

Department of Economics

Academic Program Review

2016

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PART A

REQUIRED BACKGROUND INFORMATION FOR REVIEW COMMITTEE

Section I: Overview of Organization

Mission & Organizational Structure

Our primary missions are to conduct research to extend the frontiers of our understanding of the national and world economy, and to transmit knowledge of those frontiers to future generations through education at both graduate and undergraduate levels.

In the undergraduate program, we aim to help our students to develop a conceptual framework for thinking about and analyzing economic problems of choice and scarcity. This is what our late colleague, Paul Heyne, called "an economic way of thinking". We believe that this approach has applications that go beyond our courses, and helps students understand the problems and challenges faced by all individuals and organizations, from families to governments, within our society. More specifically, we want our students to think analytically, to develop a variety of problem-solving skills, to learn to access key economic data sources, to acquire the statistical and quantitative knowledge needed to undertake and understand empirical research, and to learn how to use the appropriate tools of information technology in this pursuit. Finally we want our students to learn to express their ideas, methods, and results clearly and precisely, both orally and in writing.

The ultimate goal of the PhD program is to develop professional economists for a variety of careers by equipping them to do original research using advanced learning methodologies. The objectives and the broad curriculum structure of our doctoral program are the same as those in the vast majority of economics doctoral programs, and especially those of our peers. The doctoral program prepares students to undertake original research, advanced study, and instructional responsibilities as academic economists at universities and colleges, or to undertake original and applied research as economists in organizations like the Federal Reserve System, international organizations such as the World Bank and IMF, government agencies in the US and abroad, and financial firms or other firms that have an economics research division.

Undergraduate and graduate degrees offered

The Department of Economics offers two undergraduate degrees, a Bachelor of Arts and a Bachelor of Science as well as a Departmental Honors Program. The BA provides an excellent preparation for a wide array of jobs, in the private and public sectors, and for graduate study in a variety of fields, such as law, business administration and public policy. It offers flexibility to students who take related and complementary courses in other Social Sciences. The BS prepares students for employment in technical and scientific areas, and is most suitable for graduate studies in economics and related fields such as finance, operation research, and statistics or computer science. The Departmental Honors Program allows our gifted students to carry out more advanced research under a faculty adviser preparing them well for research oriented jobs or for graduate school.

The number of undergraduate majors increased significantly from 461 majors in Spring 2000 to 967 majors in Spring 2009. Since that was too high a number of students for us to handle given the size of the faculty, we became a competitive major, which allowed us to control the number of students admitted each quarter. More details about this is provided later in section IV. The first set of students admitted under a competitive major was Autumn 2010, and by 2012-2013, we were able to reach a

steady-state at between 700-750 majors (during our enrollment peak at spring quarter). The pattern of our graduation rates mirror our enrollment rates.

The enrollment and graduation data is in Appendix A.

The PhD degree requires a minimum of 90 credits, including at least 18 of which are numerically graded and 18 of which are at the 500-level or above. Students must successfully complete a general and final exam, and submit an approved dissertation. Additionally, the Economics Department requires students to pass core exams in micro- and macroeconomics after the first year, and at least one field exam in a chosen field after the second year.

The department does not admit students to an MA degree (with rare exceptions for students pursuing a concurrent UW degree), but there are two tracks for MA completion: (a) Sequential – students continuing in the PhD program can receive an MA by completing all core and field requirements (the first two years of the PhD program). (b) Terminal – students who are unable to complete core or field requirements, or who choose to leave the program without earning a PhD, can receive an MA by completing the first two years of coursework (but not the core or field exams) and a 6 credit internship.

Graduate program enrollment is relatively stable, generally within the range of 90-110, and the department typically targets an incoming class of around 18-20 students. Enrollment and graduation data are shown in Appendix A.

Organizational chart and shared governance.

The organizational chart for the non-academic staff is provided in Appendix B

The various committees in the Department are presented in Appendix F.

The Department Executive Committee advises the Chair, but major personnel decisions are taken by vote in faculty meetings. In recent years, the Executive committee has consisted of elected and ex officio members representing the key administrative committees. For this academic year, the Program Evaluation Committee has replaced the Executive Committee. In addition to the ex officio members, the committee has been expanded to include representation by senior faculty from the major fields in the Department. The Department Administrator plays a critical role in running the department and is a key source of advice for the Chair.

The Graduate Program Committee, appointed by the Chair, consists of four faculty members, a professional staff member, who is the Academic Counselor, and two graduate student representatives. The placement officer helps with PhD candidates on the job market. The Counselor plays a critical role in all aspects of the program.

The Undergraduate Program Committee, appointed by the Chair, consists of four faculty members and two professional staff members. The Counselors play a critical role in advising students and managing one of the largest majors in the University.

The Outreach Committee, appointed by the Chair, consists of two faculty members, and two professional staff members (the Administrator and an Outreach Officer/Coordinator). The Outreach Director, who is also the de facto Associate Chair of the Department, runs the committee with the advice of the members. The Outreach Coordinator plays a critical role in managing our very successful outreach efforts with a large alumni and the highly effective Department Visiting Committee.

The Committee on Access for Under-represented Students in Economics, appointed by the Chair, consists of two faculty members and a professional staff member, who is also one of the two undergraduate Academic Counselors. The focus of this committee is to address the low enrollment of

under-represented students in the major, the weakest link for their low representation in all layers of the discipline.

In addition, several other committees are also appointed by the Chair. The Technology Committee consists of two faculty, and two professional staff. Seminars in various fields are run by Seminar Coordinators. There is also a Research Director. Various ad hoc committees are appointed during the year. For example, this year there was the empirical micro recruiting committee consisting of four senior faculty members, and there was also a three-member committee to study the feasibility of a fee-based master program.

Budget & Resources

A summary of the budget allocations is reported in Appendix C.

The Department is facing a crisis with its budget due to recent raises in TA salaries. If not for unplanned budget cuts, the GOF allocation to Departments largely tracks employee salaries. There is little discretion in spending the GOF allocation, which is mainly managed and monitored by the Administrator. However, TA salaries have increased rapidly in recent years, while the GOF allocation has not been increased sufficiently to cover the increases. This shortfall will significantly affect our graduate program and several other services covered by the GOF allocation. But, the most serious implication is on our ability to provide adequate undergraduate classes, especially at the introductory level if this budget situation is not addressed.

In the last ten years, the Economics Department has employed a very consistent number of TAs each year, from a low of 147 in the 2012-13 year to a high of 155 in 2009-10. Each year, these TAs are responsible for teaching more than 6000 undergraduate students through quiz section and independent classes, with 80% at the introductory level, and the rest at the intermediate level. During the salary freeze, which lasted until July 1, 2013, the starting salary for TAs was \$1525/month. The TA Union negotiated a much needed increase in TA salaries, such that the starting salary is now \$2060/month, an increase of 35%. While this increase has been immensely valuable to the TAs themselves and have made it much easier for us to recruit strong PhD students, there has not been a corresponding increase in the funds given to the department to pay TA salaries leaving a 10-15% shortfall in each of the previous three years. Assuming this was a temporary setback for the College, while it adjusted to higher TA salaries, the Department largely relied on faculty leave-recapture funds to make up for the shortfall in each previous year. This year, 2015-16, with very little leave recapture funds, coupled with a further increase in TA salaries and a cut back on College support to departments, we are facing a 24% shortfall. Next academic year, the prospect is even worse. Unless addressed, it will severely affect our graduate students, and the quality of instruction will be significantly affected for up to 6000 undergraduate students across many disciplines who need to take economics classes with TAs.

As a general point of concern, we are at risk of losing some important and highly experienced staff. Since there is little scope for career advancement within a unit, valuable staff need to switch units in order to get promotions and significant raises. While this policy makes sense to some extent, there is loss of precious unit-specific knowledge, and it is particularly frustrating when incoming staff are recruited at higher salaries than the ones who left. We hope Departments will be given a favorable hearing when requesting salary increases for internal staff retentions.

The UW Office of Annual Giving mails donor and alumni solicitations on behalf of the department twice per year. The UW Student Calling program makes renewal request calls to all donors to. Performance of this unit regularly results in approximately \$8-10,000 in gifts to department funds. The College of Arts & Sciences has dedicated fundraisers who work on behalf of the Social Sciences.

The Department has been somewhat of a pioneer in the College with its outreach efforts. The Economics Visiting Committee (VC) plays a critical role and more details about this energetic and effective group is presented in Section IV. The department has also been successful in raising support for faculty through endowed Professorships and Chairs, and for students through endowed student scholarships and fellowships. In the last 10 years, seven professorships have been endowed and have invested or are in the process of investing: Cressey, Glaser, Nelson, Richards, Corkery, Brimmer and Milliman. Of these, two have living donors that may choose to continue supporting their named endowments. Seven student support endowments have also been created and funded in the past decade: Bogdan, Corkery, Wallin, Yang, Wesley, Dvorak, and Kahl. Two of these seven scholarships have living donors who continue to fund their scholarship endowments and play an active role in alumni outreach efforts.

Social media is also instrumental in outreach and annual giving efforts, providing followers with timely and compelling updates about the people and programs in the department (see Appendix K).

Academic Unit Diversity

Economics studies how societies work, grow, and thrive. As such, the questions of diversity - of how we might increase political representation and economic power for women, ethnic minorities, the poor, and the disabled; of how these groups contribute to, and benefit from, economic growth – are essentially economic questions. These questions, however, can only be answered well if this Department places a consistent emphasis upon access to economic education for all members of society. We do, and should, place value on increasing opportunities for scholars who are women, members of under-represented ethnic groups, and among the economically disadvantaged to contribute to the conversation.

Faculty and Staff Diversity: The department's greatest success in diversity is the representation of women in the department. Eleven out of our twenty eight full time faculty are women (39%): four of them are of the assistant professor rank (67%), two are associates (50%), and two are full professors (13%). We also have two female principal lecturers and one lecturer (60% of full time non-tenure track faculty). Female faculty members play leadership roles in the Department. The Graduate Program Director and the Undergraduate Program Co-Directors are all women. Faculty recruiting committees are chaired by female faculty, and the Department also recently made an unsuccessful full professor offer to a female economist. According to the committee on the status of women in the economics profession (CSWEP), in PhD granting institutions in 2013, women made up 36.1% of non-tenure track teaching faculty, 27.8% of new assistant professors, 24.5% of tenured associate professors and 12% of full professors. At the same time, only 35% of new PhDs in the discipline were women¹.

Our faculty are from all over the world, but only one full time (non-tenure track) faculty member identifies as a member of an under-represented ethnic minority group. The problem of under-representation of minorities in all areas of economics is a wide spread one and not easily overcome by one department. In 2014, the Committee on the Status of Minority Groups in the Economics Profession (CSMGEP) reported that 5.5% of full time faculty at PhD granting economics departments identified as members of minority groups. Of these, 8.7% were at the assistant rank, 7.3% at the associate rank, and 3.2% at the rank of full professor². As will be discussed more fully in the section below, these numbers are a reflection of the fact that very few Bachelors and PhDs in economics are granted to members of

¹ https://www.aeaweb.org/committees/cswep/annual_reports/2014_CSWEPAnnualReport.pdf. Numbers at top 20 departments are slightly lower: 21.3% Assistants, 20.4% Associates, and 10% Full.

² The percentages reported reflect percent of faculty who U.S. citizens or permanent residents only.

minority groups, and this is an area where both nation-wide and departmental efforts at increasing access and representation are being placed.

The Department also employs ten full time staff members to perform support duties for students and faculty. Of these, four are women, and one is a member of an under-represented minority group.

Student Diversity: The students of the Economics Department are a varied and diverse group. As of Spring 2015, 54% of our undergraduate majors were international students (a majority of international students are from China). Of the remaining students, 23% were Caucasian, and 18% identified as Asian, while only 3% identified as a member of an under-represented group³. Since only US citizens and permanent residents can be counted as members of an under-represented group, many organizations report minority enrollments as percent of eligible (i.e., non-international) students. By this criterion, 6.1% of eligible students in the Department are members of a minority group. Compared to Sociology and Political Science, where international students make up 8.4% and 6.4%, respectively, Economics appears to be unique among the social sciences in this area. Representation of women in the department continues to be strong – one half of our undergraduates are women.

In 2007, students from under-represented groups were 4.8% of the UW student body, with enrollments dropping to 3% in 2015. However, if we only look at under-represented enrollments in economics as a percent of eligible students, we have improved from 4.8% out of 92% eligible non-international students (5.2%) to 3% out of 46% eligible (6.1%).

While the international flavor of our undergraduate classes cannot be denied, and certainly adds to the classroom experience of all students, we must question whether students from minority groups are adequately represented in our classrooms. Nationwide, 14% of eligible bachelor's degrees granted in economics went to members of minority groups, but there is a great amount of regional variation in this rate. In the entire U.S., minority students make up about 21.5% of all students⁴, but are only 13.2% of eligible enrollments at the University of Washington⁵. If we expect to have the same proportion of minority enrollments in Economics relative to the rest of the University at the UW as in the rest of the U.S., we would work toward a student composition of 8.6% of eligible students from minority groups.

Increasing the diversity of our undergraduate class is the primary focus of the department's newly formed diversity committee, discussed in section three below. Recent trends in department admissions are promising. In Autumn 2015, 4.7% of all students admitted to the program were from under-represented groups. In Winter 2016, 7.1% of admission offers were made to under-represented students.

At the doctoral level, the Department continues to do well in its representation of women: 37% of our current students are women. Nationwide, 35% of all new PhDs in economics in 2015 were women, but only 29% of PhDs from top 20 departments⁶. Much like the rest of the discipline, the Department has struggled to attract PhD students from minority groups. In 2015, 3 of 106 PhD students identified as either African-American, Latino, Native American or Pacific Islander (3%). However, only 34 out of 106 students are US citizens or residents and therefore 8.8% of eligible students are members of under-represented groups. According to the 2013 CSMGEP survey of all U.S. doctoral degree recipients in Economics, 9.6% of the 468 U.S. citizen or permanent resident graduates identified as American Indian

³ 1 American Indian, 4 Hawaiian/Pacific Islanders, 2 African Americans, and 8 Latinos out of 535 enrolled students at the start of Spring 2015, as reported by UW registrar.

⁴ https://www.aeaweb.org/committees/CSMGEP/reports/csmgep_annual_report15_final.pdf

⁵ http://www.washington.edu/omad/files/2015/10/2015_omad-factsheet_final_print_10-16.pdf

⁶ https://www.aeaweb.org/committees/cswep/annual_reports/2014_CSWEPA_Annual_Report.pdf

(0%), African American (3.2%), or Latino (6.4%)⁷. Despite consistent and continued effort during admissions, the Department suffers from a low supply of applicants from under-represented groups. For example, in 2012 and 2013 combined, only 16 applications were received and 2 admissions offers were made. This is out of 602 total applications and 70 total admission offers (and 46 non-international students). Minority students are being accepted at a rate that is slightly higher than the average student, but the Department is limited in its ability to admit more under-represented students due to low levels of PhD applications.

Departmental Diversity Efforts: The Department's committee dealing with issues of diversity is its Committee on Access for Under-Represented Students. The members are two lecturers and one academic counselor. The committee was formed in June 2015, with the explicit mandate of increasing diversity in the undergraduate student population. The immediate goal of this new committee is to have a plan for increasing undergraduate student diversity by the end of the academic year. Currently, the committee is working with the university's office of minority affairs and diversity (OMAD) to increase knowledge of the Department, the success rates for our recent graduates, and interest in our socially and politically relevant research among new and incoming students at our university. One possible way of disseminating this information is through public lectures by economics faculty and graduates students and sponsored by OMAD. The committee is also working to identify why minority enrollment in our undergraduate major is so low. If the committee discovers that minority students are interested in our major, but choose not to apply or are unable to gain admission after taking the introductory sequence, then OMAD will suggest additional interventions. These would likely include adding information and tutoring sessions for potential applicants to the major in order to improve information about the requirements for a successful application.

Free walk-in tutoring for introductory classes is offered through the Economics Undergraduate Board. A monthly information session providing guidance for students considering the major is now being offered by one of the Department's academic counselors as well. Once students are admitted to the department, they have access to several scholarships based on financial need. These include the J. Parker J. and Evelyn Cruz Sroufe Scholarship, the Alberta Corkery Scholarship, the Yanlan and Robert Yang Scholarship, and the Friends of Economics Scholarship. Students from under-represented minority groups are encouraged to apply to these scholarships, which serve the purpose of increasing access to talented students from any background who may be struggling to afford their education. For graduate students, the Department regularly applies for funding from GO-MAP's Graduate Diversity Fellowship, which guarantee five years of total funding to recipients. Two of these fellowships have been awarded in the last seven years.

Research by CSWEP has shown mentoring to be especially helpful for women and students from non-traditional academic backgrounds⁸. Undergraduates are mentored by economists in the alumni community, while graduate students are mentored by faculty members. The Department formed Women in Economics to expand both business and academic opportunities for women, and it counts undergraduates, alumni and faculty among its members. It holds seminars and networking-focused social hours.⁹

⁷ https://www.aeaweb.org/committees/CSMGEP/reports/csmgep_annual_report15_final.pdf

⁸ Blau, Francine D., Janet M. Currie, Rachel T. A. Croson, and Donna K. Ginther. 2010. "Can Mentoring Help Female Assistant Professors? Interim Results from a Randomized Trial." *American Economic Review*, 100(2): 348-52.

⁹ In a recent event, the president of CSWEP, Professor Marjorie McElroy spoke about CSWEP's programs for promoting the advancement of women in the Economics profession.

In addition to the resources of the University of Washington, the American Economic Association (through CSWEP and CSMGEP) offers many opportunities for women and students from under-represented minority groups to succeed in the economics profession. Information about these opportunities is disseminated widely throughout the department, and several of our junior faculty have taken advantage of these programs. University of Washington faculty were in attendance at the 2016 CSWEP mentoring breakfast, and presented at the CSWEP sponsored sessions at the 2015 Southern Economics Association meetings.

Section II: Teaching & Learning

Student Learning Goals and Outcomes

The Undergraduate Program. Some of the key learning goals are:

- Be able to use basic economics terminology
- Analyze how market structures, institutions, and government policies influence the allocation of resources in a market economy
- Explain decisions and the strategic choices of individuals or organizations
- Explain basic models of the economy and the macroeconomic interactions
- Use computer software, economic data, graphs, and charts to analyze and forecast economic activity
- Evaluate economic policy proposals
- Develop awareness of diversity issues in the world through looking at poverty, inequality, and economic development
- Be able to express ideas visually, verbally, and in writing

To evaluate students, we mainly use classroom assessment: graded assignments, exams, research papers. External assessments also exist, such as student papers sent to the Undergraduate Research Symposium as well as student research work submitted to peer reviewed professional journals. Our students also take external professional exams like the Actuarial exam sponsored by the Society of Actuaries (SOA), Certified Public Accountant (CPA) exam, and the Graduate Record Examination (GRE) for students bound for graduate school.

Student satisfaction is assessed by various surveys: a survey of undergraduate experience in the major carried out by their peers from the Economics Undergraduate Board (EUB survey). The EUB is a group of accomplished undergraduate students who provide free economics tutoring and act as liaisons between students, faculty, staff, and alumni in the department. There is also an exit survey of the graduating students administered by the advisers (Senior exit survey). In addition, when students fill their graduation paperwork, the advisers carry a survey to seek information about students plans after graduation. The mentorship program run by our alumni is also a good source of information.

The undergraduate committee analyses the information gathered in the surveys. It is also summarized in the undergraduate report and presented to the alumni at a yearly meeting as they can help if it is an issue involving resources.¹⁰ According to the Spring 2015 senior exit survey, between 90 and 100% of the students answered that their courses in economics had prepared them well or very well for defining and solving problems, understanding and applying economic principles, relating economics to other social sciences, and learning independently. When asked how well the degree had prepared them to

¹⁰ The undergraduate report is available upon request.

pursue their career or educational goals, 71 percent had a positive answer. When asked how well they feel that their studies in economics have prepared them for everyday choices and decision, the positive replies surge to 95%. They also advise students to do a double major and to talk to their professors - according to the EUB survey, a majority of the students are satisfied with accessibility to their professor (they appreciate the class web-pages) and with the services of advising.

The findings in the 2015 report by the Office of Educational Assessment, from their Academic Challenge and Engagement Study (ACES) of Economics, is consistent with our goals and expectations for students' experience in the Economics major.¹¹ In the conclusion, they say that the responses to interview questions suggest that students felt that the Economics major is challenging but rewarding. The concepts, topics and methods of economics are new for most students. Many students, especially students earning BA degrees, find the math/statistics aspects of the discipline challenging. Students are required to think analytically, critically, and quantitatively, which posed as challenges for both BA and BS degree seeking students, and that they had to figure things out on their own. Students report that they learned specific content knowledge and new ways of learning and studying, and that they had learned to apply economics to problems and issues in reality.

Thanks to the EUB survey we have information about students' interest in specific economics areas and courses, we try to adjust our course offerings to match student demands. Recent faculty recruiting has also helped immensely in this regards we have been able to offer more international, financial, theory and econometrics courses. Given the large size of our undergraduate body and our small faculty, it is not always possible to meet specific wishes like the perennial demand for smaller classes (our classes size hovers around 35 to 40 students). As is discussed later, we have had a large turnover in the faculty, and we have had to manage our course offerings to cater to student demands. This is both a challenge and an opportunity. For example, a new faculty member joining in Autumn 2016, will offer applied econometrics courses, which is being offered directly in response to students request for the opportunity to do more applied work in their econometric classes. However, our effort will be significantly handicapped by the absence of a classroom equipped with computers.

We offer two services courses (the introductory micro and macroeconomics courses) that are requirements in other schools/departments (SIS, Business school etc.). Our two intermediate courses are also open to non-majors and one or the other is often listed as required in other programs. These four courses are central in our major and the learning goals listed above are indeed critical. Our 400-level courses are not open to non-majors with the exception of students taking the Mathematical Economics option within the ACMS major. We do not have the faculty resources necessary to offer 200-level or 300-level courses to non-majors; the few courses offered are cross-listed with another department and taught by their faculty thus applying their department's learning goals.

The Graduate Program. The ultimate goal of the PhD program is to develop professional economists for a variety of careers by equipping them to do original research using advanced learning methodologies. Students acquire a general and functional knowledge of the structure of economics models of optimizing behavior and equilibrium, a broad knowledge of the contemporary literature in particular fields and detailed models specific to those fields, and an advanced working knowledge of the quantitative techniques needed to apply these models to economic questions and problems. The curriculum details are found in the attached (Appendix G) "Guide for Graduate Students in Economics."

The department explicitly states expectations for students' progress in the *Graduate Student Guide*, which is available on the department website. In part, funding is dependent upon students maintaining

¹¹ The ACES report is available upon request.

satisfactory progress as noted in the Student Guide. The major milestones are completion of coursework, passing core and field exams, forming a supervisory committee, passing the general exam, and passing the final exam. Each quarter, the Graduate Program Counselor records and monitors students' grades in a database that is also made available to the Graduate Program Director. Concerns, such as failed courses or a cumulative GPA lower than 3.0, are addressed on a quarterly basis.

Students are encouraged to present their research to faculty and their peers on a regular basis in brown bag workshops. These provide valuable feedback for them, and allow their committee members to monitor their research progress.

The Graduate Program Director meets at least once per year with each cohort to talk with them about how they are doing. This is a chance for them to learn information that is relevant to their cohort, and to share any complaints, concerns, or issues that have arisen. Based in part on feedback from these meetings, the Director and Counselor regularly update the *Guide for Graduate Students*, the handbook for the PhD program. The goal is to address anything that is going wrong in a timely manner, and adjust and modify the rules and requirements as needed. One example of this would be a modification of requirements for the finance field (a field comprises second year elective courses in a specific research area). Based on student feedback and faculty input, the courses that could be taken for the field, and the procedure for approval, were modified.

The Graduate Program Counselor meets frequently with students individually to discuss issues that have arisen. Students have generally felt comfortable to approach him with concerns or problems.

Two students volunteer each year to serve as graduate student representatives. As well as attending faculty meetings and helping with curriculum coordination, their main role is to serve as liaisons between the department and students, so that students feel their voices are heard.

Instructional Effectiveness

PhD students are responsible for a significant proportion of the teaching duties within the department. Given this, the department goes to great efforts to ensure that students are well prepared for their teaching duties. In the first quarter of the PhD program, all new students are required to take and pass ECON 602, a 1-credit class co-taught by a faculty TA trainer and a graduate student Lead TA. This class provides hands-on training in teaching economics. Students are videotaped while teaching and given feedback. Students in their first quarter as teaching assistants have their classes visited by the Lead TA, who then provides additional advice and feedback.

All graduate students who are either teaching assistants or independent instructors are required to have their teaching evaluated every quarter through the IAS system. These evaluation results are provided to the Graduate Program Director and Counselor and recorded in a database. Students are expected to score at least 3.0 on the adjusted median of the first four items on the evaluation, and those who don't are given notification and additional training if needed. Continued poor teaching performance may jeopardize the student's chance of future funding. Students who perform well as quiz section TAs for at least two quarters are able to teach 200-level classes independently, and continued strong teaching opens up opportunities for students to teach 300- and sometimes even 400-level classes independently, as well as to TA for core economics graduate classes.

We have two systems of class evaluation: in addition to the standard IAS evaluations from UW, we have also started an on-line departmental assessment system for feedback to the faculty. This was done to allow faculty the option of a personal and internal evaluation system even when they do not sign up for the IAS system. The information from the IAS class evaluations and peer reviews is channeled to the

Chair. The Chair can then advise the faculty about their teaching and suggest a session with an experienced instructor or help from the Center of Teaching and Learning.

In terms of teaching innovations, faculty have adopted a variety of online and in-class venues for student learning and engagement. This is especially true in the large introductory courses. Faculty have adopted in-class exercises and group discussions in large lecture courses in principles of microeconomics. Device-independent in-class response systems are used to engage students. Audience response system (clickers) as well as automated video recording of lectures and online homework are used in large principles classes. In our intermediate and upper division undergraduate courses, faculty also adopt a variety of methods to engage their students. A faculty member uses partially completed lecture slides that students contribute to and complete during each lecture, helping them to learn a step-by-step reasoning process in an analytical economic model. Classroom experiments are used in a natural resource economics course where students play a “fishery game” through which they thoroughly understand the nature of the “tragedy of commons”. A finance course (Econ 423) is taught by a group of alumni who are active in the profession. The facilitators in this course are well situated to provide career mentoring for the students enrolled in the course. A similar course on Law and Economics was also started this year.

We have added a global dimension to our program by developing six study-abroad exchanges with various foreign universities, the latest one with Hitotsubashi in Tokyo, Japan. These exchanges are very popular and provide our students with a great opportunity – we also appreciate the contribution of the students sent by our exchange partners.

Since fall 2014, a number of our faculty have been involved in teaching courses in the newly devised and fully online Integrated Social Science (ISS) degree program. Greg Ellis teaches Econ 282, “Using Econometrics: A Practical Approach”, and Haideh Salehi-Esfahani and Dennis O’Dea teach the principles of micro and macroeconomics in the ISS program. The purpose of this program is to provide access to higher education in social sciences for qualified students who seek to complete their college degree and who reside in various locations around the world. The fully online courses combine recorded lectures, online homework, tests, and assignments, and also student engagement via posted discussion forums as well as threaded discussions and projects.

Mentoring and success in the program: We mentor undergraduates as tutors for their fellow majors through the Economics Undergraduate Board and through CLUE. Students are involved in research under the supervision of the faculty in our various research seminars. Students doing internships are sponsored by faculty and required to write a research paper related to their internship under the supervision of their faculty sponsor. Honors students must take 3 research courses in 3 consecutive quarters: the first one where they are exposed every week to a faculty seminar presentation and have to write a creative reflection paper each week. Then they put together a proposal in the next quarter and finally write their Honors thesis under the supervision of a specific faculty.

Students facing difficulties for a reason or another can talk to their professors during office hours or set special meetings. The advisers have an important role helping students choose their courses, their course load etc. given their specific ability. Students facing difficulties can get advice on how to drop courses in a timely manner or get special hardship withdrawal etc. The Department bestows special scholarship for needs. The advisers can also give special attention to underrepresented minority students if they identify themselves as such.

The Economics Undergraduate Board is a group of accomplished undergraduate students who provide free economics tutoring and act as liaisons between students, faculty, staff, and alumni in the department. Each quarter the students organize a career seminar with department alumni, a Paul Heyne

Memorial Lecture on a topic of current interest in economics education, a math skills seminar, and a graduate school seminar. Each spring the group gives a “state of the students” presentation to the economics Visiting Committee to advocate on behalf of all department undergraduates.

The Undergraduate Mentorship Program links undergraduate economics students during their junior and senior years with alumni mentors in order to help them develop life and career skills through the guidance of seasoned professionals. Now in its fifth year, the program is hugely successful both in terms of student support and alumni engagement. An offshoot of this is the Regional Alumni Representatives program. Alumni in this role support fellow alumni and current economics students by acting as professional and social contacts for their city or region, resulting in successful engagement of out-of-area alumni.

The Economics Outreach Network (EcON) provides a framework for Economics alumni to keep in touch, build their personal and professional networks, and to make a difference in the lives of current students. The young alumni subset of this group, EcON GOLD (Graduates of the Last Decade) holds career networking nights and social events such as football watch parties, as well as an event for new grads following graduation in June. Undergraduate and graduate students are generally invited to participate in these events.

The Women in Economics group, established fall 2013, seeks to expand networking and educational opportunities for women who work in economics, or are studying in or have general interest in the field. The group hosts quarterly networking and professional development events of interest to women economists, including both alumni and current students.

The transition to the PhD program can be difficult for some students, especially depending on their prior exposure to graduate-level education or to the US educational system. Given this, all first year PhD students are placed in mentor groups. A typical mentor group could consist of two first year students, one faculty member, and one more senior graduate student. These groups meet once a quarter, with the goals of helping to ease the transition to the program, and increasing communication between first years, senior grad students, and faculty members.

For the first two years of the program, while students are completing coursework, the Director serves as the de facto faculty adviser for the students. She meets with these cohorts at least once per year (see Section II). However, once students finish taking courses and start on their dissertation research, faculty advising transitions to individual faculty members. Since there is a gap in the third year between completing coursework and being ready to form an official doctoral supervisory committee, students are required to choose an interim adviser during that gap. The interim adviser provides basic research guidance, including suggestions for other faculty members to work with. The student is required to submit a report to the interim adviser once per quarter outlining research progress. This report, once approved by the interim adviser, is then filed with the Counselor.

A crucial role of our faculty is serving on doctoral supervisory committees. All tenured and tenure-track faculty within the department are designated as graduate faculty with endorsements to chair, meaning that they can serve as supervisory committee chairs or as GSRs for students in other departments. Faculty take their advising roles seriously, providing valuable assistance to students and helping to prepare them for future roles as professional economists who can conduct original research.

We take great pains in the admission process to only admit students who we think have a good chance of success in the program. The PhD program handbook, the *Guide for Graduate Students*, clearly lays out a satisfactory progress timeline for the program. Frequent reminders of various requirements are emailed to students by the Director and Counselor. In addition to the satisfactory progress guidelines, the *Guide* includes minimally acceptable progress deadlines. These allow extra time, but are the points

at which the department may choose to place a student on academic probation for lack of progress. Recently, the Director has increased efforts to ensure that students finish in a timely manner.

As students progress in their research, the department encourages them to seek out opportunities to present at conferences. Since 2012, the department has offered matching funds when a faculty member chooses to use research funds to support conference travel for a student. This gives an additional conference travel funding option besides GSFEI and GPSS.

A faculty member is designated as Placement Officer, who provides advice to candidates as well as promoting them to potential employers. Economics has a highly structured job market for academic and many non-academic positions. In addition to continued academic advising and research assistance from the student's supervisory committee, the department offers mock interviews, workshops, presentation opportunities, travel funding to the annual conference where first interviews are conducted, an online profile for each job market candidate, and the sending of recommendation letters for applications.

Section III: Scholarly Impact

Faculty research

The University of Washington Economics Department has a long tradition of excellence in economics research and instruction. The Nobel laureate Douglass North did his path-breaking work on the role of institutions in US economic development here in the 1970s, and the Department enjoyed a reputation for research on the role of property rights and institutions, led by scholars like Yoram Barzel. Being among the first Economist Departments to recognize the importance of economic analysis of environmental quality and natural resources, Gardner Brown and others made pioneering contributions in the field. From the late 1970s, Charles Nelson established national recognition in the application of time series econometrics to macroeconomic phenomena. In the 1980s, with the arrival of Stephen Turnovsky, international economics and macroeconomics was established as new area of prominence for the Department. These latter two areas continue to thrive to this day, but we have lost our strength in the economics of environment and natural resources. Shelly Lundberg led the applied micro group until her departure in 2010.

In this academic year 2015-16, the Economics Department has 28 permanent faculty members.¹² Twenty-three of our regular faculty members are tenure track, of which 13 are tenured Full Professors, 4 are tenured Associate Professors, and 6 are Assistant Professors. The Department also has 3 Principal Lecturers, and 2 Senior Lecturers, who serve on renewable contracts. A list of Academic Staff is provided in Appendix D.

The Department suffered significant losses starting from the late 1990s through the first decade of the new millennium. The year 2010-11 was a watershed for the Department with the number tenure-track faculty falling to 19 because of sudden departures and retirements (details in Section IV). Since then, thanks to the strong support from the College, we have made a number of new hires and the Department is getting back to stronger footing. Currently, we enjoy strength and some stability in three areas, macro-international, econometrics, microeconomic theory, and our relatively new colleague, Pat Bajari, is the cornerstone of our recruiting strategy focusing in empirical micro. These four areas are described in more details next.

¹² One member will leave at the end of the year, one is at 50% and one at 75%, and a new colleague has agreed to join as an Assistant Professor in Autumn 2016.

The Department of Economics has a well-established group of scholars in the macro-international area, led by Stephen Turnovsky, a Fellow of the Econometric Society. The senior members currently serve or have served on several editorial boards of major journals, both general and leading field journals and have a strong mentoring record. A rough measure of the collective visibility is reflected in the fact that their total google scholar citations are approaching 25,000. The arrival of Fabio Ghironi in 2013 was a significant addition to an already strong group, that include senior faculty, Theo Eicher, Kar-yiu Wong, Philip Brock, Yu-chin Chen, and Assistant Professors Oksana Leukhina and Mu-Jeung Yang. In addition, Eric Zivot and Chang-Jin Kim from the econometrics group have overlapping interests and have collaborated with some members of this group. Collectively, the group spans much of this broad area of the discipline. Eicher's interests span the areas of international trade, growth, and development. Shortly after arriving here, he and Turnovsky conducted a successful research agenda dealing with the issue of "non-scale growth" as a plausible alternative to the endogenous growth models, which were being emphasized at the time. More recently his research has become more empirical and in this regard he has written a number of papers focusing on Bayesian Model Averaging methods. Fabio Ghironi is a major figure in international trade and its interface with macroeconomic dynamics. He has also written extensively on monetary policy in an international context, particularly the European Monetary Union. He has written a number of widely cited papers on market deregulation and market reforms. Stephen Turnovsky has made a number of pioneering contributions in the general area of macroeconomic dynamics, with interests in both closed economies and international economies. His more recent work has focused more on longer-run issues related to economic growth and its relationship to the evolution of wealth and income inequality. Yu-chin Chen's work with Rogoff on commodities currencies (*Journal of International Economics* (2003), *Quarterly Journal of Economics* (2010)) is being very widely cited.

The Department has enjoyed prominence in econometrics. It received a big boost with the arrival of Yanqin Fan in 2013, and John Geweke, a Fellow of the Econometric Society, has just joined the Department as an Affiliate Professor along with Assistant Professor Jing Tao. Together with existing senior faculty, Chang-Jin Kim and Eric Zivot, this is a very high profile group. The senior members currently serve or have served on several editorial boards of major journals and have a strong mentoring record. Eric Zivot is a time series and financial econometrician. His *Journal of Business Economics and Statistics* (1992) paper with Donald Andrews has been highly influential and was recognized as one of the "20 best papers" published in the Journal. He has also made significant contributions in econometrics in the areas of weak instruments, state space modeling, and structural change modeling. Chang-Jin Kim is also a time series econometrician with interest in macro applications as well. His work, providing a general framework for dealing with regime switches, has been extensively cited not only in economics journals but also in engineering journals. He has also made significant contributions in solving the problem of 'endogeneity' that may exist in times-series regression models with dynamic coefficients. His on-going research focuses on developing non-Markovian regime switching models. Yanqin Fan has worked and contributed to several areas in econometrics including nonparametric econometrics, dependence modeling, and identification of distributional treatment effects. Her early work on developing simple consistent tests for correct specification of commonly used semiparametric models has been very influential. She was among the first few econometricians introducing the copula approach to econometrics modeling. Her recent research has focused mainly on partial identification of distributional treatment effects beyond the average treatment effects.

With the addition of Quan Wen and Assistant Professor Xu Tan to existing senior faculty Fahad Khalil and Jacques Lawarree, we have a solid group of theorists researching and applying game theory. Wen's theoretical research focuses on and bridges two popular classes of dynamic games; repeated games and bargaining games. He has made fundamental contributions in each of the topics and continues to develop new solution concepts and analytical methods for these game models. His negotiation model

has been widely studied and applied not only in economics but also in other disciplines, such as political science. In addition to these and other game-theoretical research, Wen has also applied game theory to anti-trust enforcement and empirical auctions. Khalil and Lawarree are both contract theorists and have been successful as co-authors and mentors. Currently, they have been studying procurement contracts, bureaucracies, corruption and optimal incentive schemes in general. Khalil's early work has been very influential in providing a framework to study endogenous information in the early literature on incentives focused primarily on implications of asymmetric information, and his current interests also include financial contracts and auctions. Lawarree made pioneering contributions in using contract theory to understand corruption, and he has also made key contributions in developing strategic models of the electricity market as a part of NSF funded inter-disciplinary teams.

The empirical micro field is anchored by Pat Bajari, an acknowledged leader in the field of empirical industrial organization (IO). He was recently selected as Fellow of the Econometric Society, the most prestigious society in the discipline. Bajari has made a number of highly influential contributions, and his mentoring record for PhD students is among the most impressive in the discipline. His research has a serious focus towards empirical work and there is a unifying theme of developing econometric methodologies for investigating the role of information and dynamics in empirical IO models spans a wide range of topics. His *Econometrica* (2007) paper, with Benkard and Levin, is a path breaking contribution in the literature of empirical models of dynamic strategic interactions, and has inspired research in many areas of applied economic research. Aiming to build in the area, we have just hired an Assistant Professor from MIT, Dong Jae Eun. Despite a strong and consolidated effort, we were unsuccessful in recruiting another well-established empirical IO economist, Panle Jia Barwick, from Cornell. We plan to continue our recruiting effort in this area.

A significant development worth reporting is the collaboration amongst our newest colleagues with recent PhDs showing the current importance of empirical micro in the discipline. Xu Tan, whose papers are mostly theoretical, has been working with more applied colleagues like Rachel Heath in the Department, and Josh Blumenstock, Information School, on empirical micro topics. The Blumenstock-Tan project involves 'big data', which has also featured prominently in recent PhD dissertations of our students being supervised by Pat Bajari. Mu-Jeung Yang and Jing Tao share common interests in empirical IO, even though their primary fields are International Trade and Econometrics, respectively.

To conclude, the sub-field of empirical IO has strong strategic value to the Department. It emphasizes applied research requiring strong empirics, econometrics and applied theory. Given our existing strength in micro theory and econometrics, we hope to be able to provide excellent training to students specializing in empirical IO. Furthermore, both Amazon and Microsoft has been hiring strong empirical IO researchers, with some of them affiliated with the Department. Thus, empirical IO has the potential to become the standard bearer for the Department in the near future.

Faculty Supervision data in Appendix E.

Faculty CVs available at <https://econ.washington.edu/faculty-curriculum-vita>

Achievements by students and alums

In the past 10 years, 13 of our undergraduate students won University-wide awards including 4 Dean's medals and 3 President's medals (Luce Bonderman, Timeless Award...). In addition, around 229 students were inducted in the Phi Beta Kappa Society with increasing yearly induction. Last year one of our undergraduates presented a joint paper at the AEA Meetings in Boston. The detailed list is in Appendix H.

A list of selected publications of our PhDs since 2006 is provided in Appendix I. It is worth noting here that a few students have managed to achieve publication in well-respected journals even before graduation. Specific recent examples include Laine Rutledge in *Journal of Political Economy*, Jennifer Meredith in *Journal of Development Economics*; and Ruixuan Liu in *Econometric Reviews*.

Our graduates go on to careers in a wide variety of industries, equipped with both the subject-specific and transferrable skills so highly sought after by employers. In the Puget Sound region we have a large number of alumni at the following companies: Amazon, Zillow, Microsoft, Redfin, Boeing, and Starbucks. Many of these graduates work in the fields of data science and machine learning. A number of graduates also go into careers in the financial services industry. Still others head to the public sector and government jobs.

We also have a long tradition of producing students who are successful in academia, in government or business careers. A more extensive list of distinguished alumni is in Appendix L, but some of our well-known undergraduate and graduate alumni include:

Jay Inslee, Governor, State of Washington, BA '73, Robert McKenna, former Washington State Attorney General, BA '85, Helen Sommers, WA State Representative (retired), BA '69, MA '70, Linda Strout, Deputy CEO, Port of Seattle, BA '69, Charles Johnson, Justice, Supreme Court, State of Washington, BA '73, Karen Overstreet, Chief Judge, United States Bankruptcy Court, BA '77, Kelli Trosvig, VP and Chief Information Office, IT, University of Washington, BA '88, MHA '94, Michael Egeck, Chief Executive Officer and President at Eddie Bauer, Jeffrey Roe, President & CEO, Premera Blue Cross, BA '88, MBA '97, Bruce Nordstrom, Chairman, Nordstrom Inc., BA '55, Charles Cox, Acting Chairman of the SEC, BA '67.

A detailed list of our PhD placements since 2006 is provided in Appendix J and includes placements in:

Research universities: University of Chicago (Booth), University of North Carolina, University of California – Riverside, Emory University, Virginia Tech, University of Washington, University of Kansas, Louisiana State University, University of Oklahoma, University of Alabama, University of Alberta, Peking University, Bogazici University, Uppsala University, Lund University, University of Queensland.

Liberal Arts Colleges: Carleton, Wesleyan, Dickinson, Hamilton, Oberlin.

Government and International Organizations: International Monetary Fund, World Bank, Census Bureau, Congressional Budget Office, Chinese Academy of Sciences, Bank of Japan, Korea Institute of Public Finance, Institute of Development Economics, Japan.

Private research organizations: Recourses for the Future, Mathematica Policy Research.

Private industry: Amazon, Microsoft, Goldman Sachs, Russell Investments, Ernst & Young, Zillow, Bloomberg LP.

Collaborative and/or interdisciplinary efforts

A number of faculty members collaborate and interact with other departments and units in a variety of ways. Three faculty members (Fan, Rose and Zivot) currently have adjunct status in other departments, and ten faculty members from other units (Anderson, Basu, Bond, Dillon, Goldhaber, Layton, Long, Plotnick, Richardson, and Yoganarasimhan) had adjunct status in Economics in 2015-16. A number of Economics faculty members (Brock, Heath, Khalil, Kochin, Salehi-Esfahani, Rose, Thornton, M. Turnovsky, and Wong) are affiliated with programs in the Jackson School. Roles of Economics faculty members include teaching cross-listed courses, serving on dissertation and fellowship committees.

Many of our graduate students teach courses and do research with faculty in other units as well. The department is affiliated with the CSDE and CSSS.

Rachel Heath co-organizes a very active Joint Seminar on Development Economics with faculty members in the Evans School and Information School. Heath is also the Department's point person for the UW Forum for Political Economy and Economics, a graduate seminar with the Political Science Department. Khalil is affiliated with a health economics seminar series organized by colleagues in Health Services. Eric Zivot is Co-Director Professional Master Program in Computational Finance and Risk Management, Department of Applied Mathematics, and Hendrik Wolff is associated with the Program on the Environment. Examples of research collaborations include Yanqin Fan with Bio Statistics, Jacques Lawarree with Electrical Engineering, Eicher with Statistics, and Tan with the Information School.

Economic faculty members also serve on numerous standing and ad hoc College and university-wide committees. For example, Phil Brock (on two FCAS sub-committees), Haideh Salehi-Esfahani (Integrated Social Sciences degree, Technology Oversight Working Group as part of the Provost's Teaching and Learning in the 21st Century Initiative, Faculty Fellows Program for new faculty), and Quan Wen (RRF review committee).

How does the unit work with junior faculty to maximize their success

The junior faculty is mentored by the senior faculty, usually by those in the same or a related field. Although no official mentors or formal mentoring committees are appointed, the Chair ensures that senior faculty members meet regularly with junior faculty members. Junior faculty members are encouraged to circulate their research papers to senior faculty, particularly those in their field, and to seek input and advice on publishing. Different fields have active brown bag series, where junior faculty are encouraged to present their preliminary work in an informal and supportive setting. Indeed, our mentoring effort seems to have been more effective in areas where we have a group of research active senior faculty, and we aim to keep this in mind when recruiting in the future. The Chair conferences individually with junior faculty members once a year, as required by the faculty code, to assess each member's progress in teaching and research, and to recommend remedial action if any is needed.

Although junior faculty members are expected to participate in departmental governance and planning, typically their service responsibilities are in the research area. Junior faculty members are put in charge of arranging the visiting speakers for the department seminar series. Efforts are made to minimize new course preparations by junior faculty members, and they are encouraged to develop their instructional skills in upper division undergraduate and graduate courses in the core and their research fields.

Junior faculty members also receive precedence in the allocation of department conference travel funds. In recent junior recruitment, the department has used discretionary gift funds to offer competitive start-up research funds.

Section IV+ PART B

Future Directions + Unit-Defined Questions

How to build upon the strong start in the re-building process of the Department with a view to a vision of a sustainable and strong future?

In 2011, the department presented a bold strategic plan to deal with a decline in the department's excellence in economics research and instruction. From Autumn 2000 to Autumn 2011, the department had lost sixteen tenure-track faculty members¹³ and hired eight,¹⁴ for a net loss of eight. In 2011, the age profile of the department also presented great challenges. The decreasing number and increasing age of our tenured faculty negatively affected our ability as a department to be research productive and to supervise as many PhD students as we have in the past.

The 2011 strategic plan focused on three areas of strength: applied micro-economic theory, econometrics and macro/international economics. The plan also mentioned opportunities in applied microeconomics as Pat Bajari had just joined Amazon, and Rachel Heath, also an applied micro economist, had recently joined the department. The plan also discussed the future of the natural resource field and also highlighted opportunities to collaborate with other units in the University.

The plan also stressed the importance of a critical size with at least 25 tenure-track faculty (we noted that peer departments had an average size of 33), the role of lecturers in handling our large undergraduate program and the necessity of having market salaries. The plan was bold and ambitious and set a goal of hiring at least twelve FTE tenure-track faculty and three senior lecturers over a five year period.

It is fair to say that the department has made significant progress in fulfilling its strategic plan. But the progress needs to be sustained or all benefits from the last 4 years will soon be lost.

Ten new faculty joined the department in the last 4 years:

Dennis O'Dea (public finance from Illinois) as a lecturer

Rachel Heath (empirical micro/development from Yale), Jihyung Lee (econometrics from Yale), Mu-Jeung Yang (macro/international from UC Berkeley), Xu Tan (applied micro-theory from Stanford) and Jing Tao (econometrics from Wisconsin) as assistant professors.

Pat Bajari (empirical microeconomics/IO from Minnesota), Yanqin Fan (econometrics from Vanderbilt), Fabio Ghironi (macro/international economics from Boston College) and Quan Wen (applied micro-theory from Vanderbilt) as full professors (Bajari at 50%).

We will lose one assistant professor this year (did not get tenure), and another assistant professor left last year. Three tenured professors retired (Associate Professor Michael Hadjimichalakis, and Professors Yoram Barzel and Neil Bruce). Associate Professor Rose also went to a 75% appointment. The net gain in faculty is therefore $9.5 - 5.25 = 4.25$ since 2011.

We should also note that Yu-chin Chen was promoted to associate professor with tenure in 2012, strengthening further the field of macro/international economics.

¹³Brown, Deolalikar, Hartman, Liu, Parks, Thomas, Silberberg, Engel, Martin, Leffler, Lundberg, Nelson, Startz, Portner, Shi, Sirakya: 5 Assistant Professors, 2 Associate Professors, 9 Full Professors

¹⁴Chen, Portner, Shi, Sirakya, Leukhina, C-J Kim, S. Kim and Wolff: 7 Assistant Professors and 1 Full Professor.

While the new faculty are productive, with only four extra faculty, we are still a long way from revamping the entire department. With respect to the strategic plan, we would still need to hire in all three main target fields, econometrics, macro/international, and applied micro theory. Still good progress has been made and we can say that the three main target fields are now on much stronger footing with a good mix of junior and senior faculty.

Our next priority is to strengthen the empirical microeconomics field. One of one of our most productive senior colleagues (Pat Bajari) specializes in empirical IO, and we chose to focus our junior recruiting in this field. At the senior level, we opened the position to all subfields of empirical microeconomics. Under the leadership of Pat Bajari and Yanqin Fan, we hired Assistant Professor DongJae Eun from MIT and made a full professor offer to Panle Barwick from Cornell which was unfortunately rejected. Both scholars specialize in empirical IO.

Even though Professor Barwick did not accept our offer, we must note that the department was able to make a very competitive offer to her and all the previous candidates. The financial support of the university has been critical in this hiring. Note that our offers are strong but not out-of-line with the rest of the market and, indeed, we also lost some good candidates to competitors such as Dennis Nekipelov (who moved from Berkeley to Cornell), Greg Lewis (who moved from Harvard to Microsoft Research), and Taisuke Otsu (who moved from Yale to LSE).¹⁵

Another reason to focus on empirical IO is the presence of large companies with an interest in big data in the region. We mentioned that Pat Bajari has a 50% appointment with Amazon. Amazon has been recruiting a large number of our PhD students and PhDs around the country. More than 50 PhDs in economics are currently working at Amazon. Amazon has also recruited well-known scholars who have moved permanently to Amazon (such as Philip Leslie from UCLA), or are regular visitors (such as Guido Imbens from Stanford and Victor Chernozhukov from MIT). A couple of years ago, Microsoft hired a chief Economist (Preston McAfee, previously at Cal Tech) who has also been building a strong group of empirical IO economists with young (such as Justin Rao PhD from UCSD) and established scholars (such as Simon Wilkie from USC). Other companies such as real estate newcomer Zillow are also interested in this field and eager to hire more empirical IO economists. Therefore, the abundance of IO economists in the region and the strong demand for our students made empirical IO a logical field to expand in empirical microeconomics. This focus is also in line with the profession. In the last 15 years, all the Clark Medalists have been associated with a subfield of empirical microeconomics.

As mentioned elsewhere in this study, both our undergraduate and graduate students benefit directly from the presence of those IO economists in Seattle. Affiliate Professor Greg Duncan (now at Amazon and formerly professor of economics at Washington State) has been teaching the first course on big data and econometrics in the country to our undergraduate students for three years now. This year, Affiliate Professor John Geweke (now at Amazon and formerly Professor of economics at Minnesota and Duke) is teaching a special graduate course in econometrics, Justin Rao (Microsoft) and Jacob LaRiviere (Microsoft) are teaching an undergraduate class in IO. Our graduate students also benefit from informal advising in their PhD dissertation research and from better quality speakers in our seminar series thanks to the connection with economists from those companies.

In the past 4 years, we have also strengthened our ties with other units on campus, who have also recruited in applied micro fields. In particular, we made several new adjunct appointments such as Chris

¹⁵ Mainly thanks to the new hires, the mean and median salaries of full professors have slightly improved in the recent survey by Professor Hamermesh (UT-Austin) from the very last position in 2012-13 to number 10 out of 14 in 2014-15. The 14 schools are: Washington, UC Berkeley, UC San Diego, Texas-Austin, Minnesota, Iowa, Illinois, Michigan, Michigan State, Ohio State, Florida, North Carolina, Virginia and Maryland.

Anderson (Fisheries School/empirical microeconomics) who has a PhD in economics from Cal Tech, Anirban Basu (Health Services/health economics) who has a PhD in economics from Chicago, Brian Dillon (Public Policy School/development who has a PhD from Cornell, Philip Bond (Business School/applied micro-theory and finance) who has a PhD from Chicago or Hema Yoganarasimhan (Business School/empirical microeconomics and marketing) who has a PhD from Yale.

To summarize, given our current strength in applied micro theory, econometrics and macro/international economics, we believe that developing a strength in empirical IO is a credible way to take advantage of the opportunities in the vibrant local economy and build upon the strong start in the re-building process of the Department with a view to a sustainable and strong future.

A realistic goal. At the request of the outside members of the review committee, we have computed a weighted score based on publications in the top 25 journals since 2010 and compared UW with 12 peers.¹⁶ We rank only 9th. However, all those departments have more faculty than UW. If we compute the per capita score, we rank 5th, with a score close to the 3rd (UT Austin) and 4th ranked department (Ohio State). Our absolute ranking can therefore only improve with additional productive faculty. In the last 5 years, the department has done a remarkable job in its hiring. The hires we made since 2011 have given the department a remarkable boost in the ranking. Without them, we would be dead-last of the 12 peers. If we could replicate the hiring from 2011-2015, we would be ranked 2nd both in absolute and per capita score, right behind UCSD. It appears that a realistic goal would be to reach the upper tier of our peers. The resource needed to achieve this goal would be similar to the commitment the department received five years ago.

How should the graduate program respond to and take advantage of the evolving strengths in the department and the opportunities in the vibrant local economy?

Our large graduate program is very well run and we have been producing a steady stream of well-trained professional economists. A hallmark of the program is the strong faculty mentoring and research collaborations with graduate students as is evident from the list of publications in Appendix I. Both the Department and its associated local community have undergone significant transformations since the last review. The above section described at length how these developments are reshaping the Department's hiring strategy and future directions. This section discusses some of their implications for our PhD program.

The Department's own areas of expertise have undergone significant shifts as its faculty composition has evolved; in addition, a number of other units on campus have hired strong economists, several of whom have become adjuncts professors in Economics. The Department has in addition been attracting distinguished economists from local companies such as Microsoft and Amazon to join as affiliate professors, with a number of them offering Departmental courses. These developments have offered our students rich opportunities to take advantage of synergies in applied research within the broader community. However, these new opportunities also pose some new challenges that require careful navigation. Specifically, we discuss below two main areas: 1) the challenge of maintaining effective PhD research supervision, and 2) the opportunities and challenges posed by outside employment as a source of PhD student funding.

PhD Advising. Currently, sixteen out of the thirty-six PhD dissertation committees in the Department include members who are either outside of the Department or in other University or research

¹⁶ Indiana, Maryland, Michigan State, UC Davis, UCSB, UCSD, UIUC, UNC, UT Austin, UVA, Ohio State and Penn State.

institutions, such as the Brookings Institution, NOAA, Vanderbilt, and RAND. Overall, we view these arrangements as extremely valuable opportunities for our students to gain broader exposure and receive guidance from the larger research community. Discussions and collaborations with faculty members in other units on campus also allow our students to apply their analytical and empirical training in Economics to more applied topics in, for example, resource management, industrial/market analysis, and health economics. The challenge, however, is to balance these benefits with clear and effective advising from within the Department in order to ensure timely completion of high-quality dissertation research. Expectations for research output and focus do vary across disciplines and institutions; this at times requires elevated levels of communication and awareness among both students and committee members to achieve consensus.

The need for more collaborative planning with outside units beyond the Department's traditional study plans also applies to students in the earlier stages of their study. Some second-year students, and even a few occasional first-years, may benefit from courses outside the Department. As such, the Department should continue its collaboration with our adjunct and affiliate faculty members to explore and extend course-advising beyond the standard fields; this would better serve the growing body of students who would likely benefit from more creative and innovative study plans.

Outside Funding and Employment Opportunities. Given the current level of University support, the Department cannot fund all of its graduate students fully; this has always been the case. The rapid emergence within Seattle of major corporations whose businesses center on statistical inference from very large data sets, and on problems in fast-paced economics sub-disciplines such as empirical IO, raises both large opportunities and significant challenges.

The benefits of having graduate students work in local industry are clearly manifold. Theoretical perspectives are enriched by real-world exposures, the advising talent of local economists is utilized, and internal student financial-support challenges are addressed. In addition, these opportunities to the world of corporate economics sometimes provide a natural lead to a student's eventual placement. Those working at Amazon, have picked up cutting-edge skills in managing large data sets. In recent years, graduate students working at Zillow, Amazon, Microsoft, and the UW Endowment have, upon graduation, landed good positions at those institutions.

But having a significant number of students working in local industries also presents challenges. Students who work as economists in local corporations sometimes end up putting too little energy into their own dissertation research. This can result in them being forced to drop out—an outcome that is clearly not in line with their original plans – or in longer completion times for their degrees. The demands of outside work can also distract students who were in the longer term probably better-suited to academic research. In short, while those who do graduate sometimes find strong, permanent jobs with their student employers, this is a process that can benefit greatly from much more awareness, on the part of students and their employers, of the potential risks as well. The Department needs to work harder to provide such guidance and communication.

To summarize, the expanding advisory and employment options in other units, both within and outside the University, have brought along exciting opportunities to our graduate program. With them, the traditional field of study, research agenda, dissertation committee, as well as funding sources are all evolving, which would require keen awareness and discussion to formulated policy to best guide our students forward.

How to address needs in a time of dwindling State support: how to manage the economics Visiting Committee, relationships with prominent local companies, and to explore the feasibility of a fee-based masters or certificate programs?

Economics Visiting Committee (VC): Founded in 1989, the department's 38-member Visiting Committee (VC) is an engaged group of diverse business leaders who volunteer their time and assets to provide leadership, funding, teaching assistance, advocacy, and community connections for the department. Recognizing the UW's vital regional role in economics education and public policy formation, members of the VC pledge their support to the Department in any number of ways, most notably by providing a stable and significant source of funding that allows the Department to maintain high-quality and relevant programs while advancing strategic initiatives.

The future financial health of the Department lies in large part on the ability of the VC to build a committed group of alumni and friends at all stages of their careers who recognize the value of an economics education and who will, in turn, foster such relationships with future alumni. The VC annually contributes anywhere from \$50,000 – 100,000 in both current use and endowment funds through direct appeals and faculty/student presentations describing current funding needs in the department. These funds are vital to the functioning of the Department and are used in many ways, including faculty research and travel, seminar expenses, faculty and student recruiting, activities of the Economics Undergraduate Board, and staff support. With routine cuts in the budget in recent years, funds from the VC and Friends of Economics have become even more significant.

In addition to volunteering their own time and assets, VC members strive to secure private contributions to enhance core support received from the state; increase the level of private giving to the department and/or the University both in terms of dollars raised and numbers of contributors; and enhance understanding among the UW's alumni and friends of the need for private philanthropy to support excellence in the department. Some VC members have established professorship themselves (like the Milliman Professorship by VC member Glenn Milliman), have helped set up new professorships (like the Glaser professorship with the help of VC member Tom Olson) or inspired professorships (like the Richards professorship established by the nephew of VC member Bob Richards).

Members are regularly presented with new and innovative research and insight into current worldwide economic conditions by economics faculty and students, and visiting economics policy makers. Members have been given the opportunity to meet informally with such guests as Dean Furbush, former Executive Vice President of NASDAQ, Robert E. Lucas, Jr., 1995 Nobel Laureate in economics, and the Honorable Ben S. Bernanke, former Chairman of the Federal Reserve Board. The opportunity to be back on campus and the camaraderie among the members is also a benefit.

One very successful outcome of these efforts has been the Economics Mentorship Program, which has proven to be an effective use of Visiting Committee resources in its ability to reach, engage, and instruct undergraduate students. Given the challenging economic climate, more than ever students moving into the workforce are faced with tough competition for satisfying careers; the mentorship program, pairing students with seasoned and successful business leaders, thus provides participating students a distinct advantage.

Additionally, working with academic leaders, College advancement staff collaborate to develop key strategies for cultivation, solicitation, and proposal development. A focus on the "top 25 potential donors" in each unit – many of whom are also VC members - offers department chairs and advancement staff an opportunity to review cultivation strategies together regularly. Their efforts are supported and facilitated by central development through events, publications, recognition programs, annual giving solicitations, regional events and cultivation activities, and other continuing stewardship efforts.

The VC also includes members from prominent local companies like Microsoft (Chris Nelson and Eileen Wang are VC members) or Zillow (Stan Humphries). We need to strive to include more members of local companies in our VC. Recently, local companies like Amazon and Microsoft have been developing a staff of PhD economists. The department has been actively engaged with such companies by placing graduate students in those groups but also by asking the economists working at such companies to teach in our program. For instance, John Geweke, now affiliated with Amazon, is teaching a graduate course in econometrics. Greg Duncan (also affiliated with Amazon) teaches an undergraduate class on big data and econometrics. Justin Rao and Jacob LaRiviere, both affiliated with Microsoft, are teaching an undergraduate class in industrial organization. For years, we have used VC members and economists working in the local economy to teach courses. Christina Tapia, the chair of the VC, is currently coordinating two classes (Topics in financial economics, and Law and Economics) where several VC members teach short modules to our undergraduate students. A tighter connection with the local business community is also one of the goals of our planned Master program.

Master Program: A committee consisting of senior faculty, Jacques Lawarree, Quan Wen and Eric Zivot, was formed to study the feasibility of starting a fee-based Master Degree Program. Currently the Department does not admit students towards a Master degree. Zivot is co-director of the Master program in Computational Finance and already has experience with starting and running a successful fee-based program.

The recent surge in undergraduate enrollments in economics, many from emerging countries, have increased the demand for an enhanced education experience beyond what a typical undergraduate program can offer. In response to this increase in demand, many leading US universities have established fee-based master programs in economics, such as Columbia University, University of Minnesota, University of Michigan, University of Wisconsin-Madison. Most of these fee-based master programs utilize the expertise of their economics faculty and strength of their local economic/business environment. In addition to more rigorous training in economic theory and methodology, a typical master program offers a number of areas of concentrations. The aim of these programs is preparing students for work places and PhD programs.

At UW, we have many advantages in offering a fee-based master program. As one of the best public universities in the world, UW is well-known in Asia. To take advantage of the local companies such as Microsoft and Amazon and our current faculty skills, our plan is to design a program that trains students in data skills along with standard economic analyses. We have a strong and expanding group of econometricians and applied economists, who can provide the technical training. We also have strong ties to local companies. Besides the VC members mentioned above, both Zivot and Lawarree have ties to the finance and tech industries, and our colleagues Pat Bajari, Greg Duncan, and John Geweke are associated with Amazon. We hope to rely upon these ties to provide training and internship opportunities for our students.

How to continue to provide a quality undergraduate education given the challenges posed by a strong demand for the economics major and the changing composition of the students wishing to major in economics?

We take great pride in our undergrad program, which has consistently performed at a very high level. Some significant changes have occurred in the last ten years, mainly driven by the increase in the size and change in the composition of our major.

As mentioned above, a rapid increase in demand for economics majors led to the creation of a competitive major in 2009 so that we could continue to provide a quality education given the size of our

faculty. Since economics is fairly technical, admission to the major relied on grades in math, statistics, and introductory micro and macroeconomics, and there was not much other data that could be readily used. As a result, the students admitted became overly quantitative at the expense of students who might not be as good at math but have stronger analytical abilities.

To remedy the problem, we introduced an additional admission requirement, hoping to correct this inherent quantitative bias. Our goal was to admit students who are analytically strong, who are better able to write and argue coherently, who will make an overall contribution to the class, and who will enrich everyone's experience in the major. Students applying to the economics major now have to take a writing test called RTW for Reading, comprehension, analytical Thinking, and Writing skills, enabling us to evaluate applicants on another dimension resulting in a more balanced student body. According to various surveys, majors as well as faculty have favored this initiative.

A second challenge was the sudden change in the composition of our majors due to the huge growth in the number of international students applying and being admitted in our department. As shown in Section I, the proportion of international majors went from 8% in Winter 2007 to 52% in 2012, to around 60% currently. Along with high interest among current students to get into the major, there seems to be strong interest even among new enrollees at UW. On average, about 550 students have been applying to the major each year. Since 2010, each year, the number of Autumn-quarter enrollees in UW who stated Economics as their top major has been: 121, 172, 173, 190, and 137, respectively, with over 50% of those being international students.

The first few years of this change presented a host of major challenges, including English language difficulties, changed classroom environment, educational background issues, and administrative problems that required a significant increase in the use of staff time. Many of the international students had difficulties in analyzing economics topics, had little training in writing essays, were not used to voicing opinion in class or joining class discussion, were not aware of rules at UW, or had visa-status related complications, etc. Among various responses, the Department offered special tutoring services for international students, with the creation of an English Language Learning tutoring and writing center, now discontinued since the current set of international students' English has improved. While international students are often technically well prepared, making our instruction more effective, classroom challenges remain, especially in terms of in-class participation, a key component of instruction in economics. Disciplines develop effective pedagogic methods over years of collective practice, and the change in the classroom environment has been a big jolt to the system. While concerns related to the international student have changed over time and are somewhat more manageable, demands on staff time continues to be high, and our students would be better served with an increase in the amount of staffing resources.

There are other noteworthy aspects to the changes in the composition of our major. The ratio of women in the major has increased to more than 50%, whereas, it was typically around 30% in earlier years. On the other hand, the proportion of Washington State residents has fallen, including a significant drop in Washington State women. From Spring 2000 to Spring 2015, the proportion in the major and the number of Washington State students fell from 75% or 347 students to 31% or 225 students. Similarly from Winter 2010 to Winter 2015, the proportion of non-international women fell from 27% to 15%. We are concerned about the implications of reduced participation of these groups in receiving an education in economics at UW.

As already mentioned, we do not have the flexibility to offer classes at the 300-level nor spots for non-majors in our 400-level classes given the on-going struggle to offer enough 400-level classes for our majors. At the introductory level, however, the Department continues to provide a tremendous service to a large number of students in the UW community: last year, we taught two basic service courses,

introductory micro and macroeconomics - ECON 200 and 201 - to respectively 2,895 and 1,750 students (a total of 4,645). Moreover, our department has developed and offers 3 courses in the new Integrated Social Science Program (ISS).

According to our surveys (senior exit survey and EUB survey) and given the sentiment of our faculty, everybody wishes for smaller classes. How can we reduce class size without reducing our overall contribution to the College and UW? One possibility would be to reduce the size of the major i.e. admit fewer undergraduates, but revive a number of 300-level courses that used to be offered in a previous era. For example, less quantitative versions of intermediate micro and macro, or a number of applied courses at the 300 level could go a long way towards addressing the lack of economics offerings to non-majors. However, given the very high demand for our major from existing students and new enrollees, a significant reduction in the size of the major is likely have serious consequences. Another idea is to offer classes varying in sizes. Most of our class limits are 35-40 students, but we could offer some larger classes in specific cases, and add some smaller seminars. This year we are introducing a new approach to teaching Intermediate Micro - ECON 300. Instead of a number of courses taught by graduate students and an occasional faculty-taught course, a faculty will teach a large class of over 100 students every quarter with a few TA's sections – the same format as ECON 200 and 201 but with fewer students in total. The quality of the teaching should be enhanced and the coursework standardized for a very important foundation course in our major. If the experiment works, we might extend this format to other courses, first to Intermediate Macro (ECON 301), but also to other popular courses that are offered multiple times in a year. This could also give us some flexibility to offer a few smaller classes. The creation of additional topic seminars could also enhance our students' opportunities for research, which is an often-expressed-but-difficult-to-meet desire given the student/faculty ratio. For instance, if we taught a 400-level class in a large section (equivalent to 2 of our older classes), we could add a small seminar on a related topic, offered by the same instructor, to our curriculum. At this point, there are only few small classes in the major, and these are mainly in the Honors program. However, our 400 level classes are already significantly larger than in the other Social Science programs, and it is not clear whether we can be effective with even larger classes, especially with the mix of students in our major.

Exploiting the quantitative strength of our current students, the rise in demand for quantitative skills by our students and in the economy, we are now offering a series of econometric courses covering topics like big data and machine learning. Affiliate professors from Amazon and Microsoft are also strengthening our program. In the exit survey, seniors advise their peers to take more econometrics, more computer programming, and more mathematics, and in the 2015 EUB survey, students indicated that they would be interested in learning to use various statistical software such as R or Stata (note that the EUB offers a quarterly Excel workshop taught by an alum). This trend is also evident from the increase in demand for such skills by local companies like Amazon and Zillow. In the past few years, the department has recruited highly skilled faculty familiar with new quantitative techniques and conversant with the latest tools of empirical research. We can further address this need from students by creating a Certificate in Quantitative Economics and Econometrics, but we will probably need to offer classes (or smaller sections) in a special computer classroom.

Overall, the proportion of economics students doing double majors/degrees/minors in the various units has been rather stable but the composition seems to have changed. Exhibiting an amazing interest in diverse fields, about 40% of our students are studying towards double major/degrees with 40 to 50 different departments. The main departments (with double digit numbers of students) are in the natural sciences: ACMS, Computer Sciences, Mathematics, Statistics, Psychology – and in the social sciences: Political Sciences, the Jackson School, and Communication. Since students' interest for the Bachelor of Science basically doubled in the past 10 years, it is not surprising that a larger proportion of

our students choose to double major with ACMS or Math while fewer students now choose a social science like international studies or political sciences. If we were to try and reverse the trend, creation of multidisciplinary Options may be a fruitful direction to pursue.

Economics is intrinsically an interdisciplinary subject – economists are concerned about a diverse set of issues appealing to social sciences broadly, and recent Nobel laureates in economics are indicative of this aspect (e.g., Elinor Ostrom, Angus Deaton). Unfortunately, the number of econ majors doing double majors with another discipline in the social sciences has dropped from 82 in Winter 2013 to 56 in Autumn 2015. We hope that the creation of Options including, for instance, JSIS or Political Science courses would address the demand from our BA students for more applied courses. They would be able to apply the economics principles they have learned in our department to issues presented in JSIS or PolS courses like: Political Economy of Development or Government and the Economy or Environmental Politics and Policy in the US. In fact, 60% of our students are working towards the BA, and these students' experience and education in our department would be enhanced with the creation of options in specific interdisciplinary areas. The structure of these options would be similar: students would take 2 core courses in our department and the rest of the courses (3 or 4 courses) would be chosen out of a list of courses in our department and in another department. Although the options are specific degrees offered by our department, we shall design them in cooperation with the other social sciences department whose courses figure in the list, which could potentially lead to more double majors as well.¹⁷

¹⁷ In the case of ACMS – a Mathematical Economics option, we have some 40 double majors every year.

Appendix A - Enrollment and degrees awarded

Economics undergraduate majors enrolled:

Academic Year	Autumn	Winter	Spring	Summer
2005-2006	730	803	838	302
2008-2009	775	890	967	339
2009-2010	859	859	867	260
2012-2013	595	687	716	200
2014-2015	615	688	713	188

Economics undergraduate degrees awarded:

Academic Year	Autumn	Winter	Spring	Summer	Yearly total
2005-2006	53	60	237	78	428
2008-2009	44	61	240	75	420
2009-2010	80	70	268	61	479
2012-2013	48	74	171	46	339
2014-2015	46	79	177	38	340

Economics graduate enrollment and degrees awarded

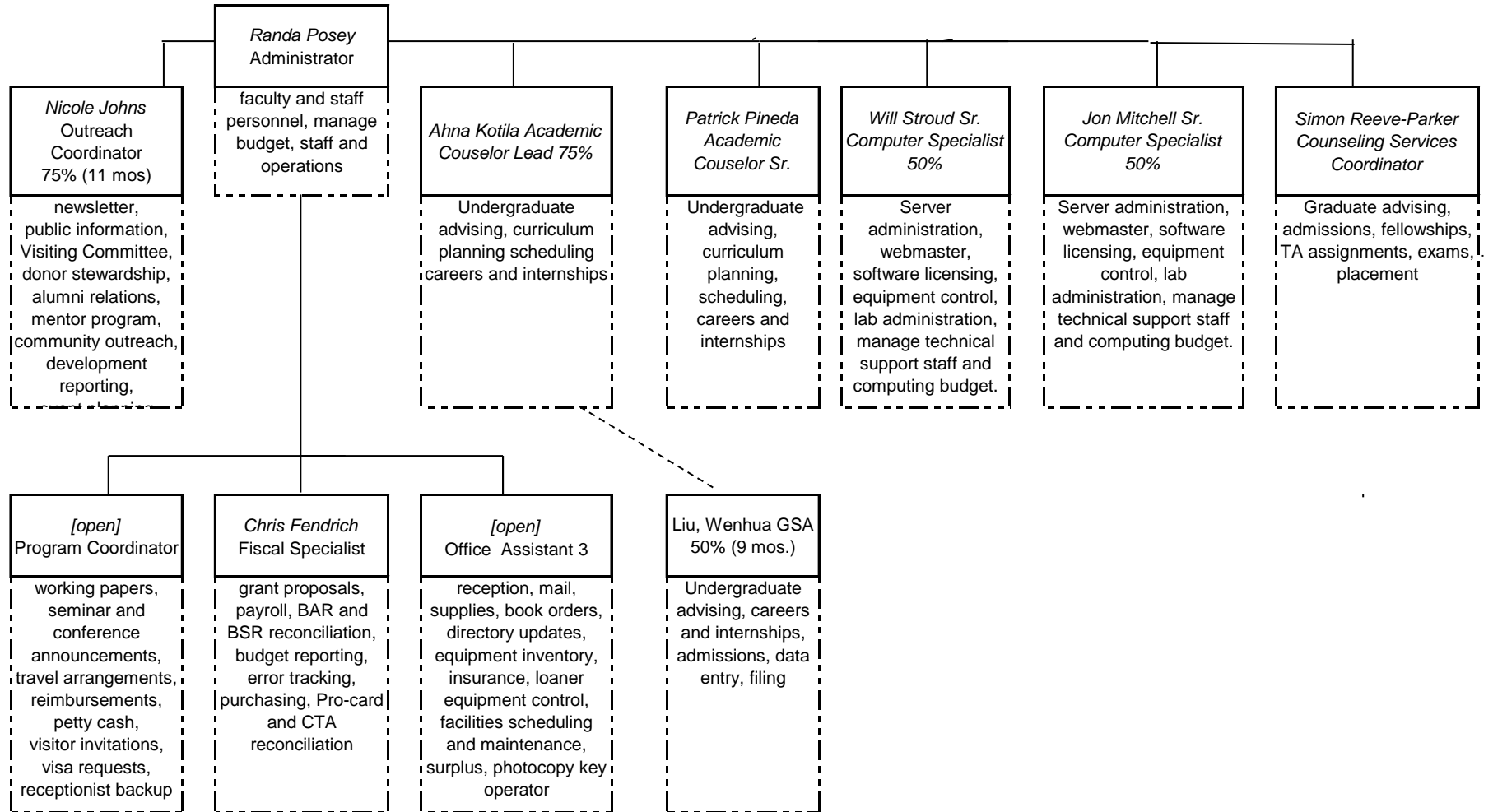
Academic Year (AUT-SUM)	Enrolled (AUT 10 th day)	PhD degrees granted	MA degrees granted
2006-07	94	11	16
2007-08	89	10	20
2008-09	89	13	10
2009-10	108	11	13
2010-11	107	9	17
2011-12	97	8	24
2012-13	99	7	17
2013-14	103	19	19
2014-15	100	16	18

Economics

C	2004-05	2005-06	2006-07	2007-08	2008-09	2009-10	2010-11	2011-12	2012-13	2013-14
Autumn Quarter Enrollment										
Enrollment History										
Total	95	101	94	89	89	108	107	97	99	103
Full-Time	77	90	85	79	82	90	91	87	87	96
Part-Time	18	11	9	10	7	18	16	10	12	7
Male	63	68	64	57	54	64	64	55	60	63
Female	32	33	30	32	35	44	43	42	39	40
Ethnic Minority	6	8	11	9	9	12	9	10	13	13
International	60	56	43	41	44	56	55	50	57	65
Wash. Resident	22	35	37	35	27	25	21	19	15	15
Non-Resident	73	66	57	54	62	83	86	78	84	88
New Student Enrollment	22	22	18	13	24	35	20	16	19	23
Continuing	73	79	76	76	65	73	87	81	80	80
Annual Application (Sum-Spr)	341	359	320	267	206	228	277	291	309	
Autumn Quarter Application	341	356	318	267	204	227	275	291	309	293
Autumn Quarter Denials	249	272	244	185	108	116	143	184	224	211
Autumn Quarter Offers	62	65	73	72	96	63	63	33	31	39
Autumn Quarter Percentages										
% Denied (of Applications)	73.0%	76.4%	76.7%	69.3%	52.9%	51.1%	52.0%	63.2%	72.5%	72.0%
% Offers (of Applications)	18.2%	18.3%	23.0%	27.0%	47.1%	27.8%	22.9%	11.3%	10.0%	13.3%
% New Enrollees (of Apps)	6.5%	6.2%	5.7%	4.9%	11.8%	15.4%	7.3%	5.5%	6.1%	7.8%
% New Enrollees (of Offers)	35.5%	33.8%	24.7%	18.1%	25.0%	55.6%	31.7%	48.5%	61.3%	59.0%
Autumn Minority Admissions										
Applications	20	32	32	17	24	20	32	20	36	28
Denials	11	24	20	8	9	8	18	9	20	21
Offers	9	8	12	9	15	9	6	4	6	3
Autumn International Admissions										
Applications	254	210	186	161	118	125	159	163	187	190
Denials	188	183	173	131	83	75	88	110	141	136
Offers	36	11	13	26	35	26	28	13	19	27
Applicant Average GPA										
Denied	3.61	3.58	3.62	3.52	3.57	3.60	3.59	3.66	3.63	3.64
Accepted But Not Enrolled	3.67	3.74	3.79	3.74	3.75	3.65	3.73	3.67	3.73	3.74
Accepted and Enrolled	3.56	3.58	3.72	3.75	3.72	3.58	3.68	3.76	3.68	3.72
Applicant Average GRE Scores										
Denied										
Verbal Score	510	487	507	503	503	549	556	565	594	579
Quantitative Score	765	754	765	759	760	761	771	771	776	780
Analytical Score	684	620	691	618					430	530
Accepted But Not Enrolled										
Verbal Score	527	576	619	602	586	590	592	609	501	361
Quantitative Score	774	769	772	779	779	782	784	787	675	452
Analytical Scor	686	760	666	700						
Accepted and Enrolled										
Verbal Score	453	601	601	565	562	586	566	622	559	605
Quantitative Score	757	774	764	774	778	779	785	785	776	787
Analytical Score	634	756		710						
Annual Degrees Awarded (Sum-Spr qtrs)										
Masters:	17	23	16	20	11	13	17	22	19	
Doctoral:	9	14	13	12	8	17	8	8	7	
Ph.D. Candidates:	13	9	12	16	11	7	12	10	10	
Autumn Quarter Financial Support										
Teaching Assistants	51	53	53	53	53	54	52	55	59	63
Research Assistant	7	8	6	8	7	2	4	6	9	5
Fellowships	12	7	9	9	7	6	12	12	13	17
Traineeships	0		0	0	0	0	1	1	2	1

APPENDIX B

Department of Economics -- Staff Organization Chart (April 2016)



APPENDIX C
Economics GOF Budget

	Biennium					
	09-11		11-13		13-15	
	Budgeted	Expense	Budgeted	Expense	Budgeted	Expense
Fac Salaries	6,299,818	6,146,780	5,631,412	5,397,309	8,030,362	7,820,420
TA Salaries	1,436,579	1,400,897	1,365,988	1,380,165	1,465,867	1,614,413
RA Salaries	31,700	40,041	36,891	50,309	31,700	38,631
Staff Salaries	851,235	851,235	821,854	822,889	908,933	907,779
Hourly Salaries	28,024	78,308	44,777	29,057	72,585	45,219
Benefits	1,046,969	992,192	2,027,575	1,962,538	2,471,893	2,457,289
Svcs, supplies,travel	80,642	144,580	73,472	203,948	61,296	157,713
Totals	9,774,967	9,654,033	10,001,969	9,846,215	13,042,636	13,041,464

TA/RA salary increases : FY14 10% salary increase, we were funded at 8%; FY 15 10% salary increase we did not receive funding to cover; FY 16 11.2% increase without us being covered for it, and another expected increase in FY 17 with no promise for it being covered.

FY 16 we received a 15% cut to our TA temporary budget

Also note that in FY 09 we received a cut to our TA budget of around \$59K, for 2 years we received backfill funding from the college to cover those cuts and the 3rd year we received ½ of those funds but have not received any backfill for the past several years.

Generally we would cover some of these cuts with our leave/recapture budget, however we have few faculty going on unpaid leave and sabbaticals in the near future. Example leave plans: FY12 \$140,727; FY13 \$117,987; FY14 \$88,891; FY15 \$112,679; FY16 \$66,990; FY17 \$13,979 (projected)

We continue to have a steady need for TA's because they need to teach and/or assist in the the very popular lower level courses. So the number of TA's required has not decreased even with the shrinking budget. We also have an RA who assists our UG advising, a task which has beome even more critical with increased and diverse enrollment in the major; those funds have not increased to match the salary raises either.

Other expenses: The department has many other expenses that were at one time covered with GOF funds but are now paid from other funds that will soon run out as they are not replenished. This is due to the need to use whatever leave/recapture funds we have to cover the deficit caused by the unfunded salary increases to our graduate students. Some costs are now covered from our 09 budget which was at one time replenished as non-matriculated students signed up for our courses, which is no longer the case. We expect those funds will run out soon. Some costs are paid from our 74 budget (DOF) which is not replenished; we expect those funds will run out soon as well.

The general cost of doing business has increased where the funding for these types of expenses (general office) has been stagnant for at least the 10 years.