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Lowering the Bar to Raise the Bar: Licensing Difficulty and Attorney Quality in Japan

Abstract: By easing the difficulty of the Japanese bar-exam equivalent, recent changes increased the quality of young lawyers. The result is counterintuitive, but a relaxation in a licensing standard can have this effect if it lowers the costs to taking a test enough to increase the number and quality of the people willing to go to the trouble of sitting for it. We explore the theoretical circumstances under which this phenomenon can occur and discuss the evidence that this is indeed what happened in Japan.

In 1990, the Japanese government began reducing the difficulty of the entrance exam (*shihō shiken*) for its Legal Research and Training Institute (LRTI; Shihō Kenshū Jo). The test is the effective bottleneck to becoming a lawyer, and over the four decades since World War II the government had passed only about 500 students a year. This gave the universally feared exam a pass rate of one to four per cent, depending on the year, and a reputation as the hardest exam in Japan.

The government began increasing the size of the LRTI class—from 500 to 750, from 750 to 1,000, and then from 1,000 to 2,000. It claimed this would increase the *quality* (not just quantity) of the bar. Odd as it may seem, that is exactly what it did. In this article, we explain how such a paradox can occur and outline the special circumstances under which lowering the difficulty of an exam can result in an increase in the talent of people who pass it.

The paradox turns on the opportunities an applicant forgoes in studying for an exam (what economists call "opportunity cost"). If prospective entrants must spend substantial time studying for an exam, some will give

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up and not take it. Some will give up because they know they cannot pass. Others, however, will give up because they have better options and do not want to waste time studying for an exam they are unlikely to pass regardless of talent. Given that the most talented young men and women have the best job options, they forgo the most attractive opportunities when they study for an occupational license like membership in the bar. As a result, a licensing exam will exclude not just those without the ability to pass it but also those with the ability to find top jobs elsewhere. If making an exam easier causes those hyper-talented people to decide it is worth taking, the lower standard can increase the quality of the people who pass.

That is what happened in Japan. After summarizing the logic, we explore a variety of evidence that the changes to the LRTI exam raised quality. Japanese university entrance exams famously sort students by ability. To gauge the effect of the new LRTI entrance exam, we examine the changing school composition of the cohort of new lawyers. We find that the new, easier exam caused a disproportionate increase in the number of students from the very top schools.

We begin by describing the history of the change to the LRTI. We explain the intuition behind the principle that a decrease in the difficulty of a test can sometimes raise the quality of the people who pass (we provide a more precise mathematical discussion in an appendix). Finally, we show how closely the evidence from Japan matches the theory.

LRTI Reform

After World War II, the Japanese government introduced a new system for licensing lawyers. Before the war, it had maintained different requirements for judges, prosecutors, and lawyers. Lawyers claimed to find the system demeaning and demanded a uniform regime. The Supreme Court gave it to them: all prospective judges, prosecutors, and lawyers would attend a two-year government-run institute. Graduating from it was easy: virtually everyone passed the exam at the end of the program. Entering was not, for the government capped LRTI capacity at 500—despite the sometimes more than 20,000 applicants.[1] Of the 500 who passed in any given year, about 100 became government prosecutors, another 80 to 130 became judges, and the rest became private attorneys (see Figure 1).

The institute's entrance exam functioned as Japan's bar exam. Typically, a would-be lawyer majored in law as an undergraduate. He or she then sat for the LRTI entrance exam, administered once per year. Most who eventually passed did so only after failing it several times first. Because the

1. See chapter 1 of J. Mark Ramseyer and Minoru Nakazato, *Japanese Law: An Economic Approach* (Chicago: University of Chicago Press, 1999), for more detail.

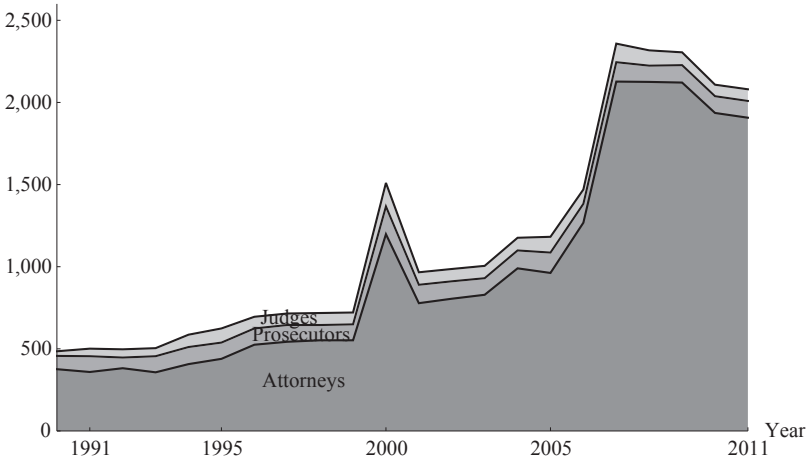

Figure 1. Jobs of New Lawyers
Note: Because of the transition from the old to new testing and training regimes, the LRTI graduated two classes in 2000.
Sources: The Japan Federation of Bar Associations and the Ministry of Justice, as found in: www.nichibenren.or.jp/library/ja/publication/books/data/housou4-4.pdf; www.moj.go.jp/content/000102262.pdf; and www.nichibenren.or.jp/jfba_info/statistics/reform/fundamental_statistics.html (all accessed February 2013).

government offered the exam just once per year, most devoted several years to the process. On average, they passed the exam at about age 28 or 29, implying six or seven failures.[2] By 1989, the median age of the test takers had climbed to 29. In 1965, only 65 of the 333 people who passed did so while still in college, and by 1986, of 24,000 people who took the bar exam just one passed on the first try and 37 more on the second.[3]

All this began to change in 1991 when the Japanese government started to expand the LRTI. From 500 students in 1990, it grew to 1,500 in 2005 and to 2,000 by 2010 (see Figure 2). Concurrently, universities began to build postgraduate "law schools" (*hōka daigakuin,* as opposed to the traditional *hōgakubu* [undergraduate law departments]). Under the system as originally billed, aspiring lawyers could still major in law as undergraduates, but they could major in other disciplines instead. After college, they would attend a postgraduate law school—for two years if they had majored in law, three years otherwise. They would then take the LRTI entrance exam. The pass

2. Estimated in Minoru Nakazato, J. Mark Ramseyer, and Eric B. Rasmusen, "The Industrial Organization of the Japanese Bar: Levels and Determinants of Attorney Income," *Journal of Empirical Legal Studies,* Vol. 7 (2010), pp. 460–89, from a random sample of 670 lawyers who passed the exam by 1990.

3. Daniel Foote, "The Trials and Tribulations of Japan's Legal Education Reforms," *Hastings International and Comparative Law Review,* Vol. 36 (2013), p. 381.

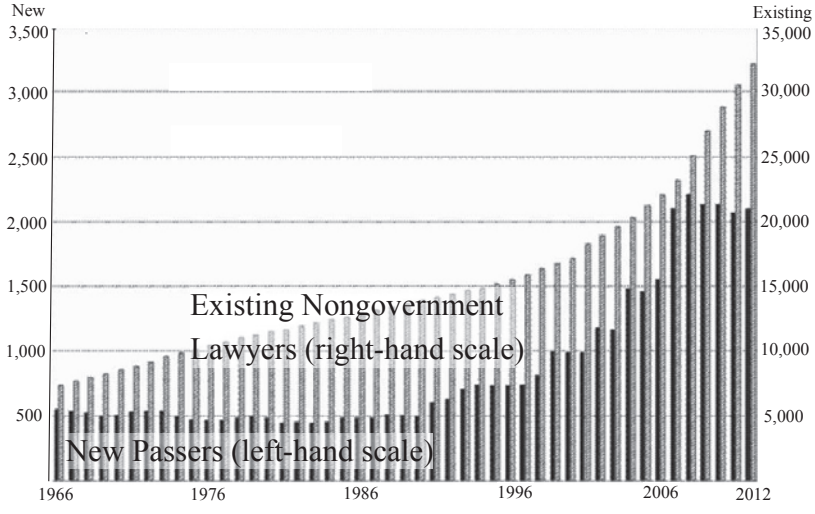

Figure 2. Existing Private Lawyers and New Exam Passers, 1966–2010
Source: Adapted from Kay-Wah Chan, "Setting the Limits: Who Controls the Size of the Legal Profession in Japan," *International Journal of the Legal Profession,* Vol. 19 (2012), p. 322.

rate would be much higher than before, and the LRTI itself would last but one year.

By 2007, the first law school cohort had graduated and new lawyers now began coming from two sources. The institute still offered the "old exam" to those who wanted to take it after their undergraduate years (the left portion in Figure 3). It also offered the "new exam," for those who finished postgraduate law school (the right portion). From 2007 to 2011, aspiring lawyers thus had a choice: they could try to enter the LRTI under either the old system (a brutally hard exam) or the new system (law school followed by an easier exam, as evidenced by the pass rates in Table 1). Since 2011, they still have a choice: if they pass a very difficult "preliminary" exam, they may skip law school and directly take the easier LRTI entrance exam.[4]

Effectively, the government changed the opportunity cost of becoming a lawyer. Instead of studying for years for the chance to become one of the few test takers who actually passed, a student could spend two or three years at law school and take a much easier exam. Under the earlier regime, the opportunity cost included the forgone earnings during the years the aspiring

4. Under the old system, a college graduate could take the exam any number of times, once per year. Under the new system, law school graduates may take the easier new exam only three times within five years.

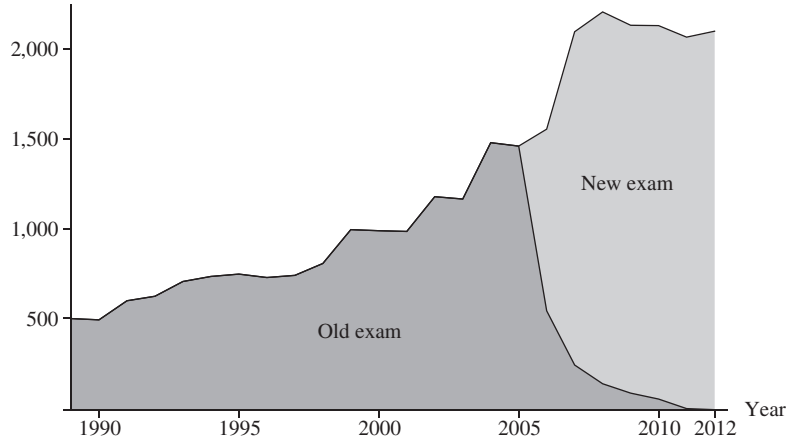

Figure 3. Numbers Passing the Old Exam and the New
Source: Ministry of Justice, www.moj.go.jp/jinji/shihoushiken/press_071108-1_19syutu-gou.html (accessed February 2013).

Table 1
Percentage Passing the Old and the New LRTI Exams

Year	Old Exam	New Exam
2003	2.58	
2004	3.42	
2005	3.71	
2006	1.81	48.25
2007	1.06	40.18
2008	0.79	32.98
2009	0.60	27.64
2010	0.45	25.41
2011		23.54
2012		25.06

Source: bar-exam.shikakuseek.com/data/index.html (accessed February 2013).

lawyer spent studying for the exam—zero for the lucky few who passed immediately, six or seven years' earnings for the typical eventual passer, and potentially something close to a lifetime's earnings for the rest. Most of the serial failers would abandon hope and find a different career, of course. But for them, the opportunity cost of trying to become a lawyer would be the difference between the present value of (a) a lifetime's earnings in the career

offered to them upon graduation from college, and (b) a lifetime's earnings in whatever career they eventually constructed after jettisoning their attempt to become a lawyer. Under the new regime, for a student reasonably certain to pass the new, easier test, the opportunity cost was much lower: two or three years of law school tuition and the forgone earnings during that period, with less risk.

Most aspiring lawyers who chose to compete in the new system studied law both as undergraduates and in the postgraduate law schools. Despite the initial plans to welcome students from other disciplines, students who majored in law as undergraduates tended to pass the new LRTI exam at higher rates than the others (39 per cent for law majors, 19 per cent for others in 2009).[5] Because prospective students ranked law schools by LRTI pass rates, the students from nonlaw backgrounds hurt law schools in the rankings. Law schools responded by favoring law majors.

Lower Standards and Higher Quality

Supporters of licensing exams routinely argue that the exam will protect consumers from low-quality suppliers. Consumers lack the sophistication to judge quality, they claim. Absent a licensing requirement, low-quality sellers will exploit consumers' naivete and sell them services they would not buy if fully informed. Better to use the government to ban sales by those low-quality sellers. Supporters then turn to licensing exams to identify the low-quality sellers to exclude.

In fact, the men and women who most strongly support licensing exams are the incumbent members of the industry—and politicians beholden to them. Their self-interest is obvious. If they can manipulate the government to exclude a seller, they exclude a competitor who might otherwise steal clients or reduce prices. And while consumers might (only might) have trouble gauging the quality of a physician, most would be able to evaluate barbers and florists. Yet licensing regimes typically cover not just lawyers[6] and doctors,[7] but suppliers in a wide variety of industries—including radi-

5. Bruce E. Aronson, "The Brave New World of Lawyers in Japan Revisited: Proceedings of a Panel Discussion on the Japanese Legal Profession after the 2008 Financial Crisis and the 2011 Tohoku Earthquake," *Pacific Rim Law and Policy Journal,* Vol. 21 (2012), p. 290. Note that students enrolling as "nonlaw majors" include not just physics majors, but also law majors who lack the confidence to take the test after two years and opt instead for a three-year program.

6. Mario Pagliero, "What Is the Objective of Professional Licensing? Evidence from the US Market for Lawyers," *International Journal of Industrial Organization,* Vol. 29 (2011), pp. 484–92.

7. Andreas Broscheid and Paul E. Teske, "Public Members on Medical Licensing Boards and the Choice of Entry Barriers," *Public Choice,* Vol. 114 (2003), pp. 445–59; Adriana D. Kugler and Robert M. Sauer, "Doctors without Borders? Relicensing Requirements

ology technicians,[8] dentists,[9] dental hygienists,[10] teachers,[11] electricians,[12] mortgage brokers,[13] florists,[14] manicurists,[15] cremators,[16] and barbers.[17] Think tanks subject the topic to perennial outrage and amusement: for example, the American Enterprise Institute on tour guides and hair braiders,[18] the Brookings Institution on lawyers,[19] and the Heritage Foundation on plumbers.[20]

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and Negative Selection in the Market for Physicians," *Journal of Labor Economics,* Vol. 23 (2005), pp. 437–65.

8. Edward J. Timmons and Robert J. Thornton, "The Effects of Licensing on the Wages of Radiologic Technologists," *Journal of Labor Research,* Vol. 29 (2008), pp. 333–46.

9. Morris M. Kleiner and R. T. Kudrle, "Does Regulation Affect Economic Outcomes? The Case of Dentistry," *Journal of Law and Economics,* Vol. 43 (2000), pp. 547–82.

10. Tanya Wanchek, "Dental Hygiene Regulation and Access to Oral Healthcare: Assessing Variation across the US States," *British Journal of Industrial Relations,* Vol. 48 (2010), pp. 706–25.

11. Bradley Larsen, "Occupational Licensing and Quality: Distributional and Heterogeneous Effects in the Teaching Profession," Massachusetts Institute of Technology Economics working paper (October 30, 2012).

12. Morris M. Kleiner and Kyoung Won Park, "Life, Limbs, and Licensing: Occupational Regulation, Wages, and Workplace Safety of Electricians," Working Paper 16560, National Bureau of Economic Research (September 12, 2011).

13. Morris M. Kleiner and Richard M. Todd, "Mortgage Broker Regulations That Matter: Analyzing Earnings, Employment, and Outcomes for Consumers," in David Autor, ed., *Studies of Labor Market Intermediation* (Chicago: University of Chicago Press, 2009); Lan Shi, "The Effect of Mortgage Broker Licensing on Loan Origination Standards and Defaults: Evidence from U.S. Mortgage Market 2000–2007," University of Washington, Department of Economics, working paper UWEC-2012-02 (2012).

14. Dick M. Carpenter, "Testing the Utility of Licensing: Evidence from a Field Experiment on Occupational Regulation," *Journal of Applied Business and Economics,* Vol. 13 (2012), pp. 28–41.

15. Maya N. Federman, David E. Harrington, and Kathy J. Krynski, "The Impact of State Licensing Regulations on Low-Skilled Immigrants: The Case of Vietnamese Manicurists," *American Economic Review,* Vol. 96 (2006), pp. 237–41.

16. David E. Harrington and Kathy J. Krynski, "The Effect of State Funeral Regulations on Cremation Rates: Testing for Demand Inducement in Funeral Markets," *Journal of Law and Economics,* Vol. 45 (2002), pp. 199–25.

17. Edward J. Timmons and Robert J. Thornton, "The Licensing of Barbers in the USA," *British Journal of Industrial Relations,* Vol. 48 (2010), pp. 740–57.

18. Mark J. Perry, "Government Licensing Gone Wild: Institute for Justice Fights for Tour Guides in New Orleans" (December 13, 2011), available at: www.aei-ideas.org/2011/12/government-licensing-gone-wild-institute-for-justice-fights-for-tour-guides-in-new-orleans/; Mark J. Perry, "Should It Really Be Illegal To Braid Hair without First Getting a License from the Government?" (June 13, 2012), available at: www.aei-ideas.org/2012/06/should-it-really-be-illegal-to-braid-hair-without-first-getting-a-license-from-the-government/. All online sources cited were accessed in February 2013.

19. Clifford Winston, "Deregulate the Lawyers" (April 2012), available at: www.brookings.edu/research/opinions/2012/04/deregulate-lawyers-winston.

20. Conn Carroll, "Defending Joe's Right To Earn a Living" (October 17, 2008), available at: blog.heritage.org/2008/10/17/defending-joes-right-to-earn-a-living/.

In their study of Soviet physicians who emigrated to Israel, Adriana Kugler and Robert Sauer present the inquiry closest to ours.[21] Under Israeli law, doctors with extensive clinical experience were exempt from a relicensing requirement, but the number of years required for the exemption changed in 1992 from 20 years to 14. Kugler and Sauer ask whether the quality of the doctors who pursued relicensing shifted with the law and find that it did. Although licensing generated large rents to physicians, the weaker physicians disproportionately pursued relicensing—and the more onerous the licensing process, the stronger that inverse correlation between physician quality and the tendency to relicense. The key to the phenomenon is that physicians need not practice medicine. They can also take unlicensed jobs in scientific fields. The more talented the physician, the higher the return to those alternate jobs, and—necessarily—the higher the opportunity cost to pursuing relicensing as a physician.

The key to understanding Kugler and Sauer—and the recent changes to the Japanese bar exam—is to understand the effect of a test on the pool of test takers. Suppose the population of test takers is fixed, and suppose the test accurately ranks applicants by ability. Under exam 1, the top 5 per cent pass. Under exam 2, the top 50 per cent pass. Necessarily, the average ability of those who pass the easier exam 2 will be lower than of those who pass the harder exam 1. After all, exam 1 passed only the most able 5 per cent, while exam 2 passed the next 45 per cent too.

In many situations, however, the population of test takers will change. Suppose that the government runs a very hard exam. It passes only 2 per cent and administers the exam only once a year. To prepare for the exam, many applicants will need to study hard and will find that those studies preclude a demanding outside career.

Under this licensing regime, the applicants willing to prepare for the test will disproportionately include applicants without good outside job prospects. Suppose the potential applicants include two groups. Group A represents the most talented potential applicants. Given their talent, they have multiple job offers from high-paying, high-status employers. Group B represents the less talented potential applicants. If they have any job offers at all, they are offers from low-paying, low-status employers.

Disproportionately, the people who choose to sit for the licensing exam year after year will include the members of group B. Bringing less talent, they are less likely ever to pass the hard exam, of course. But they also face lower costs (the so-called "opportunity costs") to studying for the exam. The members of group A are more likely to pass the exam, but if they fail in year 1 (which well they may, despite their greater talent) they can maximize their chances of passing in year 2 only by studying full-time. They still will

21. Kugler and Sauer, "Doctors without Borders?"

not necessarily pass and in the process will need to abandon very attractive job offers.

Now suppose the government raises the pass rate on the exam from 2 per cent to 50 per cent. Many more high-talent group A members will pass the test on their first try. Those who fail in year 1, moreover, will find it attractive to abandon their outside job offers and focus on studying for the test in year 2—after all, they now have much higher odds of passing that exam. To be sure, more low-talent group B members will also pass the test. But if sufficient high-talent group A members opt for taking the test, the average quality of those who eventually pass could substantially exceed the average quality under the earlier, harder test. Hence the two principal points described in more detail in the appendix:

> *Proposition 1:* As a test becomes easier, the quality of the very best people who pass it will increase.
> *Proposition 2:* As a test becomes easier, under certain circumstances (specified in the appendix) the average quality of those who pass it will also increase.

Licensing and Quality in the Japanese Bar

If the government eases the licensing exam for lawyers, the number of exceptionally qualified lawyers will increase, and even the average quality of new lawyers may increase. Consider how these ideas apply to the LRTI expansion. Where Japan had earlier maintained one of the hardest bar exams in the world, it switched to a much easier one. What did this do to attorney quality?

As a measure of attorney quality, turn to the university the students attended. Politically incorrect though it may be, one of the best measures of cognitive ability in Japan is the quality of the college attended. College quality measures that ability much more precisely in Japan than in either the United States or Europe. Particularly at the very top colleges, admission continues to depend exclusively on a blindly graded examination. A few private colleges do admit some students on the basis of high school teacher recommendations. A few reserve spots for graduates of their feeder high schools. A few admit athletes. But the preeminent national universities still rely solely on blindly graded exams.

Within that university hierarchy, the University of Tokyo stands apart. Its faculty write and grade their own entrance exams to supplement the standardized test used by a broad swath of schools, and they write exams that ensure entering students bring both breadth and depth. To attend the undergraduate law department, for example, a high school student must pass tests in both English and a second foreign language, in modern and in classical Japanese, in two social sciences, in natural science, and in math.

The Tokyo faculty write excruciatingly hard questions. In mathematics, a high school student applying to the undergraduate law department will face hard questions in calculus. A student applying to a math, science, or engineering department will face even harder questions in linear algebra. Other top national universities similarly pose brutally hard, school-specific tests.

Most private universities require much less breadth. To attend the law department at a top-tier school like Waseda, for instance, a student need pass tests only in English, Japanese, and a social science field of his choosing.[22] The point is not just that the competition is easier (which it is). It is that successful students will have studied less broadly. Relevant to eventual corporate legal practice, they also will tend to be weaker in math.

Because the best Japanese universities admit students solely through a blindly graded exam, student abilities at the various schools overlap much less than they do in the United States. In other words, if university X (e.g., University of Tokyo in Japan, Princeton University in the United States) is ranked above university Y (Chuo, Vanderbilt), the imbalance in intellectual ability between the students at X and Y will be greater in Japan than in the United States. For example (these numbers are purely hypothetical), if the 20th percentile Princeton student has the same test scores as the 80th percentile Vanderbilt student, we might expect the 20th percentile Tokyo student to have the same test scores as the 99th percentile Chuo student—though very likely *no* Chuo student has scores that high. As a result, a student's university signals his intellectual ability more closely in Japan than in the United States. Athletic or musical talent, alumni ties, geographic variety, leadership, public service, race—all count for nothing. To be sure, intellectual ability in the United States overlaps less among colleges than it did three decades ago.[23] Yet given "holistic" admissions policies, it still overlaps extensively.

To illustrate the overlap, take some simple numbers. The 25th to 75th percentile SAT math scores for Caltech students range from 760 to 800 (98th–99th percentiles nationally), at Harvard from 710 to 790, at Georgetown from 660 to 750, and at the University of Wisconsin from 630 to 750.[24] Reading scores range from 700 to 800 at Harvard (the 95th–99th percentiles), from 670 to 780 at Williams, from 690 to 770 at Vanderbilt, and from 620 to 720 at the University of Virginia.[25]

22. See www.waseda.jp/nyusi/.

23. Caroline M. Hoxby, "The Changing Selectivity of American Colleges," *Journal of Economic Perspectives,* Vol. 23 (2009), pp. 95–118.

24. See media.collegeboard.com/digitalServices/pdf/SAT-Percentile_Ranks_2011.pdf.

25. See www.collegeboard.org.

In addition, because the College Board designs the SAT for all colleges, the test more accurately sorts students at the mass-market schools than at the elite. In any given sitting, the difference between a 770 and an 800 on the math test can be the difference between a perfect exam and one careless mistake on a simple question (and *all* SAT math questions are simple for anyone considering Caltech or a STEM [science, technology, engineering, or math] program at Stanford). The test may accurately measure whether a student should go to Northern Illinois instead of Northwestern. It does not help determine whether he should go to Stanford instead of Caltech. Because of the crudeness of the test in sorting top abilities, U.S. universities turn to other dimensions. Because the sorting by ability is less sharp, top-ability students more willingly choose their college on other dimensions too—which further obscures the sorting of ability.

Given that elite Japanese universities use school-specific entrance examinations, we rank them by data collected by the exam-preparation schools. These national franchises maintain large numbers of classrooms across the country and regularly administer a battery of practice exams. They then combine information about how their students do on these internal exams with information about how they do on the eventual entrance exams.

By custom, the exam preparation schools measure university difficulty by what Japanese parents and students casually call a university's *hensachi*. The term refers to the statistical "t-score." The score gives the position on a normal curve centered at 50 with a standard deviation of 10. Each t-score thus corresponds to a percentile score more familiar to U.S. parents and students. For reader convenience, in Table 2 we give the t-score (the Japanese *hensachi*) and the equivalent percentile. With obvious caveats about the differences among the exams, we also give the SAT equivalent that corresponds to that percentile among U.S. college-bound students (adding up the three sections of 800 points each).

By selectivity, the top ten undergraduate law departments start with the University of Tokyo (440 students per class). The law departments at two other national universities—the University of Kyoto (330 students) and Hitotsubashi University (170 students)—constitute a close second and third. The other schools in the top ten generally include Waseda, Keio, Osaka, Kobe, Jochi (Sophia), Tohoku, and Nagoya universities. Among these, the first two are unusually large—740 students per class at Waseda and 600 at Keio.

The range in student ability from the first school to the tenth is massive. The estimated t-score for the passing exam at the University of Tokyo is 70.75. At Tohoku University it is 62.75. In percentiles, these scores represent the 98th at Tokyo and the 90th at Tohoku. On the SAT math exam, the 90th to 98th range would cover the distance from 680 (University of Miami

Table 2
Major Undergraduate Law Faculties

	LRTI Exam			*University Entrance Exam*		
	% Pass	Applicants	Passers	t-mean	Percentile	SAT Equivalent
Tokyo	7.0	15,278	1,077	70.75	98	2,160
Kyoto	6.6	8,683	571	68.63	97	2,110
Hitotsubashi	5.5	4,062	222	67.88	96	2,070
Osaka	4.7	3,582	169	66.00	95	2,040
Keio	4.2	14,708	619	69.50	97	2,110
Jochi	3.6	3,258	116	65.26	94	2,020
Nagoya	3.5	2,341	82	63.63	91	1,950
Hokkaido	3.5	2,100	73	61.00	86	1,860
Tohoku	3.4	3,311	112	62.75	90	1,930
Waseda	3.4	27,206	912	67.63	96	2,070
Kobe	3.3	3,183	105	64.35	91	1,950
Rikkyo	2.9	1,429	42	60.25	85	1,840
Kyushu	2.8	2,862	80	62.25	88	1,890
Chuo	1.9	20,682	386	63.25	90	1,930

Note: LRTI exam data are for 2000–2004. The entrance exam mean standardized score is the t-score for the approximate passing exam performance on the university entrance exam; here, we take the mean of the t-score estimates given by four Japanese college entrance exam preparation schools. The percentile rank gives the percentile for the t-score. Purely for reader reference, the last column gives the SAT score (out of 2,400) that approximates that percentile in the United States.
Sources: See "Shihō shiken daigaku betsu gōkakusha oyobi gōkaku ritsu iran," available at www.geocities.jp/gakureking/shihou.html. Standardized scores (t-scores) are as given at daigakujyuken.boy.jp; daigaku.jyuken-goukaku.com/nyuushi-hensati-ranking/siritu/hougaku.html; and daigaku.jyuken-goukaku.com/nyuushi-hensati-ranking/kokkouritu/hougaku.html. (All accessed February 2013.)

middle) to 780 (Caltech).[26] On the reading exam, the range would run from 650 (University of Michigan middle) to 740 (Princeton).

As Table 2 shows, success on the university entrance exams correlates with success on the LRTI exam. During the years 2000–2004, graduates from the University of Tokyo passed the exam with a 7.0 per cent rate, and those from Kyoto passed at 6.6 per cent. Graduates of Waseda and Keio passed at 4.2 and 3.4 per cent rates, and those from Chuo University—a major law school on the top-ten border—with a 1.9 per cent rate.

For the most part, talented Japanese students accept the highest-ranked

26. More precisely, the "middle" is the approximate midpoint between the 25th and 75th percentiles for a school, as given on the College Board website.

school that admits them. In doing so, they choose within a clearly defined hierarchy. By contrast, talented U.S. students can choose among a set of equivalent-quality schools. Even the preeminent schools have a relatively low yield: high-prestige Harvard College (with its 710–800 25th to 75th percentile SAT math distribution) has a yield of only 81 per cent. The yield at the Massachusetts Institute of Technology (740–800 distribution) is 70 per cent, Yale (710–90 distribution) 66 per cent, Princeton (710–800 distribution) 65 per cent, Dartmouth (680–780 distribution) 48 per cent, University of Chicago (710–90 distribution) 46 per cent, and Caltech (770–800 distribution) 41 per cent.[27]

The choices students make at the elite exam-based Kaisei Gakuin High School show how different Japan is (see Table 3). Kaisei regularly sends more students to the University of Tokyo than any high school in the country. In 2013, 170 Kaisei students (and alumni who took a gap year or two rather than attend a safety school) passed the Tokyo entrance exam. Of them, 168 chose to attend—a 99 per cent yield. Of those admitted to the undergraduate law department, all chose to attend. Fewer applied to the first-tier national universities of Kyoto and Hitotsubashi, but among those admitted all chose to attend.[28]

Kaisei students do not choose either Waseda or Keio over Tokyo, Kyoto, or Hitotsubashi. Instead, they use Waseda and Keio—storied universities with history and tradition, arguably the finest private universities in the country—as safety schools. They attend them only if not admitted to one of the top national schools. Of the 152 admitted to Keio, barely a quarter chose to attend (and none of those admitted to the undergraduate law department). Of the 196 admitted to Waseda, only a fifth chose to attend. What is more, among those who did choose to attend Waseda or Keio, a majority at both were gap-year students. Rather than settle immediately for either, in other words, Kaisei students take a year off and then try again to get into the top three.[29]

Similarly, 114 Nada High School students passed the University of Tokyo exam in 2008, and 23 passed the University of Kyoto exam. Nada does

27. Data from www.collegeboard.org.

28. Tokyo, Kyoto, and Hitotsubashi all administer their entrance examinations on the same day. As a result, a student can apply only to one of the three, and the 100 per cent acceptance rates of Hitotsubashi in Table 3 do not imply that any student turned down Tokyo. The importance of knowing which of the top three to recommend to a given student is one reason prep schools try so carefully to gauge high school student ability and entrance test difficulty.

29. The same phenomenon appears among students at Kaisei's Kobe rival, Nada High School. In 2012, Nada admittees included 98 students at the University of Tokyo, 34 at University of Kyoto, 11 at Osaka University, and 2 at Nagoya University. See koukou-hyougo .ldblog.jp/archives/25077984.html.

Table 3
College Choices of Elite High School Students

Kaisei Gakuen High School		
	Admitted	Attended
Tokyo	170	168
Kyoto	6	6
Hitotsubashi	6	6
Osaka	0	0
Keio	152	39
Jochi	7	0
Nagoya	0	0
Hokkaido	6	5
Tohoku	5	5
Waseda	196	39
Kobe	0	0
Rikkyo	3	0
Kyushu	1	1
Chuo	22	2
Tsukuba University Komaba High School		
	Admitted	Attended
Tokyo	103	99
Kyoto	3	3
Hitotsubashi	5	5
Osaka	0	0
Keio	56	14
Jochi	6	0
Nagoya	1	1
Hokkaido	0	0
Tohoku	1	0
Waseda	115	10
Kobe	0	0
Rikkyo	1	1
Kyushu	1	1
Chuo	1	0

Note: 2013 university entrance exam results.
Sources: "2013 (Heisei 25) nendo daigaku nyūshi kekka," at www.kaiseigakuen.jp/kaiseihp/shinro/shinro25.htm (accessed February 2013); "2013 nendo daigaku gōkakushasū, shingakushasū," at www.komaba-s.tsukuba.ac.jp/official/intro.goon.html (accessed February 2013).

not release information about where the students will attend, but of the 42 Nada students admitted to Keio, only 8 were seniors, and of the 33 admitted to Waseda, only 2. All others admitted to Keio and Waseda were gap-year students. Like their peers at Kaisei, Nada students see Keio and Waseda exclusively as safety schools.[30]

Komaba High School, affiliated with Tsukuba University, also places a large number of graduates at the University of Tokyo. Of all 2013 Komaba graduates (and gap-year alumni), 103 passed the Tokyo entrance exam and 99 chose to attend. Among those who passed the exam to the undergraduate law department, all decided to attend. Of those admitted to Kyoto and Hitotsubashi, all decided to attend. Of those admitted to Keio, only 25 per cent chose to attend, and a majority of them were gap-year students. Of those admitted to Waseda, only 9 per cent chose to attend, and again a majority were gap-year students. Only one student chose to attend the Waseda law department; no one chose to attend the Keio law department.

Although the postwar LRTI exam may have excluded most law graduates with low abilities, it did not produce a cohort with the highest abilities either. Law graduates with the best job options did not invest the years necessary to pass it. Consider the position of University of Tokyo students. Given their intellectual talent, they enjoyed access to a wide range of elite and high-paying jobs. From prestigious government offices to banks and manufacturing firms listed on the Tokyo Stock Exchange (TSE), employers bid for the chance to hire them. Were they to prefer practicing law instead, they could take the LRTI exam. If they passed while still students, fine and good. But if not (and with a 7.0 per cent pass rate, most did not), they might need to invest years in the effort before they passed. That investment they could make only if they abandoned their prestigious and lucrative job offers.

Contrast these students with their counterparts at one of the many third-tier undergraduate law departments. That these other students were at third-tier colleges indicates they brought fewer cognitive skills and had a lower chance of ever passing the LRTI exam. Yet they also jettisoned fewer attractive opportunities if they devoted years to studying for the test. Prestigious government offices would never hire them, and neither would most of the TSE-listed corporations. Compared to their University of Tokyo peers, they sacrificed less in devoting years to the exam. Attending the LRTI and opening a law firm may have been a long shot, but it still represented their best chance to overcome their college background and break into the upper-middle class.

Take the number of times lawyers in a random sample of 893 lawyers practicing in 2005 (who entered the bar over a wide variety of years) failed

30. See koukouranking.blog17.fc2.com/blog-entry-4.html.

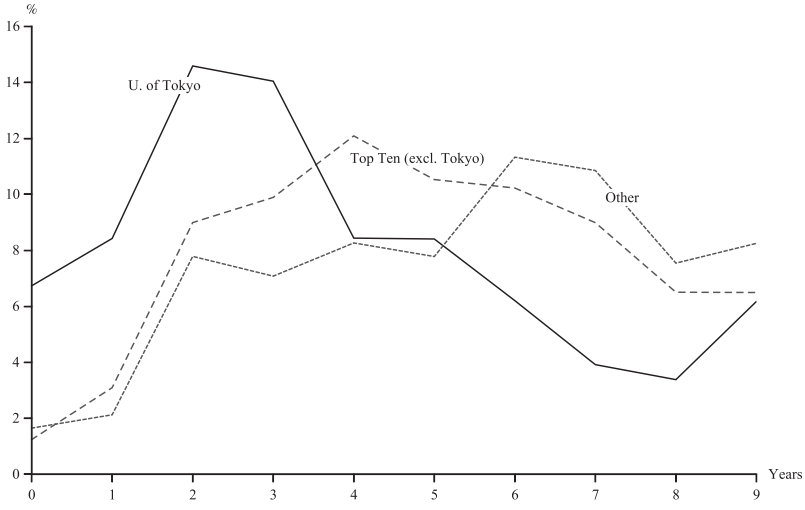


Figure 4. Number of Years Failing the Old LRTI Exam, by School Tier
Note: The figure gives the percentage of practicing lawyers who failed the LRTI exam a given number of times. Calculated failures of over 10 are excluded. The lawyers are divided into University of Tokyo graduates, other graduates of a top ten university (as defined in the text), and all other lawyers. The figure is based on a random sample of 893 lawyers from the 2005 bar association directory.
Source: Random sample of attorneys from Hōritsu Shinbunsha, ed., *Zenkoku bengoshi taikan,* 10th ed. (Tokyo: Hōritsu Shinbunsha, 2005).

the exam, as estimated by their age upon finally passing it.[31] Those from the University of Tokyo failed a mean 5.4 times. Graduates of archrival Kyoto University also failed 5.4 times, and those of the third-ranked Hitotsubashi University failed 5.9 times. Graduates of Keio, Waseda, and Chuo averaged between 6 and 7 times. Those from the third-tier Nihon University failed 9.1 times.

Tokyo graduates did not fail the exam fewer times than Nihon graduates just because they passed at higher rates. They failed it fewer times because they more quickly dropped out of the exam-taking pool. Most Tokyo graduates did not pass on one of their first tries, but many then abandoned the effort. Rather than take it again, they accepted the elite, well-paying government and corporate jobs offered them. Nihon graduates had fewer job opportunities anyway, so they stayed to take the exam year after year. Eventually, a few of them passed and joined the bar.

Figure 4 illustrates the way the strongest students took the exam a few times and abandoned the effort if they did not pass, while the weakest stu-

31. Data from the Hōritsu Shinbunsha, ed., *Zenkoku bengoshi taikan,* 10th ed. (Tokyo: Hōritsu Shinbunsha, 2005).

dents devoted their careers to the test. For this figure, we sorted our random sample into three groups: lawyers from the University of Tokyo (169 lawyers), those from one of the other top ten schools (311), and all others (413). We charted their distribution by the number of times they failed the exam before eventually passing. The University of Tokyo graduates tended to fail it two or three times and then leave the pool and join the work force. Other applicants took it many more times.

This discussion actually understates the ability difference between the Tokyo graduates who passed on one of their first tries and the third-tier graduates who passed on their seventh or eighth attempt. Exams measure talent with error. If someone (particularly someone who passed the 98th percentile University of Tokyo entrance exam) passes the LRTI exam on the first try, the best estimate of the student's ability is the passing grade. If someone (particularly people whose best score in the college admissions tournament lands them at the 77th percentile Nihon University) fails six times and passes on the seventh, the best estimate of the student's ability is less than the grade on the seventh try. It is closer to being the average of all seven tries, though it actually is even lower since he only stopped because of luck flukish enough to occur once in seven tries. Thousands of lawyers passed the old exam only on their seventh, eighth, ninth, or tenth try. Most passed not because they finally learned the material or proved their true ability—they passed because the errors inherent in any test-taking process finally fell in their favor.

The debate over easing the LRTI exam began in the 1980s and involved provincial lawyers, the large corporate law firms, the business community, the universities, the Ministry of Justice, and the ruling Liberal Democratic Party. As Japan deregulated its economy in the 1980s and 1990s, firms increasingly raised or invested funds in international markets. To guide them through the legal labyrinths involved, they needed sophisticated attorneys. They needed lawyers who were smart. They needed lawyers who understood the complex international economic and financial environment they faced. And they needed lawyers who could engineer the legal mechanisms by which to manipulate that environment most effectively.

In the 1980s, corporations could not find these sophisticated lawyers in Japan. The best U.S. law firms provided the necessary talent and sophistication, but not many Japanese firms did. A few Japanese lawyers did offer the services needed, but they were expensive and worked in firms that lacked the necessary scale. The Nishimura firm was the largest, but as of 1985 even it had only 26 lawyers.[32]

Clients needed the top Tokyo law firms to expand, but given the LRTI

32. Bruce E. Aronson, "The Brave New World of Lawyers in Japan," *Columbia Journal of Transnational Law,* Vol. 21 (2007), p. 83, table 1.

bottleneck those firms could not recruit the necessary legal, economic, and financial talent. Although the institute admitted 500 students a year, 200 of them became prosecutors or judges (see Figure 1). This left 300 to become lawyers. According to our random sample of lawyers based on the 2005 bar directory (we have school information on 1,120), about 16 per cent had attended the University of Tokyo, 25 per cent had attended one of the top three schools, and 45 per cent had attended one of the top ten. If these fractions approximate the composition of new classes, then in any given year the bar would have added only about 48 lawyers from the University of Tokyo, 75 from a top three school, and 134 from a top ten. With fewer than 50 Tokyo graduates (or even 75 from any of the top three schools), the best firms would never reach the scale of operations that their clients so badly needed.

For the partners at the top law firms, the problem did not just involve serving clients. It also involved creating the pyramidal structure that enriches big-law equity partners in the United States. They wanted bright young lawyers who would work long hours to support them, the law firm's owners, and let them earn the returns from the firm's increased business demand. Under the LRTI exam as it was in 1990, the institute simply did not graduate enough lawyers with the necessary quality and sophistication.

The generally left-leaning lawyers outside the large Tokyo firms opposed any increase in the LRTI. Not only were they unsympathetic to big business, but the increase would hurt their own businesses. Given that about half of all Japanese lawyers practice in Tokyo, lawyers in the capital are relatively plentiful. Outside the city, they are scarce. As of 2000, 72 of the 253 court districts had either one or no lawyer. Of the 3,371 registered cities and towns, 3,023 had either one or none.[33]

Reflecting that scarcity, provincial lawyers earn a substantial premium. They bring less talent than the Tokyo lawyers, but lawyers of average talent will earn higher incomes in their lonely outposts than in Tokyo. In 2004, 24.7 per cent of Tokyo lawyers had attended the University of Tokyo, but only 12.3 per cent of the lawyers outside major metropolitan areas. Tokyo lawyers had failed the LRTI exam a mean 6.32 times, but those outside metropolitan areas had failed 7.50 times. Yet where only 1.0 per cent of Tokyo lawyers earned more than about $400,000, 5.0 per cent of the non-metropolitan lawyers earned that much.[34]

Earning returns from their scarcity, the provincial lawyers opposed any increase to the LRTI. In late 1994, 1,137 lawyers petitioned the bar association to fight any expansion. At a time when 46 per cent of all lawyers

33. Foote, "The Trials," p. 391.

34. Nakazato, Ramseyer, and Rasmusen, "Industrial Organization," p. 460.

practiced in the competitive Tokyo market,[35] only 38 per cent (311) of the petitioners came from Tokyo.[36] Instead, most of them practiced in areas with that lucrative scarcity. When a regional bar group polled lawyers about the planned expansion in mid-1994, the respondents showed a similar geographical bias. Of the 4,166 respondents, only 18 per cent supported increasing the LRTI class. Within Tokyo, 23 per cent supported the increase.[37]

The corporate sector lobbied for a larger LRTI. The left-wing bar lobbied against it. In this case, the self-interest of the universities was the same as that of business, because universities would provide the new postgraduate law schools. Dominated by the moderately conservative and generally business-aligned Liberal Democratic Party, the government sided with the corporate sector and expanded the bar.[38]

Consistent with Proposition 1 presented above, the easier LRTI exam did indeed draw in a larger number of the most talented college graduates. Every year now, the bar adds a much larger cohort of lawyers with the depth and breadth (especially numeracy) that the large firms need. Recall the estimated annual production of lawyers from the top undergraduate law departments under the pre-1990 regime: Tokyo, 48; top three, 75; top ten, 134.

Table 4 gives the undergraduate backgrounds for the new lawyers and details a much larger cohort from the top schools: Tokyo, 223; top three, 419; top ten, 1,120. The government quadrupled the number of new lawyers, and the number from the premier University of Tokyo rose proportionately. Those from the top three climbed more steeply—by six times. And those from the top ten schools jumped by a multiple of eight. The government increased the number of LRTI graduates fourfold, and the number from the top ten schools rose more than eightfold.

That the number of University of Tokyo graduates did not increase further simply reflects the maximum potential size of its test-taking pool. The

35. Nihon Bengoshi Rengōkai, ed., "Bengoshi hakusho" (Tokyo: Nihon Bengoshi Rengōkai, 2006), p. 4.

36. As calculated from the roster of signers in Suzuki Hideyuki, Takemoto Yukako, Suzuki Hiroyuki, Uchida Masatoshi, and Matsuura Takeshi, *Shihō kaikaku no shippai* (Tokyo: Kadensha, 2012), pp. 386–89.

37. Calculated from data in ibid., p. 383.

38. For more on the fascinating politics of the change, see Kay-Wah Chan, "Setting the Limits: Who Controls the Size of the Legal Profession in Japan?" *International Journal of the Legal Profession,* Vol. 19 (2012), pp. 321–37; Foote, "The Trials"; Setsuo Miyazawa, "The Politics of Judicial Reform in Japan: The Rule of Law at Last?" *Asian-Pacific Law and Policy Journal,* Vol. 2 (2001), pp. 89–121; Mayumi Saegusa, "Why the Japanese Law School System Was Established: Co-optation as a Defensive Tactic in the Face of Global Pressures," *Law and Social Inquiry,* Vol. 34 (Spring 2009), pp. 365–98; and Iwao Sato, "Judicial Reform in Japan in the 1990s: Increase of the Legal Profession, Reinforcement of Judicial Functions and Expansion of the Rule of Law," *Social Science Japan Journal,* Vol. 5 (April 2002), pp. 71–83.

Table 4
Academic Origins of Passers of the New Test in 2008

Undergraduate College		Postgraduate Law School	
Waseda	262	Tokyo	200
Keio	225	Chuo	196
Tokyo	223	Keio	165
Chuo	136	Waseda	130
Kyoto	116	Kyoto	100
Hitotsubashi	80	Meiji	84
Doshisha	64	Hitotsubashi	78
Osaka	52	Kobe	70
Kobe	43	Tohoku	59
Jochi	39	Ritsumeikan	59
Meiji	39	Doshisha	59
Tohoku	33	Kansai Gakuin	51
Ritsumeikan	33	Jochi	50
Nagoya	27	Osaka	49
Kyushu	25	Kansai	38
Osaka City	25	Kyushu	38
Total	1,422	Total	1,426

Sources: Postgraduate law schools: "2008 nendo (Heisei 20 nendo) shin shihō shiken hōka daigakuin betsu gōkakushasū, gōkaku ritsu rankingu," available at 2chreport.net/hen13_5.htm; www.moj.go.jp/jinji/shihoushiken/shiken_shinshihou_h20kekka01.html. Undergraduate colleges: "2008 nendo shinshihōshiken shusshin daigakubetsu gōkakusha rankingu," available at jbbs.livedoor.jp/bbs/read.cgi/school/21000/1336225407/l50. (All accessed February 2013.)

Tokyo undergraduate law department graduates 440 students a year, so 223 new lawyers constitute over half the class. Much the same is true for the other schools that produce students with the necessary breadth and depth: 80 is 47 per cent of the Hitotsubashi class, and 116 is 35 per cent of Kyoto. That leaves half of the class who did not become lawyers, to be sure, but it does not follow that they took the exam and failed. Traditionally, neither students nor faculty saw undergraduate departments as places to train lawyers. Before the bar expansion, only about a tenth actually joined the bar. Some students did hope to become lawyers. But most planned to work in government, at the large banks, or for major corporations. For them, the law department provided prestige and the basic background they needed in management and public policy.

As a result, at the very top schools most of the students who want to become lawyers probably now do. If half of the University of Tokyo law majors join the bar, we suspect that this is nearly all of them that wish to. Much the same holds true of Hitotsubashi and Kyoto. The easier exam at the LRTI admits virtually all of the top aspiring lawyers.

In a country like the United States where the top universities teach students whose abilities overlap extensively, an easier licensing exam might draw in more students from the top schools because it drew in the less qualified students. It would thus admit weaker students from schools all across the quality distribution. Suppose it earlier admitted students from both Princeton (where the 25th to 75th percentile math scores range from 710 to 800) and Wisconsin (630 to 750). If with a lower passing threshhold it admitted more students from both schools, it would not necessarily be admitting more high-quality students. Instead, it would be working down the quality distribution at both places, admitting less able students from both Princeton and Wisconsin.

In Japan, undergraduate student abilities overlap much less. Given that each top university admits undergraduates almost exclusively by a blindly graded exam, the floor on ability at each school is clear. Given that students choose the highest-ranked school that admits them, so is the ceiling—namely, the passing grade at the next-highest-ranked school. If the bar now admits a larger number of University of Tokyo students, it simply admits a larger number of more talented students.

The data on graduate law school backgrounds confirm this increase in the number of high-quality lawyers. To be sure, the undergraduate backgrounds capture a different set of qualities than graduate law school backgrounds. A student from the undergraduate law department at Tokyo, Kyoto, or Hitotsubashi brings not just high levels of cognitive ability but also intellectual breadth (particularly mathematical ability). By contrast, a student from the Waseda or Keio law department may have a high IQ but has chosen to attend a school that did not test either science or math. He brings a much narrower focus.

Postgraduate law school background reflects cognitive ability but not intellectual breadth (the entrance exam does not test nonlaw subjects). From 2009 to 2011, an average of 209 graduates from the University of Tokyo law school moved to the LRTI (see Table 4 for 2008 figures). For a law school that graduates 240 students a year, this constitutes an 87 per cent eventual pass rate.[39] Not all Tokyo law school graduates passed the exam on their first try, of course. Because those who fail it may take it a second or third

39. The 87 per cent pass rate is based on the 2010–11 class size of 240; in 2009 the size was 300. For information on class size at the law schools, see laws.shikakuseek.com/capacity.html.

time (but not more), in any given year the actual University of Tokyo pass rate may be closer to 50 per cent. But if the university graduates 240 people a year and 209 enter the LRTI, necessarily most must eventually become lawyers.

Much the same is true for the other top schools. Hitotsubashi's law school admits 85 students a year—suggesting an eventual pass rate of 92 per cent. The analogous rates for many of the other top law schools are similarly high: 88 per cent at Kobe, 74 per cent at Tohoku, 72 per cent at Keio, and 63 per cent at Kyoto.

Unlike the students at the undergraduate law departments, students enroll in a postgraduate law school only if they hope to become a lawyer. At Tokyo and Hitotsubashi, most eventually do. The reason the LRTI does not admit more Tokyo and Hitotsubashi law school graduates is simple: there are no more to admit.

With an expanded pool of talented lawyers available, the top firms have grown exponentially. From their low double-digit sizes in the mid-1980s, the top three firms numbered 300 to 420 lawyers by 2013. Table 5 details several aspects of this growth. Note first that the partners have successfully built their pyramids. The associate-to-partner ratio is over 2:1 at the Nagashima and Mori firms. At the even larger Nishimura, it exceeds 3:1.

Second, when hiring associates who took the "old" LRTI exam before 2006, the firms turned almost exclusively to lawyers who passed on their first or second try. In a world where the typical lawyer passed on his sixth or seventh attempt, the associates at Nishimura failed a mean 1.1 times. Those at Nagashima and Mori failed a mean 0.4 to 0.6 times. These firms wanted only the very best LRTI graduates.

Third, the firms have continued to hire primarily lawyers from the most selective colleges (Table 6). In 2000–2012, the top three firms hired about half their associates (i.e., those associates who lasted to 2013) from the University of Tokyo. They hired 60 to 70 per cent from either Tokyo, Kyoto, or Hitotsubashi. Among those associates who attended a postgraduate law school, the firms again hired only from the top schools. They hired 47 to 60 per cent of their associates from the University of Tokyo. They hired 63 to 82 per cent from the top three schools, and 90 to 100 per cent from the top ten law schools.

To service their clients effectively, the top firms need associates with the cognitive skills to handle complex legal questions and the sophistication and breadth to understand the intricacies of corporate finance, international trade, and managerial economics. With entrance examinations that included brutally hard questions in math and science, the Tokyo, Kyoto, and Hitotsubashi undergraduate law departments offer graduates with exactly these qualities. At the top three firms, 50–70 per cent of the

Table 5
Top Three Firms: Selected Summary Statistics, 2013

Size	Attorneys	Associates/ Partners
Nishimura & Partners	417	3.44
Nagashima, Ohno & Tsunematsu	342	2.32
Mori, Hamada & Matsumoto	303	2.26

Associates	Total	Mean Flunks (if hired before 2006)
Nishimura & Partners	323	1.2
Nagashima, Ohno & Tsunematsu	239	0.4
Mori, Hamada & Matsumoto	210	0.6

Associates, % by College	n	Tokyo	Top 3	Top 10
Nishimura & Partners	321	48	59	91
Nagashima, Ohno & Tsunematsu	239	47	61	94
Mori, Hamada & Matsumoto	210	52	67	96

Associates, % by Law School	n	Tokyo	Top 3	Top 10
Nishimura & Partners	149	52	68	95
Nagashima, Ohno & Tsunematsu	116	45	63	96
Mori, Hamada & Matsumoto	121	64	77	96

Source: Firms' websites (accessed February 2013).

associates who survived to 2013 brought this background. In 2007, these three firms hired at least 69 lawyers from the University of Tokyo and 86 from the top three schools. Yet recall that under the old regime, in any given year barely 50 Tokyo graduates and 75 top three university graduates joined the bar. In short, in 2007 the top three law firms together hired more lawyers from those schools than the entire LRTI output under the old regime.

Ōta Shōzō recently completed an empirical evaluation of the quality of attorney work product in Japan that supports our conclusion that attorney quality has increased.[40] To measure work quality, Ōta assembled a group of

40. Ōta Shōzō, "Bengoshi no minji soshō ni okeru pafōmansu hyōka: hōsō no shitsu no jisshōteki kenkyū," *Tōkyō Daigaku Hōka Daigakuin rō rebyū* (2014).

Table 6
Top Three Firms: Distribution by Class

College

	Total	Tokyo		Top 3		Top 10	
Class	n	n	%	n	%	n	%
2000	7	3	42.9	3	42.9	6	85.7
2001	22	12	54.5	12	54.5	22	100.0
2002	40	14	34.1	19	46.3	38	92.7
2003	38	26	68.4	29	76.3	37	97.4
2004	36	23	63.9	25	69.4	35	97.2
2005	48	23	48.9	27	57.4	44	93.6
2006	66	29	43.9	44	66.7	63	95.5
2007	111	69	62.7	86	78.2	107	97.3
2008	91	43	47.3	52	57.1	85	93.4
2009	94	41	43.6	49	52.1	82	87.2
2010	89	44	49.4	55	61.8	80	89.9
2011	58	24	41.4	34	58.6	52	89.7
2012	67	32	47.8	38	56.7	63	94.0

Law School

	Total	Tokyo		Top 3		Top 10	
Class	n	n	%	n	%	n	%
2007	66	33	50.0	43	65.2	60	90.9
2008	59	28	47.5	35	59.3	54	91.5
2009	79	42	53.2	50	63.3	74	93.7
2010	70	38	54.3	53	75.7	68	97.1
2011	49	28	57.1	40	81.6	49	100.0
2012	63	38	60.3	46	73.1	63	100.0

Sources: Firms' websites, accessed February 2013.

attorneys (all with at least five years' experience) who evaluated the court records of 103 civil cases from the Yokohama District Court and 191 cases from the Tokyo District Court. Each case was evaluated by two attorneys, and the two scores were averaged.

Ōta found that attorneys with more experience did lower-quality work and that the effect was highly statistically significant. We have no reason to think that experience reduces a lawyer's work quality. Instead, the older lawyers more likely supplied inferior work because they had joined the bar

during the days of the old exam and the native ability of exam passers has risen since that time.

Conclusion

The government eased the exam for entering the bar and increased the quality of the lawyers who came. Because the best law students enjoy the most attractive nonlegal career options, they sacrifice the most in trying to become lawyers. Under the old exam, even top students might pass it only after several years. Rather than try, most abandoned the effort and took the lucrative nonlegal job offers. Disproportionately, those who stayed were the less talented.

Under the new exam, most top law graduates who want to become lawyers do. By easing the exam, the government drew in the high-talent pool that had earlier avoided the test. If an institution eases an entry test, it does not always increase the quality of those who pass. If the pool of applicants taking the test remains unchanged, it simply takes the less able applicants. Sometimes, however, an institution that eases a test will draw in talented applicants who had earlier avoided the test because of the attractive opportunities they would need to abandon. When it does, it can increase the quality of those who pass.

In Japan, when the government eased the LRTI entrance exam, it did exactly that.

Harvard University and Indiana University

Appendix

To explore the theory behind why a decrease in the difficulty of a licensing exam can raise the quality of those who pass, consider the following mathematical discussion. We will use "lawyers" and "students" to refer to the licensed occupation and its prospective members, though the theory, of course, is easily generalized. Suppose a population of students has abilities (denoted x) uniformly distributed from 0 to 1, and a student knows his own ability. Each student has the option to take a test to become a lawyer at cost c(x) with $c(0) > 0$ and $c' > 0$, i.e., there is an opportunity cost even to the least-able student, but the cost rises with ability. A student passes the test with probability $p(x)$,where $p(0) = 0$ and $p' > 0$. The value of passing is w. A student's payoff function is thus:

$$\pi(x) = p(x)w - c(x).$$

We will assume the payoff function is concave: $\pi'' < 0$. This will be true, for example, if the pass function $p(x)$ is concave and the cost function $c(x)$ is convex.

Our question is what effect the test's difficulty has on the types of students taking and passing the test.

Those types with $\pi(x) \geq 0$ will take the test. Denote by $\underline{x}$ and $\bar{x}$ the lowest and highest types taking the test. We will only consider cases where $\underline{x} > 0$ and $\bar{x} < 1$, so $\pi(\underline{x}) = 0$ and $\pi(\bar{x}) = 0$. Thus, we are restricting ourselves to situations where students of the lowest quality and the highest quality choose not to take the test.

We will define "the test becomes easier" as that $p(x)$ increases for every x except possibly $x = 0$, the type which originally has zero probability of passing.

We will define "the test becomes equally easier for all types" as that for $k > 0$, $p(x)$ becomes $p(x) + k$. We will also consider the alternative definition that $p(x)$ becomes $(1+k)\, p(x)$.

Appendix Figure 1 shows one particular specification for $c(x)$ and $p(x)$ that satisfies these assumptions. The cost of taking the test starts positive and rises convexly with ability, x. This represents there being a floor level of cost even for the untalented and increasingly more cost as ability becomes high. Most students are the same in their opportunities, but able ones have much better opportunities, not just a little better.

The initial pass rate, $p^o(x)$, gives us the initial benefit from taking the test, $p^o(x)w$. Students with talent below $\underline{x}^0$ do not take the test, because they have too little chance of passing. Students with abilities greater than $\bar{x}_0$ do not take the test because they have too high an opportunity cost.

Proposition 1. If the test becomes easier, the quality of the top lawyers will increase.

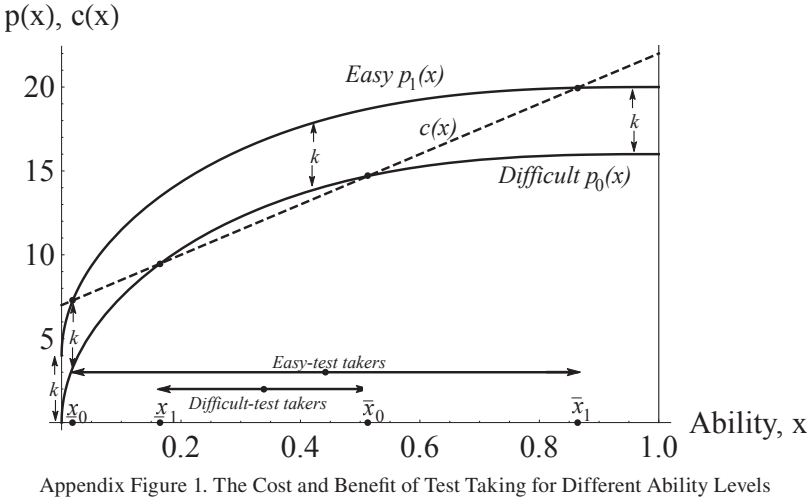
Proof. Initially, $\pi(\bar{x}_0) = p_o(\bar{x}_0)w - c(\bar{x}_0) = 0$. After the test becomes easier, $\pi(\bar{x}_0) = p_1(\bar{x}_0)w - c(\bar{x}_0) > 0$. Since $p(x)$ and $c(x)$ are both continuous, there will be at least a few types greater than $\bar{x}_0$ for which it is also true that $\pi(x) > 0$, even though $p'(x) > 0$ and $c'(x) > 0$. These few types will now take the test, so $\bar{x}$ will rise, and since some of them will pass the test, the quality of the top lawyers has risen too.

It can be similarly shown that the quality of the worst lawyers will fall when the test becomes easier. What, then, happens to the average quality of lawyers?

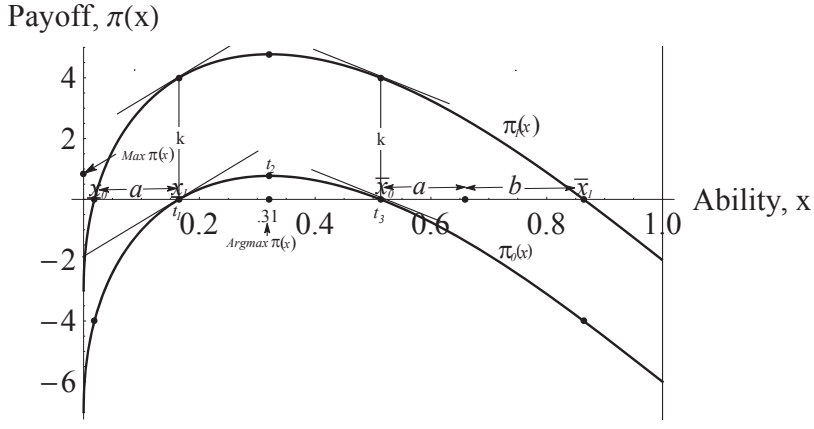
If the test does not become equally easier for all ability levels, then we cannot say what happens to the average quality of lawyers. It could be that the test becomes much easier for low abilities and only slightly easier for high abilities, which is consistent with our assumptions so long as *p(x)* is still increasing—it simply would increase at a slower rate. Then, making the test easier would reduce the average quality. On the other hand, biasing the change in ease in the other direction could increase the average quality. Thus, we will look at a change that is "equal" in the senses defined earlier.

Some more notation will be useful. Let the interval of students taking the test before and after the test is made easier be denoted by $[\underline{x}_0, \bar{x}_0]$ and $[\underline{x}_1, \bar{x}_1]$, as in Appendix Figures 1 and 2.

Proposition 2. If the test becomes equally easier for all students, the quality of the average test taker will rise if the net payoff from taking the test is concave but decreasingly curved as the student's quality increases: if $\pi' > 0$, $\pi'' < 0$, and $\pi''' > 0$ for $x \in (0,1)$, then $[x_0 + \bar{x}_0]/2 < [x_1 + \bar{x}_1]/2$.



Appendix Figure 1. The Cost and Benefit of Test Taking for Different Ability Levels



Appendix Figure 2. The Payoff from Taking the Test for Different Talent Levels
Note: $\pi(x) = p(x)w - c(x)$. The curves are $c(x) = 7 + 15x$ and $p_0(x) = 24\sqrt{x} - 10x2 + 2x4$, with $w = 1$ and $k = 4$. For $x \in (0,1)$, $p' > 0$, $p'' < 0$ and $p''' > 0$, so $\pi'' < 0$ and $\pi''' > 0$.

Proof. Under the uniform density for x, the average quality is $(\bar{x} - \underline{x})/2$. Average quality will rise if $\bar{x}$ rises more than $\underline{x}$ falls; that is, if

$$(\underline{x}_0 - \underline{x}_1) < (\bar{x}_1 - \bar{x}_0)$$

Let us define $a \equiv (\underline{x}_0 - \underline{x}_1)$ and $b \equiv (\bar{x}_1 - \bar{x}_0) - a$. Our question becomes whether it is really true that $b > 0$, as it is in Appendix Figure 2 for one particular specification.

"Equally easier" was defined as meaning that p(x) becomes $p(x)+k$. The slope of a student's net payoff at x remains unchanged, so $p'(\underline{x}) - c'(x)$ is the derivative of both $\pi_0(x) = \pi(x)$ and $\pi_1(x) = \pi(x)+k$.

We will next proceed to prove a lemma, that $\pi'(\underline{x}_0) - |\pi'(\bar{x}_0)| > 0$. Suppose we draw chords from point t_1 to point t_2 and from t_2 to t_3 in Appendix Figure 2. These will have slopes $[Max\ \pi(x)]/[Argmax\ (\pi(x) - \underline{x}_0)]$ and $[Max\ \pi(x)]/[Argmax\ \pi(x) - \bar{x}_0]$. The curves' slopes at t_1 and t_3 will each be bigger than the slope of the chord at the point because the curve is convex. Restating this in our notation,

$$\pi'(\underline{x}_0) - [Max\ \pi(x)]/[Argmax\ \pi(x) - \underline{x}_0] > 0 \textit{ and}$$

$$|\pi'(\bar{x}_0)| - [Max\ \pi(x)]/[Argmax\ \pi(x) - \bar{x}_0] > 0.$$

Since $\pi''' > 0$, the rate of change of the slope is becoming more positive—that is, though the slope is becoming negative ($\pi'' < 0$), it is doing so at a slower and slower rate, so the convexity of the curve is declining and it is becoming more like a straight line. This means the differences between the curve slope and the chord slope are getting smaller:

$\pi'(\underline{x}_0) - [Max\ \pi(x)]/[Argmax\ \pi(x) - \underline{x}_0] >$

$|\pi'(\bar{x}_0)| - [Max\ \pi(x)]/[Argmax\ \pi(x) - \bar{x}_0].$

Thus,

$\pi'(\underline{x}_0) - |\pi'(\bar{x}_0)| >$

$Max\ \{\pi(x)\ [1/(Argmax\ \pi(x) - \underline{x}_0) - 1/(\bar{x}_0 - Argmax\ \pi(x))]\}$

Since $Argmax\ \pi(\underline{x}) - \bar{x}_0 < \bar{x}_0 - Argmax\ \pi(x)$, we have shown that $\pi'(\underline{x}_0) - |\pi'(\bar{x}_0)| > 0$.

Having proven the lemma that $\pi'(\underline{x}_0) - |\pi'(\bar{x}_0)| > 0$, let us return to showing that $b > 0$. The lemma implies that $\pi(x) + k$, too, must have a bigger slope at $x = \underline{x}_0$ than at $x = \bar{x}_0$. Over the lower interval $[\underline{x}_1, \underline{x}_0]$ the slope is getting bigger as x shrinks away from $Argmax\ \pi(x)$ more rapidly than the slope is getting bigger over the upper interval $[\bar{x}_0, \bar{x}_0 + a]$ as x increases. Thus, since the slope over the lower interval starts bigger too (at $x = \underline{x}_0$), it must stay bigger, and π will change more over the lower interval. Since it changes by k over the lower interval, it must change by less than k over the upper interval. Thus, we have proved that if $\pi''' > 0$, then $b > 0$ and therefore the quality of the average lawyer must rise if the test becomes easier.

The ultimate purpose of Proposition 2 is to show that an easier test can result in higher average ability of test passers, for a robust variety of cost and benefit functions of potential test takers. It says that an easier test can result in higher average ability of test takers, and *a fortiori* it will then result in higher average ability of test passers, since the more able test takers will pass at a higher rate. Even those who use mathematics are generally unaccustomed to thinking about third derivatives, so some discussion of what it means that $\pi'''(x) > 0$ may be useful. The third derivative represents skewness, like the third moment in probability densities, so if $\pi'''(x) > 0$ then $\pi(x)$ is left skewed, as in Appendix Figure 2. To understand why $\pi'''(x) > 0$ implies left skewness, the concrete example of the particular equations used to draw Appendix Figure 2 may help:

$$\pi(x) = p(x) - c(x) = 24\sqrt{x} - 10x^2 + 2x^4 - (7+15x) \quad \begin{array}{l} > 0\ over\ [.16,.51], \\ < 0\ otherwise \end{array}$$

$$\pi'(x) = 12/\sqrt{x} - 15 - 20x + 8x^3 \qquad > 0\ over\ [0,.32],\ < 0\ over\ [.32,1]$$

$$\pi''(x) = -6/(\sqrt{x})^3 - 20 + 24x^2 \qquad < 0\ over\ [0,1]$$

$$\pi'''(x) = 9/(\sqrt{x})^5 + 48x \qquad > 0$$

Note first that since $\pi'' < 0$, the slope $\pi'(x)$ is first positive and then becomes negative. Put differently, if $\pi''(x) < 0$ then $\pi'(x)$ moves toward negative infinity as x increases: for small x, $\pi'(x)$ is positive but is becoming less positive as x rises, whereas for large x, $\pi'(x)$ is negative and becoming more negative as x rises. This effect of the negative curvature of $\pi(x)$ is true regardless of the sign of π'''.

Now suppose $\pi''' > 0$. This means the curvature $\pi''(x)$ is becoming more positive as x rises. Since the curvature is itself negative throughout, that means the curvature is moving more toward zero as x rises—$\pi(x)$ becomes less curved, closer to being a straight line with unchanging slope $\pi'(x)$.

Consider the slope of $\pi(x)$. It takes some value at $\underline{x}_0$, where $\pi(x) = 0$. It falls in magnitude then, reaches zero at $\pi(x)$'s maximum, and after turning negative starts to rise in magnitude again. Since the curvature is shrinking as x grows, the distance from the first crossing at $\underline{x}_0$ to *Argmax* $\pi(\underline{x})$ is less than the distance from *Argmax* $\pi(x)$ to the second crossing, at $\bar{x}_0$. The curve $\pi(x)$ is skewed to the left if $\pi''' > 0$ and $\pi'' < 0$.

In the case of $\pi''' = 0$, the curve $\pi(x)$ is symmetric around its maximum; its skewness is zero. Thus, making the test easier when the payoff function is quadratic (for example, $\pi = -3 + 7x - 2x^2$) will add exactly the same size intervals of brighter students with big x and duller students with small x to the test-taking pool.

Proposition 1 is robust to many of the assumptions of the model. We can take it as a general prediction. Proposition 2 is just an "it can happen" result. It requires $\pi'''(x) > 0$, which is special, though not unrealistically so.

Proposition 2's premise is that the test becomes equally easier for all types. If the probability of passing rises more for more talented types, it is even more likely that an easier test will result in a higher average ability of those passing, as the Corollary below says.

Corollary. Proposition 2 also holds true if we redefine "equally easier" to mean that the probability of each type of student passing rises by the same percentage, instead of the same absolute amount.

Proof. If the test becomes equally easier for all types in a different sense—each type's probability of passing is multiplied by the same amount so $p_1(x) = kp_0(x)$ for $k > 1$—the result is true *a fortiori,* because now the absolute increase in p is $kp_0(x)$, which is bigger for a bigger x. If the average quality of those taking the test rises, so does the average quality of those passing, if the absolute increase in the probability of passing is equal for all types or is greater for higher quality types.