Measuring Gender Equity

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MEASURING GENDER EQUITY

Alfred Dennis Mathewson* and Robert D. Rogers**

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INTRODUCTION

When the Supreme Court denied certiorari and let stand the decision of the First Circuit in Cohen v. Brown University in the spring of 1997, the ruling was hailed by women's rights advocates and panned by college athletics administrators. The source of these contrasting reactions was a ruling by the First Circuit Court of Appeals upholding a finding by the Federal District Court of Rhode Island that Brown University was in violation of Title IX. Although the court's explanation of the legal rules on which it based its conclusions is less than clear, supporters and critics have perceived the court's holding as a mandate to colleges and universities to allocate participation opportunities to male and female athletes substantially in proportion to the gender composition of their student bodies.

The authors were drawn to study this problem because of the implicit assumptions in the jurisprudence of Title IX about the allocation of resources that lead to the outcome described above. Title IX of the Education Amendments of 1972 was designed to address the historical disparity in the provision of opportunities in competitive athletics for girls and women. It was directed at educational institutions that had generally rejected competitive inter-institutional competition for females and established athletic programs that were almost exclusively offered to males. Title IX clearly made those sports' policies and practices unlawful.

The Department of Health, Education, and Welfare ("HEW"), the administrative agency then charged with enforcement of the statute, and the

2. Cohen IV, 101 F.3d at 161-162.
3. See Part I.A. infra. A careful reading of the opinions indicate that the courts held that Brown University violated the statute because it did not offer participation opportunities to male and female athletes substantially in proportion to the gender composition of its student body, because it did not have a continuing history of expanding opportunities for females, and because it did not fully and effectively accommodate the interests and abilities of female athletes.
4. 20 U.S.C. § 1681(a) (1994). "No person in the United States shall, on the basis of sex, be excluded from participation in, be denied the benefits of, or be subjected to discrimination under any education program or activity receiving Federal financial assistance. . . ." Id.
5. During the fifty-year period preceding the enactment of Title IX, female physical educators had eschewed the male commercial competitive model of athletics for women and vigorously suppressed the participation of women. Wendy Olson, Beyond Title IX: Toward an Agenda for Women and Sports in the 1990s, 3 Yale J. L. & Feminism 105, 109 (1991).
educational institutions subject to it were faced with a quandary. Title IX was patterned after Titles VI7 and VII,8 both of which were anti-discrimination statutes. If the past policies and practices were discriminatory, did the law mandate the integration of females into male programs? That question was of great importance because of another historical reality: athletics for girls and women had been segregated from those of boys and men. The judiciary had answered a similar question in the negative in cases involving the right of girls to participate in interscholastic athletics under the Equal Protection Clause.9 Thus, educational institutions were legally authorized to offer separate but equal gender-based athletic programs. By sanctioning discrimination on the basis of gender in the provision of athletic programs, the administrative agencies transformed the question into one of gender equity.

HEW promulgated Title IX regulations for intercollegiate athletics,10 and after HEW was divided into two agencies, both of its successors, the Department of Health and Human Services and the Department of Education ("DOE"), adopted the HEW regulations.11 DOE, however, is most commonly recognized as the responsible administrative agency. The DOE regulations thus imposed an obligation on universities to achieve gender equality in their athletic programs. The regulations prescribed ten factors that the agency would utilize to determine compliance.12 Of the ten, the first is the only one that appears to articulate a general standard of gender equality.13 Section 106.41(c) provides in part: "In determining whether equal opportunities are available the Director will consider among other factors... [whether] the selection of sports and levels of competition effectively

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10. 45 C.F.R. § 86.41 (1975).
11. The original regulations are designated as Health and Human Services Regulations. The DOE regulations are codified at 34 C.F.R. § 106 et seq. (1998).
12. 34 C.F.R. § 106.41(c). The ten factors are:
   1) Whether the selection of sports and levels of competition effectively accommodate the interests and abilities of both sexes;
   2) The provision of equipment and supplies;
   3) Scheduling of games and practice time;
   4) Travel and per-diem allowance;
   5) Opportunity to receive coaching and academic tutoring;
   6) Assignment and compensation of coaches and tutors;
   7) Provision of locker rooms, practice and competitive facilities;
   8) Provision of medical and training facilities and services;
   9) Provision of housing and dining facilities and services; and
   10) Publicity.

Id.
13. The remaining nine factors apply to specific components of the athletic program.
accommodate interests and abilities of members of both sexes." A duty of effective accommodation was unknown in the law of college athletics prior to the promulgation of section 106.41(c). It has never been applied in athletic programs for males.

The gender reciprocal language of section 106.41(c), although structured for formal equality, begs the question of the meaning of "effective accommodation." In 1979, the Office of Civil Rights of HEW sought to provide that meaning in the form of a Policy Interpretation. It prescribed guidelines for assessing compliance with the duty to effectively accommodate the athletic interests and abilities. Those guidelines are commonly known as the "Three Part Test." A university effectively accommodates the interests and abilities of its students if it: (a) provides intercollegiate participation opportunities in numbers for male and female students in numbers substantially proportionate to their respective enrollments, (b) if the numbers are not substantially proportionate, the university can show a history and continuing practice of program expansion which is demonstrably responsive to the developing interest and abilities of the members of the underrepresented sex, and (c) if the numbers are not substantially proportionate and the university can not show a continuing practice of expansion, it can demonstrate that the interests and abilities of the underrepresented sex have been fully and effectively accommodated.

The use of interest and ability is quite intriguing because together they resemble the economic construct of demand. Gender equity under Title IX thus appears to depend upon the relative demand of males and females for athletic participation. The Three Part Test of the Policy Interpretation, however, utilizes both relative demand of males and females and the exclusive demand of females alone. The first prong of the Three Part Test establishes a presumption that relative demand for participation between males and females is equal. Accordingly, a university's obligation is measured by the gender composition of its student body at each level of athletic competition offered by the university, usually intercollegiate, intramurals and interclub. However, Title IX litigation has been limited to disputes over the university's obligation only at the intercollegiate level. If the gender composition of athletes in a university's athletic program does not mirror that of its student body,

14. 34 C.F.R. § 106.41(c).
15. See, e.g., Kelley v. Univ. of Illinois, 35 F.3d 265 (7th Cir. 1994), Gonyo v. Drake Univ., 879 F. Supp. 1000 (S.D. Iowa 1995). The duty to effectively accommodate interests and abilities sounds close to a right to participate. The courts have held that participation in interscholastic and intercollegiate athletics is a mere privilege and universally refused to recognize the existence of such a right.
the university's obligation may be measured not by relative demand but by the demand of female athletes. Under the second prong, a university is not in violation if it has a history of expanding its athletic program to meet the increasing demand of females for athletic participation. Under the third prong, the university is not in violation of Title IX if it fully and effectively accommodates the demand of female athletes.

Not enough attention has been given to the second prong. This prong, more than the other two, contemplates the development of a plan for compliance. When courts have addressed the second prong, their role has been limited to determining whether a university has a legally sufficient history and continuing practice. The usual finding is negative. With respect to plans for compliance, the courts are usually considering plans developed in response to litigation. The rulings on those plans have shed little light on what constitutes an acceptable plan. For example, in *Roberts v. Colorado State Board of Agriculture*, the university objected to the trial court ordering it to maintain a women's fast pitch softball team rather than allowing the university to draft its own plan. The court held that the District Court order was appropriate as a remedy for injuries to specific plaintiffs. In dicta, it indicated that universities should have the discretion to develop voluntary plans in class action cases. Likewise in *Cohen IV*, the First Circuit upheld the District Court's ruling that the plan proffered by Brown University did not comply with Title IX but reversed the trial court's decision to draw up a plan for Brown University. The First Circuit reasoned that the athletic program policy was educational policy and the university should have the academic freedom to develop its educational program. Accordingly, it remanded the case to allow the university to try again.

It is our intent to provide some insight into the development of compliance

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20. If the gender composition of the athletic program does not mirror that of the student body, the university flunks the substantial proportionality test. It can comply with the statute then only under the second or third prong. A university flunks the latter if it is not fulfilling the demand of the underrepresented sex, i.e., females.
22. *Id.*
24. *Cohen IV*, 101 F.3d at 188.
26. *Cohen IV*, 101 F.3d at 188.
plans with an eye toward a university's athletic program policy. We began from the standpoint of the resource allocator deciding on an equitable allocation. We were intrigued by the use of demand as a measure of equality because of its inherent logic that resources within an academic institution should be allocated in accordance with the demand for them. However, we noticed that in Title IX jurisprudence, the construct was not used to determine the total participation opportunities to be offered but to determine the relative allocation between males and females. We also found the policy interpretation offered, in the substantial proportionality standard, a proxy for the measure of relative demand. We wondered whether the standard could be proven empirically, and thus we set out to conduct such a study.

In Part I, we explore conventional attempts to measure relative demand and its use in litigated cases. In Part II, we describe the measurement instrument we used to conduct the empirical study. Our study is distinguished from conventional efforts in two respects. First, we did not seek to measure the number of athletes with interest and ability. Rather we sought to measure the relative amounts of athletic participation that would be consumed if a university satisfied all demand for it. Secondly, we attempted to measure demand potential, what would be demanded, instead of mere demand, what is consumed. In Part III, we discuss our findings. Finally, in Part IV, we discuss the use of similar measurement instruments by universities to allocate participation opportunities between male and female athletic programs. We provide the argument that such allocations would comply under Title IX, but our main concern is policy. That is, that demand potential is relevant to institutions in determining the level of resources to devote to athletics programs and their relative allocation among males and females.

I. THE DIFFICULTY OF MEASURING DEMAND

The role of demand in Title IX jurisprudence and its measurement has been at the center of recent litigation and the subject of scholarly commentary. In Cohen v. Brown University, the university argued that the statute dictated the application of the relative demand standard rather than the effective accommodation standard set forth in the Policy Interpretation. Brown University was faced with a budgetary shortfall and found it necessary to trim its athletic program. Accordingly, it eliminated funding for the men's golf and water polo teams and the women's

27. See Part I.B. infra.
29. Id. at 981.
gymnastics and volleyball teams. It made the cuts in such a manner so as to preserve the approximately 63% to 37% allocation of participation opportunities between male and female athletes. Because that allocation necessarily deviated from the substantial proportionality test, Brown University had to argue that it was justified in offering a smaller percentage of participation opportunities to women than their percentage of the student body. The crux of its argument was that the relative allocation of participation opportunities in its athletic program reflected the relative amounts of interest and ability within its student body. The courts had two basic sets of concerns with the relative demand standard, one substantive and one technical.

A. Substantive Concern

The courts were substantively concerned with the eradication of gender based stereotypes in athletics, namely that girls and women have less demand for athletics than males. In the First Circuit's view, the level of interest and ability in the female population is a function of the historical unavailability of the opportunity to participate. To complete the court's reasoning, Title IX was enacted to impose an obligation on colleges and universities to generate an increase in the preferences among girls and women for participation in athletics. Under this analysis, the availability of participation opportunities at the collegiate level should result in more young girls preferring athletic participation and, thus, developing more interest and ability. The court's holding was influenced by its view that the relative demand standard would lock in place the historical disparity. Implicit in the court's

30. Id.
31. In the 1990-91 academic year, men comprised 52.4% of the student body and women, 47.6%. Id.
32. Id. at 987.
33. Cohen IV, 101 F.3d at 178.
34. Id. at 179.
35. Adaptive preferences are those "preferences that result from the lack of available opportunities." Cass R. Sunstein, Legal Interference with Private Preferences, 53 U. Chi. L. Rev. 1129, 1146 (1986). The working of adaptive preferences for girls as a result of Title IX is reflected in the increase in their participation in high school athletics. In 1971, the year before Title IX was enacted, 294,015 girls participated in high school athletics, 817,073 in the 1972-73 school year, 1,300,169 in the 1973-74 school year, and 2,240,461 in the 1994-95 school year. Table, Survey, Year By Year, The NCAA News, p. 5, col. 4 (Sept. 25, 1995). The number of girls participating each year has shown constant increase since the 1983-84 school year, although participation had been higher from the 1977-78 to 1982-83 school years. Id.
A federal district court in *Pederson v. Louisiana State University* rejected the Cohen analysis and embraced the relative demand as the standard for compliance with Title IX.37 Likewise, the court refused to read the relative demand standard out of the statute and declined to construe Regulations and Policy Interpretation so as to obviate the standard. It further refused to read a presumption into the statute that the interest and ability to participate in sports is equally distributed among men and women on all campuses.38 Instead, the court ruled it logical that interest in participation and levels of ability to participate as percentages of the male and female populations will vary from campus to campus and region to region and will change with time.39 Nevertheless, the court ruled against LSU, holding that a university violates Title IX if it does not provide opportunities in proportion to the relative interests and demand of its male and female students. LSU violated the statute because it had not ascertained relative demand. The opinion does not articulate what a legally valid measure of relative demand would be, in part because LSU offered no evidence as to the level of relative demand.

The relationship between demand and gender equity is less obvious than it appears. One commentator has attempted to explain the connection with an elaboration of an example used by the First Circuit in *Cohen II*:40

Suppose...a hypothetical university, Aaah U., which maintains a student body of 1000 men and 1000 women. Suppose M is a male student at that school, and F is a female student; both are interested and able to compete with others of their gender on a sustainable, intercollegiate-level team. Next, assume Aaah U. has funds available only for 450 total varsity slots. Suppose...Aaah U. has a two to one interest ratio.41

The commentator correctly explains that application of the relative demand standard would permit the university to offer participation opportunities to 300 men and 150 women if 500 men and 250 women exhibited interest in viable varsity participation. Unfortunately, her example fails to provide a satisfactory explanation for the connection of interest and ability to gender discrimination. Her example

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38. Id. at 914.
39. Id. at 913-914.
40. 991 F.2d at 899.
continues:

Suppose M and F are angry because they respectively represent the 301st male and 151st female in line for varsity slots. Here is where the interest ratio proponents' reasoning fails. Why does M not get a varsity slot at AAah U.? Because the school lacks funds to accommodate him. Yet, why does F not obtain a varsity slot? Solely because F is a female, and her slot has been apportioned according to interest ratios and not according to the fact that she has a 151st interest just as strong as the 151st male.42

The analysis fails because it does not adequately account for the effect of separate gender based teams.

In the example, it is true that the 151st female is excluded because of her gender but so is every women up to the 250th, but it is not true that the exclusion of the 301st male was non-gender based. Because the university can afford 450 slots and has separate gender based teams, the 301st male was also denied an opportunity because of his gender. It is the 451st male whose exclusion is based on non-gender related reasons. As long as a university offers separate gender based athletic programs, a number of athletes with the requisite interest and ability of either gender who are denied a participation opportunity will have been denied one because of gender.

How then can the allocation of participation opportunities be structured so as to eliminate gender based discrimination? Both the relative demand and the substantial proportionality standards theoretically provide answers. They are, in fact, structurally identical and differ only in the reference point for relativity. The logic of both is the same; a university that offers participation opportunities in proportion to the respective ratio does not discriminate against either men or women who are excluded. They differ in that under the relative demand standard, male and female athletes have the same probability of selection out of the separate pools of interested and able male and female athletes. This observation can be demonstrated through a variation of Shook's example. Suppose, there are 500 interested and able males and 250 females in the student body. If the university allocates the 450 slots under the relative demand standard so that 300 slots are available for males and 150 for females, the probability of the selection of a male athlete out of the pool is 60%. The probability of the selection of a female athlete out of the pool is identical.

The substantial proportionality standard is based on similar reasoning but with a different reference point. It utilizes the probability of selection out of the student body. Again using Shook's example, the university does discriminate on the basis of gender if it allocates in accordance with the relative demand standard because the

42. Id.
probability of selection out of the student body for males is 30% but only 15% for females.

Use of the substantial probability standard complicates the analysis because it is an administratively convenient proxy for demand but is structurally inconsistent with the role demand or interest and ability ordinarily play in the process of selecting athletes for participation in intercollegiate athletics. Universities ordinarily do not offer participation opportunities to all students. Accordingly, they choose students for those limited slots based upon interest and ability. This point is demonstrated in Shook’s application of the substantial proportionality standard. In her example, the allocation would comply with that standard if 225 slots were allocated to men and 225 allocated to women.43 Following the substantial proportionality standard results in a 22.5% probability that a male or female athlete will be selected out of the student body. However, the probability that a male athlete will be selected out of the interested and able pool is 50%, and the probability for a female athlete is 90%.

Shook’s example accepts that universities may use interest and ability to deny participation opportunities to some qualified athletes. Regardless of which standard is used, the university in her example will deny participation opportunities to 550 athletes. In Shook’s scenario with our variation for example, 275 men and 25 women were denied participation opportunities when the substantial proportionality standard was applied as opposed to 200 male and 100 female athletes when the relative demand standard is used. However, the standard is not used to determine which 450 students will be selected but how many of the 450 slots will be allocated to male and female athletes. Basing the determination on the relative composition of the student body disregards interest and ability in making the allocation. This quagmire has been reached because of a failure to address the distinction between the remediation of past, and the prohibition of future, acts of discrimination.

B. Technical Concerns

There are many technical concerns related to the difficulty of measuring demand for participation in athletics. The First Circuit in Cohen II and IV acknowledged that Title IX does permit the use of statistical evidence to assess interest and ability but concluded that the relative demand standard would aggravate quantification problems because of the instability of demand over time and because of imprecise measurement tools.44 The instability argument is that demand

43. Id. at 800-801.

44. Cohen II, 991 F.2d at 900; Cohen IV, 101 F.3d at 179.
constantly fluctuates so that a measurement may be useful only for the time when taken. Rights and obligations under Title IX should not depend upon the happenstance of when a measurement is taken. An allocation of participation opportunities based on a measurement taken five years ago should not necessarily govern the allocation today. Imprecision in measurement relates to the availability of a valid and reliable measuring instrument. Assuming that demand may be measured at any point in time, allocation decisions should not be based on inaccurate measurements. The court was skeptical that it was possible to obtain an accurate measurement of demand for such decisions.

The court evaluated the use of student body surveys that have been widely utilized by universities. Such surveys ascertain the relative number of men and women enrolled at a university who have the interest and ability to participate in intercollegiate athletics. As such it is a mere body count. The student body survey has been widely criticized by supporters of Title IX on several grounds. First, critics argue that surveys provide an imprecise measure because women are likely to understate their interest in answering such surveys while men are likely to overstate theirs. Second, campus surveys are skewed by the way in which athletes are attracted to campus. Universities recruit student athletes to participate in intercollegiate athletics, this influences the degree of relative interest and ability on the campus in the proportions of each gender already recruited. Third, the critics argue that the relative demand standard would place an undue burden on student victims who sought judicial relief. Plaintiffs would have to undertake the time consuming and expensive process of conducting legally acceptable student surveys. Moreover, since relative interest and ability is likely to fluctuate, students would have difficulty determining if their rights were being violated.

Of course, the most significant objection is that the surveys almost universally

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45. A university conducts a survey of students then matriculating at the university, often of incoming students. It is administratively convenient to survey this group of students because they are usually subject to some sort of captured audience orientation program. The students are asked questions about their participation in high school sports and their interest in collegiate participation. The results are tabulated by gender and then compared. Typically, substantially more males than females show past participation and indicate interest in collegiate participation. See B. Glenn George, Who Plays and Who Pays: Defining Equality in Intercollegiate Athletics, 1995 Wis. L. Rev. 647, 657 (1995) (detailing a University of Colorado survey of incoming students). Brown University used its admissions data, studies compiled elsewhere, data on intramural participation and walk-on rates presented by an expert to show greater male demand for athletic participation. Brief for Appellants at 4-9, Cohen IV, 101 F.3d 155.

46. Cohen II, 991 F.2d at 898.

47. Id.

48. Id.
show greater male demand. The objection though is substantively complex. The criticism rejects the use of relative demand because it views the standard as accepting a stereotype rather than an objective fact. Given the historical record, however, we should expect to find greater male demand no matter what measuring instrument is used, especially if demand is in any way a function of the supply of participation opportunities. This certainly would have been the case in 1972. Neither the proponents nor critics of the relative demand standard take into account the significance of the potential for change in relative demand over time as the supply of participation opportunities for women increases.

To critics, relative demand was wholly irrelevant in determining whether a violation has occurred. Such irrelevance stems from their view that the demand of women has been wrongfully suppressed and that the law should find a violation until the demand of women reaches its natural level, a point at which it equals that of men. Thus, in a case like Cohen, if the university is correct in its assertion of the relative demand on its campus, it is in violation as long as the demand of women has not yet reached its natural level.

To proponents, the natural level of demand of women for participation opportunities is significantly lower than that of men. Accordingly, they argue that it is appropriate to use some measure of that demand such as student body surveys to justify the relative allocation of participation opportunities among male and female athletes. However, such surveys, to a large extent, attempt to measure demand at specific point in time, i.e., the present and then only reflect the universities' current practices. Such surveys do not tell what the relative demand

49. George, supra note 45, at 650 (criticizing Title IX advocates who have been unwilling to use the data on relative demand because it shows that the demand of males greatly outstrips that of females). It would be surprising if this observation were not made given the historical disparity. In fact, it is central to the court’s reasoning that the demand of females has been adversely affected by the supply of participation opportunities, or lack thereof.

50. The administrative agency probably did not contemplate implied private rights of action to enforce Title IX when the relative demand standard was written into the regulations. Its very nature makes it extremely difficult to predicate an adjudication of compliance.

51. This is the real difference between the two standards. Although the substantial proportionality standard does not require exact proportionality to enrollment, it usually would result in requiring a higher level of participation opportunities for women than would be required under the relative demand standard. See, e.g., Mary W. Gray, The Concept of Substantial Proportionality in Title IX Athletics Cases, 3 Duke J. Gender L. & Pol’y 165 (1996) (arguing that substantial proportionality may require proportions as close as two percentage points of actual proportions). See also Walter B. Connolly & Jeffrey D. Adelman, A University’s Defense to a Title IX Gender Equity in Athletics Lawsuit: Congress Never Intended Gender Equity Based on Student Body Ratios, 71 U. Det. Mercy L. Rev. 845 (1994) (arguing that substantial proportionality ought be based on two to three standard deviations using a binomial statistical test).

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level was in the past or what it will be in the future. That was the real flaw in Brown University's defense. Brown argued that what it was currently doing reflected relative demand despite the evidence showing that the demand of women for athletic participation had increased over the years and was continuing to rise.

In our view, relative demand is neither irrelevant to compliance with Title IX nor by itself dispositive of compliance at any specific point in time. Having accepted that relative demand is relevant, there still is needed a reliable and accurate measuring instrument. We accept that the typical student body survey is not one. Before describing our measuring instruments, we have another observation. The existing Title IX jurisprudence obscures the distinction between demand potential and demand. The First Prong substantial proportionality standard is a proxy for demand potential rather than actual demand. It is based on the assumption that females would demand the same amount of athletic participation as males if it were not for the historical disparate treatment of females. The Second Prong, however, rests on the transformation of demand potential into actual demand. The university has a defense if it has a history of increasing the supply of participation opportunities for females as their actual demand increases. It is the Second Prong where we believe that the relative demand standard holds its greatest promise.

This view of the Second Prong is consistent with the Clarification issued by the Office of Civil Rights ("OCR") while Cohen IV was pending. The OCR indicated that in order to satisfy the Second Prong an institution must be responsive to the "developing interests and abilities of the underrepresented sex."52 The Clarification provides that in addition to an institution’s record, its “current implementation of a plan of program expansion that is responsive to developing interests and abilities” is a factor in determining compliance with the Second Prong. The examples given by the Clarification indicate that developing interests may be determined by regional studies of emerging sports,53 NCAA surveys of high school participation,54

52. Clarification of Intercollegiate Athletics Policy Guidance: The Three Part Test, Dept. of Educ., Office of Civ. Rts. 5-8 (Jan. 16, 1996) [hereinafter Clarification]. Such “developing interests” might be indicated by:
   (1) Requests by students that a sport be added;
   (2) Requests that an existing club be elevated;
   (3) Participation levels in club or intramural sports;
   (4) Interviews with students, admitted students, coaches, administrators, or others regarding interest in a particular sport;
   (5) Results of questionnaires of students and admitted students regarding interest in a particular sport; and
   (6) Participation levels in interscholastic sports by admitted students.
   Id.
   53. Id. at 7-8 (Institution C and Institution F examples).
   54. Id. at 7-8 (Institution C and Institution D examples).
nationwide surveys of popular girls high school teams,\textsuperscript{55} surveys of enrolled and incoming students, and requests by students and coaches.\textsuperscript{56}

The examples generally demonstrate how a university may use those tools to add a sport in response to the data in the survey or study but do not explain how the data may be used to develop a long-range plan. In fact, only the Institution F example refers to a plan, but it is only a short-term plan.\textsuperscript{57} As such the Clarification’s use of “developing interest and abilities” appears ambiguous as to the distinction between demand and demand potential. A university appears to have no obligation until demand potential has ripened into demand.

Other scholars and lawyers have begun to assess what the measure of equality is that Title IX mandates.\textsuperscript{58}

II. THE MEASUREMENT INSTRUMENT

If demand potential is the benchmark for determining whether the relative supply of participation opportunities is discriminatory, an accurate measure of demand potential is necessary. We set out to construct an instrument to measure demand potential among students at the University of New Mexico. Our approach differs from the typical student body survey in that we did not attempt to determine actual demand among students, i.e., a body count. Accordingly, our approach differs from the limitation criticized by many scholars.\textsuperscript{59} Our primary goal, however, was not to develop a tool for compliance with Title IX, but to assess the role of demand and demand potential in defining gender equity. The following section will describe the development of the measurement instrument, the methodology used, and the results.

There are two problems associated with the measurement of demand that must be overcome. First, there is a conceptual problem: What is it that must be measured? In a classic economic sense, demand is a measure of how many units were purchased. The purchase of goods or services requires the combination of the ability to afford a product and the willingness to buy it. The presence of both does

\textsuperscript{55} Id. at 8 (Institution E).
\textsuperscript{56} Id. (Institution F).
\textsuperscript{57} Id.
\textsuperscript{59} See supra note 58.
not mean that an individual will indeed purchase the product. Demand potential is a measure of how many units would be purchased under a specified set of circumstances, of how many units could be sold. In the Title IX setting, demand measures how many student-athletes participated in the athletic, sports, and fitness programs at the institution. Demand potential is a measure of the units of athletic, sports, and fitness services that could be used if opportunities were available. Since demand potential is a function of both interest and ability, it is predictable that the greater the interest in and the better the ability to participate, the greater will be the demand potential for the athletic participation. The presence of interest or ability may not lead directly to behavior intention, or subsequently to behavior, but interest and ability are necessary predicates to the intention to participate. Intention to participate precedes participatory behavior. That is, there may be a difference between demand potential and demand. Do we do what we like, or do we like what we do?

Second, there is a need to deal with the issue of whether a measurement is good or valid. Whether or not what was intended to be measured is actually being measured presents the validity dimension. Whether or not the measures that are developed will be stable presents the reliability dimension. The objective of the research is to develop and refine and then assess the validity of a scale to measure student demand potential for athletic participation opportunities at the University of New Mexico. Malholtra makes it clear that assessing the reliability of a scale involves the use of precise measures. Testing for scale validity involves a different orientation. The first approach is for the researcher to judge the content validity of the scale. Does the scale appear to be measuring what it is supposed to be measuring? A second approach available to the researcher in judging the validity of a scale is construct validity. With this approach, a researcher attempts to answer the theoretical questions about why the scale works the way it does. These two approaches are clearly limited by the subjective nature of the process. A third approach is predictive validity pursuant to which the researcher asks if the scale performs as expected in relation to other variables selected as meaningful criteria. While the latter presents greater precision, the subjective nature of the process remains in the variables chosen as criterion variables. To judge the validity of the scales in the

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60. See George, supra note 45, at 657.
61. Id.
63. See Malholtra, supra note 62.
64. Id.
measurement instrument at hand, we have chosen to use the more precise option of predictive validity. The process involves creating measures of demand potential for athletic, sports, and fitness activities and then developing a predictive model using other variables as criterion variables. The guide to this process is what seems to be a reasonable explanation for the demand potential for these types of activities.

A. Developing the Model to Assess Validity

A review of the literature reveals that there are two approaches to the question of why people would demand and subsequently engage in fitness, athletic, or sports activities. The first perspective looks at variables that have an impact on the decision to engage in the activity. Examples of that perspective involve literature showing a relationship between motivation and leisure activity, differences in various socioeconomic variables and sports participation, an effect on subsequent education, occupational status attainment and earnings, and mixed effects on social status of athletic activities. The other theme in the literature views involvement in fitness, athletic, and sports activities as the result of a decision process. Literature of that type has compared various paradigms representing the decision process and applied a general model to the process of involvement with athletic activities. The work of Ajzen & Driver is particularly relevant to this effort. The variables that they propose are related to leisure behavior intention are attitude, subjective norms, and behavioral control. Additional works by Reid and Crompton convincingly corroborate involvement as an explanatory variable.

66. Elmer Spreitzer & Eldon E. Snyder, Correlates of Participation in Adult Recreational Sports, 10 J. Leisure Res. 27 (1983).
71. Ajzen & Driver, Application, supra note 70, at 211.
Equally convincing are arguments that all the variables are subject to behavioral control in the form of constraints.\textsuperscript{72}

\textit{B. The Survey}

Aggregate demand potential for fitness, intramural sports, and intercollegiate athletic activities was the dependent variable in this study. This variable was measured by the six statements reflected in Exhibit 2 under demand potential. The demand potential for sports activities as a reflection of interest and ability has been studied by other researchers including the NCAA. Notable in these works is the view that the demand potential for leisure activities is not restricted to intercollegiate athletics. The use of fitness, intramural, and intercollegiate activities is consistent with this view. The statements were presented to the respondent, with a six-point Agree-Disagree response format. A score was derived by first multiplying three interest statements by the three ability statements and then summing. That procedure produced a demand potential score with limits of 3 to 108.

The independent variables we chose to use were Attitude, Norms, and Involvement. Attitude is a predisposition to behave. Structurally, attitudes contain cognitive, conative, and behavioral components which combine to form a series of evaluative beliefs about an object or behavior in question. We expected that attitude would be positively related to demand potential for fitness, sports, and athletic services at the University of New Mexico. The variable was operationalized as a set of fourteen bi-polar adjective pairs. Those pairs are presented in Exhibit 1. The scales were presented to the respondents as a six-point scale, instead of the original seven-point scale. The items were randomly rotated so that the favorable or good side of the pair was not always on the same side of the scale. The responses were later rotated so that the good end of the scale, for instance, useful, active, etc. was scored a six. The rotated responses were then summed for each respondent. The Attitude variable had limits from 14 to 84.

Subjective norms are a social variable that measures the extent to which important referent individuals or groups would approve or disapprove of performing the behavior.\textsuperscript{74} We expect that subjective norms would be positively related to

\textsuperscript{73} See sources cited supra note 72.
\textsuperscript{74} See Ajzen & Driver, Prediction, supra note 70, at 187.
demand potential for fitness, sports, and athletic services at the University of New Mexico. The operational statements used to measure this construct are presented in Exhibit 2 under Social Norms. The statement was presented to the respondent and the response format was a six-point Agree-Disagree scale. The six-point scale was consistent with previous work but the response format was modified to facilitate administration of the questionnaire. The resulting Norms score had limits of 6 to 36.

Involvement is a construct which measures the intensity of the behavior, particularly the intensity of the commitment to the activity. Leisure activities have been shown to be characterized by a high level of involvement. High involvement decisions are often characterized as those which are important to us and are typically related to higher levels of financial and temporal commitment. The use of involvement as a construct is consistent with other work in the field. We expected that involvement would be positively related to demand potential for fitness, sports, and athletic services at the University of New Mexico. This variable was operationalized by the six statements presented in Exhibit 2. The statements were presented to the respondent for response using a six-point Agree-Disagree format. The Involve score was derived by summing across the six statements. The score had a limit of 6 to 36.

C. Sampling

The population of interest was students enrolled at the University of New Mexico during the Fall of 1996. From student records a sample frame was developed which took into account the willingness of the sample to be interviewed. Using a systematic procedure (every n\textsuperscript{th} name) from student records, a list of 1500 undergraduates on the Albuquerque campus was produced by the Computer and Information Resources and Technology Center. The interviewers were trained in questionnaire administration and in respondent selection. The students from the list of undergraduates were called and asked to participate in the research. A mutually agreeable time and place for data collection was established, and the data was collected. Response rates are difficult to estimate because of the mutually agreeable rule established by the interviewers. There were no estimates of error produced by non-response.

The data was collected from those students using personal interviews. Following data collection, the data was then entered into a spreadsheet. The data was then verified to insure that the interview had been conducted. Any

75. See sources cited supra note 72.
76. See Reid & Crompton, supra note 69, at 182.
questionable interviews were eliminated from the sample. All remaining questionnaires were then 100% item verified and edited. Data editing was accomplished by insuring that the responses from the interviews were accurately entered into the datafile. Errors in the file were corrected to the extent possible, and any errors which could not be corrected were considered missing data on a variable level basis. The final usable sample size was 308.

Data analysis to assess the validity of the demand potential measure was accomplished in two steps. The first step in the data analysis process was testing the null hypothesis of no relationship among the variables by regressing demand potential on the measures of Attitude, Involve, and Norms. The second step was to provide additional evidence of the validity of demand potential, testing the null hypothesis of no relationship between demand potential and intention to participate in athletic, sports, and fitness activities.

III. RESULTS

Univariate results from the data analysis are presented in Table Ia. The sample distribution of demand potential had a mean of 58 with standard deviation of 27. In the sample, the Attitude score had a mean of 67 and a standard deviation of 11. The Subjective Norms variable in the sample had a mean of 23 and a standard deviation of five. And the Involve variable had a mean of 22 and a standard deviation of eight. The valid number of responses takes into account the missing values for each of the variables.

The results of the regression analysis are presented in Tables 2b-1 to 2b-3. The results confirm the hypothesis of a relationship between antecedent causal conditions and demand potential for athletic, sports and fitness services on the part of the students at the University of New Mexico. This is evidence of the predictive validity of the scales. The probability of finding these results by chance is very small. The null hypothesis of no significant relationship is rejected. The causal model accounts for 29% of the variability in demand potential; the univariate null hypotheses that the coefficients of the constant and the three variables are equal to zero is rejected in the case of Attitude and Norms, but not in the case of Involve. These results suggest that involvement does not contribute to demand for sports, athletic, and fitness activities. Of the independent variables, Attitude carries the greatest weight ($b_{\text{Attitude}} = .33$), followed by Norms ($b_{\text{Norms}} = .17$).

Additional support for the validity of the measures is provided by testing the correlation between demand potential and intention to participate in sports, athletic, and fitness activities. The prediction would be that as demand potential increases,
so does intention to participate. This data was collected as interval data, so Pearson's Correlation was used to analyze the data. The results are presented in Table 3. In the case of intercollegiate athletics, the correlation was positive and moderately strong \((r = 0.40, p(r) = .00)\); regarding intramural sports, the correlation was also positive and moderately strong \((r = 0.53, p(r) = .00)\). The null hypothesis of no relationship between demand potential for services and intention to participate in athletic and sports activities is rejected. Taken together, these findings support the validity of the measure of demand potential for athletic, sports, and fitness services.

Having tested the validity of the measure of demand, we observed a number of interesting results.

**A. There is a gender difference in aggregate demand potential.**

Is the underlying assumption of the administrative and judicial interpretations of Title IX that interest and ability are equally dispersed among genders supported by the data from our sample? To test null hypothesis of demand equivalence between groups based on gender, a t-test for independent samples was performed. The results of the test of the null hypothesis of equality of demand potential between males and females is shown on Table 4. The results require an explanation. Demand potential is a computed variable which has no counterpart in the consumption of services. It has no units; instead, it is a score calculated for each respondent. In our project, the scores had a mean difference of about twenty. The variances for the distributions were equal. The results show that the null hypothesis should be rejected in favor of the alternative. Aggregate demand potential by males for sports, athletic and fitness activities is greater than the demand potential for the activities by females \((t = 3.80, p(t) < .00)\). If each point on the demand potential scale represented one unit of service demand, the males in the sample would be expected to demand 59% of services. These results do not support the assumption of equivalency of demand between males and females.

**B. There is a gender difference in demand potential for specific types of activities.**

Another question of interest was whether the findings were common to individual athletic, sports, and fitness services. We partitioned demand potential into three components: intercollegiate, intramural, and fitness activities. The results regarding intercollegiate athletics and intramural mirror the global findings. There
are significant differences in the demand potential for intercollegiate athletics, intramurals, and fitness services. Using the same explanation as for aggregate demand potential, if one unit on the scale represented a unit of services used, males would demand 57% of the intercollegiate and intramural services and 52% of the fitness services.

This portion of the analysis was conducted by activity category, excluding the forty-six respondents who did not participate. The results of the analysis of the data are presented in Tables 6 and 7. We investigated other issues: What is the distribution of participation in the athletic, sports and fitness categories relative to the sample? What is the distribution of participation based on gender? Table 6 shows the result of the analysis of the data used to answer this question. Males comprise 53% of in the sample participating in intercollegiate athletics; of the males in the sample, nine percent are involved in intercollegiate athletics, compared to 5% of the females in the sample. Of those involved in club athletic activity, 58% are female. Nine percent of the males are involved in club athletic activity, compared to eight percent of the females in the sample. Of those respondents involved in intramurals, 51% are female. They represent 12.5% of the females in the sample, compared to 20% of the males. Males account for 49% of those involved in organized athletic activities (36% of the males in the sample). Fifty-one percent of those involved in organized sports activities are female (22% of the females in the sample). Of the respondents engaging in informal activities, 64% are female while 36% are male; that represents 81% of the females in the sample and 77% of the males. Females account for about 50% of those involved in athletics, sports, and fitness activities. The notable exception is intercollegiate athletics (47%), and informal activities, where 64% of the participants are female.

C. There is a gender difference in the intention to participate.

One of the intervening steps in the behavioral process to participate in athletic, sports, and fitness activities is intention to participate. Circumstances may prohibit a person with demand potential from actually using the services offered by the university. As shown in Table 5, there is a significant gender difference in intention to participate. In the case of both intercollegiate athletics and intramurals, males have higher levels of intention to participate. Critics of Title IX may find support in the findings of gender differences in favor of males. However, a word of caution is warranted. The intention to participate is directly relevant to the level of demand potential and it, in turn, is heavily influenced by social norms. This finding provides support for the assertion by the courts in Cohen III and other cases that studies of demand reflect the results of the historical disparity.
D. There is a gender difference in participation time commitment.

An indicator of the intensity of the participation is the amount of time devoted to the athletic, sports, and fitness activity by members of the sample engaged in those activities. As shown in Table 7, the total weekly time commitment devoted to athletic, sports, and fitness activities averages about nine hours per week. Time allocation by type of activity is skewed by those students involved in intercollegiate athletics; the other activities average is about one-third of that total. It is interesting to note that males, in the aggregate, devote a significantly greater number of hours per week to participation activities. Any differences between males and females are not present in comparing time allocation in the disaggregate activities. This effect is probably due to the number of participants in each of the groups and the differences in the group variances and not to any substantive differences between the groups. The failure to reject the null hypothesis means we cannot rule out the possibility that males and females allocate about the same amount of time to participation in athletic, sports, and fitness activities per week.

IV. IMPLICATIONS OF A DEMAND POTENTIAL STUDY

We undertook the study to gain an understanding of the role of demand in the allocation of participation opportunities rather than to make a case for an alternative method for determining compliance with Title IX. At the conclusion of the study, we continue to believe in the basic insight with which we began. Relative demand potential is relevant to the allocation of the supply of participation opportunities for universities that do not usually offer a sport in the absence of sufficient demand potential. Similarly, decisions about the allocation of resources depend in part upon future demand potential, independent of Title IX. We now also believe that relative demand potential should be useful to a university in developing a plan to comply with the dual obligations imposed under Title IX to avoid future acts of discrimination and to remediate past discrimination. Neither the Regulations nor the Policy Interpretation clearly distinguish between these two goals. The duty not to

77. A university that satisfies the First Prong will satisfy both duties, but a university that satisfies the Second or Third Prong will satisfy its duty to avoid discrimination but not its duty to remediate, although it is likely making progress. This distinction forms the basis of the disagreement between Title IX proponents and some universities over the primacy of the substantial proportionality standard. Since a university that satisfied the Second or Third Prong will not have immediate liability for the
discriminate requires that institutions cease from discriminating. The duty to remediate requires an assessment of the harm caused by that past discrimination and then action to compensate for, and to undo the effects of, the past discrimination. Courts likewise construe both the Regulation and the Policy Interpretation without distinguishing between the two.

A demand potential study shows what the gender composition of the athletic program would be if a university provided a sufficient supply of participation opportunities to satisfy the potential demand. Our study does not provide a body count of athletes. Instead, what we show is how much participation would be consumed by each gender if demand potential was fully satisfied. Even under the Policy Interpretation a university would not be engaged in prohibited discrimination if it completely satisfied the demand potential and still had a disparity between the gender composition of its student body and its athletic program.

The critical question that a university has to resolve though is how it should allocate participation opportunities when it will not satisfy completely the demand potential. Title IX prohibits a university from discriminating on the basis of sex in making the allocation. The underlying premise of the Policy Interpretation is that a university does not discriminate on the basis of gender as long as the relative allocation of participation opportunities is substantially proportionate to the composition of the student body. If that premise is based on the view that the probability of a male or female student having an athletic opportunity should be identical, the standard is flawed because it includes students, male and female, who do not demand a participation opportunity. Relative demand potential provides a more accurate barometer for determining when the probabilities that a male with interest and ability, and that a female with interest and ability, will be provided an equal participation opportunity. Using demand potential allows a university to equalize the probabilities among those who have the realistic potential of demanding an opportunity.

violation of either duty, the proponents argue that the substantial proportionality standard is merely of equal dignity. However, a university that prevails today under the Second or Third prong may nevertheless be liable tomorrow if the substantial proportionality standard has not been satisfied. That is precisely what happened to Brown University; ten years before Cohen, it could have prevailed under the Second Prong.

78. Each sport has a recruiting budget that allows the coaching staff to identify the more talented athletes among the millions who compete at the high school level. It narrows the pool of such athletes that it will give a closer look. From those it offers the limited number of scholarships available. Critics have argued that this selection process has the effect of predetermining the gender composition of the athletic program. Cohen I, 809 F. Supp. at 978. That is true but that observation tends to obscure another equally obvious one. Most intercollegiate athletic participation opportunities are not offered or made available to all students; they are offered to a select few interested and able athletes.

79. This analysis can be demonstrated with a variation of the Shook example. Suppose Aaah U.
Our study does provide a theoretical framework for the equalization of the probabilities of selection among interested and able athletes. Remediation of the historical disparity may be attained by reaching the equalization point. However, we think remediation necessarily involves increasing the participation opportunities available to females and that demand potential is useful in the development of a plan to increase participation opportunities for females.

The plan would have two parts. First, a university would plan to add participation opportunities until they were allocated in proportion to relative demand potential as measured. The attractiveness of using this approach is that the demand potential of females would be expected to increase as more opportunities to participate are made available because demand potential is significantly influenced by social norms and involvement.

Second, because the gap in relative demand potential should be expected to narrow over time, the plan should contemplate the continuing measurement of demand potential and the continued expansion of opportunities for females. Moreover, adding opportunities based on demand potential should lead to the constant satisfaction of the full and effective accommodation standard as well. The major weakness of the relative demand potential standard is the major strength of the substantial proportionality standard. The latter provides far more administrative convenience in ascertaining and applying requisite measure.

The dual obligations present a compliance conundrum that demand potential may or may not be useful in resolving ostensible discrimination against males inherent in adding participation opportunities for females. Until a university has attained the selection equilibrium in its allocation of participation opportunities, it is not in compliance with its obligation not to discriminate or its obligation to remediate. This is true whether a school uses the substantial proportionality standard or the relative demand potential standard. In our study, for example, we found that males demanded 57% of the participation opportunities and females 43%. The university would have an obligation to add additional participation for historically provided 275 participation opportunities to males. The gender composition of the student body is 50/50. It measures demand potential and determines that males demand 55%, and females 45% of athletic participation opportunities. Its obligation to remediate past discrimination would require it to add participation opportunities for females until their participation opportunities constitute 45% of the total allocation. That would amount to 225 participation opportunities. The substantial proportionality standard does not equalize the probabilities of selection among athletes with interest and ability. In the foregoing example, suppose 50/50 male and female composition of the student body. The university would be required to add 270 slots for females instead of 230. After the university adds 230 females, however, the females selected for the remaining forty slots will have a higher probability of selection than similarly situated males with interest and ability.

This is consistent with the approach of the Pedersen court.
females until this allocation was obtained. Suppose the university offered 570 participation slots to males and 200 to females. It would be required to add 230 slots for females. The 571st male does not have an action for discrimination when the university adds the new slots open only to females. Such a male plaintiff would be asking the court to continue a system under which the probability that a male with interest and ability will be selected is greater than that of females with interest and ability.

Using relative demand potential instead of the substantial proportionality standard would result in modest differences in compliance outcomes in many programs. The administrative convenience problems could be resolved by assigning responsibility for conducting demand potential studies to the NCAA, sports conferences, or DOE or another federal agency. Such studies could be conducted periodically. Such studies would not be limited to the students on a single university campus at a specific point in time. Demand potential measures could be compiled nationally or regionally if the Pedersen court’s reasoning is followed. It would be unnecessary for individual universities to undertake the study, and prospective plaintiffs would not face the daunting task of challenging the university’s study or undertaking a study on their own.

There is another significant implication of our results. Following the structure of the three-prong test, remediation occurs only when the probabilities of selection have been equalized under the appropriate reference point. If our findings are accurate, it may not be possible in many cases to equalize the probability of selection without cutting opportunities for males. This is true whether the substantial proportionality standard or relative demand potential is used. The Second and Third Prongs alleviate this effect but merely provide temporary respites.

This reality is usually not confronted until a university faces budget cuts. If a university has not met its obligation to remediate the past, it is not discriminating against males in providing remediation to females. Likewise, once a university has met its remedial obligation, it should be allowed to reduce participation opportunities in accordance with the appropriate standard. Brown University followed this approach but used relative demand as opposed to relative demand potential or the substantial proportionality standard. Reducing only opportunities for males is not necessarily discriminatory because the university has in the past given males a higher probability of selection than it has for females. A university that has not fulfilled the obligation to remediate would thus ask that the law permit it to offer interested and able males a higher probability of participation than for similarly situated females.

The use of relative demand potential allows the university to make the cuts in a manner that is nondiscriminatory. Suppose the university offers 570 opportunities to males but only 200 to females; the university has not fulfilled its obligation to
remediate, and, accordingly, it may not reduce the participation opportunities to females. A male would not have a cause of action because the university has been disproportionately satisfying male demand for participation. Although the university measurement instrument shows that males demand only 57% of participation opportunities, it has been providing them with 74% of the supply.

We have written thus far in terms of the university’s obligation to add slots. The existing law permits a university to combine increases of participation opportunities for females with decreases in opportunities for males to satisfy its dual obligations. This concession to economic practicality, however, is inconsistent with the duty to remediate past discrimination. Suppose that after ten years of adding opportunities for females, a university allocates 570 slots to males and 400 slots to females where the male to female composition of its student body is 50/50 and relative demand potential is 57/43. Due to financial constraints, the university needs to eliminate fifty slots. Under the substantial proportionality standard, the university must take all fifty slots from the male program.81 Those cuts do not remediate past discrimination.82

Relative demand potential is a general reference point. It aggregates the demand potential for specific sports into one standard measure. So it is possible that the overall demand may be concentrated in a few sports.83 Suppose the demand potential for females substantially consists of the demand potential for basketball and volleyball. As the law now stands, the university must increase participation opportunities for females, but it may do so by adding other sports, but only if there is sufficient demand potential for those sports. A university may add softball

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81. This was not true for Brown University which recently settled the Cohen case. Under the terms of the settlement, the male to female ratio in athletics program must be within 3.5% of the male to female ratio in the student body. Mike Szostak, End in Sight for Title IX Case, Providence J.-Bull., June 24, 1998, at D1. For the 1997-98 academic year, Brown’s athletic participation ratio was within three percentage points of the student body ratio. Id. If Brown adds programs for men without adding programs for women or eliminates the latter, the ratios must be within 2.25%. According to Pedersen, Brown may be unique in having the level of interest and ability among women that it does.

82. Use of demand potential may lead to the combining of cuts in male and female programs. There would be substantially more cuts in the male program. Assuming that combining increases and decreases is appropriate, the university could satisfy its obligation to remediate by reducing male opportunities by 35 to 535. At that point, the allocation of participation slots would be proportionate to demand potential and the university must comply with its obligation not to make discriminatory allocations. Accordingly, the remaining fifteen slots should be cut from both programs in accordance with relative demand potential.

83. The ten high school sports with the highest participation rates for girls in 1994-95 were basketball, outdoor track and field, volleyball, fast-pitch softball, soccer, tennis, cross country, swimming and diving, field hockey, and slow-pitch softball. Ten Most Popular Girls Sports, NCAA News, Sept. 25, 1995, at 5, col. 1. But the participation of girls in basketball, the top sport, had almost has many girls (approximately 430,000) as the last five sports combined (approximately 470,000). Id.
because of the demand potential for basketball and volleyball. It is not clear what the university’s obligation would be if there was not sufficient demand potential for the softball team. Some scholars recognizing this condition have questioned whether Title IX might require universities to abandon the one team per sport model.84

V. CONCLUSION

We undertook this project seeking to learn the role demand played in the allocation of athletic participation opportunities. We have provided our findings and our analyses of demand. We believe that more work in this area would help bring about gender equity in athletic programs. In the long run, demand potential may remove the limitation that ties the growth of opportunities for females to those provided for males.

84 See, e.g., John C. Weistart, Can Gender Equity Find a Place in Commercialized College Sports, 3 Duke J. Gender L. and Pol’y 191, 244-45 (1996).
### Appendix

#### Exhibit 1

**Scales for the Measurement of Attitude**

<table>
<thead>
<tr>
<th>Scales</th>
<th>1</th>
<th>2</th>
<th>3</th>
<th>4</th>
<th>5</th>
<th>6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Foolish</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
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<td>4</td>
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<td>4</td>
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</tr>
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<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Active</td>
<td></td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Boring</td>
<td></td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Enjoyable</td>
<td></td>
<td>2</td>
<td>3</td>
<td>5</td>
<td>6</td>
<td></td>
</tr>
<tr>
<td>Unpleasant</td>
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<td>3</td>
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<td>4</td>
<td>6</td>
<td>5</td>
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<td>Attractive</td>
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<td>3</td>
<td>4</td>
<td>6</td>
<td></td>
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<tr>
<td>Desirable</td>
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<td>3</td>
<td>4</td>
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<tr>
<td>Entertaining</td>
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<td>2</td>
<td>3</td>
<td>4</td>
<td>5</td>
<td>6</td>
</tr>
</tbody>
</table>

Wise, Beneficial, Useful, Weak, Passive, Interesting, Not enjoyable, Pleasant, Bad, Unattractive, Undesirable, Beautiful, Negative, Not entertaining
EXHIBIT 2

STATEMENTS USED FOR MEASUREMENT

INvolvement
I am very interested in keeping up with events by following news about athletic, fitness, and sports activities.
I am very interested in watching athletic, fitness, and sports events on TV.
I am very interested in listening to athletic, fitness, and sports events on radio.

Social Norms
When I was growing up, my family frequently attended sporting events.
When I was growing up, attending sports events gave me a sense of satisfaction.
When I was growing up, my friends and I frequently attended sporting events.
My friends encourage me to participate in competitive athletic, fitness, and sports events.
When I was growing up, sports were very important to me.
My family encourages me to participate in competitive athletic, fitness, and sports events.

Demand Potential
I am very interested in participating in fitness activities.
I believe that I have the ability to participate in a fitness program at the University.
I am very interested in participating in intramural sports activities.
I believe that I have the ability to participate in sports or athletics at an intramural level at the University.
I am very interested in participating in intercollegiate athletic activities.
I believe that I have the ability to participate in sports or athletics at an intercollegiate level at the University.
INTENTION TO PARTICIPATE

I plan to participate in intramural sports or athletics in the next 12 months.
I plan to participate in intercollegiate sports or athletics in the next 12 months.
EXHIBIT 3

DEFINITIONS USED AND QUESTIONS ASKED TO ESTIMATE PARTICIPATION RATES AND TIME USE

**INTERCOLLEGIATE** teams have a head coach, staff, and a competitive schedule against other colleges and universities.

Over the last twelve months, have you participated in any INTERCOLLEGIATE athletic, fitness, or sports activities?

How many hours per week do you spend doing team activities (participation, traveling, practicing)?

**CLUB** programs are student-run, generally have a faculty advisor, have an established practice schedule and a schedule of contests against other club teams.

Over the last twelve months, have you participated in any CLUB athletic, fitness, or sports activities?

How many hours per week do you spend doing team activities (participation, traveling, practicing)?

**INTRAMURALS** are informal and open to all students. They can be either competitive (involve contests among other teams) or non-competitive (do not involve competition, provide opportunity for fitness and recreation). They can include scheduled and non-credit classes and open hours at gyms, pools, and other facilities.

During the last twelve months, have you participated in any INTRAMURAL athletic, fitness, or sports activities?

How many hours per week do you spend doing INTRAMURAL activities
(participation, traveling, practicing)?

An ORGANIZED activity sometimes has a coach, there are judges or referees, records are kept, and prizes are awarded. They can be sponsored.

During the last 12 months, have you participated in any ORGANIZED athletic, fitness, or sports activities?

How many hours per week do you spend doing ORGANIZED activities?

INFORMAL activities are those athletic, sports, or fitness activities that you do on your own, with other students and friends.

During the last 12 months, have you participated in any INFORMAL athletic, fitness, or sports activities?

How many hours per week do you spend doing INFORMAL activities?
### TABLE 1a

**UNIVARIATE DESCRIPTIVE STATISTICS**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Mean</th>
<th>Std dev</th>
<th>n</th>
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</thead>
<tbody>
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<td>Demand Potential</td>
<td>57.76</td>
<td>27.29</td>
<td>302</td>
</tr>
<tr>
<td>Attitude</td>
<td>67.60</td>
<td>11.22</td>
<td>304</td>
</tr>
<tr>
<td>Norms</td>
<td>23.27</td>
<td>5.07</td>
<td>296</td>
</tr>
<tr>
<td>Involve</td>
<td>21.90</td>
<td>7.91</td>
<td>298</td>
</tr>
</tbody>
</table>
TABLE 2b-1

MULTIPLE REGRESSION RESULTS SUMMARY STATISTICS

<p>| | |</p>
<table>
<thead>
<tr>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>Multiple R</td>
<td>0.55</td>
</tr>
<tr>
<td>R Square</td>
<td>0.30</td>
</tr>
<tr>
<td>Adjusted R Square</td>
<td>0.29</td>
</tr>
<tr>
<td>Standard Error of Prediction</td>
<td>23.17</td>
</tr>
</tbody>
</table>

TABLE 2b-2

MULTIPLE REGRESSION RESULTS ANALYSIS OF VARIANCE

<table>
<thead>
<tr>
<th>Source</th>
<th>Sum of Squares</th>
<th>df</th>
<th>Mean Square</th>
<th>F-ratio</th>
<th>p(F)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Regression</td>
<td>64887.22</td>
<td>3</td>
<td>21629.07</td>
<td>40.29</td>
<td>0.00</td>
</tr>
<tr>
<td>Residual</td>
<td>151927.19</td>
<td>283</td>
<td>536.85</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

TABLE 2b-3

MULTIPLE REGRESSION RESULTS UNIVARIATE TEST OF COEFFICIENTS

<table>
<thead>
<tr>
<th>Variable</th>
<th>B</th>
<th>SE B</th>
<th>Beta</th>
<th>t-value</th>
<th>p(t)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Attitude</td>
<td>0.79</td>
<td>0.15</td>
<td>0.33</td>
<td>5.45</td>
<td>.0000</td>
</tr>
<tr>
<td>Norms</td>
<td>1.11</td>
<td>0.44</td>
<td>0.21</td>
<td>2.54</td>
<td>.0116</td>
</tr>
<tr>
<td>Involve</td>
<td>0.37</td>
<td>0.27</td>
<td>0.17</td>
<td>1.37</td>
<td>.1725</td>
</tr>
<tr>
<td>(Constant)</td>
<td>-29.72</td>
<td>8.90</td>
<td>3.34</td>
<td>.0010</td>
<td></td>
</tr>
</tbody>
</table>
TABLE 3

MATRIX OF PEARSON CORRELATION COEFFICIENTS

<table>
<thead>
<tr>
<th>Intention</th>
<th>Intramural Demand</th>
<th>Intercollegiate Demand</th>
<th>Intramural Intention</th>
<th>Intercollegiate Intention</th>
</tr>
</thead>
<tbody>
<tr>
<td>Demand for Intramural Sports Activities</td>
<td>1.00</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Demand for Intercollegiate Athletic Activities</td>
<td>0.72 (.00)</td>
<td>1.00</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Intention to Participate in Intramural Sports Activities</td>
<td>0.53 (.00)</td>
<td>0.40 (.00)</td>
<td>1.00</td>
<td></td>
</tr>
<tr>
<td>Intention to Participate in Intercollegiate Athletic Activities</td>
<td>0.37 (.00)</td>
<td>0.55 (.00)</td>
<td>0.41 (.00)</td>
<td>1.00</td>
</tr>
</tbody>
</table>
TABLE 4

RESULTS OF THE TEST OF DIFFERENCES IN DEMAND BETWEEN MALES AND FEMALES

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Demand</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>75.3</td>
<td>53.2</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>26.8</td>
<td>26.7</td>
</tr>
<tr>
<td>n</td>
<td>114</td>
<td>188</td>
</tr>
<tr>
<td>(t = 3.80, p(t) = .00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Demand for Intercollegiate Ath. Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>17.5</td>
<td>13.0</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>10.6</td>
<td>10.3</td>
</tr>
<tr>
<td>n</td>
<td>114</td>
<td>189</td>
</tr>
<tr>
<td>(t = 3.59, p(t) = .00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Demand for Intramural Sports Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>24.13</td>
<td>18.77</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>10.20</td>
<td>10.36</td>
</tr>
<tr>
<td>n</td>
<td>116</td>
<td>190</td>
</tr>
<tr>
<td>(t = 4.42, p(t) = .00)</td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>Demand for Fitness Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>23.83</td>
<td>21.49</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>9.34</td>
<td>9.85</td>
</tr>
<tr>
<td>n</td>
<td>115</td>
<td>190</td>
</tr>
<tr>
<td>(t = 2.03, p(t) = .04)</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
**TABLE 5**

RESULTS OF THE TEST OF DIFFERENCES IN PARTICIPATION INTENTION BETWEEN MALES AND FEMALES

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intention to Participate in Intercollegiate Ath. Act.</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>2.4</td>
<td>2.1</td>
</tr>
<tr>
<td>Std. dev.*</td>
<td>1.5</td>
<td>1.2</td>
</tr>
<tr>
<td>n</td>
<td>116</td>
<td>190</td>
</tr>
</tbody>
</table>

(t = 2.17, p(t) = .03)

| Intention to Participate in Intramural Sports Act. |      |        |
| Mean                     | 3.2  | 2.6    |
| Std. dev.                | 1.7  | 1.6    |
| n                        | 116  | 190    |

(t = 3.04, p(t) = .00)

* t-test for unequal variances was used
TABLE 6

PARTICIPATION IN INTERCOLLEGIATE, INTRAMURAL, AND FITNESS ACTIVITIES BY MALES AND FEMALES

<table>
<thead>
<tr>
<th>Participation in Intercollegiate Athletic Activities</th>
<th>Male</th>
<th>Female</th>
<th>Total</th>
</tr>
</thead>
<tbody>
<tr>
<td>n</td>
<td>10</td>
<td>9</td>
<td>19</td>
</tr>
<tr>
<td>% of participants</td>
<td>52.63</td>
<td>47.37</td>
<td>100</td>
</tr>
<tr>
<td>% of group</td>
<td>8.70</td>
<td>4.69</td>
<td>6.19</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participation in Club Athletic Activities</th>
<th>n</th>
<th>% of participants</th>
<th>% of group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>11</td>
<td>42.31</td>
<td>9.48</td>
</tr>
<tr>
<td></td>
<td>15</td>
<td>57.69</td>
<td>7.85</td>
</tr>
<tr>
<td></td>
<td>26</td>
<td>100</td>
<td>8.47</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participation in Intramural Sports Activities</th>
<th>n</th>
<th>% of participants</th>
<th>% of group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>23</td>
<td>48.94</td>
<td>20.00</td>
</tr>
<tr>
<td></td>
<td>24</td>
<td>51.06</td>
<td>12.50</td>
</tr>
<tr>
<td></td>
<td>47</td>
<td>100</td>
<td>15.31</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participation in Organized Athletic Activities</th>
<th>n</th>
<th>% of participants</th>
<th>% of group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>42</td>
<td>49.41</td>
<td>36.21</td>
</tr>
<tr>
<td></td>
<td>43</td>
<td>50.59</td>
<td>22.40</td>
</tr>
<tr>
<td></td>
<td>85</td>
<td>100</td>
<td>27.69</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Participation in Informal Activities</th>
<th>n</th>
<th>% of participants</th>
<th>% of group</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>89</td>
<td>36.48</td>
<td>77.39</td>
</tr>
<tr>
<td></td>
<td>155</td>
<td>63.52</td>
<td>80.73</td>
</tr>
<tr>
<td></td>
<td>244</td>
<td>100</td>
<td>79.48</td>
</tr>
</tbody>
</table>
TABLE 7

RESULTS OF THE TEST OF DIFFERENCES IN TIME USE
BETWEEN MALES AND FEMALES

<table>
<thead>
<tr>
<th></th>
<th>Male</th>
<th>Female</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Total Time</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>11.5</td>
<td>7.7</td>
</tr>
<tr>
<td>Std. dev.*</td>
<td>12.8</td>
<td>10.4</td>
</tr>
<tr>
<td>n</td>
<td>101</td>
<td>155</td>
</tr>
<tr>
<td><strong>Time Use for Intercollegiate Ath. Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>21.1</td>
<td>11.8</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>11.6</td>
<td>8.4</td>
</tr>
<tr>
<td>n</td>
<td>10</td>
<td>9</td>
</tr>
<tr>
<td><strong>Time Use for Club Ath. Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>5.7</td>
<td>7.8</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>4.8</td>
<td>7.5</td>
</tr>
<tr>
<td>n</td>
<td>12</td>
<td>15</td>
</tr>
<tr>
<td><strong>Time Use for Intramural Sports Activities</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.9</td>
<td>4.6</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>6.2</td>
<td>5.2</td>
</tr>
<tr>
<td>n</td>
<td>22</td>
<td>20</td>
</tr>
<tr>
<td><strong>Time Use for Organized Sports Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>8.1</td>
<td>5.5</td>
</tr>
<tr>
<td>Std. dev.*</td>
<td>10.1</td>
<td>5.5</td>
</tr>
<tr>
<td>n</td>
<td>42</td>
<td>41</td>
</tr>
<tr>
<td><strong>Time Use for Informal Sports Act.</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mean</td>
<td>4.9</td>
<td>4.3</td>
</tr>
<tr>
<td>Std. dev.</td>
<td>3.9</td>
<td>3.5</td>
</tr>
<tr>
<td>n</td>
<td>88</td>
<td>152</td>
</tr>
</tbody>
</table>

* t-test for unequal variances was used