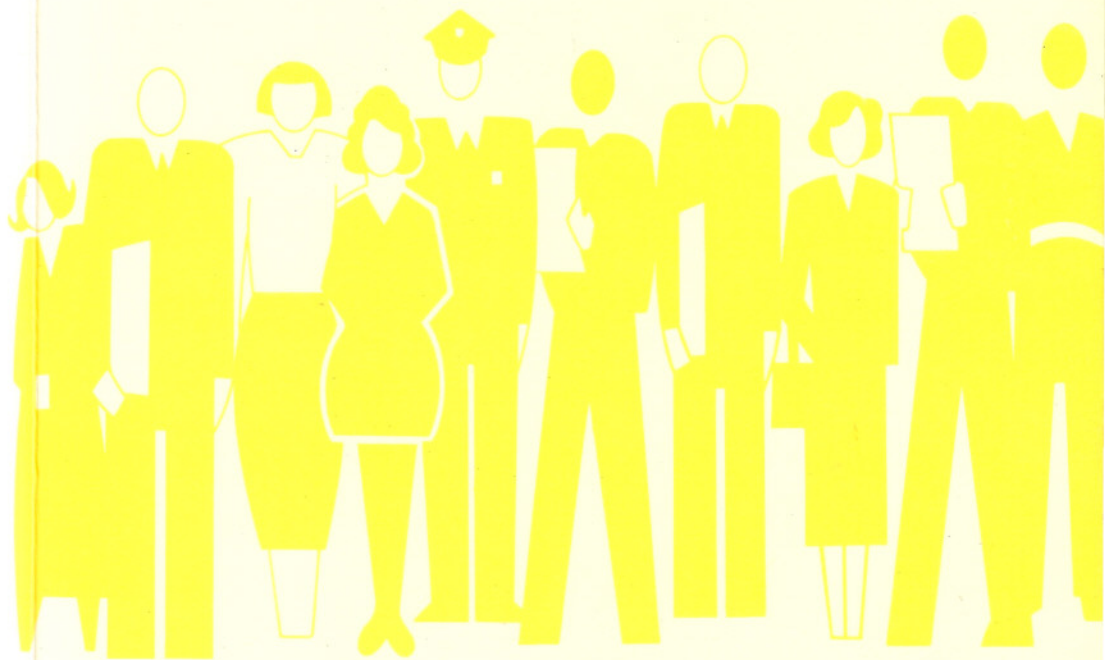


Social *in* Class SINGAPORE

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CONTENTS

List of Tables and Figures	vii
Preface	xv
CHAPTER 1 INTRODUCTION <i>Stella R. Quah</i>	1
CHAPTER 2 SOCIAL CLASS IN SINGAPORE: AN OVERVIEW <i>Sharon Mengchee Lee</i>	23
CHAPTER 3 EDUCATION AND SOCIAL CLASS IN SINGAPORE <i>Stella R. Quah</i>	38
CHAPTER 4 OCCUPATIONAL PRESTIGE AND OCCUPATIONAL STRUCTURE <i>Chiew Seen Kong, Ko Yiu Chung and Stella R. Quah</i>	74
CHAPTER 5 THE ECONOMIC DIMENSION <i>Chiew Seen Kong and Ko Yiu Chung</i>	116
CHAPTER 6 ETHNIC STRATIFICATION <i>Chiew Seen Kong</i>	138
CHAPTER 7 SOCIAL MOBILITY IN SINGAPORE <i>Chiew Seen Kong</i>	183
CHAPTER 8 STATUS ATTAINMENT <i>Ko Yiu Chung</i>	220
✓ CHAPTER 9 CONCLUSION: THE REALITIES OF SOCIAL CLASS <i>Stella R. Quah</i>	244
✓ APPENDIX 1 NOTES ON RESEARCH PROCEDURE <i>Ko Yiu Chung, Chiew Seen Kong and Stella R. Quah</i>	271
✓ APPENDIX 2 OCCUPATIONAL PRESTIGE SCORES SOPS AND SNORC, MEAN, STANDARD DEVIATION AND SAMPLE SIZE FOR 109 OCCUPATIONS, SINGAPORE, 1983-1984 <i>Stella R. Quah, Ko Yiu Chung and Chiew Seen Kong</i>	281
About the Authors	285

LIST OF TABLES AND FIGURES

Table	Title	Page
1.1	Basic Indicators of Economic Development and Standards of Living, Singapore, 1970, 1983 and 1988	4
2.1	Subjective Class Identification	27
2.2	Most Important Characteristic for Subjective Social Class Identification	28
2.3	Most Important Characteristic for Subjective Class Identification by Subjective Class (In Percentages)	29
2.4	Highest Level of Education Completed	30
2.5	Distribution by Occupational Category	31
2.6	Distribution of Reported Self-Income Per Month	32
2.7	Occupational Category by Education (In Percentages)	33
2.8	Income Per Month by Education (In Percentages)	33
2.9	Income Per Month by Occupation (In Percentages)	34
3.1	General Literacy Rates Per Thousand Population Aged 10 Years and Over, by Ethnic Group and Sex, 1970 and 1980	43
3.2	Highest Educational Qualification of Population Aged 10 Years and Over, by Sex, 1980	44
3.3	Average Years of Formal Education of Male Respondents from Different Ethnic Groups and Age Cohorts	45
3.4	Average Years of Formal Education of Female Respondents from Different Ethnic Groups and Age Cohorts	46
3.5	Perception of Social Class Symbols by Ethnic Group and Years of Formal Education (In Percentages)	48

Table	Title	Page
3.6	Graduates from Universities and Colleges, 1950-1988	50
3.7	Male and Female Opinions on Least Amount of Schooling Needed by Young Men and Women in Singapore (In Percentages)	52
3.8	Respondents' Attitudes Toward Self and the Community by Their Number of Years of Formal Education (In Percentages)	55
3.9	Years of Formal Education of Male and Female Respondents by Their Parents' Years of Formal Education (In Percentages)	63
3.10	Years of Formal Education of Ever-Married Male and Female Respondents by Their Spouses' Years of Formal Education (In Percentages)	66
3.11	Years of Formal Education of the Respondents' Parents (In Percentages)	67
3.12	Years of Formal Education of Male and Female Respondents by Years of Formal Education of Their Best Friend (In Percentages)	69
4.1	Occupations by Mean Monthly Income, Singapore, 1966, 1975 and 1980	76
4.2	Employed Persons Aged 10 Years and Over, Singapore, 1966, 1970 and 1980	77
4.3	Citizens as Per Cent of All Employed Persons Aged 10 Years and Over, Singapore, 1970 and 1980	79
4.4	Employed Persons Aged 20 Years and Over, Singapore, 1970 and 1980	80
4.5	Estimated Number and Propotion of Employed Citizens Aged 20 Years and Over, by Occupational Group, Singapore, 1970 and 1980	81
4.6	Consistency of Respondents' Ratings	87
4.7	Reliability of Occupational Ratings	88
4.8	Occupational Prestige Scores in Singapore (SNORC) and Standard Deviations of Selected Occupations	89

Table	Title	Page
4.9	Respondents' Reasons for Rating an Occupation as "Excellent" (In Percentages)	91
4.10	Respondents' Reasons for Rating an Occupation as "Average" (In Percentages)	91
4.11	Respondents Reasons for Rating an Occupation as "Poor" (In Percentages)	92
4.12	Occupational Prestige Rating (SOPS), Education and Income of Working Respondents	92
4.13	Occupational Prestige Rating (SNORC), Education and Income of Working Respondents	93
4.14	Subjective Class Identification and Occupational Prestige Scores (SOPS) (In Percentages)	96
4.15	Beliefs About Power by Occupational Prestige Scores(SOPS) (In Percentages)	98
4.16	Self-Direction by Occupational Prestige Scores (SOPS) (In Percentages)	100
4.17	Social Participation and Occupational Prestige (SOPS) (In Percentages)	102
4.18	Per Cent of Respondents Indicating Membership in Organizations by their Occupational Prestige Score	103
4.19	Level of Social Participation and Occupational Prestige (SOPS) (In Percentages)	104
4.20	Leisure and Occupational Prestige Scores (SOPS) (In Percentages)	106
4.21	Perceived Attributes of the Ideal Job by the Respondents' Occupational Prestige Scores (SOPS)(In Percentages)	108
5.1	Working Persons Aged 10 Years and Over, Singapore, 1957-85	117
5.2	Employers and Own Account Workers to Employees, Singapore, 1957-85	118
5.3	Working Persons Aged 10 Years and Over, Singapore, 1970 and 1980	119

Table	Title	Page
5.4	Type of House by Employment Status of Head of Household, Singapore, 1980	123
5.5	Economically Inactive Persons Aged 10 Years and Over, Singapore, 1970-80	124
5.6	Economically Inactive Persons Aged 10 Years and Over by Citizenship, Singapore, 1970-80	125
5.7	Compared with Your Dad, You Are	126
5.8	Compared with Your Mum, You Are (For Female Respondents Only)	127
5.9	Personal Monthly Income and Self-Evaluation	127
5.10	Personal Monthly Income and Comparison with Best Friend	128
5.11	Perceiving Future Economic Changes	129
5.12	Gini Ratios of Personal Income Distribution	130
5.13	Distribution of Gross Personal Monthly Income	131
5.14	Distribution of Household Monthly Income	132
5.15	Financial Support in the Past One Year	134
5.16	Sex, Marital Status and Financial Support in the Past One Year	135
6.1	Population by Ethnic Group, Singapore, 1824-1980	139
6.2	Population Growth and Growth Components, Singapore, 1901-1980	140
6.3	Ethnic and Sub-Ethnic Groups, Singapore, 1980	142
6.4	Industry by Ethnic Group, Singapore, 1931	144
6.5	Working Persons Aged 10 Years and Over by Ethnic Group and Employment Status, Singapore, 1970-80	149
6.6	Persons Aged 5 or 6 Years and Over by Highest Qualification Attained and Ethnic Group, Singapore, 1970-80	152
6.7	Working Persons Aged 10 Years and Over by Ethnic Group and Occupation, Singapore, 1957-80	154

Table	Title	Page
6.8	Ethnic Group by Highest Qualification, Singapore, 1984	158
6.9	Persons Aged 21-80 Years by Ethnic Group and Occupation, Singapore, 1984	159
6.10	Singapore Occupational Prestige Scale (SOPS) by Ethnic Group, Singapore, 1984	160
6.11	Singapore NORC Scale by Ethnic Group, Singapore, 1984	161
6.12	Gross Monthly Income by Ethnic Group, Singapore, 1984	162
6.13	Ethnicity, Highest Education Attained and Subjective Class Identification, Singapore, 1984	164
6.14	Ethnicity, Occupation and Subjective Class Identification, Singapore, 1984	167
6.15	Ethnicity, Highest Education Attained and Ethnicity of Best Friend, Singapore, 1984	169
6.16	Ethnicity, Highest Education Attained and Highest Education Attained by Best Friend, Singapore, 1984	171
6.17	Ethnicity, Highest Education Attained and Attitudes Toward Rich People, Singapore, 1984	174
6.18	Ethnicity, Highest Education Attained and Attitudes Toward Success, Singapore, 1984	176
6.19	Ethnicity, Highest Education Attained and Attitudes Toward Planning Ahead, Singapore, 1984	177
7.1	Working Persons by Age and Employment Status, Singapore, 1957-86	191
7.2	Working Persons by Year of Birth and Employment Status, Singapore, 195-86	194
7.3	Persons by Age and Completed Education, Singapore, 1966-86	197
7.4	Working Persons by Year of Birth and Highest Educational Attainment, Singapore, 1966-86	200

Table	Title	Page
7.5	Working Persons by Age Group and Occupation, Singapore, 1966-86	203
7.6	Working Persons by Occupation and Year of Birth, Singapore, 1966-86	207
8.1	Zero-Order Correlation, Mean and Standard Deviation of Status Variables for Women and Men	224
8.2	Partial Regression Coefficients of Models of Educational and Occupational Attainment for Singapore Women and Men (Standard Errors in Parentheses)	225
8.3	Direct and Indirect Effects of the Background Variables on First Job Attainment	228
8.4	Zero-Order Correlation, Mean and Standard Deviation of Status Variables for Sub-Samples of Respondents in Three Age Cohorts	230
8.5	Partial Regression Coefficient of Models of Educational and Occupational Attainment for Sub-Samples of Respondents in Three Age Cohorts (Standard Errors in Parentheses)	232
8.6	Direct and Indirect Effect of Background Variables on First Job Attainment (Percentages in Parentheses)	235
9.1	Correlation Among Occupational Prestige Scales in the Total, Male and Female Working Sub-Samples (Based on Respondents' Current Occupation)	247
9.2	Occupational Prestige Scores SOPS and SNORC of Selected Occupations and Their Respective Mean and Standard Deviations	249
9.3	Occupational Prestige Scores (SOPS), Mean Number of Years of Education and Average Income for Abbreviated Occupational Categories	254
9.4	Distribution of Social Class (SES) Scores for All Economically Active Male and Female Respondents Including Average Personal Income and Average Years of Formal Education	261

Table	Title	Page
9.5	Distribution of Social Class (SES) Scores for All Economically Active Respondents Including Average Personal Income, Average Years of Formal Education and Occupational Prestige (SNORC)	262
9.6	Five Intervals of Social Class (SES) Scores for All Economically Active Respondents Including Average Personal Income, Average Years of Formal Education and Occupational Prestige (SNORC)	263
9.7	Type of Housing of Working Respondents by Their Social Class (SES) Scores (In Percentages)	265
9.8	Working Respondents' Ethnicity and Social Class (SES) Scores (In Percentages)	266
9.9	Matrix of Pearson Zero-Order Correlation Coefficients for Economically Active Respondents	267

Figures	Title	Page
6.1	Ethnic Stratification in Netherlands India (circa 1900)	145
6.2	Ethnic Stratification in Singapore	179
7.1	A Social Mobility Model	189
8.1	Model of Education and Occupational Attainment	222
8.2	Path Diagrams	239

CHAPTER NINE CONCLUSION: THE REALITIES OF SOCIAL CLASS

Stella R. Quah

The title of this concluding chapter conveys its twofold purpose. The first purpose is to deal with the question: have we accomplished the goals of the study? In the process of answering that question, I will attempt to fulfill the second purpose, namely, to summarise the main findings with the aim to provide a realistic portrayal of social class in Singapore and helping to dispel some popular myths.

As indicated in the introductory chapter, the three principal goals of this descriptive study are: to replicate the internationally known occupational prestige scales in the context of Singapore; to provide empirical information on Singapore's current social stratification hierarchy, that is, its social class pyramid; and to document our findings as thoroughly as possible to facilitate further research. The task at hand is, then, to take each of these three goals and review them briefly, one at a time, highlighting the main findings.

Before dealing with the goals of the study, though, I want to refer briefly to the basic approach we used to collect information. The main source of information on the social stratification features reported in this study is a survey conducted on a random sample of Singapore citizens in 1983-84. There is no doubt that, as a technique of data collection, the survey method has its limitations. Among the most obvious, according to Paul Lazarsfeld, are that surveys "do not use experimental tech-

niques"; that "they deal with aggregates of individuals rather than with integrated communities"; and that "they are restricted to contemporary problems" (1949:378).

Yet, in his essay entitled "What is obvious?", published in 1949, but still highly relevant today, he illustrated how data carefully collected through sociological surveys dispelled popular myths in the United States such as the assumed inclination of blacks to be less ambitious, more adaptable to hot climates and more inclined to prefer paternalistic authority than whites. Considering that this study demonstrates social class differences among Singaporeans and thus dispels the myths of a "middle class" Singapore, Lazarsfeld's views on the advantages of surveys are worth repeating here, as they apply fully to this study:

The mere description of human behaviour, of its variations from group to group and of its changes in different situations, is a vast and difficult undertaking. It is this task of describing, sifting and ferreting out inter-relationships which surveys perform for us... Since every kind of human reaction is conceivable, it is of great importance to know which reactions actually occur most frequently and under what conditions; only then will a more advanced social science develop (1949: 378-80; Coser, 1980: 5-7).

OCCUPATIONAL PRESTIGE IN SINGAPORE

Most occupations are of great importance to the smooth running of a society. Henri de Saint-Simon put this principle across in an essay first published in 1819 entitled "Who Contributes to Society?" He posed the question "Suppose that France suddenly lost fifty of her best..." and proceeded to list what today we would label professional and managerial occupations, the most indispensable crafts, businesses, skilled and artistic occupations. If such a misfortune were to occur, Saint-Simon stated, "the nation would become a lifeless corpse as soon as it lost them" because these best workers "are, above all French-

men, the most useful to their country... increasing its civilization and prosperity" (Coser, 1980:316).

Notwithstanding the significant economic and social contributions of workers from all the spectrum of occupations in a given society, as implied by Saint-Simon, an important reality of social class is the differential prestige given to different occupations. There are desirable and undesirable occupations, well paid and poorly paid occupations; occupations that involve a great deal of responsibility and practically no authority; routine occupations; challenging occupations; hazardous occupations. A great and complex variety of occupations is found everywhere and in this regard, Singapore is not an exception.

The study of social stratification comprises, as one of its most important aspects, the goal of ascertaining the differential prestige assigned to different occupations in a given society or community by means of occupational prestige scales. The outcome of our efforts to replicate the internationally known occupational prestige scales devised by NORC, Duncan, Treiman and the United States Census (Nam and Powers, 1983: 1-57; Powers, 1982:1-28; Treiman, 1977; Hauser and Featherman, 1977; Duncan, 1961) are described in detail in Chapter Four.

Perhaps the most objective way of assessing the replication of these scales in the context of Singapore is to refer to the Pearson's zero-order correlations between those well-known scales and the Singapore scales worked out in this study, which are the Singapore Occupational Prestige Score (SOPS) and the Singapore NORC scale (SNORC) as illustrated in Table 9.1. While all the correlations are significant and strong, their strength varies among the total sample, the male, and the female sub-samples of working respondents.

There are five salient features in Table 9.1. One is that both SNORC and SOPS have similar correlations with the three international scales even though, as indicated in Chapter Four, the calculation of SOPS is simpler. The second feature is that both SOPS and SNORC scales correlate better with Duncan's Socio-Economic Index (SEI) and with the U.S. Census scale than with Treiman's occupational prestige scale. A third fea-

TABLE 9.1
Correlation Among Occupational Prestige Scales in the Total, Male and Female Working Subsamples (Based on Respondents' Current Occupation)*

Occupational Prestige Scales**	All Workers (1,052)	Working Males (655)	Working Females (397)
SNORC and Duncan's Scale	.5634	.5149	.6501
SNORC and U.S. Census Scale	.5514	.5196	.5966
SNORC and Treiman's Scale	.4860	.5062	.4508
SOPS and Duncan's Scale	.5785	.5451	.6450
SOPS and U.S. Census Scale	.5440	.5298	.5670
SOPS and Treiman's Scales	.4765	.4971	.4162
SNORC and SOPS	.9605	.9635	.9544
Duncan's and U.S. Census Scales	.8983	.9034	.8930
Duncan's and Treiman's Scale	.5705	.5786	.5526
Treiman's and U.S. Census Scales	.6074	.6170	.5869

* The test used is Pearson's zero-order correlation; the level of significance for all the above coefficients is $p < .0001$.

** The reader may refer to the following sources for the international scales: Duncan (1961); Nam and Powers (1983); Treiman (1977). For the SOPS and SNORC scales, see Appendix 2 in this volume.

ture is the very strong correlations between Duncan's SEI and the U.S. Census scale (.8983 in the total working sample; .9034 among working males; and .8930 among working females) reflecting a consistency in occupational rankings between these two scales in the Singapore context. The fourth salient feature is the very high correlation between SOPS and SNORC (.9605 in the total working sample; .9635 among working males; and .9544 among working females). And the final salient feature is the difference in the strength of correlations between working males and females.

These differences in correlation coefficients between male and female occupational prestige scores from different scales are not surprising. Sociologists involved in the study of socio-economic status in different countries have become increasingly aware during the past decade of one of the main realities of social class, well expressed by Nam and Powers with reference to the United States:

The increase labour force participation of women and the concomitant changing composition of the work force indicated that, by 1970, the measurement of occupational status based solely on the characteristics of male incumbents was no longer valid (Nam and Powers, 1983:77).

For this reason, the findings on education, occupational prestige, and income, discussed in the preceding chapters, include gender differences. Male and female versions of some occupations have also been included in our analysis of occupational prestige.

In addition to the documentation of gender differences, there are other interesting findings in the analysis of occupations. One is the confirmation of the low standing of occupations such as social escort, masseuse, illegal lottery agent, bargirl, beggar, narcotic peddler, smuggler, and prostitute. These eight occupations obtained the lowest eight scores in the SOPS and SNORC scales as indicated in Chapter Four.

Another notable finding is the level of agreement among the respondents in the ranking of different types of occupations. The best illustration of this is the case of religious occupations. Singapore is characteristically plural in the ethnic and religious composition of its population. The major world religions are represented together with an array of other minor religious groups. According to the 1980 Census, 10.3 per cent of the population aged 10 years and over were Christians; 26.7 per cent were Buddhists; 29.3 per cent Taoists; 16.3 per cent were Muslims; 3.6 per cent were Hindus; 0.6 per cent belonged to other religions; and 13.2 per cent had no religion (Khoo, 1981: 4). It was thus important to include occupations such as Catholic priest, Imam (Muslim religious leader), Buddhist monk, Protestant pastor, Taoist priest and Hindu priest in the occupational prestige scales SOPS and SNORC. Interestingly, these six religious occupations have the highest standard deviations of all occupations ranked by the respondents, as we indicate in Chapter Four. What does this mean? Blalock (1972:77) considers the standard deviation as "the most important" among the

TABLE 9.2
Occupational Prestige Scores SOPS and SNORC of Selected Occupations and their Respective Means and Standard Deviations

Selected Occupations	SOPS	SNORC	Mean*	Standard Deviation**	(N)
Six occupations with Highest Standard Deviations					
Catholic priest	46.5	64.1	3.202	1.246	(510)
Imam	40.0	63.4	3.170	1.229	(518)
Buddhist monk	30.3	55.4	2.771	1.213	(537)
Protestant pastor	44.0	63.6	3.178	1.193	(545)
Taoist priest	23.3	52.0	2.599	1.187	(506)
Hindu priest	29.2	56.1	2.804	1.151	(520)
Six occupations with Lowest Standard Deviation					
Smuggler	3.2	24.4	1.221	.696	(533)
Lawyer	94.3	92.0	4.605	.685	(531)
Prostitute	2.7	24.4	1.222	.674	(547)
Doctor	96.5	93.4	4.673	.641	(517)
Engineer	94.6	91.3	4.565	.637	(517)
University lecturer	96.4	93.0	4.652	.609	(529)

* Refers to the simple mean score of the respondents' assessment of an occupation where the alternatives given were: 5 (excellent); 4 (good); 3 (average); 2 (below average); and 1 (poor).

** The standard deviation was calculated based on the simple mean score as explained above and the subsample size (N) or number of respondents ranking each occupation. Please refer to the Appendix 1 on Methodology and to Chapter Four, for a detailed description of the procedure used to obtain the respondents' rankings of occupations. The subsamples sizes exclude respondents who did not answer the respective questions.

statistical measures of dispersion, helping us to ascertain the level of homogeneity or heterogeneity of a group of people in terms of a given characteristic or trait.¹ In the case of the occupational prestige of these six occupations, the large standard deviations obtained (see Table 9.2) indicate that people tend to disagree about the ranking of these six occupations more than they do with respect to all other occupations.

Indeed, when the 109 occupations included in our study are compared in terms of their standard deviations, that is, the

level of consensus or agreement on the part of the respondents as to the social standing of each occupation, the lowest standard deviation (.609) and, thus, the strongest consensus, is found for the occupation "university lecturer". Conversely, the highest standard deviation (1.246) or least consensus, is found for the occupation "Catholic priest". Nearly 70 per cent of the 109 occupations have a standard deviation between .801 and 1.000. Table 9.2 presents the only six occupations with standard deviations below .700 and the only six occupations with standard deviations above 1.100.

What is significant about these two groups of occupations in Table 9.2, is their nature. All those in the first group are occupations about which there was least consensus; and they happen to be the only religious occupations among the list of 109. The analysis of the ranking of these occupations in terms of religious affiliation of respondents is revealing. The possible explanation that people of every religious persuasion tend to perceive their own religious leaders as having a very high social standing, seems to apply only to Catholics and Muslims but not to people of every religious affiliation. In a multi-religious society like Singapore, this lack of agreement on the prestige of occupations that represent rather different world views, is understandable and expected.

In contrast, the six occupations with the lowest standard deviation, that is, those occupations about which people tend to agree most when considering social standing, are far from being homogeneous in nature. Two of the six, smuggler and prostitute, are seen as undesirable and deviant occupations and have some of the lowest occupational prestige scores. The other four, doctor, university lecturer, engineer and lawyer, are top occupations in terms of social standing. The basic trend, therefore, is that people tend to agree most when rating very low or very high prestige occupations, i.e, those at the extremes of the social prestige continuum. These occupations are more "visible" in the sense that the man-in-the-street is likely to have some information on what those occupations are all about. But, more importantly, these extreme occupations tend to embody the most negative and the most positive values prevailing in the community. The detailed analysis of the level of population

consensus on the rating of occupations is beyond the scope of this study but this is one of the areas that deserves further investigation.

SINGAPORE'S SOCIAL CLASS HIERARCHY

The second main goal of this study is to provide a description, as detailed as possible, of the features and shape of the current social stratification hierarchy or the social class pyramid in Singapore. This goal has been accomplished by presenting various perspectives of social class. One perspective looks at the main components of social class, one at a time; these components have been discussed individually in the chapters on education, income and occupational prestige. The other perspective is, of course, to analyse the combination of education, income and occupational prestige in what is referred to as a socioeconomic status or SES scale which may be seen as a closer approximation to the concept of social class than any of the components of social class taken alone. This last point is controversial. Social stratification scholars agree that today "there is no single generally accepted status classification scheme" (Nam and Powers, 1983:1). The main reason is that there is disagreement on the proposed answers to two key questions: What are the most accurate components of social class? And, is social class a continuum or a discrete phenomenon?

Components of Social Class

Concerning the components of social class, roughly three general schools of thought may be identified. One school of thought proposes multiple indicators of social class, for example, income, occupation, education, type of housing, car ownership or principal means of transport and possession of "sophisticated" or "luxury" household items. The basic problem with this approach is that with the exception of income, education and occupation, the other suggested indicators are strongly linked to cultural patterns of life style and external or national economic conditions that blur status differences within a given community. More specifically, while in some countries living in public housing is a symbol of poverty, in other countries like Singapore, it is a national way of life. Car ownership or mode of

transport may also be a manifestation of one's social class in some societies while in others the high quality of public transport or the preference for non-polluting modes of transportation may influence people's lack of interest in private cars. The possession of "luxury" items is another unreliable indicator of social class, particularly in historical comparisons and cross-national studies, because of the difficulty in establishing what constitutes "luxury" items. Some modest income families may cut their food expenditure and use a hire-purchase or installments system to buy a piano, video-recorder, sound system or a personal computer because they may perceive these items as necessities.

The second school of thought suggests that social class may be reliably ascertained by means of three indicators, namely: highest level of formal education attained, income level and occupational prestige. This approach records the three indicators separately but tests their intercorrelation and then uses them jointly as an index of socio-economic status. Studies using this method typically report a strong positive correlation among the three indicators.

The third school of thought proposes that occupational prestige is the best indicator of social class and can be used alone. The basic argument in defence of this alternative is that

If education is an indicator of the prerequisite required for an occupation and income is a measure of the reward that society will bestow on an occupation, then occupation may be viewed as an intervening activity between these two variables and hence a good single indicator of status (Nam and Powers, 1983:15).

Nevertheless, this approach does rely upon education and income by using the mean or percentile measures of education and income as the basis for assigning prestige scores to specific occupations.

The difference between the second and third schools of thought is that the former calculates the prestige of occupa-

tions based on the social standing assigned to specific occupations by representative samples of the population. In this study, we followed the second school of thought, and concentrated on education, income and occupation as indicators of social class. The principal advantage of this approach is that, in addition to recording education and income, data are also recorded on the perceived social standing of occupations among the population and on the reasons people give for their ranking of given occupations. Having more rather than less data on these three indicators, we have been able to probe the links between income and educational levels of different occupations. Table 9.3 presents a summary of the respective findings.

Nam and Powers (1983) who consider occupational status as the best indicator of social class, point to the objective socio-economic nature of their occupational status scores: instead of using people's subjective perception of the prestige of occupations, specific education and income data are used in four steps. First, detailed occupations are arrayed "according to the median *educational* level of the incumbents"; second, "the same occupations" are arrayed "separately according to the median *income* level of the incumbents"; third, based on "the number of persons engaged in each occupation" the researcher determines "the cumulative interval of persons in each occupation for each of the two arrays, beginning with the lowest ranked occupation"; and finally, the average of "the midpoints of the two cumulative intervals of occupants" is calculated and then divided "by the total male experienced civilian labour force to get a status score for the occupation" (Nam and Powers, 1983:50).

To follow this third school of thought, the required information on the income and educational level of each individual must be available from the national census. This is the case of the United States. As members of the United States Bureau of Census's professional staff in the late 1950s and early 1960s, Nam and Powers were able to construct their socioeconomic occupational status scores because the individuals' income and education data were recorded then and continue to be recorded by the US Census today. In fact, information on occupation were recorded from the first census conducted in Pennsylvania in 1790; literacy was added in 1840 and school attendance in

TABLE 9.3
Occupational Prestige Scores (SOPS), Mean Number of Years of Education and Average Income for Abbreviated Occupational Categories*

Abbreviated Occupational Scale (AOS)	SOPS	Mean Years Education	Average Income	Number
Professional and technical	65.2 (15.29)	12.0 (3.14)	1,754 (990.69)	110
Managerial and proprietors	70.2 (8.65)	9.3 (4.13)	1,531 (1,097.86)	105
Clerical and related occupations	29.0 (6.27)	10.1 (2.03)	918 (484.03)	130
Sales and related occupations	22.4 (5.10)	7.0 (3.83)	914 (804.94)	118
Craftsmen, foremen and skilled workers	31.9 (8.68)	7.9 (3.45)	856 (426.98)	150
Operatives and semi-skilled workers	21.6 (6.32)	6.2 (3.31)	721 (421.81)	166
Service and related occupations	20.9 (12.24)	6.5 (3.77)	635 (480.46)	168
Labourers and unskilled workers	13.2 (3.47)	5.1 (3.08)	502 (253.19)	99

* The figures have been calculated for the working respondents only and refer to the respondents' current occupation. The average years of education refer to the total number of years of formal education completed. The average income refers to the respondent's personal monthly income in Singapore dollars. Figures in brackets are standard deviations. The abbreviated occupational scale (AOS) for the respondent's current occupation may be referred to as RAOS. The relevant Pearson's zero-order correlation coefficients are:

RAOS and education: $r = .4674$; $p < .0001$

RAOS and income: $r = .4503$; $p < .0001$

1850; and income was included in the 1940 census together with a refined record of educational attainment (Nam and Terrie, 1982:34).

In Singapore, the national census does not include data on individual income and we face the same major constraint faced by social scientists everywhere, namely, that we do not have access to the raw census data and thus must rely entirely on published tabulations of grouped data. Because of these two problems, it is not possible to calculate socio-economic scores of occupational status in the manner described by Nam and Powers above. In Chapter Seven on mobility and in the first section of Chapter Four which he wrote, Chiew Seen Kong has tried to use income data to rank occupations. He has taken the mean monthly incomes reported for each of seven groups of occupations in the Singapore 1980 Labour Force Survey as a criterion to identify three "occupational" classes. But the caution he demonstrates in the use of this procedure must not be taken lightly. As the mean incomes come from groups, not from individuals, they represent only tentative approximations to the ranking of occupations. For this reason, we have also presented in this study the three-item approach to the measurement of social class, using data on education, income and occupational prestige which we collected by means of our survey of a national representative random sample of Singapore citizens. This brings me to the next point.

Social Class: Continuous or Discrete?

The second major controversy in social stratification centres on the accuracy of social class divisions. It is common for social scientists in general, and sociologists in particular, to be asked by journalists and members of the public questions such as "How many social classes are there?"; "Is it true that Singapore is a middle class society?" These queries represent the popular notion that social class is a discrete phenomenon with distinct and clearly identifiable groups of people, each representing a social class, but with the possibility of one group absorbing the others completely. The latter appears to be the belief among people who expect that Singapore's current affluence has helped the group "in the middle" to take over, or incorporate the others.

Interestingly, the notion of a "middle class" has proven to hold great appeal for the populations of many modern nations.

As I indicated in the last section of Chapter Four, most people place themselves in "the middle class" when asked to indicate the social class to which they think they belong. People tend to classify themselves as "middle class" regardless of their actual position in the income, educational and occupational structures. "Middle class" means different things to different people, according to the circumstances of their own situation. Hence, as a measurement of social class, self-evaluation lacks the validity and reliability that the other approaches discussed here offer.

At the conceptual level in sociology, these notions are manifested in the problem of interpreting social class scores, irrespective of the procedure used to obtain them (whether using multiple indicators; or only income, education and occupational prestige; or just occupational status). Some sociologists argue that a continuum of social class positions represents the reality of social class more accurately while others prefer to assume the existence of clear borderlines between different, discrete social classes.

The idea of discrete social classes may be traced back to the notion of castes in some traditional societies; the polarisation of lords and serfs in the feudal system; and of the nobility versus the populace or commoners in aristocratic Europe between the 16th and 19th centuries. Marx saw discrete classes as being on a collision course: the proletariat, the capitalists, the bourgeoisie, the landowners, the peasants. His notion of discrete social classes continues to be promoted by his followers (see for example Poulantzas, 1982). Another manifestation of this notion of discrete classes is what Ossowski called "a three-fold dichotomy" that is, (1) "the rulers and the ruled"; (2) "the rich and the poor"; and (3) "those from whom others work and those who work" (Ossowski, 1974:175).

Yet, however appealing the simplicity of the discrete social classes notion is, it has serious shortcomings. It is worthwhile to mention some of the most crucial problems identified by empirical social stratification studies in many countries. One shortcoming is that individuals may occupy "contradictory" positions in an assumed discrete social class ladder. As Wright points out in his criticism of Poulantza's neo-Marxist approach,

managers and supervisors occupy a contradictory location between the bourgeoisie and the proletariat; certain categories of semi-autonomous employees... occupy a contradictory location between the working class and the petty bourgeoisie; ...small employers occupy a contradictory location between the bourgeoisie and the petty bourgeoisie (Wright, 1982:113).

The other major problem with the concept of discrete social classes is that it does not survive the test of time. The obvious segregation of social groups from one another in terms of residential area, mode of transportation and recreation, access to education, types of occupations or ways of earning a living, that could be found in any 19th century society has undergone a complete metamorphosis in the 20th century, not to mention the very rapid pace of change modern societies have experienced during the past 50 years. When a society's social class structure is analysed across time, some of the most evident sources of its change are usually found in its economic and educational systems. That is, in the job opportunities that the country's economy helps to create or to abandon and in the facilities available to educate and train people to acquire relevant skills. Social change also affects the way people perceive wealth, savings, job satisfaction, and equality. Concomitant changes in the political system provide challenges to the notions of absolute power, aristocracy, nobility, and caste, among other things. The outcome of changes from all these sources is the transformation of the social class structure.

A related problem is that followers of the discrete social classes approach cannot answer a basic question they themselves imply, that is, how many classes are there in a given society or community. The suggested number of social classes range from two to five or six. As expressed by some critics of this approach:

...there appear to be as many social classes as there are theorists or researchers. This leads to the interpretation that the reality of social classes may be more a conse-

quence of a priori decisions or research methodologies than an accurate reflection of social organization or stratification (Abrahamson, Mizruchi and Hornung, 1976:171).

The above weaknesses of the discrete social classes perspective encouraged the emergence of an alternative approach to the interpretation of social class positions namely, "the continuum theory". The increasing complexity of modern societies involves universal access to education, an inclination towards achievement and meritocracy; and a considerable detachment from ascribed criteria in the distribution of goods and services and in the access to opportunities for advancement in the social stratification ladder. Individuals in modern societies, including Singapore, experience a more fluid stratification system compared to societies in past centuries or even during the first decades of the 20th century. Such fluidity means that a person may move from one position to another in the social class ladder during his life time, and has definitely a good probability of beginning his career at a higher social class position than that of his parents.

Given these considerations, the continuum theorists propose that the phenomenon of social classes in modern societies is more accurately understood as "a finely graded continuum" as John F. Cuber and William F. Kenkel suggested in their 1954 study of social classes in the United States (Abrahamson, Mizruchi, and Hornung, 1976:171). The continuum approach has its main empirical backing from studies of occupational prestige mentioned earlier; for example, the work done by researchers at the National Opinion Research Center (NORC) (North and Hatt, 1947); and the scales of occupational prestige by Duncan (1961), Treiman (1977), and the U.S. Bureau of Census (Nam and Powers, 1983) among others.

Perhaps the best position in this controversy between the discrete and continuum approaches is presented by Landecker (1960, 1981). He has carefully analysed and elaborated on the "contradiction" in social class membership or position that Wright (1982) observed, and was particularly motivated to work

on the concepts of class boundaries and status crystallization by the controversy between the two approaches. Most important to the current discussion, however, is Landecker's conclusion on the two approaches based on his own empirical study of social stratification in Detroit's metropolitan area in 1952. He found "a major class boundary" separating a small elite group at the top of the distribution of status percentiles, from the rest of the sample. That elite was "characterized by a completed college education, occupation on a high professional or executive level, and the highest seven per cent of all income earners" (1976:180-182). He found no other major class boundaries, which were expected by the discrete class structure hypothesis. On the other hand, the continuum hypothesis was not completely supported either because of that clear cleavage found between the top elite and the rest. He concluded then:

The measurement of class boundaries attempted in this investigation reveals the presence of one major class boundary... below this elite boundary, the dominant feature is a status gradation of considerable continuity, aside from a few minor indentations. The view suggested by these findings is that neither the class structure nor the status continuum hypothesis takes precedence over the other, but rather that each is appropriate to a different portion of the total system of stratification (Landecker, 1976:184).

Considering the arguments just discussed on the discrete and the continuum approaches to the interpretation of social class rankings, it is then important to keep in mind that social class or socio-economic status (SES) scores have an heuristic value as they represent the reality of socio-economic differences among individuals in any society, but do not provide evidence of any fixed number of discrete social classes.

Two principles have been discussed so far concerning the nature and shape of the social class structure or social class pyramid. One principle refers to the most important components of social class. While there is no complete agreement

among sociologists, the most widely used components are: on the one hand, occupational status calculated based on the income and education of the incumbents of individual occupations; and on the other hand, a combined scale of income, education, and occupation prestige. As indicated earlier, the first alternative presupposes the availability of census data on individual income, which has not been recorded by the Singapore census so far. The other aspect is whether social class can be best understood as a continuum or discrete phenomenon. As the preceding discussion suggests, there is no reliable empirical evidence of a given number of distinct social classes, while the notion of a "finely graded continuum" (Abrahamson, Mizruchi and Hornung, 1976:171) has been better substantiated by empirical research.

With these points in mind, the nature and shape of Singapore's social class structure or pyramid may be summarised now. Tables 9.4 to 9.6 present two alternative views of the social class or SES scores calculated from our study's survey data on the total number of respondents who were economically active (holding a job) at the time of the interviews. The SES scores have been obtained in three steps. First, as the personal monthly income levels of individual respondents were originally recorded in 18 income intervals, these were converted into a percentile scale by allocating to each person the mean for each income interval, and then computing their cumulative percentage distribution. The number of years of formal schooling completed by each respondent were converted into a percentile scale in the same manner i.e., they were recorded according to their cumulative percentage distribution. Then these percentile scales of personal income and years of education were combined with the respondent's occupational prestige scores obtained by means of our Singapore Occupational Prestige Scores (SOPS), using the computational formula:

$$\text{SES} = (\text{INCOME} + \text{EDUCATION} + \text{SOPS}) / 3.$$

All these computations were completed using SPSS* [Statistical Package for the Social Sciences] (SPSS Incorporated, 1986).

Table 9.4 presents the social class or SES scores in equal intervals. Pursuing the aim of describing the realities of social

class in Singapore, the data in this table convey two principal messages. The first message is on two of the components of social class namely, income and education. It is clear that there are disparities in income and education: while men at the lowest extreme of the social class continuum have a mean monthly income of S\$160.20 and an average of 1.7 years of schooling, men at the top of the social class ladder have a mean monthly income of S\$2,900 and on the average, 16.1 years of formal education. The second message concerns the shape of the social stratification or social class hierarchy. The groups at the extremes of the continuum are rather small: only 4.8 per cent of all working respondents have scores below 20; and just 1.2 per cent have scores above 89. The five intervals between 20 to 69 are about the same size but very different from one another in income, education, and occupational prestige. In other words, considering the two messages jointly, there is no

TABLE 9.4
Distribution of Social Class (SES) Scores for All Economically Active Male and Female Respondents Including Average Personal Income and Average Years of Formal Education*

Social Class (SES) Scores (Low to High)	Mean Personal Monthly Income		Mean Years of Education		All Working Respondents % (1,052)
	Men (655)	Women (397)	Men (655)	Women (397)	
10-19**	160.20	230.10	1.70	0.92	4.8 (50)
20-29	396.69	361.27	3.80	3.34	12.0 (126)
30-39	576.87	440.79	4.97	6.52	18.0 (189)
40-49	755.86	532.72	6.66	8.81	15.2 (160)
50-59	938.62	683.60	8.58	10.23	16.6 (175)
60-69	1,319.91	1,097.40	9.96	10.65	15.3 (161)
70-79	1,695.90	1,252.59	10.70	11.48	9.1 (96)
80-89	2,379.24	1,929.35	12.41	14.00	7.8 (82)
90-99	2,900.00	2,458.33	16.10	15.33	1.2 (13)

* Figures refer only to Respondents who were working at the time of the interviews. A total of 1,059 respondents were working but seven have been excluded from this table due to incomplete information. Please refer to the accompanying text for further details.

** There were no cases falling below 10.

evidence of a concentration of people in one homogenous "middle" interval, which should be expected if the popular belief of a "middle class Singapore" were accurate.

The same points illustrated in Table 9.4 are confirmed in Table 9.5 which displays information on the total subsample of 1,052 working respondents and includes the occupational prestige scores obtained through the SNORC scale. People occupying different positions in the social class ladder differ from each other in all the three components of social class analysed in this study.

Another angle of analysis of the social class or SES scores is their grouping into a smaller number of categories or intervals. To avoid using an arbitrary criterion for the selection of cutting points along the continuum of social class scores, the most advisable procedure is to use the mean and standard deviation measures. The arithmetic mean of the distribution of social class scores is 50.53 and the corresponding standard deviation is 19.63 (rounded up to 20.0). Five intervals may be obtained applying these figures, as illustrated in Table 9.6. The objective of this table is to illustrate how the same conclusions reached

through the data in Tables 9.4 and 9.5 hold when using an alternative view of the same continuum of social class scores.

In other words, there is no evidence of a middle class Singapore when social class scores are grouped into a smaller number of categories according to the mean and standard deviations of the SES distribution. The assumption that Singapore is a middle class society (Reader and Wong, 1988) implies that the differences among the five categories of social class scores should be negligible. Clearly this is not the case, even among the three intermediate categories. People with social class scores ranging from 20 to 40 have average income, educational and occupational prestige levels that are significantly lower than people whose social class scores fall between 41 to 60; the same applies for this 41 to 60 category in comparison to the 61 to 80 group. Moreover, the percentage of respondents in each of these intermediate categories is 30.0 per cent, 31.8 per cent and 24.4 per cent respectively. These figures do not support the premise that "the middle" group is characteristically larger than the others.

What the figures do show is that, with the exclusion of the

TABLE 9.5
Distribution of Social Class (SES) Scores for All Economically Active Respondents Including Average Personal Income, Average Years of Formal Education and Occupational Prestige (SNORC)*

Social Class (SES) Scores	Mean Personal Monthly Income	Mean Years of Education	Mean SNORC Score
10-19	216.12	1.08	49.80
20-29	377.86	3.56	51.10
30-39	518.24	5.63	54.10
40-49	705.66	7.14	56.86
50-59	836.61	9.24	60.53
60-69	1,253.57	10.17	62.61
70-79	1,561.98	10.94	71.58
80-89	2,253.05	12.85	77.50
90-99	2,798.08	15.92	87.77

*Refer to notes in Table 9.4

TABLE 9.6
Five Intervals of Social Class (SES) Scores for All Economically Active Respondents Including Average Personal Income, Average Years of Formal Education and Occupational Prestige (SNORC)*

Social Class (SES) Scores	Mean Personal Monthly Income	Mean Years of Education	Mean SNORC score	All Respondents % (1,052)
Below 20	216.12	1.08	49.80	4.8 (50)
20-40	462.66	4.80	52.90	30.0 (315)
41-60	774.07	8.24	58.78	31.8 (335)
61-80	1,368.77	10.46	65.96	24.4 (257)
81 and higher	2,327.63	13.27	78.91	9.0 (95)

* The five categories of SES scores were obtained by using its mean (50.53) and standard deviation (19.63 rounded up to 20.0). Only respondents who were working at the time of the interview are represented in this table. A total of 1,059 respondents were working but seven have been excluded from the calculations due to incomplete information.

two extreme score intervals (i.e., below 20 and over 81), there is a relatively even distribution of people along the social class continuum, whether the social class scores are seen in fine divisions as in Tables 9.4 and 9.5, or in the larger groups displayed in Table 9.6. Because it is common to equate one's social class with the type of housing in which one lives, the figures on the social class scores of people living in various types of housing help further to put this point across. Indeed, saying that a person lives in a public housing apartment does not convey that person's social class standing as 86 per cent of the population live in Housing and Development Board (HDB) flats (Ministry of Communications and Information, 1988:105). More importantly, our data confirm that the full array of social class positions may be found among HDB dwellers. As illustrated in Table 9.7, the majority of the economically active respondents in all the five social class scores categories live in Housing and Development Board (HDB) apartments. The proportion of HDB dwellers in each social class score category decreases moderately from about eight out of every ten for those with scores below 60, to about seven out of ten in the 61 to 80 interval. The only drastic drop in HDB dwellers is observed in the top social class score category, with scores 81 and higher, where nearly six out of ten respondents live in HDB flats.

Because of the predominance of public housing as an alternative in Singapore, one finds the full array of social class scores among HDB dwellers. Rather than serving as an "equalizer" factor in social class, public housing has permitted people the opportunity to solve their housing problems, to dedicate their efforts to saving, and to improve other aspects of their standard of living. As different people use their initiative, energies and available cash in different ways, the process of social differentiation gains momentum.

Of course, another aspect of the figures in Table 9.7 is the significant correlation between housing type and social class scores. People at the top interval are more likely than others to be found in private apartments, semi-detached houses or bungalows. But still, only about 24.7 per cent of these top category Singaporeans live in this type of expensive housing; another

TABLE 9.7
Type of Housing of Working Respondents by their Social Class (SES) Scores
(In Percentages)

Type of Housing	Social Class Scores*					All
	<20	20-40	41-60	61-80	81+	
Shophouse, zinc roof or other structure	12.5	9.7	9.5	6.7	6.5	8.7
HDB apartment	83.3	88.3	84.0	77.6	57.0	81.2
Terrace house	4.2	0.6	2.8	5.5	11.8	3.7
HUDC or private flat, semi-detached house or bungalow	-	1.3	3.7	10.2	24.7	6.3
Total (N)	100.0 (48)	100.0 (309)	100.0 (325)	100.0 (254)	100.0 (93)	100.0 (1,029)

* The figures refer only to the respondents who were working at the time of the interview. Thirty of them have been excluded due to incomplete information on their type of dwelling or other aspects. The SES scores intervals have been calculated based on the mean and standard deviations as explained in the notes for Tables 9.4 to 9.6 and in the preceding pages. The correlation between type of housing and SES scores is statistically significant: Chi-square = 115.02; df = 12; $p < .0001$; Contingency Coefficient = .317

11.8 per cent in terrace houses; 6.5 per cent in shophouses, zinc-roofed houses or other structures; and most of them, 57.0 per cent, are found in HDB apartments.

An even more important aspect of social class in Singapore is ethnicity. Because of its intense social significance, the ethnic aspect of social class has been discussed separately and in detail, in Chapter Six where Chiew presents ethnic stratification in terms of education, income, occupation and occupational prestige. Reviewing the realities of social class at this juncture, a brief reference to the ethnic pattern in the distribution of social class scores will provide an alternative perspective of the problem and substantiate the findings presented in Chapter Six. Table 9.8 illustrates the ethnic composition of the five intervals of social class (SES) scores introduced in the previous pages. It is important to keep in mind that this table refers only

to working or economically active respondents and not to the total sample.

One of the most noteworthy aspects of Table 9.8, is that each interval or category of social class scores, from the lowest to the highest, presents a multi-ethnic composition, and in each interval, the largest group is the Chinese. While this is expected, considering that Chinese form 76.1 per cent of the total population (Ministry of Communication and Information, 1988: 14), the socio-political advantage of this multi-ethnic distribution is that Singapore does not have any one ethnic minority fully concentrated at the bottom of the social class ladder.

Nevertheless, the percentage distribution of each ethnic group for every social class interval indicates that Malays are more likely to be found in the intermediate score intervals 20 to 40 (29.2 per cent of people in this category are Malays) and 41 to 60 (24.2 per cent of all those in this interval are Malays). Of the three main ethnic groups, Indians present the most even distribution across all the five social class score intervals, with their highest representation in the intermediate groups 41 to 60 (23.0 per cent of all people in this category are Indians),

TABLE 9.8
Working Respondents' Ethnicity and Social Class (SES) Scores*
(In Percentages)

Ethnicity	SES Scores				
	<20	20-40	41-60	61-80	81+
Chinese	56.0	47.3	49.0	57.2	70.5
Malays	12.0	29.2	24.2	13.2	6.3
Indians	20.0	21.0	23.0	25.3	18.9
Others	12.0	2.5	3.9	4.3	4.1
Total (N)	100.0 (50)	100.0 (315)	100.0 (335)	100.0 (257)	100.0 (95)

* Please refer to page 260 for a description of the calculation of score intervals. Figures in this table refer only to the 1,059 working respondents; seven of these were excluded due to incomplete data. The correlation between ethnicity and social class scores is statistically significant: Chi-square = 52.187; $df = 12$; $p < .0001$. Contingency Coefficient = .217

and 61 to 80 (25.3 per cent Indians). The Chinese present a wider variation; the lowest proportion of Chinese (47.3 per cent) is found in the score interval 20 to 40, and the highest proportion (70.5 per cent) in the top category 81 and higher. Basically, these figures corroborate the findings discussed in Chapter Six concerning the relatively lower position of Malays in the social class structure, compared to Chinese and Indians.

One final set of figures serves to round up the discussion on the social class or SES scores used in this section, by focusing on the link between the different components of social class examined in the preceding pages. Table 9.9 presents the Pearson's zero-order correlations for education, income, occupational prestige and social class scores. The coefficients have been calculated on the total number of economically active respondents, that is, those who were working at the time of the interviews, both males and females. The actual coefficients vary depending on the type of subsample used. It may be noticed that correlations among the same variables have been reported in various ways in previous chapters but, given the theme of each chapter, different subsamples have been used. Nevertheless, the pattern described in the preceding chapters is confirmed in Table 9.9, that is, there is a strong correlation be-

TABLE 9.9
Matrix of Pearson Zero-Order Correlation Coefficients for Economically Active Respondents*

Variables	Income	Education	SOPS	SNORC
Social Class (SES) scores	.7389	.8042	.7520	.7446
Income (personal monthly income)	-	.4551	.5108	.4749
Education (years of formal education)	-	-	.4444	.4462
SOPS (Singapore Occupational Prestige Score)	-	-	-	.9605

* Please refer to the description of the SES calculation on page 260. These coefficients refer only to the 1,059 working respondents but seven of them have been excluded from the calculations due to incomplete data. The level of significance for all the coefficients is $p < .001$.

tween income, education and the two scales of occupational prestige calculated in this study, SOPS and SNORC. More important at this juncture, is the very strong correlations found between their social class or SES score and the respondents' personal monthly income (.7389); years of formal education (.8042); the prestige of his current occupation as measured by SOPS (.7520) and by SNORC (.7446); and the correlation between the two alternative measures of occupational prestige SOPS and SNORC (.9605).

CONCLUSION

This chapter has focused on taking stock of the goals accomplished in this study and how the findings portray some of the realities of social class in Singapore. As a descriptive study, Chapters Two to Nine provide detailed first-hand information collected from the study survey and Chapters Four, Five, Six and Seven also include figures from past Singapore censuses. The first goal of replicating internationally recognized scales of occupational prestige in Singapore has been attained. Researchers in Singapore can now refer to the process we have followed and the outcome of the replication discussed in Chapter Four and in the first section of this final chapter. The detailed list of occupations with their respective SOPS and SNORC scores has been included in Appendix 2 to facilitate their use by other researchers.

The goal of providing empirical information on Singapore's current social stratification hierarchy or social class pyramid had been accomplished in three ways. First, Chapters Three, Four, and Five have discussed separately the details on education, occupation and income, respectively. Second, the chapters on ethnic stratification (Chapter Six), social mobility (Chapter Seven), and status attainment (Chapter Eight), present income, educational and occupational differences in the context of Singapore as a multi-ethnic nation striving to provide its citizens with better opportunities for social mobility and in relation to the relative influence that parental education and occupation play in the occupational attainment of children. Third, in this final chapter, three main components of social class (education, occupational prestige and income) have been

presented jointly in the form of a social class or socio-economic scale with the main aim of describing the shape of Singapore's social class structure.

The third and final goal of this study is to document our findings as thoroughly as possible to facilitate further research. There is no doubt that information gaps may be found in each chapter. While the individual authors of chapters and sections have striven to document their findings fully, the decision on the optimum amount of information that could be included has been a difficult one. We all have to set specific boundaries for our respective topics primarily because the possible angles of analysis are too numerous to be covered within the scope of this volume. Because of this, most chapters indicate that further analysis of the data and collection of further data need to be pursued.

Finally, of the various realities of social class discussed in this chapter, one is of particular significance because it encompasses all the others. That reality is that Singapore is not a "middle class society". The term "middle class society" is an appealing term in the popular mass media and a convenient label some people use to convey the feeling that Singapore "is doing well" in social and economic development. However, the data from our study confirm that, while Singapore is indeed progressing rapidly both socially and economically, it is not a "middle class society". The term has specific connotations in sociology that our empirical findings, including the analysis of secondary census data, do not substantiate.

NOTE

1. The definition of the standard deviation is its formula namely, "the square root of the arithmetic mean of the squared deviations from the mean" (Blalock, 1972: 80).

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APPENDIX 1

NOTES ON RESEARCH PROCEDURE

Ko Yiu Chung, Chiew Seen Kong and Stella R. Quah

As indicated in the previous chapters, the basic purpose of the study is to describe the social stratification hierarchy in Singapore and to provide a scale of occupational prestige for Singapore's occupations comparable to internationally known scales. Our twofold purpose was used as the point of reference guiding our selection of research design and sampling design, the nature of the questionnaire, data collection, and the approaches to data analysis. This appendix complements the information on methodological procedures provided in the individual chapters by presenting the details of the overall research procedure in five sections, each dealing with one of these five aspects.

Research design

The selection of an appropriate research design in any sociological study must necessarily be guided by the nature of the study's objectives. Our goals of obtaining a reliable description or "map" of the structure of social stratification in Singapore and to work out an occupational prestige scale, point out to a survey design as the most appropriate choice. The advantages of the survey design far outweighed its disadvantages and steps were taken to compensate for some of the latter. One illustration of this aspect was the problem of a historical perspective. One-time surveys cannot offer the same historical view of the phenomenon under investigation that may be obtained through other research designs such as panel or longitudinal design (with or without time-series analysis) or a historical document analysis, or even a before-after design. However, this disadvantage was minimised by including questions in the interview that tapped changes over time as perceived and reported by the subjects of our study. Specific examples of this approach are the occupational history or career of the respondent; the occupation of the parents and their standard of living when the respondent was 16 years old; and the respondent's social mobility compared to that of his or her former classmates.

Another difference between a one-time survey and a panel or longitudinal design is cost. It is evident that a one-time survey design is financially more feasible than a panel study. Nevertheless, a one-time survey may be replicated any number of times if financial assistance is found for the second and subsequent studies. That is, it is possible for us or other researchers to use the same questionnaire and re-interview the same sample of respondents once more after some years or a number of times over a period of several years. In sum, although a one-time survey does not include replication as a necessary step, it does not preclude its use in a longitudinal design and actually provides all the basic elements for a longitudinal study.

The number of subjects to be included in the study is yet another important consideration in the selection of study design. As we wanted to provide a description of the situation in Singapore, it was imperative to base the study on a representative sample of the Singapore population. Thus, we had to deal with a larger number of respondents. A survey design is the best design to cover a large sample of individuals compared to designs such as observation or in-depth case studies which are more suitable when researchers are dealing with a small number of cases.

Sampling design

As implied above, the sampling design applied in this study was a random sample of individuals from the total population of Singapore citizens, using a pool of computer-generated random numbers. The definition of our population as the total number of Singapore citizens was arrived at based on two main considerations. On the one hand, we wanted to cover a national sample and thus did not consider possible subpopulations such as individual housing estates, or one ethnic community, or the aged, or the young. On the other hand, a fundamental requirement to draw a random sample is the availability of a reliable sampling frame, that is, a complete and accurate listing of all the elements of a given population from which the random sample may be obtained. There is no available sampling frame of all the Singapore population that is, citizens and non-citizens. But the Register of Electors is the most accurate and reliable list of the population of Singapore citizens aged 20 years and above. We used the latest available Register of Electors at the time the sample was drawn (the end of 1983) that is, the 1982 Register of Electors.

The actual sampling procedure involved several steps following the requirements of the study and the nature of the sampling frame. We considered ethnicity as an important criterion because the three main ethnic communities in Singapore vary in size significantly and ethnicity is a highly relevant aspect of social stratification. According to the 1980 Singapore Census, 76.9 per cent of the population were Chinese; 14.5 per cent were Malays; 6.4 per cent were Indians; and 2.1 per cent were classified as "Others". These proportions were close to those of the population of citizens which included 79.3 per cent Chinese; 13.9 per cent Malays; 5.9 per cent Indians; and 0.8 per cent "Others" (Khoo, 1981a:11).

Concerning the nature of the sampling frame, the Register of Electors is published usually once every four years by constituency, with one volume per constituency and the names of citizens listed in alphabetical order by address with the streets also listed in alphabetical order. The information provided covers each citizen's name, address, sex and identification card number. There were 75 constituencies at the time of sampling and thus the 1982 Register of Electors had 75 volumes. None of the volumes exceeded 999 pages and each full page contained information on a maximum of 50 citizens.

The sampling procedure was established based on these two aspects; the selection of sufficient numbers of citizens from every one of the three main ethnic groups and the application of a random drawing of cases suitable to

the format of the information provided in the Registry of Electors. What was a sufficient number of Chinese, Malays, and Indians? The answer to this question was obtained by calculating the answers to two key questions used in sampling when the incidence or occurrence of the main variable in the population is unknown: (a) How accurate does one wish to be in estimating the study variables in the population? and (b) How much error in that estimation can one afford? (Cochran, 1977: 72-77). We wanted to be able to estimate the phenomena under study within ± 5 per cent of their true distribution in the population (confidence limits). And we were prepared to accept no more than 5 chances out of 100 of being wrong in our estimation (confidence level). Furthermore, considering the difficulties usually encountered in reaching the individuals in a sample of fixed names and addresses, we also took into account three main aspects of "sample mortality" that is, the estimated response rate as refusals are always possible; the estimated coverage rate as some names and/or addresses may not be located; and the estimated eligibility rate, as some errors in recording may include individuals that do not meet the study requirements.

With all these criteria established, we referred to sampling tables specially calculated for the purpose of determining samples sizes (Arkin and Colton, 1962: 145-152). To illustrate, for a population size (N) of 1,115,958 economically active persons aged 10 years and older reported in the 1980 Census, confidence limits of ± 3 per cent, and a confidence level of 95 per cent, the sampling tables recommend a total sample size (n) of 895 persons. Now, this number may be adjusted upwards using estimates of the sampling mortality aspects mentioned above, for example, 75 per cent response rate (rr); 85 per cent coverage rate (cr), and 75 per cent eligibility rate (er). These estimates are derived from experiences of previous national surveys conducted in Singapore. The upward adjustment of the sample size is calculated using a formula based on the sampling fraction (f) thus:

$$f = \frac{n}{(rr)(cr)(er)/N}$$

In our illustration, the total sample size of 895 is then increased or "inflated" to 1,872 using the above formula in order to take into account the expected sample mortality. However, this number was increased further to 2,550 as we wanted to assure that the two main ethnic minorities would be well represented. Our target was to select 1,200 Chinese, 900 Malays, 400 Indians and 50 Others to compensate for the expected problems of refusal, coverage, and eligibility. Given the ethnic distribution of the population, a simple random sample would consist of about 77 per cent Chinese, 15 per cent Malays, 6 per cent Indians, and 2 per cent or less "Others". The numbers of Malays and Indians would then be too small to yield an adequate description of the social class structure of these minority communities. It was therefore necessary to over-sample the Malays and Indians. The category "Others" was (and still is) too heterogenous in composition and negligible in size to warrant extra efforts and the spending of scarce resources to study them in detail. However, this group was included and interviewed as part of the total sample to provide an overall or aggregate view of the total population.

After determining the sample size and the number of citizens from each main ethnic group that we needed to draw, the next step in the sampling procedure was to set the specifications for the pool of computer-generated random numbers. Each random number had seven digits to be used as follows: the first two digits were used to select the volume (constituency) out of the total 75 volumes; numbers whose first two digits were outside the range 01 to 75 were discarded. The next three digits of each seven-digit number represented a page (001–999) in the given volume; numbers with the third to fifth digits exceeding the total number of pages in the given volume were disregarded. The final two digits in every seven-digit random number were used to select a name from the list of names in the given page of the given volume; if the sixth and seventh digits of the random number exceeded the total number of names on that page, that random number was disregarded. This procedure continued until the sampling of names from a particular ethnic group was reached. This procedure is usually termed “the Haldane’s method of continuing sampling” which consists on sampling “until *m* number of items have been found” (Cochran, 1977: 76–77).

The identification of ethnicity based on names only, presented some difficulties. Chinese and Indian names were relatively easy to identify. Yet, as about nine out of every ten Malays and about one sixth of the Indians were Muslims, and they had Muslim names, it was more difficult to discern Malays from Indians among the Muslim names in the Register of Electors. One measure we took to minimize errors in this regard was to use the terms “bin” (“son of” in Malay) and “binte” (“daughter of” in Malay) as distinguishing features of Muslim names of Malays; Muslim names without the terms “bin” and “binte” were assumed to be Indian Muslim names.

The Questionnaire

The construction of the questionnaire was accomplished through numerous, long and detailed discussion sessions of the research team from February to September, 1983. A great deal of attention was given to the nature, wording and sequence of questions and scale items. Both open-ended and closed-ended questions were included in various combinations. The principal guidelines in the formulation of questions was the list of the key variables in the study, namely, the occupational history of the respondent, his or her parents, spouse and best friend; the educational attainment of the respondent, his or her parents, spouse and best friend; personal, spouse’s and household income; personal, spouse’s and parental religious affiliation; ethnicity; age; sex; type of housing; self class identification; perceptions of mobility compared to parents, best friend and schoolmates; an array of social and political attitudes and social practices such as participation in organizations and social activities; and the respondents’ rating of the social standing of 109 occupations in Singapore.

Some of these variables were ascertained in various ways. For example, educational attainment was recorded in terms of the highest level of formal education completed as well as the total number of years of formal education; and occupation was measured in terms of job title, job duties; the nature of

the organization in which a given respondent worked; and the first, current or last occupation held.

Regarding the Likert-type attitudinal scales used to ascertain social values, our approach was to combine our own scale items with some items from relevant tested and published scales. The section on “powerlessness” in Horton and Thompson’s (1962; Robinson and Shaver, 1973:281-282) “Political Alienation Scale” was taken in full. Three of the five items of Rosenberg’s (1957; Robinson and Shaver, 1973:612-614) “Faith in People Scale” were included in the questionnaire with slight modifications in wording. To ascertain the respondents’ attitudes towards future-orientation, and the differential power of the poor and the rich in the community, we put together a set of six items from James’ (1957; Robinson and Shaver, 1973:240-23) “Internal-External Locus of Control Scale”; the “Multidimensional Internal-External Control Scale” by Gurin et al., (1969; Robinson and Shaver, 1973:218-224); and other items worded by us.

One key objective of this study is the construction of an occupational prestige scale based on occupations found in Singapore. We have labelled this scale the Singapore Occupational Prestige scale or SOPS. The process of construction of SOPS took a considerable proportion of the time we spent formulating our questionnaire and involved various steps. The first problem to be solved was the method of scale construction. We decided to replicate the system used by the National Opinion Research Center (NORC) of Chicago whereby 2,900 survey respondents were used as “judges” to rate the social standing of a list of 90 occupations using a five-point scale. The scores given were 5 (excellent standing), 4 (good standing), 3 (average standing), 2 (somewhat below average standing), and 1 (poor standing). The mean score assigned to a given occupation by the respondents was then used as the prestige score of that occupation (North and Hatt, 1947; Nam and Powers, 1983:9).

The second step was the compilation of the list of occupations to be rated. While ideally, a complete list of all existing occupations in Singapore was desirable, it was not the most practical and realistic goal. A long list of occupations would have tired the respondents and it was unrealistic to assume that all possible occupations could be identified and listed. On the other hand, we wanted to cover as many relevant occupations as possible. Therefore, the 1980 Census of Singapore was used as our frame of reference. All the occupations listed in the 1980 Census (Khoo, 1981b:230-269) which were reported to have 5,000 workers or more were selected for inclusion in our list. There were 41 occupations meeting this criterion.

These 41 occupations comprised 604,085 persons or 56.1 per cent of the total 1,077,090 employed persons in the 1980 Census. Among these 41 only four could be classified as “white collar” occupations. Similarly, all main professions covered less than 5,000 people and, at the other extreme, there were none or very few number of cases of socially relevant occupations such as Member of Parliament, airline pilot, masseuse, prostitute, social escort, smuggler, Protestant pastor, Catholic priest, Taoist priest, Buddhist monk, Hindu priest and Imam (Muslim religious leader), to mention but a few. It

was then necessary for us to expand the basic list of 41 occupations. A final list of 109 occupations, including housewife, was compiled. These 109 occupations were then sorted out into three lists taking care that each list would have a fair representation of the full spectrum of occupations following Treiman's (1977:235-259) Standard International Occupational Prestige Scale, as a model. A few occupations were repeated in each list and each list had 42 occupational titles.

All three lists were printed in the questionnaire as Occupations Lists A, B and C, but each respondent was asked to refer to only one of the three to facilitate his or her ranking of occupations. Forty-two occupations are easier to assess than 109. A random procedure was used to assign each list to about a third of the total respondents. During the interview, the presentation of the occupations list was preceded by a brief explanation of how the respondent was to indicate his or her rating of each occupation. The respondents were asked to consider five options that is, "excellent standing or status"; "good standing or status"; "average standing or status"; "below average"; and "poor or low in standing or status". At the data analysis stage, these options were given scores ranging from 5 (excellent standing) to 1 (poor or low standing). The questionnaire was written in three languages i.e., English, Malay and Mandarin. The original English version was translated into these two other languages by specially selected translators who were native speakers of Mandarin and Malay. Their versions were then back-translated by other translators to verify the quality of the final Mandarin and Malay versions. The research team members who speak Mandarin put the final touches to the Mandarin version. As it was expected that many respondents would speak a Chinese dialect such as Hokkien, or Cantonese, verbal versions of the questionnaire in these dialects were taped and used during the training of interviewers in order to provide all Chinese interviewers with a standardized version of the questions and key concepts. A similar procedure was followed with the Indian interviewers. The questionnaire, in its three versions, was then pretested. The pretesting exercise served a twofold purpose. On the one hand, by applying it to a group of people from various communities who were not part of the study sample, the gaps and problems of each question could be identified as well as the difficulties related to question sequence and language. On the other hand, the pretesting was a good "dress rehearsal" for the team of interviewers whereby problems of transportation, introduction to the respondent, rapport-building, actual recording of answers, noise, presence of third parties and other related aspects could be experienced in the field and then discussed with the members of the research team.

Data Collection

The data collection began with a team of 40 interviewers (27 Chinese, 12 Malays, and one Indian) recruited from among university students taking sociology and other social science courses. The number of Indian interviewers was increased later on. The interviewers were assigned to specific respondents under the principle of matching ethnic background to minimize possible cultural biases affecting the acceptance of an interviewer by a sampled citizen and the building of rapport during the interview. All interviewers

underwent two full days of intensive training in the use of the study questionnaire and other related matters. We included the University of Michigan's Survey Research Centre Interviewing Manual among the materials we used during the training of interviewers. The training was conducted by all the members of the research team who also worked as field supervisors during the entire phase of data collection. The first training session began on Monday, 24 October 1983. This was the first day of the mid-year vacation for our university students. As our interviewers were hired from a pool of university students, the data collection phase had to be scheduled to fit the students' vacation.

This feature of the interviewing team caused some delay in the process of data collection. The pace of the interviewing phase was fast during the mid-October to mid-November vacation and then slowed down considerably during the second academic term (mid-November 1983 to the end of March, 1984). The process of interviewing accelerated again during the long vacation (from the beginning of April to the end of June, 1984), slowed down in July and was finally completed in September, 1984. During those months some interviewers resigned and new ones were recruited but all new interviewers underwent the same intensive training given to the first group. As field supervisors, we monitored the interviewing process closely, did spot checks, visited the homes of randomly selected respondents who had already been interviewed to confirm that the interviews had taken place satisfactorily, and followed interviewers to the field periodically.

The interviewers were instructed to make at the most three visits and to abandon a case after the third unsuccessful visit (i.e., when the sampled person could not be found). Following this procedure, we were able to interview 1,627 out of the original 2,550 sampled cases; thus we obtained an overall response rate of 64 per cent. This rate approximates those of other surveys conducted in Singapore. The two main reasons for non-response were that people had moved to a new (unknown) address and that the house or apartment building had been demolished or left vacant for subsequent demolition. These are particularly common reasons for non-response when the sample design consists of fixed names at fixed addresses, which was the system used in our study. The refusal rate in our study was less than ten per cent.

Data Processing and Data Analysis

After the field work was completed, the next step was the coding of open-ended questions and the coding of occupational categories. A small team of university students was hired and trained to do the coding according to specifications we compiled in a codebook. The coding stage was followed by the transferring of the questionnaires data into coding sheets which the NUS Computer Centre operators subsequently used to record the raw data onto a magnetic tape file. We then created a SPSS^x (Statistical Package for the Social Sciences) file to be used as the principal instrument of data analysis.

The data analysis of the survey data was conducted using the National University of Singapore's IBM 3081 KX2 main frame computer and the SPSS^x

TABLE A
Comparison of Distribution of Education, Occupational Prestige (SOPS) and Household Income Between Weighted and Unweighted Samples

VARIABLES	WEIGHTED SAMPLE			UNWEIGHTED SAMPLE		
	Mean	Stand. Dev.	Cases	Mean	Stand. Dev.	Cases*
YEARS OF FORMAL EDUCATION						
Males	8.14	3.94	2,668	8.16	3.66	717
Females	6.91	4.28	2,469	7.07	4.04	716
Total	7.55	4.15	5,138	7.62	3.89	1,444
OCCUPATIONAL PRESTIGE (SOPS)						
Males	35.90	21.70	2,563	34.75	21.04	696
Females	35.54	15.24	2,787	34.69	15.39	810
Total	35.71	18.62	5,349	34.72	18.21	1,506
MONTHLY HOUSEHOLD INCOME (\$\$)						
	WEIGHTED PERCENTAGE		UNWEIGHTED PERCENTAGE			
Below 400	2.9		2.9			
400-799	16.5		18.6			
800-999	10.3		11.8			
1,000-1,499	19.5		21.4			
1,500-1,999	13.3		12.9			
2,000-2,999	16.5		14.8			
3,000-3,999	9.6		8.1			
4,000 and over	11.3		9.5			
Total	100.0		100.0			
(Number of Cases)*	(5,200)		(1,488)			

* The sample in this table excludes non-working respondents.

(Nie et al., 1985). After the checking and correcting of recording and transferring errors was accomplished, each of us undertook the data analysis proper in various forms according to the needs of our respective themes, as may be appreciated in the preceding chapters. Both parametric and non-parametric statistics have been applied, as well as analytical techniques such as regression, factor analysis and path analysis. Nevertheless, we have tried to present the findings as simply as possible without missing the principal meaning of the data.

One final point that may be useful to mention at this juncture is the issue of sample weighting that one sometimes finds in studies that compare subsamples of various sizes. In terms of ethnic background, our total sample consisted of 52.4 per cent Chinese; 22.8 per cent Malays; 21.2 per cent Indians; and 3.5 per cent "Others". Compared to the ethnic distribution of the total Singapore population described earlier, the Chinese were under-represented in our sample while the other three ethnic groups were over-represented in various degrees. This over-representation of minorities was achieved intentionally, as indicated in the description of our sampling procedure. However, for the description of total sample characteristics, we had planned to use a weighting system to match the actual ethnic distribution in the population. The relative weights to be used were: 5.56 for the Chinese subsample; 1.91 for the Malay subsample; 1.0 for the Indian subsample; and 0.94 for the subsample of "Others". The application of these weights to the key variables education, occupational prestige (SOPS) and income is shown in Table A.

As can be appreciated in Table A, the differences between the weighted and unweighted distributions in terms of means, standard deviations and percentages, are negligible. Moreover, one of the main disadvantages of using weighted subsamples is the adjustments in calculations that have to be made at every step of data analysis. Based on these two considerations, we decided to use the original, unweighted sample throughout this study.

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APPENDIX 2
OCCUPATIONAL PRESTIGE SCORES SOPS AND SNORC, MEAN,
STANDARD DEVIATION AND SAMPLE SIZE FOR 109
OCCUPATIONS, SINGAPORE, 1983-1984*

Stella R. Quah, Ko Yiu Chung and Chiew Seen Kong

OCCUPATION	SOPS	SNORC	MEAN	S.D.	(N)
Airline hostess	53	70	3.524	.890	544
Airline pilot	89	88	4.410	.763	542
Architect	89	88	4.380	.737	541
Artist	49	69	3.438	.962	543
Banker	87	86	4.309	.798	517
Barber	14	51	2.561	.961	542
Bargirl	3	29	1.459	.796	541
Beautician	29	60	3.023	.895	517
Beggar	3	26	1.309	.738	540
Boatman or barge crew	10	47	2.344	.938	540
Bookkeeper	43	67	3.354	.877	520
Bricklayer	17	52	2.591	.974	541
Buddhist monk	30	55	2.771	1.213	537
Building contractor	60	73	3.658	.877	538
Bus conductor	12	51	2.555	.905	519
Bus driver	21	59	2.924	.827	539
Captain in the armed forces	81	81	4.072	.798	541
Carpark attendant	12	49	2.449	.942	539
Carpenter	25	60	2.983	.884	542
Cashier	35	63	3.134	.927	539
Catholic priest	47	64	3.202	1.246	510
Chemist	78	80	4.017	.849	538
Chinese physician	47	71	3.569	.988	540
Coffee house proprietor	46	66	3.276	1.039	519
Coffee shop proprietor	49	67	3.369	1.015	540
Compositor, type setter	28	61	3.027	.870	513
Computer machine operator	65	75	3.754	.853	537
Construction/house painter	20	55	2.767	.928	537
Cook	32	62	3.120	.944	541
Dentist	85	84	4.222	.842	517
Dock Worker	18	52	2.608	1.029	538
Doctor (physician)	97	93	4.673	.641	517
Domestic servant	9	47	2.327	.903	539

OCCUPATIONAL PRESTIGE SCORES SOPS AND SNORC, MEAN,
STANDARD DEVIATION AND SAMPLE SIZE FOR 109
OCCUPATIONS, SINGAPORE, 1983-1984*
(Continued)

OCCUPATION	SOPS	SNORC	MEAN	S.D	(N)
Electrical wireman	36	64	3.190	.951	542
Engineer	95	91	4.565	.637	517
Engineering technician	78	81	4.072	.810	541
Executive officer of NTUC	73	78	3.918	.905	515
Fisherman	15	49	2.464	1.023	515
Foreman	46	67	3.354	.861	528
Furniture maker	33	63	3.156	.855	538
Gardener	12	46	2.300	1.006	550
General manager of factory employing 500 or more workers	86	85	4.268	.814	1,614
Hawker	29	59	2.952	1.051	520
Hindu Priest	29	56	2.804	1.151	520
Illegal lottery agent	6	30	1.524	.966	513
Imam (Islamic religious leader)	40	63	3.170	1.229	518
Industrial relations officer in factory with over 500 workers	72	78	3.880	.851	1,597
Insurance agent	39	64	3.206	.945	519
Judge	93	93	4.661	.787	552
Ladies' dressmaker	29	62	3.082	.884	1,081
Launderer	11	48	2.415	.931	530
Lawyer	94	92	4.605	.685	531
Lift attendant	13	47	2.333	1.001	517
Lorry driver	12	51	2.542	.891	518
Machine fitter	39	65	3.261	.883	551
Manager of department in factory with over 500 workers	81	82	4.078	.809	1,600
Masseuse	6	39	1.932	.965	529
Member of Parliament	85	86	4.281	.907	530
Men's tailor	29	61	3.059	.892	1,078
Narcotics peddler	6	26	1.302	.883	550
Newspaper editor	73	78	3.902	.845	529
Nurse	56	73	3.630	.878	519

OCCUPATIONAL PRESTIGE SCORES SOPS AND SNORC, MEAN,
STANDARD DEVIATION AND SAMPLE SIZE FOR 109
OCCUPATIONS, SINGAPORE, 1983-1984*
(Continued)

OCCUPATION	SOPS	SNORC	MEAN	S.D	(N)
Office cleaner	12	44	2.202	.997	549
Office clerk	22	60	3.016	.797	550
Office messenger	11	47	2.370	.953	549
Permanent secretary of a government ministry	86	86	4.324	.833	516
Pig farmer	15	47	2.325	1.093	530
Plumber	22	57	2.833	.962	520
Policeman	50	71	3.547	.946	558
Policewoman	43	68	3.382	.867	532
Postman	23	56	2.806	.959	520
Primary school teacher	61	73	3.671	.882	550
Private in the armed forces	27	58	2.890	1.046	519
Protestant pastor	44	64	3.178	1.193	545
Prostitute	3	24	1.221	.674	547
Reporter	59	71	3.573	.873	546
Road sweeper	9	42	2.122	.980	550
Sailor	16	53	2.640	.950	519
Salesgirl	10	52	2.576	.815	550
Salesman	19	57	2.846	.848	531
Secondary school teacher	74	79	3.931	.807	522
Shoe maker	14	48	2.400	.992	520
Shoe repairer	9	46	2.276	.896	532
Singer in a nightclub	13	45	2.229	1.080	510
Smuggler	3	24	1.221	.696	533
Social escort	8	39	1.960	1.021	551
Sole proprietor of grocery store	48	69	3.428	.915	552
Sports coach (football)	47	69	3.447	.838	550
Store clerk	20	58	2.921	.776	533
Taxi driver	23	60	2.975	.833	529
Taoist priest	23	52	2.599	1.187	506
Telephone operator	26	60	2.994	.896	505
Tour guide	32	62	3.081	.914	506
TV actor/actress (local)	30	62	3.100	.920	551
TV news announcer	64	75	3.740	.790	511
TV repairer	29	61	3.069	.846	508

**OCCUPATIONAL PRESTIGE SCORES SOPS AND SNORC, MEAN,
STANDARD DEVIATION AND SAMPLE SIZE FOR 109 OCCUPATIONS,
SINGAPORE, 1983-1984***
(Continued)

OCCUPATION	SOPS	SNORC	MEAN	S.D	(N)
University lecturer	96	93	4.652	.609	529
Unskilled construction worker	10	43	2.162	.977	512
Unskilled factory worker	9	45	2.236	.920	530
Unskilled garage worker	9	42	2.120	.925	508
Vegetable farmer	26	58	2.878	1.061	549
Waiter	8	44	2.214	.917	513
Waitress	6	42	2.125	.895	1,039
Washerwoman	12	43	2.134	1.037	508
Watch and clock repairer	21	58	2.879	.883	547
Watchman	12	46	2.279	.991	531
Welder	29	60	3.022	.901	548
Housewife	42	65	3.233	1.107	1,585

* SOPS refers to the Singapore Occupational Prestige Scores, and SNORC refers to the Singapore NORC scores. The procedure used to calculate SOPS and SNORC may be found in Chapter 4, Chapter 9 and Appendix 1. The means and standard deviations are based on the five rating categories used by the respondents for each occupation i.e., "excellent" (5); "good" (4); "average" (3); "below average" (2); and "poor" (1). The sample size refers to the number of respondents who were randomly assigned to one of the three lists of occupations; this number excludes respondents who did not answer the respective questions.