

**THE EARNINGS DETERMINATION MECHANISM WITH
RESPECT TO RUBBER TAPPERS IN PENINSULAR MALAYSIA
IN THE PRE AND POST-UNION ERAS**

by

PARTHIBAN S. GOPAL

**Thesis submitted in fulfillment of the requirements
for the degree of
Master of Social Sciences**

Jun 2006

ACKNOWLEDGEMENT

First of all, I thank the Almighty IRAIVAN (God) for all the blessings that He has showered upon me to complete this work.

I truly appreciate the academic guidance of my supervisor, Professor Suresh Narayanan who inspired me to excel in my work. His objective comments and criticisms significantly aided in shaping this thesis.

I am indebted to Mr. A. Navamukandan, the National Executive Secretary of NUPW and Encik M. Audong, the Director of the MAPA for the useful materials supplied and the very helpful discussions that helped me clarify doubts on several important points.

I also wish to acknowledge my sincere thanks to the following people who were of great assistance during critical periods of my research: The Dean of the School of Social Sciences, Associate Professor Abdul Rahim Ibrahim, Professor Lai Yew Wah, Professor Amir Husin Baharuddin, Dr. Sundramoorthy, Dr. Yen Siew Hwa, Dr. Chua Soo Yean, Dr. Nailul Murad, Hj. Sibly, Dr. Premalatha, Dr. Norraihan Zakaria, Dr. Usman Karofi, Dr. Loke Yiing Jia, Dr. Nazarrudin, Uncle Soomu and family, Omar Yusuf, Jason Mwanza, Sashidharan, Muzamil and Yusuf. I also wish to thank the clerical staff of the School of Social Sciences and all my friends for their moral support.

My deep gratitude goes to my beloved wife, Puvaneswary (Radha), for being patient while I worked on this thesis; it could not have been completed without her assistance. Last but not least, I am grateful to my family members both in Taiping (my father, Mr. S. Gopal and my mother, Madam U. Saradammal and the family) and Penang (my mother-in-law, Madam Vijayaletchumi and the family) for always being there for me.

Thank you all.

TABLE OF CONTENTS

	Page
Acknowledgements	ii
Table of Contents	iv
List of Tables	xi
List of Figures	xiii
Abstrak	xv
Abstract	xviii

CHAPTER 1 – INTRODUCTION

1.1	Introduction	1
1.2	The Problem Statement	2
1.3	Objectives of Study	4
1.4	Data Sources and General Methodology	5
1.5	A Brief Review of Relevant Literature	6
1.6	Limitations of Study	10
1.7	Organization of Subsequent Chapters	11

CHAPTER 2 – PAYMENT SYSTEMS AND WAGE DETERMINATION IN ESTATES: THEORETICAL INSIGHTS

2.1	Introduction	14
2.2	Methods of Payment: Piece Rate and Time Rate	15
2.3	Piece Rates or Time Rates?	16
2.4	Choice of Payment Systems	27
2.5	Determination of the Wage Rate	29

2.5.1	The Competitive Model of Wage Determination	29
2.5.2	Non-Competitive Wage Determination: The Bilateral Monopoly Model	32
2.6	Determinants of the Union's Bargaining Strength	36
2.7	Summary and Conclusion	39
CHAPTER 3 – THE RUBBER PLANTATION SECTOR IN MALAYSIA: AN OVERVIEW		
3.1	Introduction	41
3.2	Rubber Comes to Malaya	42
3.3	Trends of the Key Variables in the Rubber Sector	53
3.3.1	Contribution of Rubber to GDP	53
3.3.2	Rubber Production	55
3.3.3	Hectarage Planted	56
3.3.4	Employment	59
3.3.5	Rubber Price	61
3.3.6	Labour Productivity	63
3.3.7	Productivity of Land	68
3.4	Tapping Routine and Components of a Tapper's Daily Earnings	73
3.4.1	Daily Routine	74
3.4.2	Components of a Tapper's Earnings	75
3.5	Summary and Conclusions	80

CHAPTER 4 – WAGE DETERMINATION OF TAPPERS IN THE PRE-UNION ERA

4.1	Introduction	81
4.2	The Setting	82
4.3	A Stylized Model of the Labour Market	91
4.4	A Critical Evaluation of the Evidence on Wage Determination	98
4.5	Other Observations	117
4.6	Summary and Conclusions	120

CHAPTER 5 – THE DETERMINATION OF EARNINGS IN THE POST-UNION ERA

5.1	Introduction	121
5.2	The Setting	121
5.3	Earnings Determination in the Post-Union Era: Collective Agreements and Awards	129
5.3.1	The First Agreements (1954)	131
5.3.2	The Revised and Supplementary Agreements of 1955	133
5.3.3	The Agreement of 1956	135
5.3.4	The Agreement of 1959	138
5.3.5	The Agreement of 1962	142
5.3.6	The Agreement of 1964	144
5.3.7	The Award of 1968	147
5.3.8	The Agreement of 1972	150
5.3.9	The Agreement of 1976	153
5.3.10	The Agreement of 1979	154
5.3.11	The Award of 1986	155

5.3.12	The Award of 1990	158
5.3.13	The Agreement of 1995	162
5.3.14	The Agreement of 1999	165
5.3.15	The Agreement of 2003	166
5.4	Collective Agreements: An Initial Evaluation	168
5.5	Summary and Conclusions	170

CHAPTER 6 – EARNINGS DETERMINATION OUTCOMES: A CRITICAL EVALUATION

6.1	Introduction	171
6.2	The Bargaining Framework	171
6.3	Measures of Union Strength	179
6.4	Union Performance: A Micro Perspective	184
6.4.1	The Basic Daily Wage Rate	185
6.4.2	Performance-Based Payments	194
6.4.3	'Prosperity Sharing' Element (Price Bonus)	198
6.4.4	Other Payments	201
6.4.5	The Overall Earnings Package	201
6.4.6	Fringe Benefits	205
6.5	Impact On Earnings: A Macro Perspective	213
6.5.1	Nominal Earnings	214
6.5.2	Real Earnings	216
6.5.3	Determinants of the Earnings of Estate Workers	219
6.6	The Monthly Wage Issue and the Agreement of 2003	224
6.7	Summary and Conclusions	237

CHAPTER 7 – SUMMARY OF FINDINGS AND RECOMMENDATIONS

7.1	Introduction	242
7.2.	Main Findings	242
7.2.1	The Wage Determination Mechanism in the Pre-Union Era	242
7.2.2	The Wage Determination Mechanism in the Post-Union Era: The Bargaining Framework	247
7.2.2.1	The Collective Bargaining Framework	247
7.2.2.2	The Bargaining Power of the Union	248
7.2.2.3	The Bargaining Outcomes of the Post-Union: The Micro-Perspective	249
7.2.2.4	Bargaining Outcomes: The Macro Perspective	255
7.3.	Recommendations for Improving the Payment Scheme of Rubber Tappers	260
7.3.1	The Fixed Component	260
7.3.2	Incentive Payments Linked to Price	262
7.3.3	The Prosperity Sharing Mechanism	263
7.3.4	Rewarding Years of Service	264
7.3.5	The Housing Allowance	265
7.3.6	Protecting Earnings Against Inflation	266

BIBLIOGRAPHY	267
---------------------	-----

APPENDICES

Appendix 1	Table 1: Hectarage, Production and Rubber Price, 1898-1970	277
	Table 2: Hectarage, Production, Rubber Price and Employment, and CPI 1971-2004	279
	Table 3: Key Data on Rubber Estates in Peninsular Malaysia, 1971-2004	280
	Table 4: Rubber Prices in cents/pound, 1954-86	282
Appendix 2	Table 1: Rate of Growth of Rubber Output, 1971 – 2004	283
	Table 2: Rate of Planted Hectarage, 1971 – 2004	283
	Table 3: Rate of Growth of Employment. 1971 – 2004	284
	Table 4: Absolute Growth of Rubber Price, 1971 – 2004	284
	Table 5: Rate of Growth of Rubber Price, 1971 – 2004	285
	Table 6: Absolute Growth of Productivity Per Worker, 1971-2004	285
	Table 7: Rate of Growth of Productivity Per Worker, 1971-2004	286
	Table 8: Absolute Growth in Productivity Per Worker, Per Hectare, 1971-2004	286
	Table 9: Rate of Growth of Productivity Per Worker, Per Hectare, 1971-2004	287
	Table 10: Absolute Growth in Yield Per Tapped Hectarage, 1971-2004	287
	Table 11: Rate of Growth of Yield Per Tapped Hectarage, 1971-2004	288

Appendix 3: Table 1: Rate of Growth of Consumer Price Index (CPI; 1971=100), 1971-2004	289
Table 2: Growth in Absolute Nominal Annual Earnings Per Worker, 1971-2004	289
Table 3: Rate of Growth of Annual Nominal Earnings Per Worker, 1971-2004	290
Table 4: Growth in Absolute Real Annual Earnings Per Worker, 1971-2004	290
Appendix 4: Table 1: Augmented Dickey-Fuller Unit Root Tests for Levels and First-Differences	291

LIST OF TABLES

		Page
Table 4.1	IIC Wage Inquiries, 1924-1923	109
Table 5.1	Payment Scheme for Tappers, the 1954 Agreement	132
Table 5.2	Payment Scheme for Tappers, the 1955 Agreement	135
Table 5.3	Payment Scheme for Tappers in the Agreements of 1955 and 1956 over Similar Price-Zones	138
Table 5.4	Payment Scheme for Tappers, the 1959 Agreement	140
Table 5.5	Payment Scheme for Tappers, the 1962 Agreement	143
Table 5.6	Payment Scheme for Tappers, the 1964 Agreement	145
Table 5.7	Computation of Daily Takings under the 1962 and 1964 Agreements	146
Table 5.8	Payment Scheme for Tappers, the 1968 Award	149
Table 5.9	Payment Scheme for Tappers, the 1972 Agreement	152
Table 5.10	Payment Scheme for Tappers, the 1976 Agreement	153
Table 5.11	Payment Scheme for Tappers, the 1979 Agreement	154
Table 5.12.	Payment Scheme for Tappers, the 1986 Award	156
Table 5.13	Payment Scheme in the 1990 Award	160
Table 5.14	Payment Scheme for Tappers, the 1995 Agreement	163
Table 5.15	Payment Scheme for Tappers, the 1999 Agreement	165
Table 5.16	Payment Scheme for Tappers, the 2003 Agreement	168
Table 6.1	The 'Hybrid' Payment System for Rubber Tappers	184
Table 6.2	Basic Daily Wage Rates and the Associated Task Sizes in Collective Agreements, 1954-2003	191

Table 6.3	Increases in the Basic Wage Rate, Annual Earnings Per Worker and the CPI Between Collective Bargaining Intervals (1972-2003)	192
Table 6.4(a)	Gains in Fringe Benefits, 1954-1964	207
Table 6.4(b)	Gains in Fringe Benefits, 1965-1979	208
Table 6.4(c)	Gains in Fringe Benefits, 1986-1990	209
Table 6.4(d)	Gains in Fringe Benefits, 1995-1999	210
Table 6.5	Current Fringe Benefits, 2003-2006	211
Table 6.6	Determinants of (Nominal) Annual Earnings Per Worker, 1971-2004	221
Table 6.7	Maximum Monthly Earnings Possible under the 2003 Agreement	234

LIST OF FIGURES

	Page	
Figure 2.1	The Screening Effect of Output Related Wage	17
Figure 2.2	The Allocation of Work Effort by Piece Rate Workers	20
Figure 2.3	The Sorting Effect of Output Related Wage	22
Figure 2.4	Competitive Equilibrium in Two Labour Markets	31
Figure 2.5	Bilateral Monopoly Model of Wage Determination	34
Figure 3.1	Planted Rubber Area (Hectarage) in Estates and Smallholdings, 1971 – 2004	51
Figure 3.2	Rubber Estates' Share of Production to GDP	54
Figure 3.3	Production in Rubber Estates and Smallholdings, 1971-2004	57
Figure 3.4	Number of Workers Employed in Rubber Estates, 1971 – 2004	60
Figure 3.5	Average Rubber Price (RSS1), 1971 – 2004	62
Figure 3.6	Productivity per Rubber Estate Worker, 1971 – 2004	65
Figure 3.7	Productivity per Rubber Estate Worker, per Hectare, 1971 – 2004	67
Figure 3.8	Land Productivity in Rubber Estates, 1971-2004	69
Figure 4.1	Wage Determination in the Malayan Estate Sector: The Pre-Union Era	92
Figure 4.2	The Impact of Controlling Immigration on the Wage in the Malayan Estate Sector	95

Figure 4.3	The Impact of an Increase in Labour Demand in the Malayan Estate Sector	96
Figure 6.1	Negotiated Increases in the Basic Wage Rate of Rubber Tappers, 1954-2003	187
Figure 6.2	Yield Incentive, Scrap Incentive and Price Bonus, 2003 Agreement	196
Figure 6.3	Nominal Earnings Per Worker and Productivity Per Worker, Per Hectare	215
Figure 6.4	Real and Nominal Earnings of Estate Workers, 1971-2004	217

MEKANISME PENENTU PENDAPATAN PENOREH GETAH PADA ERA PRA DAN PASCA KESATUAN SEKERJA DI SEMENANJUNG MALAYSIA

ABSTRAK

Tesis ini mengkaji mekanisme penentu pendapatan penoreh getah di Semenanjung Malaysia dalam era pra dan pasca kesatuan sekerja. Ddapati pada era pra kesatuan kerja, kadar upah semasa di ekonomi kawasan luar bandar India Selatan telah menjadi asas penentuan pendapatan (Kadar upah) pekerja estet di Tanah Melayu. Untuk menarik para buruh immigren bekerja di estet Tanah Melau, pihak penguatkuasa penjajah pula menambahkan sedikit premium ke atas kadar upah kawasan luar bandar tersebut. Sebelum tahun 1884, kaedah penghitungan premium tersebut dan kaedah upah sebenar dibayar kepada para pekerja di estet getah tidaklah diketahui sama-sekali. Sejak tahun 1884 hingga tahun 1910, Perundangan Imigresen India telah menentukan kadar upah minima berbayar, walaupun asas penetapannya tidak jelas. Antara tahun 1910-1923 penentuan kadar upah ditetapkan oleh majikan semata-mata sebab pada waktu ini tiada sebarang kawalan kerajaan. Hanya pada tahun 1923, satu mekanisme penentuan kadar upah yang lebih formal telah diadakan. Pada peringkat ini, sebuah Jawatankuasa Immigresen India (IIC) telah diberi kuasa untuk menetapkan kadar upah di kawasan-kawasan yang dianggap sesuai. Jawatankuasa tersebut terdiri daripada ahli yang dilantik oleh kerajaan, wakil majikan serta sebuah agensi Kerajaan India yang merupakan satu-satunya wakil bagi menyahut suara pihak buruh. Sungguhpun

wujudnya kenaikan kadar upah di peringkat ini, namun ianya terlalu sedikit dan kenaikannya terdorong atas alasan kos sara hidup buruh, bukannya berdasarkan kemakmuran industri getah itu sendiri. Apabila penentuan kadar upah dilupakan pada tahun 1930an, para penoreh getah terpaksa bergantung harap dengan para majikan sekali lagi. Bagi memastikan agar kadar upah di estet sentiasa kekal di tahap yang rendah; para penguatkuasa penjajah telah menambahkan memasukkan penawaran buruh imigren, terutamanya apabila permintaan ke atas buruh di estet Tanah Melayu meningkat. Sebaliknya, apabila permintaan menurun ke atas buruh tersebut, lebihannya akan dihantar pulang ke negara asal. Dalam era pasca kesatuan sekerja pula, kajian ini mendapati bahawa pendekatan tawar-menawar kolektif telah berjaya membawa pelbagai kemajuan baik dari segi pendapatan dan faedah-faedah sampingan untuk para penoreh getah; walaupun kedudukan relatif kesatuan kerja tersebut agak lemah dan berada dalam persekitaran tawar-menawar yang terhad. Namun demikian, pendapatan penoreh getah tetap rendah dan tidak memadai bagi menampung kos sara hidup yang sentiasa meningkat. Di antara penambahbaikan yang dicadangkan adalah: (i) meningkatkan kadar upah asas dari komponon system upah yang sedia ada supaya pekerja dilindungi dari factor-faktor di luar kawalannya; (ii) memperbaiki struktur upah insentif hasil getah supaya ianya berubah mengikut peningkatan harga getah pada kadar yang tetap; (iii) memperkenalkan bayaran bonus tahunan berdasarkan keuntungan syarikat supaya pekerja dapat berkongsi menikmati kemakmuran syarikat

tersebut; (iv) menawarkan elaun peningkatan kadar upah tahunan ke atas kadar upah asas, bagi para pekerja yang telah menjangkau usia yang tua, sebagai skim gantirugi bagi tahun-tahun yang tidak mendapat perolehan yang baik; (v) menawarkan elaun perumahan untuk semua ahli yang bekerja dan yang tidak memeperolehi kemudahan penginapan dan (vi) menetapkan satu dasar supaya para majikan industri estet getah menawarkan elaun kos hidup secara berasingan terutamanya ketika berlaku inflasi berlandaskan satu prasyarat yang ditetapkan secara kolektif.

THE EARNINGS DETERMINATION MECHANISM WITH RESPECT TO RUBBER TAPPERS IN PENINSULAR MALAYSIA IN THE PRE AND POST-UNION ERAS

ABSTRACT

This study seeks to better understand the earnings determining mechanism of rubber tappers in the pre and post-union eras in Peninsular Malaysia. It found that in the pre-union era, the prevailing wage rate in the South Indian village economy formed the basis for determining the payment to estate workers in Malaya. The colonial authorities added a small premium to the village wage rate to make emigration to Malaya attractive. How this premium was computed and the actual wage rate paid to estate workers in Malaya prior to 1884 is unclear. But from then on until 1910, Indian Immigration laws determined the minimum rates payable, though the basis for the rates is not known. From 1910-1923, there was no government control and wage determination remained the prerogative of individual groups of planters. In 1923, a formal wage setting machinery emerged with the Indian Immigration Committee being empowered to fix standard wage rates in areas it thought fit. Composed of government appointees and representatives of planters, the Agent of the Government of India represented the sole voice of labour. Upward revisions of wages were meagre and motivated solely by cost of living arguments—not the prosperity of the rubber industry. Wage fixing was virtually abandoned in the 1930s and tappers were at the mercy of their employers again. To keep the estate wage rate low, the authorities increased the inflow of immigrant labour during periods

of high labour demand in Malaya while in periods of low demand workers were repatriated. In the post-union era, collective bargaining yielded creditable improvements in earnings and fringe benefits to rubber tappers, despite the relatively weak position of the Union and a restrictive bargaining environment. Nonetheless, the earnings of rubber tappers are relatively low and remain vulnerable to cost of living increases. Among the improvements suggested are: (i) raising the fixed component of the wage system (provided a pre-agreed task size is met) to protect workers against factors beyond their control; (ii) restructuring the yield incentive such that it increases in a fixed relationship with rubber price; (iii) introducing a bonus-style prosperity sharing mechanism to give workers a fairer share; (iv) providing annual increments in the basic wage rate to reward years of continuous (satisfactory) service so as to compensate for the problem of declining earnings faced by aging workers; (v) providing housing allowance for all members (instead of just one member) of a working household without accommodation and (vi) making it a statutory requirement for employers in industries with low earnings to make separate cost of living payments when the rate of inflation exceeds a prescribed or pre-agreed threshold.

CHAPTER I

INTRODUCTION

1.1 Introduction

The earnings of rubber tappers have attracted considerable attention in the literature¹. At least two reasons account for this; first, the tapper is not separable from the rubber industry that has contributed so much to the prosperity of the Malaysian economy since its commercial cultivation in the 1800s. Second, while previous studies have shown that the earnings of plantation workers have been low, relative to workers of comparable 'skill' in other sectors (Zulkifly and Ishak, 1998; Selvakumaran and Bala, 1995), it is not always realized that even within the plantation sector, the earnings of the rubber tapper have been among the lowest. In 1998, the average monthly earnings of a tapper was RM605.00, relative to RM886.00 earned by an oil palm harvester, RM765.00 earned by a palm oil mill worker (Category II) and RM612.00 taken home by a rubber installation worker. The tapper's earnings generally exceed only those of the field workers whose monthly income averaged RM430.00 (Audong and Tan, 2000: 46; see also Navamukundan and Geetha, 2003: 325-425). However, not all studies that have commented on the low earnings of rubber tappers have explored the underlying wage determination mechanism, because their main concerns lay elsewhere. In fact, there is a general paucity of studies devoted

¹ A sample of works that comment on the wages of Indian labour in the colonial period includes Parmer, 1960; Netto, 1961; Jackson, 1961; Sandhu, 1969; Barlow, 1978; and Arasaratnam, 1979. The works of Gamba, 1962b; Nijhar, 1976; Selvakumaran, 1994 and Ramasamy, 1994, for example, extend their attention to the post-colonial period as well.

solely or primarily to wage issues in the plantation sector. The studies by Parmer (1960) and Nijhar (1976) are among the few exceptions.

The study of the wage determination mechanism of rubber tappers can be usefully divided into two periods: the pre- and post-union eras. The pre-union era, for the purposes of this study, refers to the period prior to 1954 when plantation workers had no national union to represent their interests. The post-union era refers to the subsequent period (after 1954) that saw the emergence of a workers' union in the form of the National Union of Plantation Workers, or NUPW. Although the NUPW has remained the sole representative of plantation workers, its monopoly position did not imply that it had all plantation workers or even a large majority of them as its members at any one time.

1.2 The Problem Statement

Two puzzling questions confront anyone interested in understanding the wage determining mechanism of rubber tappers in the pre- and post-union eras. First, many writers who chronicle the immigration of South Indian workers to the rubber estates of Malaya in the pre-union era, and their subsequent deprived status therein, do not describe explicitly the mechanism that kept wages low. After all, economic theory predicts that continuous immigration from a low wage jurisdiction (like South India) to a high labour demand jurisdiction (like pre-independent Malaya) should equalize the wages in both, and immigration should cease. That this has never happened requires some explanation of the

mechanism that was in operation. Only Parmer (1960) explains the main pieces of the mechanism, but he does not interpret them in a holistic labour market context.

Second, writers commenting on the earnings of tappers in the post-union era—with a few exceptions—continue to harp on the fact that nominal wages had either not improved or improved very little, and that rises in the cost of living had wiped out whatever real gains the worker had expected (see Selvakumaran, 1994: 261-300 and Ramasamy, 1994: 135-170, for example). The blame is then put squarely on the shoulders of the NUPW, the sole representative of plantation workers during the post-union era. But these studies also spend little or no time examining the bargaining framework, the limitations and strengths of the Union's bargaining position and its relative gains and losses in the bargaining process. For if the workers had consistently been at the losing end, the Union could not have survived to this day. True, there were no alternative unions to go to, but the worker could have still chosen to remain outside the Union.

Neither of these questions is answered fully by the various works that touch upon the wages of tappers in both eras. This study hopes to fill these gaps in the literature.

1.3 Objectives of Study

This study has the following objectives:

1. To investigate and *explain* the process that determined and maintained a low wage rate that nevertheless attracted an uninterrupted flow of workers from South India to the estates in Malaya in the pre-union era.
2. To examine the earnings determination mechanism in the post-union era. More specifically, the collective bargaining framework and the bargaining power of the Union will be considered carefully before an evaluation of the gains and losses in the bargaining process is attempted.
3. To suggest improvements in the payment systems for rubber tappers, in the light of the findings of the study,

The wage (earnings) determination mechanism of rubber tappers can be usefully divided into two periods: the pre- and post-union eras. The pre-union era refers to the period prior to 1954 when plantation workers had no national union to represent their interests. The post-union era refers to the subsequent period that saw the emergence of a workers' union in the form of the NUPW. The union negotiated on behalf of the workers with the employer's association, originally known as the Malayan Planting Industries Employers' Association (MPIEA) and, subsequently, as the Malayan Agricultural Producers' Association (MAPA).

To keep the study manageable, it will confine itself to wages and fringe benefits, leaving aside a host of other areas that critics have argued are also the domain

of a union, and where they saw little or no improvements. It will also limit itself to the MAPA/NUPW wage system. There is a separate wage setting mechanism for tappers in the Rubber Research Institute's experimental station. This is so limited that it has no relevance to the settings outside it.

1.4 Data Sources and General Methodology

The primary sources of information are the collective agreements and awards concluded between the NUPW and the employers' association. A complete set was kindly made available to the writer by both the Union and the Association.

Much of the background information, supplementary materials and statistical data were drawn from published sources, as will be acknowledged where appropriate. However, they were collected from scattered sources such as the libraries of Universiti Sains Malaysia, University Malaya, Universiti Putra Malaysia, Universiti Kebangsaan Malaysia, and from the relevant government agencies in Putrajaya.

In line with the objectives of the study, several methodological approaches were used. For the pre-union era, factual evidence gathered from existing sources was used for two purposes. First, to create the setting of the period and, second, to construct a stylised economic model from which plausible predictions were drawn. Evidence was then marshalled to demonstrate that the predictions were borne out in reality. This helped to demonstrate the workings of the wage determination mechanism of that period.

Analysis of the post-union era was conducted at both micro and macro levels. In the micro level analysis, collective agreements were examined to identify the main payments that were conceded through bargaining. Since most of the concessions only benefited tappers when rubber price exceeded prescribed thresholds, the prevailing rubber price for the duration of each agreement was scrutinized to determine if workers gained or lost from these concessions. For the macro level analysis, time series data were used to analyse the movements of important aggregates that influenced the earnings of rubber tappers. These include rubber price, labour productivity and the yield per hectare. This was complemented with regression analysis that tested the strength and direction of the relationship between the growth of the earnings of tappers and factors such as rubber price, labour productivity and land productivity. Complete data series were, however, only available for the period 1971-2004.

1.5 A Brief Review of Relevant Literature

A vast literature exists on the early immigration of Indian labour to Malaya (later Malaysia) and the appalling conditions that they suffered in the plantations and elsewhere. Some of these studies relate to the Indian community in Malaya and their early development, and make these observations only as part of a larger picture that they were concerned with (Netto, 1961; Arasaratnam, 1979; Rajeswary, 1981).

Some others, however, focus primarily on the role of immigrant Indian labour in the development of Malaya. Among these are the studies by Jackson (1961)

and Sandhu (1969). These accounts are largely confined to the pre-union era as defined in this study (that is, prior to 1954). Sandhu's (1969) work deals solely with Indian immigrant labour is concerned with developments in the 19th century. Jackson (1961), on the other hand, discusses Indian immigrant labour only as a part of a larger study of the role of immigrants in Malaya's development between 1786-1920. However, both authors document, in different degrees, the poor working conditions of Indian labour and the low wages they received relative to Chinese workers doing the same tasks. However, neither of them concerned themselves with the wage determination mechanism that resulted in such low wages and kept them low. The same can be said of the work of Stenson (1970) on the early industrial conflict in Malaya that chronicles the activities of radical left-wing trade unions prior to 1948. His later work (Stenson, 1980) sought to illustrate the structure and functioning of colonial and post-colonial order in Malaya, using the Indian community as a case study. But only the historical material on early trade union activity is directly relevant to the present study. He, too, does not devote any attention to the bargaining process or mechanisms.

The work of Parmer (1960) is more enlightening in this respect. He offers a detailed description of how colonial labour policy, both in Malaya and India, jointly determined the wage rate for Indian workers in the plantations. This work provides an excellent chronology of the wage fixing process between 1910 and 1941. Being a historian, however, he did not look at it from an economic modelling perspective. Instead, the detailed accounts that he offers, drawn from

colonial records, forms the main building blocks of the wage determining mechanism in the pre-union era discussed in Chapter 4. Unfortunately, his study ends in 1941, well before the post-union era began.

With respect to the post- union era, the study by Gamba (1962a) on the origin of trade unionism in Malaya captures the events prior to the development of non-communist led unions in Malaya. His other work (Gamba, 1962b) traces the history and development of the NUPW; in doing so, he gives a good account of the beginnings of the collective bargaining process in the plantation sector and the early achievements and failures of the Union. Nonetheless, his accounts do not extend to activities beyond 1958, and covers just four years of the Union's efforts after it signed its first collective bargaining agreement with the employers' association in 1954.

The only work that focuses primarily on wage determination issues in the post-union era is Nijhar's (1976). Apart from providing a description of the negotiating framework, and the negotiating parties, he conducts a detailed examination of the main outcomes of all collective agreements and awards from 1954 to 1964. And despite the disdain shown by writers like Jain (1970) and Stenson (1980) towards the accommodative bargaining style of the NUPW, Nijhar (1976) concludes that the Union was chiefly responsible for improvements in the conditions of estate workers since 1954. Even so, Nijhar's work suffers from several shortcomings. First and most obvious, is the fact that it is dated and contains no evaluation of all the collective agreements and awards after 1964.

Second, although Nijhar described the negotiating parties, he did not evaluate their relative bargaining strengths. An understanding of the strength of the bargaining parties allows for a more realistic appreciation of the outcomes. Third, Nijhar's focus was micro; he did not offer any macro perspective on the movement of productivity and earnings of workers over time. The present study seeks to extend Nijhar's post-union era analyses of collective agreements and awards, taking into account the changes in the bargaining framework and relative strengths of the bargaining parties. Furthermore, the micro level analyses of bargaining outcomes will be supplemented with macro analyses of the movements in labour productivity and earnings.

Other recent studies on Indian plantation labour have devoted some attention to wages and conditions of living among rubber tappers (Selvakumaran, 1994 Ramasamy, 1994). In the course of pursuing a larger subject, they have paused to examine bargaining outcomes and evaluate the Union's efforts. Selvakumaran (1994), for example, scrutinized the collective agreements from 1954 to 1990 and a host of other aspects that he presumed to be within the range of the Union to influence. However, he devoted very little attention to the wage determination process and the institutional constraints faced by the Union. Not surprisingly, therefore, he was highly critical of the perceived failures of the Union, and gave it no credit, even in little areas where the improvements were too obvious to ignore. In fact, several of his findings are evaluated in this study and shown to be either inaccurate or incomplete.

The other work by Ramasamy (1994) also had a wider theme than the determination of the wages of tappers. Nonetheless, he, too, examines the collective agreements, although his analysis is less exhaustive because it ends with a so-called collective agreement of 1965, when no such agreement exists! Ramasamy (1994) also finds very little to credit the Union with. Some of his conclusions are questionable and are examined in this study.

1.6 Limitations of the Study

This study suffers from several limitations:

First, it is confined to an analysis of the earnings and fringe benefits of rubber tappers in estates, for reasons stated in the Introduction. In doing so, however, it ignores other types of workers in the rubber industry, like field workers, factory workers and so forth. Including them would have widened the scope of this study beyond the time and resources available.

Second, although the focus is on the estate sector, not all estates are unionised nor are all of them members of the Malayan Agricultural Producers Association (MAPA). Thus, studying the collective agreements and awards between the NUPW and MAPA (in the post-union era) only allows conclusions to be drawn about tappers in MAPA member estates, not those outside it. Wages and benefits in non-MAPA estates are usually inferior (Nijhar, 1976: 7; Ramasamy, 1994: 141-42).

Third, bargaining theories also concerns themselves with the trade off between higher wages and lower employment. High wages for the resident workforce can make substitution with foreign labour attractive. This aspect is not considered in great depth. The growing presence of foreign labour in the estate sector is interesting in its own right and deserves a separate study.

Fourth, the macro data on the earnings of estate workers suffers a few drawbacks. They include the earnings of tappers who are non-unionised, those in non-MAPA member estates as well as field workers; since all these groups earn less than tappers in MAPA member estates, their inclusion is likely to understate average earnings per worker. Furthermore, the value of fringe benefits has also not been quantified and included in the published data.

Finally, much of the statistical analysis of the impact of union bargaining is limited to the 1971-2004 period due to the lack of a continuous data series for some key variables like wages and productivity. Furthermore, in computing the real value of earnings, 1971 was chosen as the base year to deflate current earnings (in Chapter 6); Since consumption patterns are unlikely to remain unchanged over long periods of time, the real earnings for periods that are further removed from the base year are likely to be severely understated.

1.7 Organization of Subsequent Chapters

The rest of the study is divided into six chapters. Chapter 2 looks at two interrelated issues: the first provides a theoretical perspective of the main

features of the time rate and piece rate payment systems that are widely used in agrarian settings and the circumstances under which one is likely to be preferred over the other. The second issue that is examined is the process of determining the rate of payment, regardless of which method of payment is adopted. The insights gained from the theoretical discussions in this chapter enable a better appreciation of the empirical analyses undertaken in Chapters 4 and 5.

Chapter 3, designed to provide a background of the rubber estate sector, is divided into three parts. The first traces briefly the history of the rubber industry in Malaysia. The second reviews the main trends of some key variables in the rubber industry, such as rubber price, worker productivity and land yields, over a more recent period (1971-2004). Since a rubber tapper's incentive payments are also tied to these factors, the review enables a better grasp of the results of collective bargaining discussed in Chapters 5 and 6. The final section describes a rubber tapper's daily routine and the various components of his daily earnings. Many of these tasks are called by names peculiar to the rubber estate economy and an early familiarity with the tasks and their associated names will enable a better understanding of the negotiated gains of the worker, discussed in Chapters 5 and 6.

Chapter 4 attempts to explain the process of wage determination in the pre-union era. It begins by providing the setting in which Indian labour was recruited to work in the plantations. Based on this, an economic model is developed; it

demonstrates how the manipulation of the inflow of labour from India kept wages in Malaya low. Additionally, isolating the wage rate of Indian workers in the estates from the influences of domestic labour demand and supply enabled the government (and other interested parties) to alter it in directions they saw fit.

Chapter 5 turns to the earnings determining mechanisms in the post-union era. It opens by describing briefly the trade union activities in the post-war period that culminated in the formation of the employers' body and a national union representing plantation workers. The subsequent part of the chapter outlines the main contents of all the collective agreements forged between these two bodies, beginning from the first agreement in 1954 to the one currently in force, but signed in 2003. This provides the basis for the critical evaluation of the collective agreements that follows in Chapter 6.

Chapter 6 is the heart of the study. It begins by fleshing out the simple bilateral monopoly model (presented in Chapter 2) with a discussion of the bargaining framework in place, the factors that determine the relative strengths of the employers' association and the Union, and the role of the government. This is followed by an objective but critical evaluation of the performance of the Union. Previous criticisms levelled at the Union's efforts are also examined critically.

Chapter 7 summarises the main findings of the study and makes some recommendations to improve the payment system for rubber tappers.

CHAPTER 2

PAYMENT SYSTEMS AND WAGE DETERMINATION IN ESTATES: THEORETICAL INSIGHTS

2.1 Introduction

This chapter investigates two interrelated issues: the theory guiding the two methods of payments widely used in agrarian economies and the determination of the wage rate, regardless of the method of payment adopted.

Piece rates and time rates are two methods of compensation that are commonly employed in agricultural activities. The rubber estates in Malaysia are no exception. The first part of this chapter provides a theoretical perspective of the main features of the two systems and the circumstances under which an employer is likely to choose one or the other.

Irrespective of which method of compensation is used, the rate of payment must be decided upon. How exactly will this rate be determined? Two scenarios need to be investigated with respect to the estate sector. In the pre-union era, market forces set the wage rate, at least in theory. Thus, a competitive model seems appropriate. In the post-union era, the basic wage rate and other payments were determined through collective bargaining. Given a wide range of bargaining models available, the bilateral monopoly model was adopted not only because it reflected the situation in the plantation sector but because it recognizes explicitly the wage-employment trade-off in bargaining.

The insights gained from the theoretical discussions in this chapter will be used in the empirical analyses undertaken in subsequent chapters (especially Chapters 4 and 5).

2.2 Methods of Payment: Piece Rate and Time Rate

Two modes of payment are widely used, especially (though not exclusively) in agriculture. They are piece rates and time rates (Lazear, 1986: 405-430; 1998: 98-119). A piece rate rewards labour according to some measure of the worker's output, whereas a time rate compensates a worker based on the number of hours allocated to the job (Borjas, 1996: 402). Under a time rate, time on the job is used as the unit of measuring input (or as the proxy for effort).

Under a piece rate, compensation of a worker is a function of output or:

$$w_t = f(q_t)$$

where w_t is compensation for period t , and q_t is a worker's output in period t .

On the other hand, compensation under a time rate is a function of input (or effort), usually measured by time allocated to the job, or:

$$w_t = g(E_t)$$

where w_t and E_t are compensation and (some measure of) effort in period t , respectively.

Piece rates are often viewed as incentive pay because earnings are dependent on individual output (Seiler, 1984: 363-376), whereas time rate earnings are

solely a function of hours worked. The International Labour Organization (ILO) offers a different perspective: time rates are payments to employees who are redeemed hourly, daily, weekly or monthly, while piece rates are paymentst for workers who complete specific steps in the production process (ILO, 1984: 1-164 and Sajhau 1986: 79). The piece rate system is now more popularly referred to as payment by results (PBR). In short, a piece rate and a time rate represent a payment by output and a payment by input respectively (Dobb 1959: 50-55; Paarsch and Shearer, 1997: 1-2; Shearer, 2003: 1-3)

2.3 Piece Rates or Time Rates?

Output based pay has several advantages (Lazear, 1998: 98-119). First, the inherent strength of an output based pay system is that it discourages unproductive workers from applying for the job and induces inefficient workers to leave. This can be illustrated by examining the choice faced by a tapper in deciding between an estate offering payment on the basis of output (piece rate) and one that pays a fixed monthly salary (time rate). This two payment systems are reflected by schedules B and A respectively in Figure 2.1.

Schedule A represents a time rate payment while schedule B represents a piece rate payment. Assume that 60 sen is paid for each kilogram of latex collected under scheme B. Under scheme A (the time rate wage scheme), the weekly salary is fixed at RM180, regardless of the amount of latex collected¹. What would be the worker's choice?

¹ Of course, this can only be a short-term arrangement. If the worker consistently collects a very small amount of latex, he will be terminated.

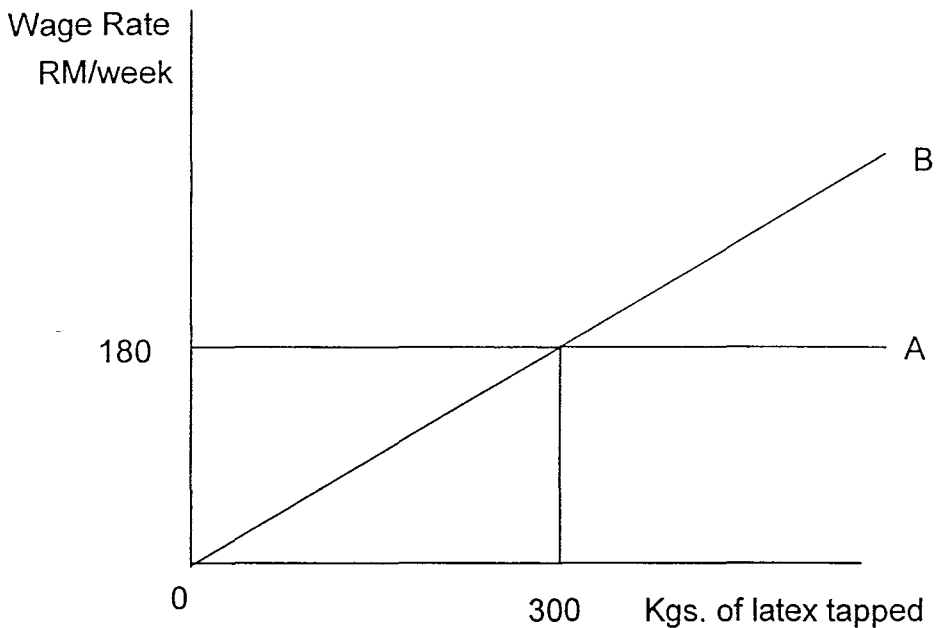


Figure 2.1: The Screening Effect of Output Related Wage

Source: Lazear (1998: 100)

If the worker is able to tap and collect more than 300kg of latex each week, he will opt for the piece rate scheme since his takings will exceed RM 180 per week. On the other hand, a less productive job-seeker who is unable or unwilling to tap and collect at least 300kg of latex a week will choose the time rate scheme that offers a fixed weekly income of RM180. The piece rate scheme, therefore, attracts more productive or better motivated workers. The less motivated and less productive workers will seek employment with employers offering a time rate paying scheme.

However, Baland et. al (1999: 445-461) express a slightly different view. While they agree that a piece rate contract attracts the most able workers, they point out that it draws the least able ones as well. Only workers with medium level ability opt for the time rate. A highly able worker can choose his own level of effort, under the piece rate, to earn a higher level of earnings per day than is possible under a time rate contract. By the same token, a less able worker will also be drawn to a piece rate system, despite the prospect of lower earnings per day, because the time rate contract requires an effort level beyond his ability.

The second strength of the piece rate scheme is that it motivates workers by providing them a direct incentive to boost individual effort. This is readily seen from Figure 2.1 above. A tapper seeking to maximize his weekly earnings will opt for the piece rate scheme (B) because by tapping and collecting more than 300 kg. of latex per week he can earn more than RM180 per week. Scheme B, therefore, provides him with a direct incentive to work harder or to put in more effort. A less productive or unmotivated tapper would choose scheme A that guarantees a (safe) fixed weekly salary of RM180. Of course, if his collection of latex consistently falls below 300 kg. per week, he runs the risk of being terminated from the job.

Third, even if more productive workers are attracted to a piece rate scheme, not all workers under the scheme will have identical abilities. Nevertheless, it can be

shown that under a piece rate system, a more able worker will indeed produce more output than his less able counterpart².

Let us assume that a rational worker will choose that level of output that will maximize his utility. Utility is assumed to increase with the net pay that in turn, depends on output produced. The greater the output produced, the greater will be the net pay, and the higher will be the worker's utility. A utility maximizing worker will produce until the point where the marginal gain (revenue) from the additional unit produced (or additional effort) will just offset the marginal cost of putting the additional effort (to produce that unit).

If the payment for each unit of output produced is given by w , the marginal revenue (MR) from each unit of output will be constant and equal to w . The horizontal line labeled MR in Figure 2.2 shows this.

The marginal cost of producing output (MC) is the disutility suffered in allocating time away from other pleasurable activities to work. The MC of effort will rise as more output is produced because more leisure is sacrificed in favour of work. Furthermore, the MC of effort of a more able worker (MC_A) will be lower than the MC of a less able worker (MC) as shown in the figure.

The utility maximizing worker will choose that level of output (effort) where the MR from the additional output is equal to the MC of producing the output. For

² The analysis that follows is based on Borjas (1996: 403-404).

the less able worker, this is given by the level of output q^* whereas the more able worker will produce a larger output (q_{able}).

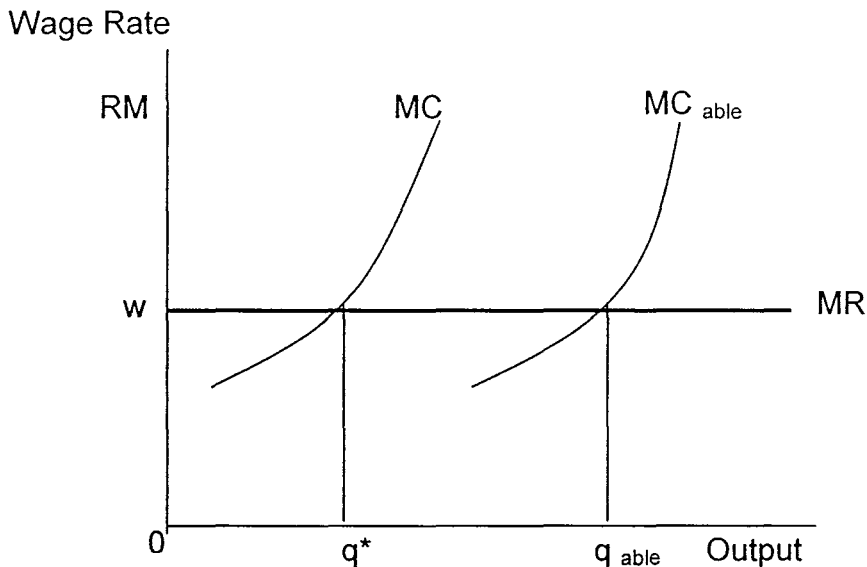


Figure 2.2: The Allocation of Work Effort by Piece Rate Workers

Source: Borjas (1996:404)

Thus, a piece rate system not only attracts more productive workers, but also motivates the more able among them to produce a higher output than the less able ones.

Let us now examine the time rate system. How much effort will time rate workers allocate to their jobs? Assume that in order to earn a fixed rate of pay, a minimum level of output (q^*) is required of them. The worker will thus, be

motivated to produce this minimum output level and no more. The worker will be terminated if he does not meet this minimum, but there is no additional incentive to exceed q^* . Thus, under the time rate, workers, regardless of their ability, will tend to produce similar output levels.

Fourth, piece rate contracts may simply be better contracts in a sense that they present a mutually beneficial arrangement to workers and employers. It has an inbuilt motivation to the former to choose their own pace of work and earnings. It is an advantage to the latter when it obviates the need for supervision. This savings in monitoring costs can occur only if the quality of output is unlikely to vary much and/or productivity is easily measurable.

The fifth advantage of the piece rate scheme is that it is useful for sorting productive workers from their less productive counterparts. Figure 2.3 below illustrates this point. The figure is drawn to show the payment schemes of two estates, X and Y. It is assumed that estate X pays the rubber tapper the full marginal profit while estate Y pays him only 60 percent of the marginal profit. It is clear from the figure that estate Y pays a 60 percent lower rate for every kg. of latex tapped and collected, but guarantees a minimum amount of RM60 per week (time rate).



Figure 2.3: The Sorting Effect of Output Related Wage

Source: Lazear (1998: 104)

Any worker planning to tap and collect more than 300 kgs. of latex per week, will prefer to work in estate X. They will be sacrificing the guaranteed minimum payment in exchange for receiving the full marginal revenue from each additional kg. of latex collected. In contrast, those who are less hardworking will choose to work in estate Y. Given that they do not plan to tap and collect more than 300kg. of latex per week, estate Y's scheme would be more attractive to them. Hence, an estate that pays the full marginal revenue attracts high productivity workers while an estate that pays workers less than the full amount of the marginal revenue runs the risk of attracting only low productivity workers.

To summarize, the piece rate system attracts the most able workers, elicits high levels of effort from the work force, ties pay directly to performance (thus,

minimizing the role of discrimination and nepotism) and increases the firm's productivity (Borjas, 1996: 406).

If so many advantages prevail, why are piece rate schemes not adopted more widely? Several factors militate against the universal adoption of the piece rate scheme (Borjas, 1996: 402-403). One reason is that the incentive effect inherent in the scheme is of little use when the employer's production depends on team effort. Offering piece rates to one of the workers along a production line would have little impact on his productivity since the speed at which the line moves also depends on the productivity of all the other workers on the line. Although it might be possible to structure compensation so as to offer a piece rate to the entire team based on the team's output, this introduces the danger of some members of the team 'free riding' on the effort of others. Piece rate systems therefore, work best when the worker's own pay can be tied directly to his own productivity.

A piece rate system, by overemphasizing the quantity of output produced, may sacrifice quality. In the typical piece rate system, there is a strong incentive to trade off quality for quantity since payment hinges on the latter. Insisting that the worker's earnings will depend on his output meeting a well-defined quality standard, could minimize the problem. But incorporating both quality and quantity standards in the payment formula would increase the employer's monitoring costs and reduce the attractiveness of the piece rate systems to the employer.

The fact that earnings can fluctuate considerably under a piece rate system also undermines its attraction to workers. For example, in the rubber estates, the amount of latex collected depends on weather conditions, the age of the tree, the terrain and others. These factors, outside the control of the tapper, can affect his earnings significantly even if there is no lack of effort on his part. This uncertainty in earnings level is absent under the time rate mode.

A related question is: who should bear the risk of any fluctuation income? If pay is output-based, the worker assumes the risk and a risk-averse worker will avoid working under such an arrangement. On the other hand, under a time rate system, the firm assumes the risk and it will attract risk-averse workers.

Lazear (1998: 119) argues that 'other things being equal, it is better to have the firm bear the risk'. This is because firstly, firms are generally in a better position to diversify the risk by pooling it with other projects or by selling it to a third party through the capital market. Apart from diversifying, firms can also conduct arbitrage to protect themselves from wild fluctuations in output or in the prices of their input and output.

Second, workers find it more difficult to deal with the risk. Workers, particularly those with low wages, have liabilities such as food, housing, clothing and other expenses that are relatively fixed. Hence, any variation in their income is likely to cause significant difficulties for them and their families. But highly paid