Chua, Yee Yen

WAGE DIFFERENTIALS IN PENINSULA MALAYSIA

University of California, Santa Barbara PH.D. 1984

UNIVERSITY OF CALIFORNIA
SANTA BARBARA

Wage Differentials in Peninsula Malaysia

A Dissertation submitted in partial satisfaction
of the requirements for the degree of

Doctor of Philosophy

in

Economics

by

Yee Yen Chua

Committee in charge:

Professor George J. Borjas, Chairman

Professor Llad Phillips

Professor Perry Shapiro

February 1984

The Dissertation of Yee Yen Chua
is approved:

Committee Chairman

February 1984

February 1984

ACKNOWLEDGEMENTS

My greatest debt is to my major adviser, Professor George J. Borjas. He stimulated my interest in this dissertation topic. I shall be ever grateful to him for his guidance at every stage of this research.

I am also very grateful to Professor Llad Phillips for his comments and suggestions throughout the research. He spent long hours with me patiently pointing out my mistakes, and helping to correct them. However, I alone remain responsible for any errors.

I also wish to express my appreciation to Professor Perry Shapiro for his encouragement.

My friends Associate Professors Ismail Salleh and Ishak Shari of National University of Malaysia have provided significant help in securing the data from Malaysia, and I am indebted to them.

Finally, I thank my wife, Lay Jin, for her patience and encouragement. She has supported me through both the difficulties and joys of my life for a very long time.

"Terima kasih"

VITA

May 30, 1943 -- Born -- Fujian

1961-1963 -- Teachers' Training College, Johor Bahru

1975 -- B.A. (Honors), National University of Malaysia

1977 -- M.A. (Economics), University of Manchester, England

1977-1980 -- Lecturer in Economics, National University of Malaysia

1982 -- M.A. (Economics), University of California, Santa Barbara, USA

1983 -- C.Phil. (Economics), University of California, Santa Barbara, USA

PUBLICATIONS

Monetary Systems: The End of the Common Currency in Malaysia and Singapore. (Unpublished M.A. Dissertation, University of Manchester, England.)

"The Role of Foreign Investments in the (Malaysia) New Economic Policy," Quarterly Economic Bulletin (in Chinese), July 1980.

FIELDS OF STUDY

Labor Economics - Professors Llad Phillips and George J. Borjas

Econometrics - Professors Thomas F. Cooley and Llad Phillips

International Finance -- Professor John E. Pippenger

ABSTRACT

Wage Differentials in Peninsula Malaysia

by

Yee Yen Chua

Wage differentials between sexes and among ethnic groups are world-wide phenomena. This study investigates the extent of sex and racial discrimination in Peninsula Malaysia. A statistical analysis is performed to determine the degree of discrimination. The analysis uses the procedure that was introduced by Oaxaca in 1973. The portion of the wage differentials that is not explained by differences in observable personal characteristics is referred to as "discrimination".

The empirical analysis presented in this study is based on the data sets of the Household Income Survey, 1973 and Labor Force Survey, 1974 (the reference year for both surveys is 1973). The findings of this study suggest that the discriminatory contents of earnings differentials between Malays and non-Malays are extremely high among the female workers, and also in the rural community. The magnitude of sex discrimination is also large, especially within the non-Malays group. There is, however, a possibility for these disadvantaged groups to catch up with the favored groups, if the former were given opportunity for higher education.

ABBREVIATIONS/ACRONYMS

Terms	Meanings
Age	
age	Age of individual (years).
age^2	Age of individual-squared.
Household	
HEAD	Head of the family who has the major financial responsibility in the household.
Working-Hours	
ln(hw)	Working-hours per month in natural logarithmic form.
Education	
NONE	No certificate.
OTHER	Not applicable.
LCE	Lower Certificate of Education; obtainable after 9 years of education.
SC	School Certificate, obtainable after 11 years of education.
HSC	Higher School Certificate, obtainable after 13 years of schooling.
COLLEGE	College-trained, either with HSC or SC.
BA	Bachelor degree and above.
Location of Residence	
URBAN	Settlements with population of 10,000 and above.
RURAL	Settlements with population of less than 10,000.

Marital Status

SINGLE	Never married, single person.
MSNP	Married, spouse absent/divorced or widow.
MSP	Married, spouse present.

Occupation

PROTECH	Professional, Technical and Related Workers.
MANAGER	Administrative and Managerial Workers.
CLERK	Clerical and Related Workers.
SALES	Sales workers (including wholesale and retail trade, salesmen, agents, etc.).
SERVICE	Service workers (including maids, policemen, etc.).
PRODUCTION	Production and Related Workers, Transport equipment operators and Labourers.
AGRICULTURE	Agriculture, animal husbandry, and forestry workers. Fishermen and hunters.

TABLE OF CONTENTS

LIST OF TABLES

CHAPTER 1

Introduction

This is a study of wage determination in the labor market in Peninsula Malaysia[1] which investigates the question of labor market discrimination. For the most part, the discussion will be confined to labor earnings and the emphasis will be on the wage differentials both between sexes and among ethnic groups.

According to the theories of labor market discrimination there are, at least, three sources of discrimination: (1) the desire for, and the use of, monopoly power; (2) personal prejudice; and (3) role prejudice. Research in discrimination in the labor market has long been concerned with questions of attitude, prejudice, and the like. In this study, pay differentials are used as a measure of discrimination -- wage discrimination. Discrimination may also exist in other forms. For example, an ethnic group or women are denied opportunities for which they are qualified, resulting in job discrimination. However, in the analysis, each wage-skill level is defined as an "occupation" (or "job"), and hence job and wage discrimination are treated equivalently.

In Chapter 2, labor market theories are outlined very briefly, establishing a general model for the analysis of discrimination. This is then followed by the description of the labor market in Peninsula Malaysia in Chapter 3. The different characteristics of each ethnic group will be discussed and the implications of the (Malaysia) New Economic Policy (NEP) will be hypothesized. The

randomness of the data used will be testified to when the preliminary empirical findings are presented in Chapter 4. The source from which this study is derived is the Malaysia Household Income Survey and the Labor Force Survey (hereafter referred to as the Surveys) conducted by the Malaysia Statistics Department in 1973/74. These data sets are discussed in more detail in Chapter 4.

The data is used to tabulate the average (monthly) wage differentials, and then econometric analysis of these wage differentials is conducted to explain and interpret them. Chapter 5 attempts to analyze sex discrimination, and Chapter 6 examines the crucial issue of wage differentials by race. The starting point for the econometric analysis is the human capital model. The wage differentials are decomposed into two portions: the first which is attributable to differences in characteristics or "endowments" and the second which is attributable to discrimination.

In light of the findings in Chapters 5 and 6, the implications of the NEP and other goverment policies are considered. The worldwide discrimination phenomena are compared by sex and race in Chapter 7. Modifications in government policy are formulated and major conclusions are briefly summarized in the last chapter. In addition, a description of the historial background and general character of the Malaysian multi-racial society is given in the Appendix.

Note:

1 See Appendix for a historial background and general character of the Malaysian society and a reference map.

CHAPTER 2

Theories of Labor Market Discrimination and Estimation Models

> The concept of discrimination embraces many forms and degrees of discrimination. Pressure groups ..... tend to regard majority and minority workers as basically equal in terms of their abilities ..... and hence tend to see any difference in net market advantages between the groups as an aberration. Human-capital theories ..... start from the assumption that personal endowments differ not only between groups but also within them, which inevitably gives rise to certain differences in outcomes.
>
> -Harish C. Jain and Peter J. Sloane[1]

2.1 Introduction

Wages differ as to individuals and as to jobs. They vary with such factors as amount of general or specific training, job and location characteristics, and age. However, sizable wage and income differentials that appear to be associated solely with race and sex persist. These differentials are claimed to be synonymous with discrimination against "economic minorities."

Discrimination can occur in many forms and places. Economic discrimination arises when workers who are on average "equally" able ("equally" productive) receive different average remuneration. It is defined as "the valuation in the labor market of personal characteristics of the worker that are unrelated to productivity."[2] This definition recognizes that one's value in the labor market depends on all the demand and supply factors affecting marginal productivity.

When other factors that are not related to productivity acquire a positive or negative value in the labor market, discrimination can be said to occur. Among these factors, race and sex are the most prominent elements that are alleged to be unrelated to productivity.

In this Chapter, first sources and theories of labor market discrimination will be outlined very briefly and then the general model for empirical estimation will be identified. Finally, the decomposition of wage differentials will be analyzed. This is the method used in Chapter 5 and Chapter 6.

2.2 Theories of Labor Market Discrimination

In general, there are three sources of discrimination: (1) the desire for, and the use of, monopoly power; (2) personal prejudice; and (3) role prejudice. The first has been particularly stressed by Lester C. Thurow[3], the second is associated with the name of Gary S. Becker[4], while the third is particularly significant when it comes to sex discrimination.

Any form of exercise of monopoly power implies some capacity to exclude persons from some occupation or activity. The monopoly power theories of discrimination suggest that race and sex may be collectively used to divide the labor market into non-competing groups, creating or perpetuating a kind of work caste system. They assert that a dual-labor-market exists. A primary labor market is to be protected in its privileges and advantages by a combination of monopoly enterprises, "business unionism," governmental collusion with those power groups, but the discriminated groups are confined to

the secondary market -- dead-end jobs with excessive turnover/unstable working patterns.[5]

Monopoly power may be exercised in a great many ways. There may be legal restrictions or contractual restriction; there may also be quite informal and customary restrictions. However, the most effective form of discrimination is familistic (which may play a vital role in Malaysian Chinese family business where clanship is still very important). A compatible theory with this monopoly power model is the "crowding hypothesis" of Barbara Bergmann[6] that introduces the idea of exclusion -- unequal access to some types of jobs. According to this hypothesis, women (or Malays in the case of Malaysia) may be crowded into a small number of occupations, thus generating a situation of excess supply to those occupations, depressing the marginal productivity of women (or Malays) in those segments of the labor market.

Role prejudice may involve a process in the upbringing of children, and even in the training of adults, which pre-disposes them to certain skills and roles and excludes them from others. Hence the adult brought up under a system of role prejudice may be actually unfitted for certain roles because of the processes of nurture, education, and training, so that denying access to such roles would not involve simple personal prejudice, but would be a mere recognition of the facts of the distribution of skill and ability as they exist at the moment. Role prejudice may be present in all forms of discrimination; it is one of the aspects of inheritance through the

family. After all, children are much more likely to be culturally similar to their parents than they are to anybody else.[7]

Both sex and race are strongly associated with role prejudice, and sex discrimination is the most flagrant case of it. All societies tend to form stereo-typed roles for men and women. In the case of Malaysia, since different ethnic groups were segregated before the Independence (1957), role prejudice might also be a very important factor in determining types of training and job for certain particular ethnic groups.

Monopoly power as an explanation of discrimination was derived to verify the persistence of large race/sex earnings disparities in the real world. Before Matthew S. Goldberg (1982), Becker's neoclassical theories of discrimination (related to personal prejudice) suggested that employers who do not have tastes for discriminating could profit by hiring cheaper labor, and the low-cost employers would eventually drive the high-cost employers out of business. It is thus predicted that there will be a tendency for any discriminatory wage differential to wither away with the standard competitive assumptions.

The neoclassical model developed by Becker is based on fundamental microeconomic principles of utility maximization in the context of a perfectly competitive economy. Earnings differentials are derived from "tastes for discrimination", and personal prejudice is a source of discrimination related to "taste". A discrimination coefficient (D)[8] is defined to measure the taste discrimination in money terms for different factors or production (employee discrimina-

tion), employers (employer discrimination), and customers (consumer discrimination). In labor market discrimination, employer discrimination seems to be the most important factor for wage differentials and hence it is discussed.[9] However, it should be pointed out that the theory does not necessarily assume that discrimination against, for instance, female workers (in particular jobs) comes only from, for example, male employers.

The taste for discrimination has a number of different origins and may take several forms. The most defensible form is a simple taste for homogeneity in surroundings and associates. In the case of employer discrimination, assuming that the factors of production are "equally" productive (perfect substitutable), if an employer were faced with the money wage rate of W_i for worker i, then $W_i + d_i$ is the net wage rate with d_i as his discrimination coefficient against that factor i (i = G, F where G = male, F = female). The discrimination coefficient represents a non-monetary cost of production to the employer. The employers seek to maximize utility functions instead of profit functions:

$$U = U(\pi, F, G) \qquad (2.1)$$

where profits, π, are seen as trade-offs between the numbers of discriminated workers, F, to other workers, G. If the employer has a taste for discrimination, the marginal utility of F labor is negative, and the discrimination coefficients, d_F is positive, and d_G is negative (nepotism) so that

$$MP_F = W_F + d_F \tag{2.2}$$

$$MP_G = W_G + d_G \tag{2.3}$$

where MP_i is the marginal productivity. Assuming that F labor and G labor are perfect substitutes so that $MP_F = MP_G = MP_L$ (where $L = F + G$) and therefore $W_G - W_F = d_F - d_G > 0$. In equilibrium, the wage for the discriminated group, W_F, must be less than that for the others, W_G. Since utility functions are different among firms, for firms that are more discriminatory, the marginal rate of substitution of profits for F workers will be more negative at any given ratio, $\frac{F}{G}$, and will have higher ratios of G to L. With $MP_L = MP_F = W_F + d_F$, MP_L is higher for more discriminating firms. Any firm which increases its F/G ratio slightly can make positive profits; by increasing its scale, it can make indefinitely large profits with only a slightly altered F/G ratio. It would therefore have a higher utility. If capital is adjusted optimally to the size of the labor force, the capital will flow to the more profitable enterprises which are less discriminatory. In the long run, therefore, only the least discriminatory firms survive. In general equilibrium, there should be employment segregation but no wage differential.

In 1982, Goldberg[10] reformulated the model in terms of nepotism toward a certain group, G, rather than discrimination against F. The limitation of Becker's model is eliminated in the sense that both nepotistic and taste-neutral firms are expected to survive the competitive struggle in the long run.

Another source of personal prejudice is false generalization or imperfect information. In addition to developing Becker's model, Kenneth Arrow (1973) also introduces an alternative model to employer discrimination. The employer's actions are not based on "taste" but "perception of reality".[11] Statistical discrimination, as it is called, arises because employers have lack of information about the actual productivity of job applicants. Firms have to use both individual and group data in making hiring decisions when the former are not perfect predictors of productivity. By using group data, employers are apt to have a systematic preference for certain groups of workers over others who have the same measured characteristics.

Perception can be incorporated into neoclassical theories of discrimination. The investment component of education is redefined as "information" and is used as a "signal" in screening the job applicants.[12] However, the process of screening is costly and by using race and/or sex as the "index" for screening, the employers are minimizing the costs of screening, or transferring their incidence to job applicants.

In summary, economic discrimination may take the form of different compensations for the same work (wage discrimination). It is also likely to be revealed by different jobs being occupied or crowded by special groups who are otherwise "equally" able workers (job discrimination). Since discrimination may be effected by unfavorable job assignments, in this study there will be no distinction between the wage discrimination of Becker and Arrow, and the job discrimination of Bergmann (1971) and Marshall (1974).[13]

2.3 Model

Theories suggest alternative explanations for the existence of discrimination. An appropriate means of studying differentials is by comparisons of individuals, that is, by estimations of wage differentials between workers of comparable qualifications. However, to define equivalent skill levels for different workers for analysis purposes is a major problem. Since very few, if any, of the factors underlying a worker's skill level will be measured by available statistics, workers' skills can hardly be defined. Reliance on measurements of earnings gaps corrected for skill differences is very limited. Faced with this limitation, empirical economists have to rely on a simple human capital framework for establishing skill equivalence.

The human capital model argues that a worker's productivity and hence his or her wage is a function of some set of embodied "traits" or "characteristics," and that these traits can be produced by the worker through the combination of education and on-the-job experience with other inputs. In the human capital model of income distribution developed by Becker (1964, 1967), Mincer (1970, 1974), and Becker and Chiswick (1966), the observed differentials in earnings across individuals are hypothesized to result from differentials in investment in productivity-augmenting human capital. Although information is often unavailable on the amounts individuals spend on such investments, this difficulty may be overcome by expressing the costs in terms of time spent. Becker and Chiswick (1966) assume that the costs of the j-th year of investment to be the fraction, k_j, of earnings the i-th

individual would receive if he made no human capital investment that year. Becker (1967) and Ben Porath (1967) have suggested that, within a given period of time, increases in human capital investments lead to diminishing returns, because the marginal cost of this human capital rises with the speed of production. In addition, Ben Porath (1970) has suggested that, for a period of time in the early stages of the life cycle, human capital investment may increase, and then decline in proportion thereafter. The period during which investment declines in proportion of time corresponds to the period of on-the-job training.[14]

In specifying an equation for estimation incorporating the above assumptions, it is also assumed that the investment ratio declines linearly. Under this assumption, the net earning's function is parabolic. Following Mincer (1974), a Taylor expansion of such a function, to a quadratic approximation, may be specified in terms of net investments as:

$$\ln(W) = \ln(W_0) + r_s S + r_j k_0 j - \frac{r_j k_0}{2T} j^2 + \ln(1 - k_0) \qquad (2.4)$$

where W is the observed net earnings after completing j-th years of work experience; W_0 is earnings capacity without human capital; S is the years of formal schooling; r is the rate of return; k_0 is the investment ratio during the initial period of work experience (that is, the number of years since the end of the formal schooling for

individuals with continuous work histories). The equation specified above can then be estimated with

$$\ln(W) = \beta_0 + \beta_1 S + \beta_2 j + \beta_3 j^2 + v \qquad (2.5)$$

Included in the error term, v, are the effects of natural ability and luck. This function has found wide empirical acceptance. The general form of the equation is:

$$\ln(W) = X'\beta + v \qquad (2.6)$$

where, for example, $X = \{s, j, \ldots\}$.

This basic human capital earnings equation will be further modified for estimation purposes to allow for effects of different patterns of labor force participation and other socio-economic characteristics. The specification of those equations will be defined in Chapter 5 before the analysis of sex and racial discrimination.

2.4 The Comparisons and Decomposition of Differentials

Section 2.2 of this Chapter has introduced several alternative approaches for determining the existence and, to some degree, the extent of labor market discrimination. These alternatives are:

1. to compare rates of return to schooling, etc., across race, sex, or other dimensions;
2. to investigate the presence of entry constraints; or
3. to infer the existence of discrimination that is consistent with the statistical discrimination which is solely related to sex or race.

Since some portions of the gross differentials of wages between groups are not solely related to sex or race, the observed wage differentials should be decomposed into a portion attributable to differences in personal characteristics and a portion attributable to, in Smith's term, economic rent[15] which is due to differing coefficients. To quantify this concept, a technique originated by Oaxaca (1973) to study sex differentials in wage is employed.[16]

For convenience, the comparison of female (F) and male (G) wage differentials is discussed and then comparison of racial wage differentials can be traced in the same way.

In the case of sex discrimination, it is necessary to compare the wage a female worker receives with what she would be paid if the same pay structure applied to both sexes. Assuming that either (a) the observed male's wage structure would apply to both sexes (male-weighted); or (b) the observed female's wage structure would apply to both sexes (female-weighted), we can derive two forms for decomposing the wage differentials, $\ln(\bar{W})_G - \ln(\bar{W})_F$, where $(\bar{W})_G$ and $(\bar{W})_F$ are the geometric mean[17] wages for male and female workers, respectively.

Under the first assumption, expected female's wage, $\ln(\tilde{W})_F$, is calculated with the equation:

$$\ln(\tilde{W})_F = \bar{X}_F' \hat{\beta}_G \tag{2.7}$$

where $\bar{X}_F$ is a vector of the mean values of the explanatory variables for females and $\hat{\beta}_G$ is a vector of the coefficients estimated in the

corresponding equation for male workers. The portion of the female/male wage differentials attributable to differences in productivity is measured by $\ln(\bar{W})_G - \ln(\tilde{W})_F$, the remainder of the differentials, measured by $\ln(\tilde{W})_F - \ln(\bar{W})_F$ may be considered as an economic rent. Therefore, the wage differentials can be decomposed into two portions:

$$\ln(\bar{W})_G - \ln(\bar{W})_F = (\bar{X}_G - \bar{X}_F)'\hat{\beta}_G + \bar{X}_F'(\hat{\beta}_G - \hat{\beta}_F) \tag{2.8}$$

Defining the discrimination coefficient, D, as

$$D = \frac{(\bar{W}_G/\bar{W}_F) - (W_G^o/W_F^o)}{(W_G^o/W_F^o)}$$

its equivalent expression in natural logarithms is

$$\ln(D + 1) = \ln(\bar{W}_G/\bar{W}_F) - \ln(W_G^o/W_F^o) \tag{2.9}$$

or

$$\ln(D +1) = \ln(\frac{W_F^o}{\bar{W}_F}) \ ,$$

assuming $\bar{W}_G = W_G^o$.

In equation 2.9, $(\bar{W}_G/\bar{W}_F)$ is the observed male-female wage ratio; and (W_G^o/W_F^o) is the male-female wage ratio in the absence of discrimination. Equation 2.8 and equation 2.9 can be combined to yield:

$$\ln(D+1) = \bar{X}_F'(\hat{\beta}_G - \hat{\beta}_F) \tag{2.10}$$

Under the second assumption that the female wage structure applies, the expected male's wage, $\ln(\tilde{W})_G$, is given by the following equation:

$$\ln(\tilde{W})_G = \bar{X}_G' \hat{\beta}_F \tag{2.11}$$

where $\bar{X}_G$ is a vector of the mean values of the explanatory variables for male workers and $\hat{\beta}_F$ is a vector of the coefficients estimated in the corresponding equation for female workers. The portion of the wage differentials attributable to productivity differences between sexes is then measured by $\ln(\tilde{W})_G - \ln(\bar{W})_F$ and the residual largely attributable to economic rent is measured by $\ln(\bar{W})_G - \ln(\tilde{W})_G$. In this case,

$$\ln(D+1) = \bar{X}_G'(\hat{\beta}_G - \hat{\beta}_F) \tag{2.12}$$

For the analysis of racial discrimination, the expected Malay's wage, $\ln(\tilde{W})_M$, which is non-Malay-weighted, is estimated with the equation:

$$\ln(\tilde{W})_M = \bar{X}_M' \hat{\beta}_N \tag{2.13}$$

and

$$\ln(D+1) = \bar{X}_M'(\hat{\beta}_N - \hat{\beta}_M) \tag{2.14}$$

Likewise, the expected non-Malay's wage, $\ln(\tilde{W})_N$, which is Malay-weighted, is as below:

$$\ln(\tilde{W})_N = \bar{X}_N' \hat{\beta}_M \tag{2.15}$$

and

$$\ln(D+1) = \bar{X}_N'(\hat{\beta}_N - \hat{\beta}_M) \ . \tag{2.16}$$

From equations 2.10, 2.12, 2.14, and 2.16, the calculated value of the discrimination coefficient ($\hat{D}$) can be derived and will be presented in the relevant chapters. In addition, the mean values of the explanatory variables for the analysis will be presented in the chapter which is relevant.

2.5 Summary

Theories of labor market discrimination imply that wage gaps may or may not be due to discrimination. The human capital model allows the wage differential to be decomposed. In the next chapter, the general situation of the labor market in Peninsula Malaysia will be presented as background before the econometric analysis is undertaken.

Notes:

1 Jain, Harish C. and Peter J. Sloane, Equal Employment Issues, (N.Y.: Praeger Publishers 1981), p. 230.

2 Arrow, K.J., "The Theory of Discrimination," in O. Ashenfelter and A. Rees (ed)., Discrimination in Labor Markets (N.J.: Princeton University Press 1973) p. 3.

3 Thurow, L.C., Poverty and Discrimination (Washington, D.C.: Brooking Institution 1969).

4 Becker, G.S., The Economics of Discrimination (2nd ed) (Chicago: University of Chicago Press 1971).

5 Piore, M.J., "Job and Training: Manpower Policy," in S. Beer and R. Barringer (ed), The State and the Poor (Cambridge, Mass: Winthrop Press 1970), pp. 55-56.

6 Bergmann, Barbara R., "The Effect on White Incomes of Discrimination in Employment," Journal of Political Economy, (Mar/Aprl 1971), pp. 294-313.

7 Based on Boulding, K.E., "Toward a Theory of Discrimination," in P.A. Wallace (ed), Equal Employment Opportunity and the AT&T Case (Cambridge, Mass: The MIT Press 1976), pp. 9-15.

8 Becker, op. cit., p. 9.

9 According to Arrow (1973, p. 11), employee discrimination is similar to employer discrimination.

10 Goldberg, M.S., "Discrimination, Nepotism, and Wages," Quarterly Journal of Economics (May 1982), pp. 307-319.

11 Arrow, K.J., op. cit., p. 23.

12 Spence, A. Michael, "Job Market Signaling," Quarterly Journal of Economics (August, 1973), pp. 355-374.

13 According to Cain (1976), this is becaue when a production function with only one skill level of labor is assumed, as Arrow and Becker do, then only wage discrimination is possible. If heterogeneous skills (jobs) and a corresponding dispersion of wage is assumed, job and wage discrimination can be made equivalent merely by defining each wage-skill level as an "occupatilon" (or "job"). (See Cain, Glen G., "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey," Journal of Economic Literature (1976), pp. 1232.)

14 Mincer, Jacob, Schooling, Experience, and Earnings (N.Y.: NBER 1974), pp. 7-23.

15 Smith, S.P., Equal Pay in the Public Sector: Fact or Fantasy, (N.J.: Princeton University 1977), pp. 49-52.

16 Oaxaca, R., "Male-Females Wage Differentials in Urban Labor Markets," International Economic Review (October 1973), pp. 693-709.

17 These wage figures are computed as geometric means, i.e.,

$$\bar{W}_i = \prod_{i=1}^{n} W_i^{\frac{1}{n}}$$

CHAPTER 3

Labor Market in Peninsula Malaysia[1]

3.1 Introduction

In this Chapter, the general situation of the labor market in Peninsula Malaysia will be examined so that the reliability of the data set from the Surveys is satisfied.

In 1963, Malaysia was created out of a group of former British dependencies with the states of the Federation of Malaya, which had become independent in 1957, as the nucleus. The country is composed of two major geographical segments separated by 400 miles of the southernmost portion of the South China Sea: the lower third of the Malay Peninsula (now called Peninsula Malaysia) and the states of the Sabah and Sarawak which form a strip along the northern rim of the island of Borneo.

Malaysia, as a whole, is principally an agricultural country although the structure of economic activities varies among the component states. There were still 43.4 percent of the labor force engaged in agricultural production in 1975 compared with 58 percent in 1962 and 49.1 percent in 1970. In this Chapter, while to some extent, the situation of Malaysia may be indicated, most of the discussion on the labor market will be confined to Peninsula Malaysia.

3.2 Population and Labor Force

Malaysia's population, with a growth rate of 2.5 - 3.0 percent per annum, is distributed unevenly. Settlement patterns within the two segments are similar in that the greatest denisties are found along coastal areas and in the river valley. However, the density of population of Peninsula Malaysia (176 persons per square mile) is eight times as great as Sabah (22 persons per square mile) and Sarawak (21 persons per square mile). Besides, in Peninsula Malaysia, about three-quarters of the people occupy the western portion, and the greatest concentration is along the western coast, where all districts have at least 100 persons per square mile. In the interior, densities average less than 25 persons per square mile.

The 1970 Census reported that in Peninsula Malaysia, the racial composition was 53 percent Malay, 35 percent Chinese, 11 percent Indian and Pakistani, and 2 percent Others. Defining urban as settlements of 10,000 or more, in 1970, 27 percent of the population lived in a few cities with very high population density per square mile. Another 73 percent of the population were in the rural areas. Within the ten most populous urban areas, the racial compositon was Malay 27.4 percent, and non-Malay 72.6 percent which consisted of 58.7 percent Chinese, 12.8 percent Indian, and 1.1 percent Others. In the rural areas, on the other hand, 63.4 percent were Malays, 26.1 percent Chinese, 9.8 percent Indians, and 0.7 percent Others (see Table 3.1).

Regarding the age distribution, the country had a high proportion of young people. Over 44 percent of the population in 1970 were

TABLE 3.1

Peninsula Malaysia

Distribution of Population by Settlment and Race, 1970

Settlement	Malay	(%)	Chinese	(%)	Indian	(%)	Others	(%)	Total
Urban	694,935	14.9	1,491,871	47.6	324,223	34.6	28,858	41.2	2,539,887
(% or urban)	27.4		58.7		12.8		1.1		100.0
Rural	3,976,939	85.1	1,639,449	52.4	612,118	65.4	41,164	58.8	6,269,670
(% of rural)	63.4		26.1		9.8		0.7		100.0
Total	4,671,874	100.0	3,131,320	100.0	936,341	100.0	70,022	100.0	8,809,557
(% of total)	53.0		35.6		10.6		0.8		100.0

Source: Malaysia, Mid-Term Review of the Second Malaysia Plan, p. 25, Table 2-2

under 15 years of age, and 64 percent were under 25 years of age. Only about 3 percent were reported as being 65 years of age or older. In the case of sex distribution, the 1970 Census showed a ratio of 101.8 males to every 100 females.

In Malaysia, a person at 15 years of age is considered for the labor force survey because the average person left school at the age of 15. The labor force of Malaysia (refers to those who are in the 15-64 age-group and who are employed or unemployed) was estimated at 3,597,000 in 1970. About 55.4 percent were Malays and other indigenous people, 33.8 percent Chinese, 9.1 percent Indians, and 1.7 percent Others. In terms of sex, 67.7 percent of the labor force were males and only 32.3 percent females. Those in the age-group 15-24 comprised 32.4 percent of the labor force. In Peninsula Malaysia alone, the population in the working age-group of 15-24 was estimated at 3,150,000 which is 52.1 of the total. In 1970, the unemployment rate in the Peninsula Malaysia was 8.0 percent with Malays 8.1 percent, Chinese 7.0 percent, and Indians 11.0 percent. The unemployment rate for females was higher whereas their participation rate was very low. Their labor market participation rate was only 37.2 percent in 1970, which is less than half of that for males (81.3 percent).

3.3 Industry of Employment and the Occupational Distribution

As an agricultural country, Malaysia relied largely on agricultural sector for its gross domestic product (GDP). However, the agricultural contribution has gradually been decreasing, as a result

of the expansion of other sectors, especially manufacturing and construction. In the early 1970's, a high correlation was still prevalent between ethnic groups and certain occupational categories. The Malays, who make up most of the unskilled worker category, are usually engaged either in agriculture or in services. They have exhibited some aversion to working as a wage earner (for example, in the 1960's they accounted for only 25 percent of the wage earning labor force). The educated Malays predominate in civil services, and are found in some professions, but relatively few are engaged in commerce. The Chinese are more widely distributed by industry. They have always gravitated to non-agricultural activities, but they are also engaged in the processing of agricultural products. Quite a high proportion of all employed Chinese are in commerce; however, they also take up jobs in the sectors of manufacturing, construction, and to a lesser extent, in mining and quarrying, and in transport, storage, and communications. More profit-oriented than the Malays, the Chinese are also more highly motivated towards productivity. The Indians are engaged for the most part in the processing of agricultural products (mainly as rubber tappers), in services, commerce, and transport, storage, and communications. The occupational distribution by race for 1970 is presented in Table 3.2, while the employment by industry and race for the same year is presented in Table 3.3.

3.4 Wage Structure and Wage Policy

In general, Malaysia has no nationwide or industrywide standard for the determination of pay. There are no general minimum wage laws

TABLE 3.2

Occupational Distribution by Race, 1970

(Peninsula Malaysia)

Occupation	Malay	(%)	Chinese	(%)	Indian	(%)	Others	(%)	Total	(%)
Professional & Technical	61,151	(4.2)	48,876	(4.7)	16,513	(5.6)	3,065	(12.1)	129,605	(4.6)
(% of total)	47.2		37.7		12.7		2.4		100.0	
Administrative & Managerial	5,099	(0.4)	14,963	(1.4)	1,699	(0.6)	988	(3.9)	22,759	(0.8)
(% of total)	22.4		65.7		7.5		4.4		100.0	
Clerical	46,759	(3.3)	71,356	(6.9)	20,081	(6.7)	1,824	(7.2)	140,020	(5.0)
(% of total)	33.4		51.0		14.3		1.3		100.0	
Sales	75,401	(5.2)	204,632	(19.8)	34,857	(11.7)	1,150	(4.6)	316,040	(11.3)
(% of total)	23.9		64.7		11.0		0.4		100.0	
Service	198,224	(13.8)	196,470	(19.0)	62,139	(20.9)	5,523	(21.9)	462,356	(16.5)
(% of total)	42.9		42.5		13.4		1.2		100.0	
Production	112,049	(7.8)	214,693	(20.8)	30,782	(10.3)	906	(3.6)	358,430	(12.8)
(% of total)	31.3		59.9		8.6		0.2		100.0	
Agriculture	937,937	(65.3)	283,271	(27.4)	131,472	(44.2)	11,774	(46.7)	1,364,490	(48.8)
(% of total)	68.7		20.8		9.6		0.9		100.0	
Total	1,436,656	(100.0)	1,034,261	(100.0)	297,543	(100.0)	25,240	(100.0)	2,793,700	(100.0)
(% of total)	51.4		37.0		10.7		0.9		100.0	

Source: Malaysia, Third Malaysia Plan, p. 82

TABLE 3.3

Peninsula Malaysia

Employment by Industry and Race, 1970

Industry	Malay	(%)	non-Malay	(%)	Total	(%)
Agriculture	925.4	67.6	443.6	32.4	1,369	49.1
Mining and Quarrying	21.1	24.8	63.9	75.2	85	3.1
Manufacturing	84.4	28.9	207.6	71.1	292	10.5
Construction	16.9	21.7	61.1	78.3	78	2.8
Utility	10.2	48.5	10.8	51.5	21	0.8
Transport	49.0	42.6	66.0	57.4	115	4.1
Commerce	69.3	23.5	225.7	76.5	295	10.6
Services	256.1	48.5	271.9	51.5	528	19.0
Total	1,432.4	51.5	1,350.6	48.5	2,783	100.0

Source: Malaysia, Mid-Term Review of the Second Malaysia Plan, p. 77

in any part of Malaysia. However, statutory provisions exist for the establishment of wage councils to fix minimum wages and conditions of employment where adequate machinery for collective bargaining does not already exist. Existing legislation cover such matters as hours of work, safety and health conditions, woman and child labor, contracts, and holidays. The wage standards of workers were probably the highest in Southeast Asia, but they were subject to instability in response to the price fluctuations of two basic commodities, rubber ad tin, on the world market.

In the private sector, the levels of pay depend on either employer-employee negotiation or employer-union collective bargaining. Of course, there are also cases where wages were determined arbitrarily. From the employer's standpoint, pay depends on the degree of responsibility, difficulty of the job, skill, education, and other occupational qualifications of the workers, location of the job, and seniority.

Since government is the largest employer, its wage policy widely affects wage determination in the nation. Basic monthly salaries of government officials in Malaysia are established according to divisions. Generally, superscale officials are university honours graduates. Other Division I and Division II officers must hold a Higher School Certificate (HSC) or BA degree. Division III personnel must have education at least equivalent to higher school in the United States. Division IV personnel may or may not be high school graduates. Pay increases in recognition of length of service, efficiency,

or increased responsibility are thus normally left to negotiation between the employer and union.

Generally, the Chinese command higher wages because of their preference for piecework and their higher degree of skill. Skilled labor in industrial occupations commands the highest wages. Mining wages are higher than agricultural wages, and plantation wages are, on the average, higher than the wages paid to the non-plantation agricultural workers. Overtime work is paid at a rate of 1½ to 2 times the standard wage.

3.5 The New Economic Policy (NEP) and the Labor Market

During the period of the Surveys, Malaysia had completed the First Malaysia Plan (1966-70) and was at the half-way mark of the Second Malaysia Plan (1971-75). The achievements of the First Malaysia Plan were mixed. Production and income increased, traditional exports performed well, and diversification of production proceeded well; yet rural poverty remained practically unaffected, the Malays still constituted the overwhelming majority of those living in poverty.[2]

Dissatisfaction with the distribution of benefits of economic growth and concern over income inequality provided the basis for the NEP articulated in the Second Malaysia Plan (SMP). The aims of the policy were to reduce and eventually eradicate poverty by raising income levels and increasing employment opportunities for all Malaysians, and to accelerate the process of restructuring Malaysian society to correct economic imbalances so as to reduce and eventually

eliminate the identification of ethnic group with economic function. More specifically, the policy aimed at reducing the sharp income differences between Malays and non-Malays by reducing ethnic disparities in the ownership and control of assets in the modern sector and by reducing the concentration of Malays in traditional low-income rural activities while increasing Malay employment in the relatively high-income urban sector.

The Outline Perspective Plan (1970-1990)[3] contained in the Mid-term Review of SMP, set as a target for 1990, that Malays would own and operate at least 30 percent of the total commercial and industrial activities of the economy in all categories and scales of operation. This target of reducing the differences in the ownership and control of assets is to be achieved mostly by the government-created public enterprises. The public bodies are proxies for Malay private owners who would ultimately take these bodies over.

In the process of restructuring the society, Malays are encouraged to take up all kinds of jobs and to migrate from rural to urban areas. Besides, the quota system of employment is enforced especially in hiring workers in the public sectors. By 1990, it is thus predicted that the identification of the ethnic group with the economic function would be abolished.

3.6 Summary

Under the NEP, the decade of the seventies witnesses several phenomenal changes in the Malaysian labor market. The participation rate of women in the labor market has increased. The most signifi-

TABLE 3.4

Peninsula Malaysia: Mean and Median Incomes, 1970-76

(M$ per Household per Month)

		1970	1973*	1976*
Malay	..... Mean	172	209	246
	..... Median	120	141	157
Chinese	..... Mean	394	461	612
	..... Median	268	296	330
Indian	..... Mean	304	352	378
	..... Median	194	239	246
Others	..... Mean	813	1,121	918
	..... Median	250	306	374
All	..... Mean	264	313	375
	..... Median	166	196	209
Urban	..... Mean	428	492	642
	..... Median	265	297	338
Rural	..... Mean	200	233	286
	..... Median	139	159	179

* In constant 1970 prices.

Source: Malaysia, Mid-Term Review of the Third Malaysia Plan, p. 44.

cant change is the restructuring of the ethnic mix in employment. Normally, employees in Malaysia base pay increases and promotions on the levels of responsibility, seniority, demonstrated quality of performance, and amount of training. The cost of living may also be a factor in negotiating pay increases. During the period of the Surveys, most of the promotions in the public sector or statutory bodies were based on "efficiency". Seniority became a minor merit. By "efficiency" there may be a very subjective evaluation on the capability of an individual or, for instance, passing a language examination. Consequently, some or major influences on the data may be significant for this study.

This was, and is, the general situation of the labor market in Peninsula Malaysia. Since Malays (and also females) are perceptibly low-income groups, labor market discrimination may exist. In the next chapter, preliminary findings from the Surveys will be presented so that the analysis of discrimination can be developed in Chapter 5 and Chapter 6.

Notes:

1 The statistics for population and labor force are derived from the (Malaysia) Population Census 1970.

2 See Table 3.4 for household income by ethnic group and location.

3 Malaysia, Mid-Term Review of the Second Malaysia Plan, pp. 61-94.

CHAPTER 4

Preliminary Empirical Results

4.1 Introduction

Having described the labor market of Peninsula Malaysia, the data set that will be used for the purpose of this study is discussed in this Chapter.

The data set used for this study has been developed from the records in the Malaysia Household Income Survey 1973 and the Malaysia Labor Force Survey 1974. The reference year for the latter is also 1973. These two Surveys were conducted by the Malaysia Statistics Department in 1973/74 on the same household and the same individual, the first to obtain income data, the second, to obtain labor force data. The household was sampled randomly according to the United Nations Handbook of Household Surveys 1964. Both Surveys provide the information of household identification, individual identification, ethnic gorup, sex, age, place of residence, marital status, relationship in the household (head of the household), and qualifications (educational attainments). In addition, the Labor Force Survey gives the information on whether working or not working in the reference week, number of hours worked per week, full-/part-time worker, occupation and industry in which the respondents were working, and the employment status, while the Household Income Survey provides also wage and gross income per month for each individual. These different sets of information are then merged by the household and individual

identifications to obtain the full set of information for the purpose of this study.

There are 9,845 observations with gross income and wage data. However, the sample actually used is a subset of the Survey -- 968 observations were dropped for not responding to sex and race -- therefore, only 8,877 observations that are complete with these two identifications are kept for the study. These observations consist of 4,759 Malays (53.8 percent of the total) and 4,118 non-Malays, which actually reflect the composition of the population in the Peninsula Malaysia. The sexual composition of the sample is: males: 5,281 and females: 3,596.

Malaysia is a member of the middle income group of developing countries. Absolute poverty is less pervasive in Malaysia than in some Asian or African countries. At the same time, however, the relative poverty of the main racial group in the country, the Malays, is a problem of real political and social significance. Inequality in income distribution has thus emerged as a particularly important political and economic issue since the late 1960's when the inequality appeared to have increased with the rise of gross national product. Actually, income inequality among ethnic groups has long been discussed and comparisons are made by separating the ethnic groups into Malays and non-Malays (the latter include Chinese, Indians, and Others) espeically after the implementation of NEP in 1971. In the case of income differentials between males and females, not much attention has been focused on this issue after an "equal" pay policy was adopted in the public service on May 1, 1969.

Data in the sample, however, show that inequality was more severe between male and female. From Table 4.1, it is clear that the average (monthly) wage for females was only 40.27 percent of that earned by males, while Malays, on the average, earned 55.10 percent of that earned by non-Malays. It should be noted that the average (monthly) wage for Others was extremely high, that is, $1,086.43. This gives an extremely low wage ratio for Malay/Others: 0.07, compared to the Malay/Chinese ratio: 0.63, and the Malay/Indian ratio: 0.54. Since the Others category represents a very small fraction of the total population, as well as of the sample (54 out of the total 8,877 observations), this odd group is thus excluded from the analysis and emphasis is on comparing Malays with Chinese and Indians, and from now on the term "non-Malays" refers to Chinese and Indians only.

4.2 The Preliminary Results

After disregarding the Others, only 8,823 observations will be utilized in this study. Of all 8,823 observations, 5,250 observations are identified as males and the rest (3,573) are females. The racial distribution of these observations is Malays: 4,759; non-Malays: 4,064, where Chinese are 3,103 and Indians are 961.

The mean and median values of the monthly wage (in natural logarithmic form) for different ethnic groups and different sexes are presented in Table 4.2. The (ln) wage differential between males and females is 0.54249 (mean values) or 0.62860 (median values). The difference between Malays and Chinese is -0.55769 (mean) or -0.45675

TABLE 4.1

Wage and Wage Ratio between Sex and Race

	NOBS	Wage (mean)		Wage-Ratio (%)
Malays	4,759	$76.57	Malays/Malays	100.00
non-Malays	4,118	$138.97	Malays/non-Malays	55.10
Chinese	3,103	$121.97	Malays/Chinese	62.78
Indians	961	$140.62	Malays/Indians	54.45
Others	54	$1,086.43	Malays/Others	7.05
Females	5,281	$56.06	Females/Females	100.00
Males	3,596	$139.20	Females/Males	40.27

Source: The Household Income Survey 1973; Total Observations: 8,877.

TABLE 4.2

Descriptive Statistics by Race and Sex
with Missing Values

Variable	NOBS	N	Mean	Median	M.V.	M.V./NOBS
Pooled Sample						
age	8,823	8,823	35.2695	-	0	0
wage	8,823	8,823	$99.51	-	0	0
ln(W)	8,823	4,931	4.67710	-	3,892	0.4411
ln(hw)	8,823	6,980	5.15797	-	1,843	0.2089
Malays						
age	4,759	4,759	35.5707	34	0	0
wage	4,759	4,759	$76.57	$0	0	0
ln(W)	4,759	2,345	4.40991	4.55388	2,414	0.5072
ln(hw)	4,759	3,631	5.04428	5.15796	1,128	0.2370
non-Malays						
age	4,064	4,064	34.9168	33	0	0
wage	4,064	4,064	$126.38	$62	0	0
ln(W)	4,064	2,586	4.91938	5.01063	1,478	0.3637
ln(hw)	4,064	3,349	5.28124	5.34028	715	0.0179
Chinese						
age	3,103	3,103	34.9194	33	0	0
wage	3,103	3,103	$121.97	$62	0	0
ln(W)	3,103	1,836	4.96760	5.01063	1,267	0.4083
ln(hw)	3,103	2,528	5.29414	5.34028	575	0.1853
Indians						
age	961	961	34.9084	33	0	0
wage	961	961	$140.62	$106	0	0
ln(W)	961	751	4.80134	4.86753	211	0.2196
ln(hw)	961	821	5.24151	5.34028	140	0.1459
Males						
age	5,250	5,250	35.5676	34	0	0
wage	5,250	5,250	$129.43	$67	0	0
ln(W)	5,250	3,323	4.85400	5.01063	1,927	0.3670
ln(hw)	5,250	4,706	5.21179	5.34028	544	0.1036
Females						
age	3,573	3,573	34.8315	33	0	0
wage	3,573	3,573	$55.56	$0	0	0
ln(W)	3,573	1,608	4.31151	4.38203	1,965	0.5500
ln(hw)	3,573	2,274	5.04659	5.15796	1,299	0.3636

(continued on next page)

TABLE 4.2

(continued)

Notes: (1) NOBS = total number of observations;
(2) N = the number of observations on which the calculations were based
(3) M.V. = the number of observations with missing values
= NOBS - N;
(4) ln(W) = wage in natural logarithmic form;
(5) ln(hw) = hours-worked per month in logarithmic form.

(median) and the wage differential between Malays and Indians is -0.39143 (mean) or -0.31364 (median).

When the value of the wage is in logarithmic terms, the Malay/Indian wage ratio (both in mean and in median values) is higher than the Malay/Chinese wage ratio because the zero wages reported are excluded in the calculation. This reported zero wage is partly due to non-participation in the labor market during the reference week. The overall labor market participation rate was 0.79110 and it is distributed differently across groups.[1] The participation rate for male is higher (89.68%) relative to female (63.65%); so is non-Malays (82.43%) comparing to Malays (76.32%).

Out of 8,823 observations, 1,843 (or 21 percent of the total observations) did not report hours-worked per week or simply reported zero, and 3,892 observations (or 44 percent of the total) did not give the information of their wages. This is understandable because only 4,506 observations (or 51 percent of the total) were reported as employees, and the rest (4,317) were either employer, own account worker, family helper, housewife, pensioner, student, or others (including unemployed). The reported zero wage and zero working hour are referred to as missing values in Table 4.2 for each group. More Malays and females are having missing values than non-Malays and males respectively.

4.3 Observations for This Study

The presence of missing values in several variables reduces the sample size for the study. The analysis of sex discrimination in

Chapter 5 and racial discrimination in Chapter 6 are based only on the observations with a full set of information, and particularly, with the reported value of (ln) wage. This reduces the sample to 4,670 observations distributed as: Malays: 2,172 (46.5%); Chinese: 1,775 (38%); Indians: 723 (15.5%); or non-Malays: 2,498 (53.5%). The sexual distribution is: males: 3,190 (68.3%) and females: 1,480 (31.7%) which represents the actual distribution of labor force in Malaysia. These 4,670 observations largely represent the participating labor force in Peninsula Malaysia in 1973/74. Most of them were engaged as workers in the agriculture and production sectors as shown in Tables 4.3 and 4.4.

4.4 Summary

Data from the two Surveys was sampled randomly. Preliminary findings verify that Malays were paid less than non-Malays and females earned less than males. Chapter 5 and Chapter 6 are designed to testify the discrimination hyoptheses.

TABLE 4.3

Occupational Distribution by Race

(Preliminary Findings)

Occupation	non-Malays	(%)	Malays	(%)	Total	(%)
PROTECH	175	7.0	176	8.1	351	7.5
(% of occupation)	(49.9)		(50.1)		(100.0)	
MANAGER	26	1.0	16	0.7	42	0.9
(% of occupation)	(61.9)		(38.1)		(100.0)	
CLERK	269	10.8	208	9.6	477	10.2
(% of occupation)	(56.4)		(43.6)		(100.0)	
SALES	181	7.3	58	2.7	239	5.1
(% of occupation)	(75.7)		(24.3)		(100.0)	
SERVICE	267	10.7	276	12.7	543	11.6
(% of occupation)	(49.2)		(50.8)		(100.0)	
PRODUCTION	937	37.5	574	26.4	1,511	32.4
(% of occupation)	(62.0)		(38.0)		(100.0)	
AGRICULTURE	643	25.7	864	39.9	1,507	32.3
(% of occupation)	(42.7)		(57.3)		(100.0)	
TOTAL	2,498	100.0	2,172	100.0	4,670	100.0
(%)	(53.5)		(46.5)		(100.0)	

Source: The Labor Force Survey 1974.

TABLE 4.4

Occupational Distribution by Sex

(Preliminary Findings)

Occupation	Females	(%)	Males	(%)	Total	(%)
PROTECH	129	8.7	222	7.0	351	7.5
(% of occupation)	(36.8)		(63.2)		(100.0)	
MANAGER	2	0.1	40	1.2	42	0.9
(% of occupation)	(4.8)		(95.2)		(100.0)	
CLERK	149	10.1	328	10.3	477	10.2
(% of occupation)	(31.2)		(68.8)		(100.0)	
SALES	47	3.2	192	6.0	239	5.1
(% of occupation)	(19.7)		(80.3)		(100.0)	
SERVICE	254	17.1	289	9.1	543	11.6
(% of occupation)	(46.8)		(53.2)		(100.0)	
PRODUCTION	312	21.1	1,199	37.6	1,511	32.4
(% of occupation)	(20.6)		(79.4)		(100.0)	
AGRICULTURE	587	39.7	920	28.8	1,507	32.3
(% of occupation)	(39.0)		(61.0)		(100.0)	
TOTAL	1,480	100.0	3,190	100.0	4,670	100.0
(%)	(31.7)		(68.3)		(100.0)	

Source: The Labor Force Survey 1974.

Note:

1 Computed based on the response to the question: "Did you work at least one day during the reference week?"

CHAPTER 5

Wage Differentials by Sex

> The Lord spoke to Moses and said, Speak to the Israelites in these words: When a man makes a special vow to the Lord which requires your valuation of living persons, a man between twenty and sixty years old shall be valued at fifty silver shekels, that is shekels by the sacred standard. If it is a female, she shall be valued at thirty shekels.
>
> -Leviticus XXVII, 1-5.

5.1 Introduction

The quotation above could suggest that females are paid less (and therefore "valued" less) than equally competent males, i.e., males with "equivalent" marginal value of products. Alternatively, it could suggest that women are somehow inherently or otherwise inferior (in productive potential) to males and are therefore paid less.

In this chapter, wage differentials between females and males will be analyzed and interpreted so that the fraction of the differentials which is not due to differences in productive potential between sexes, if any, can be verified. The method for decomposing the differentials as discussed in Chapter 2 will be utilized. First, a basic Equation will be specified and the variables used will be defined, and then the gross and net differentials will be presented. The portion that cannot be explained with the controlling variables is the net differential.

5.2 Equation Specification

The exact equation specification varies with the particular group considered: for example, the equation estimated to determine the wage differentials for males and females differs from that estimated to determine the wage disparities for Malays and non-Malays. Nevertheless, the dependent variable used throughout the analysis is the natural logarithm of monthly wage, (ln(W)). In this study, wage rather than gross income is used, since the latter includes profits, interest, dividends, rentals, etc., and does not actually reflect the earnings power of human capital. The natural logarithm of the wage will yield coefficients that can be interpeted as the percentage changes in the wage rate from effects of the explanatory variables. In order to account for the effect of sex discrimination on pay structure, separate equations are estimated for males and females.

In all least-square regressions, the principal forms of human capital investment considered are educational levels and experience where experience is proxied by age because the information of experience cannot be derived from the data set. Both the linear and quadratic terms of age entered to reflect the parabolic shape of the earnings functions.

The general form of the equations, as shown in equation (2.6), is:

$$\ln(W) = X'\beta + v$$

where ln(W) is the natural logarithmic form of an individual's wage, and the X's are personal characteristics that affect one's earnings, while v is the error term. All these X's will be discussed in turn.

5.3 Explanatory Variables

The first group of the independent variables are educational levels. Most previous empirical work used years of schooling to capture the effects of education on wage. However, this should not be the case in Malaysia because it is certificates (or educational attainments), and not years in schools, that matter when the basic pay for any particular person is first determined. In Malaysia, a person with eleven years of education but failing to pass the screening examination (SC) will be considered only as a LCE holder which can be acquired with nine years of schooling. An example of a study that did not use a continuous variable for education is Filer (1983) who used dummy variables rather than years of schooling to represent educational attainments.[1]

In addition to LCE and SC, there are HSC, COLLEGE, and BA that a person may hold after attending certain years of education and also passing the examinations. However, in the sample, 2,214 observations for educational achievements were reported as not applicable. These are identified as OTHER in this study. All such variables as OTHER, LCE, SC, HSC, COLLEGE, and BA (in capital letters) are dummies, and those reporting no certificate are used as the base, i.e. the category without a dummy.

Independent variables of demographic characteristics include individual's age, age-squared (age^2), race, and sex, the last two reported as dummy variables for being Malay and male, respectively. The fact that age is utilized in the human capital model, instead of experience, may overstate experience. However, age is available in

the data set. An example of a study that used age as a proxy is Blinder (1973) who used age in his study of sex discrimination.[2] Marital status is also included among the personal characteristics: SINGLE, MSNP are dummies representing single, never married, and married, spouse absent, respectively, with reference to married, spouse present (MSP) group.

Working hours were reported in the data set as hours-worked per week. This variable is important because as anticipated, the more hours a person works the higher monthly pay will be received. Furthermore, overtime work is paid up to two times the regular standard wage. For the estimation, this figure is then multiplied by 365 and then divided by (12×7) to derive monthly working hours compatible with the monthly earnings. Taking natural logarithms, this variable is then shown as ln(hw) in the model. The logarithmic form of working hours per month has been used by Mincer and Polachek.[3] The residential location for observations is indicated as a dummy: URBAN where the settlements of below 10,000 are indicated as 0. This was defined by the 1970 Census. Residential location is used as one of the variables to control for the higher costs of living in the urban areas while rural residents may have some land to grow their daily-needs.

To take account of the individual's financial responsibilities, dummy variable for HEAD of the household is included when the division of labor in the family is considered.

The above variables are specified in the personal characteristics wage equations, modified from the basic model, with the inten-

tion of examining the issue of equal pay for roughly similar personal characteristics. To complete the analysis, the full-scale regressions also incorporate the dummy variables of occupation. The individual's specific job was coded in the data set as a three-digit code according to the Index of Occupation Code, 1971. In the analysis, the reference group for occupations is chosen to be AGRICULTURE, this being the largest group in the population.

In the data set, information about employment status -- employer, employee, housewife, self-employed, student, or pensioners -- is also available. This will be indicated when applicable.

5.4 Sex Discrimination

Surface investigation of the economic status of females relative to males reveals the fact that income differentials according to sex are large indeed, and thus it is claimed that there is market discrimination against women.

In Malaysia, income inequality among ethnic groups in Malaysia has drawn wide attention, but the income differentials between men and women were rarely noticed. In fact, the wage gap between sexes was larger than the gap between races. As indicated in Chapter 4, for all 8,823 observations which constitute 5,250 males and 3,573 females, average (monthly) wage earned by female workers was only 42.9 percent of that earned by men. Besides, for all employees (4,506 observations), the female/male wage ratio was slightly higher, that is, 0.6024. The logarithms of the monthly wages computed from all 8,823 observations are as follows: 5.01063 (median) or 4.85400

(mean) for males and 4.38203 (median) or 4.31151 (mean) for females. Thus the gross (median) wage differential is 0.62833 and the gross wage differential implied by the geometric means is 0.53249.

As indicated in Chapter 4, there are missing values in (ln)wage and (ln)hours-worked per week. The above computations do not reflect the actual situation. For simplicity, the analysis of this chapter (and racial discrimination in the next chapter) will be restricted to observations for which there is a full set of information, that is, no missing values of ln(W) and ln(hw). This reduces the number of observations to 4,670: 3,190 males (which made up 68 percent of the total) and 1,480 females. This proportion of males to females reflects actual labor market participation by sex in Peninula Malaysia in 1970. The average (monthly) wages (computed as geometric means) are $133.63 for males and $78.65 for females. The male-female gross differential (GD) implied by these wage figures is 70 percent[4], or 0.53003 in logarithmic term.

A. Basic Model: Of course, part of these wage differentials is due to a difference in productivity factors across groups. Table 5.1 shows the mean values of those relevant factors for both females and males in the data set. In addition, the median values of continuous variables are also presented. The difference of the mean values of most variables favors males. In general, men were more educated than women, they also worked more hours. Before the observed wage differentials can be decomposed using the method described in Chapter 2, the coefficients obtained from Equation 5.1 need to be examined:

TABLE 5.1

Descriptive Statistics by Sex

Variable	Male		Female		Difference
	Mean (1)	Median (2)	Mean (3)	Median (4)	(1)-(3)
Wage					
ln(W)	4.89508	5.01063	4.36505	4.40058	0.53003
Age					
age_2	32.6784	31.0000	30.2128	27.0000	2.46560
age^2	1211.3097	961.000	1052.8696	729.000	158.4128
Working-hours					
ln(hw)	5.24994	5.34028	5.13901	5.25327	0.11093
Location					
URBAN	0.39248		0.39662		-0.00414
Household					
HEAD	0.61693		0.16081		0.44883
Marital Status					
SINGLE	0.33605		0.43378		-0.09773
MSNP	0.02288		0.11149		-0.08861
Education					
OTHER	0.10940		0.29257		-0.18317
LCE	0.08746		0.07702		0.01044
SC	0.08245		0.09595		-0.01350
HSC	0.00439		0.00541		-0.00102
COLLEGE	0.00972		0.01081		-0.00109
BA	0.00690		0.00473		0.00217
Occupation					
PROTECH	0.06959		0.08716		-0.01757
MANAGER	0.01254		0.00135		0.01119
CLERK	0.10282		0.10068		0.00214
SALES	0.06019		0.03176		0.02843
SERVICE	0.09060		0.17162		-0.08102
PRODUCTION	0.37586		0.21081		0.16505
N	3,190		1,480		

Note: Variables with capital letters are dummy variables.

$$\ln(W) = \beta_0 + \beta_1(age) + \beta_2(age^2) + B_3(\ln(hw)) + \beta_4(URBAN) + \beta_5(OTHER) + \beta_6(LCE) + \beta_7(SC) + \beta_8(HSC) + \beta_9(COLLEGE) + \beta_{10}(BA) \quad (5.1)$$

Variables in capital letters on the right-hand side of Equation (5.1) are dummy variables.

The regression coefficients of educational levels provide estimates of the percentage change in earnings or wages (W) for workers with different levels of education, controlling for other factors such as age, age^2, ln(hw), and location of residence. Several findings about percentage increases in earnings are evident from Table 5.2.

First, the earnings power of educational achievement is very strong, especially for females (except 'OTHER'). Individuals who were classified as 'OTHER' earned less than those without a certificate. The last column of Table 5.2 shows the difference of each pair of the coefficients, $(\Delta\hat{\beta})$,[5] and the joint test F-value reveals that the wage structures, i.e. $\hat{\beta}$ coefficients, are different between sexes, being in favor of females.

Second, the coefficients on the dummy variables for educational attainment are higher for women than those for men in every educational level. For example, a woman worker with SC earned more than twice as much as those without education, while a man worker with SC earned 97 percent more than those without a certificate. This is consistent with the findings of Carnoy and Marenback (1975) that the rates of return to education have often been higher for women than

TABLE 5.2

Basic Equation

(Equation 5.1)

(Dependent Variable = ln(W))

Variable	Male	Female	$\hat{\Delta\beta}$
Constant	-1.126710	-0.656608*	-0.470102**
	(-4.853)	(-2.299)	(-1.272)
AGE			
age	0.144738	0.082864	0.061874
	(21.093)	(8.544)	(5.181)
age^2	-0.001749	-0.001113	-0.000636
	(-18.755)	(-8.175)	(-3.831)
Working-Hours			
ln(hw)	0.593503	0.678775	-0.085272**
	(15.177)	(14.897)	(-1.415)
Location of Residence			
URBAN	0.442950	0.182167	0.260782
	(14.594)	(4.079)	(4.803)
Educational Level			
OTHER	-0.278525	-0.234570	-0.043955**
	(-5.866)	(-4.322)	(-0.607)
LCE	0.438428	0.654553	-0.216125*
	(8.392)	(8.110)	(-2.235)
SC	0.966142	1.107888	-0.141746**
	(17.894)	(14.938)	(-1.537)
HSC	1.233058	1.604126	-0.371068**
	(5.677)	(5.650)	(-1.033)
COLLEGE	1.659086	1.964306	-0.305220**
	(11.312)	(9.687)	(-1.213)
BA	1.780044	2.533157	-0.753113*
	(10.228)	(8.360)	(-2.141)
R^2	0.3704	0.3847	
F	187.005	91.829	25.0370
N	3,190	1,480	4,670

Notes: (1) t-value in parentheses;
(2) All coefficients are statistically significant at 1% level unless indicated otherwise;
(3) * significant at 5% level; ** not statistically significant.

for men in the United States because the value of non-market work time is ignored.[6] Another explanation might be due to the fact that sons, instead of daughters, were given preference for higher education in the Malaysian society.

Additional evidence is that the education terms indicate a monotonic increase of wages with education. The incremental effects of successive levels of formal education are also generally higher for females. For women, completed LCE, completed SC, completed HSC, and completed COLLEGE yield earnings premiums of 65 percent, 45 percent, 50 percent, and 36 percent, respectively, over the previous completed stages (that is, NONE to LCE, LCE to SC, and so on). The corresponding figures for men are 44 percent, 53 percent, 27 percent, and 43 percent, respectively. A man with a BA earned 12 percent over those college-trained male graduates while the corresponding figure for a female was 57 percent. This, again, seems that higher education (in the universities) was of very high prestige for women; a woman with a BA would have the opportunity to earn 253 percent more than those with no certificate. However, note that there were only 7 females in the sample having BA or higher qualifications.

The coefficients for educational attainment do not reflect the existence of discrimination, but the coefficient for experience (i.e. age) is in favor of male workers. The technique of decomposition described in Chapter 2 (Oaxaca's method) is thus used. The effects of discrimination are approximated by the residual left after subtracting the effects of differences in individual characteristics from the overall wage differential. The results derived from Equa-

tion 5.1 (and also those from Equation 5.2 and Equation 5.3 which will be discussed later) are presented in Table 5.3. The male-weighted method explains 35.3 percent while the female-weighted method explains 26.2 percent of the gross (mean) wage differential. A simple average of these two estimates is 30.7 percent, implying that discrimination accounts for 69.3 percent of the logarithmic wage differential, and the average value of the discrimination coefficients ($\hat{D}$) is 0.44.

B. Personal Characteristics Wage Regressions: This unexplained portion, and thus the discrimination coefficient derived from basic Equation (5.1), is very large. However, it should be noted that there are many other factors that may influence the wage or determine the different wage structures for males and females, separately.

To incorporate these factors, the next step is to regress (ln)wage on all personal characteristics, including marital status and the relationship in the household. These may capture the family effects on wages for different sexes.

These factors are related to role prejudice. In the case of women, discrimination is also a reinforcing process, for they objectively differ from men physically. Of course, whether men are stronger than women is not relevant for a wide range of jobs. The more crucial questions have to do with the expectation of girls and women about work, their developmental opportunities and experience, and their actual behavior with respect to job choice, work performance, and stability and direction in their careers.

TABLE 5.3

The Effects of Sex Discrimination

Gross Differential: $\ln(\bar{W})_G - \ln(\bar{W})_F = 4.89508 - 4.36505 = 0.53003$

$(\bar{W})_G/(\bar{W})_F = \$133.63/\$78.65 = 1.69898$

	Male Weighted	Female Weighted
(1) Estimation from Equation 5.1:		
Difference in characteristics	0.18700	0.13899
% of gross differential	35.28%	26.22%
Unexplained/Due to Discrimination: ln(D+1)	0.34303	0.39104
% of gross differential	64.72%	73.78%
Discrimination Coefficient: $(\hat{D})$	0.4092	0.4785
Average Discrimination Coefficient	0.4439	
(2) Estimation from Equation 5.2:		
Difference in characteristics	0.29787	0.26099
% of gross differential	56.20%	49.24%
Unexplained/Due to Discrimination: ln(D+1)	0.23216	0.26904
% of gross differential	43.80%	50.76%
Discrimination Coefficient: $(\hat{D})$	0.2613	0.3087
Average Discrimination Coefficient	0.2850	
(3) Estimation from Equation 5.3:		
Difference in characteristics	0.33726	0.24488
% of gross differential	63.63%	46.20%
Unexplained/Due to Discrimination: ln(D+1)	0.19277	0.28515
% of gross differential	36.37%	53.80%
Discrimination Coefficient: $(\hat{D})$	0.2126	0.3300
Average Discrimination Coefficient	0.2713	

Solomon W. Polachek (1975) asserted that there is a division of labor within the household, and family characteristics have opposite effects on male-female pay structures.[7] As the head of a household, a person has more responsibility to finance the family and will therefore look for the job with the higher wage. To incorporate these effects, Equation 5.2, which includes marital status and the dummy variable of HEAD of the family, is estimated:

$$\begin{aligned} \ln(W) = {} & \beta_0 + \beta_1(\text{age}) + \beta_2(\text{age}^2) + \beta_3(\ln(\text{hw})) \\ & + \beta_4(\text{URBAN}) + \beta_5(\text{HEAD}) + \beta_6(\text{OTHER}) \\ & + \beta_7(\text{LCE}) + \beta_8(\text{SC}) + \beta_9(\text{HSC}) + \beta_{10}(\text{COLLEGE}) \\ & + \beta_{11}(\text{BA}) + \beta_{12}(\text{MSNP}) + \beta_{13}(\text{SINGLE}) \end{aligned} \qquad (5.2)$$

Using dummy variables of MSNP and SINGLE with MSP as base, the regressions coefficients are presented in Table 5.4. Predictably, the head of the family, for both female and male workers, earned more. Similarly, a married man staying together with his spouse earned more than single or married, spouse not present due to financial responsibility. Workers with more financial responsibility are more willing to work hard and take unpleasant jobs in order to earn more. According to Hill (1979), there is no evidence of a detrimental wage effect of marriage among women, even though married women are, on the average, less stable workers than single women.[8] The results even show that a single female earned less than a married woman with spouse present, even though the coefficient is not significant at the 5 percent level. This may be similar to the case of the black community in the United States, where some form of extended family

TABLE 5.4

Personal Characteristics Regressions

(Equation 5.2)

(Dependent Variable = ln(W))

Variable	Male	Female	$\hat{\Delta\beta}$
Constant	-0.728473	-0.430369**	-0.298104**
	(-2.800)	(-1.392)	(-0.734)
AGE			
age	0.120133	0.068978	0.051156
	(13.684)	(5.949)	(3.498)
age^2	-0.001480	-0.000910	-0.000570
	(-13.507)	(-5.962)	(-3.018)
Household			
HEAD	0.195232	0.165024*	0.030209**
	(4.655)	(2.493)	(0.383)
Marital Status			
SINGLE	-0.047601**	-0.101993**	0.054392**
	(-0.949)	(-1.605)	(0.668)
MSNP	-0.443653	-0.456134	0.012481**
	(-4.567)	(-5.613)	(0.098)
Working-Hours			
ln(hw)	0.589842	0.686339	-0.096497**
	(15.200)	(15.083)	(-1.606)
Location of Residence			
URBAN	0.451209	0.195805	0.255404
	(14.866)	(4.353)	(4.677)
Educational Level			
OTHER	-0.258023	-0.220424	-0.037599**
	(-5.466)	(-4.096)	(-0.523)
LCE	0.441423	0.655539	-0.214116*
	(8.514)	(8.176)	(-2.228)
SC	0.961295	1.099317	-0.138021**
	(17.940)	(14.912)	(-1.506)
HSC	1.198334	1.575765	-0.377431**
	(5.557)	(5.595)	(-1.058)
COLLEGE	1.641477	1.962572	-0.321095**
	(11.278)	(9.766)	(-1.287)
BA	1.733366	2.526757	-0.793391*
	(10.027)	(8.416)	(-2.273)

(continued on next page)

TABLE 5.4

(continued)

R^2	0.3807	0.3979	
F	150.198	74.539	8.1223
N	3,190	1,480	4,670

Notes: (1) t-ratio in parentheses;
(2) All coefficients are statistically significant at 1% level unless indicated otherwise;
(3) * significant at 5% level; ** not statistically significant.

arrangement has provided a source of child care for working mothers. Besides, working mothers in Malaysia are of better social status in the society. They are given 42 days full-pay maternity leave for each child born so that the continuity of service to the firms is not interrupted and seniority is preserved.

Decomposing the wage differential into the portion due to differences in characteristics and the portion caused by discrimination, the male-weighted method attributes 43.8 percent of the gross differential to discrimination and the female-weighted method 50.8 percent. The average value of the discrimination coefficient is 0.29 (see Table 5.3).

C. Full-Scale Regressions: The unexplained portion or the portion of net wage differential due to discrimination does not take into account occupational differences between sexes. To complete the analysis, full-scale regressions that incorporate dummy variables for occupations are estimated. This is specified in Equation (5.3):

$$\begin{aligned} \ln(W) = {} & \beta_0 + \beta_1(\text{age}) + \beta_2(\text{age}^2) + \beta_3(\ln(\text{hw})) \\ & + \beta_4(\text{URBAN}) + \beta_5(\text{HEAD}) + \beta_6(\text{SINGLE}) \\ & + \beta_7(\text{MSNP}) + \beta_8(\text{OTHER}) + \beta_9(\text{LCE}) \\ & + \beta_{10}(\text{SC}) + \beta_{11}(\text{HSC}) + \beta_{12}(\text{COLLEGE}) \\ & + \beta_{13}(\text{BA}) + \beta_{14}(\text{PROTECH}) + \beta_{15}(\text{MANAGER}) \\ & + \beta_{16}(\text{CLERK}) + \beta_{17}(\text{SALES}) \\ & + \beta_{18}(\text{SERVICE}) + \beta_{19}(\text{PRODUCTION}) \end{aligned} \tag{5.3}$$

The individual's specific job was coded at the three-digit level from the Index of Occupation Code 1971. These full-scale wage regressions

are able to eliminate male-female differences in occupational attachment as a possible source of discrimination.

The coefficients obtained from the regressions for both male and female workers are presented in Table 5.5 as well as the difference of the coefficients. The coefficients for occupation are significant for males, while for females, the coefficients for SALES, SERVICE, and PRODUCTION are not significant at the 5 percent level. The F-statistic for the joint test of significance for the differences between the coefficients, $(\Delta\hat{\beta})$, reveals that the wage structure for males and females are significantly different with respect to the regressors common to both groups, even though the difference of each pair of $\hat{\beta}$'s is not. The discrimination coefficient from the male-weighted method is, as expected from the standardizing for occupation, reduced to 0.21 while that derived from the female-weighted method is greater than that derived from Equation (5.2). The average value of the discrimination coefficients, however, derived from this full-scale equation is 0.27 which is not much different from what is derived from the personal characteristics regressions (Table 5.3). Sex differences in the distribution by occupation do not narrow much the wage differential. Since the occupation was coded at the three-digit level, and it was impractical to control for more detailed occupation classification, the conditions of equal work are not met. However, it may also imply that job discrimination is not very important compared with the difference in personal characteristics.

TABLE 5.5

Full-Scale Wage Regressions

(Equation 5.3)

(Dependent Variable = ln(W))

Variable	Male	Female	$\hat{\Delta B}$
Constant	-0.423901**	-0.599005*	0.175104**
	(-1.716)	(-2.014)	(0.454)
AGE			
age	0.111045	0.061085	0.049960
	(13.498)	(5.479)	(3.615)
age^2	-0.001370	-0.000832	-0.000538
	(-13.333)	(-5.673)	(-3.014)
Household			
HEAD	0.214898	0.136952*	0.077946**
	(5.469)	(2.157)	(1.047)
Marital Status			
SINGLE	-0.032026**	-0.119743**	0.087717**
	(-0.682)	(-1.927)	(1.129)
MSNP	-0.380761	-0.416253	0.035493**
	(-4.190)	(-5.326)	(0.296)
Working-Hours			
ln(hw)	0.496661	0.747241	-0.250579
	(13.092)	(16.928)	(-4.314)
Location of Residence			
URBAN	0.250861	0.176648	0.074213**
	(8.236)	(3.660)	(1.304)
Educational Level			
OTHER	-0.238904	-0.196015	-0.042889**
	(-5.396)	(-3.776)	(-0.630)
LCE	0.210868	0.233138	-0.022270**
	(4.176)	(2.591)	(-0.217)
SC	0.577235	0.421481	0.155754**
	(10.076)	(4.301)	(1.377)
HSC	0.789456	0.793489	-0.004033**
	(3.874)	(2.839)	(-0.012)
COLLEGE	1.103249	0.967384	0.135865**
	(7.636)	(4.552)	(0.530)
BA	1.189943	1.535575	-0.345632**
	(7.043)	(5.104)	(-1.005)

(continued on next page)

TABLE 5.5

(continued)

Variable	Male	Female	$\hat{\Delta\beta}$
Occupation			
PROTECH	1.037502	1.030554	0.006948**
	(15.623)	(10.274)	(0.058)
MANAGER	1.125743	1.449204	-0.323461**
	(8.979)	(2.650)	(-0.579)
CLERK	0.922992	0.646988	0.276004*
	(16.525)	(6.229)	(2.349)
SALES	0.376169	-0.028822**	0.404991
	(5.946)	(-0.239)	(2.981)
SERVICE	0.582431	-0.067465**	0.649896
	(10.755)	(-1.061)	(7.799)
PRODUCTION	0.563556	-0.032597**	0.596153
	(15.796)	(-0.540)	(8.530)
R^2	0.4600	0.4497	
F	142.132	62.802	10.7903
N	3,190	1,480	4.670

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

D. Sex Discrimination Within Ethnic Groups: In Malaysia, all Malays are Muslims whereas most of the non-Malays are non-Muslims. They are different in many aspects and thus it is expected that the degree of sex discrimination within each community would not be the same. For comparison, the personal characteristics wage regressions, Equation (5.2), between sexes were fitted to Malays and non-Malays separately. The results are presented in Table 5.6 and Table 5.7. The average value of sex discrimination coefficients for Malays is 0.29 and that for non-Malays is 0.42 (see Table 5.8). Note that the gross differential within the Malay community is larger than that within the non-Malay community, but surprisingly, the discrimination coefficient is larger in the case of non-Malays. The differences between the coefficients of males and females for non-Malays are mostly significant whereas with the same characteristics, Malay females may earn the same amount as Malay males. Their wage structures do not have much difference, and the difference of each pair of $\hat{\beta}$'s is not significant from zero. This suggests that it is the personal characteristics that cause the wage differential between Malay females and Malay males; but that non-Malay females were really discriminated against compared to non-Malay males (see Table A.1 for the mean values of their personal characteristics).

5.5 Conclusions

From the above analysis, sex discrimination existed in Peninsula Malaysia but it was largely due to different roles assumed by males and females. Even though females were over-represented in several

TABLE 5.6

Sex Discrimination within Ethnic Group: Malays

Personal Characteristics Regressions

(Equation 5.2)

(Dependent Variable = ln(W))

Variable	Male	Female	$\hat{\Delta B}$
Constant	-1.310382	-1.180625*	-0.129757**
	(-3.343)	(-2.176)	(-0.194)
AGE			
age	0.128380	0.087562	0.040818**
	(8.648)	(4.160)	(1.583)
age^2	-0.001628	-0.001214	-0.000414**
	(-8.683)	(-4.446)	(-1.246)
Household			
HEAD	0.296819	0.199039**	0.097780**
	(4.095)	(1.645)	(0.692)
Marital Status			
SINGLE	0.038146**	-0.006737**	0.044883**
	(0.461)	(-0.058)	(0.315)
MSNP	-0.645720	-0.418774	-0.226946**
	(-4.212)	(-3.131)	(-1.115)
Location of Residence			
URBAN	0.569718	0.321735	0.247983*
	(10.253)	(3.166)	(2.138)
Working-Hours			
ln(hw)	0.629809	0.720529	-0.090720**
	(11.070)	(9.381)	(-0.948)

(continued on next page)

TABLE 5.6

(continued)

Variable	Male	Female	$\hat{\Delta\beta}$
Educational Level			
OTHER	-0.292963	-0.308181	0.015218**
	(-4.123)	(-3.082)	(0.124)
LCE	0.586947	0.830751	-0.243803**
	(6.924)	(5.611)	(-1.427)
SC	1.107414	1.343466	-0.236053**
	(12.195)	(9.696)	(-1.423)
HSC	1.805340	1.363237*	0.442103**
	(4.447)	(2.543)	(0.657)
COLLEGE	1.757475	2.043647	-0.286173**
	(7.440)	(6.207)	(-0.705)
BA	1.999697	2.711297	-0.711600**
	(5.810)	(4.202)	(-0.971)
R^2	0.3768	0.4606	
F	74.010	36.329	2.5241
N	1,605	567	2,172

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 5.7

Sex Discrimination within Ethnic Group: non-Malays

Personal Characteristics Regressions

(Equation 5.2)

(Dependent Variable = ln(W))

Variable	Male	Female	$\hat{\Delta\beta}$
Constant	1.510588	0.821998*	0.688590**
	(4.785)	(2.518)	(1.519)
AGE			
age	0.109455	0.061562	0.047893
	(11.996)	(5.216)	(3.220)
age^2	-0.001354	-0.000783	-0.000571
	(-12.009)	(-5.006)	(-2.970)
Household			
HEAD	0.224268	0.088769**	0.135498**
	(5.164)	(1.311)	(1.691)
Marital Status			
SINGLE	-0.149665	-0.093664**	-0.056001**
	(-2.844)	(-1.443)	(-0.672)
MSNP	-0.269029*	-0.045666**	-0.223363**
	(-2.522)	(-0.484)	(-1.569)
Location of Residence			
URBAN	0.189823	-0.064986**	0.254809
	(6.013)	(-1.488)	(4.745)
Working-Hours			
ln(hw)	0.266210	0.509159	-0.242949
	(5.504)	(10.191)	(-3.500)

(continued on next page)

TABLE 5.7

(continued)

Variable	Male	Female	$\hat{\Delta\beta}$
Educational Level			
OTHER	-0.090204**	-0.078640**	-0.011563**
	(-1.644)	(-1.452)	(-0.150)
LCE	0.297601	0.596747	-0.299145
	(5.427)	(7.387)	(-3.075)
SC	0.787191	1.030317	-0.243126
	(14.249)	(14.001)	(-2.650)
HSC	0.802983	1.582568	-0.779585*
	(3.899)	(5.612)	(-2.240)
COLLEGE	1.428364	1.912496	-0.484132**
	(9.244)	(8.591)	(-1.793)
BA	1.487367	2.419830	-0.932464
	(9.283)	(8.691)	(-2.916)
R^2	0.4239	0.3758	
F	88.911	41.628	13.9420
N	1,585	913	2,498

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 5.8

The Effects of Sex Discrimination within Ethnic Groups

(1) Malays:

Gross Differential: $\ln(\bar{W})_G - \ln(\bar{W})_F = 4.65120 - 3.98762 = 0.66358$

$(\bar{W})_G/(\bar{W})_F = \$104.71/\$53.93 = 1.94173$

Estimation from Equation 5.2:	Male Weighted	Female Weighted
Difference in characteristics	0.43831	0.33438
% of gross differential	66.05%	50.39%
Unexplained/Due to Discrimination: ln(D+1)	0.22527	0.32920
% of gross differential	33.95%	49.61%
Discrimination Coefficient: $(\hat{D})$	0.2527	0.3213
Average Discrimination Coefficient	0.2870	

(2) non-Malays:

Gross Differential: $\ln(\bar{W})_G - \ln(\bar{W})_F = 5.14204 - 4.59945 = 0.54259$

$(\bar{W})_G/(\bar{W})_F = \$171.06/\$99.43 = 1.72046$

Estimation from Equation 5.2:	Male-Weighted	Female-Weighted
Difference in characteristics	0.22691	0.15634
% of gross differential	41.82%	28.81%
Unexplained/Due to Discrimination: ln(D+1)	0.31568	0.38625
% of gross differential	58.18%	71.19%
Discrimination Coefficient: $(\hat{D})$	0.3712	0.4715
Average Discrimination Coefficient	0.4214	

kinds of jobs, such as AGRICULTURE, PROTECH, and SERVICE, controlling for occupational distribution does not explain much of the differential compared to merely controlling for the personal characteristics only. This is why when sex discrimination within ethnic groups is examined, only the personal characteristics wage regressions are utilized. However, to emphasize, our estimates suffer from the fact that job categories are so broad that the same job is not actually being compared. Those dummy variables for occupations are defined according to the definitions set by government.

Lastly, if the coefficients derived from the following equation:

$$\begin{aligned} \ln(W) = {} & \beta_0 + \beta_1(\text{age}) + \beta_2(\text{age}^2) + \beta_3(\ln(\text{hw})) \\ & + \beta_4(\text{OTHER}) + \beta_5(\text{LCE}) + \beta_6(\text{SC}) + \beta_7(\text{HSC}) \\ & + \beta_8(\text{COLLEGE}) + \beta_9(\text{BA}) \end{aligned} \tag{5.4}$$

are used to compute the predicted wages of the males and females for the different educational levels, it is surprising to find that the female's predicted wage is higher than the male's predicted wage when a woman obtains a BA degree (see Table 5.9). These predicted wages are calculated by adding the coefficients of the education dummies to the earnings of the base group with no certificate. The latter is calculated by using the mean values of the non-education variables in the model. The policy implication is that women should be given more chances for higher education.

TABLE 5.9

Wages for Different Educational Levels by Sex

(Observed and Predicted)

(1) Average (ln)wage:

	Females	Males	Difference
Pooled sample	4.36505	4.89508	-0.53003
SC and above	5.54965	5.94609	-0.39644
HSC and above	6.23200	6.49544	-0.26344

(2) Predicted (ln)wage:*

	Females	Males	Difference
OTHER	3.97030	4.44612	-0.47582
NONE	4.23459	4.75501	-0.52042
LCE	4.92660	5.27205	-0.34545
SC	5.39441	5.86919	-0.47478
HSC	5.91120	6.16890	-0.25770
COLLEGE	6.25849	6.49288	-0.23439
BA	6.82687	6.73996	+0.08691

---

* Note: The predicted wages are calculated by adding the coefficients of the education dummies to the earnings of the base group with no certificate; the earnings of the base group are computed by using the mean values of the non-education variables in the model which is Equation 5.4 (see Table A.3 in the Appendix).

Notes:

1 Filer, Randall K., "Sexual Differences in Earnings: The Role of Individual Personalities and Tastes," Journal of Human Resources, (Winter 1983), pp. 82-99.

2 Blinder, Alan S., "Wage Discrimination: Reduced Form and Structural Estimates," Journal of Human Resources, (1973), pp. 436-455.

3 Mincer, Jacob and S.W. Polachek, "Family Investments in Human Capital," Journal of Political Economy, (March/April 1974, supplement), pp. S76-S110.

4 The geometric means are computed as indicated in Footnote 17 of Chapter 2 and

$$GD = \frac{\bar{W}_G - \bar{W}_F}{\bar{W}_F} \quad .$$

5 a) These are obtained from the coefficients of $\hat{\alpha}$'s when the following equation is fitted to the pooled sample:

$$\begin{aligned} \ln(\omega) = {} & \beta_0 + \beta_1(\text{age}) + \beta_2(\text{age}^2) + \beta_3(\ln(\text{hw})) + \beta_4(\text{URBAN}) \\ & + \beta_5(\text{OTHER}) + \beta_6(\text{LCE}) + \beta_7(\text{SC}) + \beta_8(\text{HSC}) \\ & + \beta_9(\text{COLLEGE}) + \beta_{10}(\text{BA}) + \alpha_0 D + \alpha_1 D(\text{age}) \\ & + \alpha_2 D(\text{age}^2) + \alpha_3 D(\ln(\text{hw})) + \alpha_4 D(\text{URBAN}) \\ & + \alpha_5 D(\text{OTHER}) + \alpha_6 D(\text{LCE}) + \alpha_7 D(\text{SC}) \\ & + \alpha_8 D(\text{HSC}) + \alpha_9 D(\text{COLLEGE}) + \alpha_{10} D(\text{BA}) + U \end{aligned}$$

where D = 1 for males and D = 0 for females; and

$\hat{\alpha}_0 = \hat{\beta}_0 - \hat{\beta}_{0F}$, $\hat{\alpha}_1 = \hat{\beta}_1 - \hat{\beta}_{1F}$,..., and $\hat{\beta}_{0F} = \beta_{0F}$, $\beta_1 = \beta_{1F}$,... .

b) Refer to Maddala, G.S., Econometrics, (US: McGraw-Hill, Inc. 1977), pp. 132-141.

6 Carnoy, Martin and D. Marenback, "The Return to Schooling in the United States, 1939-1969," Journal of Human Resources, (Summer 1975), pp. 312-331.

7 Polacheck, S.W., "Potential Biases in Measuring Male-Female Discrimination," Journal of Human Resources, (1975), pp. 205-229.

8 Hill, M.S., "The Wage Effects of Marital Status and Children," Journal of Human Resources, (Fall 1979), pp. 579-594.

CHAPTER 6

Wage Differentails by Race

> The Malay claim to being discriminated against in Malaysia is based not on laws but on the character and behaviour of the major racial groups in Malaysia. The Malays are spiritually inclined, tolerant and easy-going. The non-Malays and especially the Chinese are materialistic, aggressive, and have an appetite for work. For equality to come about it is necessary that these strikingly contrasting races adjust to each other.
>
> -The Malay Dilemma[1]

6.1 Introduction

It is true that there is no legal basis to discrimination against Malays in Malaysia. Yet it is also true, and has never been denied, that Malays, in general, are the poorest ethnic group in the country. In this chapter, the actual situation based on the Surveys is examined for the sources of discrimination against Malays. Since the dependent variable and explanatory variables are similar to the variables used for the analysis of sex discrimination in Chapter 5, the basic model of Equation 5.1 is fitted, separately, to the data for both Malays and non-Malays, so that the coefficients on the dummy variables for education for different ethnic groups can be compared. In addition, the analysis of the non-Malay/Malay wage differentials will be based on males and females separately. Separate equations are also estimated for urban and rural residents to determine the degree of racial discrimination in different locations. In the analysis, the basic model will be discussed first, then modifications

will be made to bring in more variables so that discrimination against Malays can be tested.

Since the Chinese rather than Indians are always referred to as the richest group in the country, the analysis compares Malays with Chinese, the two most contrasting races in this multi-racial country.

The effects of the NEP and the employment quota policy may alter the wage patterns for different races. Thus it is discussed before the conclusions of this chapter.

6.2 Dependent Variable and Explanatory Variables

The dependent variable in all cases is, as in Chapter 5, the natural logarithm of monthly wage, ln(W), so that the percentage effects of changes in the explanatory variables on the wage can be inferred. Educational levels rather than years of schooling are the first group of independent variables. Since no certificate is the largest group in both the non-Malay and Malay communities, it is kept as the base group to allow for dummy variables of OTHER, LCE, SC, HSC, COLLEGE, and BA, representing the different levels of educational attainment.

Other dummy variables are used for occupation, with AGRICULTURE as the base. Location of settlments divides the sample into the URBAN or RURAL society to represent the settlements with population above or below 10,000, respectively. All explanatory dummy variables are written in capital letters. Continuous variables are age, age-squared, and ln(hw) as defined in Chapter 5.

6.3 Racial Discrimination

To make it consistent with the analysis of sex discrimination, only observations without missing values are used. This means that the analysis will be on 2,172 Malays and 2,498 non-Malays (comprised of 1,775 Chinese and 723 Indians). These figures actually reflect racial composition of the labor market in Malaysia during the period when the Surveys were conducted. In 1973, the non-Malay/Malay wage differential was 0.46576. For males only, the non-Malay/Malay wage differential was 0.49084 while for females only, the wage differential was 0.61183, that is, the wage gap between non-Malay females and Malay females was larger than the gap between non-Malay males and Malay males. The racial wage differential is smaller than the sexual wage differential (computed in Chapter 5).

A. Basic Model and the Effects of Education. While these figures are interesting and important, they do not help us identify the immediate source of the disparities. From Table 6.1 the mean values of those relevant factors show that non-Malays, on the average, worked more hours a month, and most of them lived in the urban areas where the cost of living is higher. Educational variables show that non-Malays held one or another certificate. Besides, most of the Malays worked in the agricultural sector where productivity was relatively low.

The first equation in the analysis of racial discrimination is exactly identical with Equation 5.1 which regresses ln(W) on age, location of settlements, working hours, and the educational levels:

TABLE 6.1

Descriptive Statistics by Race

Variable	non-Malays Mean (1)	non-Malays Median (2)	Malays Mean (3)	Malays Median (4)	Mean Difference (1)-(3)
Wage					
ln(W)	4.94373	4.97327	4.47797	4.60517	0.46576
AGE					
age_2	31.7658	29	32.0479	30	-0.2821
age^2	1156.8923	841	1165.9337	900	-9.0414
Working-Hours					
ln(hw)	5.27277	5.34028	5.14809	5.25327	0.12468
Location					
URBAN	0.53042		0.23665		0.29377
Household					
HEAD	0.40232		0.55295		-0.15063
Education					
OTHER	0.15172		0.18554		-0.03382
LCE	0.08487		0.08333		0.00154
SC	0.09247		0.08011		0.01236
HSC	0.00560		0.00368		0.00192
COLLEGE	0.00960		0.01059		-0.00099
BA	0.00800		0.00414		0.00386
Marital Status					
SINGLE	0.39872		0.33057		0.06815
MSNP	0.04163		0.06169		-0.02006
Occupation					
PROTECH	0.07006		0.08103		-0.01097
MANAGER	0.01041		0.00737		0.00304
CLERK	0.10769		0.09576		0.01193
SALES	0.07246		0.02670		0.04576
SERVICE	0.10689		0.12707		-0.02018
PRODUCTION	0.37510		0.26427		0.11083
N	2,498		2,172		

$$\ln(W) = B_0 + B_1(age) + B_2(age^2) + B_3(\ln(hw)) + B_4\ (URBAN) + B_5(OTHER) + B_6\ (LCE) + B_7(SC) + B_8(HSC) + B_9(COLLEGE) + B_{10}(BA) \quad (6.1)$$

The regression results from Equation 6.1 are presented in Table 6.2. The regression coefficients show that education plays a more important role in augmenting the earnings of Malay than those of non-Malays. All coefficients (except constant and that for "OTHER") are in favor of Malays: the earning premiums are higher for a Malay compared to those for a non-Malay. Examining LCE, for example, a Malay obtained earning premiums of 62 percent greater than if he did not have a certificate at all. A Malay with SC and above will have earning premiums of more than 100 percent. The regression results (ignoring the constant) actually account for an 80 percent wage differential in favor of Malays. That is to say, if Malays kept their current socio-economic traits (including their less advantageous distributions of education), and kept the same wage equation as estimated, they would have earned (as indicated in Table 6.3) 80 percent more than non-Malays.

The incremental effects of higher educational attainments are higher for Malays with HSC and BA. The difference between a Malay with a BA and a Malay with no education was extremely high (219 percent), but note that only 9 Malays had such qualification compared to 20 non-Malays with a BA degree in the sample.

Using the decomposition methods described in Chapter 2, sources of racial discrimination may be identified. The average (monthly)

TABLE 6.2

Basic Model Regression by Race

Equation 6.1

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.144865**	-1.929039	2.073904
	(0.666)	(-6.758)	(5.765)
AGE			
age	0.118567	0.142938	-0.024371*
	(19.567)	(14.445)	(-2.174)
age^2	-0.001379	-0.001789	0.000410
	(-16.585)	(-13.140)	(2.665)
Working-Hours			
ln(hw)	0.468547	0.721680	-0.253133
	(12.849)	(15.461)	(-4.247)
Location of Residence			
URBAN	0.095221	0.518129	-0.422909
	(3.526)	(10.375)	(-7.859)
Education			
OTHER	-0.285867	-0.548875	0.263008
	(-7.377)	(-9.868)	(3.932)
LCE	0.391505	0.615648	-0.224144*
	(8.060)	(8.085)	(-2.552)
SC	0.870800	1.142395	-0.271595
	(18.445)	(14.570)	(-3.080)
HSC	1.098439	1.630095	-0.531656**
	(6.181)	(4.899)	(-1.490)
COLLEGE	1.594881	1.752832	-0.157951**
	(11.726)	(8.842)	(-0.668)
BA	1.845422	2.186166	-0.340744**
	(12.408)	(6.950)	(-1.053)
R^2	0.3804	0.3887	
F	152.718	137.416	29.953
N	2,498	2,172	4,670

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 6.3

Detailed Analysis of Racial Differentials in Wages

(Equation 6.1)

Causal Factor	Amount Attributable
Age	
age_2	-0.814
age	+0.490
Working-hours	
ln(hw)	-1.245
Location	
URBAN	-0.072
Education	
OTHER	+0.058
LCE	-0.018
SC	-0.011
HSC	0.000
COLLEGE	-0.003
BA	+0.006
Sub-total (GD)*	R = -1.609 (-80%)
Shift coefficient	U = +2.074
Total (GD)*	T = R + U = +0.465 (+59%)

Notes: (1) *For example ln(GD+1) = R = -1.609, then GD = -0.80
(2) A + sign indicates advantage for non-Malays;
a - sign indicates advantage for Malays.

wage of the non-Malays exceeded that of the Malays by 59 percent[2]. The Malays earned, on the average, $88.06 per month in 1973, but the non-Malay weighted method predicted that they could have earned $127.69 had they faced the wage structure of the non-Malays. The non-Malays earned, on the average, $140.29 a month, but the Malay weighted method predicted that they could have only received $114.38 had they been given the wage structure of Malays. Table 6.4 gives the results from the decomposition derived from Equation 6.1 (and also those from Equation 6.2 which will be discussed later). The non-Malay weighted method explains only 20 percent of the gross wage differential while the Malay weighted method explains more than 56 percent of that. Assuming that in the absence of discrimination, the Malay earnings function would be more likely to resemble that of the non-Malay, then Malays should have earned 45 percent more than they did as shown in Table 6.4 by the non-Malay weighted method discrimination coefficient. However, considering that Malay is the largest group in Peninsula Malaysia, it is also possible that if racial discrimination were eliminated, Malay earnings function would be important in determining the wage rate and non-Malays might thus have earned 23 percent less than they had. These imply that the discrimination coefficient of racial disparities is in the range of 0.23 and 0.45.

The above comparison is concerned with all Malays and all non-Malays, that is, it does not distinguish females from males. Since Malays, Chinese, and Indians differ in many ways, including religion, culture, and physical features, to obtain the pure racial effect on

TABLE 6.4

The Effects of Racial Discrimination

Gross Differential: $\ln(\bar{W})_N - \ln(\bar{W})_M = 4.94373 - 4.47797 = 0.46576$

$(\bar{W})_N/(\bar{W})_M = \$140.29/\$88.06 = 1.5932$

	non-Malay weighted		Malay Weighted
Estimation from Equation 6.1			
Difference in characteristics	0.09409		0.26156
% of gross	20.20%		56.16%
Unexplained/Due to discrimination: (ln(D+1))	0.37167		0.20420
% of gross	79.80%		43.84%
Discrimination Coefficient: $(\hat{D})$	0.4501		0.2265
Average Discrimination Coefficient		0.3383	
Estimation from Equation 6.2			
Difference in characteristics	0.10374		0.23168
% of gross	22.27%		49.74%
Unexplained/Due to discrimination: (ln(D+1))	0.36202		0.23408
% of gross	77.73%		50.26%
Discrimination Coefficient: $(\hat{D})$	0.4362		0.2637
Average Discrimination Coefficient		0.3500	

wage, the situation in Malaysia is examined by fitting Equation 6.1 to both sexes among races (see Table 6.5 and Table 6.6).

For males only, the gross wage differential between non-Malays and Malays was 63 percent. The Malay males earned, on the average, $104.71 per month, but the non-Malay weighted method predicted that they could have received $154.44 had they been treated as non-Malay males. The non-Malay males received $171.06, but the Malay weighted method predicted that they could have only earned $139.37 had they faced the Malay males wage structure. These imply that Malay males should have received a wage 47 percent higher than they did or non-Malays would have earned 22 percent less than they had if there were no racial discrimination at all. These are shown in Table 6.7 by the non-Malay weighted discrimination coefficient and Malay weighted discrimination coefficient, respectively. The same table also indicates that, on the average, the justifiable wage differential by differences in characteristics between non-Malay males and Malay males is only 39.5 percent.

In the case of females, the average (monthly) wage of the non-Malay females exceeded that of the Malay females by 84 percent. Had the Malay females been treated as non-Malay females, they could have earned $94.57 instead of $53.93, but if they were treated as Malay females, they could have only earned $67.11. More than 90 percent of the gross wage differential is not explained by the non-Malay (females) weighted method and, if non-Malay (female) weights were appropriate, Malay females might have received 75 percent more than they did. Therefore, non-Malay females would still have earned 9

TABLE 6.5

Males Wage Regressions by Race

Equation 6.1

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.784452	-1.678568	2.463020
	(2.728)	(-4.865)	(5.270)
AGE			
age	0.145458	0.153744	-0.008286**
	(20.139)	(13.339)	(-0.617)
age^2	-0.001726	-0.001910	0.000184**
	(-17.744)	(-12.064)	(1.007)
Working-Hours			
ln(hw)	0.278509	0.645821	-0.367312
	(5.671)	(11.237)	(-4.647)
Location of Residence			
URBAN	0.184615	0.573391	-0.388777
	(5.779)	(10.265)	(-6.221)
Education			
OTHER	-0.108253**	-0.331264	0.223011*
	(-1.942)	(-4.630)	(2.394)
LCE	0.299694	0.576280	-0.276586
	(5.378)	(6.723)	(-2.724)
SC	0.794926	1.107436	-0.312510
	(14.157)	(12.058)	(-2.955)
HSC	0.807672	1.908650	-1.100977*
	(3.859)	(4.654)	(-2.508)
COLLEGE	1.472502	1.762133	-0.289630**
	(9.381)	(7.376)	(-1.018)
BA	1.551180	2.073089	-0.521909**
	(9.536)	(5.960)	(-1.444)
R^2	0.4032	0.3612	
F	106.342	90.128	20.066
N	1,585	1,605	3,190

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant

TABLE 6.6

Females Wage Regressions by Race

Equation 6.1

(Dependent Variable = ln(hw))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.657839	-1.085746	1.743585
	(2.156)	(-2.193)	(3.195)
AGE			
age	0.072440	0.088994	-0.016554**
	(7.518)	(4.928)	(-0.883)
age^2	-0.000897	-0.001283	0.000386**
	(-6.523)	(-5.204)	(1.481)
Working-Hours			
ln(hw)	0.495454	0.701875	-0.206421*
	(10.026)	(9.177)	(-2.395)
Location of Residence			
URBAN	-0.071696**	0.308779	-0.380475
	(-1.693)	(3.058)	(-3.924)
Education			
OTHER	-0.076398**	-0.335598	0.259200*
	(-1.411)	(-3.358)	(2.483)
LCE	0.583439	0.844784	-0.261345**
	(7.251)	(5.683)	(-1.684)
SC	1.021736	1.357258	-0.335522*
	(13.943)	(9.777)	(-2.337)
HSC	1.518276	1.515840	0.002436**
	(5.430)	(2.845)	(0.004)
COLLEGE	1.892899	2.103037	-0.210138**
	(8.510)	(6.363)	(-0.553)
BA	2.401565	2.731087	-0.329523**
	(8.628)	(4.208)	(-0.525)
R^2	0.3732	0.4508	
F	53.697	45.635	21.366
N	913	567	1,480

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant

TABLE 6.7

The Effects of Racial Discrimination by Sex

(1) Males

Gross Differential: $\ln(\bar{W})_N - \ln(\bar{W})_M = 5.14204 - 4.65120 = 0.49084$

$(\bar{W})_N/(\bar{W})_M = \$171.06/\$104.71 = 1.6337$

	non-Malay weighted		Malay Weighted
Estimation from Equation 6.1			
Difference in characteristics	0.10224		0.28592
% of gross	20.83%		58.25%
Unexplained/Due to discrimination: (ln(D+1))	0.38860		0.19492
% of gross	79.17%		41.75%
Discrimination Coefficient: $(\hat{D})$	0.4749		0.2152
Average Discrimination Coefficient		0.3451	
Estimation from Equation 6.2			
Difference in characteristics	0.12701		0.22834
% of gross	25.88%		46.52%
Unexplained/Due to discrimination: (ln(D+1))	0.36383		0.26250
% of gross	74.12%		53.48%
Discrimination Coefficient: $(\hat{D})$	0.4388		0.3002
Average Discrimination Coefficient		0.3695	

(Continued on next page)

TABLE 6.7

(continued)

(2) Females

Gross Differential: $\ln(\bar{W})_N - \ln(\bar{W})_M = 4.59945 - 3.98762 = 0.61183$

$(\bar{W})_N/(\bar{W})_M = \$99.43/\$53.93 = 1.8438$

	non-Malay weighted		Malay Weighted
Estimation from Equation 6.1			
Difference in characteristics	0.05015		0.21868
% of gross	8.20%		35.74%
Unexplained/Due to discrimination: (ln(D+1))	0.56168		0.39315
% of gross	91.80%		64.26%
Discrimination Coefficient: $(\hat{D})$	0.7536		0.4816
Average Discrimination Coefficient		0.6176	
Estimation from Equation 6.2			
Difference in characteristics	0.05244		0.19925
% of gross	8.57%		32.57%
Unexplained/Due to discrimination: (ln(D+1))	0.55939		0.41258
% of gross	91.43%		67.43%
Discrimination Coefficient: $(\hat{D})$	0.7496		0.5107
Average Discrimination Coefficient		0.6302	

percent more than Malay females even though the latter were treated as non-Malay females. On the other hand, non-Malay females might have received 48 percent less than they did. On the average, only 22 percent of the gross wage differential between non-Malay females and Malay females can be justified by differences in characteristics, as calculated from Equation 6.1.

The above findings suggest that Malays as an ethnic group were discriminated against. Both Malay males and Malay females were not treated "fairly" compared to non-Malay males and non-Malay females, respectively. And the Malay females suffered most when they are compared with non-Malay females; that is, racial discrimination is more serious among female workers.

B. Wage Regressions with Occupation Controls: The coefficients on the dummy variables for education from the basic model tell us that the wage differential is not due to the disadvantageous distributions of education of the Malays. But then is it true that Malays were crowded in the low income sectors? Since it was perceptible that Malays were disproportionately (highly) represented in the agricultural sector, the Equation 6.2 that controls for occupations with AGRICULTURE as the base is thus fitted to the data:

$$\begin{aligned} \ln(W) = {} & B_0 + B_1(\text{age}) + B_2(\text{age}^2) + B_3(\text{URBAN}) \\ & + B_4(\ln(\text{hw})) + B_5(\text{OTHER}) + B_6(\text{LCE}) + B_7(\text{SC}) \\ & + B_8(\text{HSC}) + B_9(\text{COLLEGE}) + B_{10}(\text{BA}) + B_{11}(\text{PROTECH}) \\ & + B_{12}(\text{MANAGER}) + B_{13}(\text{CLERK}) + B_{14}(\text{SALES}) \\ & + B_{15}(\text{SERVICE}) + B_{16}(\text{PRODUCTION}) \end{aligned} \qquad (6.2)$$

Equation 6.2 is used since there seemed to be, at least until Independence, stereotyped jobs for each race in Malaysia, such as Malay jobs versus Chinese jobs or Indian jobs. With occupational dummies used in the regressions, crowding effects, if any, would be quantified.

In general, as shown in Table 6.8, the coefficients for the occupational variables are in favor of Malays. The coefficients for the occupation show that it makes a great difference (in terms of earnings) for a Malay to be engaged, especially in PROTECH, MANAGER, and CLERK instead of in AGRICULTURE as a farmer. This may be due to the fact that Malay farmers are a lower income group in the country, and that Chinese farmers earned more than 2 times and Indian farmers received almost twice as much as Malay farmers.[3]

The non-Malay weighted method explains 22 percent of the gross wage differential while the Malay weighted method explains 50 percent (Table 6.4). Controlling for occupations, Malays would have earned 44 percent more than they had if they were treated as non-Malays, whereas non-Malays would receive 26 percent less than they did had they faced the Malay wage structure.

If discrimination takes the form of occupational placement, one would expect to obtain a smaller discrimination coefficient when occupation is "controlled for," but more sizable effects when measures are made without occupational standardizers. However, compared with the figures derived from Equation 6.1, the results from Equation 6.2 are: the non-Malay weighted method gives a 0.01 smaller discrimination coefficient whereas the Malay weighted method gives a

TABLE 6.8

Regressions with Occupation Controls

Equation 6.2

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	-0.017631**	-1.729019	1.711388
	(-0.084)	(-6.523)	(5.061)
AGE			
age	0.113704	0.128964	-0.015260**
	(19.665)	(14.050)	(-1.453)
age^2	-0.0013217	-0.0016202	0.0002985*
	(-16.666)	(-12.851)	(2.070)
Working-Hours			
ln(hw)	0.499598	0.665648	-0.166050
	(14.059)	(15.029)	(-2.909)
Education			
OTHER	-0.241939	-0.458611	0.216672
	(-6.507)	(-8.871)	(3.444)
LCE	0.199335	0.216223	-0.016888**
	(4.076)	(2.888)	(-0.194)
SC	0.456671	0.597145	-0.140474**
	(8.269)	(7.161)	(-1.440)
HSC	0.693865	0.982873	-0.289009**
	(4.027)	(3.161)	(-0.855)
COLLEGE	1.068478	0.924085	0.144393**
	(7.738)	(4.727)	(0.612)
BA	1.234191	1.528355	-0.294164**
	(8.089)	(5.138)	(-0.935)
Location of Residence			
URBAN	0.044113**	0.253223	-0.216672
	(1.545)	(5.178)	(-3.856)

(Continued on next page)

TABLE 6.8

(continued)

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Occupation			
PROTECH	0.732240	1.329380	-0.597140
	(10.725)	(15.807)	(-5.474)
MANAGER	1.082271	1.142446	-0.060175**
	(8.353)	(5.088)	(-0.243)
CLERK	0.538553	1.121699	-0.583147
	(9.600)	(13.861)	(-6.029)
SALES	0.113280*	0.183928**	-0.070648**
	(1.986)	(1.546)	(-0.574)
SERVICE	-0.197824	0.665345	-0.863170
	(-4.010)	(10.401)	(-10.698)
PRODUCTION	0.178046	0.615909	-0.437863
	(5.053)	(12.471)	(-7.315)
R^2	0.4418	0.4825	
F	122.714	125.579	30.4517
N	2,498	2,172	4,670

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant

0.03 larger discrimination coefficient. The simple average discrimination coefficient from the two methods is 0.35 which is 0.01 greater than that derived from Equation 6.1 which does not control for occupational variables. Thus, it is concluded that the relative disadvantages of the Malays cannot be ascribed to their being crowded into badly paid occupations. However, our estimations reflect that discrimination occurred within the broad occupational categories, even though the results do not verify the crowding hypothesis.

Similarly, the coefficients for occupation are mostly in favor of both Malay males and Malay females compared with non-Malay males and non-Malay females, respectively (see Table 6.9 and Table 6.10). For males, the non-Malay weighted method yields a discrimination coefficient of 0.44 which is 0.02 smaller than that derived from Equation 6.1. For females only, the non-Malay weighted method gives a discrimination coefficient equal to that derived from Equation 6.1 whereas the discrimination coefficient obtained from the Malay weighted method is 0.03 larger. Table 6.7 indicates that the average discrimination coefficients derived from Equation 6.2 are 0.37 and 0.63 for males and females respectively, and both are greater than those obtained using Equation 6.1. Both Malay males and Malay females were discriminated against in every job they participated.

C. Racial Wage Differentials in Different Locations: Realizing the disparities between races, the Malaysian government has designed the NEP to eradicate the poverty since 1971. More Malays have migrated to the urban areas to take jobs in both the private and public sectors. Those Malays in the urban areas are better-educated than their

TABLE 6.9

Males Wage Regressions by Race

Equation 6.2

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.660765*	-0.844894	1.505658
	(2.394)	(-2.626)	(3.437)
Age			
age	0.137808	0.132621	0.005186**
	(19.864)	(12.541)	(0.415)
age^2	-0.0016260	-0.0016623	0.0003623**
	(-17.396)	(-11.478)	(0.213)
Working-Hours			
ln(hw)	0.292199	0.487464	-0.195265
	(6.065)	(8.874)	(-2.577)
Location of Residence			
URBAN	0.085601	0.275929	-0.195265
	(2.601)	(5.142)	(-3.092)
Education			
OTHER	-0.096404**	-0.300741	0.204336*
	(-1.818)	(-4.602)	(2.372)
LCE	0.162405	0.213862	-0.051457**
	(2.968)	(2.611)	(-0.527)
SC	0.454898	0.648593	-0.193695**
	(7.265)	(6.941)	(-1.737)
HSC	0.552818	1.233484	-0.680666**
	(2.740)	(3.265)	(-1.658)
COLLEGE	1.031856	1.051390	-0.019534**
	(6.519)	(4.547)	(-0.070)
BA	1.010536	1.569250	-0.558714**
	(5.971)	(4.833)	(-1.598)

(Continued on next page)

TABLE 6.9

(continued)

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Occupation			
PROTECH	0.799476	1.217905	-0.418429
	(9.556)	(12.715)	(-3.174)
MANAGER	1.073947	1.011936	0.062011**
	(8.367)	(4.487)	(0.247)
CLERK	0.602049	1.147712	-0.545663
	(9.426)	(13.167)	(-5.018)
SALES	0.214076	0.117156**	0.096920**
	(3.366)	(0.903)	(0.708)
SERVICE	0.036834**	0.947296	-0.910462
	(0.511)	(12.458)	(-8.267)
PRODUCTION	0.288000	0.659059	-0.371059
	(6.752)	(12.243)	(-5.299)
R^2	0.4637	0.4751	
F	84.741	89.849	19.4519
N	1,585	1,605	3,190

Notes: (1) t-statistic in parentheses;
(2) * significant at 5% level; ** not statistically significant.
(3) All other coefficients are significant at 1% level.

TABLE 6.10

Female Wage Regression by Race

Equation 6.2

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.480174**	-1.310921	1.791094
	(1.633)	(-2.817)	(3.455)
Age			
age	0.066759	0.072413	-0.0056539**
	(7.205)	(4.243)	(-0.316)
age^2	-0.0008440	-0.0010783	0.00023427**
	(-6.390)	(-4.669)	(0.950)
Working-Hours			
ln(hw)	0.569429	0.764389	-0.194960*
	(11.909)	(10.744)	(-2.390)
Location of Residence			
URBAN	0.020698**	0.149072**	-0.128374**
	(0.438)	(1.471)	(-1.274)
Education			
OTHER	-0.088206**	-0.213604*	0.125397**
	(-1.706)	(-2.286)	(1.273)
LCE	0.318243	0.158657**	^.159587**
	(3.517)	(0.993)	(0.939)
SC	0.502965	0.439869*	0.063096**
	(5.006)	(2.575)	(0.342)
HSC	0.877914	0.671311**	0.206603**
	(3.151)	(1.303)	(0.384)
COLLEGE	1.182703	0.759097*	0.423606**
	(5.130)	(2.147)	(1.060)
BA	1.672339	1.473698*	0.198640**
	(5.947)	(2.391)	(0.326)

(Continued on next page)

TABLE 6.10

(continued)

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Occupation			
PROTECH	0.591758	1.620400	-1.028642
	(5.496)	(9.911)	(-5.541)
MANAGER	0.705989**	2.003007*	-1.297018**
	(1.189)	(2.198)	(-1.260)
CLERK	0.294397	1.182384	-0.887987
	(2.820)	(6.340)	(-4.496)
SALES	-0.333810	0.538056*	-0.871865
	(-2.955)	(2.145)	(-3.532)
SERVICE	-0.282368	0.195835**	-0.478203
	(-4.405)	(1.765)	(-4.019)
PRODUCTION	-0.280747	0.271359*	-0.552106
	(-4.849)	(2.414)	(-4.782)
R^2	0.4379	0.5376	
F	43.632	39.973	19.1082
N	913	567	1,480

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

friends in the rural settlments. Even though they worked fewer hours per week, their average (monthly) wage was $179.82 or 5.19194 in logarithmic terms which is higher than the wage received by non-Malays who only earned $156.61 (or 5.05376 in logarithms) per month. These urban wage differentials, together with the coefficients for the educational levels (will be obtained later from Equation 6.3 and Equation 6.4) make it appear that discrimination favors Malays in the urban areas. Our sample consists of only 514 Malays who were residents of the urban settlments. However, this actually reflects the composition of the urban population during the period of the Surveys.

Conversely, the problem of racial discrimination against Malays was very severe in the rural community. Non-Malays in the rural areas earned $123.90 while rural Malays only earned $70.57 per month. This yields a non-Malay/Malay wage differential in the rural community of 0.56281, that is, the average wage of the rural non-Malays exceeded that of the rural Malays by 76 percent.

One of the explanatory variables in Equations 6.1 and 6.2, URBAN, is dropped for the analysis of racial discrimination in different locations. Equation 6.1 becomes 6.3 and Equation 6.2 changes to Equation 6.4.[4] Most of the coefficients, as shown in Tables 6.11-6.14, are in favor of Malays, and the wage structure of the Malays is significantly different from that of the non-Malays.

As indicated in Table 6.15, in the urban area, Equation 6.4 explains more than 95 percent of the gross wage differential under the Malay weighted method and thus non-Malays would not have been much better-off if they were treated like Malays. However, if Malays

TABLE 6.11

Wage Differentials in Urban Areas

Equation 6.3

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.259734**	1.127627*	-0.867892**
	(0.852)	(1.981)	(-1.406)
Age			
age	0.117773	0.136228	-0.018455**
	(14.249)	(7.320)	(-0.954)
age^2	-0.0012972	-0.0014752	0.0001180**
	(-5.616)	(-11.525)	(0.656)
Working-hours			
ln(hw)	0.454077	0.224542*	0.229535*
	(9.059)	(2.554)	(2.367)
Education			
OTHER	-0.315905	-0.380528	0.064623**
	(-3.177)	(-5.372)	(0.508)
LCE	0.373763	0.445552	-0.071789**
	(6.107)	(4.470)	(0.639)
SC	0.811976	0.929150	-0.117174**
	(14.563)	(10.379)	(-1.156)
HSC	1.054849	1.398646	-0.343797**
	(5.455)	(3.811)	(-0.867)
COLLEGE	1.583278	1.373217	0.210061**
	(8.828)	(6.352)	(0.768)
BA	1.913078	2.061728	-0.148650**
	(6.847)	(11.451)	(-0.451)
R^2	0.4041	0.3839	
F	99.065	34.887	1.54890
N	1,325	514	1,839

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 6.12

Wage Differentials in Urban Areas

Equation 6.4

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	-0.266157**	0.322756**	-0.588913**
	(-0.905)	(0.579)	(-0.980)
Age			
age	0.113679	0.127517	-0.013838**
	(14.728)	(7.283)	(-0.763)
age^2	-0.0012595	-0.0013753	0.0001158**
	(-11.986)	(-5.573)	(0.456)
Working-hours			
ln(hw)	0.516116	0.305990	0.210126*
	(10.811)	(3.538)	(2.227)
Education			
OTHER	-0.257698	-0.350010	0.092312**
	(-4.675)	(-3.070)	(0.767)
LCE	0.167883	0.183604**	-0.015721**
	(2.814)	(1.829)	(-0.141)
SC	0.404085	0.515123	-0.111039**
	(6.468)	(5.113)	(0.976)
HSC	0.661556	1.022977	-0.361421**
	(3.604)	(2.936)	(0.963)
COLLEGE	1.109773	0.840508	0.269265**
	(6.346)	(3.815)	(0.986)
BA	1.329951	1.473068	-0.143117**
	(7.910)	(4.872)	(-0.433)

(Continued on next page)

TABLE 6.12

(continued)

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Occupation			
PROTECH	0.861931	1.094038	-0.232106**
	(9.217)	(6.697)	(-1.289)
MANAGER	1.156416	1.233829	-0.077413**
	(7.632)	(4.320)	(-0.251)
CLERK	0.713347	1.036919	-0.323572*
	(8.695)	(6.854)	(-1.970)
SALES	0.369316	0.171573**	0.197742**
	(4.488)	(0.844)	(0.954)
SERVICE	-0.047485**	0.516229	-0.563715
	(-0.624)	(3.606)	(-3.645)
PRODUCTION	0.312236	0.504826	-0.192590**
	(4.573)	(3.583)	(-1.294)
R^2	0.4861	0.4679	
F	82.547	29.191	2.9976
N	1,325	514	1,839

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 6.13

Wage Differentials in Rural Areas

Equation 6.3

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.113701**	-2.290026	2.403726
	(0.369)	(-7.061)	(4.842)
Age			
age	0.123295	0.136188	-0.012892**
	(13.875)	(11.968)	(0.837)
age^2	-0.0015338	-0.0017516	0.0002178**
	(-12.462)	(-11.255)	(1.027)
Working-hours			
ln(hw)	0.476495	0.820538	-0.344043
	(9.010)	(15.345)	(-4.093)
Education			
OTHER	-0.245523	-0.522651	0.277128
	(-4.800)	(-8.350)	(3.186)
LCE	0.421410	0.750294	-0.328885*
	(5.310)	(7.505)	(-2.409)
SC	1.049919	1.380322	-0.330403*
	(11.747)	(11.967)	(-2.127)
HSC	1.246341	1.929442	-0.683101**
	(2.710)	(3.944)	(-0.919)
COLLEGE	1.594638	2.023631	-0.428993**
	(7.703)	(6.829)	(-1.138)
BA	1.573359	2.523962	-0.950603**
	(4.826)	(4.467)	(-1.449)
R^2	0.3425	0.3256	
F	67.328	88.391	24.9121
N	1,173	1,658	2,831

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 6.14

Wage Differentials in Rural Areas

Equation 6.4

(Dependent Variable = ln(W))

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Constant	0.104144**	-1.959318	2.063461
	(0.346)	(-6.489)	(4.405)
Age			
age	0.117540	0.122975	-0.005435**
	(13.595)	(11.609)	(-0.375)
age^2	-0.0014515	-0.0015916	0.0001401**
	(-12.123)	(-11.006)	(0.703)
Working-hours			
ln(hw)	0.486400	0.740272	-0.253872
	(9.203)	(14.552)	(-3.129)
Education			
OTHER	-0.232199	-0.438210	0.206011*
	(-4.642)	(-7.509)	(2.507)
LCE	0.310618	0.293448	0.017170**
	(3.689)	(2.990)	(0.124)
SC	0.663785	0.765497	-0.101712**
	(5.790)	(6.398)	(-0.563)
HSC	0.795825**	1.100040*	-0.304215**
	(1.755)	(2.372)	(-0.429)
COLLEGE	1.153410	1.017299	0.136111**
	(5.101)	(3.493)	(0.352)
BA	1.017237	1.761117	-0.743880**
	(3.000)	(3.346)	(-1.169)

(Continued on next page)

FIGURE 6.14

(continued)

Variable	non-Malays	Malays	$\hat{\Delta\beta}$
Occupation			
PROTECH	0.612752	1.314214	-0.701461
	(4.713)	(12.400)	(-3.679)
MANAGER	1.211596	0.894246	0.317350**
	(4.240)	(2.7330)	(0.681)
CLERK	0.382463	1.084435	-0.701972
	(3.849)	(9.899)	(-4.395)
SALES	-0.330531	0.089395**	-0.419926*
	(-3.196)	(0.598)	(-2.244)
SERVICE	-0.279994	0.670535	-0.950529
	(-3.367)	(8.401)	(-7.452)
PRODUCTION	0.147863	0.599254	-0.451391
	(3.412)	(10.732)	(-6.081)
R^2	0.3894	0.4256	
F	49.191	81.116	24.8334
N	1,173	1,658	2,831

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

were given the non-Malays' wage structure, they would have received 9-10 percent less than what they enjoyed. From Equation 6.4 that controlled for occupations, the average discrimination coefficient derived is (in absolute term) smaller than that derived from Equation 6.3. This implies that within the same job, non-Malays were less discriminated against, and that there is a tendency (even though it is weak) that non-Malays were crowded into certain occupational categories.

In the rural areas, both Equation 6.3 and Equation 6.4 attribute 11-21 percent of the gross wage differential to the differences in characteristics (see Table 6.15). The results reveal that Malays in the rural community were discriminated against very badly. The average discrimination coefficients are 0.61 and 0.62 from Equation 6.3 and Equation 6.4, respectively. The rural Malays would have earned 65 percent higher than they did if they were treated as the non-Malays in the rural areas. The Malay weighted method indicates that they were discriminated against in every job.

D. Wage Differentials between Chinese and Malays: Chinese are usually referred to as the "haves" while Malays are the "have-nots," the comparison between Chinese and Malays is pursued by using both Equatio 6.1 and Equation 6.2 to complete the analysis. A Chinese worker received $145.81 which is 66 percent higher than what was earned by a Malay who only earned $88.06 a month. However, except for the coefficient for OTHER (Equation 6.1) and also for COLLEGE (Equation 6.2), other educational coefficients are in favor of Malays (see Table 6.16 and Table 6.17).

TABLE 6.15

The Effects of Racial Discrimination in Different Locations

(1) URBAN

Gross Differential: $\ln(\bar{W})_N - \ln(\bar{W})_M = 5.053759 - 5.191943 = -0.138184$

$(\bar{W})_N/(\bar{W})_M = \$156.61/\$179.81 = 0.8710$

	non-Malay Weighted	Malay Weighted
Estimation from Equation 6.3		
Difference in characteristics	-0.02860	-0.08649
% of gross	20.70%	62.59%
Unexplained/Due to discrimination: (ln(D+1))	-0.109584	-0.051694
% of gross	79.30%	37.41%
Discrimination Coefficient: $(\hat{D})$	-0.1038	-0.0504
Average Discrimination Coefficient	-0.0771	
Estimation from Equation 6.4		
Difference in characteristics	-0.048764	-0.131947
% of gross	35.29%	95.49%
Unexplained/Due to discrimination: (ln(D+1))	-0.08942	-0.006237
% of gross	64.71%	4.51%
Discrimination Coefficient: $(\hat{D})$	-0.0855	-0.0062
Average Discrimination Coefficient	-0.0459	

(Continued on next page)

TABLE 6.15

(continued)

(1) RURAL

Gross Differential: $\ln(\bar{W})_N - \ln(\bar{W})_M = 4.819440 - 4.256635 = 0.562805$

$(\bar{W})_N/(\bar{W})_M = \$123.90/\$70.57 = 1.7556$

	non-Malay weighted		Malay Weighted
Estimation from Equation 6.3			
Difference in characteristics	0.060905		0.118512
% of gross	10.82%		21.06%
Unexplained/Due to discrimination: (ln(D+1))	0.501900		0.444293
% of gross	89.18%		78.94%
Discrimination Coefficient: $(\hat{D})$	0.6519		0.5594
Average Discrimination Coefficient		0.6057	
Estimation from Equation 6.4			
Difference in characteristics	0.064890		0.101335
% of gross	11.53%		18.01%
Unexplained/Due to discrimination: (ln(D+1))	0.497915		0.461470
% of gross	88.47%		81.99%
Discrimination Coefficient: $(\hat{D})$	0.6453		0.5864
Average Discrimination Coefficient		0.6159	

TABLE 6.16

Wage Differentials Between Chinese and Malays

Equation 6.1

(Dependent Variable = ln(W))

Variable	Chinese	Malays	$\hat{\Delta\beta}$
Constant	0.511213**	-1.929039	2.440253
	(1.927)	(-6.758)	(5.875)
Age			
age	0.109847	0.142938	-0.033091
	(15.555)	(14.445)	(-2.672)
age^2	-0.0012505	-0.0017894	0.0005389
	(-12.959)	(-13.140)	(3.173)
Working-hours			
ln(hw)	0.431786	0.721680	-0.289894
	(9.742)	(15.461)	(-4.210)
Location of Residence			
URBAN	0.074470*	0.518129	-0.443660
	(2.288)	(10.375)	(-7.417)
Education			
OTHER	-0.332665	-0.548875	0.216210
	(-6.812)	(-9.868)	(2.767)
LCE	0.388825	0.615648	-0.226824*
	(6.500)	(8.085)	(-2.262)
SC	0.841420	1.142395	-0.300975
	(15.892)	(14.570)	(-3.152)
HSC	1.156717	1.630095	-0.473377**
	(5.174)	(4.899)	(-1.171)
COLLEGE	1.560212	1.752832	-0.192620**
	(10.129)	(8.842)	(-0.742)
BA	1.801855	2.186166	-0.384310**
	(10.085)	(6.950)	(-1.082)
R^2	0.3589	0.3887	
F	98.741	137.416	21.7946
N	1,775	2,172	3,947

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

TABLE 6.17

Wage Differentials Between Chinese and Malays

Equation 6.2

(Dependent Variable = ln(W))

Variable	Chinese	Malays	$\hat{\Delta\beta}$
Constant	0.316783**	-1.729019	2.045803
	(1.242)	(-6.523)	(5.248)
Age			
age	0.104027	0.128964	-0.024937*
	(15.378)	(14.050)	(-2.151)
age^2	-0.0011841	-0.0016202	0.0004361
	(-12.816)	(-12.851)	(2.746)
Working-hours			
ln(hw)	0.464976	0.665648	-0.200671
	(10.722)	(15.029)	(-3.047)
Location of Residence			
URBAN	0.019252**	0.253223	-0.233970
	(0.577)	(5.178)	(-3.932)
Education			
OTHER	-0.272379	-0.458611	0.186232*
	(-5.799)	(-8.871)	(2.538)
LCE	0.181650	0.216223	-0.034573**
	(2.969)	(2.888)	(-0.346)
SC	0.423793	0.597145	-0.173352**
	(6.657)	(7.161)	(-1.616)
HSC	0.715880	0.982873	-0.266993**
	(3.284)	(3.161)	(-0.697)
COLLEGE	1.039517	0.924085	0.115433**
	(6.624)	(4.727)	(0.447)
BA	1.194515	1.528355	-0.333840**
	(6.500)	(5.138)	(-0.964)

(Continued on next page)

TABLE 6.17

(continued)

Variable	Chinese	Malays	$\hat{\Delta\beta}$
Occupation			
PROTECH	0.789916	1.329380	-0.539464
	(9.678)	(15.807)	(-4.338)
MANAGER	1.074151	1.142446	-0.068294**
	(7.450)	(5.088)	(-0.257)
CLERK	0.556990	1.121699	-0.564709
	(8.094)	(13.861)	(-5.114)
SALES	0.199712	0.183928**	0.015784**
	(3.035)	(1.546)	(0.119)
SERVICE	-0.125990*	0.665345	-0.791336
	(-2.050)	(10.401)	(-8.420)
PRODUCTION	0.201536	0.615909	-0.414373
	(4.560)	(12.471)	(-5.966)
R^2	0.4193	0.4825	
F	79.341	125.579	20.2527
N	1,775	2,172	3,947

Notes: (1) t-statistic in parentheses;
(2) All coefficients are statistically significant at 1% level unless stated otherwise;
(3) * significant at 5% level; ** not statistically significant.

As shown in Table 6.18, with Equation 6.1, using the Chinese weighted method, Malays could have received 50 percent more than they actually earned, whereas using the Malay weighted method, Chinese should have been paid 20 percent less. From Equation 6.2 which controls for occupation, Malays would receive 46 percent more while Chinese should have been paid 22 percent less. This means that a Malay would have received 46-50 percent higher than he actually received during the period of the Surveys had he been treated as a Chinese. In other words, in the absence of racial discrimination, a Chinese worker could still earn 16-20 percent more than a Malay worker due to differences in "productivity". The smaller discrimination coefficient obtained from Equation 6.2 (that controlled for occupation) suggests that there may be some (small) crowding effects that caused jobs to be identified as Chinese jobs rather than Malay jobs in Peninsula Malaysia.

6.4 The Effects of the NEP and the Policy of Employment Quotas on Wage Differentials

The fact that employment quotas would affect the wage structures and the quotas were set in Malaysia long before Independence should not be denied. However, it has only been fully enforced together with the NEP since 1971. The Surveys were conducted two years after the enforcement, thus it may not be easy to quantify the effects on the data sets. It is also difficult to testify whether it is true that average incomes of the (economic) majority (the segment of the labor force which is not "protected" by laws) would fall if the quota

TABLE 6.18

The Effects of Racial Discrimination
Between Chinese and Malays

Gross Differential: $\ln(\bar{W})_C - \ln(\bar{W})_M = 4.98232 - 4.47797 = 0.50435$

$(\bar{W})_C/(\bar{W})_M = \$145.81/\$88.06 = 1.6558$

	Chinese weighted		Malay Weighted
Estimation from Equation 6.1			
Difference in characteristics	0.10199		0.32002
% of gross	20.22%		63.45%
Unexplained/Due to discrimination: (ln(D+1))	0.40238		0.18433
% of gross	79.78%		36.55%
Discrimination Coefficient: $(\hat{D})$	0.4954		0.2024
Average Discrimination Coefficient		0.3489	
Estimation from Equation 6.2			
Difference in characteristics	0.12901		0.30954
% of gross	25.58%		61.37%
Unexplained/Due to discrimination: (ln(D+1))	0.37534		0.19481
% of gross	74.42%		39.63%
Discrimination Coefficient: $(\hat{D})$	0.4555		0.2151
Average Discrimination Coefficient		0.3353	

restrictions were imposed, as argued by Finis Welch in 1976.[5] However, our data did indicate that there is a different wage structure for urban Malays from that for urban non-Malays. Malays account for a small portion of the urban population; the demand for Malay workers in the urban settlments as required under the quotas system in both public and private sectors, of course, will raise their wages. Besides, the promotion practice in the public sector that put more weight on "efficiency" may also be another reason for the reverse discrimination in the urban areas.

In addition, employment quotas may be more meaningful if imposed on high-waged jobs that require higher educational achievement or higher skills. The geometric mean values of wage for Malays and non-Malays with educational qualifications of HSC and above, presented in Table 6.19, show that Malays received, on the average, higher wage than non-Malays did. The same table provides the predicted wages[6] for Malays, Chinese, and non-Malays of different levels of educational attainment (compared with those without certificate) computed from Equation 6.3. It is clear that non-Malays and also Chinese with HSC and BA were earning a lower (predicted) wage than Malays with the same qualifications. Thus we can conclude that the employment quota policy did give effects to raise the income of educated Malays. Furthermore, as most of these educated Malays were residents in the urban settlements where offices of governmental departments are, the average wage of the Malays in the urban areas was greater than that of non-Malays.

TABLE 6.19

Wages for Differential Educational Levels by Race

(Observed and Predicted)

(1) Average ln(wage):

	Malays	non-Malays	Chinese	Indians
Pooled sample	4.47797	4.94373	4.98232	4.84899
SC and above	5.76881	5.84005	5.79902	5.99999
HSC and above	6.45156	6.38490	6.36829	6.42850

(2) Predicted ln(wage):*

	Malays (1)	non-Malays (2)	Chinese (3)	Difference (1) - (3)
OTHER	3.78827	4.53939	4.53040	-0.74213
NONE	4.38446	4.83420	4.86719	-0.48273
LCE	5.11140	5.24117	5.26701	-0.15561
SC	5.71393	5.73065	5.72454	-0.01061
HSC	6.17065	5.97035	6.05306	+0.11759
COLLEGE	6.31147	6.44039	6.43960	-0.12813
BA	6.81415	6.71085	6.68842	+0.12573

---

* The predicted wages are computed by adding the coefficients of the education dummies to the earnings of the base group with no certificate (NONE); the earnings of the base group is calculated by using the mean values of the non-education variables in the model, which is Equation 6.3 (see Table A4).

Tables 6.8, 6.9, and 6.10 show that for particular occupations, Malays are able to gain higher economic returns than non-Malays. These occupations are PROTECH, CLERK, SERVICE, and PRODUCTION, and the difference of each pair of the coefficients, $\Delta\hat{\beta}$, for these occupations between Malays and non-Malays are significant at the 1 percent or 5 percent level. In the years after the Surveys, more and more Malays were participating in those fields.[7]

One of the critical issues in the NEP is whether the specific targets can be reached without depriving any current job holders of their positions. According to Snodgress (1980), if the "targets for Malay employment are met, it will be at the cost of higher unemployment rates for Chinese and Indians than for Malays and/or emigration of non-Malays so as to increase the Malay share in the labor force."[8] For a few years after the implementation of the NEP, this was exactly the case. While in 1970, 7 percent of the Chinese labor force and 11 percent of the Indian labor force were unemployed, in 1975, the unemployment rates increased to 7.2 percent and 12.2 percent for Chinese and Indians, respectively.[9] At the same time the unemployment rate for Malays declined from 8.1 percent in 1970 to 6.9 percent in 1975. However, the targets are only to be fulfilled within twenty years under the NEP. This may permit enough natural labor force attrition to make the target comfortably attainable.

6.5 Conclusions

The discussions above suggest that racial discrimination did exist in the labor market in Peninsula Malaysia, especially in the

TABLE 6.20

Racial Distribution of Occupation

(Peninsula Malaysia)

(%)

Occupation	1975				1978				1980			
	Malay	Chinese	Indian	Other	Malay	Chinese	Indian	Other	Malay	Chinese	Indian	Other
PROTECH	48.0	38.7	11.0	2.3	53.1	34.5	10.6	1.8	50.0	36.9	11.4	1.7
MANAGER	28.1	58.8	7.3	5.8	32.9	57.3	6.2	3.6	31.6	57.0	6.1	5.3
CLERK	46.0	40.8	12.0	1.2	46.6	41.3	11.5	0.6	55.3	36.2	6.9	1.7
SALES	24.8	65.7	9.1	0.3	28.7	63.2	7.8	0.3	23.1	69.2	7.6	0.2
SERVICES	46.8	39.6	12.6	1.0	49.5	37.1	12.6	0.8	47.9	39.9	11.6	0.6
AGRICULTURE	70.5	18.2	10.4	0.9	67.6	19.7	11.7	1.0	67.7	19.7	11.9	0.7
PRODUCTION	40.6	48.4	10.5	0.5	41.2	48.5	10.0	0.3	46.4	42.6	11.4	0.6
Total	52.0	36.5	10.6	0.9	52.2	36.3	10.7	0.8	51.9	36.5	10.8	0.8

Source: Mid-Term Review of the Third Malaysia Plan, p. 47, and Fourth Malaysia Plan, p. 59.

case of females. However, it is not true that there is discrimination against Malays in the urban areas. Those well-educated Malays were not discriminated against at all. In the rural areas which are highly populated by Malays and labor supply exceeds labor demand, the wage rate is relatively low. However, in the rural areas, very few Malays were hired by the non-Malays who are small businessmen. Therefore, the empirical findings verify that discrimination against type B employee does not come only from type A employer.

Notes:

1. Dr. Mahathir Bin Mohamad, The Malay Dilemma, (Singapore: Asia Pacific Press 1970), p. 97.

2. Computed as $\{(\bar{W})_N - (\bar{W})_M\}/(\bar{W})_M$, where $\bar{W}$'s are geometric means of wage; refer to Table 6.3.

3. Snodgrass, Donald R., Inequality and Economic Development in Malaysia, (Kuala Lumpur: Oxford University Press 1980), p. 109, Table 5.1.

4. $$\ln(W) = \beta_0 + \beta_1(age) + \beta_2(age^2) + \beta_3(\ln(hw)) + \beta_4(OTHER) + \beta_5(LCE) + \beta_6(SC) + \beta_7(HSC) + \beta_8(COLLEGE) + \beta_9(BA) \quad (6.3)$$

   and

   $$\ln(W) = \beta_0 + \beta_1(age) + \beta_2(age^2) + \beta_3(\ln(hw)) + \beta_4(OTHER) + \beta_5(LCE) + \beta_6(SC) + \beta_7(HSC) + \beta_8(COLLEGE) + \beta_9(BA) + \beta_{10}(PROTECH) + \beta_{11}(MANAGER) + \beta_{12}(CLERK) + \beta_{13}(SALES) + \beta_{14}(SERVICE) + \beta_{15}(PRODUCTION) \quad (6.4)$$

5. Welch, Finis, "Employment Quotas for Minorities," Journal of Political Economy, 84 (1976), pp. S105-S139.

6. Computed in the way described in Chapter 5.

7. See Table 6.20 for the percentage distribution of occupations for 1975, 1978, and 1980.

8. Snodgrass, D.R., op. cit., p. 281.

9. Malaysia, Third Malaysia Plan, p. 142, Table 8.2.

CHAPTER 7

The World-Wide Discrimination Phenomena

> Discrimination is a phenomenon which is so pervasive in all human societies that there is no doubt at all that it exists.
> - Kenneth E. Boulding[1]

7.1 Introduction

The findings from the last two chapters indicate the existence of sex and racial discrimination in Peninsula Malaysia. In the following section, the accuracy of the models is discussed and then a comparison of labor market discrimination among the countries, particularly Malaysia with the United States, is pursued.

7.2 The Accuracy of the Models

The models that are used in this study are basically derived from general Equation 2.6, and then modifications are made to fit the data sets for different purposes. The model that is used to derive expected wages for different educational levels (Equation 5.4) includes the least variables. Equation 5.3, which incorporates all personal characteristics of males and females and their occupational distributions, is the model that used the most variables.

The values of the R-square for most of the equations reveal that the results on which the conclusions are drawn are quite robust and the power of the estimations in representing the wage structure of each group is acceptable. The R-square values for all the regressions range from 0.3282 to 0.5376. These make the models comparable

with the models that are used by other economists.[2] Most of them had many more variables to be used as explanatory factors.

7.3 The Comparisons of the Degree of Discrimination Among the Nations

Discrimination is a world-wide phenomenon. It is interesting to compare the extent of discrimination in Malaysia with that of other countries. For the comparisons, attention is focused on the United States, Britain, and Canada because public policy in these countries is designed to eliminate labor market discrimination on the basis of sex, race, color, and numerous other grounds.

To begin with, first the gross differentials are compared. In the case of sex differentials, in 1973, in the United States, the average white female worker earned roughly 56 percent of what her counterpart earned. In Malaysia, a non-Malay female worker earned 58 percent of the wage earned by a non-Malay male worker. Within the disadvantaged group, females are not as sexually discriminated against in the United States and Britain. This is, however, not the case in Malaysia. Malay females were discriminated against more severely than non-Malay females in the sense of gross differentials.

For racial disparities, in 1973 in the United States, black males earned 67 percent of white male earnings, while the wage for black females was 85 percent of white females' wage. In Malaysia, Malay males earned 61 of that earned by non-Malay males, while Malay females only earned 54 percent of what their counterparts earned.

Actually, the issue of discrimination has attracted attention for a long period of time; it was not until the early 1970's that empirical studies directed at measuring its actual extent have been undertaken in the United States and Britain, whereas in Malaysia, as it is a sensitive issue, empirical studies are yet to be done.

A number of empirical studies utilizing some form of the adjustment approach have provided estimates of discrimination in the United States, Britain, and Canada. For each country separately, Table 7.1 provides a summary of several studies of sex discrimination while the studies of racial discrimination for the United States and Britain are presented in Table 7.2 The findings of this study are summarized in Table 7.3 so that the similarity amongthe countries with respect to sex and racial discrimination can be realized.

In the above-mentioned tables, information on gross earnings differentials and net earnings differentials are presented. The gross earnings differentials are computed as $1 - \{(W)_D/(W)_A\}$ where $(W)_A$ and $(W)_D$ are average wages for the advantaged group and disadvantaged group, respectively. For comparison, the results from Chapter 5 and Chapter 6 in this study are also adjusted accordingly.

In the case of sex discrimination, the data indicate that female/male net earnings differentials are the smallest in Britain. In comparison with the studies of Sanborn (1964), Gunderson (1972), Oaxaca (1973), and Mincer and Polachek (1974) using the data from the United States and Canada, the unexplained portion (and thus the discrimination coefficient) of sex discrimination in Malaysia is

TABLE 7.1

Estimates of Earnings Differentials by Sex from Other Studies

Country	Study	Differentials Gross[1]	Differentials Net[2]	Adjustment Factors	Data Base
U.S.	Sanborn (1964)	.42	.12	Detailed occupation, hours, age education, color, and urban-ness within detailed occupations. Rough estimates of effects of turnover, absenteeism, amd experience.	Experienced Civilian labor force, 1950.
	Fuchs (1971)	.40	.34	Color, schooling, age city size, marital status, class of worker, length of trip to work.	Non-farm employed persons, 1960.
	Sawhill (1973)	.54	.44	Race, region, age, educatin, hours worked per week; weeks worked per year.	Civilian labor force, 1966.
	Oaxaca (1973)	Whites .35 Blacks .33	.29 .25	Education, experience, class of worker, industry, occupation, health, labor supply, migration, marital status, children, size of urban area, region.	Survey of Economic Opportunity, 1967.
	Mincer & Polachek	.34	.28	Education, home time, current tenure, other experience, formal training, migration, labor supply, children.	National Longitudinal Survey of Work Experience, 1967 (White Married).
	Burjas	Whites .34 Blacks .20	.26 .23	Education, labor-force experience, region, veteran status, retired-military dummy, and health.	Civil Service Commission (July 1977).

(continued on next page)

TABLE 7.1

(continued)

Country	Study	Differentials Gross[1]	Differentials Net[2]	Adjustment Factors	Data Base
Britain	Chiplin & Sloane (1976)	.14	.13	Experience, marital status, mobility, job level.	Group of Professional workers in a single organization, 1974/75.
	Greenhalgh (1979)	.10	.01	Education, experience, location, ages of children, colour, health, job mobility, occupation, industry.	General Household Survey, 1975. (Single men/single women)
	Siebert & Sloane (1981)	Married .35 Single .13	.001 .03	Education service, occupation.	Light Engineering Co., 1976.
Canada	Holmes (1976)	.59	.44	Occupation, part-time/Full-time, class of worker, residence, region, age, immigration status.	Civilian Workers, 1967.
	Gunderson (1972)	.40	.18	Education, experience, training, marital status, language, residence, province, hours worked, occupation, history.	Civilian Workers working 35+ hours per week and 49+ weeks per year, 1970.

Notes: [1] The gross earnings differential is equal to $1-(W)_F/(W)_G$, where $(W)_F$ and $(W)_M$ represent females' and males' earnings, respectively.

[2] Net differential estimated using male coefficient.

Soruces: Agarwal, N.C., "Pay Discrimination: Evidence, Policies, and Issues," in Jain, H.C. and P.J. Sloane, Equal Employment Issues (Praeger Publishers, 1981), pp. 121-123 and 125., and
Borjas, G.J., "Discrimination in HEW: Is the Doctor Sick or Are the Patients Healthy?", The Journal of Law and Economics, (April 1978), pp. 97-110.

TABLE 7.2

Estimates of Earnings Differentials by Race
from Other Studies

Country	Study	Differentials Gross[1]	Differentials Net	Adjustment Factors	Data Base
U.S.A.	Gwartney (1970)	.42	.14	Age, quality of education, scholastic achievement, state distribution, city size.	Urban male workers aged 25+ years, 1960.
	Blinder (1973)	.34	.15	Schooling, age, city size, marital status, class of work, length of trip to work.	Male workers aged over 25, 1967.
	Borjas (1978)	Males .27 Feamles .12	.12 .08	Educational, labor-force experience, region, veteran status, retired-military dummy, and health.	Civil Service Commission (1977).
Britain	Chiswick (1980)	.24	.25[2]	Education, experience, weeks worked, urban residence, marital status, colour, years since migration.	Foreign-born white and coloured men, General Household Survey, 1972.

Notes: [1] The gross earnings differential is equal to $1-(W)_B/(W)_W$, where $(W)_B$ and $(W)_W$ represent blacks' (or non-Whites') and white's earnings, respectively.
[2] The net earnings differential for Britain estimated using white coefficient.

Soruces: Agarwal, N.C., "Pay Discrimination: Evidence, Policies, and Issues," in Jain, H.C. and P.J. Sloane, Equal Employment Issues (Praeger Publishers, 1981), pp. 124 and 126; and
Borjas, G.J., "Discrimination in HEW: Is the Doctor Sick or Are the Patients Healthy?", The Journal of Law and Economics, (April 1978), pp. 97-110.

TABLE 7.3

Estimates of Earnings Differentials in Peninsula Malaysia

Type	Equation	Differentials			Adjustment Factors
		Gross	Net[1]	Net[2]	
Sex (All)	5.1	.41	.40	.44	Age, hours-worked, location, educational level.
	5.2	.41	.26	.29	Age, hours-worked, location, educational level, marital status, household.
	5.3	.41	.21	.27	Age, hours-worked, location, educational level, marital status, household, occupation.
Sex (Malays)	5.2	.48	.25	.28	Age, hours-worked, location, educational level, marital status, household.
Sex (non-Malays)	5.2	.42	.37	.42	Age, hours-worked, location, educational level, marital status, household.
Racial (All)	6.1	.37	.45	.34	Age, hours-worked, location, educational level.
	6.2	.37	.44	.35	Age, hours-worked, location, educational level, Occupation.
(Males)	6.1	.39	.47	.35	Age, hours-worked, location, educational level.
	6.2	.39	.44	.37	Age, hours-worked, location, educational level, occupation.
(Females)	6.1	.46	.75	.62	Age, hours-worked, location, educational level.
	6.2	.46	.75	.63	Age, hours-worked, location, educational level, occupation.
(Urban)	6.3	-.15	-.10	-.08	Age, hours-worked, educational level.
	6.4	-.15	-.09	-.05	Age, hours-worked, educational level, occupation.

(continued on next page)

TABLE 7.3

(continued)

Type		Equation	Differentials Gross	Net[1]	Net[2]	Adjustment Factors
	(Rural)	6.3	.43	.65	.61	Age, hours-worked, educational level.
		6.4	.43	.65	.62	Age, hours-worked, educational level, occupation.

Notes: Net[1] is the net wage differential estimated using male or non-Malays coefficient, and
Net[2] is the average from both advantaged groups' and disadvantaged groups' coefficients.

still larger. However, their figures were derived from the regressions that control many more factors than those used in this study. For example, Sanborn finds that, after adjustments for education, absenteeism, turnover, and many other factors, there was a 12-13 percent gap between the earnings of males and females in 1950. Oaxaca's work, based on the 1967 Survey of Economic Opportunity (SEO) data, found a 29 percent discrimination effect for white females after adjusting for over 40 explanatory variables, including health, marital status, migration, and other factors, and a 25 percent effect for black females, also after adjustments.

In general, the Western countries have smaller net wage differentials between races than does Malaysia. Most of the studies of racial discrimination in the West compares the wage ratios of certain groups of people. For example, the study of Gwartney (1970) is restricted to urban male workers aged 25 years or more. Borjas (1978) obtained the net wage differentials to show that there are still some unexplained fractions in the government sector.[3] His results are derived from the data for workers within a single government department. Unfortunately, due to the information problem, this study is not able to estimate the government servants separately. The results from this study show no racial discrimination at all in the urban areas, which is not the case in the Western countries.

7.4 Conclusions

Several general conclusions can be drawn from the comparison between countries:

(1) Net wage differentials both by sex and by race are larger in Peninsula Malaysia than in the Western countries;

(2) Net sex discrimination is lower within the disadvantaged group even though the gross differentials are larger;

(3) In the urban areas, racial discrimination is less significant;

(4) Net racial discrimination is smaller than net sex discrimination in the Western countries, but the opposite is true in Peninsula Malaysia.

In the United States, substantial unexplained wage differentials by sex and race exist even at the governmental department that has been given the responsibility for carrying out the regulations of equal employment opportunity and ensuring no employment discrimination exists at the Universities. Therefore, discrimination (both across sex and racial groups) is a world-wide phenomenon.

Notes:

1 Boulding, Kenneth E., "Toward a Theory of Discrimination," in P.A. Wallace (ed), Equal Employment Opportunity and the AT&T Case, (Cambridge, Mass: The MIT Press, 1976), p. 9.

2 For example, some other results include:

	male R^2	female R^2
Oaxaca (1973)	0.46	0.56
Blinder (1973)	0.50	0.45
Mincer & Polacheck (1974)	0.30	0.41
Gunderson (1979)	0.38	0.33
Corcoran & Duncan (1979)	0.30	0.32
Filer (1983)	0.49	0.36

Source: Filer, Randall K., "Sexual Differences in Earnings: The Role of Individual Personalities and Tastes," Journal of Human Resources, (Winter 1983), pp. 89; Oaxaca, R.L., "Male-Female Wage Differentials in Urban Labor Markets," International Economic Review, (Oct 1973), p. 702; and Mincer, J. and S.W. Polachek, "Family Investments in Human Capital: Earnings of Women," Journal of Political Economy, (Mar/Apr 1974, Supplement), p. S101.

3 Borjas, George J., "Discrimination in HEW: Is the Doctor Sick or the Patients Healthy?", The Journal of Law and Economics, (April 1978), pp. 97-110.

CHAPTER 8

Policy Implications and Conclusions

8.1 Introduction

In Chapter 5 the main purpose of the study was two-fold: to compare the rates of return to schooling between sexes in Peninsula Malaysia to see if there appeared to be any unique sex effect on the rates, and to compare the wage received by both female and male workers to investigate the source of discrimination. In Chapter 6, the main purpose was also two-fold: to compare the effects of educational endeavors of Malay and non-Malay (and also Malay and Chinese) workers to see if there was any ethnicity effect on the returns to education, and to compare the wage differentials among ethnic groups within the same sex so that the magnitudes of racial discrimination can be computed.

Subsidiary objectives were to examine the effectiveness of equal pay policy on sex differentials in wages, and the effects of NEP and employment quotas on the pattern of racial discrimination in different locations of the country.

The main purpose of the study in each chapter has been discussed in the chapters concerned, and also in Chapter 7 where comparison among the nations was pursued. The last chapter of this study focuses on policy implications and then summarizes the conclusions.

8.2 Policy Implications

This study finds that the wage differentials were large both between sexes and races in Peninsula Malaysia. Most of the differentials occurred within rather than across broad occupational categories. The net sex discrimination was especially severe in the non-Malay community. Equal pay policy in the public sector did narrow the wage disparities by sex for government servants. However, non-Malays are mostly employed in the private sector. Unless the private sector can be directed to behave as the public sector, the wage gap between sexes in the non-Malay community may be difficult to eliminate. Of course, the other possibility is that more non-Malay females be hired in the public services, but this will jeopardize the quota system of employment in the public sector.

Regarding the racial differentials, Malays usually worked less hours than non-Malays, and historically, they lived in the rural sector where the productivity was the lowest in the country. The NEP that encourages Malays to migrate to the urban settlements is effective in improving Malay's income. In the rural areas, Malays were earning lower pay. However, non-Malays or Chinese having small businesses do not hire many workers. The fact that they depend on family loyalty as a basis for honesty, normally, leads them to hire their own household members or their own clans as helpers. There is, therefore, no evidence that that rural Malay workers were discriminated against by the non-Malay employers.

In the urban areas, on the other hand, where most of the Malays are hired by the public sector, they are not discriminated against at all. The quota system of employment is effective.

In summary, the NEP and the employment quotas did raise the wages of educated Malays. While increasing wages of the educated Malays, however, productivity should also be developed. In this case, a more significant question arises because productivity, in fact, depends not merely on formal education. Besides, the existence of reverse discrimination suggests that while planning policies for eradicating national proverty, the poor non-Malays in the urban areas should be taken into consideration.

8.3 Conclusions

In this study, both sex and racial discrimination have been considered at least under two headings: (i) discrimination in the sense of inferior job openings for given levels of schooling, and (ii) discrimination in the sense of lower pay for a given job. The returns to schooling are in favor of the disadvantaged group; the higher the education they have, the less they are discriminated against. Furthermore, in certain educational levels, they even have the possibility to earn more than their counterparts. These findings do not support the crowding hypothesis that presumes a "pattern of employment discrimination" against "economic minorities," at least not within female and male or within Malay and non-Malay groups. The disadvantaged groups were not crowded into certain low paying job

categories for given educational levels. In contrast, in the urban areas, non-Malays were crowded into certain job categories.

In the case of racial differences, lower pay was received by Malay workers for a given job but the magnitude of the discrimination coefficient is negligible and reverse discrimination existed in the urban areas. Well-educated Malays (females as well) were given similar or even better pay or jobs.

For women workers, there are additional problems. The equal pay policy does not account for very much of the overall female-male wage differential. It is the role that females assume in the households that determines their incomes. Since men who are the heads of households take on major financial responsibility, income earned by women may just be a subsidy to the heads of the households.

In conclusion, the study suggests that education programs may be long term in their effect, but better and more education is still the best way to reduce wage disparities both between sexes and among ethnic groups. The group with lower earnings can catch up with the "economically" favored group, given increased investments in human capital resources.

APPENDIX[1]

Historial Background

and

General Character of the Society

Malaysia comprises the Federation of Malaya (or Peninsula Malaysia) and the Borneo States of Sabah and Sarawak. It covers an area of 127,670 square miles. It was created out of a group of former British dependencies in 1963.

European colonialism in Malaysia has its succeeding Portuguese (1511 A.D.), Dutch (1641 A.D.) and British (1786 A.D.), periods. The pre-colonial history of the Malaysian people consisted of eras of migration. Most of the Malays who made up almost half (47.1 percent) of the population in 1970, in fact, are descended from migrants from Indonesia who have come to the country in the past four centuries. However, the Malays consider themselves the true Malaysian group. They see Malaysia as one part of a large Malay area (Nusantara) which also include the islands of Indonesia. Their ancestors, the Deutero-Malays came from southern China in 100 B.C.

The first Indianized trading settlement in the Nusantara was found in the 5th or 6th centry A.D. The Indian traders who visited Peninsula Malaysia in the first century A.D. inaugurated a process of cultural influences that were to continue for more than 1,000 years. A Chinese Buddhist pilgrim, Fa Hsien, visited Java in 413 A.D. However, from all the evidence available at present, it seems reason-

able to begin the account of Chinese settlements in Peninsula Malaysia after the foundation of Malacca some time about 1400 A.D.

As a consequence, Malaysia is a multi-racial country with a total population estimated in 1982 at slightly over 14 million. According to the 1970 Census, nearly 9,359,618 were in Peninsula Malaysia, and 1,664,452 were in East Malaysia. In Peninsula Malaysia, about 53 percent of the population is of Malay origin, about 35.4 percent Chinese, and 10.6 percent Indians and Pakistanis. The other races constitute about one percent. The population of Sarawak is comprised of 40 percent Dayaks, 30 percent Chinese, 18 percent Malays, and 11 percent other indigenous groups. Other races constitute one percent. In Sabah, 28 percent of the population is Kadazans, 21 percent Chinese, Malays three percent, and other indigenous groups 36 percent. Other races constitute 12 percent.

In general, Malaysian society is rurual and agricultural with the Chinese tending to concentrate in urban centers and Malays favoring rural settlements. Indian immigrants provided much of the labor for rubber estates, while tin mining and retailing trade have attracted immigrants from China.

The Malays have in common, their language, their religious identification as Muslim, and a basic Indonesia-Malay culture seen in a village life in which behavior and relations are regulated by customary "ways of doing things," which combines Islam law with older Malay customs and Hindu elements. For the Malays, work is a means of living, not a way of life. Cooperation is more highly valued than is competition.

The life of the Chinese presents many contrasts to that of Malays. The social, economic, and religious pattern that emerged from the Chinese homeland set them apart. Their ties are primarily to the family and secondarily to associations based on dialect and geographic origin. Until the mid-1970's, the Chinese predominated as workers in the tin mines and as businessmen, traders, shopkeepers, and small manufacturers. The productivity on these industries are higher. As a consequence, the average income of the Chinese exceeded that of Malays by a substantial margin.

Similar differences set Indians and Pakistanis apart. They live primarily within the communities of estate workers although some work as laborers, clerks, and merchants in the cities. Most use their own languages, preserve their Hindu, Sikh, or Islam religion and traditions.

The public educational structure during the period of the Surveys was (a) six years of free primary education commencing from the age of six; (b) five years of secondary educational with a qualifying (screening) examination at the end of the third year (LCE), and another screening examination at the end of the fifth year (SC); (c) two years of post-secondary education with a final (selecting) examination at the end of the second year (HSC); and (d) three or four years of university education (BA or BSc). Besides the above, there are polytechnic or teachers' training colleges which provide more specific trainings for SC or HSC holders. The promotion from one stage to another (except from primary to secondary) is not automatic, and students are subject to dismissal after failing the promo-

tion examinations. SC is a prerequisite for post-secondary education. During the period of the Surveys, there were only five local universities with the total enrollment of 11,749 in 1973. Only with very good/excellent HSC results may a student have the chance to enter the doors of these universities.

Literacy was distributed unevenly between sexes, among ethnic groups, and also geogrpahical areas. Women were substantially less literate than men. The Chinese had a slightly higher literacy rate than Malays, while Indians had the highest rate. Literacy among the non-Malay indigenous people of Sabah and Sarawak averaged below 15 percent. With increasing schooling opportunities and 13 years of free public edication, however, today the literacy rate in Peninsula Malaysi is about 80-90 percent.

In conclusion, interethnic differences and competition define the principal cleavages in Malaysian society. Realizing the interethnic tension and great economic and social inequality, the government bans public debate of "sensitive" issues, and trys to develop a single national umbrella party in which political leaders representing various ethnic groups or fractions would bargain privately among themselves to promote the interests of their constituents.

Note:

1 This Appendix is based on Area Handbook for Malaysia 1977 (U.S. Government Printing Office, Washington, D.C.).

TABLE A.1

Mean Values of the Characteristics by Sex within Ethnic Groups

Variable	non-Malays		Malays	
	Males	Females	Males	Females
ln(W)	5.14204	4.59945	4.65120	3.98762
AGE				
age	32.81514	29.94414	32.54330	30.64550
age^2	1228.99306	1031.72289	1193.84672	1086.92063
Working-Hours				
ln(hw)	5.31630	5.19721	5.18440	5.04528
Location of Residence				
URBAN	0.54574	0.50383	0.24112	0.22399
Household				
HEAD	0.54890	0.14786	0.68411	0.18166
Marital Status				
SINGLE	0.36972	0.44907	0.30280	0.40917
MSNP	0.02271	0.07448	0.02305	0.17107
Education				
OTHER	0.09085	0.25739	0.12773	0.34921
LCE	0.09085	0.07448	0.08411	0.08113
SC	0.09085	0.09529	0.07414	0.09700
HSC	0.00568	0.00548	0.00312	0.00529
COLLEGE	0.01009	0.00876	0.00935	0.01411
BA	0.00946	0.00548	0.00436	0.00353
Occupation				
PROTECH	0.06309	0.08215	0.07601	0.09524
MANAGER	0.01577	0.00100	0.00935	0.00176
CLERK	0.11104	0.10186	0.09470	0.09877
SALES	0.09211	0.03833	0.02866	0.02116
SERVICE	0.06309	0.18291	0.11776	0.15344
PRODUCTION	0.45362	0.23877	0.29907	0.16578
N	1,585	913	1,605	567

TABLE A.2

Mean Values of the Characteristics by Race in Different Locations

Variable	URBAN non-Malays	URBAN Malays	RURAL non-Malays	RURAL Malays
Wage				
ln(W)	5.05376	5.19194	4.81944	4.25663
Age				
age	31.78943	30.76654	31.73913	32.44511
age^2	1162.78717	1068.82101	1150.23359	1196.03981
Working-hours				
ln(hw)	5.28804	5.24124	5.25553	5.11921
Household				
HEAD	0.41962	0.54086	0.38278	0.55669
Marital Status				
SINGLE	0.44151	0.43191	0.35038	0.29916
MSNP	0.04302	0.03502	0.04007	0.06996
Education				
OTHER	0.11925	0.08366	0.18841	0.21713
LCE	0.10415	0.14397	0.06309	0.06454
SC	0.13132	0.18677	0.04859	0.04704
HSC	0.00906	0.00778	0.00171	0.00241
COLLEGE	0.01057	0.02335	0.00853	0.00663
BA	0.01208	0.01167	0.00341	0.00181
Occupation				
PROTECH	0.09434	0.13230	0.04263	0.06514
MANAGER	0.01585	0.01556	0.00426	0.00483
CLERK	0.15396	0.22179	0.05541	0.05669
SALES	0.10491	0.03696	0.03581	0.02352
SERVICE	0.15170	0.23346	0.05627	0.09409
PRODUCTION	0.40604	0.30350	0.34015	0.25211
N	1,325	514	1,173	1,658

TABLE A.3

Regressions for Predicted Wages
of Different Educational Levels by Sex

Equation 5.4

(Dependent Variable = ln(W))

Variable	Females	Males
Constant	-0.719956*	-1.320245
	(-2.512)	(-5.515)
Age		
age	0.083083	0.140543
	(8.521)	(19.849)
age^2	-0.0011147	-0.0016779
	(-8.141)	(-17.441)
Working-hours		
ln(hw)	0.704024	0.669526
	(15.513)	(16.727)
Education		
OTHER	-0.264296	-0.308893
	(-4.889)	(-6.305)
LCE	0.692007	0.517043
	(8.585)	(9.634)
SC	1.159820	1.114183
	(15.790)	(20.342)
HSC	1.676610	1.413886
	(5.885)	(6.313)
COLLEGE	2.023895	1.737874
	(9.954)	(11.481)
BA	2.592272	1.934953
	(8.519)	(11.079)
R^2	0.3777	0.3282
F	99.129	172.614
N	1,480	3,190

Notes: (1) t-statistic in parentheses;
(2) all coefficients are statistically significant at 1% level unless stated otherwise;
(3) * statistically at 5% level.

TABLE A.4

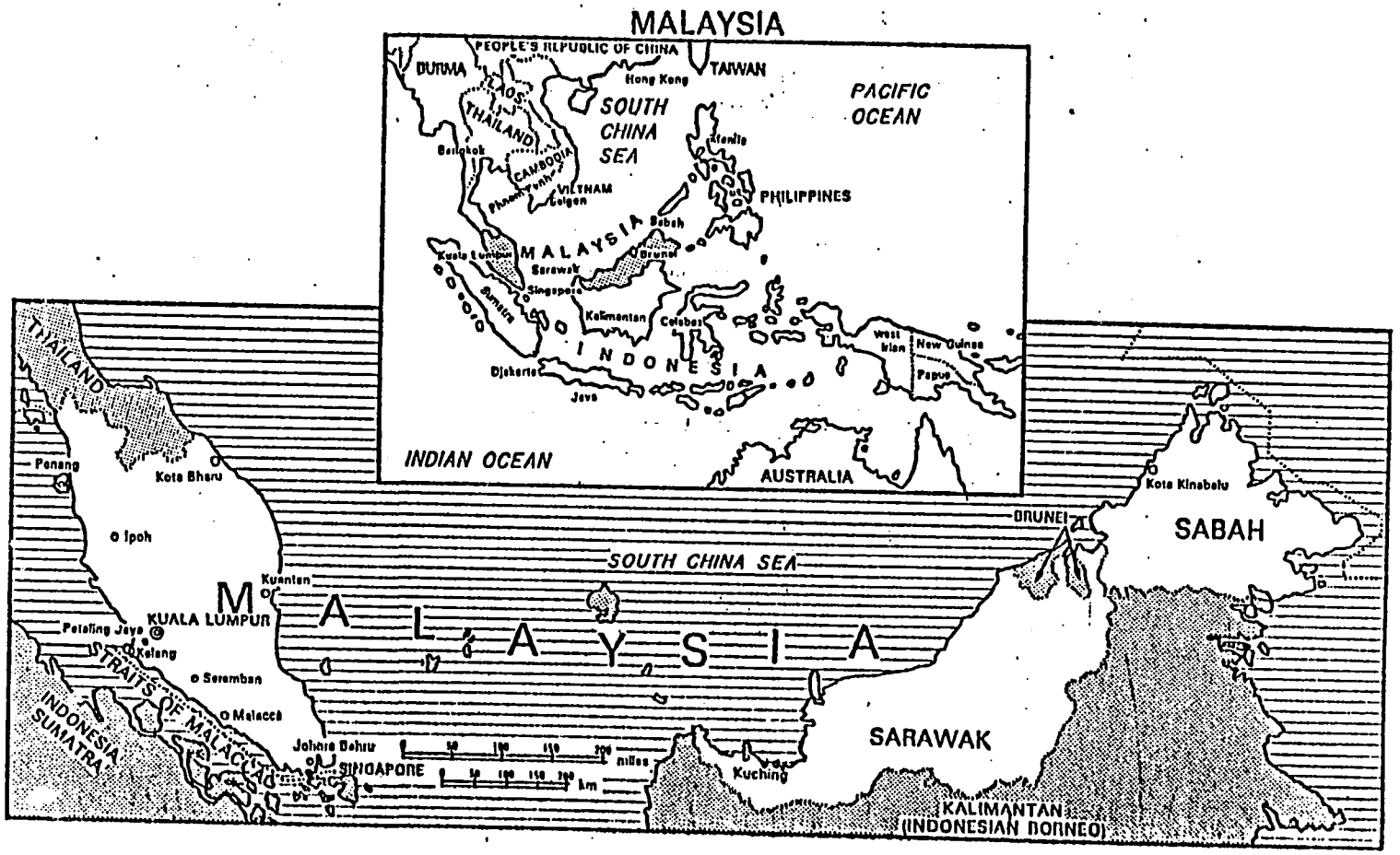
Regressions for Predicted Wages
of Different Educational Levels by Race

Equation 6.3

(Dependent Variable = ln(W))

Variable	Chinese	non-Malays	Malays
Constant	0.51991**	0.161778**	-2.141542
	(1.958)	(0.742)	(-7.343)
Age			
age	0.109233	0.117689	0.144144
	(15.461)	(19.394)	(14.222)
age^2	-0.0012408	-0.0013645	-0.0017969
	(-12.856)	(-16.394)	(-12.881)
Working-Hours			
ln(hw)	0.439649	0.476496	0.777292
	(9.938)	(13.062)	(16.364)
Education			
OTHER	-0.336789	-0.294815	-0.596189
	(-6.893)	(-7.607)	(-10.499)
LCE	0.399823	0.406971	0.726940
	(6.697)	(8.394)	(9.413)
SC	0.857356	0.896454	1.329467
	(16.315)	(19.174)	(17.008)
HSC	1.185872	1.136149	1.786194
	(5.306)	(6.390)	(5.246)
COLLEGE	1.572411	1.606194	1.927013
	(10.202)	(11.785)	(9.524)
BA	1.821234	1.876658	2.429693
	(10.192)	(12.612)	(7.562)
R^2	0.3570	0.3773	0.3583
F	108.869	167.536	134.110
N	1,775	2,498	2,172

Notes: (1) t-statistic in parentheses;
(2) all coefficients are statistically significant at 1% level unless stated otherwise;
(3) ** not statistically significant.


MALAYSIA
PEOPLE'S REPUBLIC OF CHINA
BURMA
TAIWAN
Hong Kong
LAOS
THAILAND
SOUTH CHINA SEA
PACIFIC OCEAN
Bangkok
CAMBODIA
VIETNAM
PHILIPPINES
Sabah
MALAYSIA
Brunei
Sarawak
Singapore
Sumatra
Kalimantan
Celebes
INDONESIA
West Irian
New Guinea
Djakarta
Java
Papua
INDIAN OCEAN
AUSTRALIA
THAILAND
Penang
Kota Bharu
Kota Kinabalu
BRUNEI
SABAH
Ipoh
SOUTH CHINA SEA
Kuantan
KUALA LUMPUR
MALAYSIA
Petaling Jaya
Kelang
STRAITS OF MALACCA
Seremban
Malacca
INDONESIA
SUMATRA
Johore Bahru
SINGAPORE
miles
km
SARAWAK
Kuching
KALIMANTAN
(INDONESIAN BORNEO)

BIBLIOGRAPHY

1. Addison, John T. and W. Stanley Siebert, The Market for Labor: An Analytical Treatment, (Santa Monica: Goodyear Publishing Co., 1979).

2. Agarwal, Naresh C., "Pay Discrimination: Evidence, Policies and Issues," in Jain, H.C. and P.J. Sloane, Equal Employment Issues, (N.Y.: Praeger Publishers, 1981).

3. Arrow, Kenneth J., "The Theory of Discrimination," in O. Ashenfelter and A. Rees (ed), Discrimination in Labor Markets, (Princeton: Princeton University Press, 1973), pp. 3-33.

4. Ashenfelter, Orley and A. Rees (ed), Discrimination in Labor Markets, (Princeton: Princeton University Press, 1973).

5. Becker, Gary S., The Economics of Discrimination (2nd ed), (Chicago: Uniersity of Chicago Press, 1971).

6. ----------, and Barry R. Chiswick, "Education and the Distribution of Earnings," American Economic Review, 56 (May 1966), pp. 358-369.

7. Ben-Porath, Yoram, "The Production of Human Capital and the Life-Cycle of Earnings," Journal of Political Economy, 75 (August 1967), pp. 352-365.

8. ----------, "The Production of Human Capital Over Time," in W. Lee Hansen (ed), Education, Income, and Human Capital, (N.Y.: NBER, 1970), pp. 129-147.

9. Bergmann, Barbara R., "The Effects on White Incomes of Distribution in Employment," Journal of Political Economy (Mar/Apr 1971), pp. 294-313.

10. Blinder, Alan S., "Wage Discrimination: Reduced Form and Structural Estimates," Journal of Human Resources, 8 (1973), pp. 436-455.

11. Borjas, George J., "Discrimination in HEW: Is the Doctor Sick or Are the Patients Healthy?," The Journal of Law and Economics (April 1978), pp. 97-110.

12. Boulding, Kenneth E., "Toward a Theory of Discrimination," in P.A. Wallace (ed), Equal Employment Opportunity and the AT&T Case, (Cambridge, Mass: The MIT Press, 1976), pp. 9-15.

13. Carnoy, Martin and D. Marenbach, "The Return to Schooling in the United States, 1939-69," Journal of Human Resources (Summer 1975), pp. 312-331.

14. Cain, Glen G., "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey," Journal of Economics Literature (1976), pp. 1215-1257.

15. Ehrenberg, R.G. and R.S. Smith, Modern Labor Economics, (Illinois: Scott, Foresman and Co., 1982).

16. Fearn, Robert M., Labor Economics, (Cambridge, Mass: Winthrop Publishers, 1981).

17. Filer, Randall K., "Sexual Differences in Earnings: The Role of Individual Personalities and Tastes," Journal of Human Resources (Winter 1983), pp. 82-99.

18. Goldberg, Matthew S., "Discrimination, Nepotism, and Wages," Quarterly Journal of Economics (May 1982), pp. 307-319.

19. Gwartney, J., "Discrimination and Income Differentials," American Economics Review (June 1970), pp. 396-408.

20. Jain, H.C. and P.J. Sloane, Equal Employment Issues, (N.Y.: Praeger Publishers, 1981).

21. Maddala, G.S., Econometrics, (US: McGraw-Hill, Inc. 1977).

22. Dr. Mahathir bin Mohamad, The Malay Dilemma, (Singapore: Asia Pacific Press, 1970).

23. Malaysia, General Report, Population and Housing Census of Malaysia 1970, (Kuala Lumpur: Malaysia Statistics Department, 1975).

24. ----------, Mid-term Review of the Second Malaysia Plan, (Kuala Lumpur: Government Printer, 1973).

25. ----------, Third Malaysia Plan, 1976-1980, (Kuala Lumpur: Government Printer 1976).

26. ----------, Mid-term Review of the Third Malaysia Plan, (Kuala Lampur: Government Printer, 1978).

27. ----------, Fourth Malaysia Plan, 1981-1985, (Kuala Lumpur: Government Printer, 1981).

28. ----------, Labor and Manpower Report 1980, (Kuala Lumpur: Ministry of Labour and Manpower, 1982).

29. Marshall, Ray, "The Economics of Racial Discrimination: A Survey," Journal of Economic Literature (Sept 1974), pp. 849-871.

30. Mincer, Jacob, Schooling, Experience, and Earnings, (N.Y.: NBER 1974).

31. ----------, and Polacheck, Solomon W., "Family Investments in Yuman Capital: Earnings of Women," Journal of Political Economy (Mar/Apr 1974), pp. S76-S110.

32. Oaxaca, Ronald T., "Male-Female Wage Differentials in Urban Labor Markets," International Economic Review (Oct 1973), pp. 693-709.

33. ----------, "Sex Discrimination in Wages," in O. Ashenfelter and A. Rees (ed), Discrimination in Labor Markets, (Princeton: Princeton University Press, 1973), pp. 124-151.

34. ----------, "Male-Female Wage Differentials in the Telephone Industry," in P.A. Wallace (ed), Equal Employment Opportunity and the AT&T Case, (Cambridge, Mass: The MIT Press, 1976), pp. 17-47.

35. Piore, Michael J., "Job and Training: Manpower Policy," in S. Beer and R. Barringer (ed), The State and the Poor, (Cambridge, Mass: Winthrop Press, 1970), pp. 53-83.

36. Polacheck, Solomon W., "Potential Biases in Measuring Male-Female Discrimination," Journal of Human Resources, 10 (1975), pp. 205-229.

37. Sanborn, H., "Pay Differences Between Men and Women," Industrial and Labor Relations Review, 17 (July 1964), pp. 534-550.

38. Smith, Sharon P., Equal Pay in the Public Sector: Fact or Fantasy, (N.J.: Princeton University Press, 1977).

39. Snodgrass, Donald R., Inequality and Economic Development in Malaysia (Kuala Lumpur: Oxford University Press, 1980).

40. Spence, A. Michael, "Job Market Signaling," Quarterly Journal of Economics (August 1973), pp. 355-374.

41. Thurow, Lester C., Poverty and Distribution, (Washington, D.C.: Brookings Institution, 1969).

42. U.S. Government, Area Handbook for Malyasia 1970.

43. ----------, Area Handbook for Malaysia 1977.

44. Wallace, P.A. (ed), Equal Employment Opportunity and the AT&T Case, (Cambridge, Mass: The MIT Press, 1976).

45. Welch, Finis, "Employment Quotas for Minorities," Journal Political Economy, 84 (1976), pp. S105-S139.