6+
0 - 4	No anxiety	49.0%	60.4%	50.0%	51.3%	53.3%	35.7%
5 - 9	Mild anxiety	34.7%	31.2%	31.6%	28.2%	36.7%	35.7%
10 - 14	Moderate anxiety	12.2%	8.3%	13.2%	15.4%	6.7%	21.4%
>=15	Severe anxiety	4.1%	0.0%	5.3%	5.1%	3.3%	7.1%

Panel E: Non-US Citizen

GAD-7	Category	G1	G2	G3	G4	G5	G6+
0 - 4	No anxiety	65.3%	63.0%	56.4%	41.7%	44.0%	35.5%
5 - 9	Mild anxiety	26.5%	20.4%	23.1%	43.8%	30.0%	38.7%
10 - 14	Moderate anxiety	6.1%	13.0%	15.4%	12.5%	20.0%	19.4%
>=15	Severe anxiety	2.0%	3.7%	5.1%	2.1%	6.0%	6.5%

Note: GAD-7 measures anxious symptoms. Symptom intensity increases as GAD-7 scores increase. Mental health professionals use a score of 10 as a cutoff when diagnosing individuals with anxiety disorder.

Table 14: Suicidal ideation in the last two weeks by year in program

PHQ-9 Final Question	Category	G1	G2	G3	G4	G5	G6+
0	not at all	92.7%	94.2%	86.8%	83.7%	93.8%	78.0%
>= 1	more than zero days	7.3%	5.8%	13.2%	16.3%	6.2%	22.0%

Table 15: Mean scores, standard deviations, and response counts for key outcomes

	Mean	Stdev	N
Depression(PHQ-9)	5.94	4.64	504
Anxiety (GAD-7)	5.33	4.31	510
Suicidality (SBQR)	3.67	2.23	507
Loneliness (UCLA-3)	5.23	1.79	511
Self-Esteem (Rosenberg)	19.55	5.84	507
Imposter Syndrome (Clance)	16.62	4.26	511
Eating Disorder Abnormal Response	1.19	1.21	513
ADHD Abnormal Response	2.53	1.47	507
Exercise - moderate intensity days	2.81	2.28	509
Exercise - vigorous intensity days	1.94	1.91	509
Exercise - strength training	1.22	1.60	509
Alcohol (AUDIT-C)	3.70	2.02	418
Sleep (Good Days)	3.69	1.91	511
Sleepiness	0.36	0.48	512

Table 16: Pearson correlations of Depression (PHQ-9) score and other outcomes

Measure	Depression (PHQ-9)
Anxiety (GAD-7)	0.655 ***
Suicidality 2-weeks (PHQ-9 Final Question)	0.511 ***
Suicidality 1-year (SBQR)	0.304 ***
Loneliness (UCLA-3)	0.482 ***
Self-Esteem (Rosenberg)	-0.585 ***
Imposter Syndrome (Clance)	0.379 ***
Eating Disorder (ESP)	0.264 ***
ADHD	0.280 ***
Alcohol Use (AUDIT-C)	0.012
Physical Exercise, Moderate	-0.015
Sleep (Good Days)	-0.418 ***
Sleepiness	0.379 ***

Note: Higher scores mean worse outcomes, except for Self-Esteem (higher score=higher self-esteem), Physical Exercise (higher score=more exercise), and Sleep (higher score=more good days of sleep). * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 17: Social sources of support: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Number of people you can really open up to		
0	30	5.8%
1	75	14.6%
2 - 5	314	61.2%
6 - 10	78	15.2%
11 - 15	8	1.6%
16 - 20	4	0.8%
More than 20	4	0.8%
How often share problem or worry?		
Never	17	3.3%
Sometimes	248	48.4%
Most of the Time	187	36.5%
Always	60	11.7%
I have very good friends at my Economics Department.		
Strongly agree	197	38.4%
Agree	176	34.3%
Neither agree nor disagree	76	14.8%
Disagree	43	8.4%
Strongly disagree	21	4.1%
How competitive are your peers?		
Not competitive at all	124	24.2%
Somewhat competitive	213	41.6%
Moderately competitive	118	23.0%
Very competitive	57	11.1%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Number of people you can really open up to	-0.203 ***	-0.123 ***	-0.232 ***	-0.286 ***
sig	0.000	0.005	0.000	0.000
n	504	510	512	511
How often share problem or worry?	-0.182 ***	-0.067	-0.162 ***	-0.222 ***
sig	0.000	0.132	0.000	0.000
n	503	509	511	510
I have very good friends at my Economics Department.	-0.233 ***	-0.144 ***	-0.182 ***	-0.437 ***
sig	0.000	0.001	0.000	0.000
n	504	510	512	511
How competitive are your peers?	0.222 ***	0.272 ***	0.143 ***	0.250 ***
sig	0.000	0.000	0.001	0.000
n	503	509	511	510

Note: A higher response value indicates more people to open up to, more often letting someone know about a problem, more friends in the Economics department, and more perceived competition among peers. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 18: Time on social media: experiences and correlations with mental health

Panel A: Experiences

Question and Answer	Number	Percent
Over last 7 days, number of times checked Facebook per day		
0	58	11.3%
1	82	16.0%
2	90	17.5%
3 or more	257	50.1%
Don't have a Facebook account	26	5.1%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Over last 7 days, number of times checked Facebook per day	0.035	0.049	0.011	0.051
sig	0.434	0.268	0.811	0.249
n	504	510	512	511

Note: A higher response value indicates checking Facebook more times per day. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = $p<0.1$, ** = $p<0.05$, *** = $p<0.01$.

Table 19: How important are the following to your sense of success in life?

Panel A: Experiences

Question and Answer	Number	Percent
Tenure at an academic institution		
Not important at all	72	14.1%
Somewhat important	143	28.0%
Moderately important	168	32.9%
Very important	128	25.0%
Tenure at a top-ranked academic institution		
Not important at all	130	25.3%
Somewhat important	189	36.8%
Moderately important	130	25.3%
Very important	64	12.5%
High income		
Not important at all	49	9.6%
Somewhat important	191	37.3%
Moderately important	194	37.9%
Very important	78	15.2%
Having your own family		
Not important at all	30	5.9%
Somewhat important	67	13.1%
Moderately important	111	21.7%
Very important	303	59.3%
Knowing that you have made a useful contribution to the world		
Not important at all	20	3.9%
Somewhat important	52	10.1%
Moderately important	146	28.5%
Very important	295	57.5%
Recognition of your work by the general public		
Not important at all	83	16.2%
Somewhat important	180	35.1%
Moderately important	175	34.1%
Very important	75	14.6%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Tenure at an academic institution	-0.094 **	-0.064	-0.005	-0.093 **
sig	0.036	0.150	0.914	0.036
n	502	508	510	509
Tenure at a top-ranked academic institution	-0.046	-0.098 **	0.009	0.004
sig	0.299	0.027	0.842	0.936
n	504	510	512	511
High income	0.069	0.012	0.048	0.055
sig	0.122	0.791	0.275	0.212
n	503	509	511	510
Having your own family	-0.084 *	0.001	-0.047	-0.033
sig	0.059	0.990	0.289	0.455
n	503	508	511	509
Knowing that you have made a useful contribution to the world	-0.036	-0.032	-0.113 **	-0.050
sig	0.425	0.474	0.010	0.258
n	504	510	512	511
Recognition of your work by the general public	-0.022	-0.009	-0.029	0.055
sig	0.630	0.842	0.509	0.215
n	504	510	512	511

Note: A higher response value indicates greater importance to a respondent's sense of success in life. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 20: In this academic year, how successful do you think you will be...: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
in your courses		
Not successful at all	23	8.2%
Somewhat successful	60	21.3%
Moderately successful	144	51.1%
Very successful	55	19.5%
in your research process		
Not successful at all	39	8.3%
Somewhat successful	184	39.2%
Moderately successful	196	41.8%
Very successful	50	10.7%
in your presentations		
Not successful at all	42	10.3%
Somewhat successful	124	30.5%
Moderately successful	193	47.5%
Very successful	47	11.6%
in your teaching		
Not successful at all	11	3.9%
Somewhat successful	58	20.4%
Moderately successful	135	47.4%
Very successful	81	28.4%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
in your courses	-0.285 ***	-0.315 ***	-0.197 ***	-0.247 ***
sig	0.000	0.000	0.001	0.000
n	277	281	282	281
in your research process	-0.361 ***	-0.290 ***	-0.172 ***	-0.317 ***
sig	0.000	0.000	0.000	0.000
n	461	466	468	467
in your presentations	-0.325 ***	-0.259 ***	-0.158 ***	-0.317 ***
sig	0.000	0.000	0.001	0.000
n	399	404	405	404
in your teaching	-0.201 ***	-0.193 ***	-0.128 **	-0.266 ***
sig	0.001	0.001	0.031	0.000
n	280	283	284	284

Note: A higher response value indicates greater belief in success in each endeavor. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 21: Seminar environment: experiences and correlations with mental health

Panel A: Experiences

Question and Answer	Number	Percent
Comfortable voice a thought in a seminar setting?		
Not comfortable at all	182	35.5%
Somewhat comfortable	180	35.2%
Moderately comfortable	99	19.3%
Very comfortable	51	10.0%
How certain about high quality of thought before sharing it in seminar setting?		
Not certain at all	46	9.0%
Somewhat certain	70	13.6%
Moderately certain	134	26.1%
Very certain	263	51.3%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Comfortable voice a thought in a seminar setting?	-0.162 ***	-0.115 ***	-0.057	-0.160 ***
sig	0.000	0.010	0.195	0.000
n	503	509	511	510
How certain about high quality of thought before sharing it in seminar setting?	0.056	0.044	-0.065	0.018
sig	0.207	0.323	0.140	0.690
n	504	510	512	511

Note: A higher response value indicates greater comfort and certainty. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. $* = p<0.1$, $** = p<0.05$, $*** = p<0.01$.

Table 22: As of right now, how comfortable would you be voicing a thought in a seminar setting?

	All	Male	Female	US Citizen	Non-US Citizen
Not/Somewhat Comfortable	70.7%	65.2%	80.7%	70.9%	70.0%
Moderately/Very Comfortable	29.3%	34.8%	19.3%	29.1%	30.0%

Table 23: As of right now, how certain would you have to be about the high quality of a thought before you voiced it in a seminar setting?

	All	Male	Female	US Citizen	Non-US Citizen
Not/Somewhat Certain	22.6%	23.0%	22.6%	17.0%	27.1%
Moderately/Very Certain	77.4%	77.0%	77.4%	83.0%	72.9%

Table 24: Working with others: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
In 1st year, number of people worked with on problem sets		
Worked alone	144	29.0%
2 people	76	15.3%
3 people	163	32.8%
4+ people	114	22.9%
Co-authoring with other PhD student?		
Yes	182	36.7%
No	314	63.3%
Co-authoring with faculty member?		
Yes	194	39.1%
No	302	60.9%
Over the last 7 days, how many days did you work in the Economics Department?		
0 days	58	11.4%
1 day	27	5.3%
2 days	39	7.6%
3 days	49	9.6%
4 days	77	15.1%
5 days	143	28.0%
6 days	69	13.5%
7 days	49	9.6%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
In 1st year, number of people worked with on problem sets	-0.016	0.013	-0.030	-0.182 ***
sig	0.723	0.778	0.505	0.000
n	488	494	496	495
Co-authoring with other PhD student?	-0.078 *	0.020	-0.026	-0.130 ***
sig	0.085	0.656	0.568	0.004
n	487	493	495	494
Co-authoring with faculty member?	-0.074	0.012	-0.043	-0.130 ***
sig	0.102	0.787	0.336	0.004
n	487	493	495	494
Over the last 7 days, how many days did you work in the Economics Department?	-0.095 **	-0.021	-0.077 *	-0.165 ***
sig	0.033	0.638	0.084	0.000
n	502	508	510	509

Note: A higher response value indicates a larger group, one or more projects co-authored, and more days worked in the Economics Department. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. $* = p<0.1$, $** = p<0.05$, $*** = p<0.01$.

Table 25: RAND meaningfulness of work: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Opportunities to fully use your talents		
Always	43	8.7%
Most of the time	161	32.5%
Sometimes	224	45.2%
Rarely	60	12.1%
Never	8	1.6%
Opportunities to make positive impact on community/society		
Always	18	3.7%
Most of the time	80	16.4%
Sometimes	156	31.9%
Rarely	174	35.6%
Never	61	12.5%
Sense of personal accomplishment		
Always	39	7.7%
Most of the time	131	25.8%
Sometimes	241	47.5%
Rarely	84	16.6%
Never	12	2.4%
Goals to aspire to		
Always	79	15.6%
Most of the time	189	37.3%
Sometimes	174	34.3%
Rarely	53	10.5%
Never	12	2.4%
Satisfaction of work well done		
Always	38	7.5%
Most of the time	135	26.5%
Sometimes	220	43.2%
Rarely	101	19.8%
Never	15	2.9%
Feeling of doing useful work		
Always	31	6.1%
Most of the time	103	20.3%
Sometimes	233	45.9%
Rarely	113	22.2%
Never	28	5.5%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Opportunities to fully use your talents	-0.364 ***	-0.240 ***	-0.187 ***	-0.331 ***
sig	0.000	0.000	0.000	0.000
n	487	493	495	494
Opportunities to make positive impact on community/society	-0.231 ***	-0.113 **	-0.120 ***	-0.186 ***
sig	0.000	0.013	0.008	0.000
n	480	486	488	487
Sense of personal accomplishment	-0.366 ***	-0.304 ***	-0.123 ***	-0.295 ***
sig	0.000	0.000	0.005	0.000
n	498	504	506	505
Goals to aspire to	-0.272 ***	-0.238 ***	-0.166 ***	-0.292 ***
sig	0.000	0.000	0.000	0.000
n	498	504	506	505
Satisfaction of work well done	-0.364 ***	-0.325 ***	-0.128 ***	-0.343 ***
sig	0.000	0.000	0.004	0.000
n	500	506	508	507
Feeling of doing useful work	-0.313 ***	-0.226 ***	-0.137 ***	-0.269 ***
sig	0.000	0.000	0.002	0.000
n	499	505	507	506

Note: These questions were borrowed from the RAND American Working Conditions Survey (Maestas et al. (2015)). A higher response value indicates a respondent's work provides more of each question item. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 26: RAND work issues: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Worried about work when not working		
Always	103	20.1%
Most of the time	214	41.8%
Sometimes	160	31.2%
Rarely	32	6.2%
Never	3	0.6%
Were too tired for activities in private life		
Always	25	4.9%
Most of the time	80	15.6%
Sometimes	251	49.0%
Rarely	128	25.0%
Never	28	5.5%
Were too tired to do household jobs		
Always	32	6.2%
Most of the time	94	18.3%
Sometimes	217	42.3%
Rarely	137	26.7%
Never	33	6.4%
Had difficulty making ends meet financially		
Always	13	2.5%
Most of the time	29	5.7%
Sometimes	58	11.3%
Rarely	137	26.7%
Never	276	53.8%
Had work prevent time with family or significant others		
Always	34	6.7%
Most of the time	90	17.6%
Sometimes	200	39.1%
Rarely	117	22.9%
Never	70	13.7%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Worried about work when not working	0.354 ***	0.437 ***	0.140 ***	0.237 ***
sig	0.000	0.000	0.002	0.000
n	503	509	511	510
Were too tired for activities in private life	0.354 ***	0.407 ***	0.221 ***	0.268 ***
sig	0.000	0.000	0.000	0.000
n	503	509	511	510
Were too tired to do household jobs	0.331 ***	0.364 ***	0.132 ***	0.240 ***
sig	0.000	0.000	0.003	0.000
n	504	510	512	511
Had difficulty making ends meet financially	0.215 ***	0.227 ***	0.082 *	0.193 ***
sig	0.000	0.000	0.065	0.000
n	504	510	512	511
Had work prevent time with family or significant others	0.234 ***	0.350 ***	0.109 **	0.142 ***
sig	0.000	0.000	0.014	0.001
n	502	508	510	509

Note: These questions were borrowed from the RAND American Working Conditions Survey (Maestas et al. (2015)). A higher response value indicates a respondent experienced more moments of each question item. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 27: Happiness with PhD program: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Over last 2 weeks, # days seriously contemplated quitting PhD program		
0 days	398	77.6%
1 day	67	13.1%
2 days	20	3.9%
3 days or more	28	5.5%
How satisfied are you with your PhD experience (1=extremely dissatisfied, 10=extremely satisfied)?		
1	4	0.8%
2	10	2.0%
3	24	4.7%
4	34	6.6%
5	63	12.3%
6	73	14.3%
7	104	20.3%
8	131	25.6%
9	54	10.5%
10	15	2.9%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Over last 2 weeks, # days seriously contemplated quitting PhD program	0.338 ***	0.314 ***	0.280 ***	0.274 ***
sig	0.000	0.000	0.000	0.000
n	504	510	512	511
How satisfied are you with your PhD experience (1=extremely dissatisfied, 10=extremely satisfied)?	-0.460 ***	-0.408 ***	-0.269 ***	-0.391 ***
sig	0.000	0.000	0.000	0.000
n	503	509	511	510

Note: A higher response value indicates more days seriously contemplating quitting the PhD program and more satisfaction. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 28: Perceptions of faculty care: Experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
How much do advisers care about the success of your research project(s)?		
Do not care at all	10	2.3%
Care somewhat	72	16.6%
Care moderately	149	34.3%
Care very much	204	46.9%
How much do advisers care about you as a person?		
Do not care at all	36	7.8%
Care somewhat	129	28.0%
Care moderately	178	38.6%
Care very much	118	25.6%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
How much do advisers care about the success of your research project(s)?	-0.184 ***	-0.164 ***	-0.161 ***	-0.230 ***
sig	0.000	0.001	0.001	0.000
n	427	433	434	433
How much do advisers care about you as a person?	-0.236 ***	-0.245 ***	-0.160 ***	-0.269 ***
sig	0.000	0.000	0.001	0.000
n	452	459	460	459

Note: A higher response value indicates greater perceived care. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 29: How honest can I be with adviser about difficulties?: experiences and correlations with mental health outcomes

Panel A: Experiences		
Question and Answer	Number	Percent
How easy is it for you to talk to them about non-academic career options?		
Not easy at all	169	49.7%
Somewhat easy	77	22.6%
Moderately easy	58	17.1%
Very easy	36	10.6%
Research progress		
Not honest at all	135	38.7%
Somewhat honest	114	32.7%
Moderately honest	69	19.8%
Very honest	31	8.9%
Presentations		
Not honest at all	11	3.0%
Somewhat honest	68	18.8%
Moderately honest	114	31.6%
Very honest	168	46.5%
Teaching		
Not honest at all	11	4.0%
Somewhat honest	44	15.9%
Moderately honest	88	31.8%
Very honest	134	48.4%
Refereeing		
Not honest at all	6	3.6%
Somewhat honest	21	12.4%
Moderately honest	53	31.4%
Very honest	89	52.7%
Co-authoring with other students		
Not honest at all	16	6.0%
Somewhat honest	51	19.2%
Moderately honest	84	31.6%
Very honest	115	43.2%
Your mental health		
Not honest at all	142	41.5%
Somewhat honest	112	32.7%
Moderately honest	50	14.6%
Very honest	38	11.1%
Your other advisers		
Not honest at all	49	15.8%
Somewhat honest	102	32.9%
Moderately honest	80	25.8%
Very honest	79	25.5%
Preparing for the job market		
Not honest at all	11	4.1%
Somewhat honest	54	20.1%
Moderately honest	81	30.1%
Very honest	123	45.7%
Your decision to get a PhD in economics		
Not honest at all	69	22.6%
Somewhat honest	69	22.6%
Moderately honest	59	19.3%
Very honest	108	35.4%
Decisions related to starting a family		
Not honest at all	76	31.0%
Somewhat honest	74	30.2%
Moderately honest	48	19.6%
Very honest	47	19.2%
Co-authoring with these faculty		
Not honest at all	31	11.7%
Somewhat honest	72	27.3%
Moderately honest	72	27.3%
Very honest	89	33.7%
Other personal life issues		
Not honest at all	135	38.7%
Somewhat honest	114	32.7%
Moderately honest	69	19.8%
Very honest	31	8.9%

Table 29: (Cont.) How honest can I be with adviser about difficulties?: experiences and correlations with mental health outcomes

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
How easy is it for you to talk to them about non-academic career options?	-0.193 ***	-0.272 ***	-0.184 ***	-0.220 ***
sig	0.000	0.000	0.001	0.000
n	335	338	339	338
Research progress	-0.261 ***	-0.313 ***	-0.198 ***	-0.323 ***
sig	0.000	0.000	0.000	0.000
n	340	347	348	347
Presentations	-0.257 ***	-0.310 ***	-0.223 ***	-0.236 ***
sig	0.000	0.000	0.000	0.000
n	353	359	360	360
Teaching	-0.215 ***	-0.326 ***	-0.183 ***	-0.328 ***
sig	0.000	0.000	0.002	0.000
n	274	275	277	276
Refereeing	-0.290 ***	-0.344 ***	-0.252 ***	-0.273 ***
sig	0.000	0.000	0.001	0.000
n	166	169	169	169
Co-authoring with other students	-0.146 **	-0.191 ***	-0.235 ***	-0.252 ***
sig	0.018	0.002	0.000	0.000
n	262	264	266	265
Your mental health	-0.284 ***	-0.308 ***	-0.296 ***	-0.278 ***
sig	0.000	0.000	0.000	0.000
n	334	340	341	341
Your other advisers	-0.159 ***	-0.191 ***	-0.176 ***	-0.216 ***
sig	0.005	0.001	0.002	0.000
n	303	308	309	308
Preparing for the job market	-0.340 ***	-0.312 ***	-0.244 ***	-0.326 ***
sig	0.000	0.000	0.000	0.000
n	263	267	268	268
Your decision to get a PhD in economics	-0.293 ***	-0.271 ***	-0.195 ***	-0.269 ***
sig	0.000	0.000	0.001	0.000
n	298	304	304	304
Decisions related to starting a family	-0.234 ***	-0.239 ***	-0.133 **	-0.300 ***
sig	0.000	0.000	0.037	0.000
n	239	243	245	244
Co-authoring with these faculty	-0.248 ***	-0.244 ***	-0.217 ***	-0.230 ***
sig	0.000	0.000	0.000	0.000
n	258	262	264	263
Other personal life issues	-0.261 ***	-0.313 ***	-0.198 ***	-0.323 ***
sig	0.000	0.000	0.000	0.000
n	340	347	348	347

Note: A higher response value indicates greater ease of discussing non-academic career options and greater honesty with difficulties in each question category. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 30: Number of meetings with main adviser: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
In the last 2 months, # of times met with main adviser		
0	17	4.4%
1	49	12.6%
2	77	19.8%
3	63	16.2%
4	62	15.9%
5	32	8.2%
6-10	74	19.0%
11-15	7	1.8%
15+	8	2.1%
In the last 2 months, total # of times met with three advisers		
0	0	0.0%
1	0	0.0%
2	0	0.0%
3	10	3.6%
4	10	3.6%
5	21	7.6%
6-10	129	46.7%
11-15	78	28.3%
15+	28	10.1%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
In the last 2 months, # of times met with main adviser	-0.005	0.077	0.002	-0.059
sig	0.920	0.129	0.968	0.245
n	383	387	388	387
In the last 2 months, total # of times met with three advisers	-0.074	0.079	-0.035	-0.160 ***
sig	0.228	0.190	0.567	0.008
n	270	274	275	276

Note: A higher response value indicates greater times met with advisers. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 31: Impediments to meeting with faculty: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Meetings are difficult to schedule		
Not significant at all	257	56.6%
Somewhat significant	121	26.7%
Moderately significant	50	11.0%
Very significant	26	5.7%
Meetings are too short		
Not significant at all	322	70.9%
Somewhat significant	94	20.7%
Moderately significant	31	6.8%
Very significant	7	1.5%
Meetings are not useful		
Not significant at all	318	70.4%
Somewhat significant	98	21.7%
Moderately significant	28	6.2%
Very significant	8	1.8%
Meetings are unpleasant		
Not significant at all	361	79.9%
Somewhat significant	55	12.2%
Moderately significant	26	5.8%
Very significant	10	2.2%
Fear of the consequences of a bad impression		
Not significant at all	147	32.3%
Somewhat significant	140	30.8%
Moderately significant	83	18.2%
Very significant	85	18.7%
Doubt about the quality of your ideas, questions, thoughts		
Not significant at all	114	24.8%
Somewhat significant	122	26.6%
Moderately significant	115	25.1%
Very significant	108	23.5%
Lack of progress on to-dos from previous meeting		
Not significant at all	137	30.1%
Somewhat significant	112	24.6%
Moderately significant	105	23.1%
Very significant	101	22.2%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Meetings are difficult to schedule	0.105 **	0.062	0.042	0.103 **
sig	0.027	0.191	0.373	0.028
n	446	451	453	452
Meetings are too short	0.041	0.074	-0.021	0.096 **
sig	0.392	0.115	0.657	0.042
n	446	451	453	452
Meetings are not useful	0.178 ***	0.148 ***	0.131 ***	0.166 ***
sig	0.000	0.002	0.005	0.000
n	444	449	451	450
Meetings are unpleasant	0.314 ***	0.322 ***	0.258 ***	0.272 ***
sig	0.000	0.000	0.000	0.000
n	444	449	451	450
Fear of the consequences of a bad impression	0.285 ***	0.339 ***	0.151 ***	0.315 ***
sig	0.000	0.000	0.001	0.000
n	447	452	454	453
Doubt about the quality of your ideas, questions, thoughts	0.215 ***	0.238 ***	0.088 *	0.253 ***
sig	0.000	0.000	0.060	0.000
n	451	456	458	457
Lack of progress on to-dos from previous meeting	0.180 ***	0.195 ***	0.100 **	0.199 ***
sig	0.000	0.000	0.033	0.000
n	447	452	454	453

Note: A higher response value indicates greater significance for each impediment. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = $p<0.1$, ** = $p<0.05$, *** = $p<0.01$.

Table 32: Faculty attention and role modeling: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Over last 2 months, # of faculty initiating informal conversation		
0	182	36.3%
1	160	31.9%
2	120	24.0%
3 or more	39	7.8%
# of faculty members in department you consider to be professional role models		
0	90	18.0%
1	94	18.8%
2	128	25.6%
3 or more	188	37.6%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Over last 2 months, # of faculty initiating informal conversation	-0.109 **	-0.087 *	-0.085 *	-0.091 **
sig	0.016	0.053	0.058	0.043
n	492	498	500	499
# of faculty members in department you consider to be professional role models	-0.174 ***	-0.182 ***	-0.162 ***	-0.136 ***
sig	0.000	0.000	0.000	0.002
n	492	497	500	498

Note: A higher response value indicates more faculty informal conversations and more faculty professional role models. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 33: Help with advising: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
If issue with advising, would you know where to turn for help?		
Yes	209	41.9%
No	290	58.1%
If issue with advising, how likely would you be to turn to someone for help?		
Not likely	117	23.4%
Somewhat likely	203	40.7%
Moderately likely	116	23.2%
Very likely	63	12.6%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
If issue with advising, would you know where to turn for help?	-0.188 ***	-0.170 ***	-0.118 ***	-0.169 ***
sig	0.000	0.000	0.008	0.000
n	490	496	498	497
If issue with advising, how likely would you be to turn to someone for help?	-0.250 ***	-0.235 ***	-0.215 ***	-0.242 ***
sig	0.000	0.000	0.000	0.000
n	490	496	498	497

Note: A higher response value indicates knowing where to turn for help and a greater likelihood of turning to someone for help. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 34: Help with mental health: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
If issue with mental health, would you know where to turn for help?		
Yes	447	87.1%
No	66	12.9%
If issue with mental health, how likely would you be to turn to someone for help?		
Not likely	66	12.9%
Somewhat likely	164	32.0%
Moderately likely	128	25.0%
Very likely	155	30.2%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
If issue with mental health, would you know where to turn for help?	-0.103 **	-0.070	-0.141 ***	-0.193 ***
sig	0.021	0.113	0.001	0.000
n	504	510	512	511
If issue with mental health, how likely would you be to turn to someone for help?	-0.191 ***	-0.092 **	-0.132 ***	-0.197 ***
sig	0.000	0.037	0.003	0.000
n	504	510	512	511

Note: A higher response value indicates knowing where to turn for help and a greater likelihood of turning to someone for help. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 35: Math courses and time before PhD program: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
# of math courses betw. undergrad and start of PhD		
0	15	2.9%
1 or 2	33	6.5%
3 or 4	95	18.6%
5 or 6	99	19.4%
7+	268	52.5%
Straight into PhD after undergraduate degree?		
Yes	124	24.3%
No	386	75.7%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
# of math courses betw. undergrad and start of PhD	0.050	-0.001	-0.005	-0.001
sig	0.260	0.980	0.905	0.990
n	502	507	509	508
Straight into PhD after undergraduate degree?	0.017	0.053	-0.027	0.049
sig	0.700	0.229	0.538	0.268
n	501	507	509	508

Note: A higher response value indicates greater number of math courses and directly going to the PhD program after an undergraduate degree. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

Table 36: First-year grades: experiences and correlations with mental health outcomes

Panel A: Experiences

Question and Answer	Number	Percent
Average of grades in the first-year microeconomic and macroeconomic theory courses		
A	84	20.5%
A/A-	88	21.5%
A-	69	16.9%
A-/B+	85	20.8%
B+	30	7.3%
B+/B	26	6.4%
B	14	3.4%
B/B-	7	1.7%
B-/Lower than B-	6	1.5%

Panel B: Pearson correlations with mental health outcomes

Question	PHQ-9	GAD-7	PHQ-9 Final Question	Loneliness
Average of grades in the first-year microeconomic and macroeconomic theory courses	-0.122 **	-0.055	0.017	-0.119 **
sig	0.014	0.271	0.737	0.016
n	404	407	409	407

Note: A higher response value indicates a higher average grade. Higher PHQ-9, GAD-7, PHQ-9 Final Question, and Loneliness scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, PHQ-9 Final Question captures suicidal ideation, and Loneliness captures degree of loneliness and isolation. For exact question wording, see survey instrument in Appendix. * = p<0.1, ** = p<0.05, *** = p<0.01.

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Table 37: Have you experienced sexual harassment in your department?

	All	Male	Female	US Citizen	Non-US Citizen
Yes	16.2%	13%	21.5%	21.3%	11.4%

Note: Table shows percentage of each group of students that report having experienced some form of sexual harassment from someone in their Economics Department. For exact question wording, see survey instrument in Appendix.

Table 38: Sexual harassment in the department: Pearson correlations with mental health outcomes

Mental Health Variable	Correlation	p-value
Depression (PHQ-9)	0.079	0.078 *
Anxiety (GAD-7)	0.056	0.208
Suicidality 2-weeks (PHQ-9 Final Question)	-0.007	0.879
Suicidality 1-year (SBQR)	-0.079	0.077 *
Loneliness (UCLA-3)	0.026	0.563
Self-Esteem (Rosenberg)	-0.008	0.862
Imposter Syndrome (Clance)	0.086	0.051 *
Eating Disorder	0.132	0.003 ***
ADHD	0.021	0.639
Physical Exercise	0.086	0.054 *
Alcohol (AUDIT-C)	0.104	0.033 **
Sleep (Good Days)	-0.040	0.368
Sleepiness	0.006	0.894

Note: A positive correlation means higher scores on the mental health outcomes for those who have experienced sexual harassment. Higher scores mean worse outcomes, except for Self-Esteem (higher score=higher self-esteem), Physical Exercise (higher score=more exercise), and Sleep (higher score=more good days of sleep). * = p<0.1, ** = p<0.05, *** = p<0.01.

Figures

Figure 1: On a scale of 1 to 10, where 1 = Extremely dissatisfied and 10 = Extremely satisfied, how satisfied are you with your PhD experience?
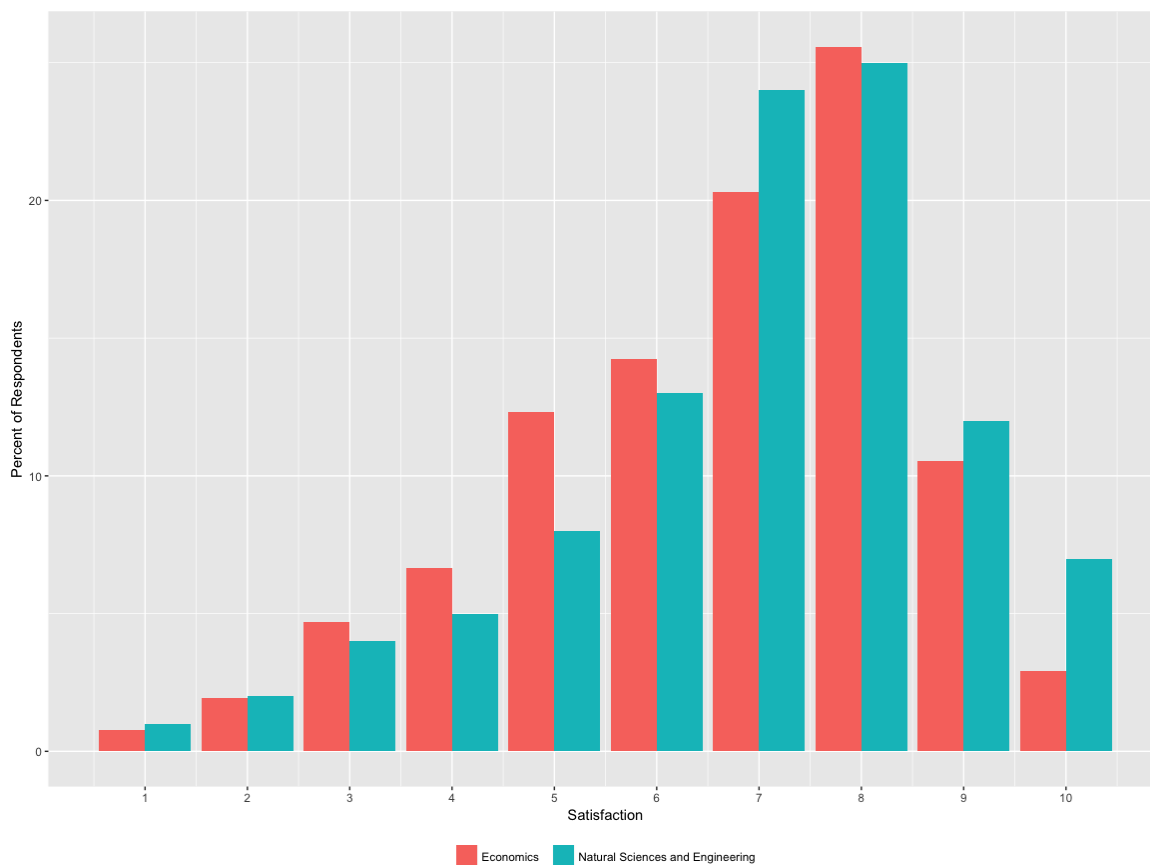
Note: Results for Natural Science and Engineering PhD students come from Woolston (2017).

Figure 2: On average, how many hours a week do you typically work?
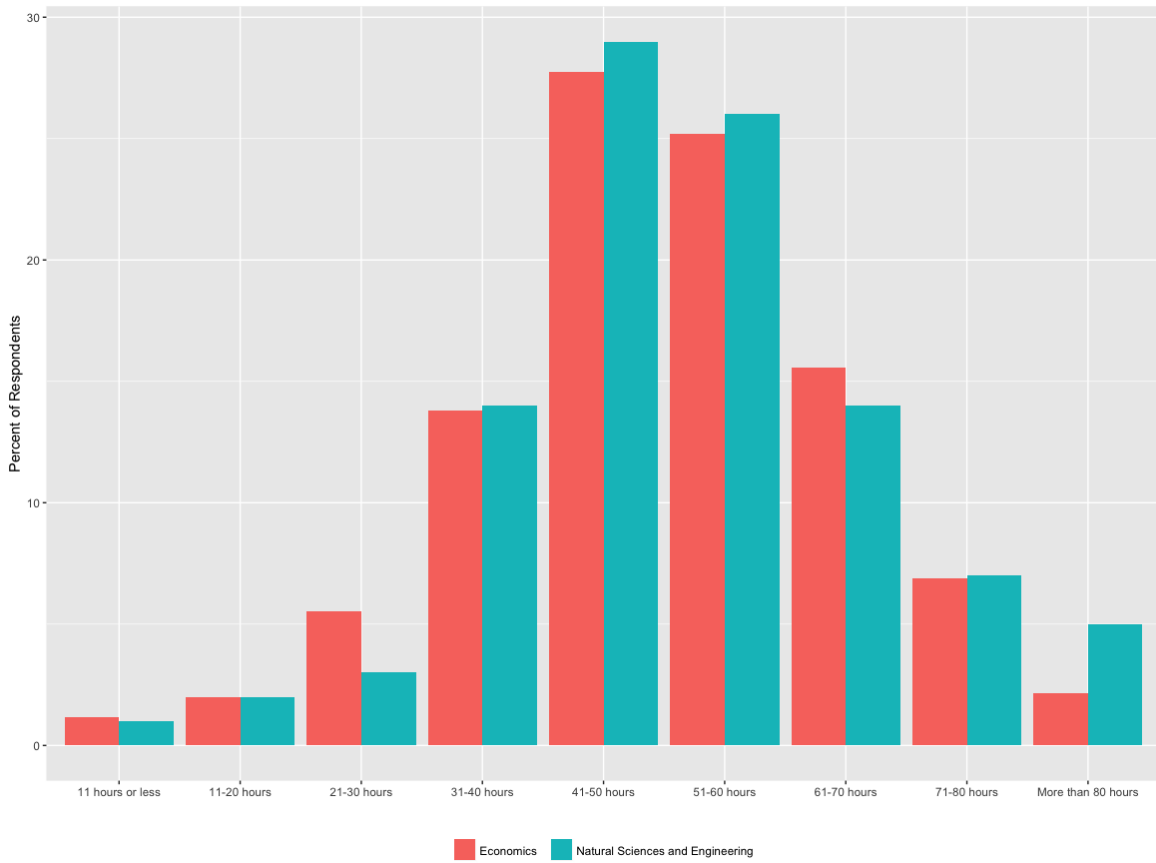
Note: Results for Natural Science and Engineering PhD students come from Woolston (2017).

Figure 3: What would you do differently right now if you were starting your program?
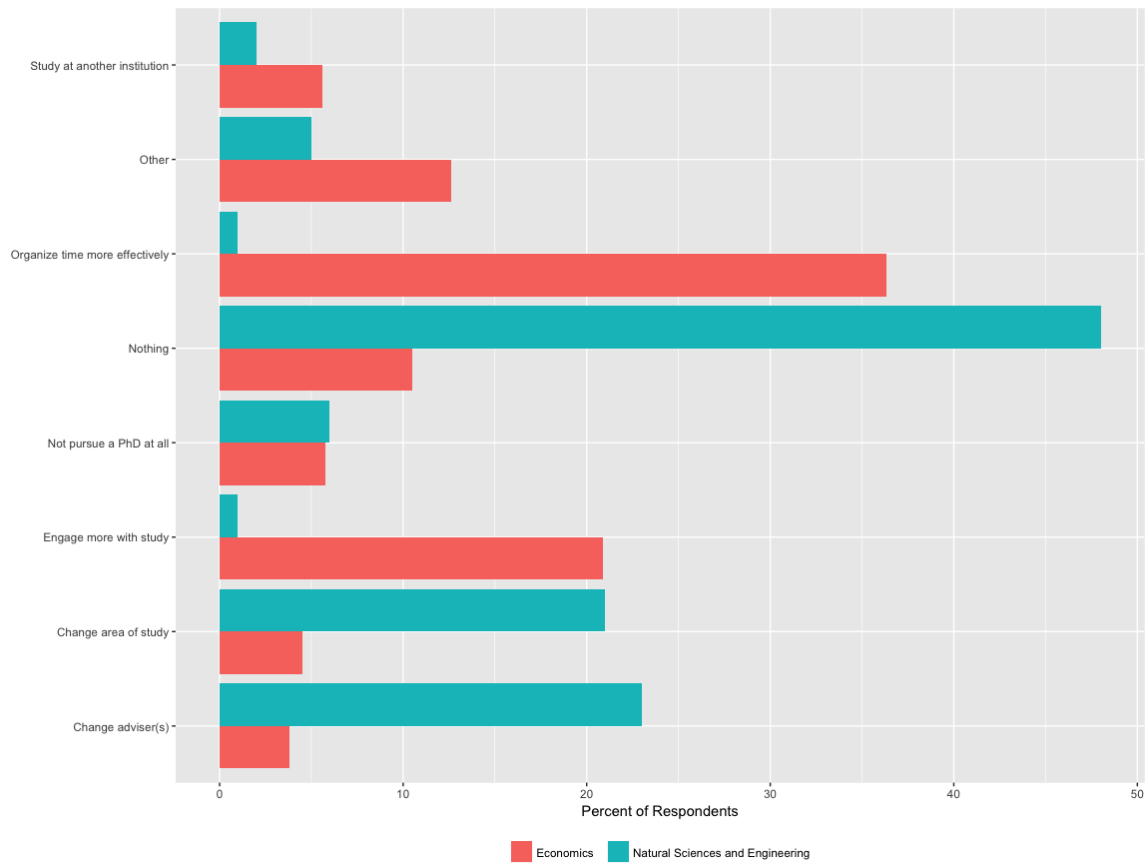
Note: Results for Natural Science and Engineering PhD students come from Woolston (2017).

APPENDIX A1: 2017 FALL STUDENT SURVEY

Note that you cannot return to the previous page.
Please do not use your browser navigation button to go back.

Overview & ID

Graduate Student Mental Health: A Study of American Economics Departments
Researchers: Paul Barreira, MD; Matthew Basilico; Valentin Bolotnyy

Consent Form

Participation is voluntary

It is your choice whether or not to participate in this research. If you choose to participate, you may change your mind and leave the study at any time. Refusal to participate or stopping your participation will involve no penalty or loss of benefits to which you are otherwise entitled.

What is the purpose of this research?

The purpose of this research is to understand the prevalence and severity of common mental health problems among graduate students in economics departments across the United States. In addition, the study will help identify environmental factors that may mitigate or contribute to mental health issues. A faculty survey portion of the study will help supplement the graduate student study by shedding additional light on faculty-student relationships.

What can I expect if I take part in this research?

The study is intended for economics graduate students in all years of the PhD program.

The initial survey will take 20 to 25 minutes to complete. A follow-up survey will be sent to you in the Spring of 2018 and will take about 10 minutes to complete. At the end of each survey, you will receive scores on the clinically validated mental health screens and explanations for what those scores mean about your mental health.

Once you begin a survey you will not be able to leave it and return to it at another time, so please complete it in one sitting. There is also no "Back" button, so you cannot change responses once you proceed to the next page.

The researchers will produce an aggregated report across all participating economics programs, as well as an aggregated report specifically for your department. Data from your department will only be studied in an aggregated way and the researchers will share department-specific results only with your

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department Chair. The report aggregated across all participating programs will not identify department-specific results.

What are the risks and possible discomforts?

If you choose to participate, answering questions that require reflection on issues related to your mental health and potentially distressing past experiences has some psychological risk. If you become upset or feel any distress when you are responding to these questions, please call your university's mental health services. The National Suicide Prevention Lifeline is another resource that is available 24 hours a day at 1-800-273-8255.

Benefits

We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include an improved understanding of your own mental health and its connection to your life experiences; structural department-level and profession-level reforms that improve student and faculty quality of life; improved departmental culture around mental health; initiatives across graduate programs worldwide to improve mental health among students and faculty.

If I take part in this research, how will my privacy be protected? What happens to the information you collect?

The data we collect will be stored on a secure server and analyzed in an anonymous way. No raw, individual response-level data will ever be made public. Such data will also not be handled or accessed by anyone other than a third-party data scientist hired by the researchers. The data scientist has no affiliation with any economics department and has signed a confidentiality agreement. No attempt will ever be made to identify whether or how specific individuals answered the questions in this study.

The ID provided to you for access to each survey is intended to ensure that you only complete each survey once and to allow the researchers to see how graduate student mental health changes over time across all participating programs and in your department. Data matching the ID to you will be stored on a separate secure server from the data set with your survey responses and will only be used for the purpose of this study, as described above.

If I have any questions, concerns, or complaints about this research study, who can I talk to?

The lead researcher for this study is *Paul Barreira, MD* who can be reached at 671-495-2010; 75 Mt. Auburn Street, Cambridge, MA 02138; gradsurvey@huhs.harvard.edu .

Please contact him if you have questions, concerns, complaints, or:

- If you would like to talk to the research team,

- If you think the research has harmed you, or
- If you wish to withdraw from the study.

This research has been reviewed by the Committee on the Use of Human Subjects in Research at Harvard University. The Committee can be reached at 617-496-2847, 1350 Massachusetts Avenue, 9th Floor, Suite 935, Cambridge, MA 02138, or cuhs@harvard.edu for any of the following:

- If your questions, concerns, or complaints are not being answered by the research team,
- If you cannot reach the research team,
- If you want to talk to someone besides the research team, or
- If you have questions about your rights as a research participant.

Statement of Consent

I have read the information in this consent form. All my questions about the research have been answered to my satisfaction.

Click here to download consent form PDF

Signature

By selecting this box, I consent to taking part in this research.

Please note that refreshing the survey or using your browser navigation button to go back will invalidate the survey.

Please enter the survey ID number provided in the e-mail:

PHQ-9

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly every day
Little interest or pleasure in doing things	O	O	O	O
Feeling down, depressed, or hopeless	O	O	O	O
Trouble falling or staying asleep, or sleeping too much	O	O	O	O
Feeling tired or having little energy	O	O	O	O

	Not at all	Several days	More than half the days	Nearly every day
Poor appetite or overeating	O	O	O	O
Feeling bad about yourself - or that you are a failure or have let yourself or your family down	O	O	O	O
Trouble concentrating on things, such as reading the newspaper or watching television	O	O	O	O
Moving or speaking so slowly that other people could have noticed. Or the opposite - being so fidgety or restless that you have been moving around a lot more than usual	O	O	O	O
Thoughts that you would be better off dead or of hurting yourself in some way	O	O	O	O

How difficult have these problems made it for your to do your work, take care of things at home, or get along with other people?

Not difficult at all   Somewhat difficult   Very difficult   Extremely difficult

GAD-7

Over the last 2 weeks, how often have you been bothered by any of the following problems?

	Not at all	Several days	More than half the days	Nearly everyday
Feeling nervous, anxious or on edge	O	O	O	O
Not being able to stop or control worrying	O	O	O	O
Worrying too much about different things	O	O	O	O
Trouble relaxing	O	O	O	O
Being so restless that it is hard to sit still	O	O	O	O
Becoming easily annoyed or irritable	O	O	O	O
Feeling afraid as if something awful might happen	O	O	O	O

How difficult have these problems made it for your to do your work, take care of things at home, or get along with other people?

Not difficult at all   Somewhat difficult   Very difficult   Extremely difficult

SBQ-R Suicide Behaviors Questionnaire-Revised

Have you ever thought about or attempted to kill yourself?

Never

It was just a brief passing thought

I have had a plan at least once to kill myself but did not try to do it

I have had a plan at least once to kill myself and really wanted to die

I have attempted to kill myself, but did not want to die

I have attempted to kill myself, and really hoped to die

How often have you thought about killing yourself in the past year?

Never

Rarely (1 time)

Sometimes (2 times)

Often (3-4 times)

Very Often (5 or more times)

Have you ever told someone that you were going to commit suicide, or that you might do it?

No

Yes, at one time, but did not really want to die

Yes, at one time, and really wanted to die

Yes, more than once, but did not want to do it

Yes, more than once, and really wanted to do it

How likely is it that you will attempt suicide someday?

Never

No chance at all

Rather unlikely

Unlikely

Likely

Rather likely

Very likely

Self Esteem, Rosenberg Self-Esteem Scale

Below is a list of statements dealing with your general feelings about yourself. Please indicate how strongly you agree or disagree with each statement.

	Strongly Agree	Agree	Disagree	Strongly Disagree
On the whole, I am satisfied with myself.	O	O	O	O
At times I think I am no good at all.	O	O	O	O
I feel that I have a number of good qualities.	O	O	O	O
I am able to do things as well as most other people.	O	O	O	O
I feel I do not have much to be proud of.	O	O	O	O
I certainly feel useless at times.	O	O	O	O
I feel that I am a person of worth, at least on an equal plane with others.	O	O	O	O
I wish I could have more respect for myself.	O	O	O	O
All in all, I am inclined to feel that I am a failure.	O	O	O	O
I take a positive attitude toward myself.	O	O	O	O

Imposter Phenomenon (IP)

For each question, please check the box that best indicates how true the statement is of you. It is best to give the first response that enters your mind rather than dwelling on each statement and thinking about it over and over.

	Not at all true	Rarely true	Sometimes true	Often true	Very true
I can give the impression that I'm more competent than I really am.	O	O	O	O	O
I'm afraid people important to me may find out that I'm not as capable as they think I am.	O	O	O	O	O
I often compare my ability to those around me and think they may be more intelligent than I am.	O	O	O	O	O
Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	O	O	O	O	O

	Not at all true	Rarely true	Sometimes true	Often true	Very true
I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	O	O	O	O	O
I feel confident in my abilities as a researcher.	O	O	O	O	O
I feel confident in my abilities in math.	O	O	O	O	O
I feel that I am at the same level of technical ability as my peers.	O	O	O	O	O

EPS (Eating Disorder Screening Tool for Primary Care)

Please answer the following questions:

	Yes	No
Are you satisfied with your eating patterns?	O	O
Do you ever eat in secret?	O	O
Does your weight affect the way you feel about yourself?	O	O
Have any members of your family suffered with an eating disorder?	O	O
Do you currently suffer with or have you ever suffered in the past with an eating disorder?	O	O

Adult Self-Report Scale -VI.I (ASRS-VI.I) Screener (ADHD)

Check the box that best describes how you have felt and conducted yourself over the past 6 months.

	Never	Rarely	Sometimes	Often	Very Often
How often do you have trouble wrapping up the final details of a project, once the challenging parts have been done?	O	O	O	O	O
How often do you have difficulty getting things in order when you have to do a task that requires organization?	O	O	O	O	O
How often do you have problems remembering appointments or obligations?	O	O	O	O	O
When you have a task that requires a lot of thought, how often do you avoid or delay getting started?	O	O	O	O	O

	Never	Rarely	Sometimes	Often	Very Often
How often do you fidget or squirm with your hands or feet when you have to sit down for a long time?	O	O	O	O	O
How often do you feel overly active and compelled to do things, like you were driven by a motor?	O	O	O	O	O

Question on feeling overwhelmed

Over the <u>last 7 days</u>, on how many days did you feel overwhelmed by the work you had to do?

| 0-1 days | 2-3 days | 4-5 days | 6-7 days |

Exercise

On how many of the <u>past 7 days</u> did you:

	0 days	1 day	2 days	3 days	4 days	5 days	6 days	7 days
Do moderate-intensity cardio or aerobic exercise (caused a noticeable increase in heart rate, such as a brisk walk) for at least 30 minutes?	O	O	O	O	O	O	O	O
Do vigorous-intensity cardio or aerobic exercise (caused large increase in breathing or heart rate, such as jogging) for at least 20 minutes?	O	O	O	O	O	O	O	O
Do 8-10 strength training exercises (such as resistance weight machines) for 8-12 repetitions each?	O	O	O	O	O	O	O	O

AUDIT-C

How often do you have a drink containing alcohol?

| Never | Monthly or less | 2-4 times per month | 2-3 times per week | 4+ times per week |

This is one unit of alcohol...
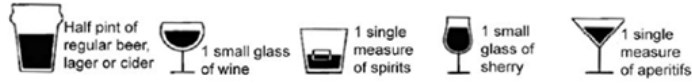
...and each of these is more than one unit

How many units of alcohol do you drink on a typical day when you are drinking?

| 1-2 | 3-4 | 5-6 | 7-9 | 10+ |

If female: how often have you had 6 or more units on a single occasion in the last year?
If male: how often have you had 8 or more units on a single occasion in the last year?

| Never | Less than monthly | Monthly | Weekly | Daily or almost daily |

Sleep

On how many of the past 7 days did you get enough sleep so that you felt rested when you woke up in the morning?

| 0 days | 1 day | 2 days | 3 days | 4 days | 5 days | 6 days | 7 days |

People sometimes feel sleepy during the daytime. In the past 7 days, how much of a problem have you had with sleepiness (feeling sleepy, struggling to stay awake) during your daytime activities?

No problem at all
A little problem
More than a little problem
A big problem
A very big problem

Mental Health Diagnosis & Treatment

How would you rate your mental health overall?

Poor

Fair

Good

Excellent

Do you think your mental health is better or worse than the mental health of the average PhD student in your department?

Better

Worse

If you ever feel that you are experiencing a mental health issue, would you know where to turn for help?

Yes

No

If you ever feel that you are experiencing a mental health issue, how likely would you be to turn to someone for help?

Not likely

Somewhat likely

Moderately likely

Very likely

If you had an issue with mental health in the last 2 months, to whom did you turn for help? (Select all that apply)

Mental health professional(s) at your university

Mental health professional(s) outside of your university

Department staff member(s)

Department faculty member(s)

Family member(s)

Friend(s) in the department

Friend(s) outside of the department

Did not turn to anyone for help

How helpful were the mental health professional(s) at your university with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

How helpful were the mental health professional(s) outside of your university with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

How helpful were the department staff member(s) with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

How helpful were the department faculty member(s) with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

How helpful were the family member(s) with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

How helpful were the friend(s) in the department with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

How helpful were the friend(s) outside of the department with addressing your mental health issue?

Not helpful

Somewhat helpful

Moderately helpful

Very helpful

Were you diagnosed by a mental health professional with any mental health issue(s) prior to starting this PhD program?

Yes

No

Have you been diagnosed by a mental health professional with any mental health issue(s) after you started this PhD program?

Yes

No

Are you currently receiving treatment for:

	Yes	No
Depression	⭘	⭘
Anxiety	⭘	⭘
Any other mental health issue	⭘	⭘

Personal

About how many people do you have in your personal life that you can really open up to about your most private feelings without having to hold back?

0

1

2 - 5

6 - 10

11 - 15

16 - 20

More than 20

When you have a problem or worry, how often do you let someone in your personal life know about it?

Never	Sometimes	Most of the Time	Always

I have very good friends at my Economics Department.

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

The following questions address how you feel about different aspects of your life. For each question, please tell us how often you feel that way.

	Hardly Ever	Some of the Time	Often
How often do you feel you lack companionship?	O	O	O
How often do you feel left out?	O	O	O
How often do you feel isolated from others?	O	O	O

Over the last 7 days, how many hours per day did you typically spend on a leisure activity unrelated to the PhD program?

0

1

2

3 or more

Over the last 7 days, how many times per day did you typically check Facebook?

0

1

2

3 or more

Don't have a Facebook account

Over the last 2 weeks:

	Yes	No
Has a significant other, friend, or family member experienced a significant negative life event?	O	O
Have you experienced a significant negative life event?	O	O

How important are the following to your sense of success in life?

	Not important at all	Somewhat important	Moderately important	Very important
Tenure at an academic institution	O	O	O	O
Tenure at a top-ranked academic institution	O	O	O	O
High income	O	O	O	O
Having your own family	O	O	O	O
Knowing that you have made a useful contribution to the world	O	O	O	O
Recognition of your work by the general public	O	O	O	O

Academic Performance

In this academic year, how successful do you think you will be ... ?

	Not successful at all	Somewhat successful	Moderately successful	Very successful	Not applicable
in your courses	O	O	O	O	O
in your research process	O	O	O	O	O
in your presentations	O	O	O	O	O
in your teaching	O	O	O	O	O

As of right now, how comfortable would you be voicing a thought in a seminar setting?

Not comfortable at all

Somewhat comfortable

Moderately comfortable

Very comfortable

As of right now, how certain would you have to be about the high quality of a thought before you voiced it in a seminar setting?

Not certain at all

Somewhat certain

Moderately certain

Very certain

As of right now, how competitive do you think your peers are with each other?

Not competitive at all

Somewhat competitive

Moderately competitive

Very competitive

If you are a 2nd year student or above, please answer the following: What was the average of your grades in the first-year Microeconomic Theory and Macroeconomic Theory courses?

A

A/A-

A-

A-/B+

B+

B+/B

B

B/B-

B-

Lower than B-

During your 1st year in the PhD program, how large was the group (including yourself) in which you typically found yourself working on problem sets? Please respond even if you are currently a 1st year student.

Worked alone

2 people

3 people

4+ people

As of right now, do you have one or more projects that you are co-authoring with another PhD student?

Yes

No

As of right now, do you have one or more projects that you are co-authoring with a faculty member?

Yes

No

In general, how often does your work provide you with the following:

	Always	Most of the time	Sometimes	Rarely	Never	Don't Know
Opportunities to fully use your talents	O	O	O	O	O	O
Opportunities to make positive impact on community/society	O	O	O	O	O	O
Sense of personal accomplishment	O	O	O	O	O	O
Goals to aspire to	O	O	O	O	O	O
Satisfaction of work well done	O	O	O	O	O	O
Feeling of doing useful work	O	O	O	O	O	O

Thinking about both your commitments at work and outside of work, please select the response which best describes your situation. How often, in the last 3 months, has it happened that you:

	Always	Most of the time	Sometimes	Rarely	Never
Worried about work when not working	O	O	O	O	O
Were too tired for activities in private life	O	O	O	O	O
Were too tired to do household jobs	O	O	O	O	O
Had difficulty making ends meet financially	O	O	O	O	O
Had work prevent time with family or significant others	O	O	O	O	O

Over the last 2 weeks, on how many days did you seriously contemplate quitting the PhD program?

0 days

1 day

2 days

3 days or more

Academic Field

What year are you in your program?

| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th+ |

What do you consider to be your primary field?

[▼]

What do you consider to be your secondary field, if you have one?

[▼]

On a scale of 1 to 10, where 1 = Extremely dissatisfied and 10 = Extremely satisfied, how satisfied are you with your PhD experience?

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 |

What would you do differently right now if you were starting your program? Please select as many as apply.

Change area of study

Change adviser(s)

Not pursue a PhD at all

Study at another institution

Engage more with study

Organize time more effectively

Nothing

Other

On average, how many hours a week do you typically work?

| Less than 11 hours | 11-20 hours | 21-30 hours | 31-40 hours | 41-50 hours | 51-60 hours | 61-70 hours | 71-80 hours | More than 80 hours |

Over the last 7 days, how many days did you work in the Economics Department?

| 0 days | 1 day | 2 days | 3 days | 4 days | 5 days | 6 days | 7 days |

Over the last 2 months, have you been physically away from your department for 1 month or longer?

Yes

No

Advising

Think of your Economics Department faculty members with whom you've met in the last 2 months:

From your impressions, how much do they care about the success of your research project(s)?

Do not care at all

Care somewhat

Care moderately

Care very much

Not applicable/have not met with faculty in the last 2 months

From your impressions, how much do they care about you as a person?

Do not care at all

Care somewhat

Care moderately

Care very much

Not applicable/have not met with faculty in the last 2 months

How easy is it for you to talk to them about non-academic career options?

Not easy at all

Somewhat easy

Moderately easy

Very easy

Not applicable/have not met with faculty in the last 2 months

Think of your Economics Department faculty members with whom you've met in the last 2 months:

How honest can you be with them about the difficulties you face with:

	Not honest at all	Somewhat honest	Moderately honest	Very honest	Not applicable/have not met with faculty in the last 2 months
Research progress	O	O	O	O	O
Presentations	O	O	O	O	O
Teaching	O	O	O	O	O
Refereeing	O	O	O	O	O
Co-authoring with other students	O	O	O	O	O
Co-authoring with these faculty	O	O	O	O	O
Your other advisers	O	O	O	O	O
Preparing for the job market	O	O	O	O	O
Your decision to get a PhD in economics	O	O	O	O	O
Decisions related to starting a family	O	O	O	O	O
Your mental health	O	O	O	O	O
Other personal life issues	O	O	O	O	O

Think of your Economics Department faculty members with whom you've met in the last 2 months:

How honest would you like to be with them about the difficulties you face with:

	Not honest at all	Somewhat honest	Moderately honest	Very honest	Not applicable/have not met with faculty in the last 2 months
Research progress	O	O	O	O	O
Presentations	O	O	O	O	O
Teaching	O	O	O	O	O
Refereeing	O	O	O	O	O
Co-authoring with other students	O	O	O	O	O
Co-authoring with these faculty	O	O	O	O	O
Your other advisers	O	O	O	O	O
Preparing for the job market	O	O	O	O	O
Your decision to get a PhD in economics	O	O	O	O	O
Decisions related to starting a family	O	O	O	O	O

	Not honest at all	Somewhat honest	Moderately honest	Very honest	Not applicable/have not met with faculty in the last 2 months
Your mental health	O	O	O	O	O
Other personal life issues	O	O	O	O	O

How easy <u>would you like it to be</u> for you to talk to them about non-academic career options?

Not easy at all

Somewhat easy

Moderately easy

Very easy

Not applicable/have not met with faculty in the last 2 months

In the <u>last 2 months</u>, how many times have you met with your:

Main adviser (the faculty member with whom you meet most frequently)	▼
Second adviser (the faculty member with whom you meet second-most frequently)	▼
Third adviser (the faculty member with whom you meet third-most frequently)	▼

<u>As of right now</u>, how significant are the following impediments for the frequency with which you meet with faculty?

	Not significant at all	Somewhat significant	Moderately significant	Very significant
Meetings are difficult to schedule	O	O	O	O
Meetings are too short	O	O	O	O
Meetings are not useful	O	O	O	O
Meetings are unpleasant	O	O	O	O
Fear of the consequences of a bad impression	O	O	O	O
Doubt about the quality of your ideas, questions, thoughts	O	O	O	O
Lack of progress on to-dos from previous meeting	O	O	O	O

Over the <u>last 2 months</u>, how many faculty members in your department initiated an informal conversation with you about how you were doing academically or personally?

0

1

2

3 or more

As of right now, how many faculty members in your department do you consider to be your professional role models?

0

1

2

3 or more

If you are a 2nd year student or above, please select the number of advisers you had last academic year who are:

No longer at the department	▼
On leave this term only	▼
On leave this academic year	▼

Was one of the advisers who is no longer at the department or currently on leave your main adviser?

Yes

No

If you ever feel that you are experiencing an issue with advising, would you know where to turn for help?

Yes

No

If you ever feel that you are experiencing an issue with advising, how likely would you be to turn to someone for help?

Not likely

Somewhat likely

Moderately likely

Very likely

Background Questions

How old are you?

Younger than 20

20-24

25-29

30-34

35 or older

Which of the following races best describe(s) you: (Select all that apply)

American Indian or Alaska Native

Asian or Asian American

Hispanic or Latino

Black or African American

Native Hawaiian or Other Pacific Islander

White

Are you a U.S. citizen or permanent resident?

Yes

No

Is English your first language?

Yes

No

Which best describes your gender identity?

Man

Woman

Transgender

Other

Do you consider yourself to be:

Heterosexual

Bisexual

Gay or lesbian

Other

Do you have a disability?

Yes

No

How would you best describe your current relationship status?

Single

Casual

Dating

Long-term/Committed

Married

Divorced

Other

Do you live alone?

Yes

No

Do you have 1 or more children?

Yes

No

Are your parents:

Never married

Married

Divorced or separated

Other

Please indicate the highest degree earned by your father (biological or step). If you have multiple fathers, select the highest degree earned.

High school or below

Associate

Bachelor's

Graduate degree

Please indicate the graduate degree(s) earned by your father. (Select all that apply)

MBA

Other Master's

MD

JD

Economics PhD

Other PhD

Other

Please indicate the highest degree earned by your mother (biological or step). If you have multiple mothers, select the highest degree earned.

High school or below

Associate

Bachelor's

Graduate degree

Please indicate the graduate degree(s) earned by your mother. (Select all that apply)

MBA

Other Master's

MD

JD

Economics PhD

Other PhD

Other

Which of the following best describes your undergraduate institution?

Small liberal arts college (US)

Public university (US)

Private university (US)

Non-U.S. university

Other

How many math courses did you take between the start of your undergraduate study and the start of this PhD program?

0

1 or 2

3 or 4

5 or 6

7+

Did you go straight into this Economics PhD program after completing your undergraduate degree?

Yes

No

Over the last 2 months, what position(s) have you held for compensation? (Select all that apply)

Teaching Assistant

Grader

Research Assistant

Resident Assistant

Private tutor

Non-academic data scientist

Other

Did not work for compensation

Sexual Harassment

These next questions ask about situations in which a student, faculty member, staff member, or someone else associated with your Economics Department said or did something that:

·   Interfered with your academic or professional performance,

·   Limited your ability to participate in your academic program, or

·   Created an intimidating, hostile or offensive social, academic or work environment

Check all that you have experienced since becoming a PhD student from a student, faculty member, staff member, or someone else associated with your Economics Department:

Sexual remarks, jokes, or stories that were insulting or offensive to you

Inappropriate or offensive comments about your or someone else's body, appearance, or sexual activities

Crude or gross sexual comments or tried to get you to talk about sexual matters when you did not want to

Email(s), text(s), phone call(s), or instant message(s) with offensive sexual remarks, jokes, stories, pictures, or videos that you did not want to receive

Requests to go out for dinner, have drinks, or have sex even though you said, "No"

At the time of this event/these events, what was the person's/were the persons' relationship(s) to you? (Select all that apply)

At the time, it was someone I was involved or intimate with

Someone I had been involved or was intimate with

Professor

Adviser

Staff member

Graduate student friend or acquaintance

Undergraduate student friend or acquaintance

Stranger

Other

Don't know

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APPENDIX A2: 2017 FALL FACULTY SURVEY

Note that you cannot return to the previous page.
Please do not use your browser navigation button to go back.

Overview & ID

Graduate Student Mental Health: A Study of American Economics Departments
Researchers: Paul Barreira, MD; Matthew Basilico; Valentin Bolotnyy

Consent Form

Participation is voluntary

It is your choice whether or not to participate in this research. If you choose to participate, you may change your mind and leave the study at any time. Refusal to participate or stopping your participation will involve no penalty or loss of benefits to which you are otherwise entitled.

What is the purpose of this research?

The purpose of this research is to understand the prevalence, severity, and correlates of common mental health problems among graduate students in economics departments across the United States. The faculty survey portion of the study will help supplement the graduate student study by shedding additional light on faculty-student relationships.

What can I expect if I take part in this research?

This survey should take about 5 minutes to complete. It is intended for all tenured or tenure-track faculty in Economics.

Once you begin the survey you will not be able to leave it and return to it at another time, so please complete it in one sitting. There is also no "Back" button, so you cannot change responses once you proceed to the next page.

The researchers will produce an aggregated report across all participating economics programs, as well as an aggregated report specifically for your department. Data from your department will only be studied in an aggregated way and the researchers will share department-specific results only with your department Chair. The report aggregated across all participating programs will not identify department-specific results.

What are the risks and possible discomforts?

Answering questions that require reflection on interactions with students and colleagues, as well as on the environment in the department, may cause discomfort. Your thoughtful and honest responses are important to us, but if you are uncomfortable answering a certain question, please feel free to skip that question.

Benefits

We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include students' improved understanding of their own mental health and its connection to their life experiences; structural department-level and profession-level reforms that improve student and faculty quality of life; improved departmental culture around mental health; initiatives across graduate programs worldwide to improve mental health among students and faculty.

If I take part in this research, how will my privacy be protected? What happens to the information you collect?

The data we collect will be stored on a secure server and analyzed in an anonymous way. No raw, individual response-level data will ever be made public. Such data will also not be handled or accessed by anyone other than a third-party data scientist hired by the researchers. The data scientist has no affiliation with any economics department and has signed a confidentiality agreement. No attempt will ever be made to identify whether or how specific individuals answered the questions in this study.

If I have any questions, concerns, or complaints about this research study, who can I talk to?

The lead researcher for this study is *Paul Barreira, MD* who can be reached at 671-495-2010; 75 Mt. Auburn Street, Cambridge, MA 02138; gradsurvey@huhs.harvard.edu .

Please contact him if you have questions, concerns, complaints, or:

- If you would like to talk to the research team,
- If you think the research has harmed you, or
- If you wish to withdraw from the study.

This research has been reviewed by the Committee on the Use of Human Subjects in Research at Harvard University. The Committee can be reached at 617-496-2847, 1350 Massachusetts Avenue, 9th Floor, Suite 935, Cambridge, MA 02138, or cuhs@harvard.edu for any of the following:

- If your questions, concerns, or complaints are not being answered by the research team,
- If you cannot reach the research team,
- If you want to talk to someone besides the research team, or

- If you have questions about your rights as a research participant.

Statement of Consent

I have read the information in this consent form. All my questions about the research have been answered to my satisfaction.

[Consent Form PDF Download](#)

Signature

By selecting this box, I consent to taking part in this research.

Please note that refreshing the survey or using your browser navigation button to go back will invalidate the survey.

Faculty

Think of the PhD students with whom you've met in the last 2 months:

How honest do you think they would be with you if they faced difficulties with:

	Not honest at all	Somewhat honest	Moderately honest	Very honest	Not applicable/did not meet with students
Research progress	O	O	O	O	O
Presentations	O	O	O	O	O
Teaching	O	O	O	O	O
Refereeing	O	O	O	O	O
Co-authoring with other students	O	O	O	O	O
Co-authoring with you	O	O	O	O	O
Their other advisers	O	O	O	O	O
Preparing for the job market	O	O	O	O	O
Their decision to get a PhD in economics	O	O	O	O	O
Their decisions related to starting a family	O	O	O	O	O
Their mental health	O	O	O	O	O
Their other personal life issues	O	O	O	O	O

How easy do you think it would be for them to talk to you about non-academic career options?

Not easy at all

Somewhat easy

Moderately easy

Very easy

Not applicable or did not meet with students

In what year of the Economics PhD program do you think the average student experiences the highest level of strain on his or her mental health?

| 1st | 2nd | 3rd | 4th | 5th | 6th | 7th+ |

Have you ever received training on a mental health-related topic?

Yes

No

Don't know

Have you ever advised PhD student(s) who were experiencing an issue with mental health at the time?

Yes

No

Don't know

If yes, approximately how many of such students have you advised?

What advice would you give to other faculty members who might be advising a PhD student with a mental health issue?

RAND American Working Conditions Survey

The following are standard questions based on the RAND American Working Conditions Survey:

In general, how often does your work provide you with the following:

	Always	Most of the time	Sometimes	Rarely	Never	Don't know
Opportunities to fully use your talents	O	O	O	O	O	O
Opportunities to make positive impact on community/society	O	O	O	O	O	O
Sense of personal accomplishment	O	O	O	O	O	O
Goals to aspire to	O	O	O	O	O	O
Satisfaction of work well done	O	O	O	O	O	O
Feeling of doing useful work	O	O	O	O	O	O

The following are standard questions based on the RAND American Working Conditions Survey:

Thinking about both your commitments at work and outside of work, please select the response which best describes your situation. How often, in the last 3 months, has it happened that you:

	Always	Most of the time	Sometimes	Rarely	Never
Worried about work when not working	O	O	O	O	O
Were too tired for activities in private life	O	O	O	O	O
Were too tired to do household jobs	O	O	O	O	O
Had difficulty making ends meet financially	O	O	O	O	O
Had work prevent time with family or significant others	O	O	O	O	O

I have very good friends at my Economics Department.

Strongly agree

Agree

Neither agree nor disagree

Disagree

Strongly disagree

What is your level of seniority in the department?

On tenure track

Tenured

Since receiving your PhD, for how many years have you held an academic position?