

# Proposal for a Ph.D. in Economics at IUPUI

## Primary Fields

Health Economics

Nonprofit/Philanthropic Economics

Department of Economics

Indiana University School of Liberal Arts

Indiana University Purdue University Indianapolis

IUPUI

INSTITUTION: Indiana University, Indianapolis (IUPUI)  
SCHOOL: School of Liberal Arts  
DEPARTMENT: Economics  
DEGREE PROGRAM  
TITLE: Economics  
FORM OF RECOGNITION TO BE  
AWARDED/DEGREE CODE: Doctor of Philosophy/Ph.D.  
SUGGESTED CIP CODE: 45.0601  
LOCATION OF PROGRAM/  
CAMPUS CODE: Indianapolis/IUPUI  
PROJECTED DATE OF  
IMPLEMENTATION: November 2009

DATE PROPOSAL WAS APPROVED BY INSTITUTIONAL BOARD OF TRUSTEES:

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SIGNATURE OF AUTHORIZING INSTITUTIONAL OFFICER

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DATE

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DATE RECEIVED BY COMMISSIONER FOR HIGHER EDUCATION

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COMMISSION ACTION

(DATE)

## A. ABSTRACT

This document proposes an Indiana University Ph.D. degree in Economics to be offered on the campus of Indiana University Purdue University Indianapolis (IUPUI) and administered by the Department of Economics in the School of Liberal Arts. The Department has offered an M.A. in Economics for over fifteen years; that experience has prepared the department to implement a Ph.D. program alongside the M.A.

### Objectives

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The increasing role of the health and life sciences in Indiana, Indianapolis and, in particular, on the IUPUI campus generates a demand for well-trained health economists at the Ph.D. level. Given the surge in health care costs over the past decade, economic analysis of alternative treatments and alternative systems has taken on a more critical role. There is a substantial need for health economists who can work in collaboration with physicians and other health scientists on the design and implementation of more efficient and effective health care systems. The establishment of a Ph.D. program in Economics with a concentration on Health Economics will help to meet that need in Indianapolis, in Indiana and nationally.

The IUPUI campus is also home to the Indiana University Center on Philanthropy, one of the leading research centers in the U.S. focusing on charitable giving and volunteering. The Third Sector has been growing in importance in recent years and our interest in and need to understand philanthropy has been growing apace. There is a need for nonprofit economists who can work in collaboration with researchers from other fields who are trying to understand connections between altruism and philanthropy and to understand how government tax and expenditure policies impact the Third Sector. The establishment of a Ph.D. program in Economics with a second concentration on Nonprofit/Philanthropic Economics will help to meet that need, both locally, in the state and nationally.

### Unique and Innovative Features

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Although there are a number of Economics Departments nationally that train the occasional health economist and there are a number of policy and public health schools that train health economists, we would be the first department of economics in the country to focus *primarily* on the training of health economics Ph.D.'s. A number of interdisciplinary programs and Schools of Public Health nationally offer PhD degrees in Health Economics. Our doctoral students will be prepared as PhD's in Economics with a field in Health Economics. Our students will receive more advanced training in economic theory and econometric analysis than would students from programs in Schools of Public Policy or Public Health and we understand that most Ph.D. programs in Health Economics have only one formal course in Health Economics; our Health Economics students will have two. With the structured minor our Health Economists will also have substantive exposure to another life science field such as Biostatistics or Epidemiology. They would be able to provide more thorough analyses of the economic aspects of health issues and should be important members of

interdisciplinary research teams. Similarly we would be the first program to focus on training Ph.D. economists to analyze the nonprofit sector and charitable motivations. Our program differs from the PhD in Philanthropic Studies because that program focuses on a broad interdisciplinary approach to questions of philanthropy while our program would be discipline-based within Economics. Our nonprofit/philanthropic economists should be able to work effectively in interdisciplinary teams, bringing economic theory and strong empirical foundations to their collaborations.

## **Curriculum**

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Students entering the program will have at least a bachelor's degree and strong economics, mathematics, and statistical training. Many students find that completing a Master's degree in economics prior to starting the Ph.D. is excellent preparation and a good way to make sure there are no deficiencies in one's preparation. The successful applicant will have at least the intermediate level courses in micro- and macroeconomics and preferably some advanced field classes; an undergraduate course sequence in univariate calculus (equivalent to Math M165-M166 at IUPUI), a course in multivariate calculus (equivalent to Math M261 at IUPUI), a course in linear algebra; and a course in statistics. Most of the students admitted will exceed these minimal requirements. Mathematical training in real analysis is desirable, as is a solid course in probability. A minimum of 90 credit hours beyond the bachelor's degree is required for the doctoral degree. At least 40 of these credits must be in formal coursework in Economics. An additional 12 hours of registration in the relevant workshop/seminar brings the Economics coursework total to 52 credit hours. The 90 credit hours will consist of:

**Core Courses (21 hours):** A common core of 21 credit hours of coursework in optimization theory in economics (3 hrs.), microeconomic theory (9 hrs.), macroeconomic theory (3 hrs.) and econometrics (6 hrs.) will be required of all students who begin the program with no formal graduate training.

**Microeconometrics and Empirical Analysis (12 hours):** Because econometric analysis of data is an important task in both of our primary fields, all of our PhD students will take an additional 6 credits of formal econometric theory courses beyond the six credit core. These courses will focus especially on advanced micro-econometric analysis which is important for applications in our two primary fields. Candidates will also take a 6 credit, year-long course in the empirical analysis of large micro data sets, using the leading econometric and statistical software packages. The extensive exposure to econometrics will allow all students who desire it, to attempt a secondary field in applied econometrics. In recognition of the importance of econometric analysis to all of our students, the Qualifying Examination shall contain substantive questions on micro-econometric issues. (See below.)

**Field Courses and Seminar/Workshops (19 hours):** In addition students will select either Health Economics or Nonprofits/Philanthropic Economics as a primary field. We expect most students to elect Health Economics as their primary field. Those students will take a one-credit course on the institutional setting for Health Economics, a two-course sequence in Health Economics, pass a comprehensive field exam, and register for the formal Health Economics seminar/workshop (at least 12 hours). Students who elect a field in Nonprofits/Philanthropic Economics will take a one-credit course on the institutional setting for Nonprofit/Philanthropic economics, a two course sequence in Nonprofit/Philanthropic Economics, pass a qualifying field exam, and register for the Nonprofit/Philanthropic Economics Seminar/Workshop. In the early years of the program as enrollment is growing, these two workshops may be jointly offered. In rare cases, a student may elect an alternate field.

**Minor Area or Research Tool (9 to 12 hours):** All students must either complete a minor in an area related to their primary field or acquire a research tool skill. Ordinarily for health economics students the minor will come from an area of the health and life sciences such as bioinformatics, biostatistics or public health. For the students in nonprofits/philanthropic economics, students would acquire an appropriate minor, such as Philanthropic Studies or Nonprofits Management. All minors would be subject to approval by the advisor and the Director of Graduate Studies (DGS). A research tool skill involves study in a technical area that can enhance the production of research in the student's main field. The research tool skill requirement involves demonstrated proficiency in one skill set which may be Statistics, Mathematics, or Computer Science. A student must choose one of these fields and obtain at least 9 credits in it. Classes at the 400 level in Mathematics and Statistics and above can be used as long as they are approved for graduate credit. Computer Science classes should be chosen in collaboration with the DGS.

**Dissertation (26 to 29 hours):** The remaining hours to total 90 will be guided research dissertation hours.

### **Clientele to be Served**

The program is designed for full-time studies. Most students will be traditional full-time doctoral students for the duration of the program, but the last stages of the Ph.D. thesis may be finished on a less than full-time basis.

### **Employment Possibilities**

Graduates of this program are primarily expected to enter research positions analyzing health and philanthropic/nonprofits issues and policy for hospitals, pharmaceutical companies, consulting firms, 'think tanks', nonprofit institutions and government agencies. Preparation for those wishing to obtain an academic position in a teaching or research university is a secondary goal of the program for its initial years. Details on employment prospects are provided below on pages 19-21.

## B. PROGRAM DESCRIPTION

The Ph.D. program in Economics is designed for individuals with strong quantitative and analytical skills with special interest and aptitude for the analysis of issues arising in either the health and life sciences or the nonprofit sector. The program stresses extensive preparation in economic theory and econometrics and intensive exposure to economic applications in either health or the nonprofit sector, including theoretical, econometric and experimental studies. The primary goal is to prepare students for careers as applied economists in (1) any professional health-related environment such as medical research institutes, government agencies, universities and private health companies; or (2) research institutes, foundations or government agencies with focus on the nonprofit/philanthropic sector.

### Admission Requirements

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Any applicant with a suitable Bachelor's or Master's degree from an accredited institution who shows promise for successfully completing all the degree requirements will be considered for admission to this program. An undergraduate major in Economics is not required but the minimal acceptable economics background consists of intermediate microeconomic and macroeconomic theory (equivalent to E321 and E322 at IUPUI) and either (1) a calculus-based undergraduate level course in probability or statistics or (2) any undergraduate statistics course plus a course in introductory econometrics (equivalent to E270 and E470 at IUPUI). In addition students need a substantial mathematics background including an undergraduate course sequence in univariate and multivariate calculus (equivalent to MATH M165, M166, and M261 at IUPUI), and a course in linear algebra (equivalent to Math M351 at IUPUI). Students will be advised that it is desirable to complete a sequence in Mathematical Analysis (equivalent to Math M441 and Math M442 at IUPUI). Prospective applicants who do not have the required background must acquire it prior to admission to the program.

Applicants are required to take the Graduate Record Examination (GRE) General Test (Quantitative, Verbal and Analytical Writing). While we do not expect to institute a fixed minimum requirement, students will be advised that successful candidates typically have quantitative scores at the 700 level and above and scores below 650 are typically not sufficient for admission. At the present time, quantitative scores appear to be better predictors of success in Economics than Analytical Writing or Verbal but we will develop guidance for prospective applicants in those areas also. Those whose native language is not English must also take the Test of English as a Foreign Language (TOEFL) and achieve a score of 570 (or 230 on the computer version of the test or 88 on the internet version, TOEFL-int). Applicants for financial support in the form of fellowships or assistantships must have a score of 600 or better (250 or better - computer version; 100 or better on the internet version, TOEFL-int). Final decisions on admissions will be made by a Graduate Admissions Committee consisting of three faculty members including the Director of Graduate Studies. Students whose qualifications fall just below the minimum requirements of the department

for admission to the Ph.D. will be encouraged to enter the terminal M.A. program. If they are highly successful in that program they may be reconsidered for admission to the Ph.D.

Students will be asked to indicate whether they are applying for the stand alone M.A. or the Ph.D. The Graduate Admissions Committee will be responsible for sorting students into the following categories: (i) ready to start Ph.D. training in economics by reason of ability, aptitude, and motivation; (ii) not ready or not motivated for the Ph.D. training but ready and motivated for the 1.5 year M.A. program in economics; ready for training in one program or the other contingent upon the completion of a small number of prerequisite courses. Although the Graduate Admissions Committee will attempt to sort applicants correctly, in our program as in all others we know of, some students who start in the M.A. program will find that they have the ability and motivation to succeed in a Ph.D. program and will switch from the M.A. program to the Ph.D. program; others who start the Ph.D. will find that they lack the ability, aptitude or motivation to complete the Ph.D. but will be able to obtain an M.A. as long as they complete the required 30 credits in graduate courses (24 credits in economics including up to 6 credits of outside electives).

## **Description of Proposed Curriculum**

A minimum of 90 credits beyond the Bachelor's degree are required for the Ph.D. degree, with at least 49 credit hours of formal coursework accumulated by the student, with at least 40 formal hours of coursework in economics. An additional 12 credit hours or more are obtained in the relevant economics workshop/seminar.

The formal coursework includes 21 credits of a required core, a 12 credit microeconomic and empirical analysis module, and an additional 7 credits of coursework in the primary field. In addition the student will take 9-12 credits of coursework in a Minor area or in tool skills and 12 credits of workshop/seminar in their primary field. The remaining 26-29 credits consist of directed Ph.D. thesis research. Students are expected to graduate with their primary field in either health economics or nonprofit/philanthropic economics and a secondary field in applied econometrics. In some cases, students may elect to take the other primary field as an added field (for example, nonprofit/philanthropic economics if health economics is the chosen primary field).

## Required Courses

Every student in the program is expected to complete the following courses

### Core Courses (21 credit hours):

- E 520 Optimization Theory in Economic Analysis (3 credits)
- \*E 521 Theory of Prices and Markets I (3 credits)
- E 522 Macroeconomic Theory (3 credits)
- \*E 571 Econometrics 1-Statistical Foundations (3 credits)
- \*E 573 Econometrics 2-Single Equation Econometric Models–(3 credits)
- \*E 611 Topics in Microeconomic Theory (3 credits)
- \*E 621 Theory of Prices and Markets II (3 credits)

*\*Designated core classes [tested in the comprehensive examinations at the end of the first year]*

### Microeconometrics and Empirical Analysis (12 credits)

- E 577 Computer Methods and Data Analysis (3 credits)
- E 578 Advanced Computer Methods and Complex Datasets (3 credits)
- E 670 Econometrics 3-System and Panel Econometric Models (3 credits)
- E 673 Econometrics 4-Microeconometrics (3 credits)

### Field Courses (19 hours)

Students with fields in Health Economics and Nonprofit/Philanthropic Economics will also be expected to complete the following classes:

- E515 Institutional Setting for Health Economics in the U.S.A. (1 credit) and
- E643 Health Economics I (3 credits) and E644 Health Economics II (3 credits)
- or
- E516 Institutional Setting for Nonprofit/Philanthropic Economics (1 credit) and
- E667 Nonprofit/Philanthropic Economics I (3 credits) and E668 Nonprofit/Philanthropic Economics II (3 credits)

Students are expected to register for their Health Economics or Nonprofit Economics Workshop seminar once they have passed their field comps. Participation in the workshop is required for at least 4 semesters [12 credit hours]. Students may cease to register for the workshop seminar after their fourth semester in the workshop if they have either accumulated the required 90 credits or defended their Ph.D. thesis.

### Ph.D. Thesis (26-29)

Students are expected to register for at least six credits of thesis credits in the third year. This will be the vehicle which guides students in the writing of the thesis proposal (which normally begins with

the writing of a major paper) and the admission to candidacy. In the second year students will take the year-long course acquainting them with data sources and applied econometric methods for the analysis of these data; this will prepare them to write their thesis proposal. In the third year, students will enroll for at least three Ph.D. thesis credits [E809] in each semester. Students will spend the year writing their thesis proposal. Students who wish to finish the program within four years will need to take an additional 3 Ph.D. thesis credits in the second semester of their third year to initiate substantive work on the first of the three related essays that typically constitute a modern Ph.D. thesis in Economics. Following admission to candidacy which should normally happen soon after the third year of coursework, students will typically register for an added 17-23 Ph.D. thesis credits to complete the dissertation.

### **Minor Area**

In addition to the formal coursework in Economics the prospective Ph.D. candidate must complete a structured minor in a related area. For those with a primary field in health economics, the minor should relate to the health and life sciences disciplines. A minor obtained in areas such as behavioral health sciences, biostatistics, environmental health sciences, epidemiology, or health policy and management would be highly appropriate. For those with a field in nonprofits/philanthropic economics, a logical minor would be found in Philanthropic Studies or in Nonprofits Management or any of the other Liberal Arts disciplines connected to the study of charitable behavior and nonprofit institutions. The minor must be approved by the student's Advisor or the graduate director of the program. The minor must contain a minimum of three graduate level courses (9 credits) in the chosen area and it must comply with the minor requirements of the respective department/unit. Typically departments require 12 credit hours for a Ph.D. Minor. In cases where it is appropriate, an interdepartmental minor can be arranged with the consent of the DGS. When appropriate, a student may, with the consent of his/her advisor and/or the DGS, substitute a research tool skill of at least 9 credit hours for the Minor. These research tool skills credits will count toward the 90 credit requirement as long as the courses are approved for graduate credit.

### **The Comprehensive Examination**

Students must pass a written comprehensive examination on the Microeconomic Theory (E521, E611, E621) and Econometrics (E571, E573). This will be administered as two separate exams, a theory examination and an econometrics examination. This examination will be offered twice each summer. Students must take the examination in the summer following completion of the five courses. This is typically at the end of the first year. Students who enter the Ph.D. program with a Master's degree may not be required to take all five of these courses; in such cases, these students must take the comprehensive exams within one year from the date of entry to the program. The preparation and administration of the comprehensive examination will be overseen by the Graduate Examination Committee. This exam may be taken at most two times, and will result in one of two outcomes:

1. Pass or better. The student has demonstrated fundamental understanding of the core theory and econometrics necessary for completion of the Ph.D. program.
2. Failure with an option to complete an M.A. in Economics. The student has demonstrated incomplete understanding of the core theory and econometrics necessary for completion of the Ph.D. program. Nevertheless, the student has demonstrated sufficient understanding to complete an M.A. degree with additional credits of coursework (if necessary) to make up the required 30 credit hours of coursework for the M.A. degree. Such students will normally be able to complete the M.A. degree within 16 months of the start of the program on the same schedule as those who entered at the same time but elected to pursue an M.A. as a terminal degree.

### **Ph.D. Advisor**

After passing the Comprehensive Examinations, the prospective Ph.D. candidate must choose a primary research advisor. The choice of the advisor may reflect the area of interest to the student and may be chosen from any of the Graduate Faculty of the Economics Department.

### **Qualifying Examination**

All students must take a written examination that covers the primary fields of study and may, at the discretion of the DGS and the minor department, cover the minor subject as well. The qualifying examination is taken after the formal field courses are completed. Students who fail the qualifying examination are normally allowed to retake it only once. The qualifying examination must be passed at least eight months prior to the date the degree is awarded. In the ideal case it is completed by the summer after the third year in the program.

### **Admission to Candidacy**

Following the passing of the qualifying examination and the completion of all formal course work, the student's advisory committee will submit a Nomination to Candidacy Form to the University Graduate School. Upon approval of the dean, the student will be admitted to candidacy and awarded a Certificate of Candidacy.

### **Continuing Enrollment**

Students who have passed the qualifying examination must enroll each semester (excluding summer sessions) for any remaining required course work or dissertation credits. Once such students have accumulated 90 credit hours in completed course work and deferred dissertation credits, they must enroll for a minimum of 1 hour of graduate credit each semester until the degree is completed.

### **Dissertation and Research Committee**

Each doctoral student must write a dissertation which is an original contribution to knowledge and of high scholarly merit. Although work published by the student may be incorporated into the

dissertation, there must be a logical connection between all components of the dissertation and these must be integrated in a rational and coherent fashion. The dissertation is written under the supervision of a research director and a research committee. It is the responsibility of this committee to determine the kind and amount of published material which may be included in a dissertation.

To initiate research for the dissertation, the student chooses a professor who will agree to direct the dissertation. A research committee will then be formed consisting of the Research Director (who typically serves as chairperson); two or more additional faculty members from the major department; and a representative from the minor department. In the event the dissertation does not involve the area of the minor or if research tool skills are substituted for the minor, the major department may request, with the consent of a minor field representative (if a minor was taken) the substitution of a representative from some other field more appropriate to the topic of the dissertation. The committee has the responsibility of supervising the research, reading the dissertation and conducting the final examination at the defense. The committee will assure that all of the technical requirements of the Graduate School are satisfied by the student.

### **Dissertation Prospectus and Defense of the Dissertation**

Details of the defense process are laid out in the Graduate School Bulletin. The Research Committee will ensure that the proper procedures are followed.

### **Sample Program**

The following sample plan of study is an illustration of courses taken by a full-time student with a field in Health Economics and a 12 credit minor who intends to finish the program in four years. A student with a field in Nonprofits/Philanthropic Economics would take a similar program except that in the first year a course on the Institutional Setting for Nonprofit/Philanthropic Economics in the U.S. would be taken; in the second year, a two-course sequence in Nonprofits Economics and in the third and subsequent years, workshops in Nonprofits Economics would be substituted. Although virtually every Economics program in the United States is designed, like this one, to permit Ph.D. students to complete the program within four years, it has become the norm that students typically take five years to complete the degree. That is likely to be the case with our program as well. Nevertheless we have designed our program to be rigorous but focused, and to specifically move the student along through the research process to the preparation and completion of the Thesis.

- **First Semester [10 credits]**

E 515 Institutional Setting for Health Economics in the U.S. (1 credit)

E 520 Optimization Theory in Economic Analysis (3 credits)

E 521 Theory of Prices and Markets I (3 credits)

E 571 Econometrics 1-Statistical Foundations (3 credits)

- **Second Semester [12 credits]**

E 522 Macroeconomic Theory (3 credits)

E 573 Econometrics 2-Single Equation Econometric Models (3 credits)

E 611 Topics in Microeconomic Theory (3 credits)

E 621 Theory of Prices and Markets II (3 credits)

- ***Summer between second and third semesters:***

**Comprehensive Examinations**—Taken at the end of the first year in the program; those passing may continue for the Ph.D.; others may either finish an M.A. degree or leave the program.

- **Third Semester [12 credits]**

E 577 Computer Methods and Data Analysis (3 credits)

E 670 Econometrics 3-System and Panel Econometrics Models (3 credits)

E 643 Health Economics 1 (3 credits)

Minor (3 credits) {*Minors for the Health Economics concentration will typically involve courses in biostatistics, decision theory, epidemiology, or health management*}

- **Fourth Semester [12 credits]**

E 578 Advanced Computer Methods and Complex Datasets (3 credits)

E 644 Health Economics 2 (3 credits)

E 673 Econometrics 4-Microeconometrics (3 credits)

Minor (3 credits)

- **Fifth Semester [9 credits]**

E 744 Seminar/Workshop in Health Economics (3 credits)

E 809 Ph.D. Thesis (3 credits)

Minor (3 credits)

- ***Sixth Semester [12 credits]***

E 744 Seminar/Workshop in Health Economics (3 credits)

\*\*E 809 Ph.D. Thesis (6 credits)

Minor (3 credits)

*\*\* Students who wish to graduate within four years must take six Ph.D. thesis credits this semester in order to complete the preparation for the Thesis proposal and initiate work on the first essay for their Thesis.*

- ***Summer between sixth and seventh semesters:***

**Qualifying Examination**—Students are expected to pass a Qualifying Examination in their Primary Field by the end of the third year.

- ***Seventh Semester (12 credits)***

E 744 Seminar/Workshop in Health Economics (3 credits)

E 809 Thesis (Ph.D.) (9 credits)

- ***Eighth Semester [12 credits]***

E 744 Seminar/Workshop in Health Economics (3 credits)

E 809 Thesis (Ph.D.) (9 credits)

## **Courses**

The required courses for the program are listed on the page following. Course descriptions are in Appendix A3. In the second column of the table, we use the abbreviations **R** for courses that are required of all students; **RH** for courses required of Health Economics students; and **RN** for courses required on Nonprofits/Philanthropic Economics students.

Course Number and Title	Credit Hours	Required for all or for field?	Current Course or New?
<b>E515</b> Institutional Setting for Health Economics in the U.S.A.	1	RH	N
<b>E516</b> Institutional Setting for Nonprofits/Philanthropic Economics	1	RN	N
<b>E 520</b> Optimization Theory in Economic Analysis	3	R	C
<b>E 521</b> Theory of Prices and Markets I	3	R	C
<b>E 522</b> Macroeconomic Theory	3	R	C
<b>E 571</b> Econometrics 1-Statistical Foundations	3	R	C
<b>E 573</b> Econometrics 2-Single Equation Econometric Models	3	R	C
<b>E 577</b> Computer Methods and Data Analysis	3	R	N
<b>E 578</b> Advanced Computer Methods and Complex Datasets	3	R	N
<b>E 611</b> Topics in Microeconomic Theory	3	R	N
<b>E 621</b> Theory of Prices and Markets II	3	R	C
<b>E643</b> Health Economics I	3	RH	N
<b>E644</b> Health Economics II	3	RH	N
<b>E667</b> Nonprofit/Philanthropic Economics I	3	RN	N
<b>E668</b> Nonprofit/Philanthropic Economics II	3	RN	N
<b>E 670</b> Econometrics 3-System and Panel Econometric Models	3	R	N
<b>E 673</b> Econometrics 4-Microeconometrics	3	R	C
<b>E 744</b> Seminar/Workshop in Health Economics	3	RH	N
<b>E765</b> Seminar/Workshop in Nonprofits/Phil. Econ.	3	RN	N
<b>E800</b> Research in Economics	Cr. Arr.	R	C
<b>E 809</b> Thesis (Ph.D.)	Cr. Arr.	R	C

## **Form of Recognition**

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Students who successfully complete this program will receive an Indiana University degree of Doctor of Philosophy (Ph.D.) in Economics, from the School of Liberal Arts at Indiana University Purdue University Indianapolis (IUPUI).

## **CIP Code**

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Proposed CIP Code: 45.0601

## **Program Administrators and Faculty**

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### **Program Administration**

The IUPUI Ph.D. program in Economics will be offered as an Indiana University degree and will be administered by the IUPUI Department of Economics within the School of Liberal Arts. The Chair of the Department of Economics will serve as its Principal Administrator, with the assistance of the Director of Graduate Studies-Graduate Programs. Once the program is approved it is expected that the current Director of Graduate Studies will become the Director of Graduate Studies-Doctoral Program and a new faculty member will be identified to become Director of Graduate Studies-Terminal Masters Program

Paul S. Carlin, Chair, Department of Economics, IUPUI, Professor of Economics, Ph.D., Economics, 1985, University of Pittsburgh. Principal Administrator.

Anne Beeson Royalty, Director of Graduate Studies, Department of Economics, IUPUI, Associate Professor of Economics, Ph.D. Economics, 1993, Yale University. Co-Administrator.

### **Committees**

The administration of the program's academic affairs will be overseen by the program's faculty and will be facilitated through standing committees, such as an Admissions Committee, a Curriculum Committee, and a Qualifying Examination Committee.

### **Graduate Faculty in Economics [Research Areas in brackets]:**

- ◆ Marc Bilodeau, Associate Professor, Ph.D., Economics, 1990, University of Western Ontario, Canada. [Nonprofit/Philanthropic Economics, Applied Microeconomic Theory].
- ◆ David Bivin, Professor, Ph.D., Economics, 1980, Purdue University. [Macroeconomics, Time Series Econometrics].

- ◆ Paul S. Carlin, Professor, Ph.D., Economics, 1985, University of Pittsburgh. [Labor and Family Economics; Empirical Microeconomics].
- ◆ Subir K. Chakrabarti, Professor, Ph.D., Economics, 1985, University of Iowa. [Microeconomic Theory, Game Theory].
- ◆ Gwendolyn C. Morrison, Associate Professor, Ph.D., Economics, 1996, University of York, U.K. [Health Economics, Experimental Economics].
- ◆ Una Okonkwo Osili, Associate Professor, Ph.D., Economics, 1999, Northwestern University. [Development Economics, Nonprofit/Philanthropic Economics, Empirical Microeconomics].
- ◆ Peter Rangazas, Professor, Ph.D., Economics, 1983, Indiana University (Bloomington). [Economic Growth, Dynamic Models and Calibration].
- ◆ Patrick Rooney, Professor, Ph.D., Economics, 1987, University of Notre Dame. [Nonprofit/Philanthropic Economics, Labor Economics].
- ◆ Anne Beeson Royalty, Associate Professor, Ph.D., Economics, 1993, Yale University. [Health Economics, Empirical Microeconomics].
- ◆ Steven Russell, Professor, Ph.D., Economics, 1989, University of Minnesota. [Macroeconomic and Monetary Theory].
- ◆ Robert Sandy, Professor, Ph.D., Economics, 1977, Michigan State University. [Labor Economics, Empirical Microeconomics, Empirical Health Economics].
- ◆ Martin Spechler, Professor, Ph.D. Economics, 1971, Harvard University. [Economics of Central Asia, Comparative Economic Systems].
- ◆ Richard Steinberg, Professor, Ph.D., Economics, 1984, University of Pennsylvania. [Nonprofit/Philanthropic Economics, Applied Microeconomic Theory].
- ◆ Mark O. Wilhelm, Professor, Ph.D. Economics, 1990, New York University. [Nonprofit/Philanthropic Economics, Applied Microeconometrics].
- ◆ Ye Zhang, Assistant Professor, Ph.D., Economics, 2007, University of Maryland. [Labor Economics, Applied Microeconometrics].

- ◆ **NEW Econometrician\* (Open Rank) [Expansion position]**
- ◆ **NEW (Applied) Microeconomic Theorist\* [Replacement position]**
- ◆ **NEW Health Economist\* (Open Rank) [Replacement position]**
- ◆ **NEW Health Economist [Expansion position]**

### **Needed Learning Resources**

The proposed Ph.D. program in Economics will be facilitated by the relevant teaching and learning resources already existing at IUPUI in the School of Liberal Arts and will require no additional State investments for its implementation. The IUPUI Department of Economics offers an Indiana University M.A. program in economics and it has, therefore, most of the necessary administrative infrastructure to support the administration of a new doctorate degree program in economics. The School of Liberal Arts is currently offering Master's degree programs in several fields and a Ph.D. in Philanthropic Studies. Incremental fee income, enrollment change funding, and increased cost recovery income will cover the incremental costs associated with the new program.

The Economics (terminal) M.A. program has been quite successful in generating support for graduate students so that an unusually high level of student support is currently available to M.A. candidates. Reorienting some of this support toward the Ph.D. program will help to provide the support needed for Ph.D. students without reducing support for M.A. students below that which is normally available to (terminal) M.A. students in economics. The proposed program is largely built on existing resources (both curricular and faculty talents and expertise), and therefore will not divert any resources away from undergraduate education on the IUPUI campus. At present, Economics still relies heavily on part-time instructors to deliver education in economics to our undergraduates. Hence this program and the presence of more advanced graduate students in economics should enhance the undergraduate education in economics on our campus by allowing for the replacement of some part-time instructors by graduate teaching assistants/fellows.

The Department currently has a small group office space for the Research Assistants in its M.A. program in Economics. The removal of several Cavanaugh Hall offices (Bursar, Financial Aid, Registrar and Bookstore) after completion of the new Campus Center makes space somewhat less constrained in the building that houses the Economics department, Cavanaugh Hall. The additional space should enable the School of Liberal Arts to assign a larger group space for Research Assistants and Teaching Assistants. Successful funded grant activity has generated indirect cost recovery sufficient to enable the School and the Department to support an active research seminar series and to provide the high level computing power necessary for advanced training in economics. In

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\* The School of Liberal Arts has authorized searches for these positions with the Econometrics and Health Economics searches to be conducted with rank open. The searches for three positions are to be successfully concluded before the first class of students enters the program. The fourth new economist can be hired after the first class enters but before their second year in the program.

addition, of course, faculty and advanced graduate students have access to supercomputer capabilities at Indiana University. Finally, the physical and online holdings of the IUPUI University Library, the Ruth Lilly Medical Library, and the Joseph and Matthew Payton Philanthropic Studies Library are generally sufficient to support the program. The one area that needs to be addressed is due to the challenges that all American university libraries are currently facing with respect to high cost online journal subscriptions. The IUPUI Library has indicated that online journals in economics constitute a budgetary challenge; the campus, school and department will be working to resolve this challenge.

## C. Program Rationale

### *Health Economics.*

Health economists develop mathematical and statistical models used to explain various aspects of the health sector. The health care industry tends to be highly regulated by the government and the government is a large payer through Medicare, Medicaid, and the Veteran's Administration programs. In the private sector, health insurance dominates the payment options with health maintenance organizations managing much of the care. Many other societies utilize universal healthcare which faces rationing and physician recruitment and retention issues. The U.S. uses a variety of private schemes which wind up with substantial numbers of individuals choosing to self-insure. These multi-faceted relationships between the consumer of health services, the provider of health services and the payment scheme create a complex incentive structure that benefits from economic analysis. Effective health care policy must adequately address issues such as asymmetric information, moral hazard and adverse selection. Furthermore microeconomic evaluation of individual treatments in terms of cost and consequences is increasingly mandated by health care systems. Health Economists conduct cost-benefit analyses of pharmaceutical products and cost-effectiveness studies of various medical treatments. Health economics often uses mathematical models to synthesize data from biostatistics and epidemiology for support of medical decision-making, both for individuals and for wider health policy. As these areas are developed further, they will require increasingly sophisticated economic expertise in their support, and few grant applications in health services and evaluation can be approved today without appropriate and frequently extensive involvement of a health economist.

### *Nonprofit/Philanthropic Economics.*

Nonprofit/philanthropic economics encompasses the study of various non-market organizational forms, known as nonprofit or not for-profit organizations, non-governmental organizations (NGOs), or charitable trusts, as well as organizations sharing characteristics of both for-profits and nonprofits such as consumer cooperatives, micro-credit banks, social-entrepreneurial firms, and worker-managed firms. It also covers a variety of other-regarding behaviors, including donating, volunteering, informal helping, and blood and organ donation, and the consequences of such behavior for the development of social networks of trust or reciprocity. In essence, Nonprofit/Philanthropic Economics concerns private action for the public good. Nonprofit/Philanthropic Economists study topics such as: (i) whether nonprofit enterprises differ in behavior and efficiency from for-profit or government operated enterprises in the same industry; (ii) how should antitrust and other regulatory policies, designed for profit-making entities be applied

to not-for-profit firms; (iii) how to solve the ‘free-rider’ problem in the collective private provision of public goods; (iv) whether charitable donations should be tax deductible and whether nonprofit entities should be exempt from various taxes; and (v) how compensation, incentives, and discrimination vary between the for-profit and not-for-profit sectors.

### **Institutional Factors**

Although economists are concentrated in the Economics Department at IUPUI, there are also economists in other schools, notably SPEA and the Kelly School of Business. One of our health economists is also a Regenstrief Institute Investigator. The campus already has several units and centers with substantial research strength and expertise in statistics, biostatistics and other related areas. There are currently two health economists in SPEA and two health economists in the Economics Department; the School has also authorized a search with rank open for another health economist for the Department of Economics. The five economists associated with the Philanthropic Studies program in the IU Center on Philanthropy at IUPUI all have their home department in Economics.

The IUPUI Department of Economics has fifteen Ph.D. level tenure stream faculty members, including 2 members with expertise in the area of health economics. The Department has offered a graduate program leading to the Master’s degree in Economics since 1993. To date, more than 80 applied economists have been trained in this program. Some of those have pursued the doctorate degree in economics or a related field following completion of the M.A. degree, but most have found employment either in the Indianapolis area or nationally in employment areas such as government, finance, and market research. There is a substantial need for PhD trained health economists who can participate as Principal Investigators (PI’s) and Co-PI’s on grant applications; M.A. economists cannot fill this need. Hence few of our M.A. graduates have found employment in the health sector. Nevertheless, the availability of such a program at IUPUI has helped retain many of these students in the state. It is also worth noting that many of these Master’s program graduates, who are locally bound for personal or employment and professional reasons, were initially interested in having Ph.D. level training in economics. However, in the absence of any venues for such an advanced degree program in the Indianapolis area, some of them instead pursued the Masters’ degree program in applied economics, while other prospective students have left Indiana to pursue a Ph.D. degree in economics at other universities in urban areas outside the state, thus contributing to the brain drain from Indiana.

A Ph.D. program in Economics will help solidify the existing strength in research excellence in health economics and related areas such as biostatistics and health services research. As mentioned earlier, the proposed Ph.D. program in Health Economics and Nonprofit/Philanthropic Economics will be facilitated entirely by the relevant resources already existing at IUPUI and will require no additional state investments for its implementation. The new degree will result in increased collaborations among the health economics researchers in the Department of Economics and the health economics/health services researchers in SPEA and the Regenstrief Institute, while at the same time providing an array of research and specialization opportunities for the students and faculty involved. The Department of Economics is well positioned to build a successful Ph.D. program in Economics at IUPUI. The basic academic infrastructure already exists – a successful Master’s level program in Economics, a critical number (15) of Ph.D. faculty members along with one search in process for a senior level hire in health economics and School commitments to (i) fill

two slots which were not filled after the faculty members involved left to pursue other opportunities outside Indiana; and (ii) allocate resources so that additional faculty can be hired with appropriate specializations for the proposed PhD program, bringing the total complement of PhD level faculty to about 20. These additional tenure stream hires are expected to be in health economics, micro-econometrics, microeconomic theory (for the new core course in microeconomics focusing on information economics, contract theory and so on), and/or in nonprofit/philanthropic economics. The Department also anticipates the likely retirement of four faculty members between now and 2013; the department expects that their replacements will enhance the robustness of course coverage in core and primary Ph.D. field areas.

## Local and State-wide Factors

Indianapolis and Indiana have identified the life sciences as a major focus of its economic development efforts in the 21st century. Indiana BioCrossroads was created as a partnership between leading research, academic and economic development organizations in 2002 with the specific objective of making Indiana a world-class center for health and life sciences. A recent report from BIO/Battelle ranked the Indianapolis area as the ninth largest region in the U.S. for bioscience jobs at 24,051, ahead of the San Diego, Washington, D.C., Seattle, and Atlanta areas. BIO/Battelle's regional report showed Indiana as one of the top four states in the number and concentration of life sciences-related jobs.

With nearly 900 existing companies, the \$13.6 billion life sciences industry of Central Indiana employs more than 80,000 workers in medical, biomedical and biotechnology; pharmaceuticals; medical devices and instruments; hospitals and laboratories; food and nutrition; organic and agricultural chemicals; and in related research, testing and development enterprises. Indiana is home to world-class companies such as Eli Lilly & Company, Roche Diagnostics, Dow AgroSciences, Clarian Health Partners, WellPoint/Anthem, Cook Group, Guidant, Hill-Rom, Zimmer Inc. and Covance, among others as well as major public research universities, including Indiana University at Bloomington, Purdue University at West Lafayette and IUPUI with its medical center and the state's only medical school.

This positioning of the life sciences as the heart of Indiana's economic development efforts is expected to continue. According to the *Biocrossroads 2007 Report*, Indiana expects to add 40,000 new jobs in the life sciences industry between 2007 and 2012. Much of this growth will be in the arc formed by West Lafayette, Indianapolis and Bloomington and relies on a vibrant partnership between Purdue University (West Lafayette), Indiana University (Bloomington), and IUPUI (Indianapolis). Part of the engine of growth for this enterprise is the continued ability of the Indiana University School of Medicine and its partners to secure major research grants and that ability depends, increasingly on an ability to assess the economic as well as the health benefits of alternative treatments and health programs and policies. Health Economists are a necessary part of a successful life sciences strategy. The initiatives to grow the life sciences industry will substantially increase the demand in Indiana for highly qualified and well trained health economists.

These new hires anticipated in health economics, along with the health economists now in the Economics Department, and those at IUPUI in SPEA and the Regenstrief Institute in the School of Medicine will create a critical mass of health economics researchers. The weekly health economics

research seminar will be a focal point for bringing these researchers together at a single time and place. The existence of this critical mass, along with these increased opportunities for networking and communicating should lead to a sharp rise in external research funding related to health economics at IUPUI. Two members of the Economics Department have been Principal Investigators on National Institutes of Health funded research grants. Since 2001, the Economics Department at IUPUI has generated \$749,675 in external research funding in health economics. These grants include:

Funding Source	Title	Amount	Begin	End
National Science Foundation	Discrete Choice Estimation of Workers' Valuation of Fringe Benefit Dollars and Employee Choice among Employer Health Insurance Plans	\$51,746	7/1/01	6/30/04
U.S. Department of Labor	Health Insurance and Labor Market Outcomes: Joint Decision-making by Two-Earner Couples	\$ 69,677	5/1/03	7/31/05
University of Alabama - Birmingham	Health Insurance and Labor Market Outcomes: Joint Decision-making within Households	\$22,397	8/1/03	9/26/04
Zimmer Institute	Matching Patient and Surgeon's Health Preferences and Expectations	\$237,812	4/1/06	3/31/08
U.S. Department of Labor	Health Insurance, Pensions, and Paid leave: Access to and Generosity of Health Insurance at Small Firms	\$26,839	5/1/06	4/30/07
W.E. Upjohn Institute	Health Care Costs and Employment Gains and Losses	\$40,000	7/1/06	6/30/08
National Institutes of Health (NIH)	Studying the Child Overweight Epidemic with Natural Experiments	\$275,000	8/15/06	7/31/07
University of Minnesota	Uninsured and Underinsured Workers in Small Businesses: Policy Implications	\$26,204	5/1/07	4/30/08

The initiation of a Ph.D. program would boost the funding because it will help the department recruit excellent faculty researchers in this highly competitive field.

While the boost to the research group focusing on charitable behavior and the nonprofit sector will be more modest, it is important to note that here too we are building on a substantial base. In the last few years the nonprofit/philanthropic economics group has generated over \$300,000 of funded economic research. The

nonprofit/philanthropic economics group has also been responsible for a major addition to the data base on which research in this area is based. This is the Center on Philanthropy Panel Study (COPPS) which is a supplement to the University of Michigan's Panel Study of Income Dynamics (PSID) survey. Over two million dollars of funding from a variety of private foundations has been secured to pay for the first several years of this important study which is designed by our faculty.

Other funded economic research in this area includes:

Funding Source	Title	Amount	Begin	End
National Institute of Child Health and Development	Family Behavior and Subsequent Helping Behavior	\$215,958	9/1/03	6/30/06
Lake Family Institute	Religion and Charitable Giving to Help the Poor	\$57,116	7/1/07	6/30/09

We anticipate hiring an additional faculty member in nonprofit/philanthropic economics as we refocus our efforts and strengths. This will boost the research in this area and give us the world's largest working group in nonprofit/philanthropic economics.

**Compatibility with the IUPUI Mission.** The newly adopted mission of IUPUI, posted on its website, describes IUPUI as "Indiana's urban research and academic health sciences campus. A partnership between Indiana and Purdue, IUPUI's mission is ...to advance the State of Indiana and the intellectual growth of its citizens to the highest levels nationally and internationally through research and creative activity, teaching and learning, and civic engagement." IUPUI expects to offer "...a distinctive range of bachelor's, master's, professional, and Ph.D. degrees."

The proposed Ph.D. degree program in Health Economics is highly compatible with the stated IUPUI mission and the life sciences plan of Indiana University. It is also consistent with and supportive of IUPUI's most recent strategic plan (revised 2002), which included, as goals, to "...facilitate the development of new graduate degree and post-baccalaureate certificate programs to meet local, national, and global needs"; and "...to increase the number of certificate-seeking and master's and doctoral students and postdoctoral fellows at IUPUI."

IUPUI's newly adopted Academic Plan notes that "Graduate education is critical to the campus mission, with more graduate and professional students completing their degrees at IUPUI than at any other Indiana campus." Furthermore the Plan indicates that IUPUI should "...grant graduate degrees that are interdisciplinary, develop procedures for interdisciplinary hires, and create cross-disciplinary mentoring programs for new faculty." The Ph.D. in Economics, with primary fields in health economics and nonprofit/philanthropic economics, fits the campus's plan very well, with a new doctoral program that will support the life sciences initiative and also contribute to the cross-

disciplinary effort to better understand charitable motivations and non-profit structures for delivering charitable goods and services.

## **Demand and Employment Factors**

Both within Indiana and nationally there is a growing demand for Health Economists. Only a few PhD programs in Economics have Health Economics as a specialization and an even smaller number have it as a formal field where they would expect to turn out one or more PhDs per year. A growing number of PhD degrees in Health Economics are offered from Health Services Research and Health Policy units. The more advanced training in economic theory and econometrics our graduates obtain will enable them to compete extremely well against those with PhD's from these other types of programs.

Based on a survey reported in *Health Economics* in 2007, about 93% of Health Economists have the Ph.D. and almost three-quarters of those have the degree in Economics. However, among those who have earned their PhD degrees since 1995, about 60% have their degrees in economics and 27% in health services research. While most of the Health Economists wrote a health-related dissertation, two-thirds indicated their institution lacked a formal field in health economics. The formal field in Health Economics would be an advantage for our graduates.

The survey also asked respondents about the kind of training they were looking for in new hires and the most widely acceptable training was the Ph.D. in Economics with a specialization in health economics which was accepted by 88% to 100% of different kinds of employers while the Ph.D. in public policy, health policy, or health services research was accepted by only 33% to 85% of employers depending on the sector. Our graduates will not only have the Ph.D. in economics, they will have a formal field in health economics, exposure to the institutional structure of health care in the U.S., and substantial practice analyzing the kinds of large micro-health-data sets that Health Economists tend to turn to for answers to important questions.

While there is little formal data on the match between supply and demand, informal information from our contacts in Regenstrief and the VA suggest that Health Economists are at a premium. Bradley Doebbling, Jr. reports that it has often taken several years to recruit a Health Economist, noting that one of his colleagues at Duke University had brought in 12 candidates over several years before they were able to successfully recruit the person they wanted. Tom Inui, Regenstrief Institute CEO, notes that it has been a challenge to find the Health Economists within Indiana University that they need to successfully compete for external grants. Everyone expects the demand to grow in years to come; certainly salaries of health economists have risen rapidly over the past several years. The one piece of formal evidence we can point to is the growth of job listings in the area in the official posting for the American Economic Association, *Job Openings for Economists*. From 2003 to 2007, the number of job advertisements for all fields increased from 2,101 to 2,914, a 39 percent increase in jobs. Ideally we would like similar numbers for Health Economists. Unfortunately the

American Economic Association does not separately track Health Economics. They do separately track the areas of Health, Education, and Welfare, which includes Health Economists. There were ads for 174 jobs in that category in 2003. By 2007 the number had climbed to 315, an increase of 81 percent. Using an earlier year as the reference point shows growth in all jobs for Economists from 1997 to 2007 rising by 55 percent and the growth for the Health, Education and Welfare category rising by 150 percent. So there seems reason to believe that the market for Health Economists will continue to trend upward.

To our knowledge, we would be the first economics department to offer a full-fledged field in Nonprofit/Philanthropic economics. Thus, few of our graduates, at least at first, will be hired by economics departments seeking that specific specialty. However, it is increasingly common for economics departments to seek specialists in applied microeconomics, which our graduates in this area would qualify for. In addition, depending on the graduate's specific research topics, he or she would qualify for a variety of traditional fields in economics. There is a growing market for faculty teaching in graduate programs of nonprofit management or philanthropic studies. These programs are located in schools of public affairs, business, arts and sciences, and social work. Mirabella's (2007) survey found that 161 colleges and universities offered graduate courses in nonprofit management education in 2006, up from 128 in 1996. Of these, 126 schools offered 3 or more courses, and 105 offered a graduate concentration.

There was also growth in undergraduate programs in the nonprofit sector and charitable giving, with 117 colleges and universities offering courses in 2006 (up from 66 in 1996), and in institutions offering noncredit or continuing education courses (131, up from 90). Undergraduate programs are becoming more numerous, in part, because of the efforts of American Humanics, an organization devoted to the development of undergraduate majors, minors, and certificates in nonprofit management that include a substantial internship component. Both IUPUI and IUB have American Humanics certificate programs, and the School of Liberal Arts at IUPUI has proposed to create an undergraduate major in philanthropic studies.

Government jobs are another option. Possibilities include Treasury (analyzing tax policy towards giving and nonprofit organizations), the Department of Justice and Federal Trade Commission (analyzing hospital mergers and nonprofit joint ventures), the Department of State (looking at Non-governmental Organizations (NGOs), international organizations, and other nonprofits for their roles in the economy and political structure), and the Congressional Budget Office. In addition, international development organizations and agencies, such as the U.S. Agency for International Development or the World Bank, employ economists to determine appropriate ways to work with NGOs in delivering aid.

Several private think tanks have programs on nonprofits and philanthropy (including the Urban, Hudson, and Aspen Institutes). Graduates could also work as private consultants, advising nonprofits on such matters as the optimal revenue mix, use of employee incentives, and strategic

partnerships and mergers. Finally, the largest nonprofits (such as Red Cross and United Way of America) and some trade associations (e.g., Independent Sector, American Hospital Association) have internal research departments that might employ our graduates.

We have located 120 doctoral dissertations in economics completed in the last decade that pertain to core topics in Nonprofit/Philanthropic Economics. These students studied at both elite programs (e.g., Harvard, Stanford, Chicago) and standard programs (e.g., City University of New York (C.U.N.Y.), Georgia State University, U. of Rhode Island, West Virginia University, and the U. of Illinois-Chicago). Many of these students obtained tenure-track jobs in Economics, a few at elite American universities (such as Princeton and Carnegie-Mellon) and some at major research universities (like Maryland, Ohio State, Penn State and Wisconsin), but more at other colleges and universities (such as Georgia State University, U.S. Military Academy, U. of Colorado-Denver, and the U of Missouri-St. Louis). Some have gone on to careers in government (such as the Federal Reserve Board of Governors, Federal Reserve Bank of Chicago, Office of Tax Analysis, U.S. Dept. of the Treasury; Economic Research Service, U.S. Dept. of Agriculture, and the World Bank). Some have ended up as faculty in nonprofit management degree programs or Schools of Public Health located outside of economics (U. of Pennsylvania, Syracuse U., U. of Oregon, U. of Wisconsin, U. of Colorado-Denver) and some have obtained positions with consulting firms, think tanks and institutes (such as the Brattle Group, California Institute of Public Policy, Institute for Social Research, Lawrence Berkeley National Laboratory, the Mathematica Institute for Policy Research, Project HOPE, and the Rand Institute). This suggests a growing demand for economists who are well-trained in the techniques of economic analysis with interest in and expertise concerning philanthropic and the structure of provision by a mixture of organizational entities, whether for profit, governmental or non-profit.

### **Other Regional, State, and National Factors**

Neither the IU-Bloomington nor the Purdue Economics Ph.D. programs offer a field in health economics or nonprofit/philanthropic economics. Neither department has a single faculty member focusing on the latter specialty and only one assistant professor at IU-B is primarily a health economist; Purdue has none. Because many of the grants in health economics require the collaboration of an MD researcher, it is logical for the state to locate a Ph.D. program with an emphasis on health economics at IUPUI. Looking regionally, the University of Illinois-Chicago has a Ph.D. program and a number of their graduates specialize in health economics. None of the other nearby Ph.D. programs, such as Notre Dame or the University of Illinois at Urbana-Champaign, have a health economics field, primarily because they have no medical school on their campus. The demand for Health Economists nationally is robust and demand almost surely exceeds supply within the state of Indiana, as recruiting and retaining health economists has been an ongoing challenge for Regenstrief Institute and the VA Center for Excellence. Health research continues to grow and, increasingly, economic analysis is a part of this research. At the present time, most Health

Economists must be recruited from outside Indiana as very few Health Economists are prepared in the state of Indiana. Although there no Ph.D. programs that have a formal field in Health Economics, Indiana University-Bloomington does have a distinguished econometrician who is interested in health issues. As a result, he has directed a small number of health economic dissertations over the years. The Krannert School at Purdue is not preparing students in Health Economics.

Hence the IUPUI Department of Economics is well situated to substantially increase the production of health economists in Indiana. We are in the heart of the state and at the node of the West Lafayette – Indianapolis - Bloomington Health Research arc, with the facilities and researchers of the IU School of Medicine and other private sector partners close at hand. By working with entities like the Regenstrief Institute, the VA Center for Excellence, and Eli Lilly, we should be able to provide our graduate students with substantial real world experience and internships that will prepare them for their research careers and increase the likelihood that more of them will stay within the state of Indiana and become part of our growing workforce in health research.

It is interesting that despite the strong concentration of PhD's in Economics among existing Health Economists, comparatively few traditional economics programs offer a field in Health Economics. For example, none of the economics departments in the Big Ten programs in the surrounding states have formal fields in health economics, although Michigan State notes that it will occasionally offer a course in a special area such as health economics and, as noted above, Indiana University-Bloomington offers the possibility through seminars and thesis work to write a dissertation in health economics. Economics departments in major universities located in urban centers, like Wayne State University and the University of Illinois-Chicago do have formal fields in health economics. If IUPUI moved to provide Indiana and Indianapolis with a potential source of health economics Ph.D.'s, that would move us alongside Illinois and Michigan and ahead of Ohio and Wisconsin.

## **Impact on other Units and Programs at IUPUI and IUB**

For a major urban research university with nearly 30,000 students, IUPUI has very few Ph.D. programs and very few Ph.D. graduates. The paucity of Ph.D. graduates is the sole reason the campus is listed as “high research” instead of “very high research” in the Carnegie Endowment Classification. In terms of the other two Carnegie criteria, research dollars and the number of research staff, IUPUI is near the median of institutions classified as “very high.” However its production of Ph.D.'s is about half the median of the “high” classification and is far below any institution classified as “very high.”

The small number of Ph.D. programs limits the ability of the campus to offer outside fields for Ph.D. students. The solution is to take a highly targeted approach to offering new Ph.D. programs that ties them to the life sciences initiative. That way the new Ph.D. programs can support each

other. For example, the new Biostatistics Ph.D. at IUPUI lists health economics as one of its outside fields. The Economics Ph.D. will have a reciprocal relationship. The campus is in the early stages of studying the possibility of a Ph.D. in Health Communications and in the Sociology of Health, both of which would fit this targeted approach well.

Our degree is centered in the Economics Department but we will be cooperating with many other units at IUPUI as well as with the Economics Department at IUB. We expect our health economics graduate students to take minors in areas like Biostatistics, Health Management (SPEA), and Epidemiology (Public Health) and expect students in those programs to take advantage of our offerings and, when appropriate, to take a minor in health economics. Our nonprofit/philanthropic economics students will find it natural to take courses in Philanthropic Studies and possibly in Nonprofits Management (SPEA) and in other cognate fields like Statistics and Mathematics.

In all cases, we will strive to collaborate with other schools, departments, and programs, both here and in Bloomington, creating a synergy that increases the overall strength of the Economics Ph.D. program within the health and life sciences, and within the nonprofit/philanthropic studies area and more generally within Indiana University as an institution.

**Letters of support:** Letters in support of the proposed Ph.D. program in Health Economics and Nonprofit/Philanthropic Economics at IUPUI have been received from various deans and directors from across campus, as well as from other individuals reflecting strong local and regional interest. These letters include (see Appendix A7):

- Marc Berger, M.D.  
Vice-President of Global Health Outcomes, Eli Lilly
- William Blomquist, Dean  
IU School of Liberal Arts, IUPUI
- Thomas S. Inui, President and CEO  
Regenstrief Institute
- Gerhard Glomm, Chair  
Department of Economics,  
IU College of Arts and Sciences, Bloomington
- John Graham, Dean  
Indiana University School of Public and Environmental Affairs
- Michael Kaganovich, Director of Graduate Studies  
IU College of Arts and Sciences, Bloomington

- Patrick M. Rooney, Acting Executive Director  
The Center on Philanthropy at Indiana University

### **Student Demand.**

Our indicators of student demand come from students who entered our M.A. but had the intent to study for a Ph.D. For example, from the three graduating M.A. classes between 2004 and 2007, nine of our students entered Ph.D. programs following their graduation. Three of those have been working on health economics topics. Had the department offered the Ph.D., perhaps they would have gone on for a Ph.D. here at IUPUI. Furthermore there were some additional students who were interested in pursuing a Ph.D. but could not relocate to another metropolitan area to pursue it. Each year we also have a number of inquiries as to whether we have a Ph.D. program. We expect that many of those students would apply once we have a Ph.D. program. Finally I note that of our currently enrolled students who are taking their second year courses (including two part-time students), four have indicated their interest in entering a Ph.D. program. Three of those have inquired about the likelihood of the PhD program being approved soon so that they could enter it. All of those students are well qualified for a Ph.D. program. We do not expect student demand to be a problem.

### **Planning and Implementation**

The initial planning for this program started in 2002, when a concept paper describing this program was developed and circulated to the faculty of the Economics Department. The faculty voted unanimously in favor of pursuing the development of a Ph.D. program with a major focus on Health Economics and Nonprofit/Philanthropic Economics. We had our External Department Review in Fall of 2003. One of the questions posed to the external reviewers was whether they viewed the department as ready to offer a Ph.D. program. The Chair of the panel was John Heywood, Chair of the Economics Department at the University of Wisconsin-Milwaukee (which has offered a well-respected Ph.D. program for many years) and two distinguished economists, David Levine and Stephen Williamson, who were then Professors at UCLA and the University of Iowa respectively. Since then they have both accepted offers of Chaired Professorships at Washington University of St. Louis. The Committee writes, "The review team is in agreement that the Department, the School, and the University could benefit from the introduction of a Ph.D. program in Economics. If the University wishes to offer Ph.D. programs in the School of Liberal Arts, an Economics Ph.D. would be an excellent start, as the Department has attained the level of research excellence that makes this feasible." Their report also included some excellent suggestions for planning and implementation.

Over the next few years the Department explored possible connections with other entities on campus but planning was in a fallow stage because the School of Liberal Arts, like many others on campus, was experiencing budgetary challenges that made the launch of a new PhD program infeasible. With the encouragement of the new Vice-Chancellor, Uday Sukhatme, planning began again in the summer of 2007. The Department approached the School and the Campus for authorization to search for an additional health economist, with rank open, to join our existing health economists so that we would be certain of having the necessary leadership in health economics. With that authorization in hand, we began the search and also began talking to leading faculty in other universities about our plans. We consulted with a number of national experts on our planning, receiving excellent suggestions along the way. These experts included: Professor Robert Kaestner, a leading Health Economist at the University of Illinois at Chicago and an affiliate of the University of Illinois's Institute of Government and Public Affairs; Professors John Cawley and Donald Kenkel of Cornell University's School for Policy Analysis and Management; and Professor Elizabeth Powers, University of Illinois. In addition we also consulted with Chris Ruhm, the Jefferson Pilot Excellence Professor at the University of North Carolina-Greensboro. His comments were very relevant because the UNC-Greensboro Economics Department has had a well-respected Master's degree program for years and launched a Ph.D. program two years ago. We have also met with key IUPUI actors at the Regenstrief Institute, the VA Center for Excellence, the Strategic Planning Office of the School of Medicine, and SPEA's Center for Health Policy. All of these consultants gave excellent advice and encouraged us to develop this innovative program.

We hope to begin matriculating graduate students into the Ph.D. program in Fall 2010. That will allow us to finish the faculty recruitment we need in order to start offering the program; the time to get new courses approved; and sufficient time for the proposal to be approved at all levels, including the Indiana Commission for Higher Education. We anticipate that about half of the students will be enrolling with a baccalaureate degree and that about half will already have a Master's degree in Economics or a related field. Doctoral study in Economics requires much more sophisticated analytical tools than are typically employed and developed in an undergraduate program in Economics. So most students entering with just bachelor's degrees will either have it in a more technical field like mathematics, computer science, or engineering or will have an economics degree with substantial training in advanced mathematics courses. We expect to admit about five students per year in the early years of implementation. We arrived at this number by examining the enrollment in other new Ph.D. programs in Economics. Projected completion within four years suggests an initial steady-state enrollment of about 20 students in the program.<sup>†</sup> Once we have a few years of experience with placing our graduates, we will assess the advisability of expanding the program to a higher level. (See Table 1 in the Appendix A2, Enrollment and Completion Data.)

Table 2A in the Appendix A2 details the program's costs and sources of revenue.

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<sup>†</sup> As noted earlier, this is an optimistic, but attainable completion goal.

Funded research grants in the Department, will allow the provision of financial support to some full-time Ph.D. students in the program. Additionally, the administrators of the program will pursue funded opportunities from outside the department to support the graduate students as research assistants. Our current M.A. program has been able to secure funding for graduate research assistants from other entities at IUPUI such as the Center on Philanthropy and the Regenstrief Institute. We hope to match that success in finding support for Ph.D. students. Some advanced graduate students will serve as Teaching Assistants and Teaching Fellows, reducing our reliance on part-time faculty.

The main sources of revenue apart from Enrollment Change Funding in Table 2A are (i) reallocating some MA fee remission dollars from Masters degree students to Ph.D. students; (ii) the attraction of new tuition dollars to campus from the enhanced recruiting made possible by the prestige of being a Ph.D. granting department; and (iii) increased indirect cost recovery from a Ph.D. program faculty that will increase its focus on externally funded research. Our M.A. program is one of the few programs nationally that provides fee remission dollars for Master's degree students. This is done as part of a package whereby M.A. students participate in research assistantships. We plan on converting some of these assistantships into for-credit internships. That should enable us to direct some fee remission dollars to our Ph.D. students. The second source of funding is a result of both the enhanced prestige and our planned reworking of the M.A. program [See Appendix A7]. We anticipate that the prestige of being a Ph.D. granting department should attract more out-of-state students to our undergraduate and graduate programs. The third source of funding is a by-product of adding faculty in an area (health economics) which tends to have substantial external funding opportunities. Several of our existing faculty are already generating external funding for their research. But we expect a larger effect as we add faculty in the health economics area and, to a lesser extent, the nonprofit/philanthropic economics area.

## **Evaluation and Assessment**

Economics Ph.D. programs have a fairly common and highly structured set of core courses in microeconomic theory, macroeconomic theory and econometrics. The standard core in the field makes it easier to design a new Ph.D. program because there is a fairly broad consensus on what is typically included although, as in all fields, there has been some evolution over time. It is now more common to see some long-standing Ph.D. programs that have de-emphasized macroeconomics to focus more heavily on microeconomics. This has followed the evolution in macroeconomic theory of building macroeconomic models from microeconomic foundations. Because our primary fields have an applied microeconomic focus, we will follow this trend of de-emphasizing macroeconomics within the core by replacing one of the usual two macroeconomics courses with an extra microeconomics course focused on the areas of study most relevant to health and nonprofit/philanthropic economics. A number of our faculty (Chakrabarti, Royalty, Russell, Steinberg, Wilhelm) have taught in Ph.D. programs (Northwestern, Stanford, University of Georgia

and Iowa State, Virginia Tech, and Penn State respectively) and are quite familiar with the standard design. By combining their knowledge with the insights we have gleaned from talking to leading health and nonprofit/philanthropic economists, we have designed a program that has the strengths of a traditional program but with a sharper focus on the microeconomic theory and econometrics courses needed to succeed in our primary fields. This tight focus also allows us to provide deeper training in our two primary fields than is common.

The central objective of the Ph.D. program is to train its graduates for jobs in research positions with research institutes, large health insurers, the pharmaceutical industry, and government agencies. For example, HealthCorp, the research arm of Wellpoint, is a large employer of health economists, as is the research arm of the Veterans Administration. We do not expect many graduates to achieve academic placements at least for the first ten years of the program.

Five to six years after the first Ph.D. is awarded, the program will be reviewed by an external review committee formed by IUPUI's assessment office. The Department will report on the number of graduates, their initial placements and current employment. A related goal of the program is that its graduates be successful in publishing in refereed journals and in obtaining externally funded research grants. The same review committee will receive a report on all publications and grants by the graduates. The Department will also survey its graduates about the quality of the training they received and the help they received in finding jobs; survey results will be reported to the external review committee. The purpose of the program-level assessment is to determine which aspects of the program need to be strengthened. Similar external review Committees will be convened every five years thereafter to assess the program's performance and to advise the Economics Department on how it can be improved.

The more immediate assessment process will be through the Scientific Advisory Panel. This panel will meet annually. The standard nature of most Ph.D. programs will facilitate assessment. To test the comparability of our core sequence of theory and econometrics courses, we can use preliminary examination questions from other universities and have the Scientific Advisory Panel review samples of exam scripts of students with high pass, pass, and failing exam grades to assess if our grading standards are comparable to national norms and if the average student's performance is competitive with that of other Economics Ph.D. programs.

## **APPENDICES**

**A1. New Academic Degree Program Proposal Summary (Table 3)**

**A2. Program Enrollment and Completion Data (Table 1)**

**A3. Cost and Revenue (Tables 2A and 2B)**

**A4. Detailed List of Courses**

**A5. Econometrics Sequence [topics covered]**

**A6. MA Program Continuation**

**A7. Copies of Letters of Support**

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TABLE 3:  
NEW ACADEMIC DEGREE PROGRAM PROPOSAL SUMMARY  
10 October 2008

I. Prepared by Institution

Institution/Location: Indiana University-Purdue University Indianapolis  
 Program: Ph.D. in Economics  
 Proposed CIP Code: 450601  
 Base Budget Year: 2008-09

	Year 1 2010-11	Year 2 2011-12	Year 3 2012-13	Year 4 2013-14	Year 5 2014-15
Enrollment Projections (Headcount)	5	10	15	20	20
Enrollment Projections (FTE)	5	10	15	20	20
Degree Completion Projection	0	0	0	5	5
New State Funds Requested (Actual)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0
New State Funds Requested (Increases)	\$ 0	\$ 0	\$ 0	\$ 0	\$ 0

II. Prepared by Commission for Higher Education

New State Funds to be Considered for Recommendation (Actual)      \$ \_\_\_\_\_      \$ \_\_\_\_\_      \$ \_\_\_\_\_      \$ \_\_\_\_\_      \$ \_\_\_\_\_

New State Funds to be Considered for Recommendation (Increases)      \$ \_\_\_\_\_      \$ \_\_\_\_\_      \$ \_\_\_\_\_      \$ \_\_\_\_\_      \$ \_\_\_\_\_

CHE Code:      Comment:  
 Campus Code:  
 County Code:  
 Degree Level:  
 CIP Code:



Campus:	Indiana University-Purdue University Indianapolis										
Program:	Ph.D. in Economics										
Date:	10 October 2008										
TABLE 2A:											
TOTAL DIRECT PROGRAM COSTS AND SOURCES OF PROGRAM REVENUE											
		Year 1		Year 2		Year 3		Year 4		Year 5	
		FTE	2010-11	FTE	2011-12	FTE	2012-13	FTE	2013-14	FTE	2014-15
<b>A. Total Direct Program Costs</b>											
1. Existing Departmental Faculty Resources		0.0	\$ 0	0.0	\$ 0	0.0	\$ 0	0.0	\$ 0	0.0	\$ 0
2. Other Existing Resources			0		0		0		0		0
3. Incremental Resources (Table 2B)			215,100		436,500		585,500		683,000		683,000
TOTAL		\$	215,100	\$	436,500	\$	585,500	\$	683,000	\$	683,000
<b>B. Sources of Program Revenue</b>											
1. Reallocation		\$	55,000	\$	110,000	\$	110,000	\$	110,000	\$	110,000
2. New-to-Campus Student Fees			144,700		296,100		422,100		512,600		512,600
3. Other (Non-State) -- Indirect Cost Recovery			9,000		17,000		33,000		33,000		33,000
4. New State Appropriations											
a. Enrollment Change Funding			6,400		13,400		20,400		27,400		27,400
b. Other State Funds			0		0		0		0		0
TOTAL		\$	215,100	\$	436,500	\$	585,500	\$	683,000	\$	683,000

Campus:	Indiana University-Purdue University Indianapolis										
Program:	Ph.D. in Economics										
Date:	10 October 2008										
TABLE 2B: DETAIL ON INCREMENTAL OR OUT-OF-POCKET DIRECT PROGRAM COSTS											
		Year 1		Year 2		Year 3		Year 4		Year 5	
		FTE	2010-11	FTE	2011-12	FTE	2012-13	FTE	2013-14	FTE	2014-15
1. Personnel Services											
a. Faculty		1.0	120,000	1.5	220,000	2.0	300,000	2.0	300,000	2.0	300,000
b. Support Staff		0.0	0	1.0	40,000	1.0	40,000	1.0	40,000	1.0	40,000
c. Graduate Teaching Assistants		1.0	15,000	1.0	15,000	1.0	15,000	3.0	45,000	3.0	45,000
Total Personnel Services			135,000		275,000		355,000		385,000		385,000
2. Supplies and Expense											
a. General Supplies and Expense			2,600		3,000		3,000		3,000		3,000
b. Recruiting			0		0		0		0		0
c. Travel			5,000		18,500		20,000		20,000		20,000
d. Library Acquisitions			5,000		5,000		5,000		5,000		5,000
Total Supplies and Expense			12,600		26,500		28,000		28,000		28,000
3. Equipment											
a. New Equipment Necessary for Program											
b. Routine Replacement											
Total Equipment			0		0		0		0		0
4. Facilities			0		0		0		0		0
5. Student Assistance											
a. Graduate Fee Scholarships			67,500		135,000		202,500		270,000		270,000
b. Fellowships			0		0		0		0		0
Total Student Assistance			67,500		135,000		202,500		270,000		270,000
Total Incremental Direct Costs			\$ 215,100		\$ 436,500		\$ 585,500		\$ 683,000		\$ 683,000

## A4. Detailed List of Courses

### Required Courses

**E520 Optimization Theory in Economic Analysis (3 cr.)** P: calculus and linear algebra. Introduction to concepts and techniques of optimization theory applied in modern micro- and macroeconomics. Theory and application of Lagrange multipliers, comparative statics analysis, value functions and envelope theorems. Elements of dynamic programming and other methods of economic dynamics.

**E521 Theory of Prices and Markets (3 cr.)** P: E504 or consent of instructor. Develops the methodology of economic analysis and teaches the tools and language of price theory. Fundamental elements of consumer theory, producer theory, and economics of uncertainty. Emphasis on comparative statics and the duality theory. Topics include welfare analysis, the theory of price indices, quality of goods, revealed preferences, the theory of derived demand, expected utility theory, attitudes toward risk, and various measures of riskiness.

**E522 Theory of Income and Employment I (3 cr.)** P: E504 or consent of instructor. Intensive study of intermediate income theory; emphasis on construction and empirical significance of aggregative economic models of the determination of income, employment, and price level.

**E571 Econometrics 1 - Statistical Foundations (3 cr.)** P: undergraduate courses in statistics and calculus. The probability bases for statistical estimation and testing are introduced in the context of issues, theories, and data found in economics. The classical linear regression model is presented as the starting point for multivariate analyses in econometrics. Students work with various computer programs in and out of the scheduled class periods.

**E573 Econometrics 2-Single Equation Econometric Models (3 cr.)** P: E571 or consent of instructor. Asymptotic theory and asymptotics of least squares, endogeneity, measurement error and instrumental variables (IV), Two-stage least squares (2SLS), maximum likelihood estimation (MLE), general method of moments (GMM), limited dependent variable models, bivariate normal model.

**E 611 Topics in Microeconomic Theory (3 cr.)** P: E521. Advanced consideration of topics in decision-making under uncertainty, moral hazard, signaling, adverse selection, and information economics.

**E 621 Theory of Prices and Markets II (3 cr.)** P: E521, calculus, and linear algebra. Analysis of equilibrium, first- and second-order conditions; statistical derivation of demand and cost curves; activity analysis; general equilibrium; welfare economics; microeconomics of capital theory; pure oligopoly and game theory.

### **Other Courses Required for Fields and Thesis Preparation**

#### **E515 Institutional Setting for Health Economics in the U.S.A. (1 cr.)**

Overview of U.S. health care system and institutions. International comparisons of institutions.

#### **E516 Institutional Setting for Nonprofits/Philanthropic Economics (1 cr.)**

**E577 Computer Methods and Data Analysis (3 cr.)** P:E570 or E573. Introduction to applied economic research using statistical software and econometric programming. Applications from key micro datasets.

**E 578 Advanced Computer Methods and Complex Datasets (3 cr.)** P:E577. Conducting empirical research with advanced computer methods and complex datasets.

**E643 Health Economics I (3 cr.)** Production of health, demand for health, determinants of health, health disparities, international comparisons, cost-effectiveness and valuation.

**E644 Health Economics II (3 cr.)** Health insurance, moral hazard, adverse selection, demand for health care with health insurance, geographic variations in care, health care disparities, employer-sponsored insurance and labor markets, provision of health care (physicians, hospitals, managed care), government programs (Medicare and Medicaid), R&D and pharmaceuticals, technological change, costs and cost containment.

**E667 Nonprofit/Philanthropic Economics I (3 cr.)** The economic analysis of Altruism, Voluntary Action & Public Goods. Consideration of individual decisions to give, volunteer, or help others including alternative formulations of utility, game structures, determinants of behavior, and consequences for social welfare.

**E668 Nonprofit/Philanthropic Economics II (3 cr.)** The economic analysis of Nonprofit Organizations. Consideration of organizational behavior and the role of formal philanthropic institutions and organizations in the broader economy. Role of nonprofits, modeling nonprofit behavior, empirical testing of theories [public goods, contract theory, subsidy theories, entrepreneurial sorting, et al], public policy toward nonprofit organizations.

#### **E 670 Econometrics 3-System and Panel Econometric Models [Econometrics 3] (3 cr.)**

P:E573 or equivalent. Simultaneous equation models (2SLS, 3SLS), time series concepts for panel data analysis and serial correlation, pooled cross-section methods, linear panel data models [First Differences, Fixed Effects (FE) and Random Effects (RE)], nonlinear panel data models (ML and GMM).

**E673 Econometrics 4-Microeconometrics (3 cr.)** P: E572 or equivalent. Microeconometrics with applications to labor, health, and public economics. Extensive coverage of limited dependent variable and panel data models. Empirical implementation is an essential component of the course.

**E744 Seminar in Health Economics (3 cr.) P: E644** Current topics in advanced health economics. Preparation of a research paper and oral presentation to a seminar.

**E765 Seminar in Nonprofit/Philanthropic Economics (3 cr.) P:E668** Current topics in advanced nonprofit/philanthropic economics. Preparation of a research paper and oral presentation to a seminar.

**E800 Research in Economics (cr. arr.)**

**E809 Thesis (Ph.D.) (cr. arr.)**

## **A5. Econometrics Sequence [topics covered]**

Good applied econometric practice requires a sound knowledge of theory and an appreciation for how to make things work when the data or the question being asked do not conform to the standard assumptions in the theoretical treatment. Our econometrics sequence is built around this theme so that we first ask how things work in a perfect world where all of the standard assumptions hold; then we ask how things change when the assumptions do not hold in the real world.

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**E571 Econometrics 1-Statistical Foundations of Regression Analysis** Probability, Statistical Inference, Classical Regression Model, Heteroskedasticity, Generalized Regression Model [Seemingly Unrelated Regression (SUR), Generalized Least Squares (GLS)], Maximum Likelihood Estimation [MLE], General Method of Moments [GMM]

**E573 Econometrics 2-Single Equation Econometric Models** P: E571. Econometric analysis of single equation models. Instrumental variables estimation. Non-linear models. Maximum likelihood estimation. Discrete choice and censored regression models. Sample selection.

**E670 Econometrics 3-System and Panel Econometric Models** P: E573. Simultaneous equations, two-part and four-part models, pooled cross- section methods, time series concepts for panel data analysis and serial correlation, linear and nonlinear panel data models. Identification, estimation through two-stage least squares, three- stage least squares, fixed effects and random effects, maximum likelihood (ML), and generalized method of moments (GMM).

**E673 Econometrics 4-Microeconometrics** P: E670. Transition data and duration models, quantile regression, nonparametric regression, matching methods, bootstrapping, bivariate normal selection, regression discontinuity design, differences-in-differences, Instrumental Variables (IV) and panel data applications.

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## **A6. MA Program Continuation**

From the early 1990's to the present we have successfully operated a stand-alone M.A. in Economics program, and we will continue to operate this program. We anticipate that, with the implementation of the Ph.D. program, some curriculum changes will be advisable for the M.A. program so that it is a more effective degree program that is a clear alternative to the Ph.D. program but which can also, in some cases, be a stepping-stone to the Ph.D. program. Any such curriculum changes will be submitted as a curriculum modification proposal to the Graduate Curriculum Committee and the Faculty Assembly of the School of Liberal Arts and, if approved, the IUPUI Graduate Affairs Committee.

**A7. Copies of Letters of Support**

See subsequent pages.

DRAFT

Paul S. Carlin, Ph.D.  
Professor of Economics,  
Chair, Department of Economics,  
School of Liberal Arts  
IUPUI  
425 University Boulevard  
Indianapolis, Indiana 46202

Dear Dr. Carlin,

Thank you for the opportunity to review the Proposal for a Ph.D. program in Economics at IUPUI. I strongly support the development of this program, and would like to speak especially to the need and enthusiasm for the establishment of a Ph.D. program focusing on Health Economics.

Health Economics is a field that has been growing and continues to grow at a remarkable rate. The reasons for this are several as presented in your proposal. All of these factors point to the need for people well-trained in health technology assessment, cost-effectiveness analysis, and public policy decision-making. As evidence of the growing local and international importance and need for health economics expertise, Eli Lilly and Company recently reorganized their Global Health Outcomes function, and expanded the group by 25%. In recruiting to fill the new job openings created by this expansion, we at Lilly were made acutely aware of the shortage of talented people with technical expertise in health economics and health technology assessment.

As the Vice President of Global Health Outcomes at Eli Lilly, I enthusiastically endorse an investment by IUPUI in the development of the proposed PhD program in economics. I know I speak for my Lilly colleagues in stating that we would welcome the local talent that could be attracted and retained through the recruitment of additional key faculty members and retention of talented graduates from such a program. If you would like to discuss this further, please contact me at (317) 651-3951.

Yours sincerely,

Marc L. Berger, MD  
Vice President, Global Health Outcomes  
Eli Lilly and Company

January 20, 2009

Dr. Paul Carlin, Chair

Department of Economics

School of Liberal Arts

CA 515

IUPUI

Dear Paul:

I write to express my support for the proposal for a Ph.D. program in Economics at Indiana University-Purdue University Indianapolis (IUPUI). I commend the Department of Economics for this well-crafted proposal. The program it describes will be a strong addition to the School of Liberal Arts, the IUPUI campus, the Indiana University system, and the central Indiana region.

A signature strength of the proposed program is its choice of health economics and nonprofit economics as major fields within the doctorate. Both of these fields are plainly well matched to the existing strengths of our campus in health and life sciences and in philanthropy and nonprofit management. The presence on the IUPUI campus of an economics Ph.D. program with these areas of concentration will enhance those strengths, and contribute to collaboration with other academic units and programs. The new program should also expand the ways in which our campus promotes economic development and quality of life in central Indiana and beyond. The addition of a Ph.D. program in Economics therefore fits well with the current emphases and future visions of the campus and university.

Furthermore, both of these major fields are areas of expanding interest and activity within the discipline of economics, and have been so for some time now. It is to the department's credit that you and your colleagues have already developed expertise in these fields, and are focusing future faculty recruitment there as well. The department will become even better known in these fields as the doctoral program is implemented in the future.

I look forward to working with you and the other members of the Economics Department on the implementation of the program. Until then, I await the approval of the proposal, which has my full support.

Sincerely,

William Blomquist

Dean

November 17, 2008

Paul S. Carlin, Ph.D.  
Professor of Economics,  
Chair, Department of Economics,  
School of Liberal Arts  
IUPUI  
425 University Boulevard  
Indianapolis, Indiana 46202

Dear Paul,

Thank you for an opportunity to review the Proposal for a Ph.D. in Economics at IUPUI. I enthusiastically support the development of a doctoral-level program in economics on our campus. In my six and one-half years at IU School of Medicine and Regenstrief Institute, it has become clear to me that the availability of doctoral-level expertise in health economics at IUPUI has often been a rate-limiting resource in the preparation of competitive proposals for interdisciplinary team-based research in health, health care, and health services research. This shortfall in our on-campus intellectual resources also adversely affects the conduct of research, once extramural funding has been achieved. The recent NIH award to IUPUI of the Clinical and Translational Sciences Institute will only further exacerbate this critical situation. I believe that a doctoral program in health economics will galvanize the development of a significantly larger cadre of research economists on the IUPUI campus - through recruitment of additional faculty and retention of program graduates who value empirical and theoretic research in health as well as education. From my perspective, a campus investment in the development of this program would be a high priority strategic action for the good of all programs of research in the life sciences.

Yours sincerely,

A handwritten signature in blue ink, appearing to read "Tom".

Thomas S. Inui, Sc.M., M.D.  
President and CEO, Regenstrief Institute  
Sam Regenstrief Professor of Health Services Research  
Associate Dean for Health Care Research, and  
Professor of Medicine Indiana University School of Medicine

Dear Paul

We are happy to write this letter of support for the creation of IUPUI Economics Ph.D. program specializing in Health Economics and in Non-Profit/Philanthropic Economics. Given the expertise of your current faculty, your department is uniquely situated to establish such a Ph.D. program with this particular specialization.

The combination of health economics and non-profit/philanthropic economics will fill a market niche that will only get bigger over time. It is incumbent upon the economics profession to meet growing demand for the expertise of health and non-profit economists.

The healthcare expenditure in the U.S. makes up about 15 % of the GDP and this fraction is growing. This trend is not unique to the US, but in fact can be observed in most parts of the world. Many institutional features of the healthcare industry (such as, for example, the dominant size of non-profit sector within it) as well as the nature of demand for healthcare make some of the questions arising in health economics unique to this sector, hence the urgent need for developing specialized expertise among economists to address them. Abundant and critical public policy issues which require economic analysis include, for example, the problem of millions of the uninsured in the U.S. the healthcare industry response to epidemics such as a potential bird flu pandemic, the economic factors behind the spread of AIDS in sub-Saharan Africa and the mechanisms of its containment. Your proposed program will make a substantial contribution to training a new generation of economists to provide the necessary expertise to help solve these important policy issues.

Most of the conceptual issues in the two areas of health and non-profit economics are microeconomic and econometric in nature. Your current faculty which is heavily specialized in microeconomic theory and in applied economics is therefore well positioned to offer a doctoral program focused on these fields of economics. There are also many important macroeconomic issues concerning the impact of health and healthcare on human capital and economic growth, so that the expertise of your excellent macroeconomists can be marshaled for this program as well.

The proposed curriculum with its proper emphasis on microeconomic theory and econometric/statistical tools seems well suited for the goals of this new program. With an appropriate number of new hires in these areas your department will be in great position to provide training in these areas.

We believe that the creation of an IUPUI Economics doctoral program focused on health and non-profit economics will offer a great opportunity for cooperation with the Ph.D. program in Economics at IU Bloomington. Currently our department does not offer a specialization in health economics. With your new program our Ph.D. students could take the courses your new

program offers in Indianapolis. Likewise, of course, some of your future students will be able to benefit from a menu of our classes in areas such as Econometrics, Public Economics, Economic Growth and Game Theory and its applications.

We envision great job market opportunities for the graduates of your new program. They will be well trained by an excellent faculty and will be well positioned to meet the growing demand for health economists in academia, think tanks and the government agencies.

To summarize, we believe that the time is right for this program. It is a well designed program and has the potential to be very successful. We are glad to extend our full support and wish you success in this important endeavor.

Yours

Gerhard Glomm

Professor and Chair, Department of Economics

Michael Kaganovich,

Professor and Director of Graduate Studies