
A Critique of the Equity Index Method

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Background: Evaluating diversity, inclusivity, and equity remains both a prevalent topic in education and a difficult challenge for most evaluators. Traditional metrics used to evaluate these constructs include questionnaires, focus groups, and anonymous comment solicitations. While each of these approaches offer value, they also possess a number of limitations (e.g., self-reported nature, holistic perspective, social desirability bias, varying degrees of respondent sensitivity, representative responses, etc.). Researchers at the University of Southern California have successfully utilized the Equity Index Method (EIM) as a potential approach for measuring diversity and reporting diversity-related outcomes.

Purpose: Provide a critique of the EIM and discusses how the EIM could be improved and extended to other evaluation contexts and settings.

Setting: Not Applicable.

Intervention: Not Applicable.

Research Design: Not Applicable.

Data Collection and Analysis: Not Applicable.

Findings: Despite the potential for problems with interpretations based on small samples and subgroups and some concerns about semantics involving the term “equity”, we believe the EIM possesses a number of strengths that many evaluators will find useful. We encourage other evaluators to consider this method and explore its utility in a variety of contexts.

Keywords: *equity; equity index method; applications.*

Introduction

Evaluating diversity, inclusivity, and equity remains both a prevalent topic in education and a difficult challenge for most evaluators. Traditional metrics used to evaluate these constructs include questionnaires (e.g., campus climate surveys, senior exit surveys, etc.), focus groups, and anonymous comment solicitations. While each of these approaches offer value, they also possess a number of limitations (e.g., self-reported nature, holistic perspective, social desirability bias, varying degrees of respondent sensitivity, representative responses, etc.) As persons interested in evaluating this challenging construct we were intrigued by the Equity Index Method (EIM) (Hao, 2002; Bensimon, Bustillos & Hao, 2006; Hao and Malcom-Piqueux, 2014) as it provides a simple calculation that could be used to

discern matters of diversity, inclusivity and equity in a variety of settings. Hao (2002) and Bensimon, Bustillos & Hao (2006) define the EIM as “a measure of proportionality that assesses the extent to which some population of interest is equitably represented among individuals who have achieved a specific educational outcome”. Researchers at the University of Southern California (USC) have successfully utilized the EIM to analyze education data on a variety of indicators, such as access (e.g., enrollment), outcomes (e.g., degrees awarded), and excellence (e.g., high-value and high-priority fields and programs).

Equity Index Method

The Equity Index Method can be calculated via the following formula:

$$\text{Target Group's Equity Index for the educational outcome of interest} = \frac{\text{Target group with the educational outcome} \div \text{Total students with the educational outcome}}{\text{Target group in the reference population} \div \text{Total students in the reference population}}$$

Because equity is based on population proportions, Hao (2002) proposed the following interpretation guide:

Table 1
Equity Index Interpretation Guide

Performance Level	Equity Index Value	Description
High Performance	Greater than or equal to 1	At or above equity
Medium-High Performance	0.85 ≤ Equity Index ≤ 0.99	Almost at equity
Medium-Low Performance	0.70 ≤ Equity Index < 0.85	Below equity
Low Performance	Equity Index < 0.70	Far below equity

According to the proposed interpretation guide, values that approximate 1.0 represent equity, a score less than 1.0 is below equity, and a score greater than 1.0 is above equity.

Bensimon et al. (2006) offered the following fictitious example to illustrate the EIM and equity index interpretation. Suppose a graduating class of a high school consists of 1,000

students, with 400 (40%) being Latino. Now, suppose a total of 450 of these students enroll in the state’s flagship university, but only 45 (10%) are Latino. When the data are substituted into the formula, a measure of .25 is obtained. This value indicates the proportion of Latino students attending the flagship university is far below equity.

$$\text{Latino students' Equity Index for attending the flagship university} = \frac{45 \text{ Latino students enrolled in college} \div 450 \text{ total cohort college enrollment}}{400 \text{ Latino high school graduates} \div 1,000 \text{ total high school graduates}} = \frac{10\%}{40\%} = 0.25$$

For convenience, researchers at USC have published an online calculator at <http://cue.usc.edu/hsi/eq.html> for others to substitute values and produce equity calculations. Also on the website is a PowerPoint presentation with several useful examples of the EIM in practice.

Strengths of the Equity Index Method

The EIM possesses a number of strengths. As noted previously, the ability to apply the formula to a variety of indicators (e.g., enrollment, retention, degrees awarded, etc.) is particularly powerful. The EIM may also serve as a useful tool for internal benchmarking purposes, as longitudinal comparisons can be made to assess whether various demographic groups are performing in equitable ways. Further, the method is also appealing for its ease of use. For example, anyone with programmatic data (including demographic variables) can easily use the calculator to quantify potential equity gaps. The EIM may be a preferred alternative to statistical

approaches (e.g., chi-squared test, 2-proportion z-test, etc.) that attempt to investigate whether proportional differences exist between two groups.

Weaknesses of the Equity Index Method

Despite the aforementioned advantages, the EIM possesses a major vulnerability with regard to small samples and subgroups. This is particularly problematic given a significant amount of work with quantitative data involves small samples. Below, we will demonstrate the vulnerability of this method:

Suppose a classroom consists of 25 students: 20 (80%) are White and 5 (20%) are students of color. Suppose 17 of the 20 (85%) White students complete the course, and 3 of the 5 students of color (60%) complete the course. When we enter the appropriate values into the calculator we are given an Equity Index value of .75, indicating the students of color performed “below equity”.

$$\text{Students of color Equity Index for course completion} = \frac{3 \text{ students of color complete course} \div 20 \text{ total students complete the course}}{5 \text{ students of color enrolled in course} \div 25 \text{ total students enrolled in course}} = \frac{15\%}{20\%} = 0.75$$

Now, suppose 4 of 5 (80%) students of color successfully completed the course, and 16 of 20 (80%) White students also successfully completed the course. When we enter the appropriate values

into the calculator we are given an Equity Index value of 1.00, indicating the students of color performed “at or above equity”.

$$\text{Students of color Equity Index for course completion} = \frac{4 \text{ students of color complete course} \div 20 \text{ total students complete the course}}{5 \text{ students of color enrolled in course} \div 25 \text{ total students enrolled in course}} = \frac{20\%}{20\%} = 1.00$$

This example underscores the problem of proportional sensitivity with small samples. The performance of a single student from the target group caused the interpretation to jump from “below equity” to “at or above equity”, a stark contrast in results. Because of this vulnerability, we recommend the authors provide a note cautioning users about the inferential validity of index measures obtained from small group sizes, as the consequences of making inappropriate inferences about a program or subpopulation group can be devastating (e.g., programs may undergo an unnecessary redesign, receive funding

cuts, etc.). One suggestion to help ensure more valid inferences are made would be to offer guidelines based on either the smallest recommended sample size, or perhaps a range of sample sizes, as this would help ensure evaluators are not accidentally lead to potentially misleading conclusions.

A second significant concern with this method involves semantics, as the term “equity” may not be appropriate. In the context of social and diversity measurement the definition of equity typically pertains to fairness issues. Thus, simply because outcomes may result in proportional

differences across subpopulations does not necessarily imply issues of fairness had any influence on the results. We believe the term “equity” possesses additional connotations that could have unintended consequences for the use of this method. One prime example is the decreased likelihood that others will extend this method to other areas of assessment and evaluation simply because of its naming convention. We believe a more neutrally-charged and descriptive term for this method may be the “Proportional Differences Index”, or something similar. A more generic name to describe what is really taking place with the calculation would likely increase the visibility of this method, and its application to a variety of evaluation contexts.

Potential Applications of the Equity Index Method in Evaluation

As noted previously, the USC team of researchers have published numerous examples using the EIM with mostly Hispanic-serving institutions. However, the methodology could be easily extended to a number of additional scenarios. For example, the outcomes of virtually any subgroup could be evaluated based on a particular demographic characteristic (e.g., race/ethnicity, sex, gender, in-State vs. out-of-state residency status, household income levels, parents’ highest education level, first generation college student status, etc.). This makes the method particularly appealing as it may have broad applicability for evaluators.

An “Equity Index” value (or perhaps a “Proportional Demographic Outcomes Index”), possibly as a color-coded marker, would likely make a nice complement to traditional descriptive statistics on a score report, such as a dashboard or report card. The ability to quickly calculate an index of proportional outcomes success may be more useful than simply visualizing descriptive statistics alone. In the context of higher education diversity outcome metrics, this method could be useful for discerning proportional successes by various subpopulation groups. In the case of examination score reporting, this method could provide some quick diagnostics to assist evaluators with tests for item bias (e.g., Differential Item Functioning (DIF)). In the context of program evaluation, the method could be used to determine markers of success, such as performance levels, by a wide array of participant characteristics.

Conclusion

Despite the potential for problems with interpretations based on small samples and subgroups and some concerns about semantics involving the term “equity”, we believe this methodology possesses a number of strengths that many evaluators will find useful. We encourage other evaluators to consider this method and explore its utility in a variety of contexts.

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