Mental Health in European Economics Departments

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Abstract

We study the mental health of graduate students and faculty at 14 Economics departments in Europe. Using clinically validated surveys sent out in the fall of 2021, we find that 34.7% of graduate students experience moderate to severe symptoms of depression or anxiety and 17.3% report suicidal or self-harm ideation in a two-week period. Only 19.2% of students with significant symptoms are in treatment. 15.8% of faculty members experience moderate to severe depression or anxiety symptoms, with prevalence higher among non-tenure track (42.9%) and tenure track (31.4%) faculty than tenured (9.6%) faculty. We estimate that the COVID-19 pandemic accounts for about 74% of the higher prevalence of depression symptoms and 30% of the higher prevalence of anxiety symptoms in our European sample relative to a 2017 U.S. sample of economics graduate students. We also document issues in the work environment, including a high incidence of sexual harassment, and make recommendations for improvement.

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1 Introduction

A 2017-2018 study of mental health issues among graduate students in top U.S. Economics departments provided evidence of high rates of depression and anxiety symptoms, as well as suicidal or self-harm ideation (Bolotnyy et al., 2022). The paper raised interest in how well the findings reflected graduate student mental health outside of the top U.S. departments and left the state of faculty mental health unaddressed. Aiming to address these gaps, we implemented a new data-collection effort to investigate mental health issue prevalence among graduate students and faculty in Economics departments in Europe.

Our study consists of one graduate student survey, about 25 minutes in length, and one faculty survey, about 15 minutes in length, administered in the fall of 2021. Our objectives were to (1) understand the prevalence and severity of mental health issues in Economics departments in Europe; (2) understand student and faculty experiences in their departments; (3) compare prevalence rates of student mental health issues and student experiences to those of U.S. students (Bolotnyy et al., 2022); and (4) make data-informed recommendations to departments on ways to improve graduate student and faculty mental health. Our data collection plans were significantly delayed by the COVID-19 pandemic and took place 1.5 years into the pandemic. Motivated by existing studies of the effects of the pandemic on the mental health of the global population (Pfefferbaum and North, 2020), we turned the delay into an opportunity to gain insight into how the pandemic affected mental health in Economics departments.

The 14 programs participating in the study were: Bocconi University, Bonn Graduate School of Economics, Central European University, European University Institute, London School of Economics, Mannheim Graduate School of Economics, Paris School of Economics, Sciences Po, Stockholm School of Economics and Social Sciences, University College London, Universitat Pompeu Fabra, University of Warwick, University of Zurich, and Uppsala Universitet. These departments are selected in that they offer a cohort-model PhD program, to be comparable with the U.S. sample in Bolotnyy et al. (2022). A week before the launch of the survey, each Department Chair e-mailed his or her students and faculty with an endorsement of the study, making clear that responses would be strictly confidential and promising that

the results would be taken seriously. No financial participation incentives were provided for any of the surveys.

1,144 Economics PhD students and approximately 814 faculty members across these programs received a link to our survey by email. In total, 568 students and 255 faculty members voluntarily participated in our study. Of the participants, 556 students and 165 faculty members completed the clinically validated screening tools for depression or anxiety. While the European sample seems generally comparable to the 2017-2018 sample of graduate students from top Economics departments in the U.S. (Bolotnyy et al., 2022), it is characterized by higher diversity in terms of socio-economic background (in our European sample, the percentage of students with have fathers with a high school degree or less is about twice as large as in the U.S. sample) and by slightly older graduate students.

Our data show high rates of depression and anxiety symptoms, as well as suicidal or self-harm ideation, loneliness, and impostor phenomenon among graduate students in European Economics departments. 34.7% of graduate students experience moderate to severe symptoms of depression or anxiety and 17.3% report suicidal or self-harm ideation in a two-week period. 59% of students experience frequent or intense impostor phenomenon. These rates are higher than nationally representative equivalents from many European countries at the peak of the first COVID-19 wave (March 2020; Shevlin et al., 2022) and at subsequent moments of the pandemic (November 2020, January 2021, and April 2021; Hajek et al., 2022). Hajek et al. (2022) also notes a slight trend of decreasing prevalence rates in both probable depression and probable anxiety from November 2020 to April 2021, suggesting that this comparison may be underestimating the true difference between our sample in the fall of 2021 and the general European population.

The prevalence of severe and moderate depression and anxiety symptoms in our sample of European Economics graduate students is notably higher than in the 2017-2018 sample of graduate students from top Economics departments in the U.S. (Bolotnyy et al., 2022) and higher than in a meta-analysis of depression, anxiety, and suicidal ideation among PhD students prior to the COVID-19 pandemic (Satinsky et al., 2021).

A supplementary analysis, which exploits data from a Harvard internal longitudinal study on mental health (refer to Barreira and Bolotnyy, 2022), suggests that only a part of the increased prevalence of depression and anxiety in the European sample can be ascribed to the COVID-19 pandemic. Assuming that the trend observed among Harvard University PhD students is indicative of the overall trend in the U.S. sample and that the U.S. and European trends are comparable, we find that approximately 74% of the difference in the prevalence of moderate-severe depression and 30% of the difference in the prevalence of moderate-severe anxiety between our European sample and the 2017-2018 U.S. sample can be attributed to the impact of the COVID-19 pandemic.

In our faculty sample, the prevalence of severe and moderate anxiety is on average lower than graduate students as well as than comparable statistics for the post COVID-19 European population. This average, however, hides a substantial heterogeneity by seniority level. Untenured tenure-track faculty in Europe are as likely to have depression and anxiety symptoms as graduate students in our sample, while non-tenure track faculty show even higher prevalence of depression of depression or anxiety symptoms. In contrast, the prevalence of depression and anxiety symptoms among European tenured faculty in our sample is about 70% lower than among their graduate students.

In terms of the work and learning environment, European departments in our sample appear similar to top U.S. departments in 2017-2018. Hours worked by graduate students and satisfaction with the PhD experience are broadly comparable (Figure 3), with European students only slightly less likely than U.S. students to state that they work over 60 hours a week. Economics PhD students in our European sample and the U.S. one are also similarly satisfied with their PhD experience, with 71% of students saying they are satisfied or more than satisfied with their PhD experience (Figure 2). For comparison, in a Nature 2022 study of graduate student mental health across countries, most respondents work between 41 to 50 hours per week and 62% of respondents say they are satisfied with their current program (Woolston, 2022). European and U.S. sample students are also similar in terms of regrets, with time management by far the most common source of frustration for both U.S. and European

student samples (Figure 4).

There is, however, evidence of less frequent interactions between students and faculty in Europe, and of European faculty being less satisfied with their job than U.S. faculty – patterns that may or may not be due to disruptions caused by the pandemic. Another significant difference is in the prevalence of sexual harassment in European departments: 34.5% of female and 18.7% of male graduates students report having experienced sexual harassment in their department, numbers that are 60% higher than in the U.S. sample (Bolotnyy et al., 2022). Finally, we find that European Economics PhD students with significant symptoms of depression or anxiety are less likely to be in treatment (19.2%) than Economics PhD students in U.S. top departments (25.2%).

2 Methodology

2.1 Screening Tools

Depression: PHQ-9

We utilize several standardized screening tools from the mental health literature to assess symptoms of common mental health disorders in our population. To examine depressive symptoms, we use the PHQ-9 survey instrument. The PHQ-9 has nine questions related to core symptoms of Major Depressive Disorder, assessing mood, sleep, interest, guilt, energy, concentration, attention, psychomotor slowing, and suicidality. The nine symptoms assessed are classic clinical features of Major Depressive Disorder, a diagnosis that can only be made by a licensed clinician (APA, 2013).

In the PHQ-9, respondents are asked to report how often they have experienced the nine symptoms over the previous two weeks, with four available answer choices to assess both presence and severity of the symptom: not at all (0 points), several days (1 point), more than half the days (2 points), or nearly every day (3 points). Hence, the allowable range of scores is 0 (no presence of any symptom) to 27 (full severity of each of the 9 symptoms). With a cutoff threshold of greater than or equal to 10, the PHQ-9 has an 88% sensitivity and an 88% specificity for the diagnosis of Major Depressive Disorder (Kroenke and Spitzer, 2002).

Sensitivity tells us the probability of testing positive for depression (PHQ-9 $\geq$ 10) when the disease is present, while specificity shows the probability of testing negative (PHQ-9 $<$ 10) for depression when the disease is absent.

The PHQ-9 is widely used not only as a tool for epidemiological measurement, but also for clinical screening in physicians' offices and hospitals (Kocalevent et al., 2013). Since diagnosis of Major Depressive Disorder must involve an interview with a licensed clinician, we are able to gather information on the prevalence of symptoms, not to report the measured prevalence of the disorder itself. As noted above, the PHQ-9 relies on the self-report of symptoms. These, in turn, are predictive of diagnosis and of biological changes due to an interaction of genes with environmental stressors (Sapolsky, 2003). While many active efforts are underway to identify biomarkers of mental health issues, self-description of symptoms remains a core feature of the American Psychiatric Association's diagnostic criteria (APA, 2013).

Other instruments commonly used to measure depressive symptoms include the Beck Depression Inventory II (BDI-II), the Hamilton Depression Rating Scale (HAM-D), and the Center for Epidemiologic Studies Depression Scale (CES-D). Numerous studies comparing these instruments have found high internal consistency among the measures (e.g., Schwenk et al., 2010, Kung et al., 2013, Choi et al., 2014). We chose to use the PHQ-9 in our study because it is short, free, widely used, and has a high sensitivity and specificity. A number of other studies of graduate and professional student mental health have also utilized the PHQ-9, allowing us to directly compare out results to other settings in higher education (e.g., Garcia-Williams et al., 2014, Evans et al., 2018, Dench et al., 2020, Bolotnyy et al., 2022). Instrument internal consistency, however, also allows us to make comparisons across studies that use these other instruments (e.g., UCOP, 2017).

Anxiety: GAD-7

Our assessment of symptoms of anxiety proceeded similarly, using the GAD-7 survey instrument. The GAD-7 assesses the severity of common symptoms of anxiety, including feeling nervous, not being able to control worrying, and feeling afraid as if something awful might happen. The scoring system resembles the PHQ-9: points are assessed from 0 to 3 for each

symptom, depending on its reported presence and severity over the past two weeks. Using a cutoff threshold of greater than or equal to 10, the GAD-7 has a sensitivity of 89% and specificity of 82% for the diagnosis of Generalized Anxiety Disorder (Spitzer et al., 2006). As with depression, a clinician is required for the diagnosis of this disorder; our results here indicate the prevalence of symptoms of anxiety, not of the disorder itself. The GAD-7 is widely used for epidemiological estimation and as a clinical screening tool for Generalized Anxiety Disorder (Stein and Sareen, 2015, Plummer et al., 2016).

Suicidality: PHQ-9 Item 9

We assess the presence of suicidal risk through responses to the final question (Item 9) of the PHQ-9, which asks "over the last two weeks, how often have you been bothered by thoughts that you would be better off dead, or hurting yourself in some way?" Thoughts of death and self-harm measured through this question have been demonstrated to be a predictor of suicidal behavior and completed suicide, which is why we refer to it as a measure of suicidal ideation and suicidality (e.g., Uebelacker et al., 2011, Simon et al., 2013, and Rossom et al., 2017). The question is also widely used as an indicator of suicidality in the epidemiologic literature and as a clinical assessment tool in behavioral health offices (Arenson et al., 2018). For robustness, we use an additional screening tool for suicidality used by the Healthy Minds Study (Healthy Minds Network, 2022), adapted from survey instruments by the National Comorbidity Survey replication (Kessler et al., 2004). The tool assesses the presence of self-reported suicidal ideation in the previous year, particularly thinking about suicide, making a plan, and attempting suicide. While we focus on PHQ-9 Item 9 results throughout the paper, both measures produce similar results.

Other Survey Instruments

We also assess loneliness, a psychological state that is closely related to several common mental health disorders (Mushtaq et al., 2014). We measure loneliness through a validated, 3-question version of the UCLA Loneliness Scale, a tool utilized by the vast majority of studies on loneliness (e.g., Russell et al., 1980, Oshagan and Allen, 1992, and Hughes et al.,

2004). The UCLA Loneliness screen yields scores from 3 to 9, with 9 indicating a high degree of loneliness. Additional questions borrowed from other instruments, including the RAND American Working Conditions Survey and *Nature*'s 2017 survey of graduate student work experiences, are discussed in-depth throughout Section 4. Finally, respondents to the student survey also responded to a Brief Inventory of Thriving (BIT) questionnaire, which we included to track resilience. Analyzing the data, it became clear that the BIT scores tracked closely with PHQ-9 scores and did not appear to add additional insights. We thus do not include BIT analyses in this paper.

3 Data

3.1 Sample Selection

We surveyed 14 European Economics departments. The final list of participating institutions included: Bocconi University, Bonn Graduate School of Economics, Central European University, European University Institute, London School of Economics, Mannheim Graduate School of Economics and Social Sciences, Paris School of Economics, Sciences Po, Stockholm School of Economics, University College London, Universitat Pompeu Fabra, University of Warwick, University of Zurich, and Uppsala Universitet.

The institutions in our sample are not a random sample of Economics departments in Europe. First, we restricted our interest to Economics departments that offer a cohort-style PhD program, where graduate students are admitted in cohorts to a graduate school, rather than following a chair-style model. As a result of our selection criteria, which was meant to improve comparability with other studies of graduate students mental health in the U.S., we contacted departments that are highly ranked among R1 research universities and often enroll relatively large cohorts. Departments actively chose to participate in the study.[1] In addition to the selection of participating institutions, there is selection among graduate students and faculty who took the survey. To mitigate selection bias and reach a representative sample, we worked closely with each department's administration and student groups to achieve high

[1]The full list of contacted departments included, in addition to those participating: Cambridge, CEMFI, Oxford, and the Toulouse School of Economics, for a total of 18 departments.

response rates, as shown in Table 1.

In total, 568 students (48.6%) and 255 faculty members (31.3%) voluntarily took the mental health surveys[2]. The participation rate across departments ranges from 27.4% (LSE) to 80.4% (Bocconi) among graduate students, and from 0% (Sciences Po) to 66% (Mannheim) among faculty. Of the participants, 556 students (97.8%) and 165 faculty members (64.7%) completed the clinically validated screening tools for depression or anxiety.

Working with administrators at each of the participating departments, we obtained administrative data on total enrollment, as well as gender breakdowns by program phase in the program.[3] We additionally collected publicly available information on the number of faculty members from the department websites. To provide an additional layer of privacy protection, we did not collect any demographic data on our faculty respondents.

3.2 Sample Characteristics

For extensive demographic characteristics of our student sample, please see Table A.1 in the Appendix. Among our respondents, 65% of students are female. Almost 88% are between 25 and 34 years old, with 70% having completed a 2-year Masters degree before starting their PhD. About 30% of students live alone, 56.7% are in a long-term relationship or married, and most students have no children (95.7%).[4]

Because the graduate students surveyed in Bolotnyy et al. (2022) (henceforth, "U.S. study") are our most natural comparison and because voluntary participation in the study could induce differential selection, it is useful to compare response rates across the two samples. Our response rate is comparable, although slightly larger, among students: 49.6% in our sample vs. 45.1% in the U.S. study. In contrast, our response rate is slightly lower among faculty: 31.3% in our sample vs. 42% in the U.S. study. The lower response rate among faculty could be partly explained by the slightly longer survey tool, 15 minutes vs. 5 minutes in the U.S.

[2]At departments of the London School of Economics, University College London, Sciences Po, Mannheim, Bonn, and the European University Institute, students first opted into receiving our emails through a pre-study opt-in survey.

[3]We consider two relevant phases: the course phase (normally consisting of one or two years when students primarily take classes, comparable to G1 and G2 years in the U.S.) and the dissertation phase (normally lasting between two to four years, when students mainly focus on their dissertation writing, comparable to G3+ years in the U.S.).

[4]As mentioned above, we did not collect demographic characteristics for the faculty sample.

study; by the fact that we asked questions about mental health, a potential turn-off for some faculty, while the U.S. study did not; and partly by the Science Po outlier, where no faculty member participated in our study.

The European and U.S. samples are comparable in terms of gender composition (36.3% female in our study, 34.7% in the U.S. study), tenure in the PhD program (57.6% of students in our study are in the dissertation phase, 63.7% in the U.S. study) and sexual minority (10.6% identify as LGBTQI+ in our study, 9.2% in the U.S. study). There are, however, some notable differences between our graduate student sample and the U.S. study one.

Students in our sample are older (26.5% are older than 30 years old, compared to 13.3% in the U.S.). About 52.5% of European students start their PhD straight after finishing their bachelor or master degree.[5] In the U.S. study, 24.3% of respondents start the PhD right after finishing their bachelor degree. For most students (91.2%) in the European sample, English is not the first language (49.1% in the U.S.) and 63.4% of the students are not native speakers of the country where their program is located (53.7% in the U.S.). Racial representation is less diverse among our sample (77.9% White) than in the U.S. sample (61.1% White), though our respondents are more diverse by nationality. The European sample is also characterized by a significantly higher share of first-generation students: 18.9% of respondents' fathers and 17.2% of respondents' mothers have only ever completed high school. The corresponding statistics for the U.S. sample are 9.2% and 10.7%, respectively. Across the U.S. more broadly, and in contrast with our sample, 65 percent of U.S.-born Economics PhD recipients between 2010 and 2018 had at least one parent with a graduate degree (Schultz and Stansbury, 2022).

4 Main Results

4.1 Student Mental Health

Depression

We find a prevalence of depressive symptoms that is larger than nationally representative equivalents from many European countries at the peak of the first COVID-19 wave in March

[5]The question in our survey is: "Did you go straight into this Economics PhD program after completing your Masters or undergraduate degree?".

2020 (Shevlin et al., 2022) and at subsequent moments of the pandemic. We launched our survey in November 2021. At this point, 27.3% of our Economics students scored in the moderate or severe symptom zone and were likely to have been diagnosed with depression upon seeing a mental health professional (Table 2). For comparison, about 6 months earlier, in April 2021, 23.8% of a representative sample of non-institutionalized inhabitants (18+) from Germany, United Kingdom, Denmark, Netherlands, France, Portugal, and Italy had probable depression (European COVID Survey (ECOS), Hajek et al., 2022).[6]

According to a meta-analysis conducted by Satinsky et al. (2021) based on data prior to the COVID-19 pandemic, the estimated proportion of PhD students experiencing depression was 24%. This estimate was based on 16 studies involving a total of 23,469 PhD students.

Narrowing our comparison sample to other Economics graduate students in the U.S. sample, the prevalence of depressive symptoms in our sample is larger than the prevalence of comparable depressive symptoms in the U.S. study, which was 17.6%. Differences in sample composition between our studies seem unlikely to explain the larger depression rates in our sample, as the main demographic difference we observe is in the share of first-generation students but these students, we find, have prevalence rates (25.7%) that are comparable to the sample average (Table 3).

Apart from some difference in levels, many patterns and correlations appear similar across the two studies. Both in our sample, as in the U.S. study, minority status does not unequivocally predict higher depression rates. Women (28.2%) and non-white students (29.3%) are slightly more likely than the average student to be experiencing such symptoms, while first-generation students show a slightly lower (25.7%) prevalence of symptoms compared to the average student. Students who report being gay, lesbian, or bisexual, and non-white are particularly afflicted, with a prevalence rate of 42.6% (Table 3).

Moreover, and again similar to the U.S. study, depression symptoms are more prevalent for European graduate students who are further along in their PhD program: the prevalence

[6]The prevalence of depression symptoms in April 2021 may overestimate the prevalence of depression symptoms in the general population at the time of our survey, November 2021. Indeed, Hajek et al. (2022) find evidence of a reduction in the prevalence of depression and anxiety symptoms from November 2020 to April 2021.

of moderate and severe depressive symptoms was 28.4% for students in the dissertation phase and 24.3% for students in the course phase (Table 2). The higher rate of depression in the dissertation phase is driven by students in years 6 and above as shown in Figure 1.

Anxiety

Anxiety symptoms in our sample are also substantially higher than in the general population, and higher than in the U.S. study.

The overall prevalence rate for severe and moderate anxiety symptoms is 25.9% (Table 2), which is higher than the corresponding prevalence among the Hajek et al. (2022) representative sample of the European population in April 2021 (22.1%), among the graduate student sample of the U.S. study (17.6%) and a meta-analysis by Satinsky et al. (2021) of nine studies, pre-pandemic, across 15,626 students (17%).

Female students (27.7%) are again more likely than male students (24.2%) to be experiencing serious symptoms of anxiety. As in the case of depressive symptoms prevalence, differences in sample composition are unlikely to explain the larger levels of anxiety symptoms prevalence in the European sample as compared to the U.S. sample. Indeed, first-generation (21.1%) students, who are over-represented in the European study, fare better than the average student, while minority (29.3%) students fare worse (Table 3). Different from the depression results, and similar to the U.S. study, LGBTQI+ students (26.2%) show only slightly larger prevalence rates of anxiety relative to the average student.

In contrast to the U.S. sample, European graduate students in the dissertation phase, i.e., more senior graduate students, exhibit lower levels of anxiety (24.4%) compared to students in the course phase, i.e. graduate students in the initial years of their program (28.6%) as shown in Table 2. Upon closer examination of the data, we observe a u-shaped trend in anxiety levels among European graduate students by year (Figure 1). This is in contrast to the linear increasing trend highlighted by Bolotnyy et al. (2022) in the U.S.. The notably high levels of anxiety in the first two years of the program in Europe are likely a result of the COVID-19 pandemic.

Suicidality

17.3% of students (96 people) report frequently thinking of suicide or self-harm in the past two weeks (Table 2), a larger share than in the U.S. study (11%). Focusing on suicidal thoughts in the one-year period before our survey, 11% of European Economics PhD students thought seriously about suicide and 1.8% of students planned a suicide attempt. COVID-19 could be a risk factor for higher levels of suicidal thoughts or behaviors. A review of published data worldwide on the consequences of suicidal behavior in the first 6 months of the COVID-19 pandemic found that the percentage of the population with suicidal or self-harm ideation in that period was 5–15% (Giner et al., 2022). Thus, the frequency of suicidal or self-harm ideation in our sample appears larger than the upper bound of general population estimates at the onset of the pandemic.

There is, however, heterogeneity by student characteristics. Though the differences are not statistically significant, men (17.3%) are more likely than women (14.9%) to have scores of concern on the PHQ-9 Item 9, which measures suicidal and self-harm ideation. LGBTQI+ students (24.6%) exhibit especially high prevalence rates of suicidal ideation (Table 3). The patterns in the data are very similar when considering other measures of suicidality, especially with respect to heterogeneity by sexual orientation. About 11% of students have had suicidal thoughts in the last year, but the percentage is as high as 23% among LGBTQI+ students.

Loneliness

Our sample revealed a high prevalence of other negative emotions such as loneliness among graduate students. The rates in our sample were comparable to the rates observed in the U.S. study, and which were above average relative to the U.S. population.

The mean score on the UCLA 3-item loneliness scale was 5.3, with a standard deviation of 1.9 (Table 4). The prevalence of loneliness in our sample is comparable to the prevalence of loneliness among the sample of graduate students in the U.S. study (mean score of 5.2). 9.7% of respondents scored 9 on the UCLA Loneliness Scale, meaning that they feel a high degree of loneliness, i.e. the respondent often lacks companionship, often feels left out, and often feels isolated from others.

Impostor Phenomenon

Impostor phenomenon (IP), first described in a 1978 article by Clance and Imes in 1978, is a condition in which one feels like a fraud and worries about being 'found out'. Individuals experiencing impostor phenomenon do not believe that their success is due to their competence, but rather ascribe success to external factors such as luck. Those experiencing impostor phenomenon often experience fear, stress, self-doubt, and discomfort with their achievements. Impostor fears interfere with a person's ability to accept and enjoy their abilities and achievements, and have a negative impact on emotional well-being (Sakulku, 2011). Impostor phenomenon is widely observed, however certain populations tend to record higher IP scores based on variables including gender, race, socioeconomic status, and psychological well-being (Sakulku, 2011). Feelings of not being good enough or being an impostor are pronounced in our sample. 59% of students experience frequent or intense impostor phenomenon symptoms (Table 5). 93% of students experience moderate, frequent, or intense impostor phenomenon. A similar fraction of graduate students (61%) experienced frequent or intense impostor phenomenon symptoms in the U.S. study.

In a 2020 study across graduate programs at Harvard University, the percentage of students experiencing frequent or intense impostor phenomenon symptoms ranged from 49.4% to 78.9% between programs, putting Economics roughly in the middle of the range (Dench et al., 2020). The Harvard report underscores that such symptoms are more prevalent among underrepresented minority, LGBTQI+, first-generation, and low income students.

Many articles have described interventions that may improve impostor phenomenon, however there are no controlled studies in any population. Overall, the literature suggests that activities that allow a person to share their experience with others, such as facilitated workshops, may reduce impostor fears (Bravata et al., 2020).

Diagnoses

24.4% of Economics students in our study report having been diagnosed by a professional with a mental illness: 14.7% prior to starting their PhD program and another 9.7% after starting their program (Table 2). For comparison, a similar rate (25%) of graduate students

in the U.S. study had been diagnosed by a mental health professional before or during the program. These percentages are higher than in the U.S. population in the pre-COVID-19 period (Bolotnyy et al., 2022).

Graduate students in the dissertation phase – that is, more senior graduate students – have a lower probability of being diagnosed pre-program (12.5%) than graduate students in the course phase (18.5%), that is, less senior graduate students. Students in the dissertation phase have a higher probability of having been diagnosed during the program (11.3%) than students in the course phase (6.9%).

One explanation for the fact that younger students are more likely to have been diagnosed pre-program may indicate an improved access to mental health professionals among younger cohorts, which may also be related to the COVID-19 pandemic. The fact that older students are more likely to be diagnosed during program could be mechanical, but it may also be due to either students being more likely to seek help the longer they are in the program and/or students further into their program being more likely to suffer from mental health issues. The latter explanation would be consistent with our results in Figure 1 and data from the U.S. study, showing that the prevalence of depression and anxiety increases with seniority in the graduate program. Relatedly, Keloharju et al. (2022) uses medical records in Sweden and finds an increase in depression or anxiety diagnoses for PhD students once they start their programs.

In the European sample, the relationship between year in program and mental health concerns is generally similar to the one in the U.S. As noted before, the main difference in mental health trends, over the course of the program years, between the U.S. and Europe, is the very high levels of anxiety in the first two years of the program in Europe as shown in Figure 1.[7] Also different from the U.S. study, graduate students diagnosed with mental health issues during the PhD program are not more likely to have worse mental health today than those diagnosed before the PhD program.

Appendix Table A.3 reports that of those students who were diagnosed in graduate school,

[7]Note that having a diagnosed mental illness is different from experiencing moderate or severe symptoms of that illness. Diagnosis and proper treatment can reduce symptom severity.

50.0% experience moderate or severe symptoms of depression; among students who were diagnosed before graduate school, the percentage is about 52.4%. Of those students who were diagnosed in graduate school, 25.9% have contemplated suicide in a 2-week period; of those who were diagnosed before the PhD, 30.5% contemplated suicide in the same 2-week period. As mentioned before, this difference in mental health issue severity between diagnosis during and before the program could partially be explained by the fact that those who were diagnosed before graduate school have had more time to alleviate symptoms through therapy.

Treatment

Although our findings suggest a high prevalence of various serious mental health issues, few students are receiving clinical treatment on average. Rates are low not only with respect to the general population, but also with respect to students in the U.S. study and other studies of graduate student mental health, such as the 2022 Nature graduate student mental health study (Woolston, 2022). Among our European graduate students, 12.4% are currently in treatment for some mental health issue, with the percentage only rising mildly with tenure in the program: from 12.2% in the course phase to 12.8% in the dissertation phase (Table 2). In the U.S. study, despite the lower prevalence of mental health issues, on average 14.9% of students are in treatment for mental illness. In the 2022 Nature graduate student sample, about 30% of respondents report that they have already received help for anxiety or depression caused by their graduate-school work and another 21% say they want help but have yet to receive it. In a study on PhD student mental health in Sweden using administrative records, Keloharju et al. (2022) finds that 7% of students receive medication or diagnosis of depression in a given year (5% for anxiety), validating the relatively low rates of students in our sample who say they are in treatment.

Zooming in on those students with moderate or severe mental health issues, the share receiving treatment is higher (19.2%) than for the sample overall. The share is also rising with tenure in the graduate program, from 11.6% in the course phase to 22.2% in the dissertation phase. Overall, however, these percentages are lower than the U.S. study average of 25.2% (Bolotnyy et al., 2022). One finding in the seemingly opposite direction is that, when focusing

only on students with severe symptoms of depression, the percentage of graduate students in treatment is about twice as large in the European sample (47.1%) as in the U.S. one (28.6%), as shown in Appendix Table A.4. However, this outlier can be explained by (i) a small sample size for those with severe depression in Europe and by (ii) the cutoff for the severity of depression. While 47.1% of students with severe depression are in treatment, only 3.6% of students with moderately-severe depression are in treatment, compared to 18.2% in the U.S. We do not see a discrepancy in treatment for those students experiencing severe symptoms of anxiety between the U.S. and European sample. The share in treatment of those with severe symptoms of anxiety is comparable in the European (18.8%) and U.S. (18.2%) samples. Finally, only 21.9% of those students (96) who report contemplating suicide or self-harm within a 2-week period are currently receiving some form of treatment. Again, the percentage of students who receive treatment conditional on reporting suicidal ideation is lower than the percentage in the U.S. study (26.8%).

Certain survey responses also point to European Economics graduate students facing higher barriers to using mental health services than U.S. Economics graduate students. 25.6% of European graduate students say that they would not know where to turn for help if experiencing a mental health issue, a percentage about 13 percentage points (or 2 times) higher than in the U.S. study (see Table 6).

4.2 Faculty Mental Health

The overall prevalence of depressive symptoms in our European faculty sample is lower than in our graduate student sample. About 11.6% of faculty experience moderate to severe symptoms of depression. Symptoms of anxiety are also less common, with 11.9% of faculty experiencing moderate to severe symptoms of anxiety. Overall, about 15.8% are experiencing moderate to severe symptoms of depression or anxiety (Table 7). Focusing on the last item of the PHQ-9 scale, we find 6.1% of the faculty (10 people) reporting frequently thinking of suicide or self-harm in the past two weeks (Table 7).

The average prevalence of depression and anxiety in our sample masks a sizable heterogeneity by seniority. In particular, we observe significant and large differences in the prevalence of

depressive symptoms between tenured and untenured tenure-track faculty: 31.4% of untenured tenure-track faculty and 42.9% of non-tenure track untenured faculty such as postdoctoral fellows experience moderate to severe depression or anxiety symptoms compared to 9.6% of the already tenured faculty. The depression and anxiety prevalence rates we find among untenured faculty are comparable to or larger than those of graduate students in our sample.

The prevalence of depression and anxiety symptoms among untenured faculty is also larger than nationally representative equivalents from many European countries at the peak of the first COVID-19 wave (March 2020; Shevlin et al., 2022) and at subsequent moments of the pandemic (November 2021, January 2021, and April 2021; Hajek et al., 2022). In contrast, depression and anxiety rates among our sample of tenured faculty are much lower than overall European population rates (about 20-25%) at the peak of the COVID-19 pandemic. For reference, the prevalence of depressive disorder symptoms in 27 European countries was estimated to be about 6.8% before the pandemic (Arias-de la Torre et al., 2021).

4.3 Work Experiences

Bolotnyy et al. (2022) uses the 2015 RAND American Working Conditions Survey (Maestas et al., 2015) to get an overview of the work environment in U.S. Economics departments and a sense of how it compares to what Americans generally experience in their jobs. The survey is based on a nationally representative sample of Americans and is administered online. We use the RAND survey questions in our survey of students and faculty at the 14 participating departments to similarly understand the work experiences of our respondents and draw comparisons with the U.S. We additionally ask a set of questions on stress factors, which were not asked in the U.S. study. We summarize the stress factor statistics in Table 8.

Graduate Students

Our data reveal that the European Economics PhD programs in our sample appear to be similar, and in some instances worse, than top U.S. departments in the frequency with which graduate students experiences satisfaction, usefulness, and meaningfulness.

Compared to students in the U.S. sample, graduate students in our European sample report

lower job satisfaction and lower satisfaction with their PhD experience (Figure 2). 33.8% of our students report experiencing satisfaction of work well done always or most of the time (Table 9), compared to 37% in the U.S. study. The job satisfaction rate among graduate students in the U.S. study was lower than the average job satisfaction of American men and women with a college degree between the ages of 25 and 35 (Bolotnyy et al., 2022).

On metrics of usefulness, the two samples appear relatively comparable. For example 24% of graduate students in our sample report experiencing the feeling of doing useful work always or most of the time and fewer than 20% of students feel that they have opportunities to make a positive impact on their community or society. These numbers are similar to the rates for graduate students in the U.S. study, which again were lower than the equivalent rates in the general U.S. population. Additionally, about one student out of two (48.6%) feels they have opportunities to fully use their talents always or most of the time.

For most students in the European sample, making time for their personal life (77%, either somewhat or extensively), balancing academic work with other responsibilities (85.7%), and managing their time (91.4%) are a source of stress (Table 8). This suggests that graduate students in our sample struggle with work-life balance. In fact, many students report having more to do than they can comfortably handle (62.8%) and feel like they cannot say no when being asked to take on more responsibilities within the department (35.9%) in Table 10.

Another relevant source of stress comes from uncertainty in the advising relationship (Table 8). Students find it stressful, somewhat or extensively, to manage their relationship with their advisor (56.6%), as well as other faculty in the department (53.7%). In addition, 69% of students stress about being unsure of what advisers expect from them. Overall, stress derived from work-life balance and one's relationship with faculty is comparable to the stress graduate students feel as a result to world events, such as the COVID-19 pandemic.

Faculty

Faculty in our sample and faculty in the U.S. study sample share many work experiences, but show differences in levels of job satisfaction and financial security.

The data indicate that, while on average Economics faculty in the sampled European de-

partments report higher levels of job satisfaction compared to graduate students in the same departments, their job satisfaction is lower than that of Economics faculty in top U.S. departments. 54.5% of European Economics faculty in our sample report experiencing satisfaction of work well done always or most of the time (Table A.5), compared to 77% among faculty in the U.S. study. Similarly, 54.2% of our faculty report experiencing the feeling of doing useful work always or most of the time, compared to 70% of faculty respondents in the U.S. sample and 63% of the entire U.S. working age population. Only 44.3% of faculty in our sample feel that they have opportunities to make a positive impact on their community or society, compared to 58% of faculty in the U.S. sample and 53% of the U.S. working population. Finally, 69.1% of faculty feel they have opportunities to fully use their talents always or most of the time, compared to 85% of faculty in the U.S. study.

European faculty members also face more difficulties in making ends meet financially, with 20% of them struggling to do so most of the time, compared to only 0.5% in the U.S. sample.

In terms of work-life balance, the faculty members in our European sample are comparable to those in the U.S. study. Around 51% of faculty in our European sample report worrying about work when they are not working, which is similar to the 60% reported by U.S. faculty. Additionally, 18.3% of European faculty members find themselves too tired for activities in their private lives most of the time, which is in line with the 20.1% rate among U.S. faculty (Appendix Table A.6).

It is worth noting that none of the faculty members in our European sample reported that work has prevented them from spending time with family or significant others, whereas 22% of faculty members in the U.S. study sample indicated so.

4.4 Student Relationships with Peers and Advisers

To learn more about the Economics PhD environment, we asked students detailed questions about their interactions with their peers and advisers. While students report positive impressions overall, the majority of students are uncomfortable engaging in seminars and many do not communicate honestly and effectively with their advisers.

As we show in Table 11, most students have friendly relationships with other graduate

students in their department (66% strongly agree). 76.9% of students believe, strongly or slightly, that peers in their department care about their mental health and 70.9% of students say that there is at least one peer in their department they feel they can turn to if they need help. Still, a sizable number of students feel isolated and out of place. 10.5% of students say they do not have a personal support network at the university or elsewhere that can help them through mental health challenges. 5.6% of students say they have zero people in their personal life whom they can talk to about their most private feelings (5.8% in the U.S. sample). Another 11% say that there is only one person in their personal life with whom they can be so open (14.6% in the U.S. sample). 20.6% of students say they often lack companionship and 18.9% say they often feel isolated from others (Table 4). Overall, the data indicate that graduate students in both U.S. and European departments enjoy friendly relationships with their peers to a similar degree. In fact, European students appear to have stronger peer-support networks than U.S. students. These findings suggest that, despite the pandemic, a lack of social connection with peers is unlikely to be a significant driver of the large differences in mental health issue prevalence that we observe.

Given that peer interactions do not seem to be the primary driver of mental health issue differences between graduate students from European and U.S. departments, we investigate other factors that could be contributing to the differences.

Looking at the general learning environment, we find that only about 31% of male students and 45.3% of female students feel uncomfortable voicing a thought in a seminar setting (Appendix Table A.7). Only 7% of female students feel very comfortable in doing so, compared to 13.1% of male students. These numbers are comparable with the U.S. study.

With regards to students' relationships with their advisers, in our European sample almost 10% of students have not met with their main adviser in the past 2 months (Table 12). In the U.S. study, the number of graduate students who did not meet with their main adviser at all was lower, 4.4%. Importantly, the average hides sizable in-sample heterogeneity, with one department having 23.3% of students who did not meet at all with their advisor in the 2 months before our study. Notably, only about 56% of students believe, more or less strongly,

that the number of advising meetings they have is sufficient to meet their needs, and for 25.3% of the students the number of meetings is too few. Moreover, 30.2% of the students feel that they do not receive enough feedback to understand if they are on track with their progress (Table 13). Overall, this suggests that the lower number of advisor-advisee meetings reported by students in the European sample is not just explained by a lower demand from the student side.

Advising relationships are directly related to student mental health (Hyun et al., 2006). In the U.S. study, 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. In our sample, as summarized in Table 14, 29.9% of students believe that the faculty in their department does not care about their mental health and well-being. 22.4% of students do not have a faculty member from whom they feel they can seek advice and guidance, and 25.9% believe that faculty would not be supportive of them if they were facing mental-health or well-being issues. 46.2% of students feel that their mental health has a negative effect on their progress in the PhD program (Table 13).

52% of students would not know where to turn for help if they were facing issues with advising (Table 15). The latter number is heterogeneous across departments, with one department having as many as 79.4% of students who would not know where to turn for help with advising issues.

Another relevant area of student-faculty interaction is the preparation for post-graduate life (Table 16). In our European sample, most students (71.7%) agree that faculty are aware of the challenges facing current students entering the job market. However, 18% of students report no professional development opportunities in the department to prepare them for the job search and 30.2% say that faculty are not proactively helping students to develop professional networks. Concerning the nature of the job-market conversation with advisers, 30% of students would not feel comfortable discussing plans for a career outside academia with their advisers (Table 14). This number is similar to the share of students, 25.7%, that do not feel like they can be honest in discussing other personal life issues with their advisers (Table A.8).

More generally, most students (57%) agree that there is a strong sense of community in their graduate program (Table 17). Yet, for more than 25% of students this is not the case and only 35.1% of the students think that departments take great care to make students feel included. In summary, while pursuing a graduate program in Economics is a positive experience for most students, there is a significant minority of students who are not having good experiences in their graduate program. In particular, compared to U.S. students, European students are similarly likely to interact with their peers, but less likely to interact with faculty.

4.5 Sexual Harassment

To obtain a more complete picture about the departmental environment, we asked questions about sexual harassment. Specifically, we wanted to know what share of students have experienced some form of sexual harassment in their department and what form that harassment took. For comparability purposes, we used the same phrasing for our 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). A preamble to the questions emphasized that students should be thinking about situations that interfered with their work, limited their ability to participate in their program, or created a hostile work environment.

We find that 25.9% of students experienced some form of sexual harassment in their department since starting the PhD program (Table 18). This number is about 60% higher than in the U.S. study. Breaking it down by gender, 34.5% of women, more than 1 in 3, experienced harassment, compared to 18.7%, slightly fewer than 1 in 5, of men. For context, these numbers are closer than the U.S. study ones to the 2019 AAU survey, which revealed that about 44% of women in graduate or professional programs had experienced some form of sexual harassment, compared to 30% of men.

Panel B of Table 18 shows the percentage of respondents who have ever experienced sexual harassment by type of harassment in the European sample in column (1) and in the U.S. sample in column (2), based on data from Bolotnyy et al. (2022). 19.7% of respondents have experienced one of the forms of harassment listed in the survey. In order from most common to least common, respondents experienced: (1) inappropriate or offensive comments about your

or someone else's body, appearance, or sexual activities (9.4%), (2) sexual remarks, jokes, or stories that were insulting or offensive to you (6.1%), (3) requests to go out for dinner, have drinks, or have sex even though you said, "No"(1.5%), (4) crude or gross sexual comments or tried to get you to talk about sexual matters when you did not want to (1.4%), 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 (1.1%). In addition, 14.7% of respondents experienced "something else that makes me uncomfortable but doesn't fall into any of the other categories".

Panel C of Table 18 shows the percentage of respondents who have ever experienced sexual harassment by type of aggressor in the European sample in column (1) and in the U.S. sample in column (2), based on data from Bolotnyy et al. (2022). As in the U.S. sample, the most common identified aggressors of sexual harassment were graduate student friends or acquaintances (9.9 %). A notable difference, however, is that in the European sample 4.1% of students experienced sexual harassment from professors. This number is about seven times larger than the equivalent number in the U.S. (0.6%).

The context of our survey, namely the fact that our survey ran in November 2021 or about 1.5 years into the COVID-19 pandemic, is relevant for the interpretation of the sexual harassment statistics in the European sample. In fact, this implies that our respondents had more limited in-person interactions in their department than respondents to previous surveys. Thus, our numbers may be a lower bound for the prevalence rates of sexual harassment in European Economics departments during non-pandemic years. Consistent with this hypothesis, in the 2022 Nature graduate student mental health study, only 20% of students stated that they felt discriminated or harassed during the course of their graduate degree (3% preferred not to say).

4.6 The COVID-19 Pandemic

Our findings indicate a significant prevalence of symptoms related to depression and anxiety among European Economics graduate students and untenured faculty. In fact, the prevalence of mental health issues is notably higher than what was reported in both the general population at the peak of the COVID-19 pandemic and among graduate students in the U.S. study

conducted prior to the pandemic. One hypothesis is that the COVID-19 pandemic may have had particularly exacerbating effects on the mental health of graduate students and untenured faculty.

One silver lining of having our study delayed by the pandemic is that we can provide some insight into how and why the pandemic has affected student and faculty mental health. As Table 8 shows, most students (81.1%) report that world events such as the COVID-19 pandemic were a source of stress for them during the last year before the survey took place.

We asked students to which extent different aspects of their professional and personal lives were affected by the pandemic (Table 19). The major impact was on students' connections. For almost half of the students (49.1%), the pandemic affected the possibility of maintaining existing relationships or making new relationships, friendships, and social connections. A comparable share of students (45.9%) stated that the pandemic impacted their feeling of connection with their Economics department. For 34.4% of the students, the pandemic impacted their professional productivity, while fewer students (15.2%) reported a direct impact on their physical or mental health. The pandemic affected viability of research projects for 31% of students. 14% of students felt that the pandemic impacted their future employment or job-market prospects, with 7.8% changing their graduation decision because of the pandemic.

Table 19 also shows correlation coefficients with the PHQ-9 score, GAD-7 score, and suicidal ideation measured by PHQ-9 Item 9. Impacts on a family member's or friend's health and safety, maintaining the viability of research projects, managing the demands of remote work, professional productivity, and finishing the graduate program have the highest correlation coefficients with PHQ-9 and GAD-7. Impacts on a family member's or friend's health and safety and impacts on finishing the graduate program have the highest correlation coefficients with suicidal ideation.

Another approach to understanding the effects of the pandemic is to compare the rates of mental health issues in the U.S. study with those that we find here. However, it is difficult to determine with certainty whether differences in mental health issue prevalence between the European and U.S. samples can be entirely attributed to the COVID-19 pandemic, since

there are likely other material differences between the settings, such as healthcare systems and cultural attitudes towards mental health. Given the lack of post-COVID-19 data on Economics graduate student mental health in the U.S., we also do not have a valid comparison group in the U.S. Future data collection on the mental health of economics graduate students in the U.S. and in Europe, post-COVID-19, would thus be very helpful for comparisons.

However, in internal data from the Harvard Graduate Student Mental Health Initiative (Barreira and Bolotnyy, 2022), led by one of the authors (Paul Barreira), we observe an increase in mental health issues in a sample of social science departments, including Economics, between 2016 and 2022. This difference over the COVID-19 period is not as high as the difference in mental health prevalence between the U.S and European study. If we extrapolate the mental health prevalence of the U.S. sample of 2017 assuming a similar trend, the COVID-19 pandemic can explain 74.0% of the U.S.-European difference in moderate-severe depression prevalence and 30.1% of the U.S.-European difference in moderate-severe anxiety prevalence. The increase of mental health issue prevalence over the COVID-19 period at Harvard might not be representative, it could be smaller or larger than the true change in the U.S. sample of 2017 or in Europe, but it would need to underestimate the true U.S. trend in the sample of 2017 by 26% for depression and by 69.1% for anxiety to explain the full U.S.-European difference. These results thus suggest that a significant part of the difference in mental health issues between European and U.S. students could likely be attributed to non-COVID factors.

5 Recommendations

Normalize and Enable Usage of Mental Health Services by Students and Faculty

Even accounting for the COVID-19 trend, depression and anxiety symptom prevalence are much higher in the European sample compared to the U.S. sample. At the same time, the percentage of students with symptoms of depression and anxiety in treatment is lower in Europe. One explanation is that the COVID-19 pandemic increased the barrier for students to seek or receive treatment. Another explanation is that access to mental health care is in general harder in Europe, perhaps especially so for university populations. While students at

U.S. universities often have direct access to mental health services through university health services, this is often not the case in Europe, where in many countries health services are generally not integrated into the university. Provision of mental health services also varies substantially between European countries. Countries differ in terms of who provides mental health services, who is the access point and who refers to mental health services, whether services are reimbursed, and the number of available mental health care providers (Dezetter et al., 2013).

There are things that European Economics departments can do to improve access to health care. For example, independent psychological counselors can give initial guidance and help students navigate the health care system with active support. Lowering the barrier and cost for initial consultations and follow-up with professionals is essential for people with mental health concerns who struggle having the energy and confidence for active action. In our European sample, indeed, many departments have already taken steps to address and improve student mental health. Some of the departments have student groups bringing the topic of mental health to the table for discussion with administrators. One department has training for faculty and staff on student mental health and detection of mental health issues. Three departments reported having psychologists or well-being officers that the students can approach.

Departmental efforts to normalize mental health support should not only be targeted at students. Our results show that both untenured tenure-track and non-tenure-track faculty, e.g. postdoctoral fellows, experience similarly high levels of anxiety and depression as graduate students. It is important to provide mentorship for these individuals and to ensure that they have and know how to access mental health resources.

We recommend implementing regular surveys to monitor the mental health of both students and faculty members. This approach can help inform targeted mental health initiatives and ensure that departments prioritize mental health. The Harvard Graduate Student Mental Health Initiative provides a useful example of such an effort, and the Blueprint for Mental Health and Well-being in Higher Education (Barreira and Bolotnyy, 2022) can offer guidance on how to implement similar initiatives. In addition, given the significant percentage of stu-

dents who do not believe that mental health is a priority in their departments, regular surveys may also serve as a collaborative effort between students and faculty to make improvements and instil a general sense of care in the departmental community.

Address Sexual Harassment

25.9% of graduate students report having experienced some form of sexual harassment since starting the PhD program, significantly higher than in the U.S. study. 34.5% of women have experienced harassment compared to 18.7% of men. The most common aggressors were graduate student friends (9.9%) or acquaintances and professors (4.1%). One of the most frequent types of harassment is inappropriate or offensive comments about somebody's body, appearance, or sexual activities. Thus, we encourage departments to have a broader discussion about sexual harassment and to help all faculty, staff, and students get on the same page about the kinds of speech and conduct that are not appropriate in the community. Clear procedures should be in place in the case sexual harassment occurs.

Improve Advising Relationships

European Economics graduate students are less satisfied with their graduate program and struggle to find usefulness and meaningfulness in their work even more than graduate students in the U.S. sample. Most common stress factors are advising relationships, uncertainty about expectations, and time management, which even trump world events such as COVID-19. At the same time, European graduate students in our sample are less likely to interact with their adviser or other faculty in their departments.

Gin et al. (2021) interviewed life science PhD students with depression in the U.S. and found that negative reinforcement and absence of positive reinforcement can worsen depression, but that meaningful work can alleviate depression. We see helping students arrive at research projects that are particularly meaningful to them and that will sustain them over time as vital for students' mental well-being and research. We also see good mentorship of students as essential to counteract perpetual feelings of failure, negative reinforcement, loneliness, and impostor phenomenon.

Many articles have described interventions that may improve impostor phenomenon, how-

ever there are no controlled studies of advising in any population. Overall, the literature suggests that activities that allow a person to share their experience with others, such as facilitated workshops, may reduce impostor fears (Bravata et al., 2020). Learning how to do research is characterized by repetitive failure and negative reinforcement, which aggravate depression (Gin et al., 2021). Active and good mentorship by advisers who actively incorporate positive feedback, normalize expectations about success and failure, and give students a sense of belonging appears important.

Creating opportunities for faculty and students to interact is particularly relevant after the COVID-19 pandemic. We recommend implementing active programs that give students the chance to reconnect with each other and with faculty, not only to recover pandemic losses but also because social connections are vital protective measures against mental health concerns (Woolston, 2022). Acknowledging the loss of productivity and actively trying to address it will help students regain their footing and succeed.

Offer Structure and Help Students Avoid Ruts

In our sample, one of the students' biggest struggles and regrets is their time management. Gin et al. (2021) found that a lack of structure and a lack of short-term goals that give a feeling of accomplishment are exacerbating factors for already existing depression. Administrators and advisers can implement guidelines and practises to offer students more structure on research activities, preventing them from falling through the cracks and getting stuck for long periods of time. A clear system of check-ins, accountability, and help should be a part of every student-faculty advising relationship.

6 Conclusion

Motivated by the study on graduate student mental health in U.S. Economics departments (Bolotnyy et al., 2022), we surveyed graduate students and faculty at 14 European Economics departments on mental health, well-being and their correlates. Our goals were to measure prevalence of mental health issues among students and faculty, understand student and faculty experiences at the department, compare the findings to the U.S. sample, and to make evidence-

based recommendations to departments on how to improve student and faculty well-being.

The surveys were administered in November 2021. 568 students and 255 faculty voluntarily participated in the study, with response rates of 50% and 31%, respectively. The European student population exhibits high levels of anxiety and depression symptoms. About one third of the students experience moderate to severe symptoms of depression or anxiety and almost one fifth report suicidal ideation. These levels are higher than in the U.S. graduate student sample in 2017. The patterns of mental health issues across years in the program are noteworthy. Mental health concerns increase over the years in the program on average, with the exception of anxiety, which is particularly high for students in the course phase, compared to the U.S. study in 2017-2018. Students in years 6+ exhibit the highest risk of depression and suicidal ideation. LGBTQI+ students exhibit the highest depression rates of 42.6% and suicidal ideation of 24.6% of any group. 59% of students experience frequent or intense impostor phenomenon.

Economics faculty in Europe experience less mental health issues than students on average, but this disguises a significant heterogeneity by tenure status. 31.4% of untenured tenure-track faculty and 42.9% of non-tenure track untenured faculty exhibit moderate to severe depression or anxiety symptoms, compared to 9.6% for tenured faculty. Indeed, untenured tenure-track faculty experience levels of anxiety and depression that are comparable to those of their graduate students. On average, European Economics faculty are less satisfied with their job than U.S. faculty. While European faculty face more financial difficulties, they do not report having to forgo time with family or significant others for work.

One quarter of students report having been diagnosed by a professional with a mental illness and 12.4% of students are currently in treatment for some mental health issue. Of the diagnosed students, slightly more students were diagnosed before the start of their PhD than during the program. Overall, in Europe, fewer students are in treatment compared to the U.S. For example, 19.2% of those students with moderate-severe depression or anxiety symptoms are currently in treatment, compared to 25.2% in the U.S. Only 21.9% of students who exhibit suicidal ideation receive treatment. Finally, 25.6% of students in Europe do not know where

to turn for help if they had issues with mental health, almost 2 times as many as in the U.S.

While the COVID-19 pandemic had a substantial subjective impact on students' social connections, maintaining and making friendships and feeling connected to the department, as well students' productivity, our evidence does not support the idea that the differences in mental health prevalence across our sample and the 2017-2018 U.S. study should entirely be attributed to the pandemic.

Lastly, our survey finds that more than one fourth of European graduate students in our sample have experienced a form of sexual harassment since starting the PhD program; more than one third of women. The most frequent aggressors are fellow graduate students and professors (by a ratio of 2 to 1).

In addition to the recommendations reported in Bolotnyy et al. (2022), our findings suggest the following recommendations for promoting mental health and well-being among students and faculty: (1) Normalize and enable usage of mental health services by students and faculty; (2) address sexual harassment; (3) improve advising relationships; and (4) offer structure and help students avoid ruts.

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Tables

Table 1: Eligible and study participants for the student and faculty surveys, by program

Panel A: Student Survey				
Programs	Total invited	Total responded	% responded	% of all responses
Bocconi University	61	45	73.8%	8.1%
Bonn Graduate School of Economics	117	60	51.3%	10.8%
Central European University	21	11	52.4%	2%
European University Institute	100	74	74%	13.3%
London School of Economics	135	37	27.4%	6.7%
Mannheim Graduate School of Economics	103	45	43.7%	8.1%
Paris School of Economics	144	53	36.8%	9.5%
Sciences Po	37	11	29.7%	2%
Stockholm School of Economics	37	14	37.8%	2.5%
Universitat Pompeu Fabra	97	36	37.1%	6.5%
University College London	87	33	37.9%	5.9%
University of Warwick	87	39	44.8%	7%
University of Zurich	95	72	75.8%	12.9%
Uppsala Universitet	52	26	50%	4.7%
Total	1173	556	47.4%	100%
Panel B: Faculty Survey				
Bocconi University	44	18	40.9%	7.1%
Bonn Graduate School of Economics	52	10	19.2%	3.9%
Central European University	58	16	27.6%	6.3%
European University Institute	13	8	61.5%	3.1%
London School of Economics	71	31	43.7%	12.2%
Mannheim Graduate School of Economics	47	31	66%	12.2%
Paris School of Economics	139	20	14.4%	7.8%
Sciences Po	34	0	0%	0%
Stockholm School of Economics	28	11	39.3%	4.3%
Universitat Pompeu Fabra	140	28	20%	11%
University College London	64	27	42.2%	10.6%
University of Warwick	65	26	40%	10.2%
University of Zurich	38	18	47.4%	7.1%
Uppsala Universitet	21	11	52.4%	4.3%
Total	814	255	31.3%	100%

Note: Panel A of the table shows the total number of students invited to participate in the fall 2021 survey; the total number of students who took the survey; the percent of invited students who took the mental health survey; and the percent of the entire sample represented by students from each program for each participating Economics PhD program. Panel B of the table shows the total number of faculty receiving the fall 2021 survey; the total number of faculty who took the survey; the percent of invited faculty who took the survey; and the percent of the entire sample represented by faculty from each program.

Table 2: Student survey: Mental health issues, diagnoses, and treatment, by program phase

	Program Phase		
	All	Course Phase	Dissertation Phase
Panel A: Mental Health Issue Prevalence			
Depression	27.3%	24.3%	28.4%
Anxiety	25.9%	28.6%	24.4%
Depression or Anxiety	34.7%	36.5%	33.8%
Suicidality 2-weeks	17.3%	14.3%	18.8%
Suicidal thoughts 1-year	11%	9%	12.5%
Suicidal plan 1-year	1.8%	1.1%	1.6%
Suicidal attempt 1-year	0.4%	0.5%	0%
Panel B: Diagnoses and Treatment			
Diagnosed, pre-program	14.7%	18.5%	12.5%
Diagnosed, during program	9.7%	6.9%	11.3%
In treatment for any mental illness	12.4%	12.2%	12.8%
Of those w/moderate-severe depression or anxiety, % in treatment	19.2%	11.6%	22.2%

Note: Panel A shows the percentage of students who score above critical thresholds on mental health survey instruments, by program phase. Depression and Anxiety show those scoring 10 or higher on the PHQ-9 and GAD-7, respectively. Suicidality 2-weeks captures individuals reporting contemplating suicide or self-harm on at least several days in the last two weeks, as measured by Item 9 on the PHQ-9. For robustness, we use an additional screening tool for suicidality used by the Healthy Minds Study (Healthy Minds Network, 2022), adapted from survey instruments by the National Comorbidity Survey replication (Kessler et al., 2004). The tool assesses the presence of self-reported suicidal ideation in the previous year, particularly thinking about suicide, making a plan, and attempting suicide. Panel B shows the percentage of students who report being diagnosed by a mental health professional with some form of mental illness, either before or during the PhD program, by program phase. Also shown are percentages of students who are in treatment for any mental illness and the percentage of those with moderate or severe symptoms of depression or anxiety (PHQ-9>=10 or GAD-7>=10) who are in treatment.

Table 3: Student survey: Percent of students scoring above critical thresholds

Category	Depression	Anxiety	Suicidality 2-weeks	Suicidality thought 1-yr	Suicidality plan 1-yr	Suicidality attempt 1-yr
All	27.3%	25.9%	17.3%	11%	1.8%	0.4%
Male	24.8%	24.2%	17.3%	11.1%	2%	0.3%
Female	28.2%	27.7%	14.9%	10.4%	0.5%	0%
Diff male & female p-val	0.456	0.429	0.539	0.914	0.318	0.834
Minority Race	29.3%	29.3%	17.3%	12.8%	3%	0%
Diff w/White p-val	0.373	0.309	0.786	0.56	0.15	0.589
Minority Sexuality	42.6%	26.2%	24.6%	23%	3.3%	0%
Diff w/Heterosexual p-val	0.005	0.892	0.103	0.003	0.439	0.241
First-Generation	25.7%	21.1%	12.8%	9.2%	2.8%	0%
Diff w/Non-First Gen p-val	0.923	0.262	0.301	0.58	0.346	0.482

Note: Table shows percent of students scoring above thresholds for mental health 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 or self-harm on at least several days in the last two weeks, as captured by Item 9 on the PHQ-9. Suicidality thought 1-year, suicidality plan 1-year, suicidality attempt 1-year are those having thought about, made a plan, or attempted a suicide suicide in the past year. Students classified as minority race are those who select at least one non-White race (Black or African American, Hispanic or Latino, Asian or Asian American, Native Hawaiian or Other Pacific Islander, American Indian or Alaska Native). Students classified as minority sexuality are those who select Bisexual or Gay or Lesbian as their sexual orientation. Students with a father or mother with high school or less as the highest level of educational attainment are included in the First-Generation category. P-values for chi-squared tests of differences are also reported, showing levels of statistical significance for relationships between mental health and gender, race, sexual orientation, and parent education level.

Table 4: Student survey: UCLA Loneliness

Panel A: Question and Answer	
	Percent
How often do you feel you lack companionship?	
Hardly ever (1)	46.8%
Some of the time (2)	32.7%
Often (3)	20.6%
How often do you feel left out?	
Hardly ever (1)	42.2%
Some of the time(2)	40.4%
Often (3)	17.5%
How often do you feel isolated from others?	
Hardly ever (1)	38.9%
Some of the time (2)	42.2%
Often (3)	18.9%
Panel B: Distribution of scores	
	Percent
3	23.6%
4	19.0%
5	14.3%
6	17.1%
7	9.2%
8	7.0%
9	9.7%

Note: Panel A shows the questions and answers. A higher response value indicates greater loneliness. Panel B shows the distribution of the UCLA Loneliness score. The UCLA Loneliness screen yields a score ranging from 3 to 9. A score of 9 indicates a high degree of loneliness. For exact question wording, please see survey instrument in Appendix C1.

Table 5: Student survey: Impostor Phenomenon

Question and Answer	Percent
Low IP	6.8%
Moderate IP	34.1%
Frequent IP	38%
Intense IP	21%

Note: A higher response value indicates greater impostor phenomenon. The Clance Impostor Phenomenon screen includes 20 questions and provides a score of between 20 and 100. Scores are grouped into 4 categories representing the degree to which the individual experiences feeling like an impostor (few, moderate, frequent, intense). If the total score is 40 or less, the respondent has few impostor characteristics; if the score is between 41 and 60, the respondent has moderate IP experiences; a score between 61 and 80 means the respondent frequently has impostor feelings; and a score higher than 80 means the respondent often has intense IP experiences. For exact question wording, please see survey instrument in Appendix C1.

Table 6: Student survey: Help with mental health

Question	Answer	Mean	Min department mean	Max department mean
If issue with mental health, would you know where to turn for help?	Yes	74.4 %	61.1%	84.6 %
	No	25.6%	17.8%	38.9%

Note: A higher response value indicates knowing where to turn for help. Min and max give the minimum and maximum values of the average by department.

Table 7: Faculty survey: Mental health issues

	Tenure track	Non-tenure track	Tenured	All
Depression	25.7%	28.6%	6.2%	11.6%
Anxiety	20.6%	28.6%	8%	11.9%
Depression or Anxiety	31.4%	42.9%	9.6%	15.8%
Suicidality 2-weeks	8.6%	0%	6.1%	6.1%

Note: Table shows the percentage of faculty who score above critical thresholds on mental health survey instruments. 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 or self-harm on at least several days in the last two weeks, as captured by Item 9 on the PHQ-9. The columns indicate the percentage of tenure track, non-tenure track, and tenured faculty score above the critical value for depression, anxiety, depression or anxiety, and suicidality.

Table 8: Student stressors: Extent to which the following had been source of stress during past year

Question and Answer	Not at all	Somewhat	Extensive
Making time for my personal life	23%	45.6%	31.4%
Balancing academic work with other responsibilities	14.3%	46.6%	39.1%
Managing my time	8.6%	39.1%	52.3%
Managing my relationship with my adviser	43.4%	38.1%	18.5%
Managing personal relationships at home	41.9%	37.1%	21%
Managing relationships with peers in my department/lab	60.9%	30.9%	8.2%
Finding a job after graduate school	20.2%	29.4%	50.4%
Tenure Status of adviser	84.7%	12.4%	2.9%
Managing relationships with faculty in the department	46.3%	42.8%	10.9%
Finding funding	56.6%	24.3%	19.1%
Being unsure what is expected of me by my adviser	31%	46.6%	22.4%
Passing my qualifying exams	34.5%	23.3%	42.2%
Finding a dissertation topic	16.2%	37.6%	46.2%
Putting together a dissertation committee	46.8%	35.5%	17.7%
Finishing my dissertation	17.2%	34.4%	48.5%
Financial difficulties	58.7%	27.5%	13.8%
Paying off debt/loans	86.3%	10.3%	3.4%
Food Insecurity	95.6%	2.9%	1.5%
World events (politics, climate issues, COVID-19, etc.)	18.9%	48.3%	32.8%
Access to safe and affordable housing	69.1%	21.7%	9.2%
Personal health issues	55%	33.3%	11.8%
Issues pertaining to visas	77%	13.3%	9.7%
Other	60%	10%	30%

Note: Responses show to which extent each of the listed items were sources of stress during the previous year. A higher response value indicates a respondent experienced more of each type of situation. For exact question wording, please see survey instrument in Appendix C1.

Table 9: Student survey: RAND meaningfulness of work

Question and Answer	Percent
Opportunities to fully use your talents	
Always	6.2%
Most of the time	42.4%
Sometimes	39%
Rarely	10.8%
Never	1.6%
Opportunities to make positive impact on community/society	
Always	3.9%
Most of the time	14.8%
Sometimes	38.1%
Rarely	29.4%
Never	13.8%
Sense of personal accomplishment	
Always	5.3%
Most of the time	27.4%
Sometimes	43.8%
Rarely	19%
Never	4.5%
Goals to aspire to	
Always	13.1%
Most of the time	35.4%
Sometimes	33.2%
Rarely	15%
Never	3.3%
Satisfaction of work well done	
Always	5.6%
Most of the time	28.2%
Sometimes	40.6%
Rarely	20.3%
Never	5.2%
Feeling of doing useful work	
Always	4.1%
Most of the time	19.9%
Sometimes	40.6%
Rarely	27.3%
Never	8%

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. For exact question wording, please see survey instrument in Appendix C1.

Table 10: Learning environment for students: Work-life balance

Question and Answer	Percent
I feel like I have more to do than I can comfortably handle	
Strongly disagree	4.2%
Slightly disagree	15.4%
Neither agree or disagree	17.5%
Slightly agree	32.6%
Strongly agree	30.3%
I feel like I can't say no to others in my department when being asked to take on more work responsibilities than I am comfortable with	
Strongly disagree	14.6%
Slightly disagree	24.5%
Neither agree or disagree	25%
Slightly agree	27.6%
Strongly agree	8.3%

Note: A higher response value indicates greater feeling of good work-life balance. For exact question wording, please see survey instrument in Appendix C1.

Table 11: Student survey: Social sources of support

Question and Answer	Percent	Min of department means	Max of department means
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	5.6%	0%	14.7%
1	11%	0%	20%
2 to 5	59.4%	45.7%	70%
6 to 10	19.7%	4.2%	39.2%
11 or more	4.3%	0%	14.3%
When you have a problem or worry, how often do you let someone in your personal life know about it?			
Never	2.1%	0%	8.6%
Rarely	20.2%	4.2%	32.6%
Sometimes	27.7%	20%	45.8%
Often	30.9%	18.2%	40%
Very often	19.1%	0%	36.4%
I have friendly relationships with other graduate students in my department			
Strongly disagree	1.5%	0%	6.7%
Slightly disagree	4.1%	0%	30%
Neither agree or disagree	5.1%	0%	20%
Slightly agree	23.3%	10%	42.9%
Strongly agree	66%	40%	79.5%
I have friendly relationships with other graduate students outside of my department			
Strongly disagree	19.1%	0%	44.4%
Slightly disagree	10%	0%	22.9%
Neither agree or disagree	17.2%	7.7%	33.3%
Slightly agree	22.1%	9.1%	38.5%
Strongly agree	31.7%	2.9%	46.2%
There is at least one peer in my department that I feel like I can turn to if I need help			
Strongly disagree	4.1%	0%	11.8%
Slightly disagree	3.4%	0%	20%
Neither agree or disagree	4.1%	0%	10%
Slightly agree	17.5%	5.9%	42.9%
Strongly agree	70.9%	40%	84.9%
I have a personal support network (at my university or elsewhere) to help me through mental health challenges			
Strongly disagree	4.5%	0%	11.4%
Slightly disagree	6%	0%	20%
Neither agree or disagree	9.4%	4.2%	17.2%
Slightly agree	24.8%	14.3%	40%
Strongly agree	55.3%	31.4%	70.8%
I believe that my peers in my department care about my mental health and well-being			
Strongly disagree	3.6%	0%	8.6%
Slightly disagree	6.2%	0%	20%
Neither agree or disagree	13.3%	0%	40%
Slightly agree	29.5%	13.3%	36.4%
Strongly agree	47.4%	20%	64.3%

Note: A higher response rate indicates more people to open up to, more frequently letting someone know about a problem, more friendly relationships at the department, more friendly relationships outside of the department, having a peer at the department to turn to for help, having a personal support network, and higher perception that the department cares about mental health. For exact question wording, please see survey instrument in Appendix C1.

Table 12: Student survey: Number of meetings with advisers

Question and Answer	Percent	Min of department means	Max of department means
In the last 2 months, # of times met with main adviser			
0	9.9%	0%	23.3%
1	12.4%	4.3%	33.3%
2	18.9%	3%	29.3%
3	13.2%	0%	23.3%
4	12.6%	0%	22%
5	8.8%	0%	21.2%
6 to 10	19.1%	9.8%	39.1%
11 to 15	2.5%	0%	9.1%
15 +	2.5%	0%	6.1%
In the last 2 months, # of times met with any of three advisers			
0	20.7%	0%	40%
1	6.5%	0%	16.2%
2	7.9%	2.6%	18.2%
3	10.4%	4.4%	14.9%
4	7.6%	2.2%	15.1%
5	8.8%	0%	27.3%
6 +	38.1%	16.2%	61.5%
The number of times I have met with my advisers over the past year was sufficient to meet my needs			
Strongly disagree	9.3%	0%	24.1%
Slightly disagree	16%	4%	26.9%
Neither agree or disagree	16.8%	0%	28.6%
Slightly agree	27.4%	7.1%	36.4%
Strongly agree	30.5%	20.7%	52%

Note: For the first question, a higher response value indicates greater number of times met with main adviser. For the second question, a higher response value indicates greater number of times met with one of three advisers (summed across the three advisers). For exact question wording, please see survey instrument in Appendix C1.

Table 13: Learning environment for students: Progress to the degree

Question and Answer	Percent
I am on track to complete my degree program on time	
Strongly disagree	7.1%
Slightly disagree	16.2%
Neither agree or disagree	19.4%
Slightly agree	34.8%
Strongly agree	22.5%
I am well-prepared for the work required to complete my program	
Strongly disagree	6.4%
Slightly disagree	18.2%
Neither agree or disagree	27.5%
Slightly agree	34.7%
Strongly agree	13.2%
I felt well-prepared when I took my general exam/qualifying exam/PGE/etc.	
Strongly disagree	9.8%
Slightly disagree	18%
Neither agree or disagree	23.9%
Slightly agree	30%
Strongly agree	18.3%
I feel like I receive the feedback necessary to understand whether or not I am on track with my progress	
Strongly disagree	6.1%
Slightly disagree	24.1%
Neither agree or disagree	24.9%
Slightly agree	32.2%
Strongly agree	12.7%
I feel that my mental health has had a negative effect on my progress in the PhD program	
Strongly disagree	18.8%
Slightly disagree	14.7%
Neither agree or disagree	20.1%
Slightly agree	24.2%
Strongly agree	22.2%

Note: A higher response value indicates greater feeling of progress towards the degree. For exact question wording, please see survey instrument in Appendix C1.

Table 14: Student survey: Perceptions of faculty care

Question and Answer	Percent	Min of department means	Max of department means
My advisers really care about my well-being.			
Strongly disagree	5.2%	0%	13.8%
Slightly disagree	9.2%	0%	20%
Neither agree or disagree	17.3%	0%	30.8%
Slightly agree	37.4%	25.7%	70%
Strongly agree	30.8%	6.9%	64%
I would feel comfortable telling my advisers about my post-graduation plans if they were outside of academia.			
Strongly disagree	13.4%	0%	31%
Slightly disagree	16.7%	0%	26.5%
Neither agree or disagree	18.4%	6.9%	29.4%
Slightly agree	24.6%	9.1%	50%
Strongly agree	26.9%	6.9%	45.5%
I have at least one faculty member in my department aside from my adviser from whom I can seek advice and guidance.			
Strongly disagree	11.1%	0%	18.8%
Slightly disagree	11.3%	0%	19.5%
Neither agree or disagree	10.7%	0%	19.1%
Slightly agree	31.9%	18.2%	50%
Strongly agree	35.1%	23.3%	54.5%
I believe that the faculty in my department would be supportive of me if a mental health or well-being-related issue interfered with my work.			
Strongly disagree	9.3%	0%	22%
Slightly disagree	16.9%	0%	45.5%
Neither agree or disagree	22.2%	12%	32.3%
Slightly agree	31.1%	9.1%	44%
Strongly agree	20.5%	3%	64.3%
I believe that the faculty in my department care about my mental health and well-being.			
Strongly disagree	10.7%	0%	22.5%
Slightly disagree	19.2%	7.1%	36.4%
Neither agree or disagree	20.4%	4%	30.3%
Slightly agree	32%	14.3%	48%
Strongly agree	17.7%	3%	57.1%

Note: A higher response value indicates greater perceived care. For exact question wording, please see survey instrument in Appendix C1.

Table 15: Student survey: Help with advising

Question and Answer	Percent	Min of department means	Max of department means
If issue with advising, would you know where to turn for help?			
Yes	48%	20.6%	84%
No	52%	23.1%	79.4%

Note: A higher response value indicates knowing where to turn for help. For exact question wording, please see survey instrument in Appendix C1.

Table 16: Learning environment for students: Preparation for post-graduate life

Question and Answer	Percent
In applying to this program, I was aware of the career outcomes of of the department's recent graduates	
Strongly disagree	6.4%
Slightly disagree	10.7%
Neither agree or disagree	7.5%
Slightly agree	40.1%
Strongly agree	35.2%
Faculty are proactive in helping students develop professional networks	
Strongly disagree	10.6%
Slightly disagree	19.6%
Neither agree or disagree	22.3%
Slightly agree	38.1%
Strongly agree	9.4%
There are professional development opportunities in my department that help prepare students for the job search	
Strongly disagree	6.4%
Slightly disagree	12.7%
Neither agree or disagree	22.4%
Slightly agree	41.2%
Strongly agree	17.3%
Faculty are aware of the challenges facing current students entering the job market	
Strongly disagree	3.3%
Slightly disagree	6.6%
Neither agree or disagree	18.4%
Slightly agree	45%
Strongly agree	26.7%

Note: A higher response value indicates greater feeling of preparation for post-graduate life. For exact question wording, please see survey instrument in Appendix C1.

Table 17: Learning environment for students: Sense of community

Question and Answer	Percent
There is a strong sense of community in my graduate program	
Strongly disagree	8.6%
Slightly disagree	16.7%
Neither agree or disagree	17.7%
Slightly agree	35.7%
Strongly agree	21.3%
The department takes great care to make students feel included	
Strongly disagree	17.1%
Slightly disagree	23.8%
Neither agree or disagree	24%
Slightly agree	23.2%
Strongly agree	11.9%
I make an effort to create or foster an inclusive environment for others	
Strongly disagree	4.8%
Slightly disagree	10.4%
Neither agree or disagree	21.7%
Slightly agree	39%
Strongly agree	24%
Academic accomplishments of current graduate students are celebrated by my department	
Strongly disagree	8.1%
Slightly disagree	13.8%
Neither agree or disagree	24%
Slightly agree	38%
Strongly agree	16.1%
Professional accomplishments of current graduate students are celebrated by my department	
Strongly disagree	17%
Slightly disagree	21.5%
Neither agree or disagree	30.7%
Slightly agree	21.9%
Strongly agree	9%

Note: A higher response value indicates greater feeling of sense of community. For exact question wording, please see survey instrument in Appendix C1.

Table 18: Sexual harassment of students: Experience, type, and aggressor

Panel A: Have you experienced sexual harassment in your department?			
	Yes	Min of dept means	Max of dept means
All	25.9%	22.4%	50.0%
Female	34.5%	28.6%	63.6%
Male	18.7%	15.4%	50.0%
Panel B: Respondent has ever experienced sexual harassment by type			
		Europe	U.S.
Inappropriate or offensive comments about your or someone else's body, appearance, or sexual activities		9.4%	8.8%
Sexual remarks, jokes, or stories that were insulting or offensive to you		6.1%	5.6%
Requests to go out for dinner, have drinks, or have sex even though you said 'No'		1.5%	3.1%
Crude or gross sexual comments or tried to get you to talk about sexual matters when you did not want to		1.4%	1.9%
Email(s), text(s), phone call(s), or instant message(s) with offensive sexual remarks, jokes, stories, pictures, or videos you did not want to receive		1.1%	0.0%
Something else that makes me uncomfortable but doesn't fall into any of the other categories		14.7%	N/A
None of the above		65.6%	N/A
Panel C: Respondent has ever experienced sexual harassment by aggressor			
		Europe	U.S.
Graduate student friend or acquaintance		9.9%	11.3%
Professor		4.1%	0.6%
Adviser		0.7%	0.0%
Staff member		0.5%	0.0%
Undergraduate student friend or acquaintance		0.5%	0.6%
At the time, it was someone I was romantically involved or intimate with		0.2%	0.0%
Someone I had been romantically involved or was intimate with		0.2%	0.6%
Stranger		0.4%	1.3%
Other		0.2%	0.0%
Don't know		0.2%	0.0%

Note: Panel A shows percentage of each group of students that report having experienced one or more forms of sexual harassment from someone in their department. Panel B shows the distribution of the harassment type of all survey responses. Panel C shows the distribution of harassment aggressors of all survey responses. The U.S. data come from Bolotnyy et al. (2022). For exact question wording, please see survey instrument in Appendix C1. N/A stands for not available in Bolotnyy et al. (2022).

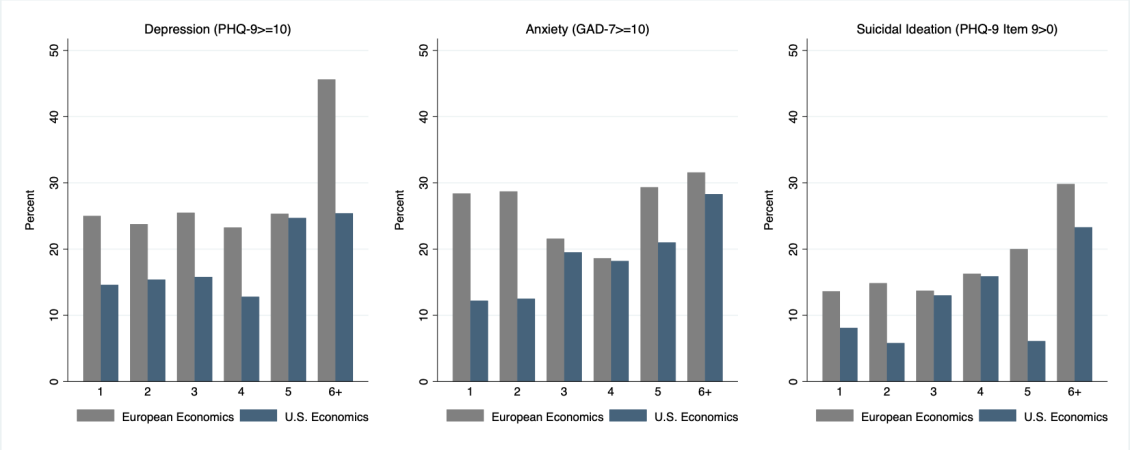
Table 19: Student survey: Has the COVID-19 pandemic impacted the following...?

Question and Answer	Percent	PHQ-9 ρ	GAD-7 ρ	PHQ-9 Item 9 ρ
Your physical/mental health		**0.164**	**0.146**	**0.038**
Not at all	38.3%			
A little	28.5%			
Moderately	18.9%			
A lot	11.9%			
To a great extent	2.3%			
Your family members'/friends' health and safety		**0.296**	**0.264**	**0.197**
Not at all	12.5%			
A little	29.8%			
Moderately	29.6%			
A lot	19.1%			
To a great extent	9%			
Your financial health		**0.115**	**0.114**	**0.025**
Not at all	24.5%			
A little	29.4%			
Moderately	29.7%			
A lot	11%			
To a great extent	5.5%			
Uncertainty about your future employment and/or job market		**0.17**	**0.13**	**0.111**
Not at all	73.5%			
A little	13.8%			
Moderately	6.6%			
A lot	4.3%			
To a great extent	1.8%			
Maintaining the viability of your research projects		**0.233**	**0.249**	**0.081**
Not at all	41.4%			
A little	26.4%			
Moderately	18.2%			
A lot	10.5%			
To a great extent	3.5%			
Managing the demands of remote work		**0.203**	**0.219**	**0.064**
Not at all	59.7%			
A little	17.7%			
Moderately	13%			
A lot	7.3%			
To a great extent	2.4%			
Your professional productivity		**0.239**	**0.142**	**0.116**
Not at all	15.4%			
A little	21.5%			
Moderately	28.7%			
A lot	24.4%			
To a great extent	10%			
Finishing your graduate program		**0.233**	**0.26**	**0.158**
Not at all	67.8%			
A little	16.1%			
Moderately	8.3%			
A lot	4.9%			
To a great extent	2.9%			
Maintaining existing or making new relationships, friendships, and social connections		**0.184**	**0.189**	**0.112**
Not at all	6.5%			
A little	17%			
Moderately	27.4%			
A lot	32.7%			
To a great extent	16.4%			
Staying connected with your Economics department		**0.177**	**0.163**	**0.108**
Not at all	11.4%			
A little	14.9%			
Moderately	27.7%			
A lot	30.8%			
To a great extent	15.1%			

Note: A higher response value indicates greater concern about the impact of COVID-19 on the item. Higher PHQ-9, GAD-7, and PHQ-9 Item 9 scores reflect worse mental health. PHQ-9 captures depressive symptoms, GAD-7 captures anxious symptoms, and PHQ-9 Item 9 captures thoughts of suicide and self-harm. Last three columns report Pearson correlation (ρ) between response to the question and each mental health measure. For exact question wording, please see survey instrument in Appendix C1.

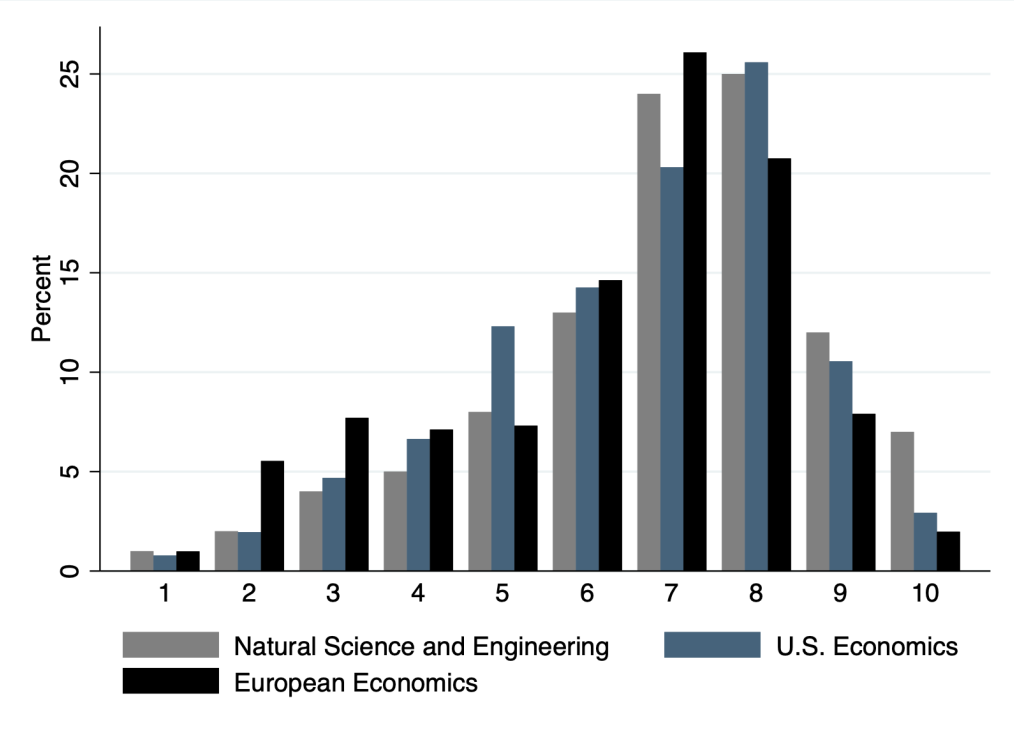
Figures

Figure 1: Prevalence of mental illness by year in graduate program in U.S. and European studies



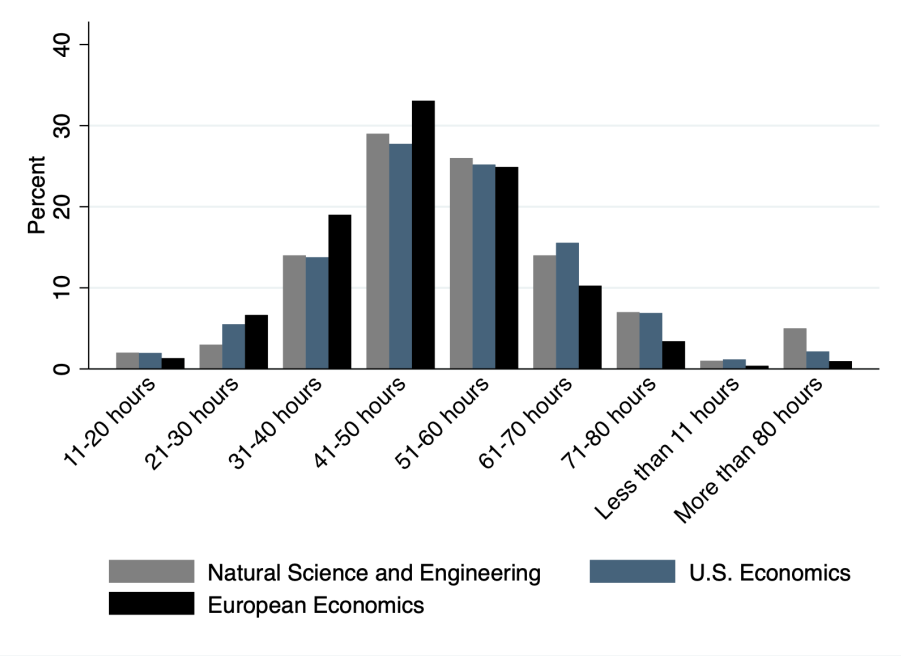
Note: PHQ-9 measures symptoms of depression. GAD-7 measures symptoms of anxiety. Symptom intensity increases as PHQ-9 and GAD-7 scores increase. Mental health professionals use a score of 10 on the PHQ-9 and the GAD-7 as a cutoff when diagnosing individuals with depression or anxiety disorder, respectively. The PHQ-9 Item 9 measures suicidality by asking on how many days over the past two weeks a student was bothered by thoughts of wanting to be dead or wanting to hurt themselves. We show here the percent of students scoring 10 or higher on the PHQ-9 and GAD-7, and the percent of students bothered by suicidal thoughts in a two week period. The x-axis shows year in the graduate program. Results for U.S. Economics come from Bolotnyy et al. (2022).

Figure 2: Student survey: On a scale of 1 to 10, where 1 = Extremely dissatisfied and 10 = Extremely satisfied, how satisfied are you with your PhD experience?



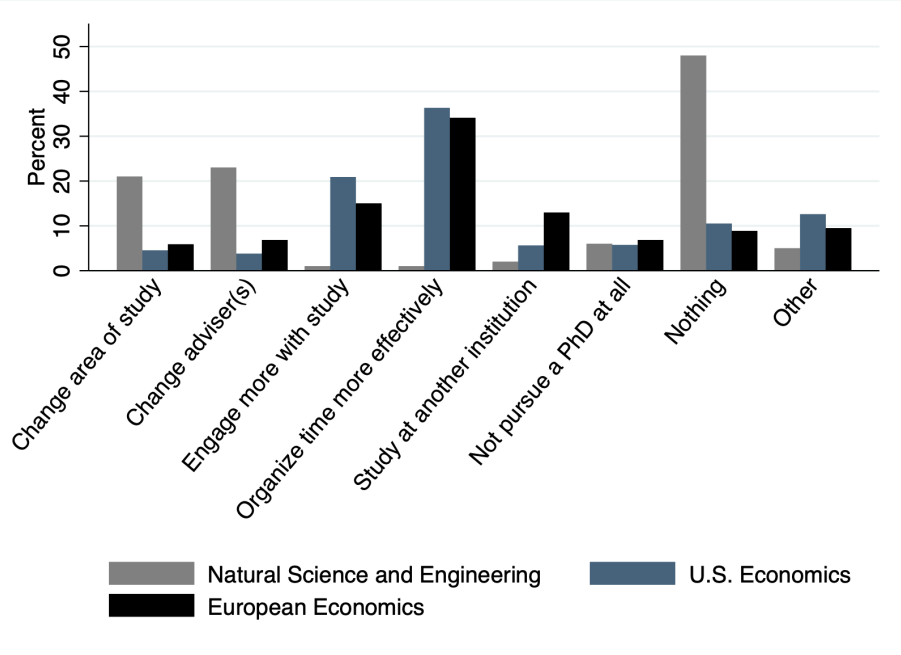
Note: Results for Natural Science and Engineering PhD students come from Woolston (2017).Results for U.S. Economics come from Bolotnyy et al. (2022).

Figure 3: Student survey: On average, how many hours a week do you typically work?



Note: Results for Natural Science and Engineering PhD students come from Woolston (2017).Results for U.S. Economics come from Bolotnyy et al. (2022).

Figure 4: Student survey: 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).Results for U.S. Economics come from Bolotnyy et al. (2022).

Appendix A: Additional Tables

Table A.1: Student Background Characteristics

	All	Male	Female
Gender Identity			
Man	59.6%	100%	0
Woman	39.4%	0	100%
Other	1%	0	0
Age			
Younger than 24	10.8%	12.1%	8.5%
25 to 29	62.4%	62.7%	62.3%
30 to 34	25.1%	23.5%	27.1%
35 to 39	1.4%	1%	2%
40 or older	0.4%	0.7%	0
Race			
Asian	12.4%	10.5%	15.8%
Black or African American	0.6%	0.7%	0.5%
Hispanic or Latino	8.3%	8.2%	8.7%
White	77.9%	81.4%	71.9%
Middle Eastern or North African	4.1%	3.6%	5.1%
Other	1.4%	1.3%	1.5%
English Language			
English is first language	8.8%	8.5%	7.9%
English is not first language	91.2%	91.5%	92.1%
Native speaker of program's country			
Is native speaker of program's country	36.3%	38.7%	32.2%
Is not native speaker of program's country	63.7%	61.3%	67.8%
Disability			
Disability	2.2%	2.3%	1.5%
No disability	97.8%	97.7%	98.5%
Sexual Orientation			
Heterosexual	89.4%	90.7%	87.8%
Bisexual	7.2%	5%	10.2%
Gay or lesbian	3.4%	4.3%	2%
Relationship Status			
Single	29.2%	33.3%	22.1%
Casual	2.5%	2%	3.5%
Dating	10.4%	10.8%	10.1%
Long-term/committed	46.1%	42.5%	51.8%
Married	10.6%	10.1%	11.6%
Divorced	0	0	0
Other	1.2%	1.3%	1%

Table A.1: (Cont.) Student Background Statistics

Living Alone			
Living alone	29.5%	32.5%	25.5%
Not living alone	70.5%	67.5%	74.5%
Children			
One or more	4.3%	3.6%	5.5%
None	95.7%	96.4%	94.5%
Father - Highest degree earned			
High school or below	18.9%	18%	20.3%
Apprenticeship	9.9%	10.2%	9.4%
Bachelor 's	16.4%	18.4%	13.9%
Master's	37%	34.4%	41.6%
PhD	17.7%	19%	14.9%
Mother - Highest degree earned			
High school or below	17.2%	19%	14.4%
Apprenticeship	13.8%	15.4%	11.4%
Bachelor 's	21.4%	18.7%	25.7%
Master's	37.4%	38%	36.6%
PhD	10.1%	8.9%	11.9%
Math courses btw. start of undergrad & PhD			
0	6.7%	5.9%	8.2%
1 or 2	26.6%	27.8%	24.5%
3 or 4	26.8%	25.5%	28.1%
5 or 6	18.1%	17.6%	19.4%
7+	21.7%	23.2%	19.9%
Straight from undergrad or master to PhD?			
Yes	52.5%	55.6%	48.2%
No	47.5%	44.4%	51.8%
Did 2-year MSc			
Yes	70.4%	69.9%	72.4%
No	29.6%	30.1%	27.6%
Positions for compensation in the last two months			
Teaching assistant	42%	43%	39.3%
Research assistant	23.2%	21.9%	25%
Grader	12.2%	12.6%	11.2%
Private Tutor	2.5%	2%	3.1%
Non-academic data scientist	2.5%	2.3%	3.1%
Other	10.3%	9.9%	10.7%
Did not work for compensation	36.9%	37.4%	37.8%

Table A.2: Student sample: Enrolled students and study participants, by program phase

	Total	Percent Female
Panel A: All Enrolled Students		
Total	1173	32.8%
Panel B: Study Participants		
Total	556	36.3%
Course Phase	189	38.6%
Dissertation Phase	320	37.8%

Note: Panel A shows the total number of students enrolled in the 14 participating departments and thus being invited to participate in the fall 2021 survey and the percentage of enrolled students who are female. Panel B shows the total number of students who took the fall 2021 survey, the percentage of respondents who are female; the number of students in the course phase and dissertation phase; and the percentage of respondents who are female by program phase.

Table A.3: Student survey: Symptom severity and mental health diagnoses

Panel A: Depression			
PHQ-9 Score	Category	Diagnosed Before	Diagnosed After
0 to 4	none-minimal	20.7%	16.7%
5 to 9	mild	26.8%	33.3%
10 to 14	moderate	34.1%	33.3%
15 to 19	moderately-severe	11%	9.3%
>=20	severe	7.3%	7.4%
Panel B: Anxiety			
GAD-7 Score	Category	Diagnosed Before	Diagnosed After
0 to 4	none-minimal	29.3%	22.2%
5 to 9	mild	26.8%	33.3%
10 to 14	moderate	26.8%	25.9%
>=15	severe	17.1%	18.5%
Panel C: Suicidality			
PHQ-9 Item 9 Score	Category	Diagnosed Before	Diagnosed After
0	not at all	69.5%	74.1%
>=1	more than zero days	30.5%	25.9%

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 Item 9 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. PHQ-9 Item 9 measures suicidality by asking on how many days over the past two weeks a student was bothered by thoughts of wanting to be dead or wanting to hurt themselves.

Table A.4: Students receiving treatment for depression, anxiety, or any mental health issue, by symptom severity

Panel A: Depression					
PHQ-9 Score	Category	Num. Students	Percent in Treatment	Min of department means	Max of department means
0 to 4	none-minimal	218	2.8%	0%	9.1%
5 to 9	mild	186	5.4%	0%	20%
10 to 14	moderate	107	11.2%	0%	18.2%
15 to 19	moderately-severe	28	3.6%	0%	50%
>=20	severe	17	47.1%	0%	100%
Panel B: Anxiety					
GAD-7 Score	Category	Num. Students	Percent in Treatment	Min of department means	Max of department means
0 to 4	none-minimal	243	5.3%	0%	20%
5 to 9	mild	169	8.3%	0%	20%
10 to 14	moderate	96	12.5%	0%	33.3%
>=15	severe	48	18.8%	0%	50%
Panel C: Suicidality					
PHQ-9 Item 9 Score	Category	Num. Students	Percent in Treatment	Min of department means	Max of department means
0	not at all	460	10.4%	0%	25%
>=1	more than zero days	96	21.9%	0%	60%

Note: PHQ-9 measures symptoms of depression. GAD-7 measures symptoms of anxiety. Symptom severity 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 Item 9 measures suicidality by asking on how many days over the past two weeks a student was bothered by thoughts of wanting to be dead or wanting to hurt themselves. Treatment in Panel A refers to treatment for depression; in Panel B, treatment for anxiety; in Panel C, treatment for any mental health issue.

Table A.5: Faculty survey: Meaningfulness of work

Question and Answer	Percent
Opportunities to fully use your talents	
Never	0.6%
Rarely	3%
Sometimes	26.7%
Most of the time	55.8%
Always	13.3%
Don't know	0.6%
Opportunities to make positive impact on community/society	
Never	3%
Rarely	10.3%
Sometimes	41.8%
Most of the time	37.6%
Always	6.7%
Don't know	0.6%
Sense of personal accomplishment	
Never	1.2%
Rarely	6.1%
Sometimes	21.8%
Most of the time	46.7%
Always	23.6%
Don't know	0.6%
Goals to aspire to	
Never	1.2%
Rarely	9.7%
Sometimes	37.6%
Most of the time	40%
Always	10.9%
Don't know	0.6%
Satisfaction of work well done	
Never	0.6%
Rarely	9.7%
Sometimes	35.2%
Most of the time	41.8%
Always	12.7%
Don't know	0
Feeling of doing useful work	
Never	1.2%
Rarely	9.1%
Sometimes	35.4%
Most of the time	46.3%
Always	7.9%
Don't know	0

Note: These questions were borrowed from the RAND American Working Conditions Survey (Maestas et al., 2015). Similar questions were asked of the students. For comparison with student responses, please see Table 9. For exact question wording, please see survey instrument in Appendix B2.

Table A.6: Faculty survey: Work issues

Question and Answer	Percent
Worried about work when not working	
Never	3%
Rarely	10.3%
Sometimes	35.8%
Most of the time	35.2%
Always	15.8%
Were too tired for activities in private life	
Never	8.5%
Rarely	26.2%
Sometimes	44.5%
Most of the time	18.3%
Always	2.4%
Were too tired to do household jobs	
Never	11.5%
Rarely	37%
Sometimes	35.2%
Most of the time	12.1%
Always	4.2%
Had difficulty making ends meet financially	
Never	10.9%
Rarely	23.6%
Sometimes	42.4%
Most of the time	20%
Always	3%
Had work prevent time with family or significant others	
Never	73.9%
Rarely	19.4%
Sometimes	5.5%
Most of the time	0%
Always	1.2%

Note: These questions were borrowed from the RAND American Working Conditions Survey (Maestas et al., 2015). For exact question wording, please see survey instrument in Appendix B2.

Table A.7: Student survey: Seminar environment

Question and Answer	Percent All	Percent Female	Percent Male
Comfortable voice a thought in a seminar setting?			
Not comfortable at all	31%	45.3%	22.9%
Somewhat comfortable	35.5%	30.3%	38.6%
Moderately comfortable	22.7%	17.4%	25.5%
Very comfortable	10.7%	7%	13.1%

Note: A higher response value indicates greater comfort and certainty. For exact question wording, please see survey instrument in Appendix B1.

Table A.8: Student survey: Discussing difficulties with advisers

Question and Answer	Percent
I would feel comfortable telling my advisers about my post-graduation plans if they were outside of academia	
Strongly disagree	13.4%
Slightly disagree	16.7%
Neither agree or disagree	18.4%
Slightly agree	24.6%
Strongly agree	26.9%
How honest can you be with advisers about difficulties with ...?	
Research progress	
Not honest at all	2%
Somewhat honest	13.3%
Moderately honest	34.2%
Very honest	50.5%
Presentations	
Not honest at all	2.4%
Somewhat honest	11.1%
Moderately honest	25.6%
Very honest	60.9%
Teaching	
Not honest at all	2.7%
Somewhat honest	11.9%
Moderately honest	20.1%
Very honest	65.2%
Refereeing	
Not honest at all	4.1%
Somewhat honest	11.8%
Moderately honest	21%
Very honest	63.1%
Co-authoring with other students	
Not honest at all	6.6%
Somewhat honest	16.5%
Moderately honest	19.8%
Very honest	57.1%
Your mental health	
Not honest at all	10.7%
Somewhat honest	22.4%
Moderately honest	24.6%
Very honest	42.3%
Your other advisers	
Not honest at all	15.4%
Somewhat honest	25.3%
Moderately honest	26.8%
Very honest	32.5%
Preparing for the job market	
Not honest at all	6.5%
Somewhat honest	18.5%
Moderately honest	25.7%
Very honest	49.3%
Your decision to get a PhD in Economics	
Not honest at all	12.6%
Somewhat honest	22.6%
Moderately honest	22.6%
Very honest	42.3%
Decisions related to starting a family	
Not honest at all	26.3%
Somewhat honest	23.5%
Moderately honest	22.9%
Very honest	27.3%
Co-authoring with these faculty	
Not honest at all	27.5%
Somewhat honest	29.9%
Moderately honest	24.4%
Very honest	18.2%
Other personal life issues	
Not honest at all	25.7%
Somewhat honest	33.7%
Moderately honest	22.3%
Very honest	18.4%

Note: A higher response value indicates greater ease of discussing non-academic career options and greater honesty with difficulties in each question category. For exact question wording, please see survey instrument in Appendix B1.

Table A.9: Student survey: Self-perception of physical and mental health

Question and Answer	Percent
How would you rate your physical health overall?	
Poor	2%
Fair	12.9%
Good	31.5%
Very good	41.2%
Excellent	12.4%
How would you rate your mental health overall?	
Poor	9.9%
Fair	29.1%
Good	33.5%
Very good	23.2%
Excellent	4.3%

Note: A higher response value indicates greater rating of physical or mental health. For exact question wording, please see survey instrument in Appendix C1.

Table A.10: Student survey: Working with others

Question and Answer	Percent
Over the last 7 days, how many days did you work in the Economics Department?	
0 days	9%
1 day	6.3%
2 days	6.1%
3 days	8.8%
4 days	14.7%
5 days	31.6%
6 days	16.8%
7 days	6.9%

Note: A higher response value indicates more days worked in the Economics Department. For exact question wording, please see survey instrument in Appendix B1.

Table A.11: Learning environment for students: Stigma of mental health

Question and Answer	Percent
Mental health is prioritized by the department	
Strongly disagree	20.8%
Slightly disagree	27.7%
Neither agree or disagree	29.1%
Slightly agree	17.9%
Strongly agree	4.4%
I believe that my department is conducive to and supportive of mental health and well-being	
Strongly disagree	13.5%
Slightly disagree	25.1%
Neither agree or disagree	29.3%
Slightly agree	24.5%
Strongly agree	7.5%
Students are encouraged to speak up about potential mental health issues	
Strongly disagree	18.9%
Slightly disagree	22.5%
Neither agree or disagree	26.8%
Slightly agree	22.9%
Strongly agree	8.9%
Students are encouraged to seek help for mental health issues through support within the department	
Strongly disagree	17.2%
Slightly disagree	20.5%
Neither agree or disagree	24.6%
Slightly agree	26.5%
Strongly agree	11.2%

Note: A higher response value indicates greater feeling of sense of community. For exact question wording, please see survey instrument in Appendix C1.

Table A.12: Learning environment for students: Inclusive learning environment

Question and Answer	Percent
The learning environment in my department is respectful and inclusive	
Strongly disagree	3.2%
Slightly disagree	11.2%
Neither agree or disagree	15.6%
Slightly agree	36.7%
Strongly agree	33.3%
The learning environment in my department promotes a sense of connectedness between graduate students and faculty	
Strongly disagree	13.3%
Slightly disagree	19%
Neither agree or disagree	20.7%
Slightly agree	24.7%
Strongly agree	22.4%
The opinions and ideas of graduate students are encouraged by faculty in my department	
Strongly disagree	6.3%
Slightly disagree	12%
Neither agree or disagree	24.1%
Slightly agree	33.1%
Strongly agree	24.5%

Note: A higher response value indicates greater feeling of an inclusive learning environment. For exact question wording, please see survey instrument in Appendix C1.

Table A.13: Faculty survey: Perceptions of relationships with students

Question and Answer	Percent
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...?	
Research progress	
Not honest at all	0.5%
Somewhat honest	14.3%
Moderately honest	41.2%
Very honest	39%
Not applicable	4.9%
Presentations	
Not honest at all	0.6%
Somewhat honest	8.9%
Moderately honest	42.2%
Very honest	43.3%
Not applicable	5%
Teaching	
Not honest at all	1.1%
Somewhat honest	10.1%
Moderately honest	44.7%
Very honest	33.5%
Not applicable	10.6%
Refereeing	
Not honest at all	1.1%
Somewhat honest	7.2%
Moderately honest	21.7%
Very honest	33.3%
Not applicable	36.7%
Co-authoring with other students	
Not honest at all	1.1%
Somewhat honest	11.1%
Moderately honest	35.6%
Very honest	33.9%
Not applicable	18.3%
Co-authoring with you	
Not honest at all	6.1%
Somewhat honest	21.7%
Moderately honest	30.6%
Very honest	18.3%
Not applicable	23.3%
Their other advisers	
Not honest at all	5.6%
Somewhat honest	28.3%
Moderately honest	41.7%
Very honest	13.9%
Not applicable	10.6%
Preparing for the job market	
Not honest at all	0.6%
Somewhat honest	7.8%
Moderately honest	36.7%
Very honest	46.1%
Not applicable	8.9%
Their decision to get a PhD in Economics	
Not honest at all	2.8%
Somewhat honest	20.8%
Moderately honest	33.1%
Very honest	33.7%
Not applicable	9.6%
Decisions related to starting a family	
Not honest at all	7.8%
Somewhat honest	23.5%
Moderately honest	27.9%
Very honest	19%
Not applicable	21.8%
Their mental health	
Not honest at all	14%
Somewhat honest	36.3%
Moderately honest	34.6%
Very honest	9.5%
Not applicable	5.6%
Other personal life issues	
Not honest at all	11.2%
Somewhat honest	40.2%
Moderately honest	31.3%
Very honest	8.9%
Not applicable	8.4%

Note: Similar questions were asked of the students. For comparison with student responses, please see Table A.8. For exact question wording, see survey instrument in Appendix B2.

Appendix B1: 2021 Fall Student Survey

Overview

Graduate Student Mental Health: A Study of European Economics Departments
Researchers: Paul Barreira, MD (Harvard University); Elisa Macchi (University of Zürich); Clara Sievert (Harvard University)

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 Europe. 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 and faculty mental health.

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 (including course phase).

The survey will take about 40 minutes to complete. At the end of the 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. The researchers will only share aggregate department-specific results with only your 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. You can find the number of your National Suicide Prevention Lifeline under this link. They are available for you if you need help.

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 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 + 857-998-7905, paul_barreira@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 +1-617-496-2847, 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 freely consent to taking part in this research.**

GDPR ADDENDUM

The researchers will collect information about you. This form calls such information your "Personal Information" and it will include your name, demographic information, your responses to any tests, surveys or procedures described in this informed consent form. It may also include information about your past and present health conditions, sexuality, substance use disorders, mental health disorders,

race, ethnicity, and sexual orientation.

If you withdraw your permission, you will no longer be able to participate in the study. No new information will be collected about you or from you by the study team. Your withdrawal has no effect on the lawfulness of the data processing that occurred prior to your withdrawal.

Your Personal Information that has already been collected to the time of your withdrawal will be kept and used to guarantee the integrity of the study and/or for any other purposes permitted under applicable data protection and privacy laws.

Your Personal Information will not be used for further research. However, if permitted by applicable law, your Personal Information may be anonymized so that the information does not identify you personally, and such anonymized information may be used for further research.

Your Personal Information will be treated in compliance with applicable data protection laws. Harvard is the controller of your Personal Information collected for this study.

Harvard and some of the other people using your Personal Information may be based in countries other than your country, including the United States. The European Commission has determined that the data protection laws of the United States do not protect personal information to the same extent as those of the European Economic Area. By signing this consent form, you consent to the transfer of your information to the U.S. Harvard and those working with Harvard will take steps to maintain the confidentiality of your Personal Information.

Harvard, the IRB(s) and IEC(s), will obtain and use your Personal Information to conduct and manage this study, and to comply with legal or regulatory requirements, including to:

- verify that the study is conducted correctly and that study data are accurate;
- answer questions from IRB(s), IEC(s), or government or regulatory agencies;
- contact you during and after the study (if necessary); and
- answer your data protection requests (if any).

Your Personal Information may also be used by the individuals and groups listed above to:

- Publish summaries of the study results in academic journals, on the internet or at educational meetings of other researchers. You will not be directly identified in any publication or report of the study. But, some journal representatives may need access to your Personal Information to verify the study results and ensure the research meets the journal's quality standards. Also, journals may require that certain data from the study that does not directly identify you (i.e., de-identified survey responses) be made available to other researchers for further research projects.
- Improve the quality, design and safety of this study and other research studies.
- Conduct additional studies with the data collected in this study to advance scientific research and public health. At this time, we do not know the specific details of these future research projects. If your Personal Information is used for additional studies, specific safeguards will be used to protect the data, which may include:

    - Using only information from which your direct identifiers have been removed instead of information that readily identifies you.
    - Limiting access to specific individuals who are obligated to keep the information confidential.
    - Using security measures to avoid data loss and unauthorized access.
    - Anonymizing the data by destroying the link between the information and your personal identifiers.

- When required by applicable law, ensuring that the scientific research has the approval of IECs, IRBs, or other similar review groups.

Harvard will retain your Personal Information (including your Coded Information) for the period necessary to fulfill the purposes outlined in this informed consent form, unless a different retention period is required or permitted by law.

Your rights related to your Personal Information collected under the study are described below. If you wish to exercise any of these rights, you must contact EEAdatasubjectrequest@harvard.edu

- You have the right to see the information being collected about you in the study.
- You have the right to correct or update your Personal Information if it is inaccurate.
- You have the right to limit the collection and use of your Personal Information under certain circumstances (for example, if you think that the information is inaccurate).
- You have the right to receive your Personal Information in a structured, common computer format (for example, in a readable text electronic file or chart) for your own purposes or for giving it to others, as required by applicable data protection laws. You may not have the right to receive your Personal Information that has been used for public interest purposes or in the exercise of official authority vested in Harvard.
- You have the right to request the deletion of your Personal Information if you are no longer participating in the study. However, there are limits on your ability to request deletion of your Personal Information. Harvard may keep and use some or all of your Personal Information if deletion would seriously impair the study (for example, if deletion would affect the consistency of study results) or if your Personal Information is needed to comply with legal requirements.
- You have the right to make a complaint to a data protection authority within the EU (http://ec.europa.eu/justice/data-protection/article-29/structure/data-protection-

authorities/index_en.htm).

Statement of Consent

☐ **My checking this box documents that I have freely given my consent to the use of Personal Information as described in this GDPR addendum.**

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

Self Ratings

How would you rate your physical health overall?

Poor ○ Fair ○ Good ○ Very Good ○ Excellent ○

How would you rate your mental health overall?

Poor ○ Fair ○ Good ○ Very Good ○ Excellent ○

Exercise

The American Heart Association (AHA) recommends the following amount of physical activity each week:

* At least 30 minutes of moderate-intensity aerobic activity at least 5 days per week for a total of 150 minutes

OR

*At least 25 minutes of vigorous aerobic activity at least 3 days per week for a total of 75 minutes; or a combination of moderate- and vigorous-intensity aerobic activity

AND

*Moderate- to high-intensity muscle-strengthening activity at least 2 days per week for additional health benefits.

In the past week, have you met the AHA recommendation?

- ◯ Yes
- ◯ No
- ◯ I am not sure

What part of the **recommendation** did you not meet? (Check all that apply)

- ☐ Number of days

- ☐ Duration of workouts
- ☐ Intensity
- ☐ Strength training
- ☐ Other, please specify

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

Have you had sleep-related treatment(s) such as sleep aids, etc. at least once in the last 7 days?

- ◯ Yes, prescription sleep aid
- ◯ Yes, non-prescription sleep aid
- ◯ Yes, other. Please specify. [ ]
- ◯ No

Physical Health

Have you ever been diagnosed with any chronic or ongoing physical health issues?

- ◯ Yes
- ◯ No

Are you currently in treatment for any chronic or ongoing physical health issue(s)?

- ◯ Yes
- ◯ No

Question on Feeling Overwhelmed

Over the last 2 weeks, how often have you felt overwhelmed?

Not at all	Several days	More than half the days	Nearly every day
◯	◯	◯	◯

Negative Event

In the past 2 months:

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

Mental Health Diagnosis & Treatment

Have you ever been diagnosed with the following:

	Yes	No	No, I have concerns but have not been clinically diagnosed
Depression	○	○	○
Anxiety	○	○	○
Panic Attacks	○	○	○
Substance Use Disorder	○	○	○
Eating Disorder	○	○	○
Any other mental health issue? If yes, please specify	○	○	○

Any other mental health issue? If yes, please specify

When was the first time you were diagnosed with the following:

	Before coming to my graduate program	Since coming to my graduate program
» Depression	○	○
» Anxiety	○	○
» Panic Attacks	○	○
» Substance Use Disorder	○	○
» Eating Disorder	○	○
» Any other mental health issue? If yes, please specify	○	○
» Any other mental health issue? If yes, please specify	○	○

Do you currently take prescription medication(s) for any of the following:

	Yes	No

» Depression	○	○
» Anxiety	○	○
» Panic Attacks	○	○
» Substance Use Disorder	○	○
» Eating Disorder	○	○
» Any other mental health issue? If yes, please specify	○	○
» Any other mental health issue? If yes, please specify	○	○

Are you currently seeing a mental health professional for any of the following:

	Yes	No	No, but I tried to seek help and was not able to find a provider	No, but I am considering seeking help
» Depression	○	○	○	○
» Anxiety	○	○	○	○
» Panic Attacks	○	○	○	○
» Substance Use Disorder	○	○	○	○

» Eating Disorder	○	○	○	○
» Any other mental health issue? If yes, please specify	○	○	○	○
» Any other mental health issue? If yes, please specify	○	○	○	○

Select which best describes your situation:

- ○ I am seeing a mental health professional at my university.
- ○ I am seeing an outside provider.
- ○ I am not seeing a mental health professional

Is the frequency that you meet with your mental health professional sufficient to work on your current concerns?

- ○ Yes
- ○ No

Do you find the sessions with your mental health professional helpful?

- ○ Yes
- ○ Somewhat

○ No

If you have not met with a mental health professional, do you want to?

○ Yes
○ No
○ Maybe

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 everyday
1. Little interest or pleasure in doing things	○	○	○	○
2. Feeling down, depressed, or hopeless	○	○	○	○
3. Trouble falling or staying asleep, or sleeping too much	○	○	○	○
4. Feeling tired or having little energy	○	○	○	○
5. Poor appetite or overeating	○	○	○	○
6. Feeling bad about yourself - or that you are a failure or have let yourself or your family down	○	○	○	○

7. Trouble concentrating on things, such as reading the newspaper or watching television	○	○	○	○
8. 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	○	○	○	○
9. Thoughts that you would be better off dead or of hurting yourself in some way	○	○	○	○

How difficult have these problems made it for you 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
1. Feeling nervous, anxious or on edge	○	○	○	○
2. Not being able to stop or control worrying	○	○	○	○

3. Worrying too much about different things	○	○	○	○
4. Trouble relaxing	○	○	○	○
5. Being so restless that it is hard to sit still	○	○	○	○
6. Becoming easily annoyed or irritable	○	○	○	○
7. Feeling afraid as if something awful might happen	○	○	○	○

How difficult have these problems made it for you 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
○	○	○	○

Mental Health effect

In the past 2 months, how often have you felt that your mental health has had a negative effect on your quality of life?

- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Very Often

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

- ◯ Yes
- ◯ No

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
◯	◯	◯	◯	◯

How many standard drinks containing alcohol do you have on a typical day?

1-2	3-4	5-6	7-9	10 or more
◯	◯	◯	◯	◯

How often do you have 6 or more drinks on one occasion?

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

Single-Question Screening Test for Drug Use

How many times in the past year have you used an illegal drug or used a prescription medication for non-medical reasons?

Loneliness

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

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

Suicidality

The following questions ask about suicidal behaviors.

If you become upset or feel any distress when you are responding to these questions, please call your national Urgent Care line. You can find your national Urgent Care line number here.

In the past year, did you ever seriously think about attempting suicide?

○ Yes

◯ No

In the past year, did you make a plan for attempting suicide?

◯ Yes
◯ No

In the past year, did you attempt suicide?

◯ Yes
◯ No

Imposter Phenomenon (IP)

For this set of questions, 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 have often succeeded on a test or task even though I was afraid that I would not do well before I undertook the task	○	○	○	○	○
I can give the impression that I'm more competent than I really am	○	○	○	○	○
I avoid evaluations if possible and have a dread of others evaluating me	○	○	○	○	○
When people praise me for something I've accomplished, I'm afraid I won't be able to live up to their expectations of me in the future	○	○	○	○	○
I sometimes think I obtained my present position or gained my present success because I happened to be in the right place at the right time or knew the right people	○	○	○	○	○
	Not At All True	Rarely True	Sometimes True	Often True	Very True
I'm afraid people important to me may find out that I'm not as capable as they think I am	○	○	○	○	○

I tend to remember the incidents in which I have not done my best more than those times I have done my best	○	○	○	○	○
I rarely do a project or task as well as I'd like to do it	○	○	○	○	○
Sometimes I feel or believe that my success in my life or in my job has been the result of some kind of error	○	○	○	○	○
It's hard for me to accept compliments or praise about my intelligence or accomplishments	○	○	○	○	○

	Not At All True	Rarely True	Sometimes True	Often True	Very True
At times, I feel my success has been due to some kind of luck.	○	○	○	○	○
I'm disappointed at times in my present accomplishments and think I should have accomplished much more.	○	○	○	○	○

I'm often afraid that I may fail at a new assignment or undertaking even though I generally do well at what I attempt.	○	○	○	○	○
When I've succeeded at something and received recognition for my accomplishments, I have doubts that I can keep repeating that success.	○	○	○	○	○
If I receive a great deal of praise and recognition for something I've accomplished, I tend to discount the importance of what I've done.	○	○	○	○	○

	Not At All True	Rarely True	Sometimes True	Often True	Very True
I often compare my ability to those around me and think they may be more intelligent than I am.	○	○	○	○	○
I often worry about not succeeding with a project or examination, even though others around me have considerable confidence that I will do well.	○	○	○	○	○

If I'm going to receive a promotion or gain recognition of some kind, I hesitate to tell others until it is an accomplished fact.	○	○	○	○	○
Sometimes I'm afraid others will discover how much knowledge or ability I really lack.	○	○	○	○	○
I feel bad and discouraged if I'm not "the best" or at least "very special" in situations that involve achievement.	○	○	○	○	○

Adviser

In the last 2 months, 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)

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	○	○	○	○	○
Presentations	○	○	○	○	○
Teaching	○	○	○	○	○
Refereeing	○	○	○	○	○
Co-authoring with other students	○	○	○	○	○
Co-authoring with these faculty	○	○	○	○	○
Your other advisers	○	○	○	○	○
Preparing for the job market	○	○	○	○	○
Your decision to get a PhD in economics	○	○	○	○	○
Decisions related to starting a family	○	○	○	○	○
Your mental health	○	○	○	○	○
Other personal life issues	○	○	○	○	○

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	○	○	○	○	○
Presentations	○	○	○	○	○
Teaching	○	○	○	○	○
Refereeing	○	○	○	○	○
Co-authoring with other students	○	○	○	○	○
Co-authoring with these faculty	○	○	○	○	○
Your other advisers	○	○	○	○	○
Preparing for the job market	○	○	○	○	○
Your decision to get a PhD in economics	○	○	○	○	○
Decisions related to starting a family	○	○	○	○	○
Your mental health	○	○	○	○	○
Other personal life issues	○	○	○	○	○

Think of your Economics Department faculty members with whom you've met in the last 2 months. Listed below are statements about working with them. In this section we will refer to them as your advisers. Please rate the degree to which you agree or disagree with each statement.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderately Agree	Strongly Agree
My advisers really care about my well-being.	○	○	○	○	○
The number of times I have met with my advisers over the past year was sufficient to meet my needs (first year students - respond to number of times since entering the program)	○	○	○	○	○

I would feel comfortable telling my advisers about my post-graduation plans if they were outside of academia	○	○	○	○	○
Even if I did the best job possible, my advisers would fail to notice.	○	○	○	○	○
If I had difficulties in my program, I would be inclined to keep them from my advisers.	○	○	○	○	○

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

○ Yes
○ No

Faculty

Listed below are statements about working with FACULTY in your department (other than your adviser). Please rate the degree to which you agree or

disagree with each statement.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderately Agree	Strongly Agree
I have at least one faculty member in my department aside from my adviser from whom I can seek advice and guidance.	○	○	○	○	○
I believe that the faculty in my department would be supportive of me if a mental health or wellbeing-related issue interfered with my work.	○	○	○	○	○
I believe that the faculty in my department care about my mental health and well-being.	○	○	○	○	○

When I seek advice from a faculty member, I feel I come away feeling I have been heard and with productive steps to move forward (skip question if this does not apply to you)	○	○	○	○	○
If I had difficulties in my program, I would be inclined to keep them from faculty in my department.	○	○	○	○	○

Listed below are statements about your preparation for POST-GRADUATE LIFE. Please rate the degree to which you agree or disagree with each statement.

Strongly	Slightly/Moderately	Somewhat	Slightly/Moderately	Strongly

	Disagree	Disagree	disagree	Agree	Agree
In applying to this program, I was aware of the career outcomes of the department's recent graduates	○	○	○	○	○
Faculty are proactive in helping students develop professional networks	○	○	○	○	○
There are professional development opportunities in my department that help prepare students for the job search	○	○	○	○	○
Faculty are aware of the challenges facing current students entering the job market	○	○	○	○	○

Peer Support

Listed below are statements that represent possible opinions that you may have about your PEERS.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderately Agree	S
I have friendly relationships with other graduate students in my department	○	○	○	○	
I have friendly relationships with other graduate students outside of my department	○	○	○	○	
There is at least one peer in my department that I feel like I can turn to if I need help	○	○	○	○	
I have a personal support network (at my university or elsewhere) to help me through mental health challenges	○	○	○	○	

I believe that my peers in my department care about my mental health and well-being	○	○	○	○

Peer Support 2

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 or more

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

- ○ Never
- ○ Rarely
- ○ Sometimes
- ○ Often
- ○ Very Often

Inclusive Learning Environment

Listed below are statements about the LEARNING ENVIRONMENT in your department. Please rate the degree to which you agree or disagree with each statement.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderately Agree
The learning environment in my department is respectful and inclusive	○	○	○	○
The learning environment in my department promotes a sense of connectedness between graduate students and faculty	○	○	○	○
The opinions and ideas of graduate students are encouraged by faculty in my department	○	○	○	○

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

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	◯	◯	◯	◯	◯	◯
Opportunities to make positive impact on community/society	◯	◯	◯	◯	◯	◯
Sense of personal accomplishment	◯	◯	◯	◯	◯	◯
Goals to aspire to	◯	◯	◯	◯	◯	◯
Satisfaction of work well done	◯	◯	◯	◯	◯	◯
Feeling of doing useful work	◯	◯	◯	◯	◯	◯

Job & Teaching

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, what position(s) have you held for compensation? (Select all that apply)

- ☐ Teaching Assistant
- ☐ Grader
- ☐ Research Assistant
- ☐ Private tutor
- ☐ Non-academic data scientist
- ☐ Other
- ☐ Did not work for compensation

WorkLife Balance

Listed below are statements about WORK-LIFE BALANCE. Please rate the degree to which you agree or disagree with each statement.

Neither

	Strongly Disagree	Slightly/Moderately Disagree	Agree nor Disagree	Slightly/Moderately Agree	S
I feel like I have more to do than I can comfortably handle	○	○	○	○	
I feel like I can't say no to others in my department when being asked to take on more work responsibilities than I am comfortable with	○	○	○	○	

Progress

Listed below are statements about your PROGRESS TO DEGREE. Please rate the degree to which you agree or disagree with each statement.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderately Agree	Stro Ag
I am on track to complete my degree program on time	○	○	○	○	(

I am well-prepared for the work required to complete my program	○	○	○	○	(
I felt well-prepared when I took my general exam/qualifying exam/etc. (leave blank if this does not apply to you)	○	○	○	○	(
I feel like I receive the feedback necessary to understand whether or not I am on track with my progress	○	○	○	○	(
I feel that my mental health has had a negative effect on my progress in the Ph.D. program	○	○	○	○	(

Sense of Community

Listed below are statements about the SENSE OF COMMUNITY in your department. Please rate the degree to which you agree or disagree with each statement.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderat Agree
There is a strong sense of community in my graduate program	○	○	○	○
The department takes great care to make students feel included	○	○	○	○
I make an effort to create or foster an inclusive environment for others.	○	○	○	○

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderat Agree
Academic accomplishments of current graduate students are celebrated by my department	○	○	○	○
Professional accomplishments of current graduate students are celebrated by my department	○	○	○	○

Stigma

Listed below are statements about how your department views issues about MENTAL HEALTH. Please rate the degree to which you agree or disagree with each statement.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderat Agree
Mental health is prioritized by the department	○	○	○	○
I believe that my department is conducive to and supportive of mental health and well-being.	○	○	○	○

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderat Agree
Students are encouraged to speak up about potential mental health issues	○	○	○	○
Students are encouraged to seek help for mental health issues through support within the department	○	○	○	○

Brief Inventory of Thriving (BIT)

Please indicate your agreement or disagreement with each of the following statements using the scale below.

	Strongly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Strongly Agree
My life has a clear sense of purpose	○	○	○	○	○
I am optimistic about my future	○	○	○	○	○
My life is going well	○	○	○	○	○
I feel good most of the time	○	○	○	○	○
What I do in life is valuable and worthwhile	○	○	○	○	○

	Strongly Disagree	Slightly Disagree	Neither Agree nor Disagree	Slightly Agree	Strongly Agree
I can succeed if I put my mind to it	○	○	○	○	○
I am achieving most of my goals	○	○	○	○	○
In most activities I do, I feel energized	○	○	○	○	○
There are people who appreciate me as a person	○	○	○	○	○
I feel a sense of belonging in my community	○	○	○	○	○

Stress

Please indicate the extent to which each of the following had been a source of stress during the past year (extensive, somewhat, not at all, not applicable)

	Not at all	Somewhat	Extensive	N/A
Making time for my personal life	○	○	○	○
Balancing academic work with other responsibilities	○	○	○	○
Managing my time	○	○	○	○

	Not at all	Somewhat	Extensive	N/A
Managing my relationship with my adviser	○	○	○	○
Managing personal relationships at home	○	○	○	○
Managing relationships with peers in my department/lab	○	○	○	○
Managing relationships with faculty in the department	○	○	○	○

	Not at all	Somewhat	Extensive	N/A

Finding funding	○	○	○	○
Being unsure what is expected of me by my adviser	○	○	○	○
Passing my qualifying exams	○	○	○	○
Finding a dissertation topic	○	○	○	○
Putting together a dissertation committee	○	○	○	○
Finishing my dissertation	○	○	○	○
Finding a job after graduate school	○	○	○	○
Tenure Status of adviser	○	○	○	○

	Not at all	Somewhat	Extensive	N/A
Financial difficulties	○	○	○	○
Paying off debt/loans	○	○	○	○
Food Insecurity	○	○	○	○
World events (politics, climate issues, Covid-19, etc.)	○	○	○	○
Access to safe and affordable housing	○	○	○	○
Personal health issues	○	○	○	○
Issues pertaining to visas	○	○	○	○

Other (Please specify):

	○	○	○	○	

Microaggressions

Please indicate your agreement or disagreement with each of the following statements.

	Strongly Disagree	Slightly/Moderately Disagree	Neither Agree nor Disagree	Slightly/Moderately Agree	Str Ag
I feel ignored in my department because of my identity (race/ethnicity, gender, nationality, sexuality/orientation, disability, etc.)	○	○	○	○	(
I feel my contributions are dismissed or devalued because of how other perceive me/my identity	○	○	○	○	(
I feel people in my department make assumptions about my intelligence and abilities because of how they perceive me/identity	○	○	○	○	(

Environmental Questions Title IX

These next questions ask about situations in which a student, faculty member, staff member, or someone else associated with your 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 the 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"

- ☐ Something else that makes me uncomfortable but doesn't fall into any of the other categories
- ☐ None of the above

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 romantically involved or intimate with
- ☐ Someone I had been romantically involved or was intimate with
- ☐ Professor
- ☐ Adviser
- ☐ Staff member
- ☐ Graduate student friend or acquaintance
- ☐ Undergraduate student friend or acquaintance
- ☐ Stranger
- ☐ Other
- ☐ Don't know

G-Year Question

The following questions will help us determine if rates of anxiety, depression, or other mental health issues differ by year in the program and other demographic characteristics.

All responses are anonymous, all data will be reported in the aggregate, and the data will not be used to identify individuals in any way. Data will not be

reported when group size is less than 10.

Please select in which year of the program you are.

- ◯ 1
- ◯ 2
- ◯ 3
- ◯ 4
- ◯ 5
- ◯ 6
- ◯ 7
- ◯ 8
- ◯ 9+
- ◯ graduated

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?

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 (Please specify.)

Demographics

The following questions will help us determine if rates of anxiety, depression,

or other mental health issues vary by demographic groups. All responses are anonymous, all data will be reported in the aggregate, and the data will not be used to identify individuals in any way.

Were you the first generation in your family to attend university (first generation university student)?

- ◯ Yes
- ◯ No

Which of the following best describes you. (Select all that apply)

- ☐ Asian (including Indian subcontinent and Philippines)
- ☐ Black (including Africa and Caribbean)
- ☐ Hispanic or Latino
- ☐ White
- ☐ Middle Eastern or North African
- ☐ Other (Please specify) [ ]

Are you a citizen or permanent resident of the country where your program is set?

- ◯ Yes
- ◯ No

How old are you?

- ◯ 24 years or younger
- ◯ 25-29
- ◯ 30-34
- ◯ 35-39
- ◯ 40 years or older

Is English your first language?

- ◯ Yes
- ◯ No

Is your mother tongue the same language as of the country your program is set in?

- ◯ 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 children under the age of 18 or dependents that live with you at home?

- ◯ Yes
- ◯ No

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
- ◯ Apprenticeship
- ◯ Bachelor's
- ◯ Master's degree or Diploma
- ◯ PhD or Doctorate

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
- ◯ Apprenticeship
- ◯ Bachelor's
- ◯ Master's degree or Diploma
- ◯ PhD or Doctorate

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 complete a 2-year MSc Degree?

- ◯ Yes
- ◯ No

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

- ◯ Yes
- ◯ No

MH perception

Think of the students including yourself who are taking this survey at your Department. What percentage of these students stated that during the last two weeks they ...

Please provide your best guess.

	0	10	20	30	40	50	60	70	80	90	100	
Felt down, depressed, or hopeless more than half the days?												
Felt nervous, anxious or on edge more than half the days?												

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

- ◯ Better
- ◯ Worse

Covid

Has the Covid-19 pandemic impacted the following...?

	Not at all	A little	Moderately	A lot	To a great extent
Your physical health	◯	◯	◯	◯	◯
Your mental health	◯	◯	◯	◯	◯

Your family members' friends health and safety	○	○	○	○	○
Your financial health	○	○	○	○	○
Your future employment and/or job market prospects	○	○	○	○	○
Viability of your research projects	○	○	○	○	○
Your professional productivity	○	○	○	○	○
Your graduation decision	○	○	○	○	○
Maintaining existing or making new relationships, friendships and social connections	○	○	○	○	○
Staying connected with your Economics department	○	○	○	○	○
Other: Please specify.	○	○	○	○	○

What is your single greatest professional-related concern right now (if any)?

Dept

Last question: Which Economics Department are you at?

Appendix B2: 2021 Fall Faculty Survey

Overview & ID

Graduate Student Mental Health: A Study of European Economics Departments
Researchers: Paul Barreira, MD (Harvard University); Elisa Macchi (University of Zürich); Clara Sievert (Harvard University)

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 Europe. The faculty survey portion of the study will help supplement the graduate student study by shedding additional light on faculty-student relationships and faculty mental health.

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

This survey should take about 10 to 15 minutes to complete. It is intended for all tenured or tenure-track or non-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. The researchers will only share aggregate department-specific results with only 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 issues related to mental health has some psychological risk.

Benefits

We cannot promise any benefits to you or others from your taking part in this research. However, possible benefits include faculty's and 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 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 857-998-7905; 75 Mt. Auburn Street,

Cambridge, MA 02138; paul_barreira@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 for EMHS faculty consent form PDF

Signature

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

GDPR ADDENDUM

The researchers will collect information about you. This form calls such information your "Personal Information" and it will include your name, demographic information, your responses to any tests, surveys or procedures described in this informed consent form. It may also include information about your past and present health conditions, sexuality, substance use disorders, mental health disorders, race, ethnicity, and sexual orientation.

If you withdraw your permission, you will no longer be able to participate in the study. No new information will be collected about you or from you by the study team. Your withdrawal has no effect on the lawfulness of the data processing that occurred prior to your withdrawal.

Your Personal Information that has already been collected to the time of your withdrawal will be kept and used to guarantee the integrity of the study and/or for any other purposes permitted under applicable data protection and privacy laws.

Your Personal Information will not be used for further research. However, if permitted by applicable law, your Personal Information may be anonymized so that the information does not identify you personally, and such anonymized information may be used for further research.

Your Personal Information will be treated in compliance with applicable data protection laws. Harvard is the controller of your Personal Information collected for this study.

Harvard and some of the other people using your Personal Information may be based in countries other than your country, including the United States. The European Commission has determined that the data protection laws of the United States do not protect personal information to the same extent as those of the European Economic Area. By signing this consent form, you consent to the transfer of your information to the U.S. Harvard and those working with Harvard will take steps to maintain the confidentiality of your Personal Information.

Harvard, the IRB(s) and IEC(s), will obtain and use your Personal Information to conduct and manage this study, and to comply with legal or regulatory requirements, including to:

- verify that the study is conducted correctly and that study data are accurate;

- answer questions from IRB(s), IEC(s), or government or regulatory agencies;
- contact you during and after the study (if necessary); and
- answer your data protection requests (if any).

Your Personal Information may also be used by the individuals and groups listed above to:

- Publish summaries of the study results in academic journals, on the internet or at educational meetings of other researchers. You will not be directly identified in any publication or report of the study. But, some journal representatives may need access to your Personal Information to verify the study results and ensure the research meets the journal's quality standards. Also, journals may require that certain data from the study that does not directly identify you (i.e., de-identified survey responses) be made available to other researchers for further research projects.
- Improve the quality, design and safety of this study and other research studies.
- Conduct additional studies with the data collected in this study to advance scientific research and public health. At this time, we do not know the specific details of these future research projects. If your Personal Information is used for additional studies, specific safeguards will be used to protect the data, which may include:

    - Using only information from which your direct identifiers have been removed instead of information that readily identifies you.

- Limiting access to specific individuals who are obligated to keep the information confidential.
- Using security measures to avoid data loss and unauthorized access.
- Anonymizing the data by destroying the link between the information and your personal identifiers.
- When required by applicable law, ensuring that the scientific research has the approval of IECs, IRBs, or other similar review groups.

Harvard will retain your Personal Information (including your Coded Information) for the period necessary to fulfill the purposes outlined in this informed consent form, unless a different retention period is required or permitted by law.

Your rights related to your Personal Information collected under the study are described below. If you wish to exercise any of these rights, you must contact EEAdatasubjectrequest@harvard.edu

- You have the right to see the information being collected about you in the study.
- You have the right to correct or update your Personal Information if it is inaccurate.
- You have the right to limit the collection and use of your Personal Information under certain circumstances (for example, if you think that the information is inaccurate).
- You have the right to receive your Personal Information in a structured, common computer format (for example, in a readable text electronic file or chart) for your own purposes or for giving it to

others, as required by applicable data protection laws. You may not have the right to receive your Personal Information that has been used for public interest purposes or in the exercise of official authority vested in Harvard.

- You have the right to request the deletion of your Personal Information if you are no longer participating in the study. However, there are limits on your ability to request deletion of your Personal Information. Harvard may keep and use some or all of your Personal Information if deletion would seriously impair the study (for example, if deletion would affect the consistency of study results) or if your Personal Information is needed to comply with legal requirements.
- You have the right to make a complaint to a data protection authority within the EU (http://ec.europa.eu/justice/data-protection/article-29/structure/data-protection-authorities/index_en.htm).

Statement of Consent

☐ **My checking this box documents that I have freely given my consent to the use of Personal Information as described in this GDPR addendum.**

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

Advising

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/d not meet wit students
Research progress	○	○	○	○	○
Presentations	○	○	○	○	○
Teaching	○	○	○	○	○
Refereeing	○	○	○	○	○
Co-authoring with other students	○	○	○	○	○
Co-authoring with you	○	○	○	○	○
Their other advisers	○	○	○	○	○
Preparing for the job market	○	○	○	○	○
Their decision to get a PhD in economics	○	○	○	○	○

Their decisions related to starting a family	○	○	○	○	○
Their mental health	○	○	○	○	○
Their other personal life issues	○	○	○	○	○

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

From your impressions, please rank the years of the Economics PhD program by the level of strain on mental health experienced by the average student. 1 = highest level of strain, 7 = lowest level of strain.

	1	2	3	4	5	6	7
1st year	○	○	○	○	○	○	○
2nd year	○	○	○	○	○	○	○

3rd year	○	○	○	○	○	○	○
4th year	○	○	○	○	○	○	○
5th year	○	○	○	○	○	○	○
6th year	○	○	○	○	○	○	○
7th+ year	○	○	○	○	○	○	○

Think of the students who are taking the graduate student mental health survey at your Department. What percentage of these students stated that during the last two week they ...

Please provide your best guess.

	0 10 20 30 40 50 60 70 80 90 100	
Felt down, depressed, or hopeless more than half the days?	○	▭
Felt nervous, anxious or on edge more than half the days?	○	▭

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	○	○	○	○	○	○
Opportunities to make positive impact on community/society	○	○	○	○	○	○
Sense of personal accomplishment	○	○	○	○	○	○
Goals to aspire to	○	○	○	○	○	○
Satisfaction of work well done	○	○	○	○	○	○
Feeling of doing useful work	○	○	○	○	○	○

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	○	○	○	○	○
Were too tired for activities in private life	○	○	○	○	○
Were too tired to do household jobs	○	○	○	○	○
Had difficulty making ends meet financially	○	○	○	○	○
Had work prevent time with family or significant others	○	○	○	○	○

PHQ-9

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

	More than half the	Nearly

	Not at all	Several days	days	everyday
1. Little interest or pleasure in doing things	○	○	○	○
2. Feeling down, depressed, or hopeless	○	○	○	○
3. Trouble falling or staying asleep, or sleeping too much	○	○	○	○
4. Feeling tired or having little energy	○	○	○	○
5. Poor appetite or overeating	○	○	○	○
6. Feeling bad about yourself - or that you are a failure or have let yourself or your family down	○	○	○	○
7. Trouble concentrating on things, such as reading the newspaper or watching television	○	○	○	○
8. 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	○	○	○	○
9. Thoughts that you would be better off dead or of hurting yourself in some way	○	○	○	○

How difficult have these problems made it for you 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
1. Feeling nervous, anxious or on edge	○	○	○	○
2. Not being able to stop or control worrying	○	○	○	○
3. Worrying too much about different things	○	○	○	○
4. Trouble relaxing	○	○	○	○
5. Being so restless that it is hard to sit still	○	○	○	○
6. Becoming easily annoyed or irritable	○	○	○	○
7. Feeling afraid as if something awful might happen	○	○	○	○

How difficult have these problems made it for you 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
○	○	○	○

Demographics

What is your level of seniority in the department?

- ○ On tenure track
- ○ Non-tenure track
- ○ Tenured

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

☐

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?

☐

How strongly do you agree with the following statement?

I have very good friends at my Economics Department.

○ Strongly agree
○ Agree
○ Neither agree nor disagree
○ Disagree

○ Strongly disagree

Advice

This our last question.

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