Sociological Methods & Research

http://smr.sagepub.com

Capturing Gender-Based Microsegregation: A Modified Ratio Index for Comparative Analyses

Iris Jerby, Moshe Semyonov and Noah Lewin-Epstein

Sociological Methods Research 2005; 34; 122
DOI: 10.1177/0049124104269669

The online version of this article can be found at:
http://smr.sagepub.com/cgi/content/abstract/34/1/122

Published by:
SAGE
http://www.sagepublications.com

Capturing Gender-Based Microsegregation

A Modified Ratio Index for Comparative Analyses

IRIS JERBY
Tel-Aviv University, Israel

MOSHE SEMYONOV
Tel-Aviv University, Israel, and University of Illinois–Chicago

NOAH LEWIN-EPSTEIN
Tel-Aviv University, Israel

Comparative studies of occupational sex segregation have employed a variety of measures to estimate the extent of segregation across labor markets. In this article, the authors focus on two intrinsic limitations of the ratio index, which is derived from the log-linear framework: singularity for totally segregated occupations and sensitivity near the extremes. To capture the real essence of gender occupational segregation, it is necessary to examine rather detailed occupational categories. Such detailed occupational classification poses a problem for the ratio index since small occupations are more likely to be mono-gender occupations. The authors propose an alternative modified index that resolves both the singularity and the sensitivity problems by employing the "first-order approximation" of the logarithmic function. The modified index makes it possible to compute measures of microsegregation for detailed occupational categories. The advantages of the proposed index for comparative microsegregation analyses are illustrated and discussed.

Keywords: *segregation index; gender segregation; comparative analysis*

The two most frequently used measures in comparative studies of gender occupational segregation were the index of dissimilarity (e.g., Duncan and Duncan 1955a, 1955b; Blau 1977; Blau and Hendricks 1979) and the size-standardized index of dissimilarity (e.g., Gibbs 1965; Gross 1968; Jacobs and Lim 1992). The properties, advantages,

AUTHORS' NOTE: *We would like to thank Ms. Yasmin Alkalay for her devoted support with the computation work.*

SOCIOLOGICAL METHODS & RESEARCH, Vol. 34, No. 1, August 2005 122-136
DOI: 10.1177/0049124104269669

and limitations of these indices have been discussed extensively in the literature (e.g., Fossett and South 1983; Fossett 1984; James and Taeuber 1985; Semyonov, Hoyt, and Scott 1984; Charles and Grusky 1995; Watts 1998a, 1998b). A decade ago, Charles (1992) and Charles and Grusky (1995) proposed a new measure—the ratio index—for estimating gender-occupational segregation. According to their contention, the ratio index overcomes limitations associated with previous indices. The ratio index, which is derived from the log-linear model, is “margin free” and, in this respect, can be regarded as the measure of preference for the “future generation” of comparative segregation research. Despite its apparent advantage, the ratio index has already attracted some criticism (e.g., Watts 1998a, 1998b; Semyonov and Jones 1999).

In this article, we address two limitations of the ratio index—singularity for totally segregated occupations and sensitivity with regard to the inclusion of ultra-segregated occupations—and propose an alternative modified index that overcomes these limitations. In the final section, we use data for American cities to demonstrate the implications of using different indexes.

The ratio index is defined as follows (Charles 1992:489):[1]

$$R = \frac{1}{I}\sum_{i=1}^{I}\left|\ln\left(\frac{f_i}{m_i}\right) - \left[\frac{1}{I}\sum_{i=1}^{I}\ln\left(\frac{f_i}{m_i}\right)\right]\right|, \qquad (1)$$

where I is the total number of occupations in the market, i indexes occupation-specific identification, and f_i and m_i are the numbers of women and men, respectively, in the ith occupation. The ratio index resembles the variance formula in the sense that it measures the spread of the gender composition of the specific occupations (expressed by the natural logarithmic function) around their average $(\overline{R})$.[2] Since the ratio index measures dispersion, calculated results do not have a simple intuitive interpretation. Hence, a given result should be evaluated in a comparative context. Its innovative feature is that it simultaneously eliminates both forms of margin dependence. Hence, from the margin-free paradigmatic perspective, the ratio index can be regarded as the most appropriate index for comparative segregation research. It is mainly for this reason that its limitations should be considered and alleviated.

INTRINSIC LIMITATIONS OF GENDER SEGREGATION QUANTIFICATION BY THE RATIO INDEX

Although the margin-free ratio index has apparent advantages over previous measures of segregation, it suffers from two noteworthy limitations: singularity for mono-gender occupations and sensitivity to extreme values (ultra-segregated occupations).

Singularity occurs when one gender group is absent from an occupation. In such a situation, the logarithmic function attains plus or minus infinity ($\ln 0 = -\propto$), and the segregation index cannot be computed. Paradoxically, the index cannot handle what are arguably the most meaningful observations of the segregation phenomenon. This is particularly true when the units of observation are detailed occupational categories or jobs. Grusky and Charles (1998) emphasized that zero cells convey usable information, referring scholars to "well-developed methods for ransacking incomplete or sparse arrays" (p. 500). In general, these are external procedures. Weeden (1998:478), for example, inserted the expected values from a log-linear model that constrains segregation to be constant over adjacent decades, but only in those occupations with empty cells.[3] However, for cross-sectional analysis there is no equivalent to "adjacent decades." Thus, Weeden's procedure cannot be applied to cross-sectional analysis of occupational segregation.

Ignoring the possibility of excluding all mono-gender occupations from the computation, two distinct strategies can be employed to overcome singularity. First, mono-gender occupations may be grouped within broader occupational categories. This strategy is unsatisfactory since the fundamental character of the concept of segregation is embedded in what we define as *microsegregation*. This is due to the fact that contrasting segregation patterns in small categories nested in broad occupational categories may offset each other. Therefore, the use of large and inclusive occupational categories does not capture the real essence of segregation.[4] It is likely to underestimate the rate of segregation[5] since aggregated categories may include small, highly segregated, even mono-gender occupational categories. Indeed, Watts (1998) has criticized the ratio index on these grounds, noting that it "inhibits researchers from gaining insight into differences in the pattern of gender segregation" (p. 491).

The second strategy, which is typically employed, requires the researcher to manipulate the data array, most commonly by adding a trivial constant value (0.001) to the (empty) cells. This strategy has the advantage of including all occupations in the index construction; yet, it is problematic since it imposes an external solution, and the computed measures are highly sensitive to the values at the extremes of the distribution. That is, *the margin-free index is not free near the margins of the distribution*, where the phenomenon of segregation is most meaningful. Specifically, when occupations with very small numbers of either men or women (ultra-segregated occupations) are included in the analysis, the ratio index becomes highly unstable. Indeed, the sensitivity problem is most evident near the extremes.

To illustrate the sensitivity of the ratio index, we compressed the original values of the ratios f_i/m_i in the labor market of two metropolitan statistical areas (MSAs)—Abilene and Albany—by adding a small constant in several steps until the index obtained stable results.[6] The compression procedure was preformed symmetrically on both edges of the ratio distribution.[7] The original ratio index graphs for both cities, resulting from the progressive and accumulative nine-step compression procedure, are displayed in Figure 1. The "knee" form of both graphs, which tends to stabilize only after several compression steps, clearly illustrates the sensitivity magnitude of the ratio index. This procedure permits us to examine the sensitivity of the ratio index ($f(x)$) to small, constant accumulating changes in the ratios $f_i/m_i(x)$. As illustrated by the figures, the function ($f(x)$) expressed by the ratio index is quite sensitive to changes in the ratios $f_i/m_i(x)$[8] near the extremes. Figure 1 also illustrates the difference in results derived from the compression process as compared to the common solution. In Abilene, adding +0.001 to all data (according to the common method) leads to a calculated ratio of $R = 5.1$ (and $R = 4.6$ in the case of Albany), whereas the compressed ratio index for Abilene converges to $R = 2.4$ (and to $R = 2.2$ for Albany).

The two features associated with the ratio index—singularity and sensitivity—are intrinsic measurement deficiencies.[9] The extremes (meaning absolute segregated occupations, as well as ultra-segregated occupations), which are the phenomenon's core, cannot be captured

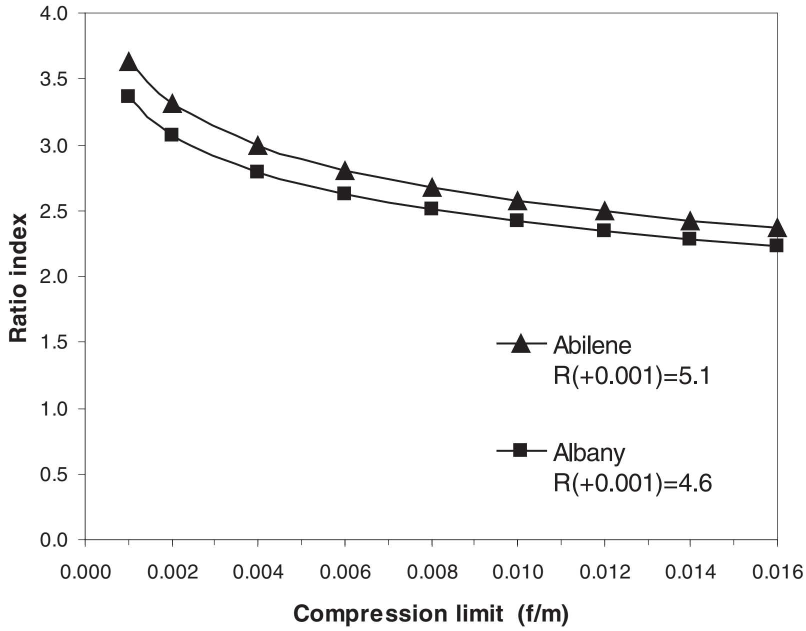

Figure 1: Values of the Ratio Index Obtained Through Different Compression Limits Demonstrating the Sensitivity to Data Manipulation

adequately by its quantification and yet cannot be dismissed as a marginal phenomenon.

The problem of singularity and sensitivity at the extremes is quite prevalent in the study of occupational segregation across local labor markets. To illustrate the scope of this problem, we refer to a sample of 10 MSAs drawn from the 1990 census, which are listed in Table 1. For each Metropolitan Statistical Area (MSA), we present the number of occupations that are mono-gender (i.e., all male or all female) and their percentage of the total number of occupations in the local labor market, listed at the detailed three-digit level. The data in Table 1 do not leave much doubt that mono-gender occupations comprise a large share of all occupations in the labor market. In Dubuque, Iowa, for example, 42 percent of the (three-digit) detailed occupations are mono-gender (75 percent of those are exclusively male[10]). In Albuquerque, New Mexico, "only" 22 percent of the occupations are mono-gender. Indeed, such a substantial number of mono-gender occupations can affect the results when applying indexes that ignore the problems of singularity and sensitivity. The actual extent of the "empirical-zero" problem should not be ignored or underestimated.

MODIFIED INDEX: FIRST-ORDER APPROXIMATION FOR THE LOGARITHMIC FUNCTION

To remedy the limitations associated with the ratio index and especially to overcome the singularity problem, we propose a modified index that replaces the logarithmic function by its first-order approximation (FOA). The desirable feature of the modified index, proposed here, is that it does not require prior manipulation of the data that may lead to inconsistency in findings and conclusions. It is a built-in solution (unlike other strategies, such as compression, shifting, or aggregating occupations, which are external to the index definition), and it is not sensitive to singularities.

The FOA of *lnx* near $x = 1$ is

$$x \approx 1 \Rightarrow \ln x \approx 2\frac{x-1}{x+1}. \tag{2}$$

Inserting this into the ln f_i/m_i term of the ratio index, we arrive at

$$r_i = \ln\frac{f_i}{m_i} \approx 2\frac{\frac{f_i}{m_i}-1}{\frac{f_i}{m_i}+1} \approx 2\frac{f_i-m_i}{f_i+m_i} \approx \frac{f_i-m_i}{\frac{n_i}{2}}. \tag{3}$$

Contextually, r_i is the ratio of the difference between women and men in the ith occupation to the value that could be considered as the *Ideal – Expected*:[11] $\frac{n_i}{2}$.

For an exclusively male occupation (complete absence of women), $f_i = 0$; therefore, $r_i = 2\frac{-m_i}{+m_i} = -2$ (instead of minus infinity, which would obtain in the ratio index).

For an exclusively female occupation (complete absence of men), $m_i = 0$; therefore, $r_i = 2\frac{f_i}{f_i} = +2$ (instead of plus infinity according to the ratio index).

When an occupation is gender balanced—namely, $f_i = m_i$,

$$r_i = 2\frac{0}{2f_i} = 0.$$

TABLE 1: The Number and Percentage of Mono-Gender Occupations and the Total Number of Occupations in 10 Selected American Cities (Metropolitan Statistical Areas [MSAs])

	(1) *Mono-Gender Occupations*			(2) *Mono-Gender Occupations*	(3) *Total Number of*
MSA	*Total*	*All Female*	*All Male*	*(Percentage)*	*Occupations*
40–Abilene, Texas	172	38	134	43	394
120–Albany, Georgia	147	39	108	38	382
160–Albany-Schenectady-Troy, New York	95	11	84	19	489
200–Albuquerque, New Mexico	104	14	90	22	460
220–Alexandria, Louisiana	171	36	135	43	389
1000–Birmingham, Alabama	89	10	79	18	480
1020–Bloomington, Indiana	165	43	122	41	397
1260–Bryan–College Station, Texas	177	40	137	44	396
1840–Columbus, Ohio	77	9	68	15	493
2200–Dubuque, Iowa	173	43	130	42	405

SOURCE: U.S. Bureau of the Census (1990).
NOTE: The actual number of occupations is less than the potential maximum of 509, reflecting the specific occupational structure of these MSAs.

When the FOA is applied, the R formula takes the following form:

$$R = \frac{1}{I}\sum_{i=1}^{I}\left|2\frac{f_i - m_i}{f_i + m_i} - \frac{1}{I}\sum_{i=1}^{I}2\frac{f_i - m_i}{f_i + m_i}\right|. \quad (4)$$

By confining the function to the range of -2 through $+2$, we solve the singularity problem of "surfing" toward the $-\propto$ direction (which characterizes the ln function). This transformation enables the index to incorporate all cases (including the most extreme cases). It should also be noted that the numerical computation of this function is much easier than that of the original ratio index; hence, it also saves computation time. The FOA is advantageous since it solves both the singularity and the sensitivity problems and is symmetric with clear upper and lower bounds.

EMPIRICAL ILLUSTRATION

The different treatment of mono-gender and extremely segregated occupations by the ratio index and the modified index proposed here may lead to different findings and theoretical conclusions. To illustrate the consequences of using the alternative indices of segregation for empirical analysis and interpretation of the results, we apply the measures to data for 284 MSAs in the United States using the Public Use Micro Samples (U.S. Bureau of the Census 1990). For each MSA, we computed the ratio index[12] and the modified index (using the FOA) for 509 occupational categories (three-digit occupational classification). Although the correlation between the two measures is rather high ($r = 0.937$), it also indicates some differences that may be of substantive importance.

In Table 2, we present the two segregation measures for 10 MSAs randomly selected from the list of 284 MSAs. Along with the nominal values, we present the rank order of each local labor market, ordered from the least to the most segregated MSA. While the values of the two segregation measures are not directly comparable, Table 2 does indicate that the relative ranking of the cities' level of segregation is dependent to some extent on the choice of method. For example, Bryan–College Station, Texas, is ranked 255 of the

TABLE 2: Values of Alternative Indices of Segregation Obtained for Detailed (Three-Digit) Occupational Categories for 10 American Cities (Metropolitan Statistical Areas [MSAs])

	The Ratio Index (+0.001)		*The Modified Index (First-Order Approximation)*	
MSA	*Computed Score*	*Rank Among 284 MSAs*	*Computed Score*	*Rank Among 284 MSAs*
40–Abilene, Texas	5.09	257	1.29	225
120–Albany, Georgia	4.60	208	1.26	192
160–Albany-Schenectady-Troy, New York	3.20	50	1.07	35
200–Albuquerque, New Mexico	3.38	61	1.10	55
220–Alexandria, Louisiana	5.08	256	1.29	228
1000–Birmingham, Alabama	3.26	52	1.12	60
1020–Bloomington, Indiana	4.87	233	1.27	203
1260–Bryan–College Station, Texas	5.08	255	1.21	156
1840–Columbus, Ohio	2.89	33	1.05	24
2200–Dubuque, Iowa	4.91	239	1.30	240

SOURCE: U.S. Bureau of the Census (1990).

284 cities when using the ratio index. This means that it is one of the most gender-segregated labor markets in the United States. However, it is ranked 156 when using the FOA index, which places it in the middle of the distribution. In the case of Birmingham, Alabama, the opposite occurs; it is ranked higher when using the FOA index (60) than when using the ratio index (52). Yet, in the case of Dubuque, Iowa, the relative rank is hardly affected by the choice of index. Thus, despite high correlations between the two measures, it is evident that the relative rank of communities may fluctuate substantially.

DETERMINANTS OF GENDER-BASED OCCUPATIONAL SEGREGATION

In what follows, we examine the extent to which the use of the FOA and the ratio indices leads to different conclusions regarding the sources of segregation in American labor markets. To this end, we estimate two regression equations. In each equation, segregation is a function of structural characteristics of the local labor market. The structural characteristics are those traditionally used in models predicting gender-based occupational segregation (e.g., Abrahamson and Sigelman 1987). They include (a) women's participation rates, (b) percentage of children younger than age five, (c) female's educational level, (d) percentage employed in services, (e) population size, (f) population growth, (g) unemployment rate, (h) percentage nonwhite, and (i) region. Information on these local labor market characteristics was available for 182 MSAs on which we perform the analyses.

The findings of the analysis are presented in Table 3 and reveal meaningful differences with regards to the determinants of segregation (note that the correlation between the two measures for this sample reduces to $r = 0.894$). Both population size and female labor force participation exert similar and significant effects on segregation in both models. Segregation (regardless of the measure used) tends to be lower in large cities and in cities with high rates of female labor force participation. Other factors affect segregation differently in the two models. Segregation is more pronounced in MSAs located in the South when the FOA is used, while region has no effect on segregation when the ratio index is used. The conclusions about the effect of the proportion of nonwhites in the MSA are opposite; the proportion of nonwhites has a negative effect on gender segregation according to the FOA measure and a positive effect according to the ratio index. The percentage of children younger than age five is not significantly related to segregation measured by the FOA index but has a positive effect on segregation when using the ratio index. Female education is not related to the ratio index but is negatively associated with the FOA index. The size of the service industry is not related to FOA but is positively related to the ratio index. The conclusion that can be drawn from this analysis is that, when estimating micro-occupational segregation, the two measures lead to different findings and to different conclusions regarding the relative level of segregation and the determinants of segregation. This reinforces the previous argument that external procedures for computing the index may lead to inconsistency in its results. In this regard, the FOA proposed here has the advantage of being an inbuilt solution.

SUMMARY AND DISCUSSION

Measures of segregation are designed to capture the magnitude of the phenomenon. Yet, measures that employ broad, aggregated, occupational categories are problematic since they mask the actual extent of segregation. Therefore, to be valid, measures for segregation should commensurate with detailed and meaningful occupational units.[13] The margin-free ratio index computed within the framework of the log-linear model, introduced by Charles and Grusky (Charles 1992; Charles and Grusky 1995; Grusky and Charles 1998), has clear advantages over previous measures. However, it has two intrinsic limitations—singularity and sensitivity. It cannot incorporate mono-gender and ultra-segregated occupations without some manipulation of the data, which may result in biased estimates or instead use large occupational categories.

The data presented in this article demonstrate that mono-gender occupations comprise a large share of local labor markets in the United States. The problem of singularity and sensitivity, therefore, is not trivial when the ratio index is employed. Indeed, the problem of singularity is more significant than is generally recognized by gender

TABLE 3: Unstandardized Coefficients (Standard Errors) of Regression Equations Predicting Segregation (Calculated by the Ratio Index and the First-Order Approximation [FOA] Index) in 182 Metropolitan Statistical Areas (MSAs), 1990 (Three-Digit Occupational Categories)

Predictor		The Ratio Index(+0.001)	The Modified Index(FOA)
Region	(South = 1)	0.001	0.017**
		(0.044)	(0.007)
Nonwhite	(percentage blacks, Asians, Hispanic, other)	0.002*	−0.000*
		(0.002)	(0.000)
Size	(population size [logged])	−0.772**	−0.078**
		(0.027)	(0.004)
Child 5	(percentage of children younger than age five)	0.070*	0.000
		(0.038)	(0.006)
Popgrow	(population growth [1980-1990])	0.001	−0.000
		(0.001)	(0.000)
Femalepr	(female participation rate)	−0.038**	−0.002**
		(0.007)	(0.001)
Unemp90	(unemployment rate)	0.003	0.002
		(0.020)	(0.003)
Feduce	(female's mean educational level)	0.026	−0.026**
		(0.060)	(0.009)
Service4	(percentage employed in services[a])	0.008*	0.000
		(0.005)	(0.001)
Constant		12.258	2.338
R^2		0.868	0.776

a. Public administration, health services, insurance and real estate, and wholesale and retail trade.
*$.05 \leq p \leq .10$
**$p \leq .01$.

segregation researchers. The multivariate analyses pointed out that the different indices of segregation lead to inconsistent findings and, hence, to different conclusions.

The FOA for the logarithmic function, which we proposed and discussed earlier, has several advantages. First, it provides an ingrained remedy to both the singularity and the sensitivity limitations associated with the ratio index. As such, it is better able to capture the microsegregation phenomenon across small social units (e.g., detailed occupations, jobs, etc.). Second, it is a symmetric measure with clear upper and lower bounds, and it is easy to compute.[14] On the basis of these qualities, we advocate its use in future comparative research of segregation.

NOTES

1. It should be noted that in a later version of the ratio index, Charles and Grusky (1995; Grusky and Charles 1998) employed the root mean square (RMS) formula and retermed it as the Association Index (Charles and Grusky 1995:945, no. 18):

$$A = \exp\left(\frac{1}{I}\sum_{i=1}^{I}\left\{\ln\left(\frac{f_i}{m_i}\right) - \left[\frac{1}{I}\sum_{i=1}^{I}\ln\left(\frac{f_i}{m_i}\right)\right]\right\}^2\right)^{\frac{1}{2}}.$$

Nonetheless, it preserves the same fundamental features of the notation presented here (equation (1)). These two versions are extremely highly correlated ($r = 0.996$).

2. The RMS version (Charles and Grusky 1995) is even more closely related to the variance formula. Yet, it should be noted that squaring the values in the variance equation confers more weight to large deviations (to the ultra-segregated occupations). Calculating the absolute deviation from the mean neutralizes that bias.

3. Weeden (1998) points out that "this procedure generates a conservative estimate of change over the relevant decades, because occupations with empty cells do not contribute to observed changes in segregation across those decades" (p. 478).

4. Bielby and Baron (1986:767-8) demonstrate this principle.

5. The problem of the potential bias is further amplified since the ratio is a nonweighted index. Therefore, it is possible that a large part of the relevant occupational distribution is characterized by total segregation, yet the index R would not reveal this fact.

6. The data were taken from the U.S. Bureau of the Census (1990), using the three-digit occupational classification.

7. We implemented the following algorithm (first step): if (female > 0 or male > 0); ratio = female/male; if (ratio < 0.001) then ratio = 0.001; if (male = 0 or ratio > 1000) then ratio = 1000; lft = log (ratio).

8. The reader may ask whether the sensitivity feature is actually a deficiency or rather an advantage. The index is highly sensitive to the inclusion of few women in a large male-predominated occupation. For example, an addition of one woman that shifts the ratio value from 1/1000 to 2/1000 has a high leverage, while practically it is almost negligible. This statistical feature is associated also with public policy aspects, as it corresponds to the false notion of significant "revolution" that derives from the disproportional effect of "breakthrough" processes. Consequently, policymakers are exposed to the temptation of manipulating decisions.

9. The sensitivity deficiency is even further amplified by the RMS version of the ratio index (i.e., the Association Index [A]) since it also squares each specific-occupation deviation from the mean. Hence, it confers more leverage to the large deviations (i.e., the hypersegregated occupations). This means that A inflates the leverage of ultra-segregated occupations twice (by the ln function and by squaring).

10. It should be noted that all-female occupations tend to be systematically fewer than all-male occupations.

11. This is as a result of our argument that the benchmark from which the gender composition of occupations is measured should be associated with 50 percent men and 50 percent women.

12. As customary in studies using the ratio index, we added a constant factor of 0.001 to avoid the problem of singularity.

13. By focusing on detailed occupational categories, the analysis attends also to the vertical dimension (considered by scholars as inequality). As much as occupational categories are detailed, they are overlapping the hierarchical gender distribution within (a broad) occupation

since they are distinctively representing the upper tier (e.g., high school teachers) and the lower tier (e.g., elementary school teachers) of a given occupation.

14. In light of the growing emphasis in the sex segregation literature on the requirement for measures of segregation patterns, we would like to point out that the suggested first-order approximation (FOA) is a valid index for this purpose as well.

REFERENCES

Abrahamson, Mark and Lee Sigelman. 1987. "Occupational Sex Segregation in Metropolitan Areas." *American Sociological Review* 52:588-97.

Bielby, William T., and James N. Baron. 1986. "Men and Women at Work: Sex Segregation and Statistical Discrimination". *American Journal of Sociology* 91:759-99.

Blau, Francine D. 1977. "Occupational Segregation and Labor Market Discrimination." Pp. 117-43 in *Sex Segregation in the Work Place*, edited by Reskin Barbara. Washington, DC: National Academy Press.

Blau, Francine D., and Wallace E. Hendricks. 1979. "Occupational Segregation by Sex: Trends and Prospects." *Journal of Human Resources* 14:197-210.

Charles, Maria. 1992. "Cross-National Variation in Occupational Sex Segregation." *American Sociological Review* 57:483-502.

Charles, Maria, and David B. Grusky. 1995. "Models for Describing the Underlying Structure of Sex Segregation." *American Journal of Sociology* 100:931-71.

Duncan, Otis D., and Beverly Duncan. 1955a. "A Methodological Analysis of Segregation Indexes." *American Sociological Review* 20:210-7.

———. 1955b. "Residential Distribution and Occupation Stratification." *American Journal of Sociology* 60:493-503.

Fossett, Mark A. 1984. "City Differences in Racial Occupational Differentiation: A Note on the Use of Odds Ratios." *Demography* 21:655-65.

Fossett, Mark A., and Scott J. South. 1983. "The Measurement of Intergroup Income Inequality: A Conceptual Review." *Social Forces* 61:855-71.

Gibbs, Jack P. 1965. "Occupational Differentiation of Negroes and Whites in the United States." *Social Forces* 44:159-65.

Gross, Edward. 1968. "Plus ca change . . . ? The Sexual Structure of Occupations Over Time." *Social Problems* 16:198-208.

Grusky, David B., and Maria Charles. 1998. "The Past, Present, and Future of Sex Segregation Methodology." *Demography* 35:497-504.

Jacobs, Jerry A., and Suet T. Lim. 1992. "Trends in Occupational and Industrial Sex Segregation in 56 Countries, 1960-1980." Pp. 450-86 in *Work and Occupations: Vol. 19. Sex Segregation and Gender Stratification*, edited by Jerry A. Jacobs. Newbury Park, CA: Sage.

James, David R., and Karl E. Taeuber. 1985. "Measures of Segregation." Pp. 1-32 in *Sociological Methodology*, edited by Nancy Tuma. San Francisco: Jossey-Bass.

Semyonov, Moshe, Danny R. Hoyt, and Richard I. Scott. 1984. "The Place of Odds Ratios in the Study of Place Race and Differential Occupational Opportunities." *Demography* 21:667-71.

Semyonov, Moshe, and Frank L. Jones. 1999. "Dimensions of Gender Occupational Differentiation in Segregation and Inequality: A Cross National Analysis." *Social Indicators Research* 46:225-47.

U.S. Bureau of the Census. 1990. *Integrated Public Use Microdata Series: Version 3.0* [MRDF]. Minneapolis, MN: Minnesota Population Center [producer and distributor], 2004. http://www.ipums.org.

Watts, Martin 1998a. "Occupational Gender Segregation: Index Measurement and Econometric Modeling." *Demography* 35:489-96.

———. 1998b. "The Analysis of Sex Segregation: When Is Index Measurement Not Index Measurement?" *Demography* 35:505-8.

Weeden, Kim A. 1998. "Revisiting Occupational Sex Segregation in the United States, 1910-1990: Results From a Log Linear Approach." *Demography* 35:475-87.

Iris Jerby is currently a postdoctoral fellow with the Horowitz Institute at Tel Aviv University. Her Ph.D. dissertation, under the supervision of Professors Semyonov and Lewin-Epstein, presented a generalized analysis of gender segregation phenomena in labor market and society. After her graduation, she spent one year at the Office of Population Research at Princeton University and worked with Professor Marta Tienda on diversity in education. She is the author of "The Double Price—Women's Status in Israeli Society and Their Service in the IDF" (in Hebrew). Her current research deals with fertility, employment, segregation, and inequality issues.

Moshe Semyonov is a professor of sociology and labor studies at Tel Aviv University. He is also a professor of sociology and interim head of the department of sociology at the University of Illinois–Chicago. His research focuses on sources of socioeconomic, gender, and ethnic inequality in the labor market and on the status of labor migrants in host societies. Most recent publications include an edited book (with Noah Lewin-Epstein) titled Stratification in Israel: Class, Ethnicity and Gender *(2004), as well as several research papers on labor migrants published in* Social Problems*,* Social Science Research*,* European Sociological Review*,* Ethnic and Racial Studies*, and* International Migration Review.

Noah Lewin-Epstein received his Ph.D. in sociology from the University of Chicago. He teaches at Tel Aviv University and is past chairperson of the Department of Sociology and Anthropology. He served as president of the Israel Sociological Society from 2000 to 2002. His areas of interest include social inequality, ethnic stratification, and comparative survey research. His recent journal publications addressed issues of migration (International Migration Review) *and the welfare state* (American Journal of Sociology).