The Economic Value of a Law Degree

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May 18, 2013
2013 American Law & Economics Conference
Vanderbilt Law School
Nashville, Tennessee

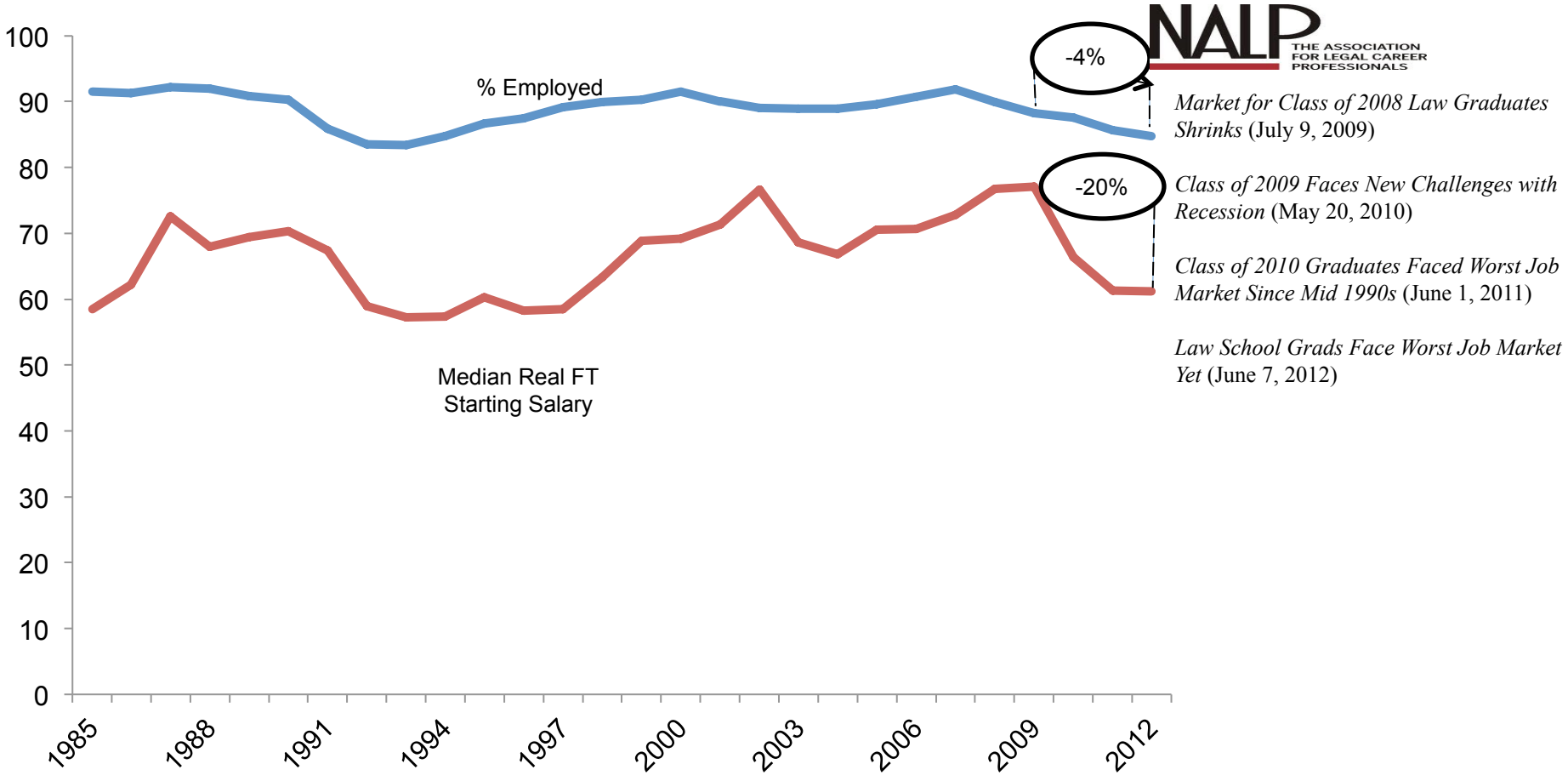
The Economic Value of a Law Degree

- Law school applications plummeted amid doubts about value of law degree
- Recent studies of law degree economic value are fundamentally flawed
- Our approach
- The data suggests that a law degree is generally a good investment
  - Law degree holders earn more than bachelors after controls for ability
  - Earnings premium is stable over the long run
  - Present value of law degree exceeds tuition by wide margin
  - Internal rates of return are high even toward bottom of distribution

Starting salaries and initial employment rates declined from 2009 to 2012

Employed 9 months after graduation, 1985-2012
Percent of recent law graduates

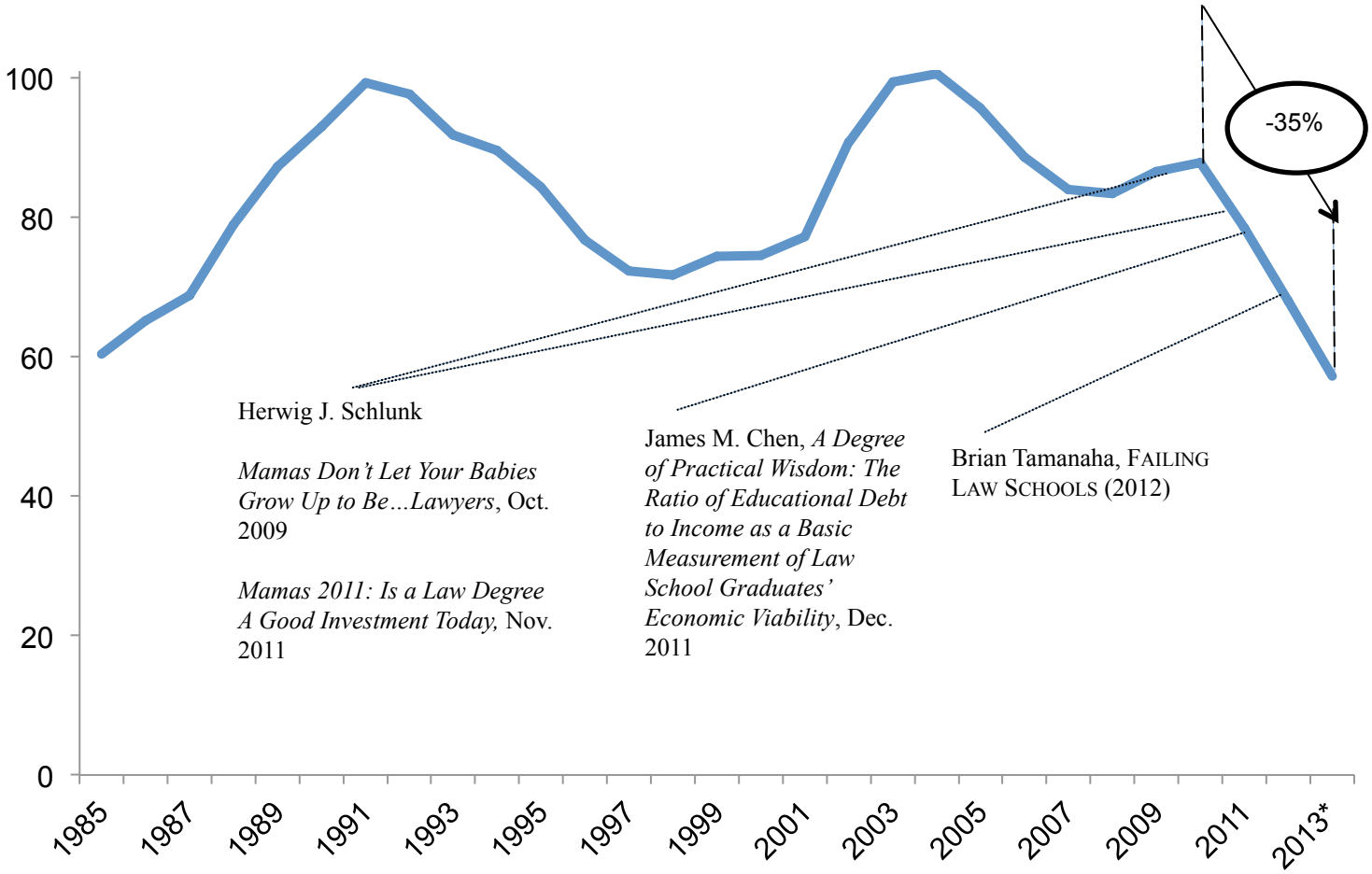
Median fulltime starting salary, 1985-2012
2012 USD thousands



Source: National Association for Law Placement; American Bar Association

As law professors and journalists questioned value of law degree, law school applications plummeted

Annual Number of Applicants to ABA-approved law schools, 1985-2013
Thousands



Note: 2012 numbers are preliminary; 2013 numbers are projections based on data through early April 2013

Source: Law School Admissions Council, LSAC Volume Summary

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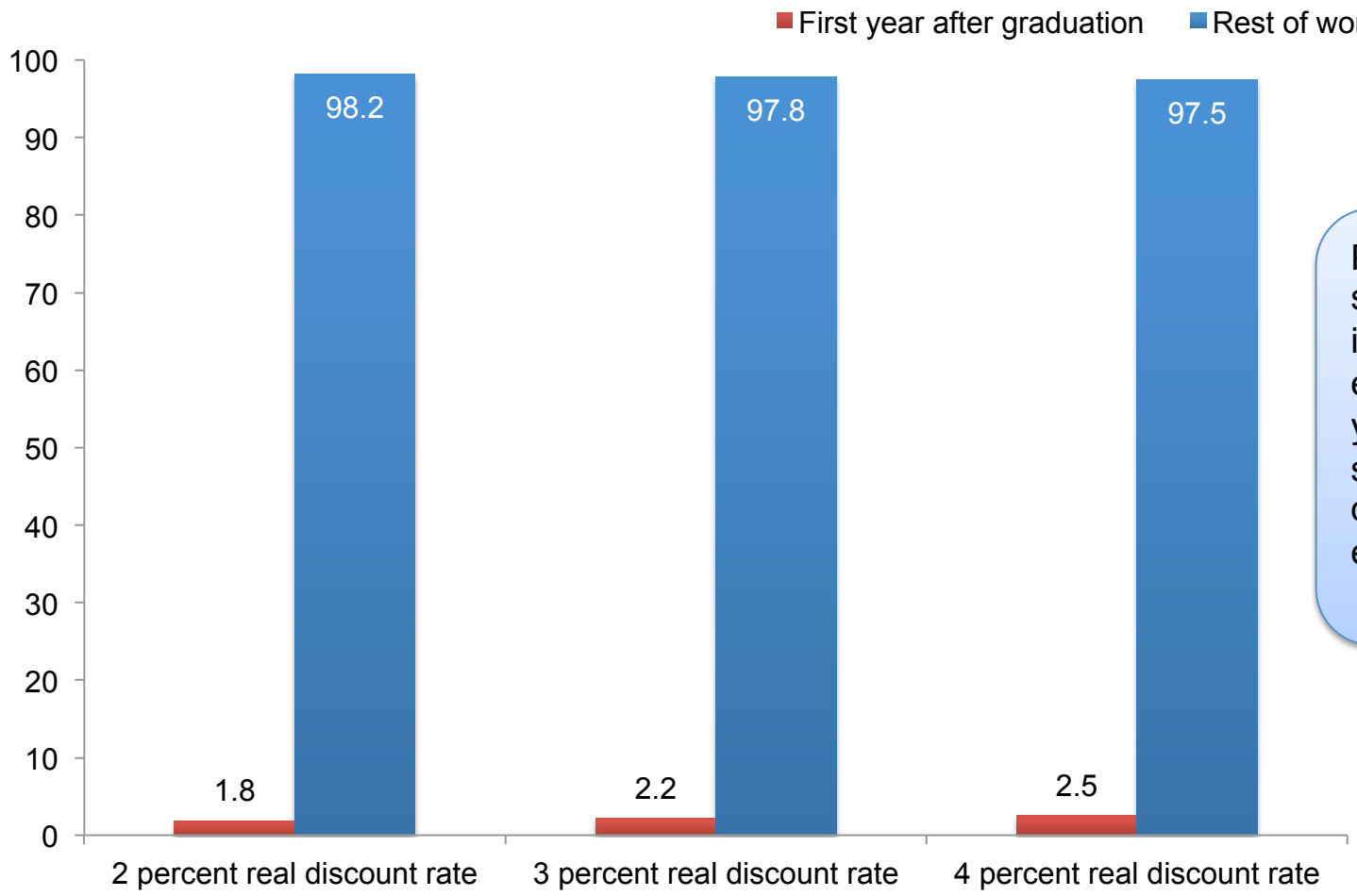
Starting salaries are small fraction of lifetime earnings and poor predictors

Share of present value of median lifetime earnings after law school graduation

Percent

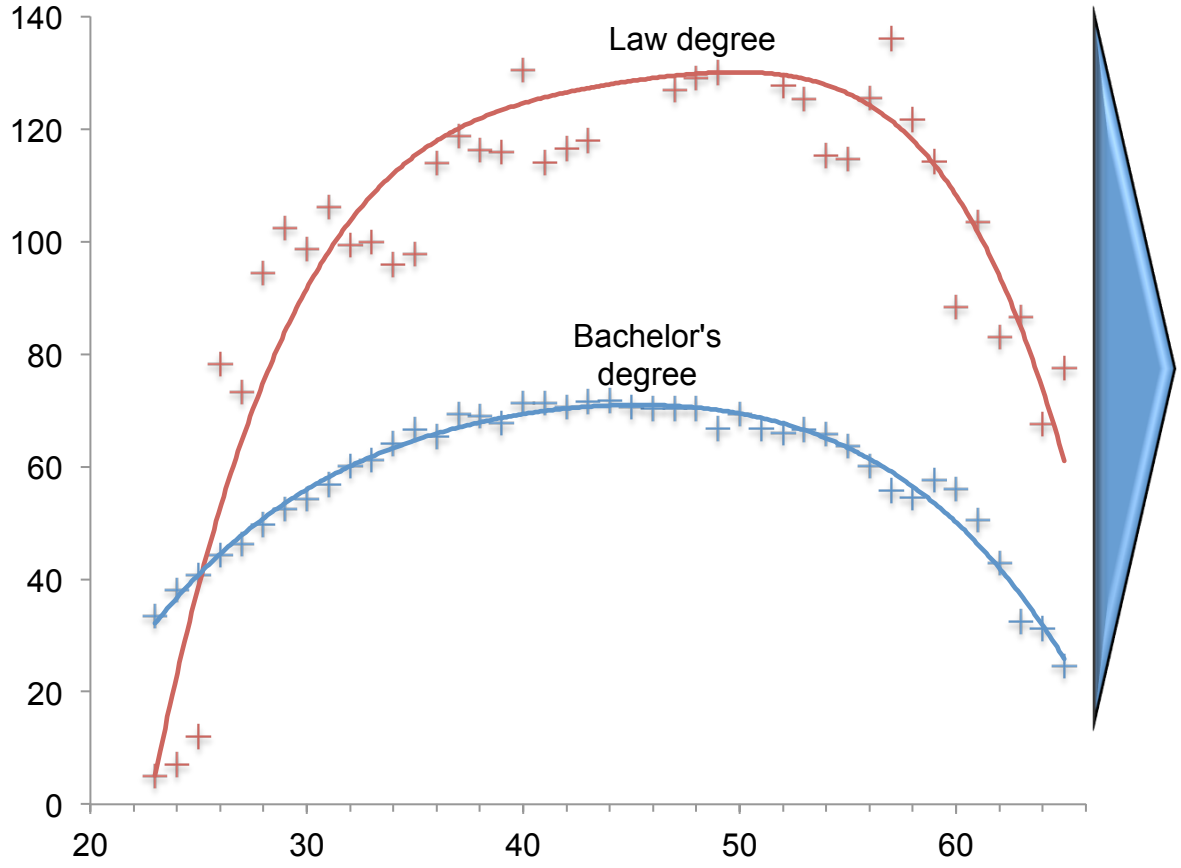


PSID & SIPP suggest that individual earnings in one year are not strong predictors of subsequent earnings

Source: U.S. Census Bureau, Survey of Income and Program Participation; Panel Statistics of Income Dynamics; Authors' calculations

Law degree holders' earnings grow rapidly and peak late in life

Annual mean earnings by degree type and age, age 23-65
Real 2012 USD thousands

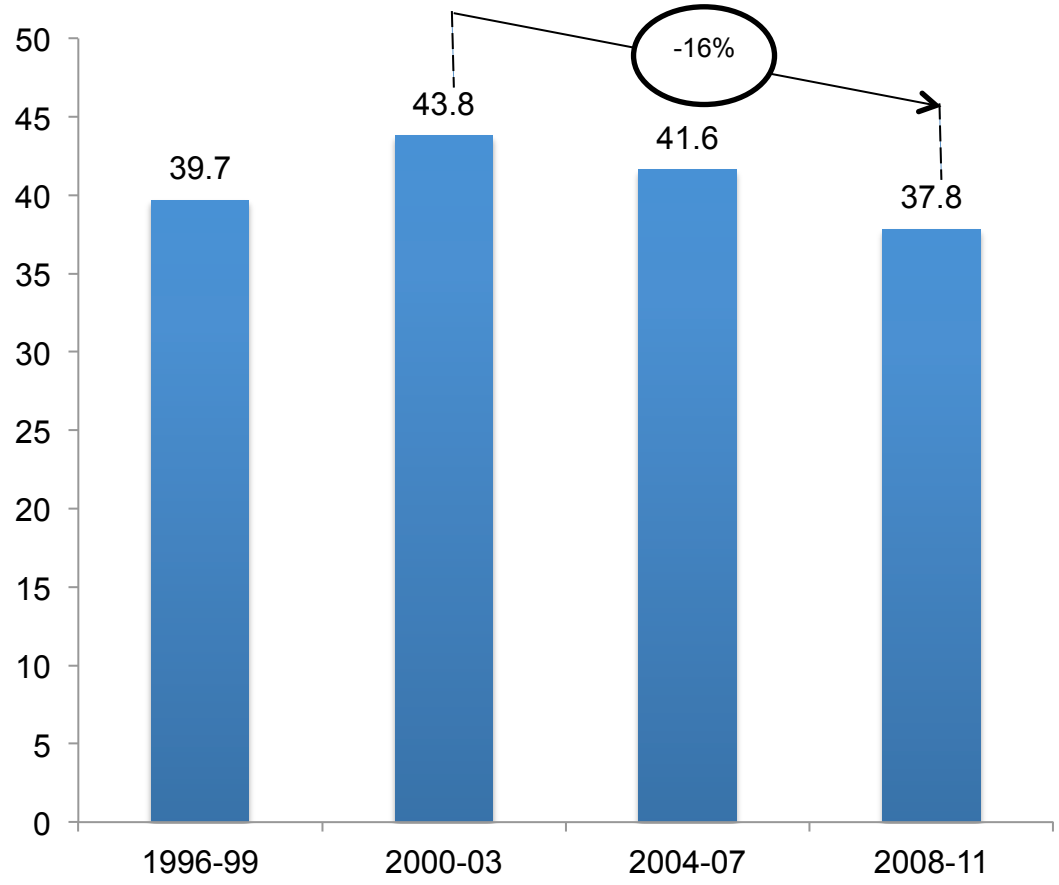


Earnings in early years are not strong predictors of subsequent earnings

Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations
Note: Includes degree holders who are working, unemployed, or disabled.

Declines in *absolute* earnings do not suggest compression of law degree earnings *premium*

Annual mean earnings of bachelor degree holders age 25-30, 1996-2011
Real 2012 USD thousands

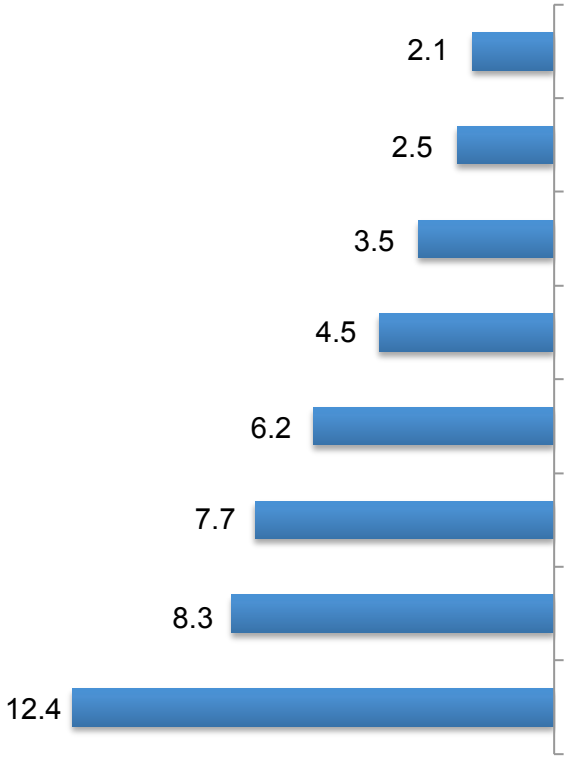


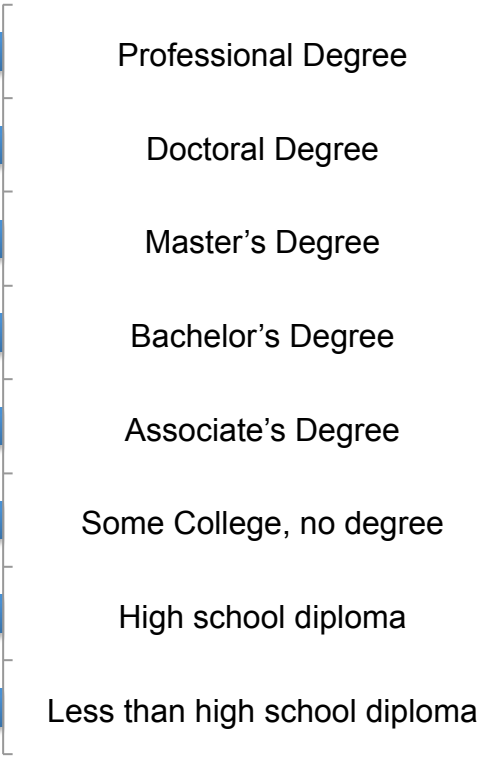
- Earnings declined for many college graduates because of the recession
- Earnings premiums, not absolute earnings, determine the value of the law degree

Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations
Note: Vertical lines represent the 95 percent confidence interval; horizontal line represents the multi-year average, with each four-year interval assigned equal weight.

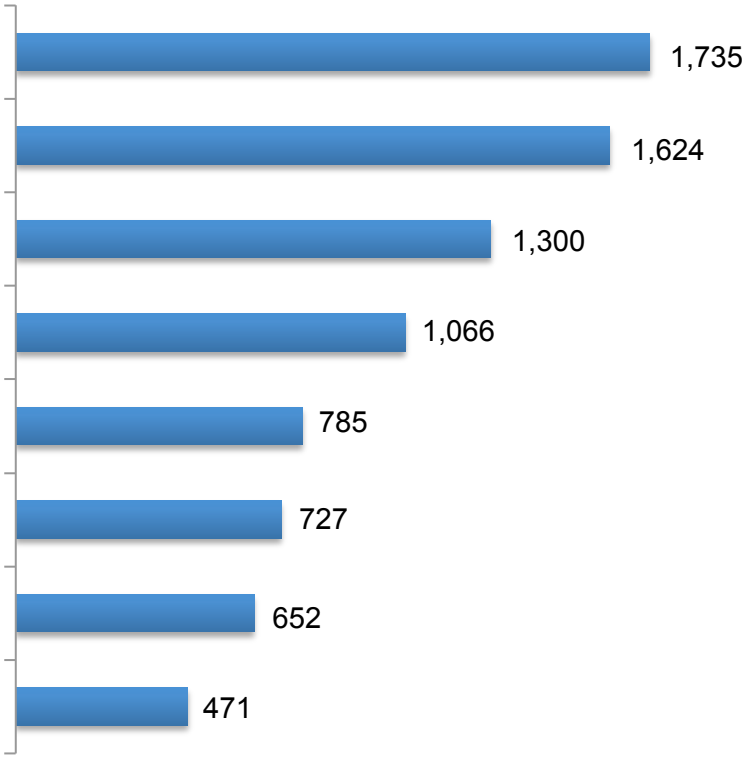
Generic professional degree holders earn more than bachelors. . .
But what about *law* degree holders? Controls for ability sorting?

Educational attainment and unemployment, 2012
Percent unemployed





Educational attainment and median weekly earnings
2012 USD

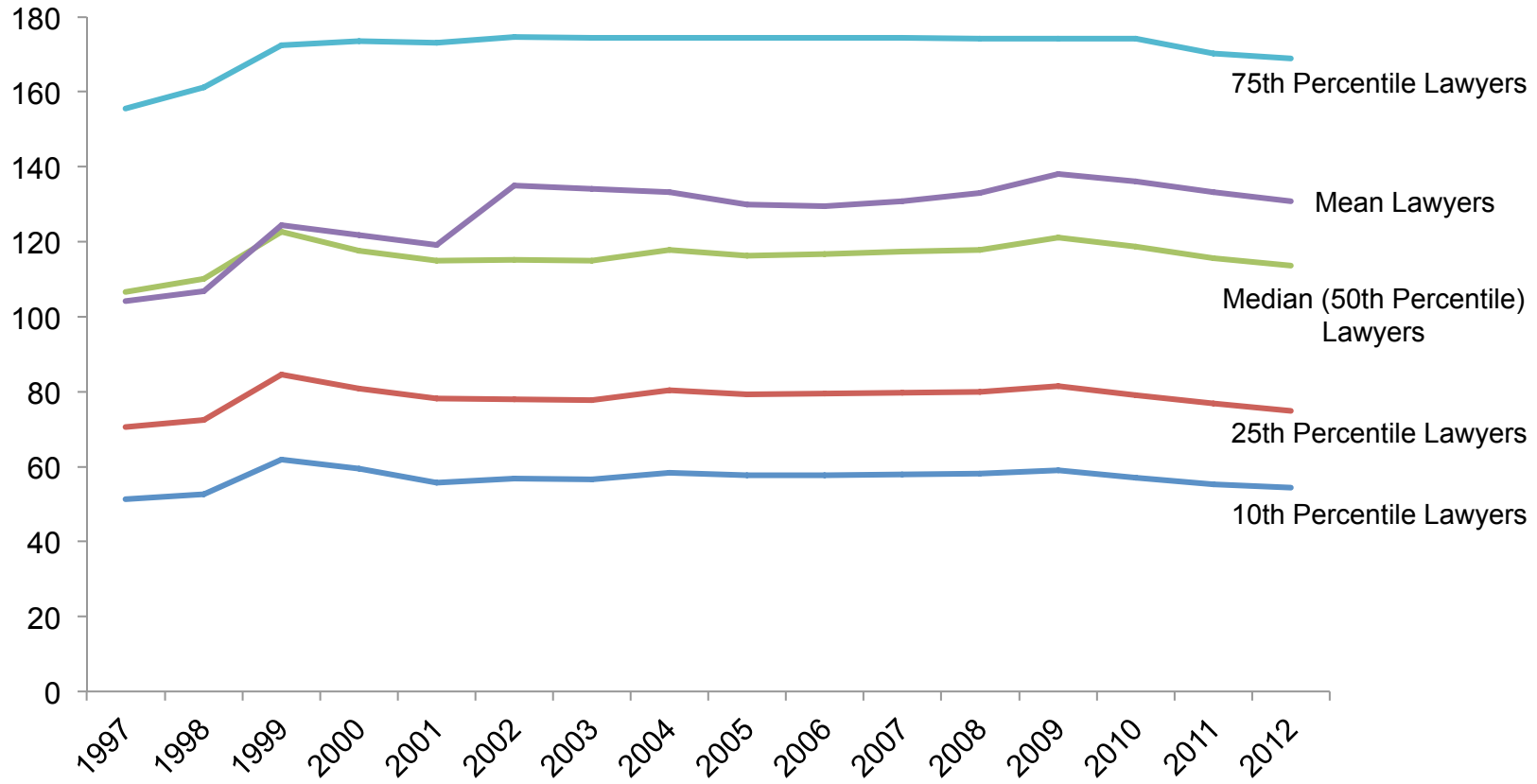


Limitation: "Professional degree holders" is overinclusive

Note: Workers age 25 and older only
Source: Bureau of Labor Statistics, U.S. Department of Labor and U.S. Census Bureau, Current Population Survey

Lawyers' earnings are high even at the low end . . .
But what about the many law graduates who do not work as lawyers?

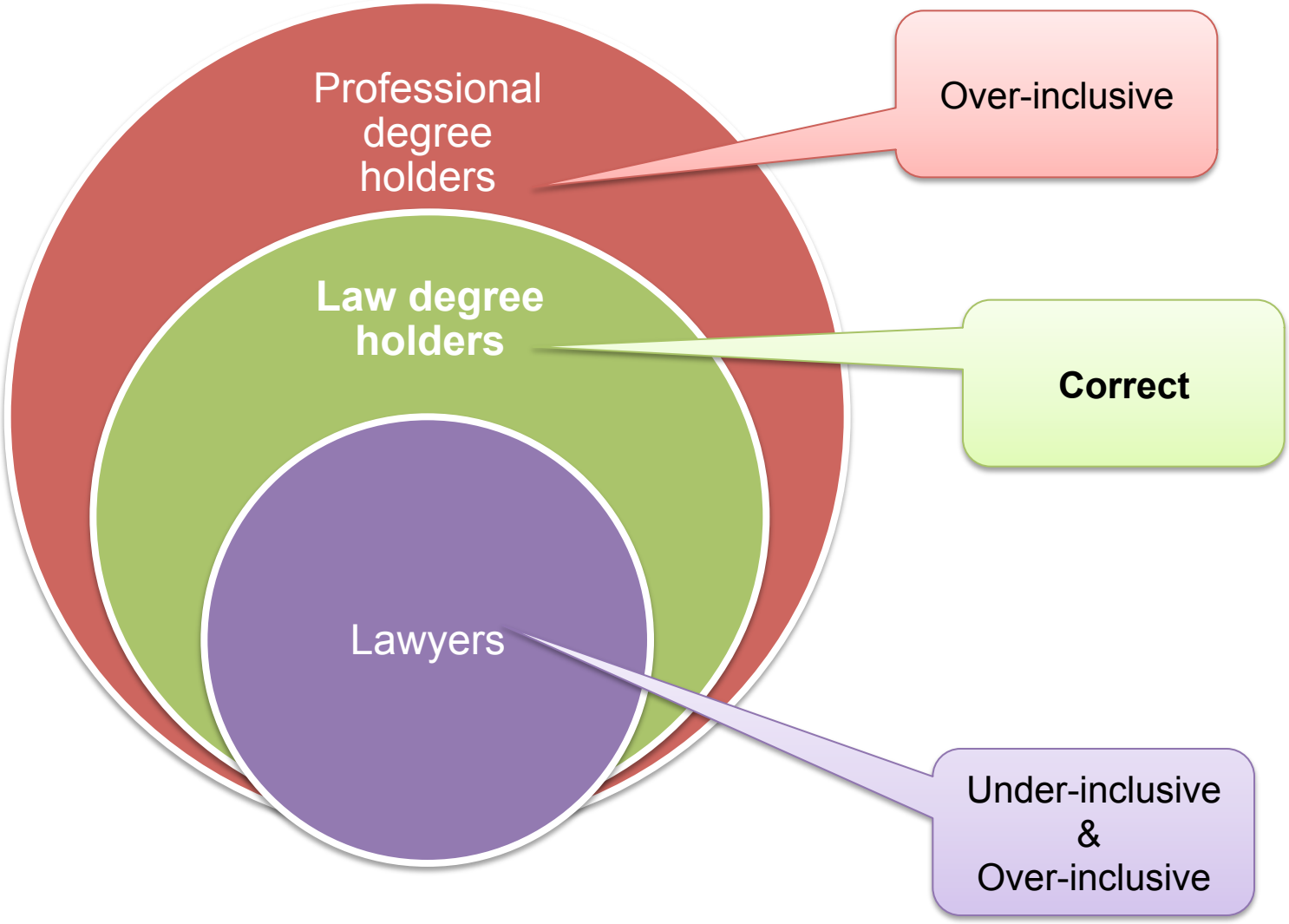
Real annual wage earnings, 1997-2012
Real 2012 USD thousands



Limitation: "Lawyers" is underinclusive

Source: Bureau of Labor Statistics, Occupational Employment Statistics; Current Population Survey, ANNUAL SOCIAL AND ECONOMIC (ASEC) SUPPLEMENT, Table PINC-03.

Professional degree holders is too broad while lawyers is too narrow



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U.S. Census Bureau Survey of Income and Program Participation (SIPP) used to estimate earnings for bachelor's versus law degree

- Surveys follow individuals for up to 4 years
- Self reported monthly earnings reported 3 times per year
- 1996-2011
- 199,954 initial people age 25-65

- Include 37,453 with bachelor's degree only or also a law degree
- Exclude 145,080 with less than a bachelor's
- Exclude 17,427 with advanced degrees other than a law degree

- Include age 25-65 working, involuntarily unemployed or disabled
- Exclude younger, older, or voluntary opt out of the labor force in a given sampling period
  - caring for dependents (2568)
  - in school full time (1825)

- 33,158 people of whom 1382 have law degrees
- 122,081 people-years
- Includes unemployed and disabled

We estimate earnings, wages and hours differences using Ordinary Least Squares and Quantile regression

Sample & Methodology

- 122,081 person-year observations
- 33,158 people of whom 1382 have law degrees
- OLS and Quantile Regression
- Standard errors adjusted for heteroscedasticity and clustering by individual

Dependent variables

- Log Annual Earnings
- Log Annual Wage
- Weekly Hours
- $ Raw Earnings

Independent variables

- Law degree
- Gender, marital status, race, age (5-yr groups), year
- 5 college major categories: Business and Economics, STEM, Humanities, Social Science not Econ, Education, Other
- Academic preparation: 4 dummy variables for HS advanced course work in: Math, Sciences, English, Foreign Languages
- Socioeconomic Status: 2 dummy variables for Public or Private HS and College Prep or Regular HS

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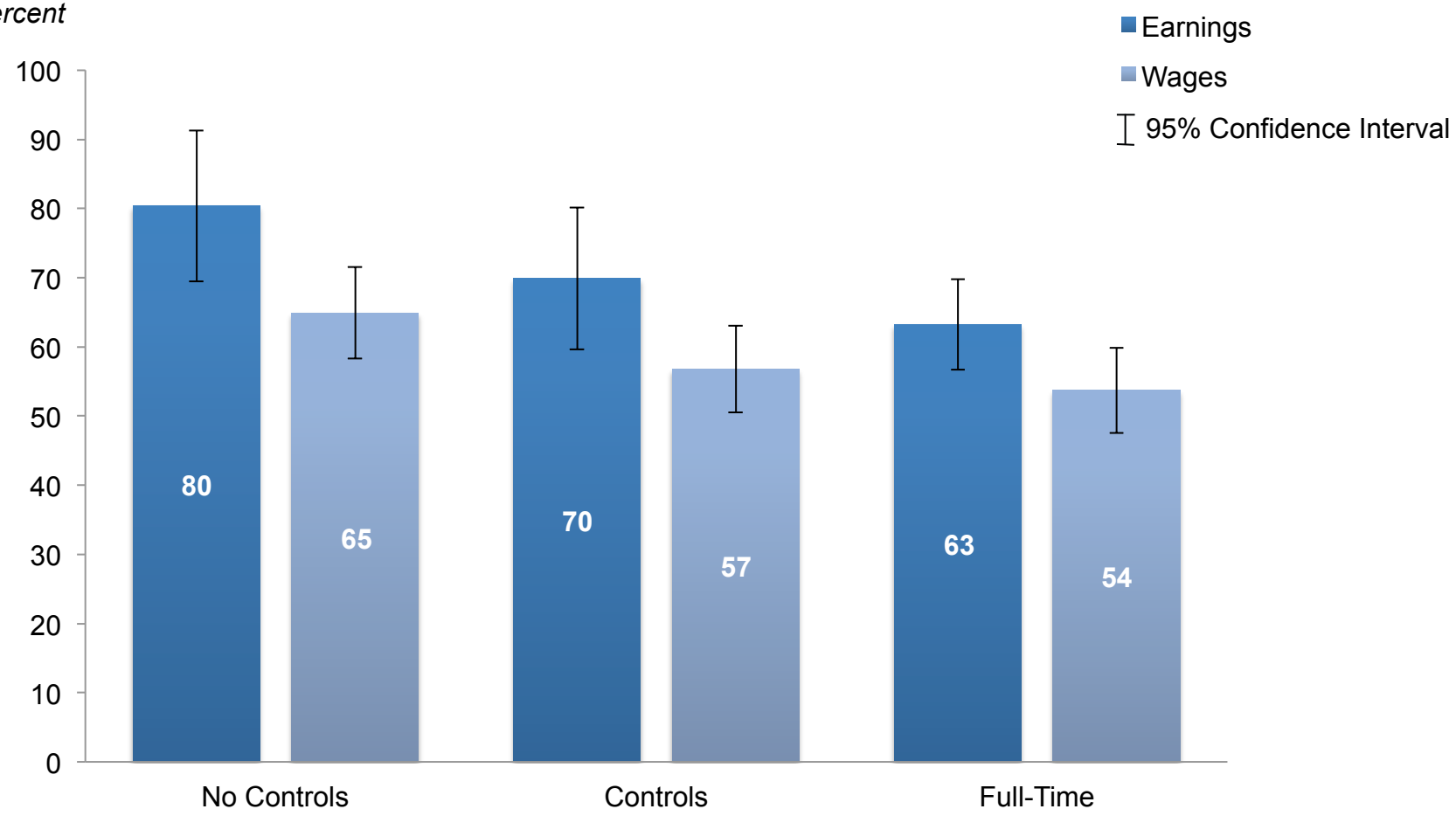
Law degree earnings and hourly wage premiums are substantial

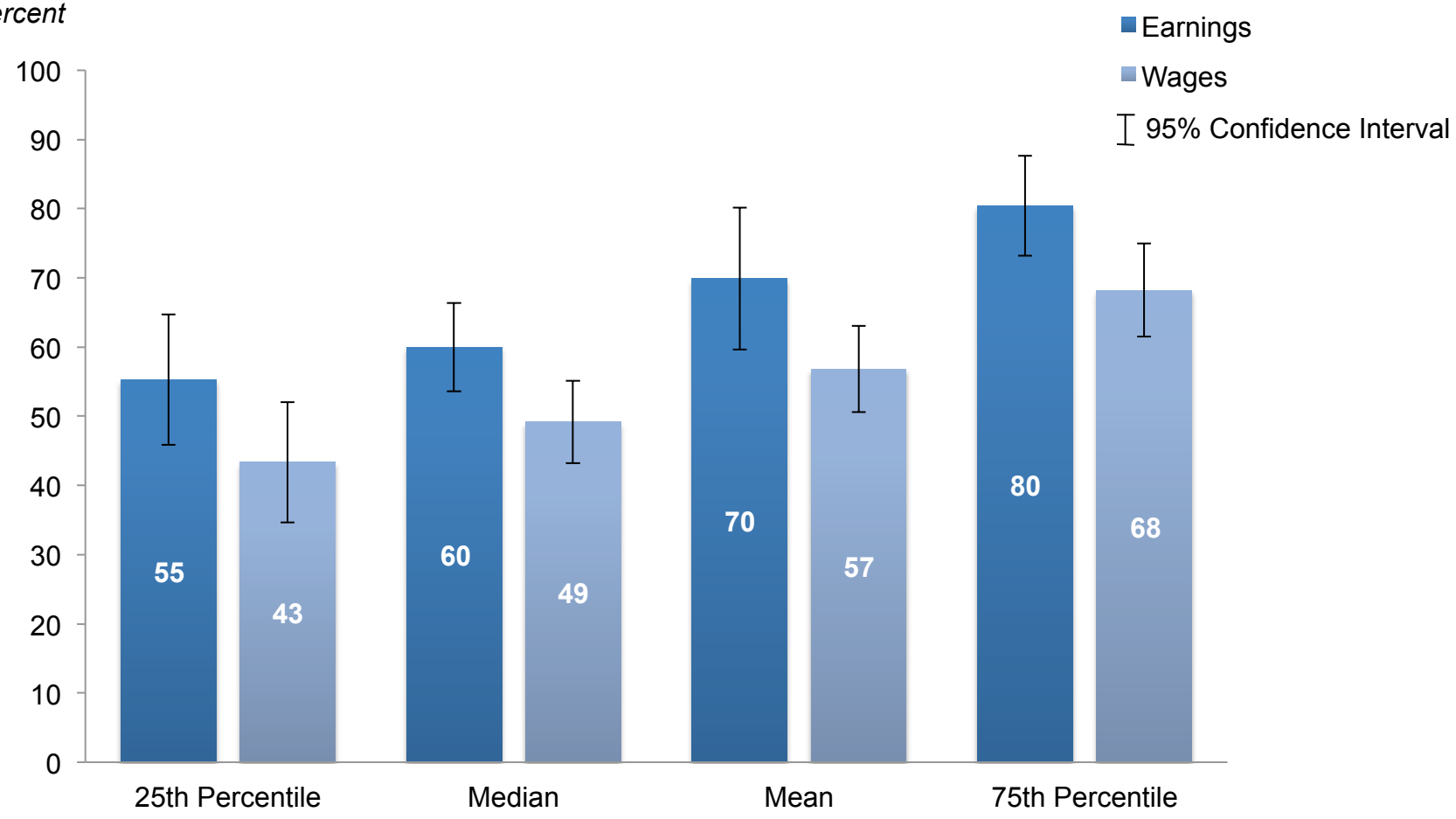
Law degree earnings and wage premiums
Percent



Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Tables 1 and 2

Law degree earnings and hourly wage premiums are high even at the low end of the distribution

Law degree earnings and wage premiums
Percent

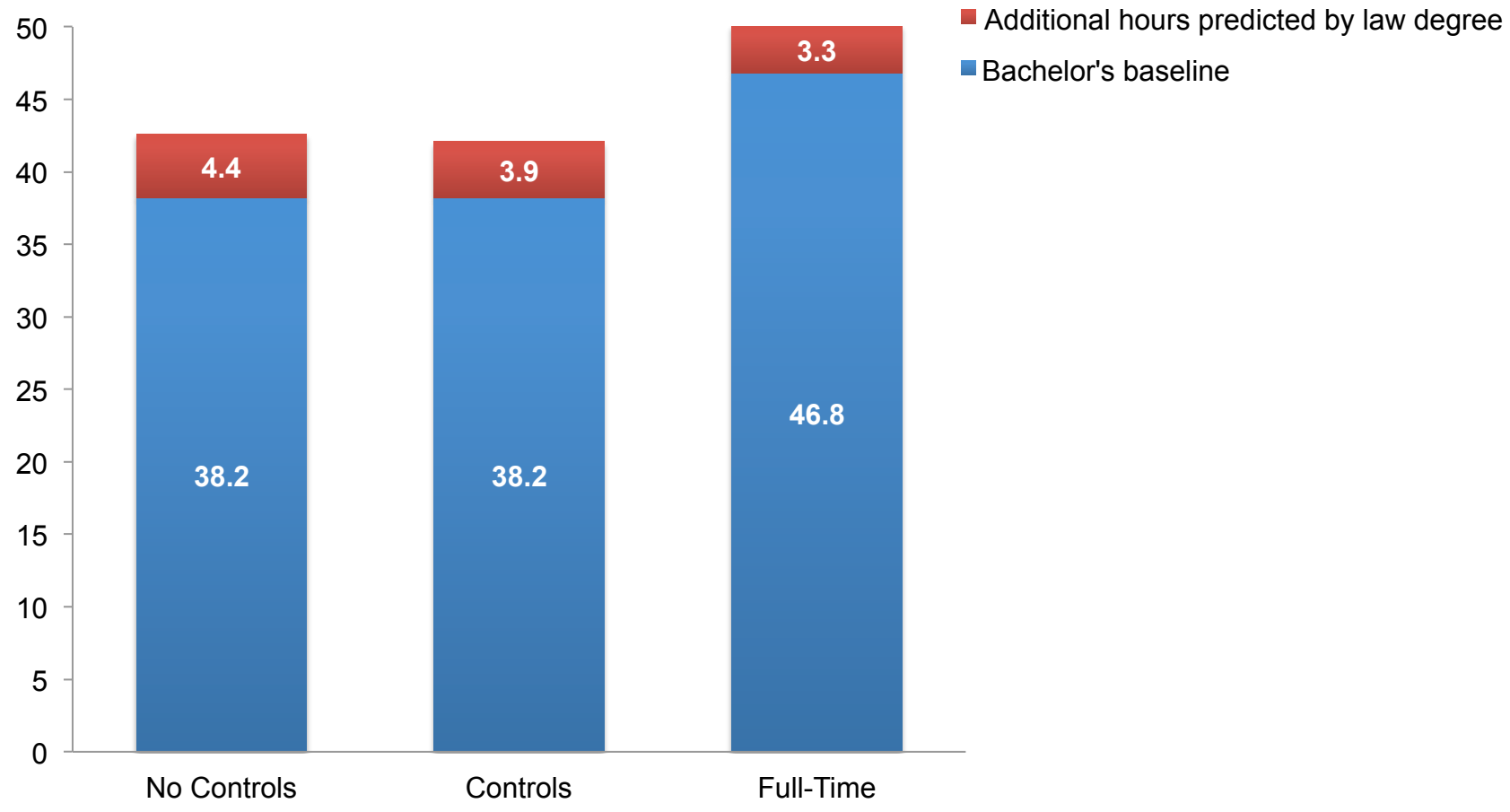


Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Tables 1 and 2

Increases in work hours are small and do not suggest overwork

Hours worked per week by level of education and work status

Hours

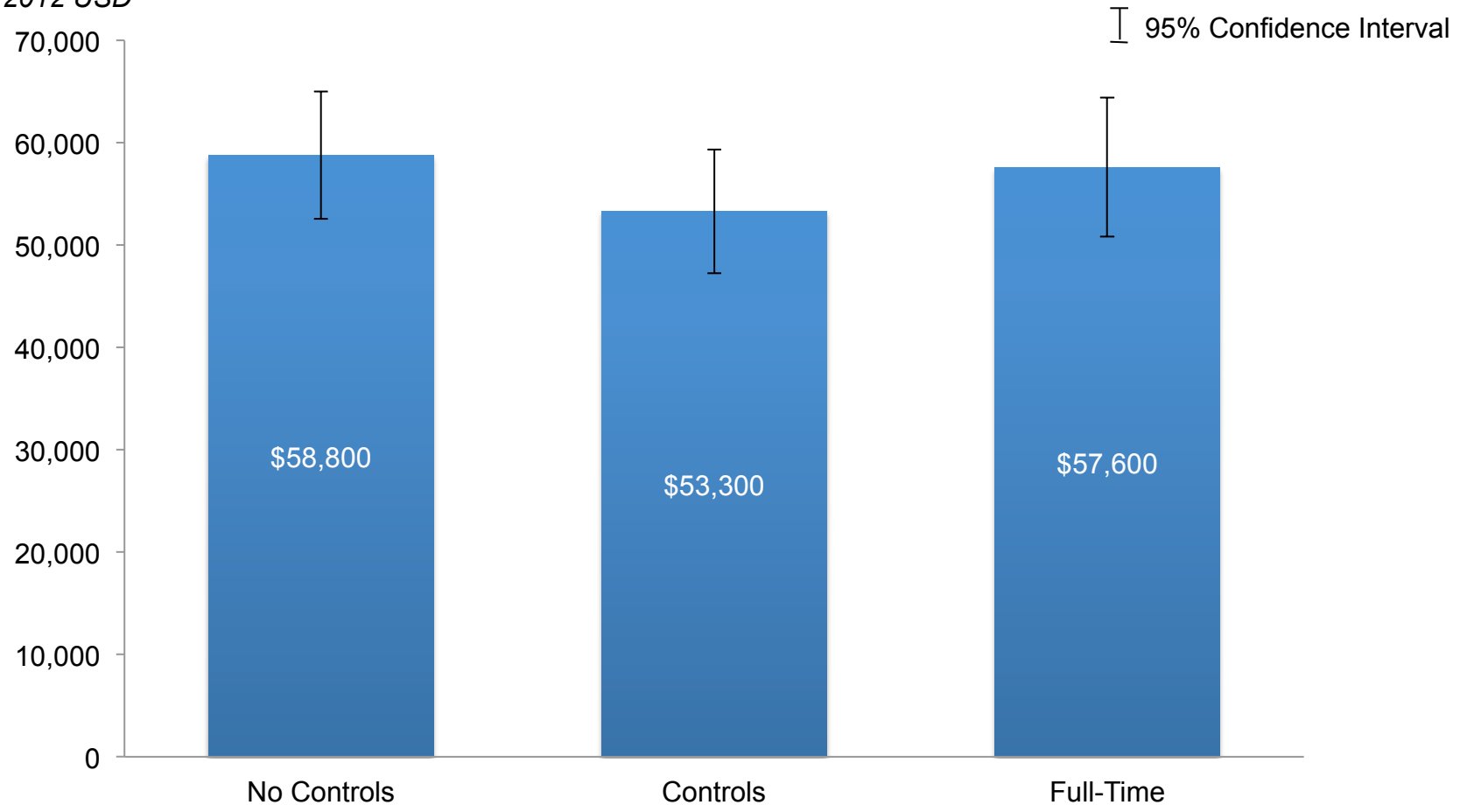


Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Table 3

The mean annual earnings premium is approximately $53,300

Difference in annual earnings between bachelor's and law degree

2012 USD

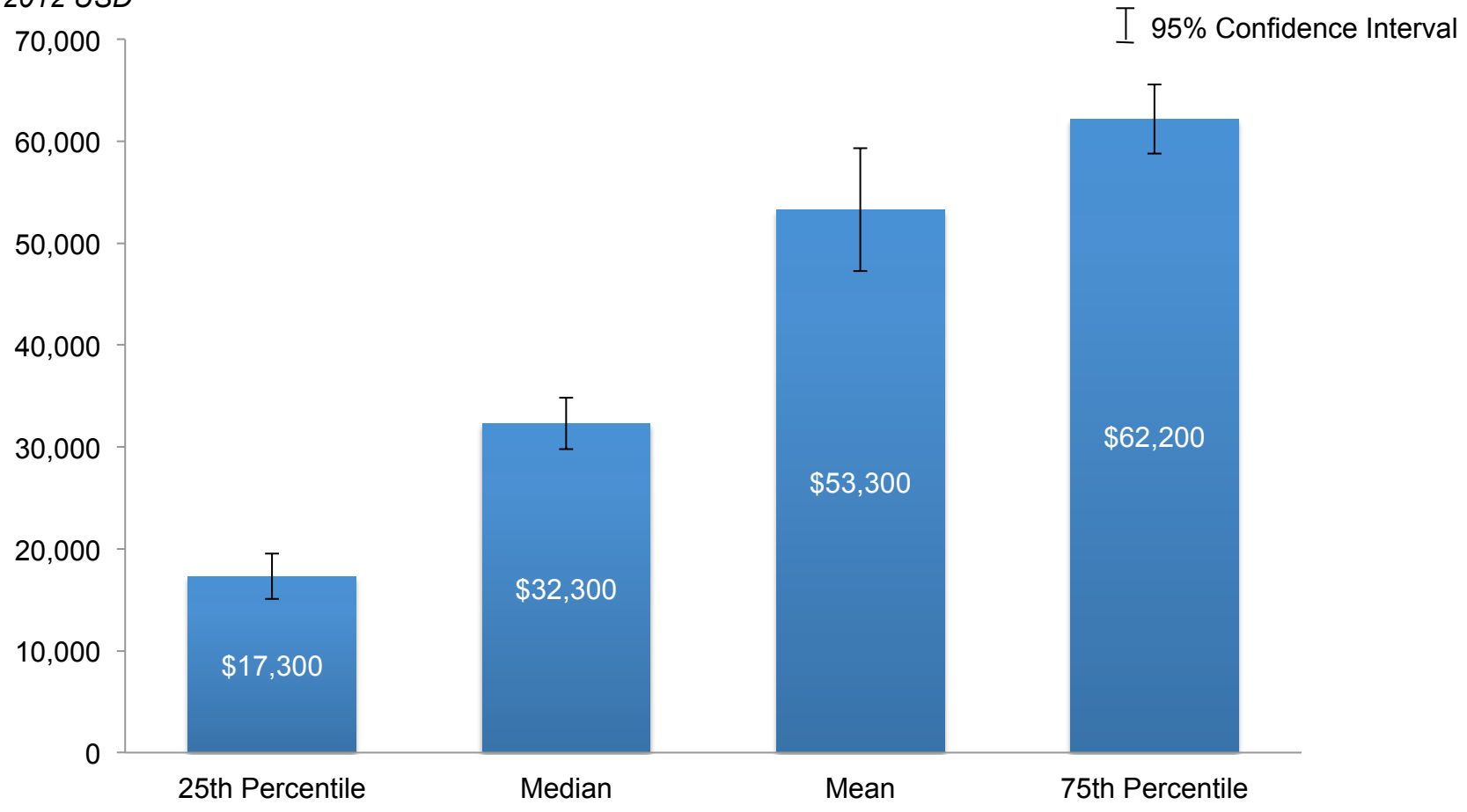


Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Table 4

The annual earnings premium is large even at the low end of the distribution

Difference in annual earnings between bachelor's and law degree

2012 USD

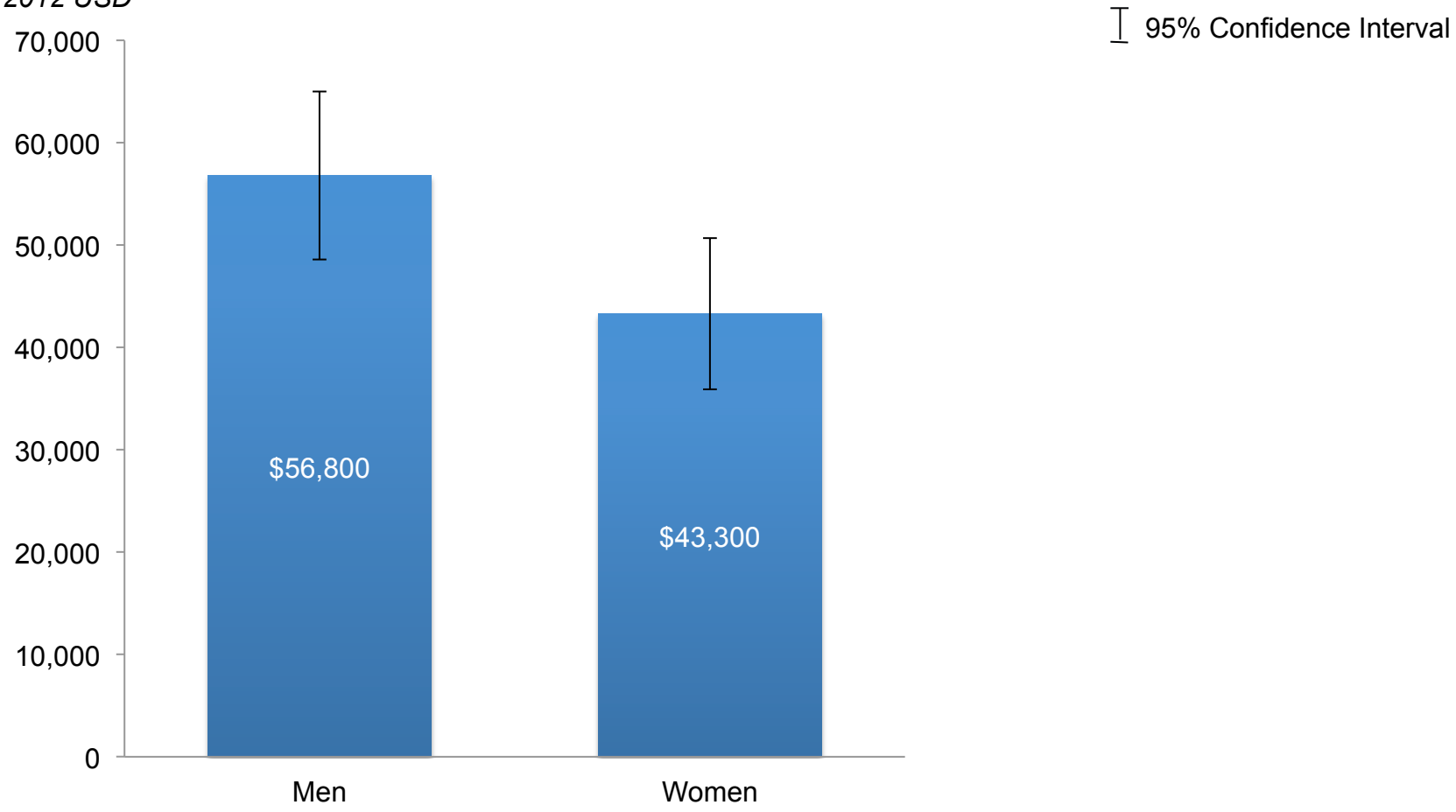


Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Table 4

The mean annual earnings premium is large for both men and women

Difference in annual earnings between bachelor's and law degree

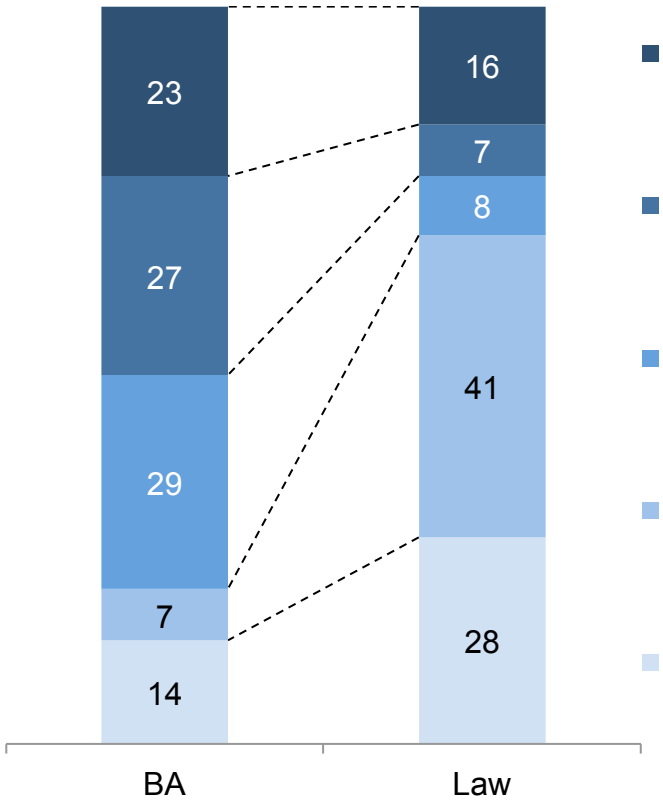
2012 USD



Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Table 4

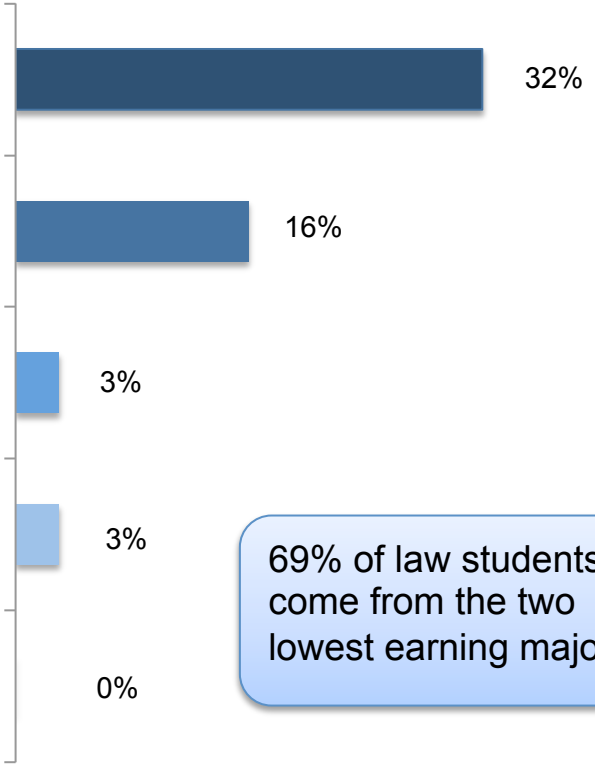
Law students disproportionately majored in humanities and social sciences fields that predict low earnings

Relative distribution of undergraduate majors
Percent of total majors by education level



Business & Economics
Science, Technology, Engineering & Math
Other (Health & Education)
Social Sciences
Humanities

Earnings premium compared to humanities
Percent



69% of law students come from the two lowest earning majors

Source: NELS 88, Table 5

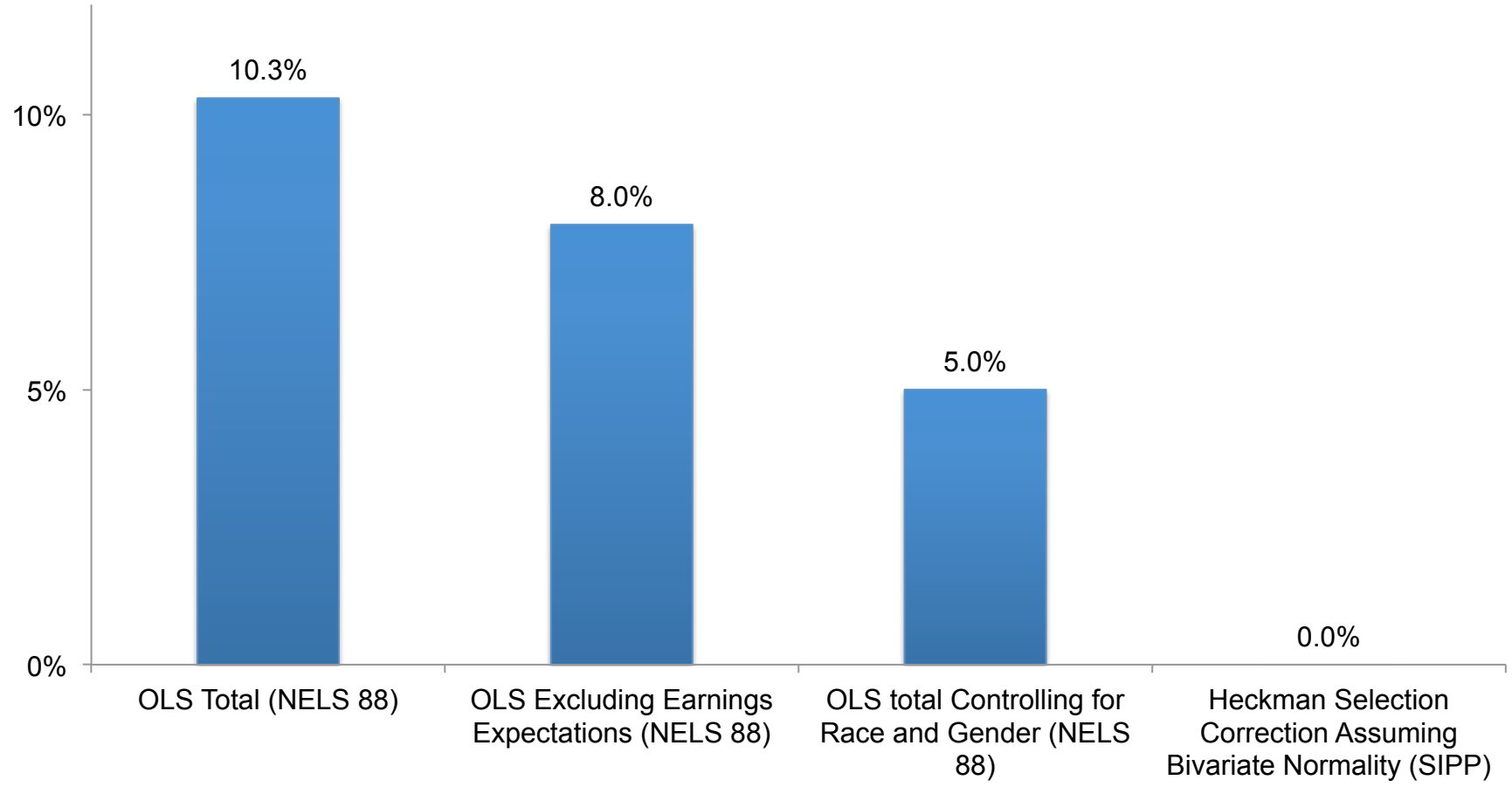
Law students have slightly better potential earnings characteristics than bachelor's degree holders

Latent earnings premium predicted by characteristics of students who attend law school
Percent earnings premium relative to average bachelor degree holder

Characteristic	Outcome Difference Between Law and Bachelor's	Return to Standard Deviation Increase	Outcome*Return
College Major	Prior Slide		-4.4%
College GPA (s.d.)	+0.58	5.7%	3.3%
HS Test Scores (s.d.)	+0.40	6%	2.4%
College Cost Decile (s.d)	+0.66	4.5%	2.4%
Importance of Career, Education and Money (s.d)	+0.21	7.8%	1.6%
Earnings Expectations	+$20,900	10%	6.7%
Parent SES (s.d.)	+0.33	8.6%	2.8%

Multivariate OLS and Selection Correction analysis finds law students have less than 10% predicted earnings premium without law degree

Latent Earnings premium predicted by characteristics of students who attend law school
Percent earnings premium relative to average bachelor degree holder



Source: NELS 88, SIPP 1996-2011, Appendix A

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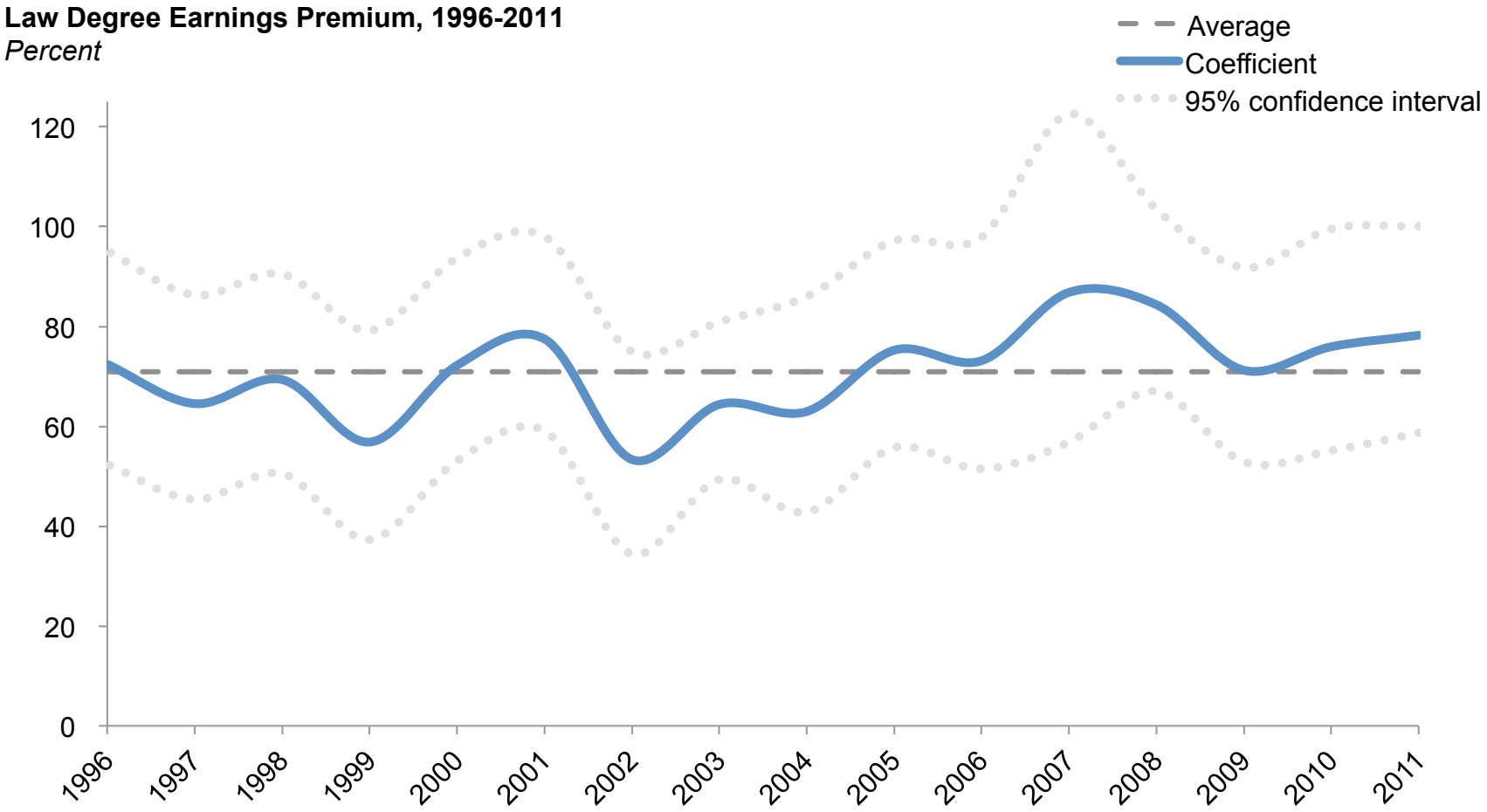
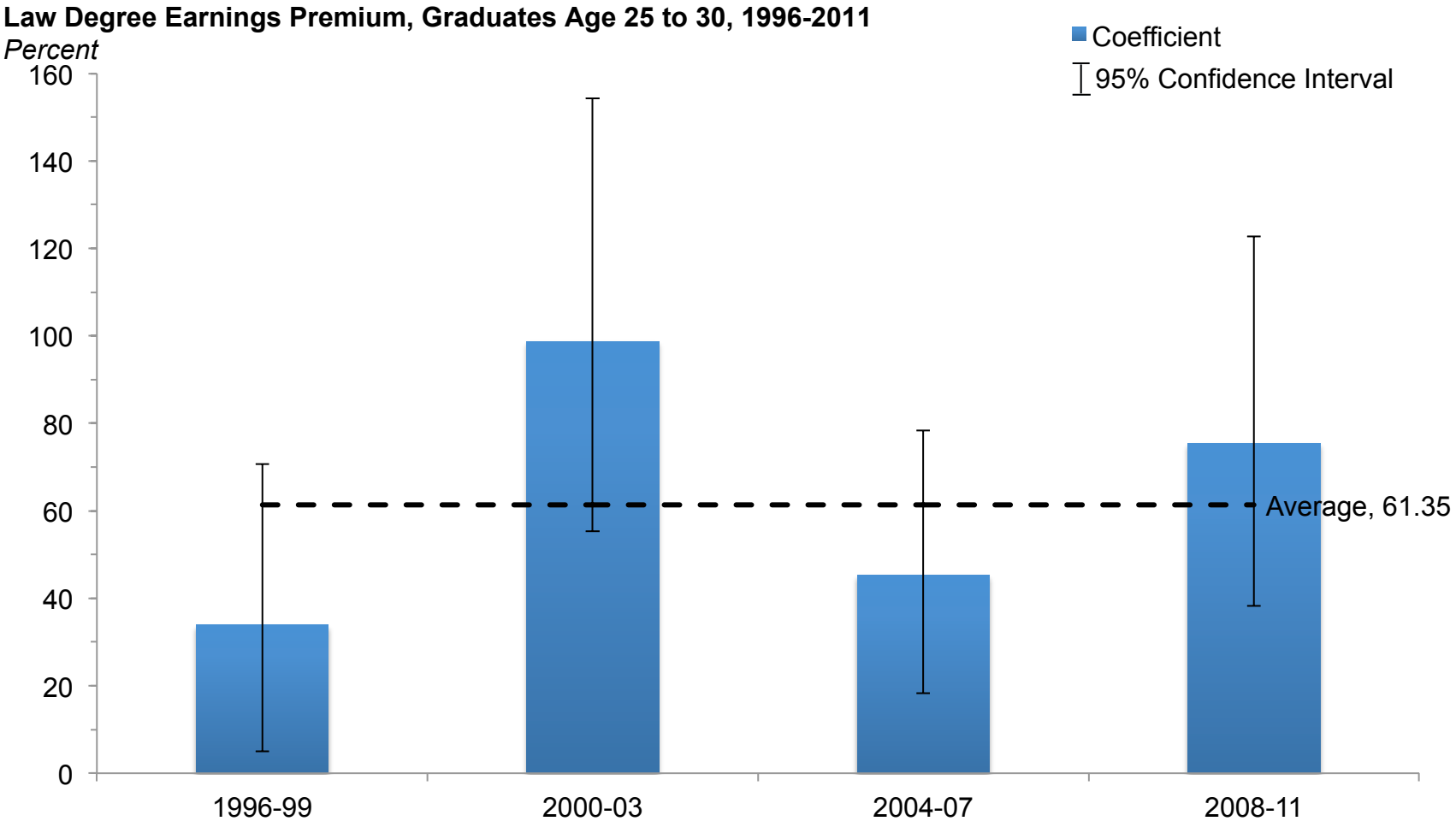
Law degree earnings premium is stable over the long term, with short term cyclical fluctuations

Law Degree Earnings Premium, 1996-2011
Percent



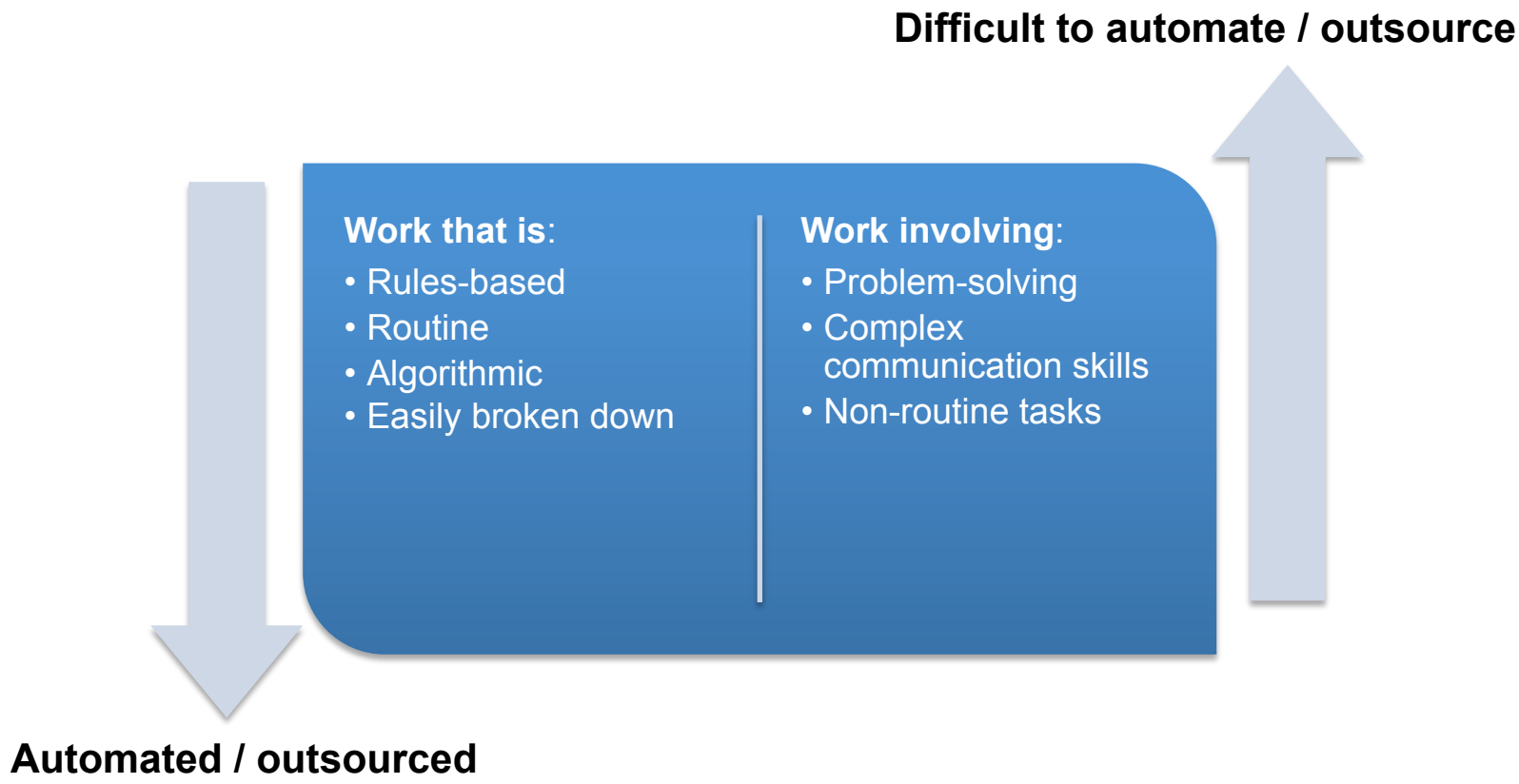
Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations
Note: Solid line is the coefficient. Dotted lines represent 95 percent confidence interval. Horizontal dashed line represents multi-year average with each year weighted equally

Recent premiums for young law graduates are within historic norms



Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations
Note: Vertical lines represent the 95 percent confidence interval; horizontal line represents the multi-year average, with each four-year interval assigned equal weight.

Legal and professional services are difficult to automate or outsource

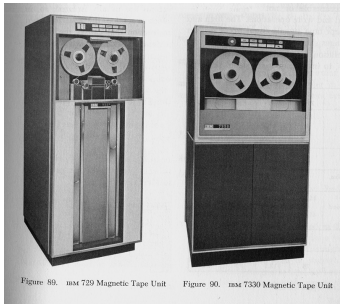


Source: David H. Autor, Frank Levy, & Richard J. Murnane, *The Skill Content Of Recent Technological Change: An Empirical Exploration*, 118 Q. J. ECON. 1279, 1322 (2003); Frank Levy & Richard J. Murnane, How Computerized Work and Globalization Shape Human Skill Demands 5-14 (MIT Working Paper IPC-05-006, 2005); David H. Autor, Lawrence F. Katz, & Melissa S. Kearney, *The Polarization of the U.S. Labor Market,* 96 AM. ECON. REV. 189, 193 (2006); Alan S. Blinder, *How Many U.S. Jobs Might Be Offshorable?* 10 WORLD ECON. 41, 49, 58, 60, 75 (2009); Carole Silver & Mary C. Daly, *Flattening the World of Legal Services? The Ethical and Liability Minefields of Offshoring Legal and Law Related Services,* 38 GEO. J. INT'L. L. 401, 412-16 (2007); Thomas Lemieux, *The Changing Nature of Wage Inequality,* 21 J. POPULATION ECON. 21, 37-42 & Fig. 8 & Fig. 9, 46 (2008); Kyoung-Hee Yu & Frank Levy, *Offshoring Professional Services: Institutions and Professional Control*, 48 BRIT. J. INDUS. REL. 758 (2010).

Predictions of disruption and structural shift date back to the typewriter

F. M. Finch, *Legal Education,* 1 COLUM. L. REV. 94, 95-96 (1901)

"[C]urrent conditions [in 1901] are widely and radically different from those existing fifty years ago . . . the student in the law office copies nothing and sees nothing. The stenographer and the typewriter have monopolized what was his work . . . and he sits outside of the business tide"



Louis M. Brown, *Emerging Changes in the Practice of Law,* 1978 UTAH L. REV. 599, 599-601 (1978) (discussing "disturbing technological changes" in legal practice from the introducing of the telephone, the typewriter, and also large changes from the introduction of female legal secretaries)

1901 — 1966 — 1978 — 2012

Michael S. Landes, Project-Automated Legal Research, 52 A.B.A. J. 730 (1966) (noting that many lawyers felt "threatened" by computerized legal research using punch cards, magnetic tape, and microfilm, and describing such systems as part of a "second industrial revolution")

Henderson et al.

Legal outsourcing and automation (legal zoom; e-discovery) will reduce employment opportunities for lawyers

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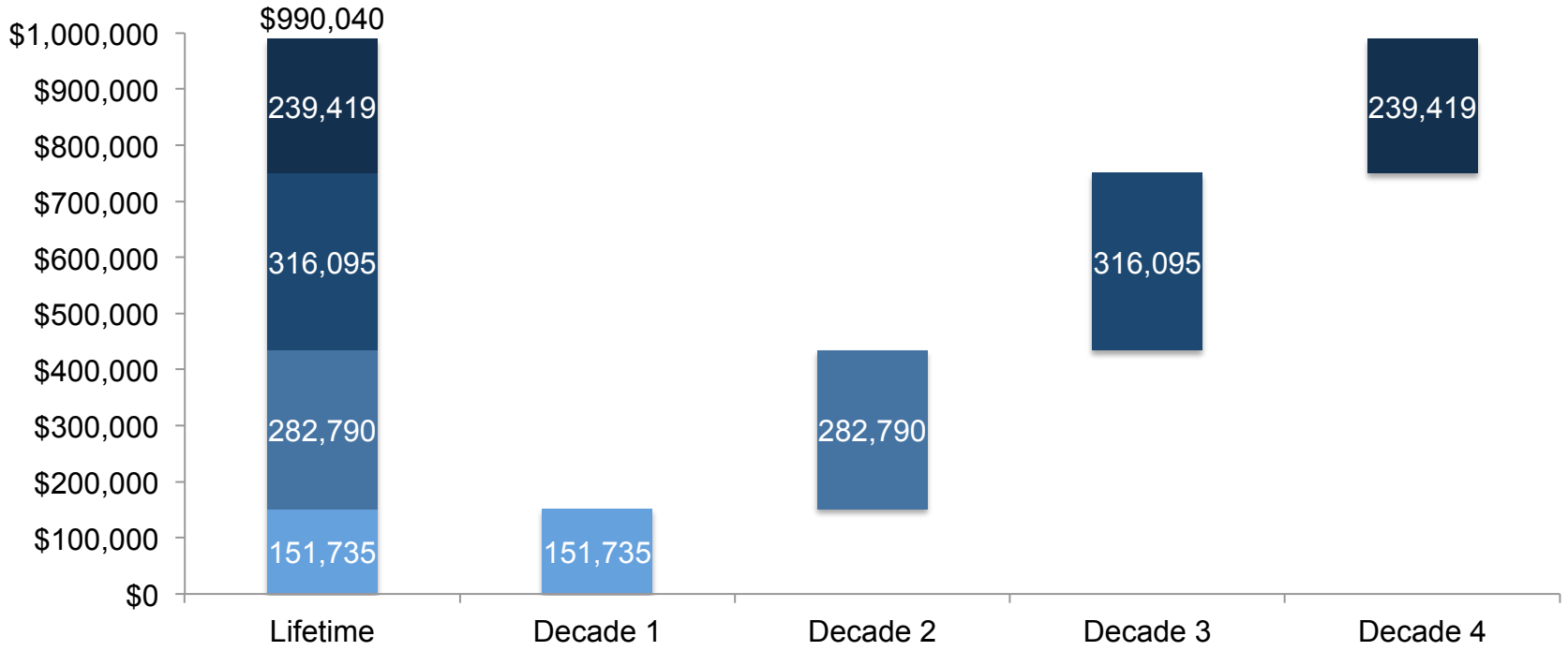
On average, a law degree increases lifetime earnings by a Economic Value of as

Present value of law degree earnings premium as of start of law school, both genders combined

2012 USD



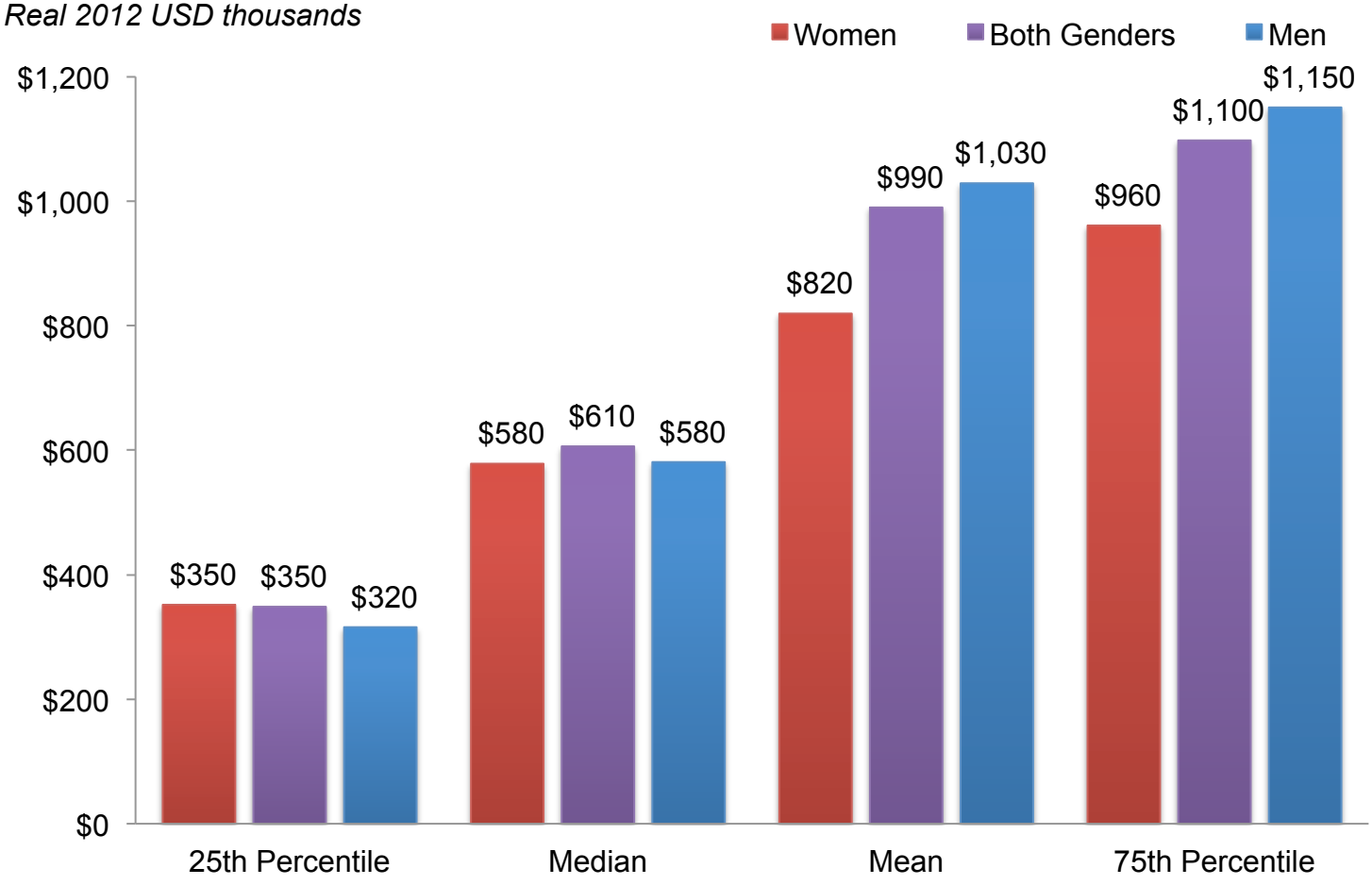
Years	1-43	1-10	11-20	21-30	31-43
Ages	23-65	23-32	33-42	43-52	53-65
IRR	19%				

Source: U.S. Department of Education; Title 20 of the U.S. Code; Authors' calculations, Table 7

The lifetime value of the law degree is high across the distribution

Law degree lifetime earnings premiums

Real 2012 USD thousands



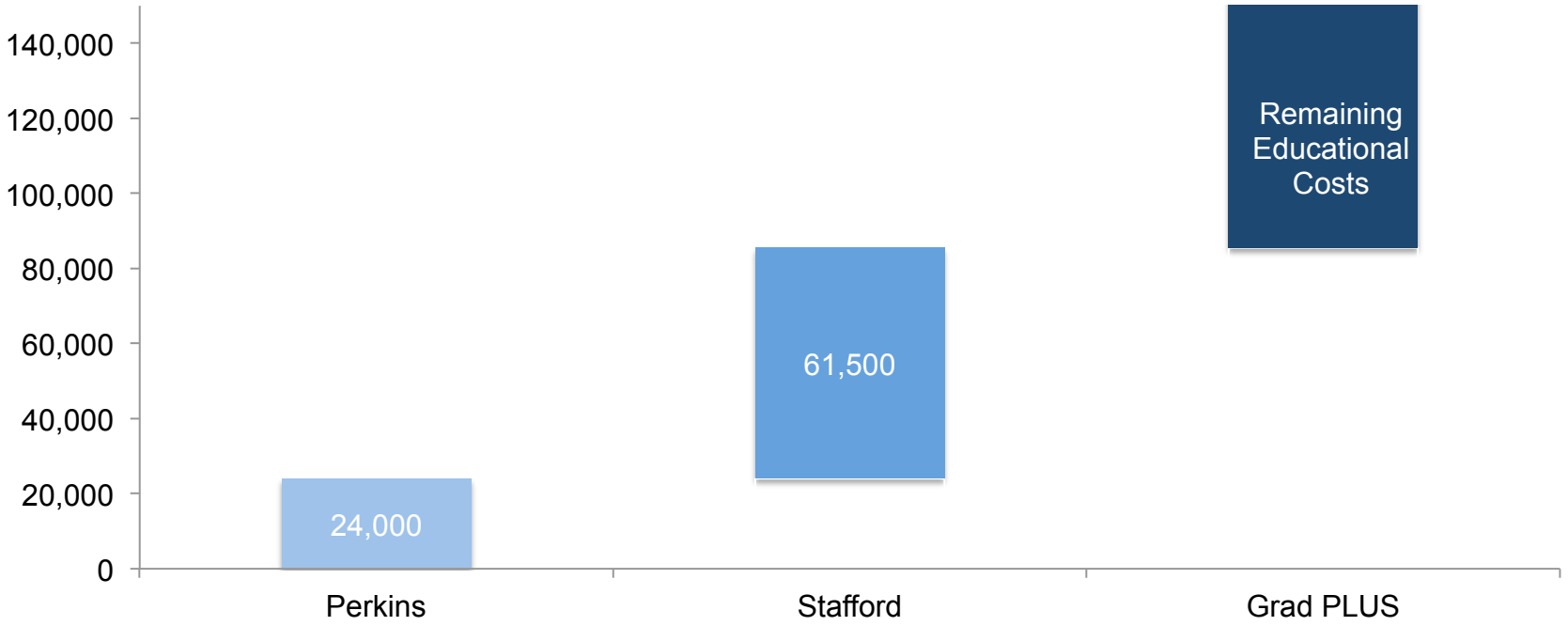
Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Tables 7 and 8

Present value of law degree exceeds tuition by a wide margin

- Present value of synthetic lifetime earnings from 23 to 65
- The appropriate discount rate is probably between 2 and 4 percent
  - Real financing costs
    - Prepayments from *After the JDII*
    - IBR and debt forgiveness programs
  - Subjective discount rates from theoretical and empirical studies
  - Common practice in labor economics

Law school education is funded through a mix of Perkins, Stafford, and Grad PLUS loans

Federal loan limits for a three-year graduate degree
2012 USD



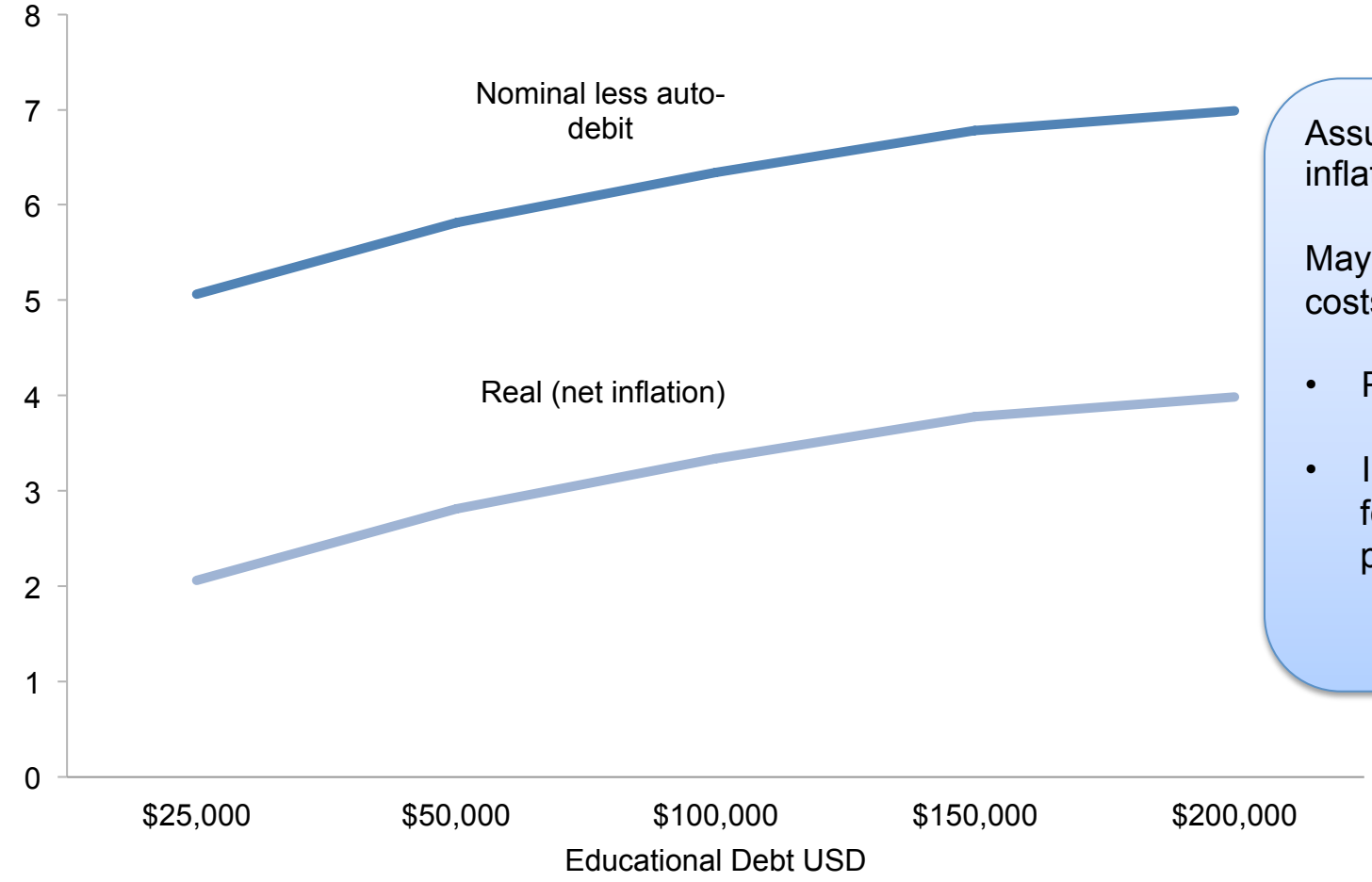
	Perkins	Stafford	Grad PLUS
Nominal Interest Rate	5%	6.8%	7.9%
Nominal less auto-debit incentive (%)	5%	6.55%	7.65%
Real Interest Rate (%)	2%	3.55%	4.65%

Source: U.S. Department of Education; Title 20 of the U.S. Code; Authors' calculations, Appendix Table A1

Education financing costs suggest a real discount rate around 3 percent

Average interest rates by total amount borrowed for three-year graduate degree

Percent



Assumes 3 percent inflation

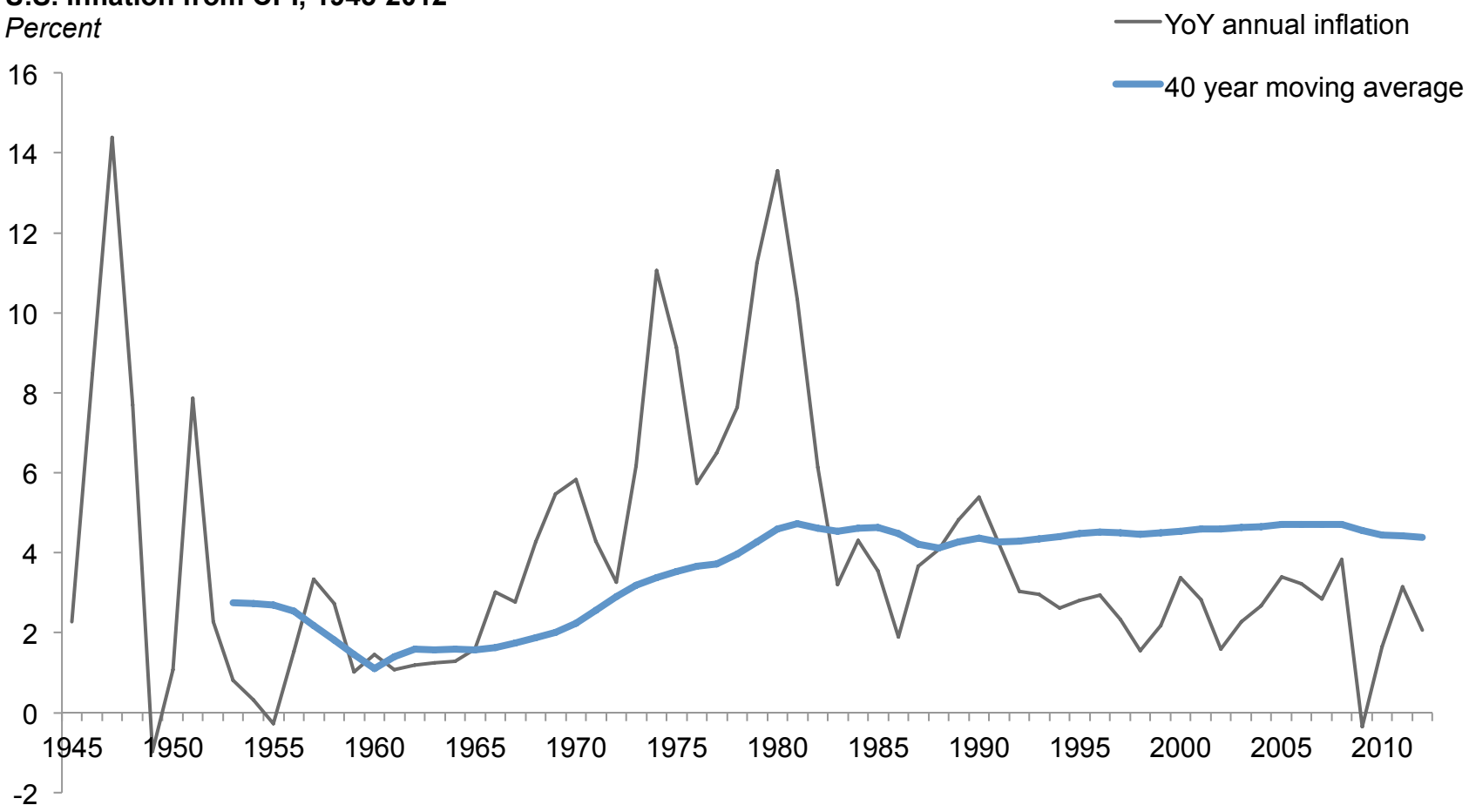
May overstate financing costs because ignores:

- Prepayments
- IBR and other debt forgiveness programs

Source: U.S. Department of Education; Title 20 of the U.S. Code; U.S. Bureau of Labor Statistics; Authors' calculations, Appendix Table A2

Long term Inflation has historically averaged 3 to 4 percent per year

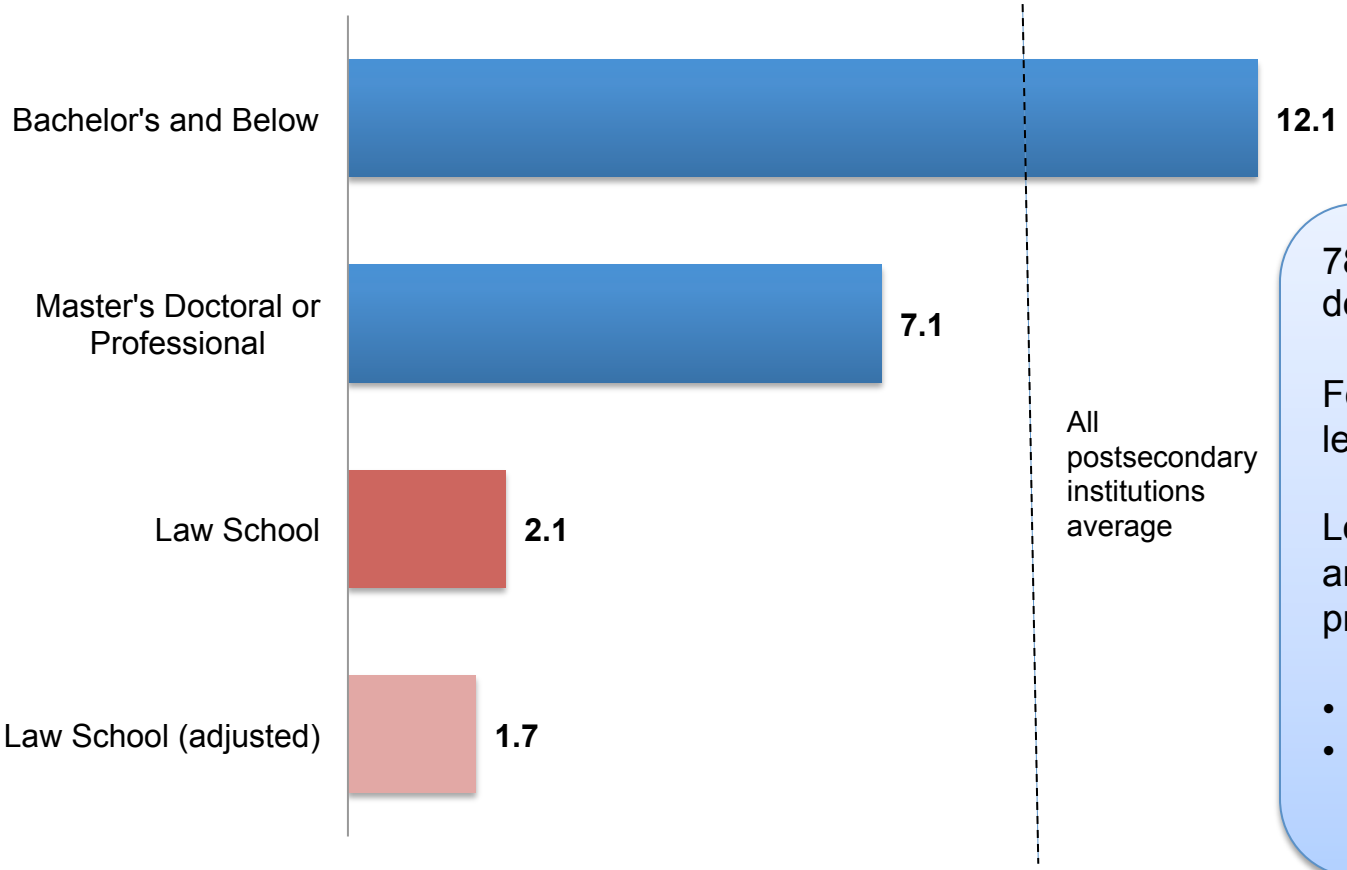
U.S. inflation from CPI, 1945-2012
Percent



Source: U.S. Department of Labor, Bureau of Labor Statistics

Law students rarely default on their student loans

Student loan two-year cohort default rate, 2010
Percent of those in repayment who default within 2 years of entering repayment



78 percent recovery on defaulted student loans

Federal student lending is profitable

Loans to law students are especially profitable because:

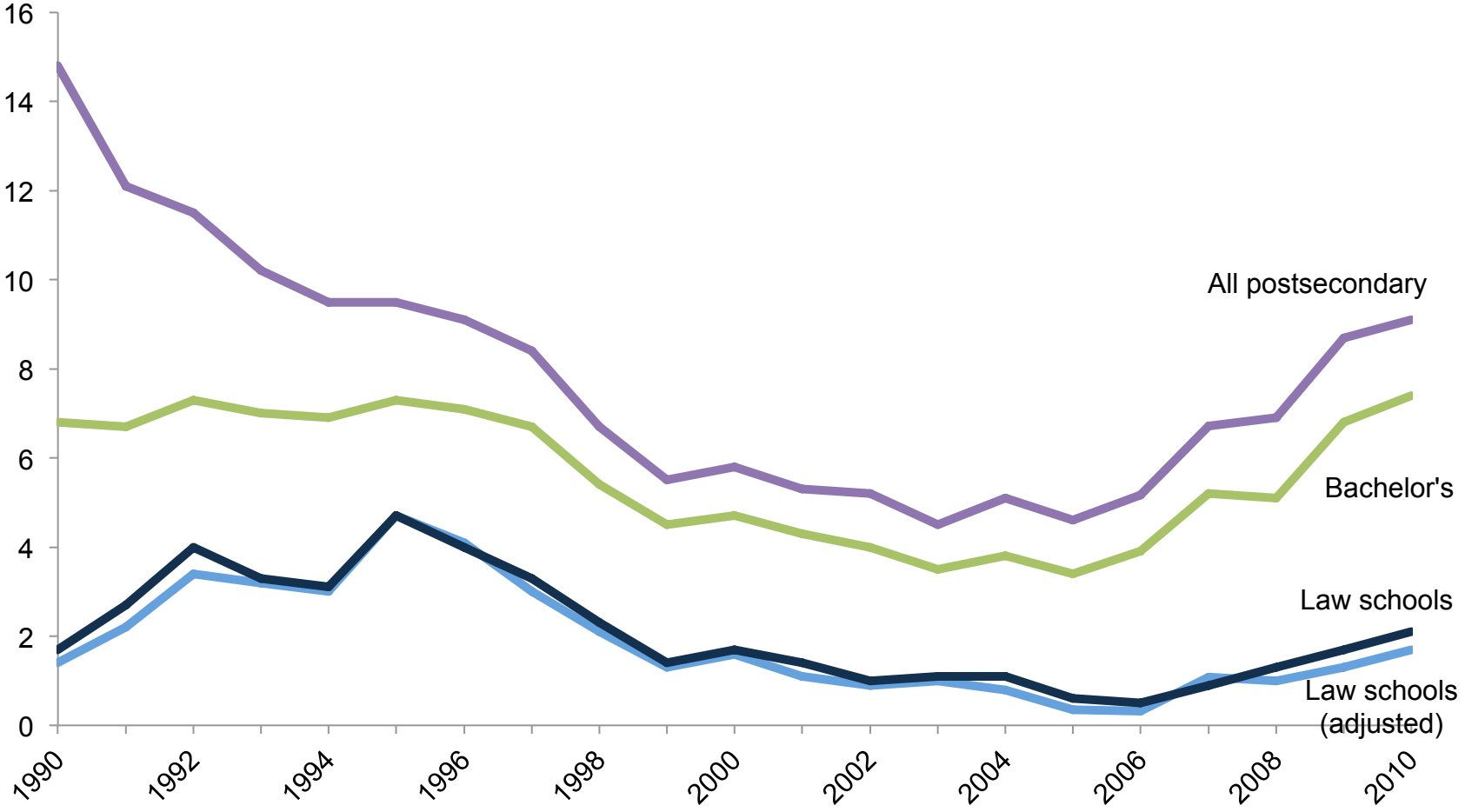
- high interest rates
- low default rates

Source: U.S. Department of Education; Authors' calculations, Table 12

Law student loan default rates have been relatively low for 20 years

Federal student loan two-year cohort default rates by institution type, 1990-2010

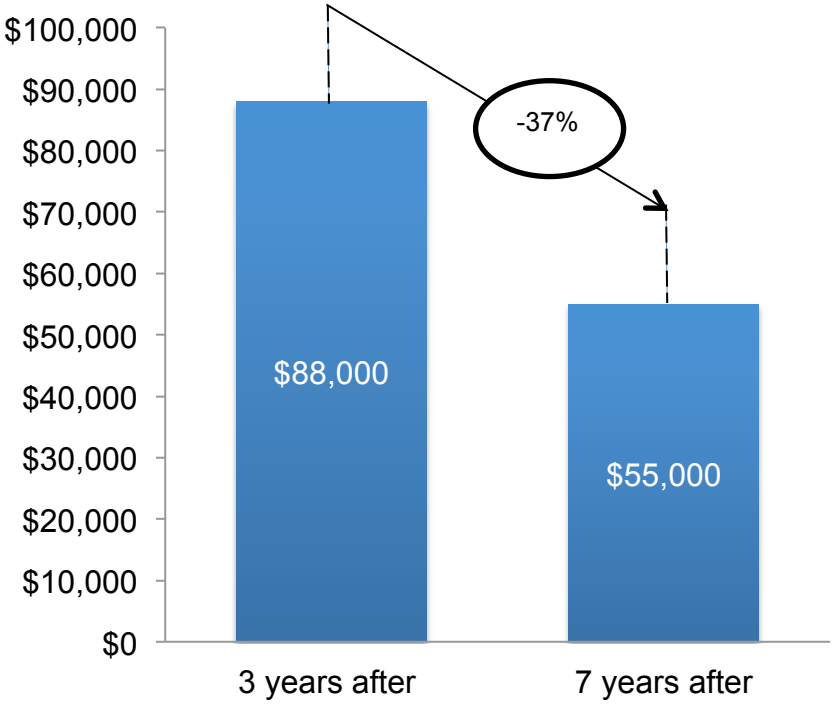
Percent



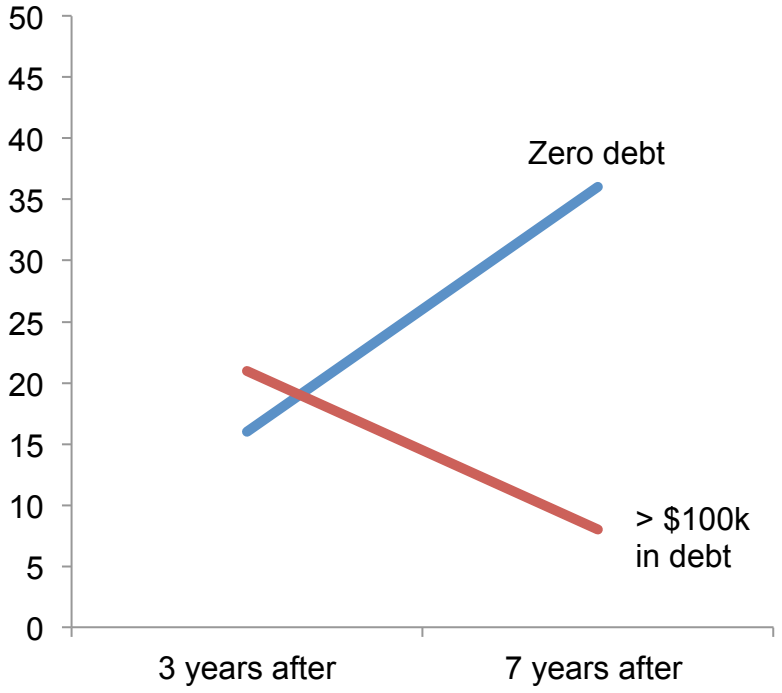
Source: U.S. Department of Education

Former law students repay their educational debts ahead of schedule

Median educational debt among those with debt
Real 2012 USD



Percent of students by debt level
Percent



Students have up to 25 years to repay federal loans under extended repayment

Source: Ronit Dinovitzer, et al., ABA AND NALP, *After the JD II: Second Results from a National Study of Legal Careers* (2009).

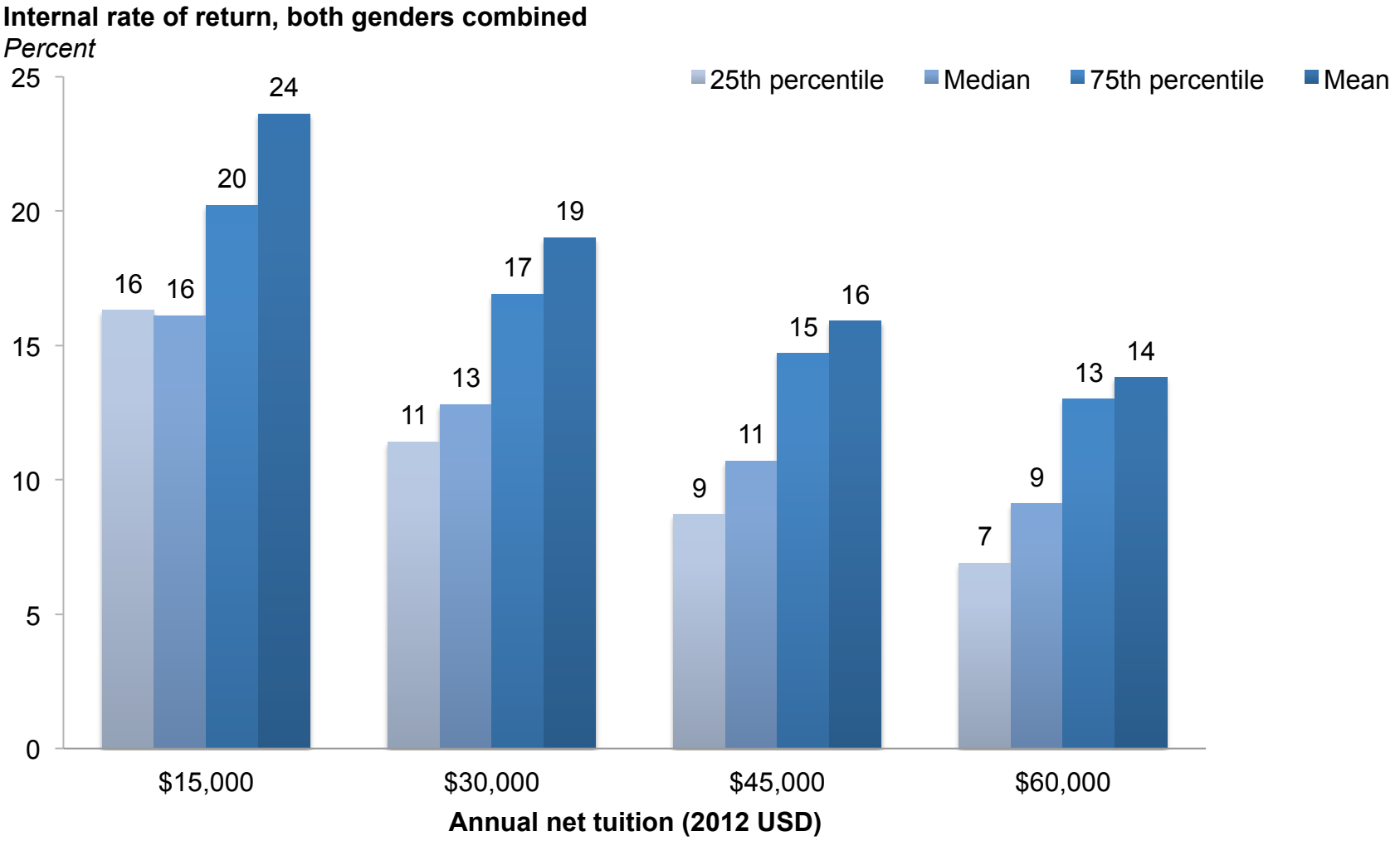
Most labor economists use discount rates between 0 and 3 percent

Economic study of value of education	Discount rate
Jennifer Cheeseman Day & Eric C. Newburger, U.S. Census Bureau *Current Population Reports, The Big Payoff: Educational Attainment and Synthetic Estimates of Work-Life Earnings* 4 (July 2002)	0%
Anthony P. Carnevale, Stephen J. Rose, & Ban Cheah, *The College Payoff: Education, Occupations, Lifetime Earnings* 4 (Washington, DC: Georgetown University, Center on Education and the Workforce, 2010)	0-2.5%
Sandy Baum, Jennifer Ma & Kathleen Payea, COLLEGE BOARD, EDUCATION PAYS (2010)	3%
Paul Oyer & Scott Shaefer, *The Returns to Attending a Prestigious Law School* 34 (2010)	5% (0-10%)
OECD, EDUCATION AT A GLANCE 167-68 (2011)	3%
Edward M. Gramlich, A GUIDE TO BENEFIT-COST ANALYSIS, 2D.ED. (1990)	3%

The Economic Value of a Law Degree

- Law school applications plummeted amid doubts about value of law degree
- Recent studies of law degree economic value are fundamentally flawed
- Our approach
- The data suggests that a law degree is generally a good investment
  - Law degree holders earn more than bachelors after controls for ability
  - Earnings premium is stable over the long run
  - Present value of law degree exceeds tuition by wide margin
  - Internal rates of return are high even toward bottom of distribution

Internal rates of return on law degree are high even toward the high end of tuition and low end of earnings



Source: U.S. Census Bureau Survey of Income Program and Participation, Authors' calculations, Table 10

Summary: Conclusions

- Law degree holders earn substantially more than bachelor's after controls for ability
  - Mostly due to increased wages per hour
  - Modest increase in work hours
- Internal rates of return are higher than plausible discount rate
  - Discount rate should be modest to reflect
    - Actual financing costs
    - Low student loan default rates
    - Student loan prepayments
    - IBR suggest low discount rates
- Recent premiums are within usual range; no evidence of "structural change" affecting law degree holders more than bachelors
- Legal education is generally profitable investment for law students
  - and a fiscal boon to federal government

Summary: Caveats, limitations, and opportunities for future research

- Population estimates vs. individual outcomes
  - Gender
  - College major
  - Race
- Differences across law schools?
  - distributional analysis suggests degree is usually a good investment
  - Oyer vs. Sanders
- Historic data
  - Does not guarantee future performance, but remains the most objective, accurate, and scientific method of estimation
- Bachelor vs. law degree, or alternate graduate degree vs. law degree?
- Remaining OVB / selection vs. underreporting in SIPP?

Backup slides

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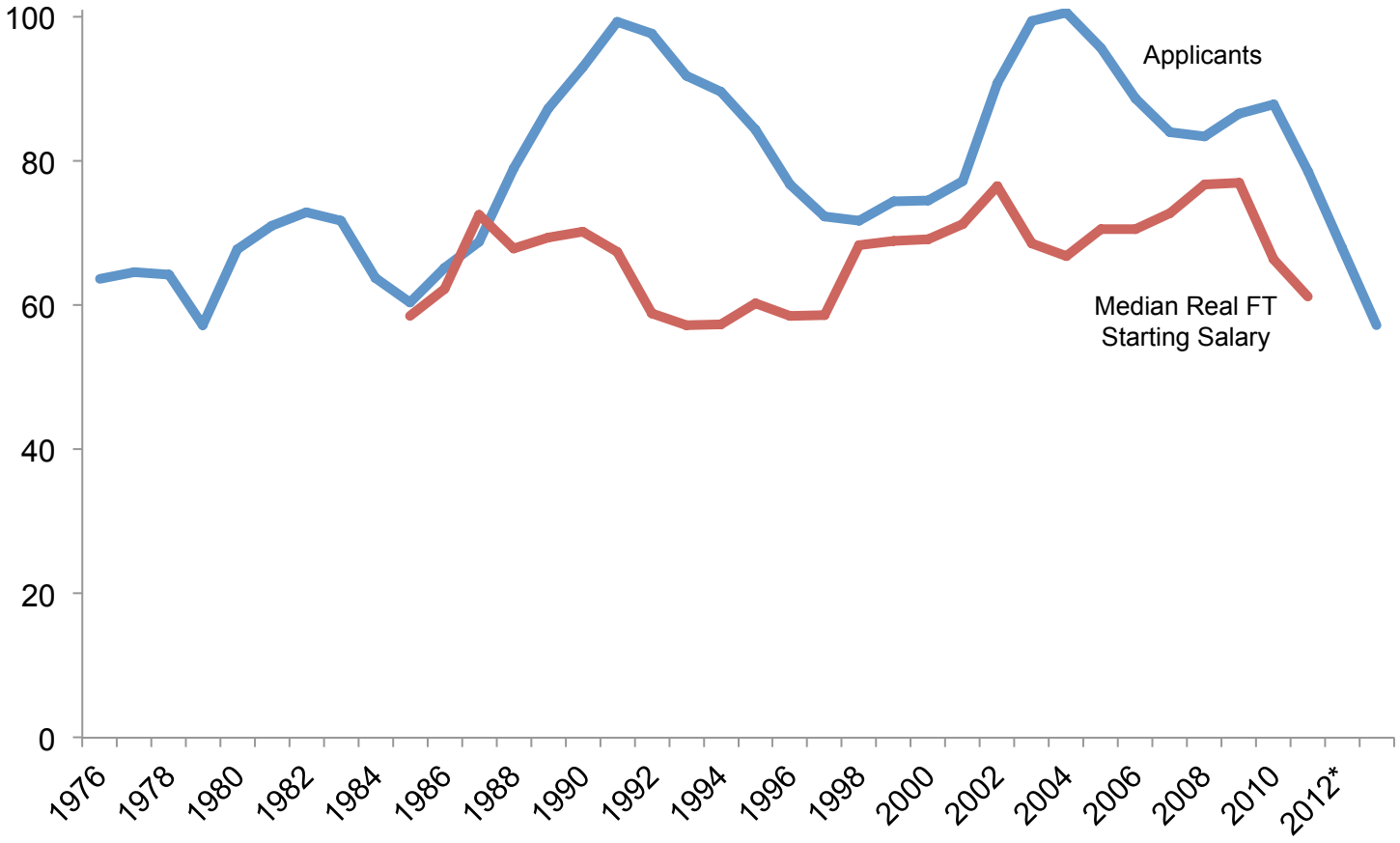
Number of applicants mirrors starting salary trends

Annual applicants to ABA-approved law schools, 1976-2013*
Thousands

Median fulltime starting salary, 1985-2011
2012 USD thousands



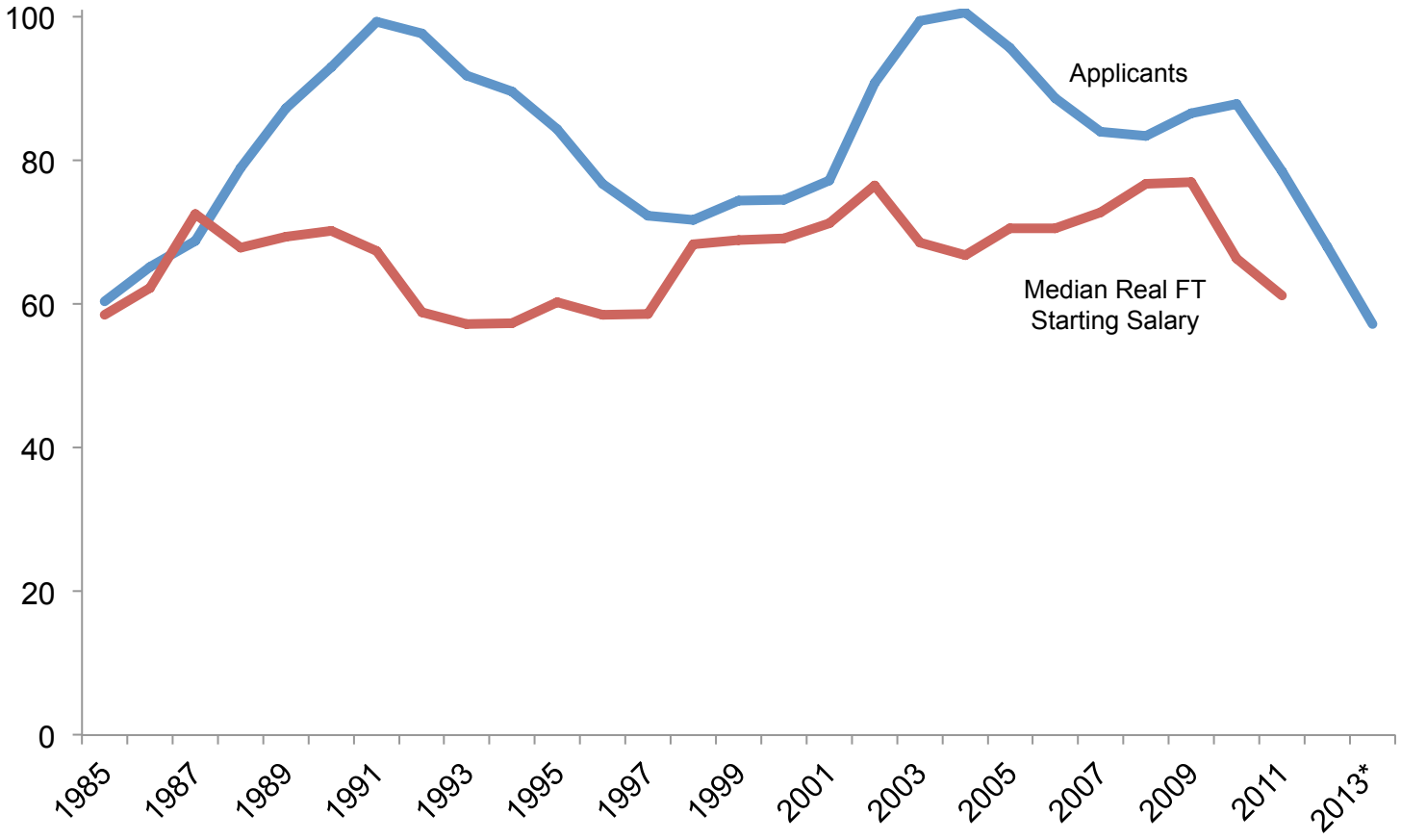
Note: 2012 numbers are preliminary; 2013 numbers are projections based on data through early April 2013

Source: Law School Admissions Council, LSAC Volume Summary; NALP

Number of applicants mirrors starting salary trends

Annual applicants to ABA-approved law schools, 1985-2013*
Thousands

Median fulltime starting salary, 1985-2011
2012 USD thousands

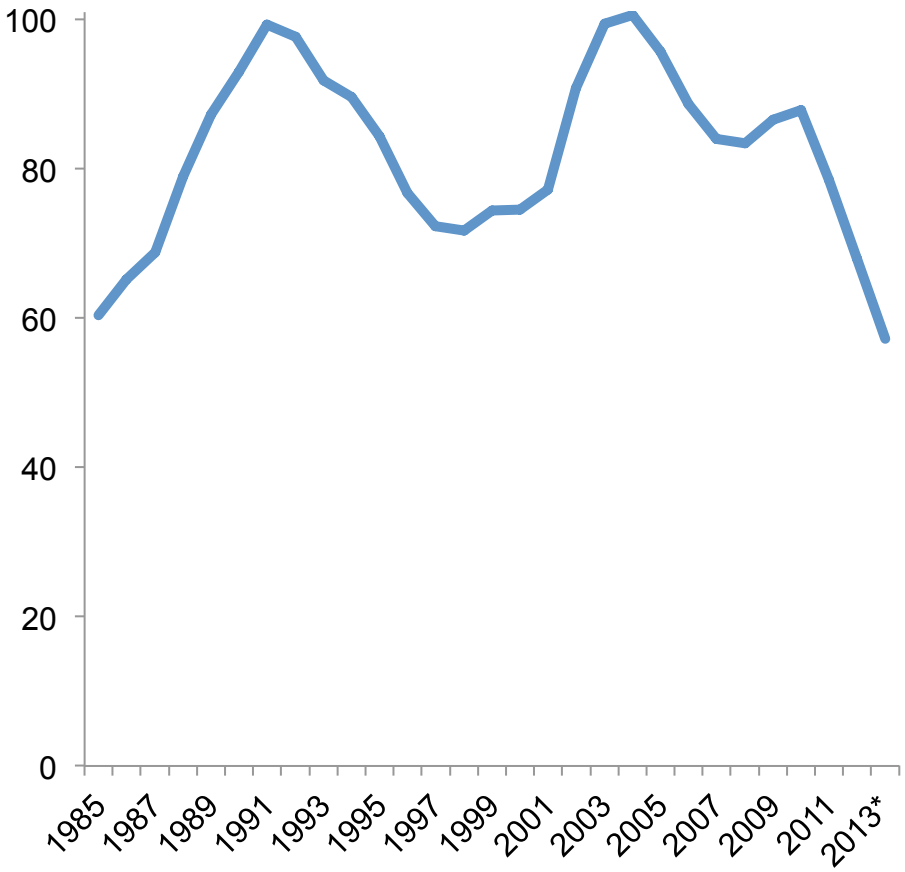


Note: 2012 numbers are preliminary; 2013 numbers are projections based on data through early April 2013

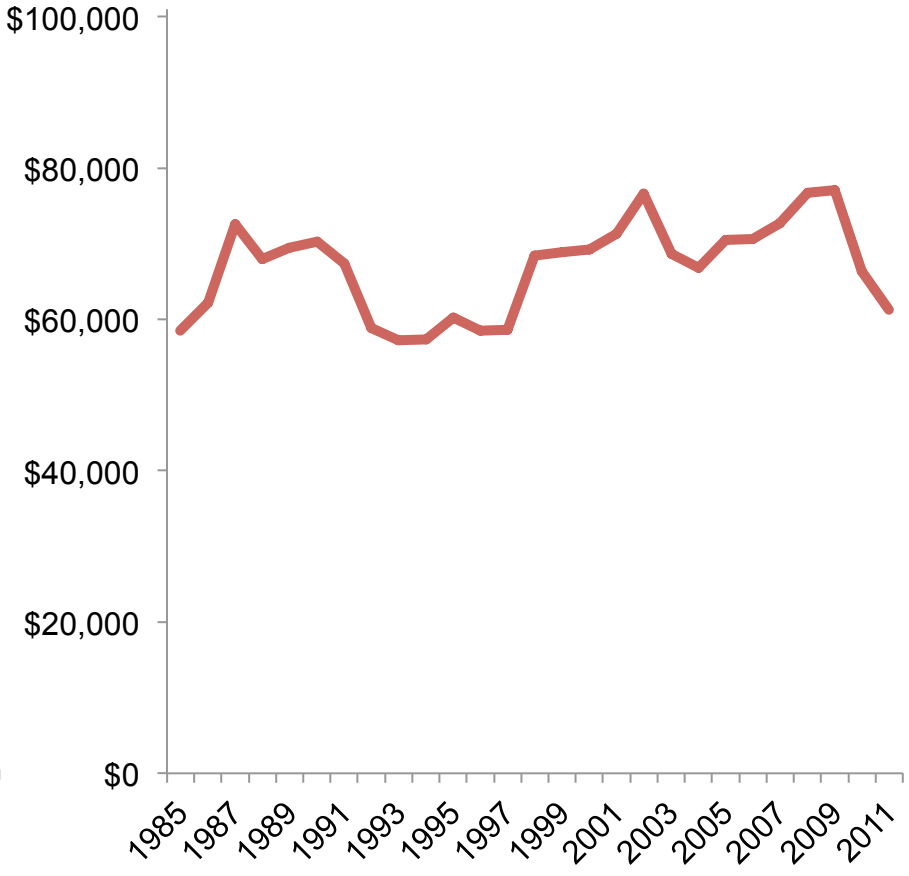
Source: Law School Admissions Council, LSAC Volume Summary; NALP

Number of applicants vs. median fulltime starting salary

Annual applicants to ABA-approved law schools, 1985-2013*
Thousands



Median fulltime starting salary, 1985-2011
2012 USD

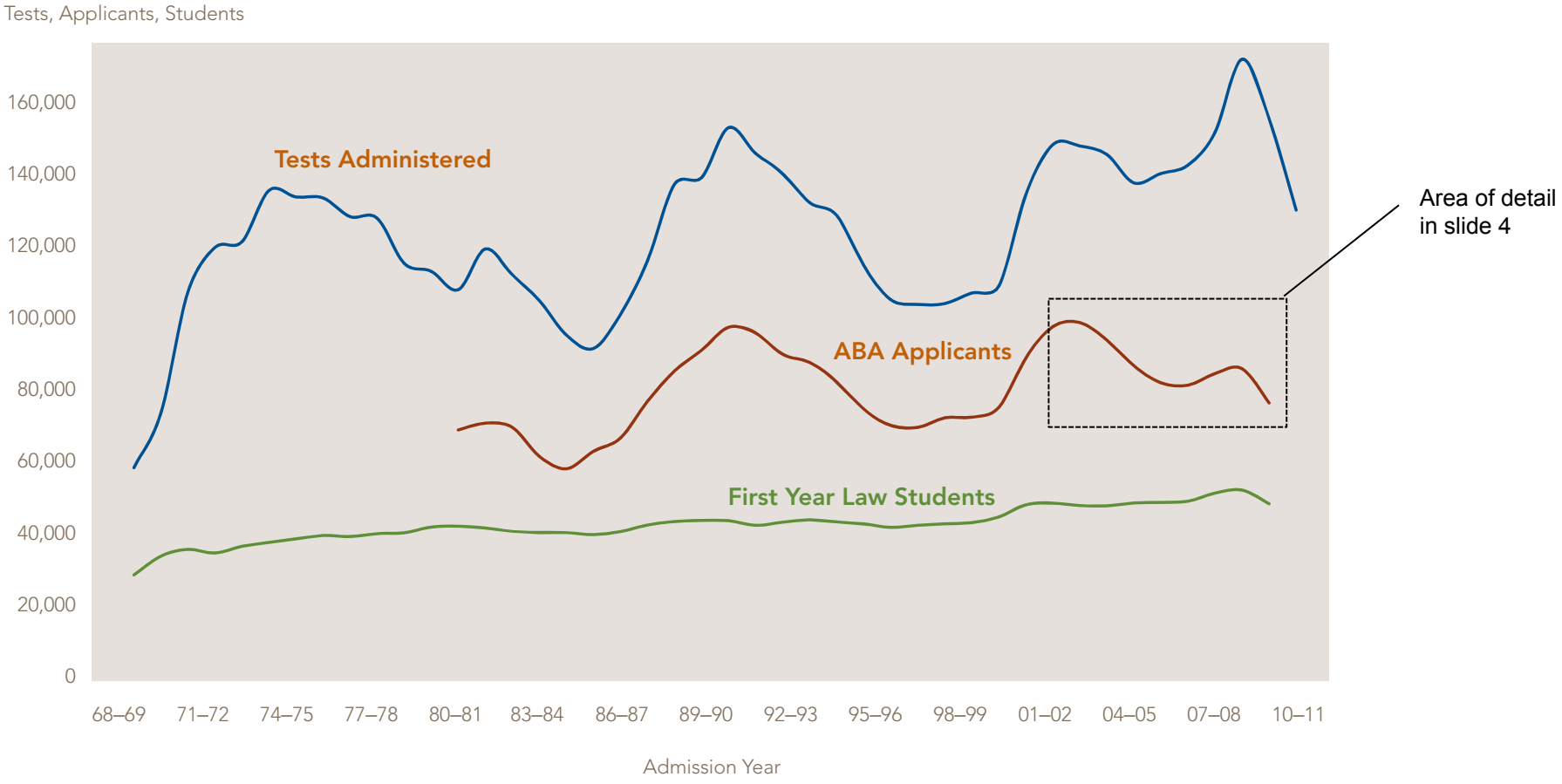


Note: 2012 numbers are preliminary; 2013 numbers are projections based on data through early April 2013

Source: Law School Admissions Council, LSAC Volume Summary; NALP

Decline in law school applicants is not without precedent: Number of applicants has historically been cyclical

Tests Administered, Applicants, and First-Year Students (ABA-Approved Law Schools)
1968–1969 to 2011–2012



Note: Due to changes in data collection methods, ABA applicant data beginning in 1999-2000 is not directly comparable to prior applicant data.

Source: Law School Admissions Council, LSAC Report, Dec. 2012

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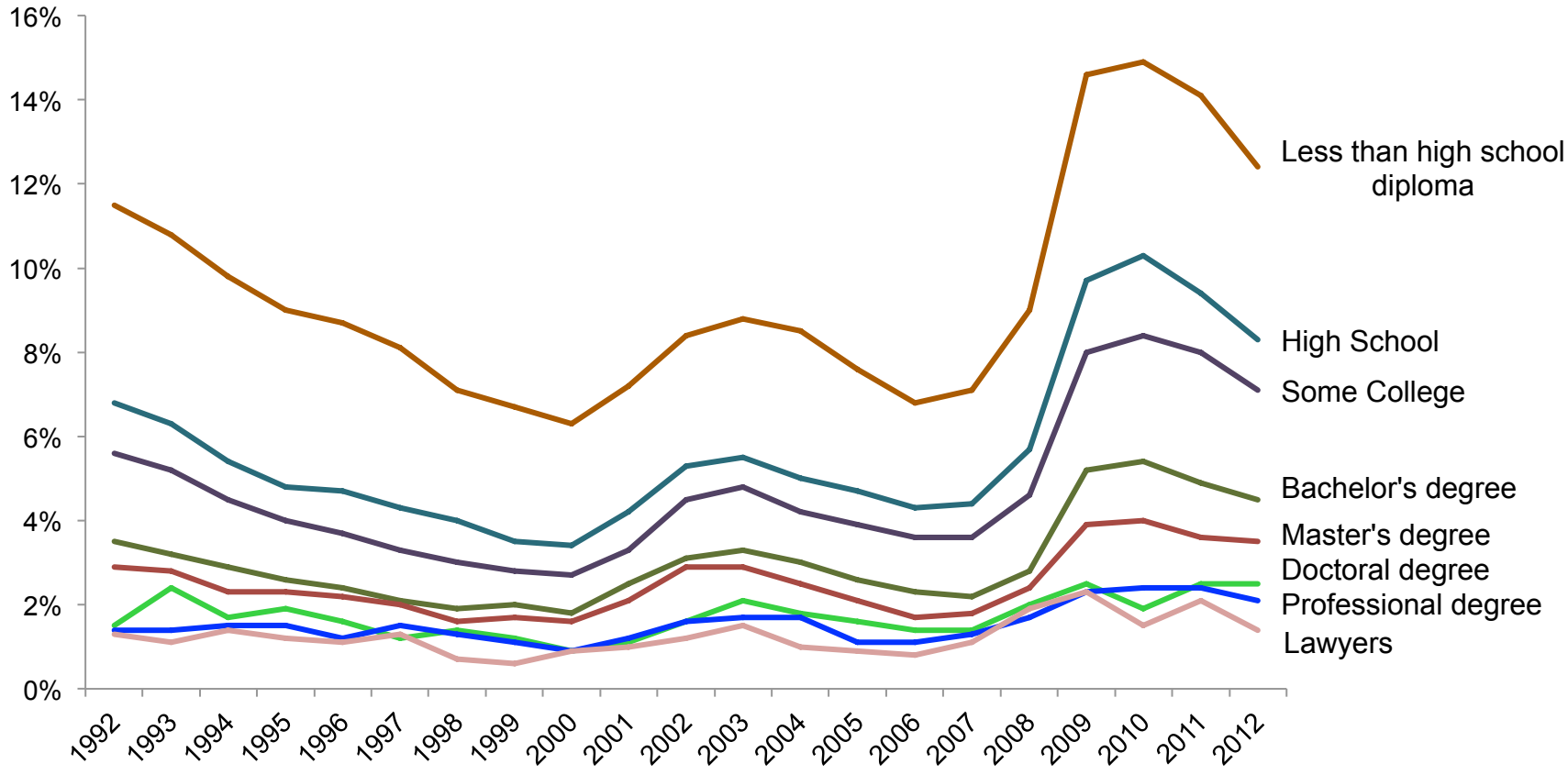
Decades of data show that educated workers are less likely to be unemployed

Average annual unemployment rates, 1992-2012
Percent unemployed age 25 or older

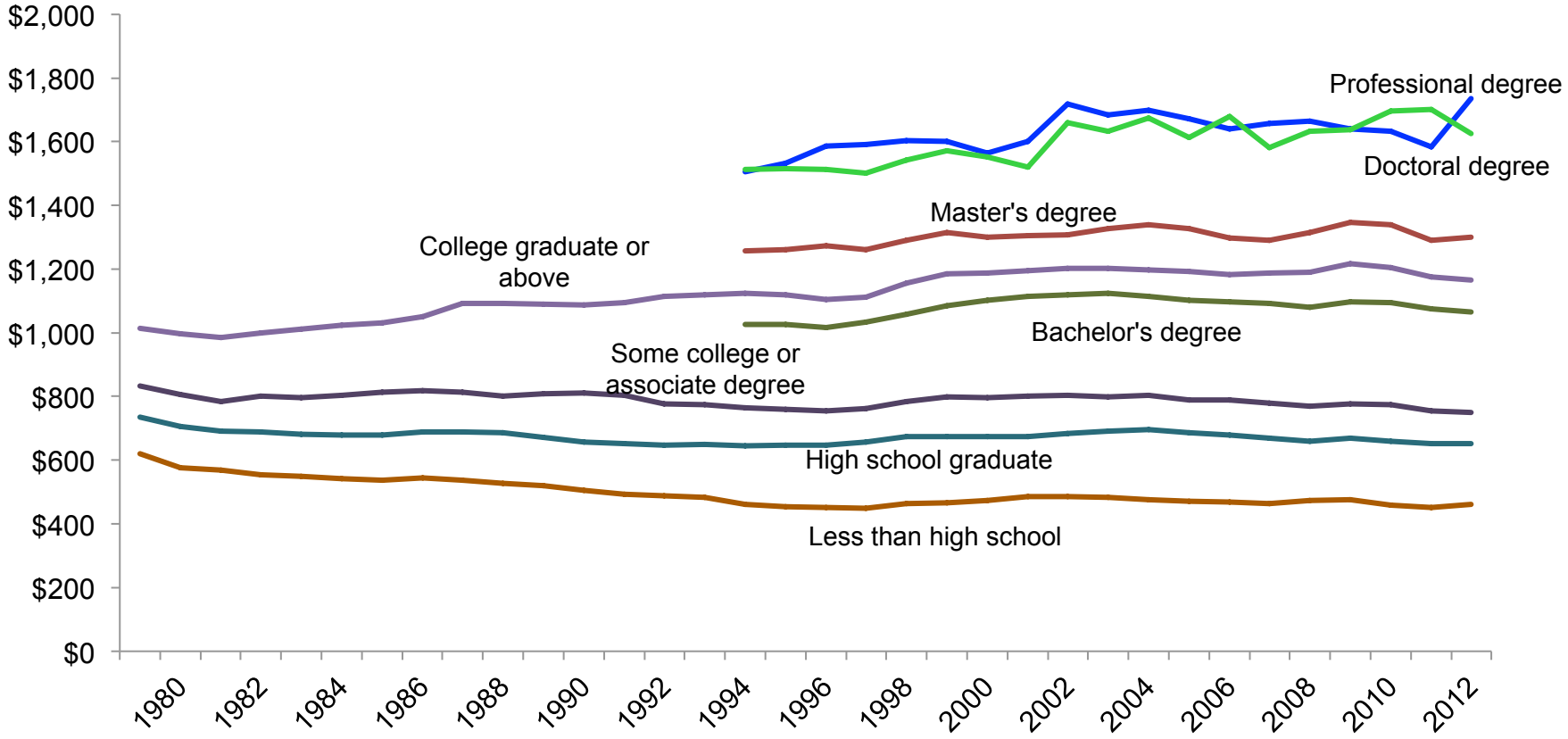


Limitation: “Professional degree holders” is overinclusive

Source: Bureau of Labor Statistics, U.S. Department of Labor and U.S. Census Bureau, Current Population Survey, Labor Force Statistics

Decades of data show that educated workers earn more, and the wage premium has increased over the last 30 years

Median usual weekly earnings of full-time workers 25 years and over by educational attainment,1979-2012
Real 2012 USD

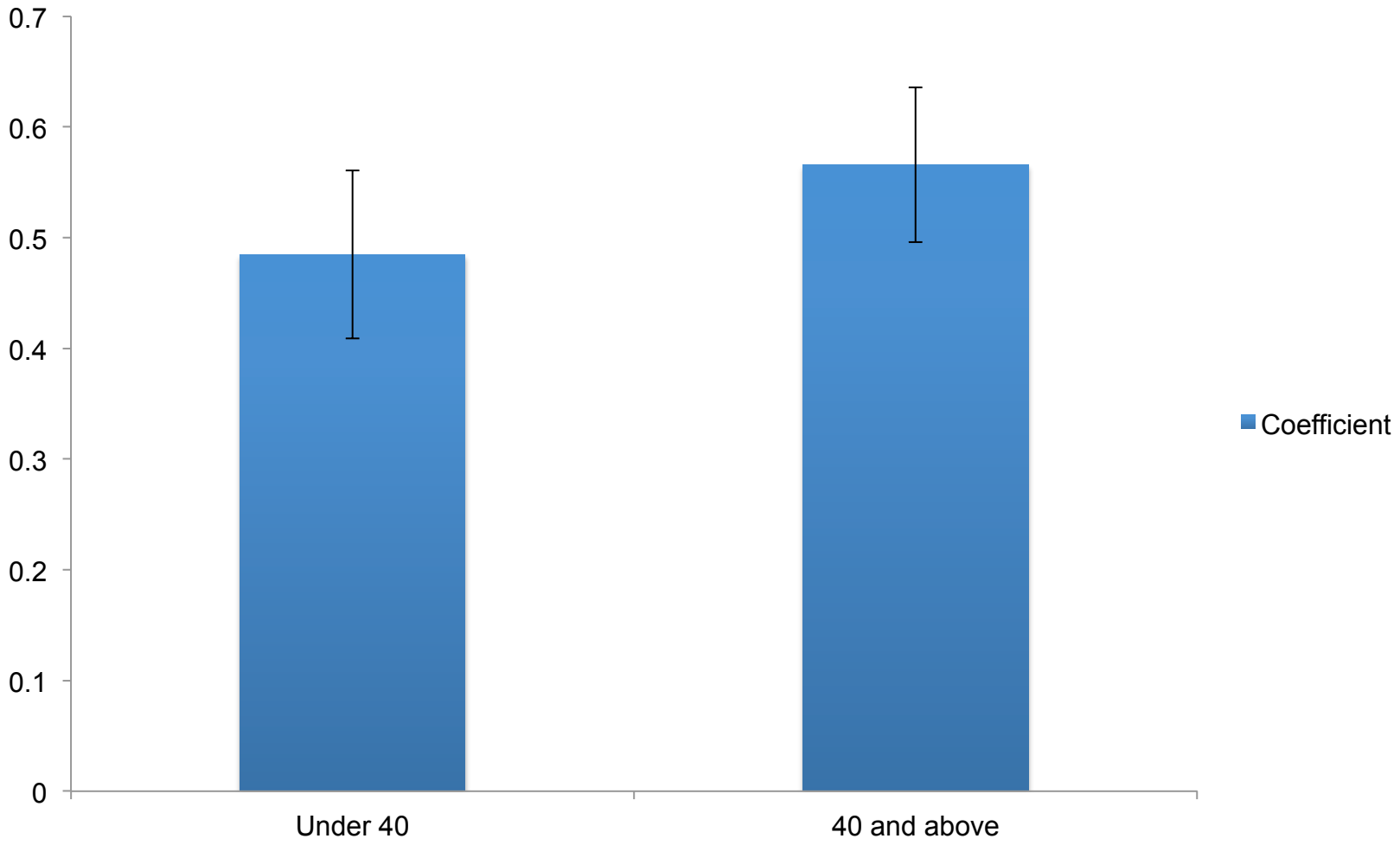


Limitation: “Professional degree holders” is overinclusive

Source: Current Population Survey, Bureau of Labor Statistics

The earnings premium increases as law degree holders gain experience

Log Law Degree Earnings by age group



Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations
Note: Vertical Lines Represent the 95% confidence interval

Recent studies methodological flaws and limitations

Previous studies flaws and limitations

Earnings data

- Starting salaries
  - don't predict lifetime earnings
  - lowest earnings of career
  - ~2% of lifetime earnings
- Inconsistent treatment of bonuses
- Inconsistent treatment of unemployment risk
- Inconsistent treatment of fulltime only vs. all
- Wrong category: professional degree or lawyer
- Excludes law firm partners

Controls

- Conflates recession with earnings premium compression
- 1 to 3 years of data
- Mismatching age and experience
- No formal controls for ability sorting
- Ignores gender differences
- Mismatched points in earnings distributions

Assumptions

- Zero inflation for 30 years
- Low earnings growth, no faster w/ law degree
- Scenario analysis & astronomical discount rates (8-30 percent) double-count risk:
  - Assumes extremely high risk
  - Assumes debt-to-income ratios are high
  - Assumes extreme impatience
  - Assumes law degree = consumption
- Assumes overwork; preference for leisure
- Assumes cost of living > consumption benefits

We overcome previous studies methodological flaws and limitations

	Previous studies flaws and limitations	*Economic Value of a Law Degree*
Earnings data	•Starting salaries •don't predict lifetime earnings •lowest earnings of career •~2% of lifetime earnings •Inconsistent treatment of bonuses •Inconsistent treatment of unemployment risk •Inconsistent treatment of fulltime only vs. all •Wrong category: professional degree or lawyer •Excludes law firm partners	•Synthetic lifetime earnings profiles •U.S. Census Bureau SIPP & NELS •Self-reported earnings across ages •3x per year, 3-4 years per person •Better, but reporting still biases premiums down •Unemployed or disabled included in estimates •Consistent treatment; work status specified •Right category: Law degree holder •Top-coding in SIPP is minimal
Controls	•Conflates recession with earnings premium compression •1 to 3 years of data •Mismatching age and experience •No formal controls for ability sorting •Ignores gender differences •Mismatched points in earnings distributions	•Proper comparison of law degree versus bachelor degree each year •15 years of data; year dummies; trends analysis •Dummies for age groups •Sophisticated controls for ability sorting •Separate estimates by gender •Premiums reported across the distribution
Assumptions	•Zero inflation for 30 years •Low earnings growth, no faster w/ law degree •Scenario analysis & astronomical discount rates (8-30 percent) double-count risk: •Assumes extremely high risk •Assumes debt-to-income ratios are high •Assumes extreme impatience •Assumes law degree = consumption •Assumes overwork; preference for leisure •Assumes cost of living > consumption benefits	•3 percent inflation per year (~historical avg.) •Earnings growth based on synthetic lifetimes •Empirically derived Internal rate of Return •Moderate discount rates based on: •Moderate actual financing costs •Low actual student loan default rates •Observed debt prepayment behavior •IRR; Empirical literature •Work hours empirically measured •Assumes cost of living = consumption benefits

Education earnings premiums regressions should not control for occupation

Proposed test by occupation	Econometrics Textbook Warning
"If law schools want to tout the versatility of their degree, they should seriously study the career paths of graduates who pursue jobs outside of law practice. . . . If careful research demonstrates that a legal education pays off in a wide variety of allied fields and if those fields can support the surplus graduates we are producing, then law schools could justifiably maintain current enrollment levels." Source: Deborah Jones Merritt, *The Job Gap, the Money Gap, and the Responsibility of Legal Educators*, 41 WASH. U. J.L. & POL'Y 1 (2013)	**Bad Control** **Some variables are bad controls and should not be included in a regression model** even when their inclusion might be expected to change the short regression coefficients. Bad controls are variables that are themselves outcome variables . . . That is, bad controls might just as well be dependent variables too. The essence of the bad control problem is a version of selection bias . . . To illustrate, **suppose we are interested in the effects of a college degree on earnings and that people can work in one of two occupations, white collar and blue collar.** A college degree clearly opens the door to higher-paying white collar jobs. **Should occupation therefore be seen as an omitted variable in a regression of wages on schooling?** After all, occupation is highly correlated with both education and pay. Perhaps it's best to look at the effect of college on wages for those within an occupation, say white collar only. The problem with this argument is that **once we acknowledge the fact that college affects occupation**, **comparisons of wages by college degree status within an occupation are no longer apples-to-apples**, even if college degree completion is randomly assigned . . . [because of selection bias]. **We would do better to control only for variables that are not themselves caused by education.** Source: Joshua D. Angrist (MIT) & Jorn-Steffen Pischke (LSE), MOSTLY HARMLESS ECONOMETRICS 47-49 (2008).

BLS labor economists recommend using education earnings premiums rather than BLS occupation-specific employment projections

Overstatement of education-occupation link	BLS Warning
"**The Bureau [of Labor Statistic]'s occupational employment projections . . . answer** the very question that many law school applicants want to know: **How many new lawyers will the economy be able to absorb this decade?** If the economy will provide jobs for only 218,800 new lawyers over the current decade, should we really produce more than twice that number of law school graduates? If careful research demonstrates that a legal education pays off in a wide variety of allied fields and if those fields can support the surplus graduates we are producing, then law schools could justifiably maintain current enrollment levels." Source: Deborah Jones Merritt, *The Job Gap, the Money Gap, and the Responsibility of Legal Educators*, 41 WASH. U. J.L. & POL'Y 1 (2013)	The general problem with addressing the question whether the U.S. labor market will have a shortage of workers in specific occupations over the next 10 years is the difficulty of projecting, for each detailed occupation, the dynamic labor market responses to shortage conditions. . . . Since the late 1970s, average premiums paid by the labor markets to those with higher levels of education have increased. It is the growing distance, on average, between those with more education, compared with those with less, that speaks to a general preference on the part of employers to hire those with skills associated with higher levels of education. Source: Michael W. Horrigan, *U.S. Bureau of Labor Statistics, Employment projections to 2012- concepts and context*, MONTHLY LAB. REV. (Feb. 2004)

Labor economists recommend using education earnings premiums rather than BLS occupation-specific employment projections

Overstatement of education-occupation link	Labor Economists' Warnings
"The Bureau [of Labor Statistic]'s occupational employment projections . . . answer the very question that many law school applicants want to know: How many new lawyers will the economy be able to absorb this decade? If the economy will provide jobs for only 218,800 new lawyers over the current decade, should we really produce more than twice that number of law school graduates? If careful research demonstrates that a legal education pays off in a wide variety of allied fields and if those fields can support the surplus graduates we are producing, then law schools could justifiably maintain current enrollment levels."	"**For nearly every occupational grouping, wage returns are higher for more highly-educated workers even if the BLS says such high levels of education are not necessary**. For example . . . for management occupations, the estimated coefficients for Master's, professional, and doctoral degrees are all above the estimated coefficient for a Bachelor's degree, which is the BLS required level. . . .. If the BLS numbers are correct, we might expect to see higher unemployment and greater underemployment of more highly-educated workers in the United States. As noted earlier, we do not find evidence of this kind of underemployment based on earnings data. Similarly, labor force participation rates are higher and unemployment rates are lower for more highly educated workers."
Source: Deborah Jones Merritt, *The Job Gap, the Money Gap, and the Responsibility of Legal Educators*, 41 WASH. U. J.L. & POL'Y 1 (2013)	Source: David Neumark, Hans Johnson, & Marisol Cuellar Mejia, *Future Skill Shortages in the U.S. Economy? 32* ECON. EDUC. REV. 151 (2013)

Labor economists recommend against using BLS occupation-specific employment projections as a guide to educational investment

Overstatement of projections' usefulness	Labor Economists' Warnings
"**The Bureau [of Labor Statistic]'s occupational employment projections . . . answer** the very question that many law school applicants want to know: **How many new lawyers will the economy be able to absorb this decade?**	"**Projections of future demands for skills lack the reliability to guide policies on skill development**. . . . [BLS] Projected growth rates are positively related to ensuing growth of employment, though with a wide band of variation . . . **3/4s of the variation in the growth of employment among occupations remains unaccounted for in the analysis**. "
Source: Deborah Jones Merritt, *The Job Gap, the Money Gap, and the Responsibility of Legal Educators*, 41 WASH. U. J.L. & POL'Y 1 (2013)	Source: Richard B. Freeman, *Is a Great Labor Shortage Coming? Replacement Demand In The Global Economy*, NBER (2006)

The BLS does not project labor shortages or surpluses

Misuse of BLS Projections	BLS Warning Against Misuse
"The Bureau [of Labor Statistic]'s occupational employment projections . . . answer the very question that many law school applicants want to know: How many new lawyers will the economy be able to absorb this decade? **The Bureau currently estimates that the economy will create 218,800 job openings** for lawyers and judicial law clerks during the decade stretching from 2010 through 2020. That number, unfortunately, falls far short of the number of aspiring lawyers that law schools are graduating. **The oversupply** of entry-level lawyers deprives many graduates of any opportunity to practice law. At the same time, **the lawyer surplus** constrains entry-level salaries."	**"Q: Does BLS project future labor shortages or surpluses?** A: **No. . . . attempts by some to ascribe shortages or surpluses to our projections are based on an incorrect comparison** of the total employment and total labor force projections, two separate and fundamentally different measures. . . . **Users of these data should not assume that the difference between the projected increase in the labor force and the projected increase in employment implies a labor shortage or surplus."**
Source: Deborah Jones Merritt, *The Job Gap, the Money Gap, and the Responsibility of Legal Educators*, 41 WASH. U. J.L. & POL'Y 1 (2013)	Source: U.S. BUREAU OF LABOR STATISTICS, EMPLOYMENT PROJECTIONS, FREQUENTLY ASKED QUESTIONS, available at http://www.bls.gov/emp/ep_faq_001.htm#shortage

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TABLE 1: DIFFERENCE IN LOG EARNINGS BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	0.59	0.53	0.49	0.59	0.49	0.44	0.47	0.59
	(0.03)	(0.03)	(0.03)	(0.04)	(0.02)	(0.03)	(0.02)	(0.02)
Female		-0.39			-0.22	-0.37	-0.30	-0.29
		(0.01)			(0.01)	(0.02)	(0.01)	(0.01)
College Major								
Business		0.04	0.06	0.00	0.04	0.03	0.03	0.04
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Education		-0.25	-0.26	-0.24	-0.23	-0.21	-0.24	-0.29
		(0.02)	(0.03)	(0.02)	(0.01)	(0.03)	(0.02)	(0.02)
Science/Engineering		0.08	0.11	-0.02	0.09	0.11	0.12	0.08
		(0.01)	(0.02)	(0.03)	(0.01)	(0.02)	(0.02)	(0.02)
Social Sciences		-0.16	-0.11	-0.21	-0.11	-0.16	-0.17	-0.16
		(0.02)	(0.03)	(0.03)	(0.01)	(0.03)	(0.02)	(0.02)
Humanities		-0.15	-0.13	-0.18	-0.10	-0.19	-0.14	-0.11
		(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
>2 years high school work in								
Math		0.08	0.07	0.10	0.05	0.08	0.06	0.06
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Sciences		-0.00	0.02	-0.02	-0.00	0.01	0.01	0.01
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
English		0.02	0.03	0.01	0.02	0.04	0.02	0.00
		(0.02)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Foreign Lang.		0.05	0.06	0.03	0.06	0.03	0.04	0.06
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Public HS		-0.04	-0.05	-0.02	-0.04	-0.01	-0.02	-0.04
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
College Prep HS		0.06	0.06	0.06	0.07	0.08	0.06	0.06
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Observations	109,211	109,131	57,450	51,681	85,689	109,131	109,131	109,131
R-squared	0.02	0.11	0.09	0.05	0.13			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 2: DIFFERENCE IN LOG WAGE BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	0.50	0.45	0.44	0.47	0.43	0.36	0.40	0.52
	(0.02)	(0.02)	(0.03)	(0.04)	(0.02)	(0.03)	(0.02)	(0.02)
Female		-0.21			-0.15	-0.17	-0.18	-0.19
		(0.01)			(0.01)	(0.01)	(0.01)	(0.01)
College Major								
Business		0.01	0.04	-0.03	0.03	-0.01	0.00	0.01
		(0.01)	(0.01)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
Education		-0.25	-0.24	-0.25	-0.23	-0.22	-0.27	-0.30
		(0.01)	(0.03)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Science/Engineering		0.08	0.11	-0.01	0.10	0.10	0.10	0.08
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Social Sciences		-0.15	-0.11	-0.18	-0.11	-0.15	-0.17	-0.16
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.02)	(0.02)
Humanities		-0.13	-0.12	-0.15	-0.10	-0.14	-0.14	-0.11
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
>2 years high school work in								
Math		0.06	0.05	0.07	0.04	0.06	0.06	0.05
		(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
Sciences		0.01	0.03	-0.01	0.00	0.01	0.01	0.02
		(0.01)	(0.02)	(0.01)	(0.01)	(0.02)	(0.01)	(0.01)
English		0.01	0.01	-0.00	0.01	0.03	0.01	-0.02
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.02)
Foreign Lang.		0.05	0.06	0.05	0.05	0.04	0.05	0.05
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Public HS		-0.04	-0.04	-0.03	-0.03	-0.03	-0.03	-0.05
		(0.01)	(0.02)	(0.02)	(0.01)	(0.02)	(0.01)	(0.01)
College Prep HS		0.07	0.06	0.07	0.07	0.07	0.06	0.06
		(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)	(0.01)
Observations	106,869	106,792	56,153	50,639	85,689	106,792	106,792	106,792
R-squared	0.03	0.09	0.08	0.05	0.10			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 3: DIFFERENCE IN WEEKLY HOURS BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	4.40	3.88	3.30	4.23	3.29	2.10	3.43	5.37
	(0.47)	(0.47)	(0.58)	(0.78)	(0.32)	(0.42)	(0.23)	(0.47)
Female		-6.72			-3.40	-6.31	-3.13	-6.37
		(0.18)			(0.12)	(0.18)	(0.10)	(0.21)
College Major								
Business		0.86	0.30	1.24	0.47	0.76	0.79	1.02
		(0.23)	(0.30)	(0.34)	(0.15)	(0.24)	(0.13)	(0.27)
Education		-0.23	-0.41	0.30	0.15	0.19	-0.17	0.43
		(0.31)	(0.59)	(0.36)	(0.20)	(0.30)	(0.17)	(0.35)
Science/Engineering		-0.33	-0.69	-0.50	-0.33	0.03	-0.17	-0.38
		(0.27)	(0.34)	(0.49)	(0.19)	(0.28)	(0.16)	(0.32)
Social Sciences		-0.90	-0.90	-0.91	0.02	-1.11	-0.25	-0.23
		(0.33)	(0.51)	(0.44)	(0.22)	(0.33)	(0.18)	(0.38)
Humanities		-0.86	-0.97	-0.73	0.16	-1.23	-0.52	-0.20
		(0.29)	(0.44)	(0.39)	(0.20)	(0.29)	(0.16)	(0.32)
>2 years high school work in								
Math		0.76	0.83	0.66	0.34	0.57	0.25	0.58
		(0.23)	(0.34)	(0.30)	(0.15)	(0.23)	(0.13)	(0.26)
Sciences		-0.36	-0.51	-0.09	-0.27	-0.29	-0.17	-0.32
		(0.24)	(0.34)	(0.32)	(0.15)	(0.24)	(0.13)	(0.26)
English		0.74	1.01	0.36	0.30	0.51	0.40	0.81
		(0.28)	(0.38)	(0.40)	(0.19)	(0.28)	(0.15)	(0.31)
Foreign Lang.		0.15	0.44	-0.07	0.09	0.08	0.08	0.37
		(0.19)	(0.26)	(0.28)	(0.13)	(0.19)	(0.11)	(0.22)
Public HS		-0.21	-0.38	0.11	-0.45	0.22	-0.00	-0.39
		(0.24)	(0.33)	(0.35)	(0.17)	(0.24)	(0.13)	(0.27)
College Prep HS		0.00	0.23	-0.25	0.18	0.14	0.09	0.12
		(0.19)	(0.27)	(0.27)	(0.13)	(0.20)	(0.11)	(0.22)
Observations	119,690	119,584	62,078	57,506	86,447	119,584	119,584	119,584
R-squared	0.03	0.16	0.15	0.14	0.05			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 4: DIFFERENCE IN EARNINGS BETWEEN BACHELOR'S AND LAW DEGREE

						Percentiles		
	No controls	Controls	Men	Women	Full-Time Workers	25th	50th	75th
Law Degree	58,824	53,327	56,787	43,284	57,649	17,344	32,280	62,200
	(3,114)	(3,029)	(4,101)	(3,698)	(3,392)	(1,114)	(1,255)	(1,702)
Female		-24,373			-19,338	-11,561	-15,992	-22,460
		(649)			(717)	(493)	(545)	(727)
College Major								
Business		4,471	5,260	1,820	4,864	820	1,756	3,416
		(941)	(1,420)	(1,000)	(1,042)	(637)	(712)	(966)
Education		-12,261	-16,896	-10,488	-15,074	-3,575	-9,433	-17,308
		(821)	(2,011)	(777)	(996)	(832)	(924)	(1,219)
Science/Engineering		4,775	5,657	168	6,310	2,837	6,885	7,762
		(1,086)	(1,492)	(1,274)	(1,225)	(758)	(847)	(1,140)
Social Sciences		-7,668	-7,686	-8,183	-6,813	-5,047	-8,345	-10,991
		(1,160)	(2,192)	(1,054)	(1,352)	(884)	(995)	(1,346)
Humanities		-4,644	-3,778	-5,694	-3,316	-5,409	-6,948	-8,020
		(1,120)	(2,035)	(1,009)	(1,315)	(781)	(862)	(1,166)
>2 years high school work in								
Math		4,482	4,775	3,870	3,975	1,923	2,894	4,449
		(752)	(1,344)	(734)	(883)	(618)	(690)	(926)
Sciences		-189	230	-29	-206	124	415	508
		(811)	(1,403)	(815)	(943)	(633)	(706)	(944)
English		894	1,862	-537	192	2,172	1,128	716
		(973)	(1,497)	(1,034)	(1,116)	(746)	(830)	(1,119)
Foreign Lang.		4,269	6,261	2,094	5,177	1,020	1,960	4,000
		(672)	(1,078)	(656)	(757)	(522)	(584)	(785)
Public HS		-4,446	-6,127	-1,682	-4,987	-861	-1,364	-3,385
		(1,109)	(1,868)	(968)	(1,278)	(644)	(728)	(998)
College Prep HS		4,217	5,285	2,856	5,402	2,108	2,897	3,947
		(691)	(1,124)	(686)	(793)	(529)	(591)	(801)
Observations	119,690	119,584	62,078	57,506	86,447	119,584	119,584	119,584
R-squared	0.04	0.13	0.10	0.09	0.12			

Year controls used in all columns but not shown. Age, race, and marital status controls used in all columns except column 1, but not shown. Year controls are year dummy variables. Age controls are five-year interval dummies. Sample are those age 25-65 with either a law or bachelor's degree. Standard errors are clustered by individual.

TABLE 5: OBSERVABLE ABILITY DIFFERENCES BETWEEN LAW GRADUATES AND COLLEGE GRADUATES PREDICT ONLY SMALL DIFFERENCES IN EARNINGS

	Average				
	Bachelor's	Law	Difference	Percent predicted income change based on	Percent Bachelor's earning difference Predicted from law graduate differences in characteristics
College Major					
Humanities	14%	28%	14%	-	
Social Sciences	7%	40%	33%	3%	
Business	23%	16%	-7%	32%	
STEM	27%	7%	-20%	16%	
Other	29%	8%	-21%	3%	
Total	100%	100%	0%		-4.4%
				From a one std dev. increase	
Normalized College GPA*	-0.10	0.48	0.58	5.7%	3.3%
College GPA by Major*					
Humanities	-0.13	0.31	0.43	0.4%	0.2%
Social Sciences	-0.11	0.51	0.62	3%	1.9%
Business	-0.17	0.72	0.90	10%	8.9%
STEM	-0.28	0.19	0.48	16%	7.6%
Other	0.11	0.79	0.69	-2%	-1.4%
College Scholarship or Grant	0.49	0.51	0.02	0.1%	~0.0%
College Cost Decile	6.32	6.98	0.66	4.5%	2.4%
Importance of Career and Education	-0.01	0.20	0.21	7.8%	1.6%
Subjective expected income at age 18	$52,200	$73,100	$20,900	10%	6.7%
HS Standardized Test Scores**	0.57	0.97	0.40	6%	2.4%
SES	0.49	0.82	0.33	8.6%	2.8%

The sample comes from the National Education Longitudinal Study (NELS). Number of observations is 1926.
* College GPA normalized within each major.
**High School standardized test scores, Importance of Career and Education, SES are normalized variables so that standard deviation equals 1 for the overall population.

TABLE 6: OBSERVABLE ABILITY DIFFERENCES BETWEEN LAW GRADUATES AND COLLEGE GRADUATES PREDICT ONLY SMALL DIFFERENCES IN EARNINGS

	OLS Dependent Variable = Log Income at age 28 for those not in school	
	(1)	(2)
Female	-0.22 [0.03]	-0.24 [0.03]
Race/Ethnicity		
Black	0.05 [0.06]	0.06 [0.06]
Hispanic	0.08 [0.06]	0.11 [0.06]
Other	0.06 [0.06]	0.06 [0.06]
College Major		
Humanities (Baseline)	Baseline	
Social Sciences	-0.04 [0.07]	-0.04 [0.06]
Business	0.29 [0.05]	0.31 [0.04]
STEM	0.14 [0.05]	0.15 [0.04]
Other	0.05 [0.04]	0.05 [0.04]
College GPA by Major		
Humanities	0.04 [0.04]	0.04 [0.04]
Social Sciences	0.05 [0.05]	0.04 [0.05]
Business	0.08 [0.03]	0.08 [0.03]
STEM	0.13 [0.03]	0.15 [0.03]
Other	0 [0.03]	0 [0.03]
College Scholarship or Grant	0.04 [0.03]	0.03 [0.03]
College Cost Decile	0.02 [0.01]	0.02 [0.01]
HS Standardized Test Scores	0.01 [0.02]	0.01 [0.02]
Subjective Earnings Expectation at age 18 (log)	0.09 [0.03]	
Importance of Career and Education	0.05 [0.02]	0.05 [0.01]
Parent SES	0.07 [0.02]	0.07 [0.02]
Constant	9.18 [0.31]	10.14 [0.06]
Observations	1,390	1,510
R-squared	0.16	0.16

The sample comes from the National Education Longitudinal Study (NELS). The samples is those from the NELS survey with just a bachelor's degree. Robust standard errors in brackets. Humanities majors used as baseline.

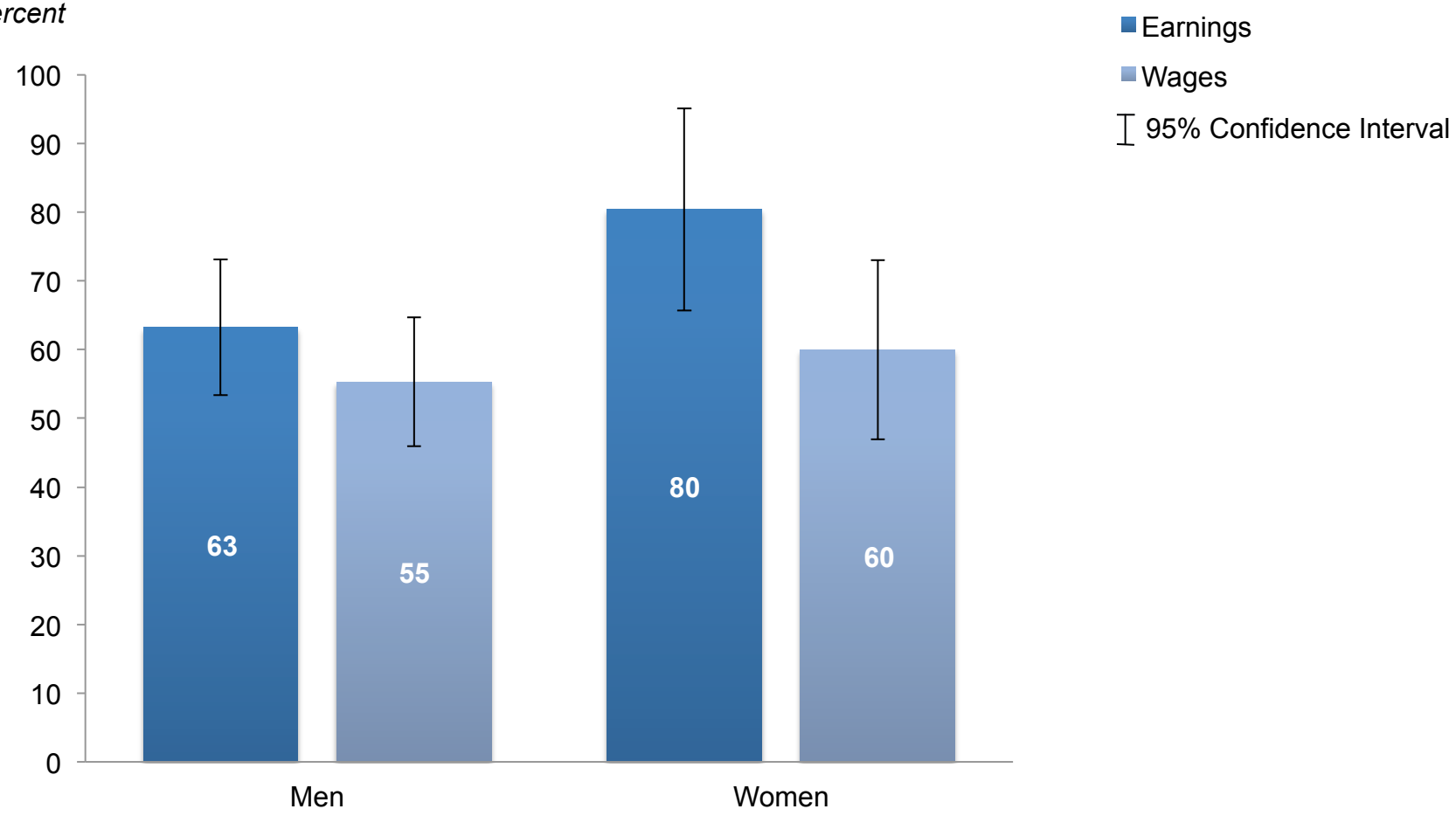
TABLE 7: PRESENT VALUE OF INCREASED LIFETIME EARNINGS FROM LAW DEGREE (BOTH GENDERS COMBINED)

		Percentiles		
	Mean	25th	50th	75th
Lifetime value	990,039	348,600	606,313	1,097,781
Contribution per decade				
Years 1-10 (Age 23-32)	151,735	58,587	48,535	106,223
Years 11-20 (Age 33-42)	282,790	102,906	176,515	392,682
Years 21-30 (Age 43-52)	316,095	121,492	197,819	347,677
Years 31-43 (Age 53-65)	239,419	65,615	183,445	314,199
Internal Rate of Return	19.0	11.4	12.8	16.9

All work statuses, both genders, 3 percent real discount rate (6 percent nominal). Sample includes degree holders who are currently employed, unemployed, or disabled, but excludes those who are currently not working because they are caring for children, and also excludes those who are currently full time students. Bachelor degree sample is weighted using propensity score matching, so that bachelor degree holders are similar (based on observable data) to law degree holders other than law degree attainment. Reported values include the opportunity cost of attending law school, but do not include tuition or federal taxes. Internal Return Rate is Real (i.e., net-inflation). Internal Rate of Return calculation assumes $30,000 annual net tuition. Other figures do not incorporate tuition costs.

Percent earnings premium is higher for women than men because of larger increase in women's work hours with law degree

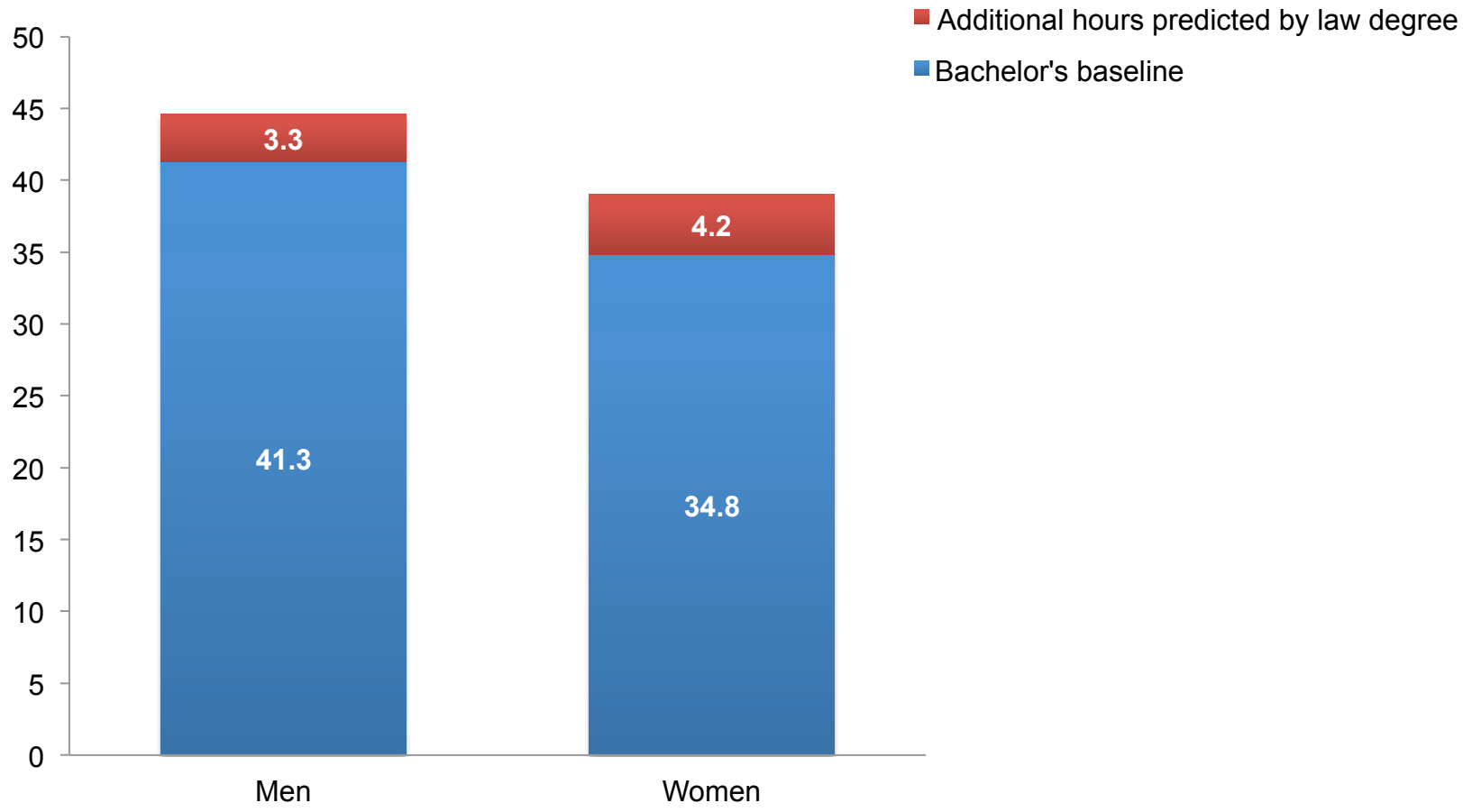
Law degree earnings and wage premiums
Percent



Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Tables 1 and 2

Increases in work hours are small for both men and women

Difference in weekly hours between bachelor's and law degree
Hours

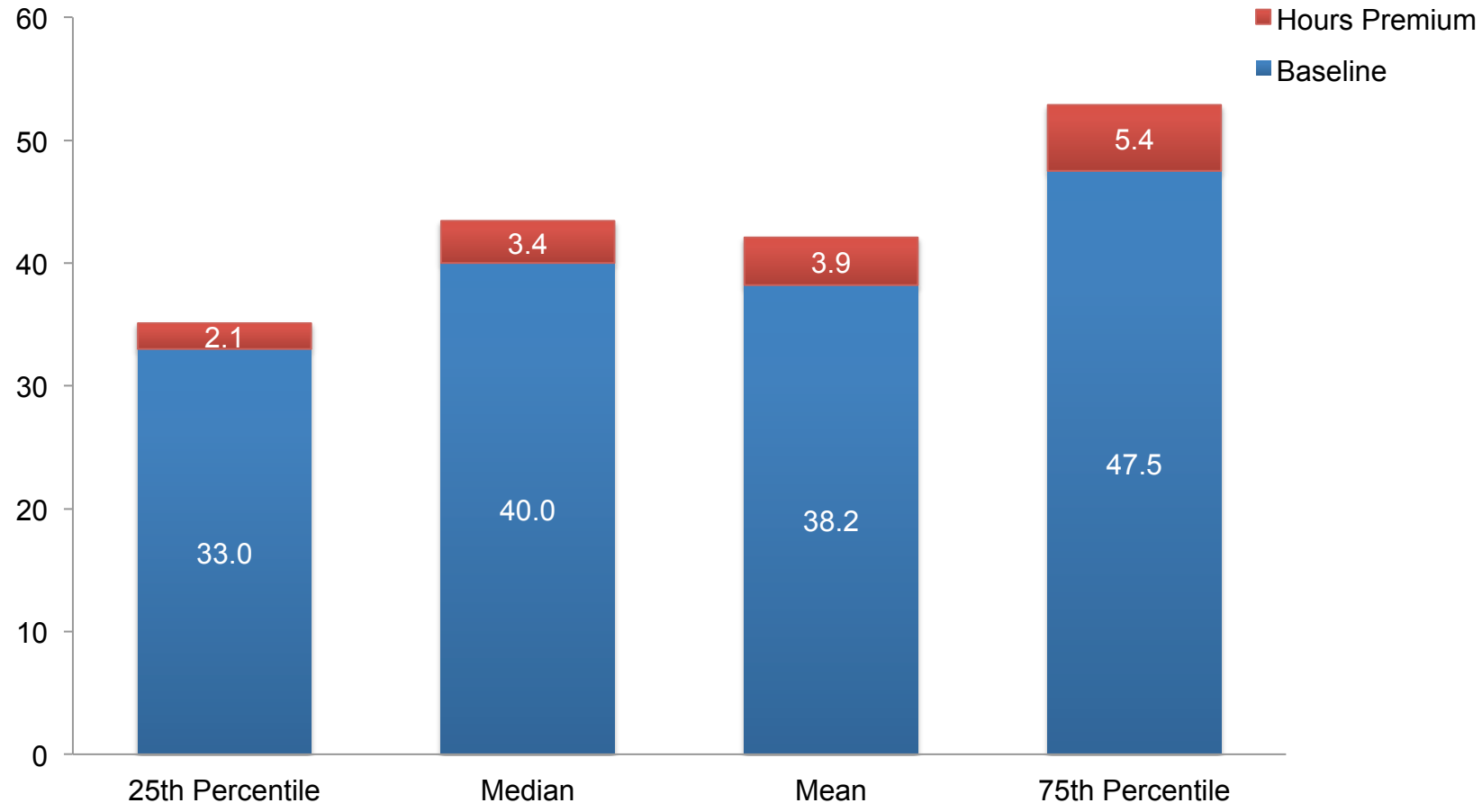


Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Table 3

Increases in work hours are small and do not suggest overwork

Difference in weekly hours between bachelor's and law degree

Hours



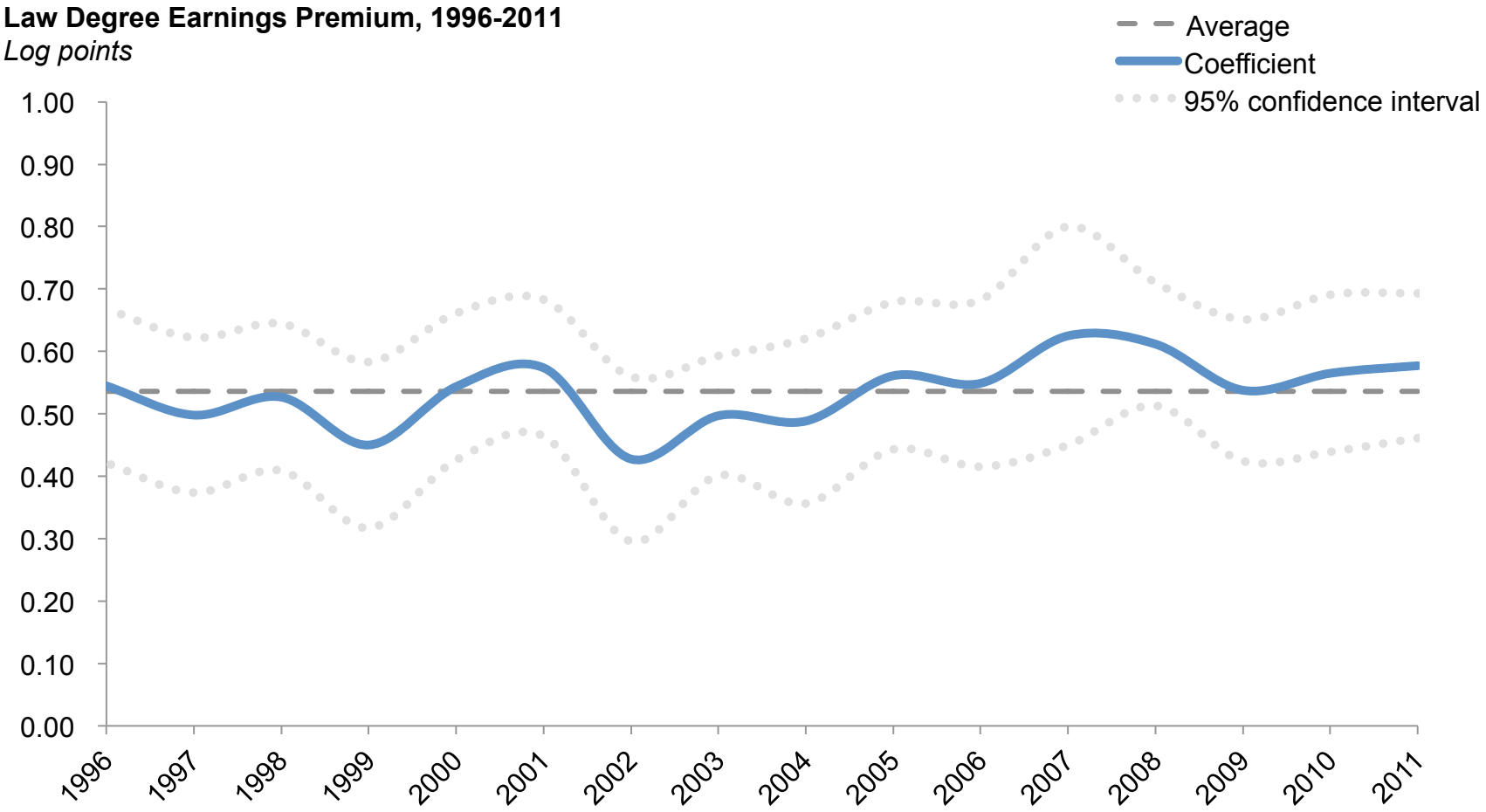
Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations, Table 3

Backup slides

- Law school applications plummeted amid doubts about value of law degree
- Recent studies of law degree economic value are fundamentally flawed
- Our approach
- The data suggests that a law degree is generally a good investment
  - Law degree holders earn more than bachelors after controls for ability
  - Earnings premium is stable over time
  - Present value of law degree exceeds tuition by wide margin
  - Internal rates of return are high even toward bottom of distribution

Law degree earnings premium is stable over the long term, with short term cyclical fluctuations

Law Degree Earnings Premium, 1996-2011
Log points



Source: U.S. Census Bureau, Survey of Income and Program Participation; Authors' calculations
Note: Solid line is the coefficient. Dotted lines represent 95 percent confidence interval. Horizontal dashed line represents multi-year average with each year weighted equally

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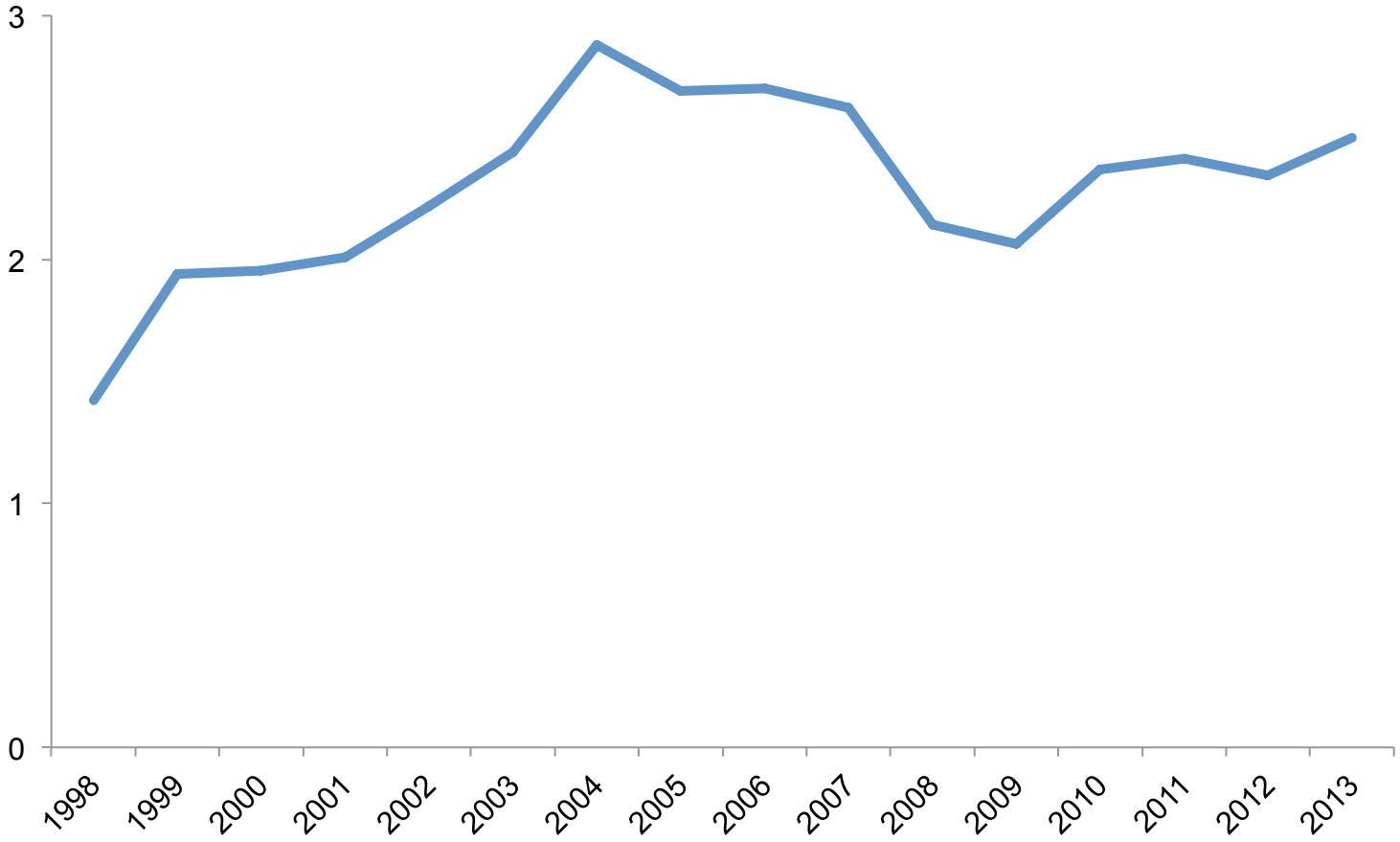
Empirical literature suggests that highly educated have low discount rates

- Kevin Lang & Paul A. Ruud, *Returns to Schooling, Implicit Discount Rates and Black-White Wage Differentials,* 68 REV. ECON. & STAT. 41, 46 (1986)
- Walter Mischel, Yuichi Shoda, & Monica L. Rodriguez, *Delay of Gratification in Children,* 244 SCI. 933-38 (1989)
- Gary S. Becker & Casey B. Mulligan, *The Endogenous Determination of Time Preference,* 122 Q. J. ECON. 729, 751 (1997)
- Glenn W. Harrison, Morten I. Lau & Melonie B. Williams, *Estimating Individual Discount Rates in Denmark: A Field Experiment,* 92 AM. ECON. REV. 1606, 1615-16 (2002)
- Kris N. Kirby et al., *Correlates of Delay-Discount rates: Evidence from Tsimane' Amerindians of the Bolivian Rain Forest,* 23 J. ECON. PSYCH. 291 (2002)
- James J. Heckam, Jora Stixrud & Sergio Urzua, *The Effects of Congnitive and Noncongnitive Abilities on Labor and Social Behavior,* 24 J. LAB. ECON. 411, 478 (2006)
- Matthias Doepke & Fabrizio Zilibotti, *Occupational Choice and the Spirit of Capitalism,* 123 Q. J. ECON. 747 (2008)
- Thomas Dohmen, Armin Falk, David Huffman & Uwe Sunde, *Are Risk Aversion and Impatience Related to Cognitive Ability?* 100 AM. ECON. REV. 1238, 1239 (2010)
- Michal Bauer & Julie Chytilová, *The Impact of Education on the Subjective Discount Rate in Ugandan Villages,* 58 ECON. DEV. & SOC. CHANGE 643, 662-65 (2010)

Market forecasts of long term inflation are 2 to 3 percent

30 year U.S. Treasury / TIPS breakeven yield
Percent



Source: Bloomberg

Backup slides

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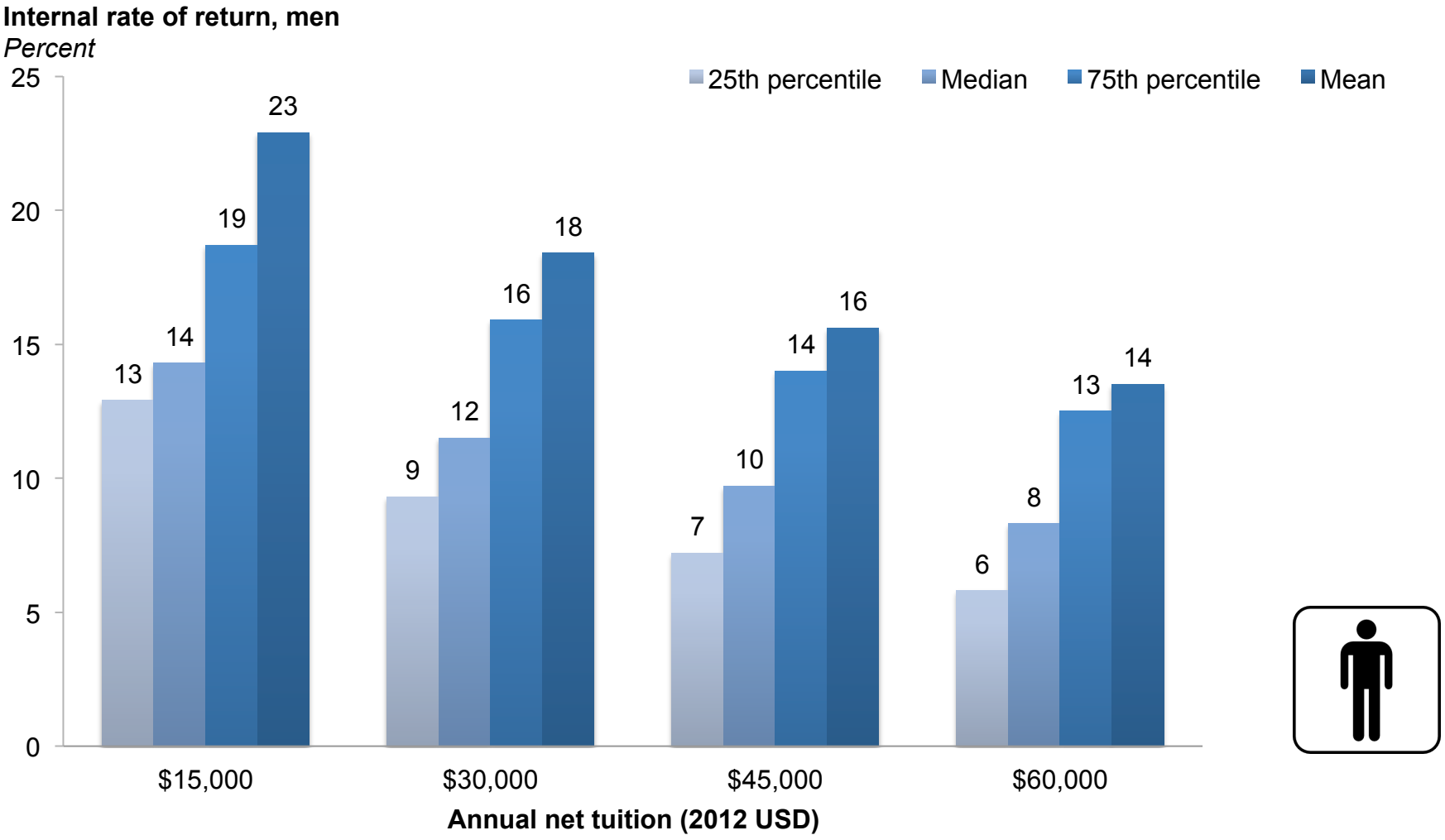
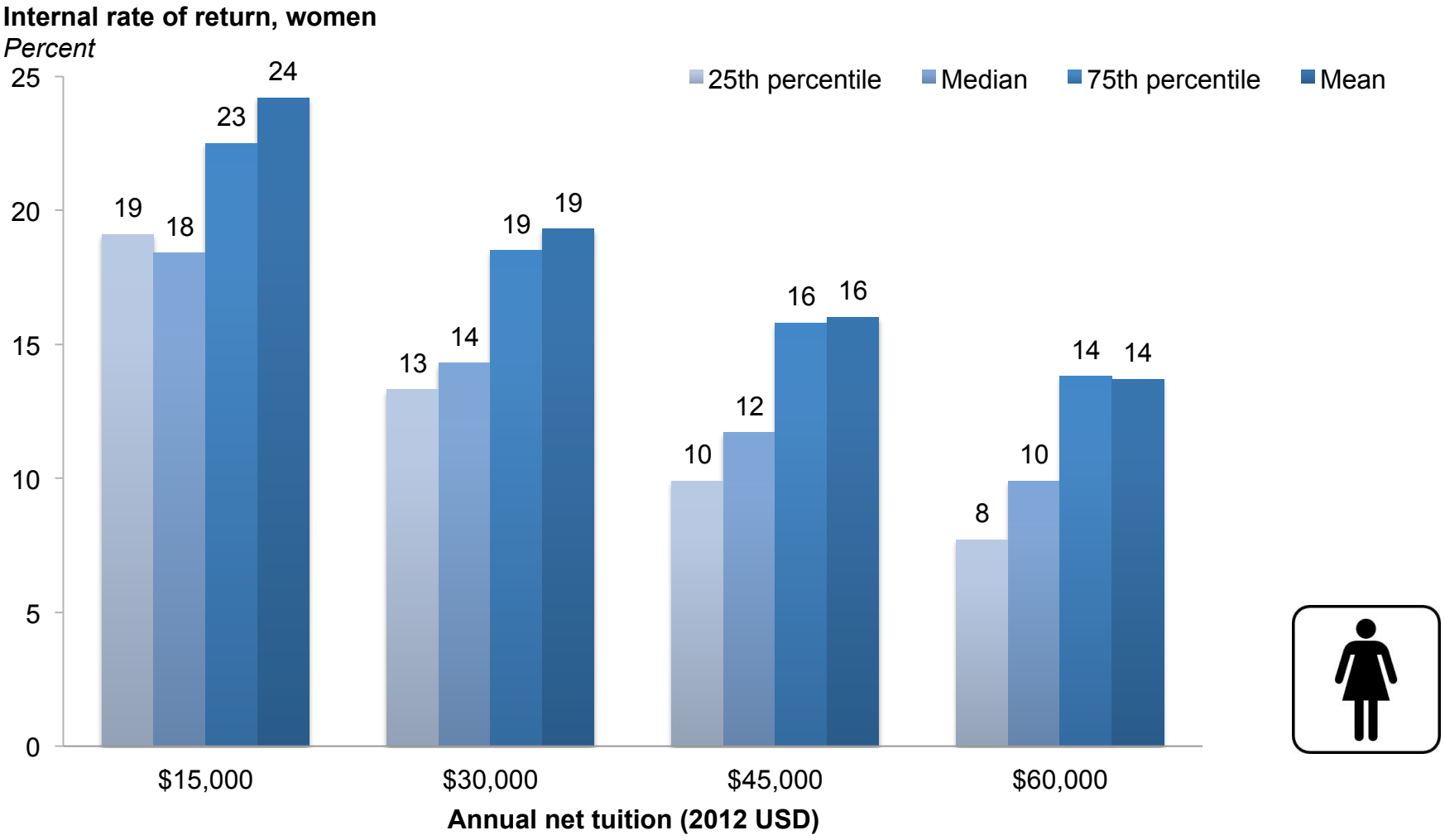
Internal rates of return on law degree are high even toward the high end of tuition and low end of earnings



Source: U.S. Census Bureau Survey of Income Program and Participation, Authors' calculations, Table 10

Internal rates of return on law degree are high even toward the high end of tuition and low end of earnings



Source: U.S. Census Bureau Survey of Income Program and Participation, Authors' calculations, Table 10