

**EDUC-768: Economics of Education**  
**Fall 2022**

**Lecture:** Monday 9:00 a.m. – 11:50 a.m.  
**Room:** 4212 SEB  
**Instructor:** Brian McCall ([bpmccall@umich.edu](mailto:bpmccall@umich.edu))

**Office:** 2108B SEB

**Office Hours:** Tuesday 1:00 p.m. - 2:00 p.m. or by appointment

**Phone Numbers:** Office: (734) 647- 8366  
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**Home page:** <http://www-personal.umich.edu/~bpmccall/index.html>

**Policy on Accommodating Students with Special Needs:**

In order to enable you to be successful in this course I encourage you to talk to me as early in the semester as possible so that the necessary accommodations can be made. See <http://www.umich.edu/~sswd/> for more information about services for students with disabilities.

**Students Rights and Responsibilities:**

I encourage you to read your rights and responsibilities as a student. Information on these topics can be found at: <http://www.umich.edu/~oscr/>. I would also encourage you to read the University's General Catalogue, especially the sections that detail your rights as a student and the section that discusses the University's expectations of you as a student. (See <http://www.rackham.umich.edu/StudentInfo/Publications>.)

**Policy on Diversity:**

I intend to present materials and activities that are respectful of our diverse world and I encourage you to provide suggestions on how we can incorporate new materials to improve the course for all students. The University of Michigan has a number of affirmative action policies and these policies can be found at <http://www.umich.edu/~hrraa/oie/>

## **Course Description**

This course is an introduction to the economics of education. The central aim of the course is to assist students in viewing the education “industry” and its educational processes through the lens of economics. Several tools of economic analysis are used to address the links between education and consumption, investment, and employment. Students will be afforded an opportunity to examine an important issue related to the economics of education. This exercise will help students become more knowledgeable about the economics of education literature, and they will learn how to apply the tools of economic analysis to an important policy issue. The course is intended for post-baccalaureate students interested in education and there are no course prerequisites.

The course is organized as follows:

### **Topical Areas**

1. Review of Economic Principles
2. Returns to Education: Human Capital Theory
3. Returns to Education: Job Signaling
4. Supply and Demand and the Role of Government in Higher Education
5. Educational Production Functions
6. The Market for Teachers
7. Teacher Incentives
8. School Choice
9. Market Dimensions of Higher Education
10. Student Aid Policy and Collegiate Outcomes
11. Financial Issues in Higher Education

**LITERATURE REVIEW OR ISSUE PAPER DUE BY 4:00 p.m.,  
December 12, 2022**

### **COURSE CONDUCT**

Students are expected to have read the required (marked with a \*) materials at the time the topic is begun in class. Supplemental readings are provided if you'd like to explore a topic in more depth.

## **Textbooks**

### **Optional:**

McCall B.P. (editor) [The Routledge Handbook of the Economics of Education](#). Abingdon, OXON: Routledge. ISBN-13: 978-0415299923.

Several chapters a book by Toutkousian and Paulsen, *Economics of Higher Education: Background, Concepts and Applications* (Springer 2016) will also be used in the course and are available on canvas. Other required and optional readings are also on canvas.

## **EVALUATION**

Grades for the course will be based on class discussion (10%), bi-weekly essays (25%), an in-class presentation of a relevant academic paper (15%), and an issue paper or literature review (50%). Grading will be A/F only for three (3) semester credits. Incomplete grades are strongly discouraged; in any event, an incomplete must be arranged with the instructor before the end of the last class meeting (December 7th).

*Class Discussion:* Students should be prepared to offer comments, questions, or observations about each of the readings due for that class period. Each of you will be expected to contribute and 10% of your grade will depend on your class participation. I believe we can all learn from each other and I take participation in class very seriously.

*Bi-Weekly Essays:* Every other week (approximately), each student will develop one written essay for the topical discussed in above. These essays are to be turned in the week after we discuss the relevant topic in class. For example, in the next first two lectures we will discuss Economic Principles. You are expected to develop one essay related to this topical area and turn it in on September 19th. The due dates for these essays are Sept. 19, Oct 3, Oct. 24, Nov. 7, Nov. 21, and Dec. 5.

These essays should be your attempt to apply the concepts learned in the readings and class discussions. I expect these essays to be well-written (in an appropriate style and format) and no more than one page (single spaced) long. The quality of these questions will determine 25% of your grade. The written discussion questions are required so that we can get an early evaluation of your understanding of the concepts being discussed. This exercise is also designed to give you practice communicating your ideas in writing, a skill that is required to

be a successful higher education policy analyst. You will receive two grades on these papers, the first grade will indicate the quality of the paper with regard to grammar, clarity, and writing style; the second grade will be indicative of the quality of the content of your essay. Turning in these papers late will negatively affect your grade on the papers and in the course.

I encourage you to see me if you are having difficulty with the course materials. As is true of most economic-based courses, the concepts studied early in the semester are essential to understanding the concepts we will discuss later in the course. So if you need help, especially early in the semester, don't hesitate to ask for it.

***Literature Review or Issue Essay Paper:*** Each student will also be required to complete either a Literature Review or an Issue Essay paper (50% of the grade).

**Literature Review Paper Option:** If a student elects to conduct a literature review, it should be a paper on a topic of his or her own choosing, closely related to the content of the course, and approved by the instructor in advance. A useful way to proceed is to draft a one or two paragraph abstract of your topic and submit this abstract to the instructor for approval and helpful comments for sources prior to beginning work on your paper.

The paper should be a critical review of the literature on a particular topic relevant to the course content and should include the systematic integration of the relevant sources. In short, the paper should demonstrate a capacity to integrate literature in the field, the course readings, and the in-class presentations with thoughtful analysis on a relevant topic. For examples see the Review of Educational Research or Review of Economic Literature or any other field-related journals. For technical assistance see Harris M. Cooper, "Scientific Guidelines for Conducting Integrative Research Reviews," Review of Educational Research, 52 (Summer 1982), 291-302; or Gregg B. Jackson, "Methods for Integrative Review," Review of Educational Research, 50 (Fall 1980), 438-460.

As Cooper notes, "a literature review is more than a string of paragraphs that summarizes individual pieces of literature, all held by a common theme [although it is, indeed, partly that]. It is a form of research, and the database is the literature. The objective is not to develop new data, but to review existing data and combine it into a conceptual and analytic whole. While it is necessary to document the sources of information, the main concern is to review major events, methods, theories, philosophical positions, research findings, practices, programs, policies and the like, to analyze their importance, and to develop conclusions about their current and future impact. In other words, it is essential to convey the substance and meaning of what has been written."

Although the student is not required or even expected to select his or her topic from the following list, the list is offered as an illustration of the type of topics that would be appropriate for such a literature paper:

- Education as an “economic industry” in (selected country)
- The economics of (various educational reforms) currently being discussed in the U.S (or another country)
- The use of educational production functions to examine public school efficiency and productivity issues (either by classroom, building, or district).
- Reward structures for teachers
- Rates of return in (selected forms or levels of education)
- Gender and salary differences in educational compensation
- The supply and demand for teachers in (selected regions or forms of education)
- The efficiency (i.e., benefit-cost or cost-effectiveness) of alternative (education-related) program delivery forms

The literature review paper will be evaluated using the following criteria:

- 1) It should reflect the course content.
- 2) It should focus on the literature of a topic relevant to the course, where the database is the literature.
- 3) It should be a critical synthesis and integration of the literature on the topic, where a critical review is given to either the methodology, design of questions, conceptual frameworks, etc.
- 4) It should be well-written throughout and in an appropriate formal style and format.

Although the writing of a cogent literature review may best serve most PhD students in their graduate programs (because they must eventually attend to the task for their theses), some students may have difficulty deciding on an appropriate topic for their review. Thus, an alternative paper focusing on an “Issue Essay” may be written in place of the literature review.

**Issue Essay Paper Option:** The purpose of the issue essay is to give students an opportunity to broaden their reading on an issue that is central to the content of this course and of public importance (most typically a public policy issue although it could be an issue of methodology or design), to develop skills in identifying and using literature relevant to a current issue, and to develop and demonstrate the ability to make a succinct summary and a thoughtful critique of an issue within the economics of education. For the purposes of this essay, an “issue” is defined as a question of importance in the context of the economics of education and to which informed and reasonable people could give different answers. Again, the topic must be approved in advance by the instructor.

The issue essay will be evaluated using the following criteria:

- 1) It should reflect the course content.
- 2) It should focus on an issue relevant to the course, and of some importance to society.
- 3) It should make appropriate use of supporting and opposing literature and evidence on the issue (drawing on at least 8-10 sources) and the student's own scholarly reflection on the issue. This paper is not a regular research paper or literature review. Rather, your essay is more an argumentative essay wherein you use evidence to support your position. Although you are being asked to build and take a position on the issue, you should not forget to give some credence and outline to the opposing position. If there appears to be no "credible" opposing position, then your topic is not truly an issue about which reasonable people could disagree.
- 4) It should be well-written throughout and in an appropriate formal style and format.

Either paper should be typewritten or word processed in a formal style and should be no more than 15 double-spaced pages in length (excluding references). All references should follow the standard American Psychological Association (APA) and reference procedures. All papers are due by 4:00 p.m. on December 12, 2022.

**Reading List** (papers with a \* will be discussed by me in class)

**1. Introductions/Discussion of Course/Review of Economic Principles**

\*Toutkoushian and Paulsen, Chapters 1 & 2.

Hirshleifer, Jack (1985). The expanding domain of economics. *The American Economic Review*, 75(6): 53-68.

There is plenty of online material available that covers basic microeconomics. See for instance:

<http://catalog.flatworldknowledge.com/catalog/editions/rittenberg-principles-of-microeconomics-1-0>

**2. Returns to Education: Human Capital Theory**

\*Toutkoushian and Paulsen, Chapters 3 & 4.

Ashenfelter, O. and Krueger, A. (1994). Estimates of the economic return to schooling from a new sample of Twins. *American Economic Review*, 84(5): 1157-1173.

\*Chetty, R. et al. (2011). How does your kindergarten classroom affect your earnings? Evidence from Project Star. *Quarterly Journal of Economics* 124(4), 1593-1660.

Dale, S., and Krueger, A. (2002). Estimating the payoff to attending a more selective College: An application of selection on observables and unobservables. *Quarterly Journal of Economics*, 117(4): 1491–527.

Duncan, G. and Magnuson, K. (2013). Investing in preschool programs. *Journal of Economic Perspectives*, 27(2): 109–132

Eide, E., Hilmer, M., and Showalter, M. (2015). Is it where you go or what you study? The relative influence of college selectivity and college major. *Contemporary Economic Policy*, (1):1-10.

Hansen, W. L. (1963). Total and private rates of return to investment in schooling. *Journal of Political Economy*, 71(2): 128-141.

Kane, T. J. and C. E. Rouse (1995). Labor-market returns to two- and four-year college. *American Economic Review*, 85(3): 600-614.

Miller, P., Mulvey, C., and Martin, N. (1995). What do twins studies reveal about the economic returns to education? A comparison of Australian and U.S. findings. *American Economic Review*, 85(3): 586-600.

\*Ost, B., Pan, W. and Webber, D. (2018). The returns to college persistence for marginal students: regression discontinuity evidence from university dismissal policies. *Journal of Labor Economics*, 36(3): 779-805.

Ozier, O. (2018). The impact of secondary schooling in Kenya: A regression discontinuity analysis. *Journal of Human Resources*, 53(1): 157-188.

Polson, C. (2018). TAKS-ing students? Texas exit exam effects on human capital formation. *Economics of Education Review*, 62:129-150.

Schultz, T. W. (1961), Investment in human capital. *American Economic Review*, 51(1): 1-17.

Smith, J. (2013). Ova and out: Using twins to estimate the educational returns to attending a selective college. *Economics of Education Review* 36:166–80.

\*Webber, D. (2014). The lifetime earnings premia of different majors: Correcting for selection based on cognitive, noncognitive, and unobserved factors. *Labour Economics*, 28: 14-23.

Weisbrod, B. (1962). Education and investment in human capital. *Journal of Political Economy*, 70(5) Part 2: 106-123.

Zhang, L. (2005). Do measures of college quality matter? The effect of college quality on graduates' Earnings. *Review of Higher Education*, 28(4): 571–96.

\*Zimmerman, S. (2014). The returns to college admission for academically marginal students. *Journal of Labor Economics*, 32(4): 711-754.

### **3. Returns to Education: Job Signaling**

\*Clark, D. and Martorell, P. (2014). The signaling value of a high school diploma. *Journal of Political Economy*, 122(2): 282-318.

Stiglitz, J. (1975). The theory of 'screening,' education and the distribution of income. *American Economic Review*, 65(3): 283-300.

\*Spence, M. (1973). Job market signaling. *Quarterly Journal of Economics*, 87(3): 355-374.

Winkler, D. R. (1988). Screening models and education. In G. Psacharopoulos (ed.), *Research in the Economics of Education*. Elmsford, NY: Pergamon Press.

Wolpin, K. (1977). Education and screening. *American Economic Review*, 67(5): 949-958.

#### **4. Supply and Demand and the Role of Government in Higher Education**

\*Toutkoushian and Paulsen Chapters 5 and 6.

#### **5. Educational Production Functions**

Bettinger, E., Doss, C., Loeb, S., Rogers, A. and Taylor, E. (2017). The effects of class size in online college courses: Experimental evidence. *Economics of Education Review*, 58: 68-85

\*Cascio, E. (2021). Early childhood education in the United States: what, when, where, who, how, and why. In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

\*Chetty, R., Friedman, J. and Rockoff, J. (2014). Measuring the impacts of teachers I: Evaluating bias in teacher value-added estimates. *American Economic Review*, 104(9): 2593–2632.

\*Chetty, R., Friedman, J. and Rockoff, J. (2014). Measuring the impacts of teachers II: teacher value-added and student outcomes in adulthood. *American Economic Review* 104(9): 2533–2679.

Hanushek, E. (1981). Throwing money at schools. *Journal of Policy Analysis and Management*, 1(1): 19-41.

\*Hanushek, E. (1986). The economics of schooling: Production and efficiency in public schools. *Journal of Economic Literature*, 24(3): 1141-1177.

Hanushek, E. (1994). Money might matter somewhere: A response to Hedges, Laine, and Greenwald. *Educational Researcher*, 23(4): 5-8.

\*Hanushek, E. (2006). School Resources. In *Handbook of the Economics of Education*, Vol. 2, edited by Eric Hanushek and Finis Welch, 865-908. Amsterdam: Elsevier: Amsterdam.

Hedges, L., Laine, R., and Greenwald, R. (1994). Money does matter somewhere: A reply to Hanushek. *Educational Researcher*, 23(4): 9-10.

#### **6. The Market for Teachers**

Boyd, D., et al. (2013). Analyzing the determinants of the matching of public

school teachers to jobs: Disentangling the preferences of teachers and employers. *Journal of Labor Economics*, 31(1): 83-117,

\*Dolton, P. (2006). Teacher supply. In *Handbook of the Economics of Education*. Vol. 2, edited by Eric Hanushek and Finis Welch, 1051–78. Amsterdam: Elsevier: Amsterdam.

Ehrenberg, R., Pieper, P., and Willis, R. (1998). Do economics departments with lower tenure probabilities pay higher faculty salaries? *Review of Economics and Statistics*, 80(4): 503-512.

Figlio, D. (2002). Can public schools buy better-qualified teachers? *Industrial and Labor Relations Review*, 55 (4): 686–99.

Flyer, F., and Rosen, S. (1997). The new economics of teachers and education. *Journal of Labor Economics*, 15 (1): S104–39.

Greenberg, D. and McCall, J. (1974). Teacher mobility and allocation. *Journal of Human Resources*, 9(4): 480-502.

\*Hanushek, E., and Rivkin, S. (2006). Teacher quality. In *Handbook of the Economics of Education*. Vol. 2, edited by Eric Hanushek and Finis Welch, 1051–78. Amsterdam: Elsevier: Amsterdam.

\*Hanushek, E., Rivkin, S., Schiman, J. (2016). Dynamic effects of teacher turnover on the quality of instruction. *Economics of Education Review* 55:132-148.

\*Jackson, C. (2009). Student demographics, teacher sorting, and teacher quality: evidence from the end of school desegregation. *Journal of Labor Economics*, 27(2): 213-256.

\*Jackson, C.K. (2014). Teacher quality at the high school level: The importance of accounting for tracks. *Journal of Labor Economics* 32(4): 645-684

James, J. and Wyckoff, J. (2021). Teacher labor markets: what have we learned over the last decade? In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

McPherson, M. and Winston, G. (1983). The economics of academic tenure: A relational perspective. *Journal of Economic Behavior and Organization*, 4(2-3): 163-184.

Murnane, R. (1981). Learning by doing, vintage, and selection: Three pieces of the puzzle relating teaching experience and teaching performance. *Economics of Education Review*, 1(4): 453-465.

Ransom, M., and Sims, D. (2010). Estimating the firm's labor supply curve in a 'new monopsony' framework: School teachers in Missouri." *Journal of Labor Economics* 28 (2): 331–55.

\*Rothstein, J. (2015). Teacher quality policy when supply matters. *American Economic Review*, 105(1): 100–130.

Sartain, L., and Steinberg, M. (2016). Teachers' labor market responses to performance evaluation reform: Experimental evidence from Chicago public schools. *Journal of Human Resources*, 51(3): 615-655.

Staiger, D., and Rockoff, J. (2010). Searching for effective teachers with imperfect information. *Journal of Economic Perspectives*, 24 (3): 97–118.

Stinebrickner, T. (1998). An empirical investigation of teacher attrition. *Economics of Education Review*, 17(2): 127–136.

## **7. Teacher Incentives**

Brooks, C. and Springer, M. (2021). Evaluating teacher effectiveness: a review of historical developments and current trends. In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

Cullen, J., et al. (2013). What can be done to improve struggling high schools. *Journal of Economic Perspectives*, 27(2): 133–152.

Duflo, E., Hanna, R. and Ryan, S. (2012). Incentives work: Getting teachers to come to school. *American Economic Review*, 102 (4): 1241–1278.

\*Fryer, R. (2011). Financial incentives and student achievement: Evidence from randomized trials. *Quarterly Journal of Economics*, 126: 1755–1798.

Fryer, R. (2013). Teacher Incentives and student achievement: Evidence from New York City public schools. *Journal of Labor Economics*, 31(2): 373-407.

Goodman, S. and Turner, L. (2013). The design of teacher incentive pay and educational outcomes: Evidence from the New York City bonus program. *Journal of Labor Economics*, 31(2): 409-420.

Gorry, D. (2017). The impact of grade ceilings on student grades and course evaluations: Evidence from a policy change. *Economics of Education Review*, 56:133-140.

Hanushek, E. (1997). Outcomes, incentives, and beliefs: Reflections on analysis of the economics of schools. *Educational Evaluation and Policy Analysis*, 19(4): 301-308.

Lavy, V. (2002). Evaluating the effect of teachers' group performance incentives on pupil achievement. *Journal of Political Economy*, 110(6): 1286-1317.

Lazear, E. (2000). Performance pay and productivity. *American Economic Review*, 90 (5): 1346-1361.

\*Lazear, E. (2003). Teacher incentives. *Swedish Economic Policy Review*, 10 (2): 179-214.

Matsudaira, J. and Patterson, R. (2017). Teachers' unions and school performance: Evidence from California charter schools. *Economics of Education Review*, 61:35-50.

Muralidharan, K. and Sundararaman, V. (2011). Performance pay: Experimental evidence from India. *Journal of Political Economy*, 119(1): 39-77.

\*Neal, D. (2011). The design of performance pay in education. In *Handbook of the Economics of Education Vol. 4*, E. Hanushek, S. Machin, and L. Woessmann (Ed) Elsevier: Amsterdam.

\*Neal, D., and Schanzenbach, D. (2010). Left behind by design: Proficiency counts and test-based accountability. *Review of Economics and Statistics*, 92 (2): 263-83.

Qureshi, J. (2018). Siblings, Teachers, and Spillovers on Academic Achievement. *Journal of Human Resources*, 53(1):272-297.

## **8. School Choice**

\*Abdulkadiroğlu, A., et al. (2011). Accountability and flexibility in public schools: Evidence from Boston's charters and pilots. *Quarterly Journal of Economics*, 126 (2): 699-748.

Abdulkadiroğlu, A. and Sonmez, T. (2003). School choice: A mechanism design approach. *American Economic Review*, 93: 729-747.

Bifulca, R., & Ladd, H. (2006). The impacts of charter schools on student achievement: Evidence from North Carolina. *Education Finance and Policy*, 1(1), 50-90.

\*Black, S. (1999). Do better schools matter? Parental valuation of elementary

education. *Quarterly Journal of Economics*, 114 (2): 577–99.

Camargo, B., Camelo, R. and Firpo, S. (2018). Information, market incentives, and student performance: Evidence from a regression discontinuity design in Brazil. *Journal of Human Resources*, 53(2):414-444.

\*Deming, D. et al. (2014). School choice, school quality, and postsecondary attainment. *American Economic Review*, 104(3): 991–1013.

\*Dolton, P. (2003). The economics of school choice. *Economic Journal*, 113: F167-F179.

\*Epple, D, Romano , R., Urquiola, M. (2021). Is education different? A review of the voucher literature and lessons for implementation. In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

Filer, R. and Münich, D. (2013). Responses of private and public schools to voucher funding. *Economics of Education Review*, 34:269-285.

Goldhaber, D., and Eide, E. (2002). What do we know (and need to know) about the impact of school choice reforms on disadvantaged students? *Harvard Educational Review*, 72 (2): 157-176.

\*Hoxby, C. (2000). Does competition among public schools benefit students and taxpayers? *American Economic Review*, 90(5):1209–1238.

Hoxby, C. (2002). Would school choice change the teaching profession? *Journal of Human Resources*, 37(4): 846–891.

\*Hyman, J. and McFarlin, I. (2022). College Consumption Amenities, Academic Performance, and Donation Behavior. Working paper.

\*Jacob, B., McCall, B. and Stange, K. (2018). College as country club: Do colleges cater to students' preferences for consumption? *Journal of Labor Economics*, 36(2): 309-348.

Lamdin, D. J. and Mintrom, M. (1997). School choice in theory and practice: Taking stock and looking ahead. *Education Economics*, 5(3): 211-244.

Pallais, A. (2015). Small differences that matter: Mistakes in applying to college. *Journal of Labor Economics*, 33(2): 493-520.

\*Rothstein, J. (2006). Good principals or good peers? Parental valuation of school characteristics, Tiebout equilibrium, and the incentive effects of competition among jurisdictions. *American Economic Review*, 96(4): 1333–50.

Sandström, F., & Bergström, F. (2005). School vouchers in practice: Competition will not hurt you. *Journal of Public Economics*, 89(2–3): 351–380.\

Zimmer, R., Buddin, R., Ausmus Smith, S. and Duffy-Chipman, D. (2021). Nearly three decades into the charter school movement, what has research told us about charter schools? In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

## **9. Market Dimensions of Higher Education**

\*Toutkoushian and Paulsen Chapters 7 and 8

\*Bound, J., Hershbein, B., and Long, B. (2009). Playing the admissions game: Student reactions to increasing college competition. *Journal of Economic Perspectives*, 23(4): 119-146.

Deming, D., Goldin C., and Katz, L. (2012). The for-profit postsecondary school sector: Nimble critters or agile predators? *Journal of Economic Perspectives*, 26(1): 139-164.

\*Riegg Cellini, S. (2021). For-profit colleges in the United States: insights from two decades of research. In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

Kaganovich, M., Sarpca, S. and Su, X. (2021). Competition in higher education. In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

Ehrenberg, R. (2012). American higher education in transition. *Journal of Economic Perspectives*, 26(1): 193–216.

Gilpin, G, Saunders, J., and Stoddard, C. (2015). Why has for-profit colleges' share of higher education expanded so rapidly? Estimating the responsiveness to labor market changes. *Economics of Education Review*, 45:53-63.

\*Goodman, J., Hurwitz, M. and Smith, J. (2017). Access to 4-year public colleges and degree completion. *Journal of Labor Economics*, 35(3):829-867.

Hoxby, C. (2009). The changing selectivity of American colleges. *Journal of Economic Perspectives*, 23(4): 95–118.

## **10. Student Aid Policy and Collegiate Outcomes**

Athreya, K., Herrington, C., Ionescu, F., and Neelakantan, U. (2021). Student loan borrowing and repayment decisions: risks and contingencies. In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

\*Avery, C. and Turner, S. (2012). Student loans: Do college students borrow too much -- or not Enough? *Journal of Economic Perspectives*, 26(1): 165-192.

Barrow, L. and Rouse, C. (2013). Financial incentives and educational investment: The impact of performance-based scholarships on student's time use. NBER Working Paper # 19351.

Bettinger, E. and Long B. (2018). Mass instruction or higher learning? The impact of college class size on student retention. *Education Finance and Policy*, 13(1): 97-118.

\*Bound, J. and Turner. S. (2011). Dropouts and Diplomas: The divergence in collegiate outcomes. In *Handbook of the Economics of Education Volume 4*, E. Hanushek, S. Machin, and L. Woessmann (Ed) Elsevier: Amsterdam.

Bullman, G. and Cunha, J. (2021). "Factors shaping college investment and enrollment gaps" In *Routledge Handbook of the Economics of Education*, edited by B .P. McCall. Abingdon, OXON: Routledge.

Chapman, B., and Lounkaew, K. (2015). An analysis of Stafford loan repayment burdens. *Economics of Education Review*, 45: 89-102.

Cohodes, S., and Goodman, J. (2014). Merit aid, college quality and college completion: Massachusetts' Adams Scholarship as an In-Kind Subsidy. *American Economic Journal: Applied Economics*, 6(4): 251-285.

Kim, D., Kim, S., Flores, A., and Palek, A. (2022). Are primary funding sources and debt level associated with career outcomes among recent STEM doctoral graduates? *Journal of Higher Education*, 93(5): 792-817.

Kristen Cummings, K.C. Deane, Brian P. McCall and Stephen.L DesJardins, forthcoming, "Exploring Race and Income Heterogeneity in the Effects of State Merit Aid Loss among Four-Year College Entrants," *Journal of Higher Education*.

Darolia, R. (2014). Working (and studying) day and night: Heterogeneous effects of working on the academic performance of full-time and part-time students. *Economics of Education Review*, 38: 38-50.

- \*DesJardins, S., Ahlburg, D., and McCall, B. (2006). An integrated model of application, admission, enrollment, and financial aid. *Journal of Higher Education*, 77(3): 381-429.
- \*DesJardins, S. and McCall, B. (2010). Simulating the effects of financial aid packages on college student stopout, Reenrollment spells and graduation chances," *Review of Higher Education*, 33(4): 513-541.
- \*DesJardins, S. and McCall, B. (2014). The impact of the Gates Millennium Scholars Program on college and post-college related choices of high ability, low-income minority students. *Economics of Education Review*, 38: 124-138.
- \*DesJardins, S., McCall, D., Ott, M. and Kim, J. (2010). A quasi-experimental investigation of how the Gates Millennium Scholars Program is related to college students' time use and activities. *Educational Evaluation and Policy Analysis*, 32: 456-475.
- Del Rey, E. and Estevan, F. (2013). Conditional cash transfers and education quality in the presence of credit constraints. *Economics of Education Review*, 34: 76-84.
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