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LABOUR MARKET SEGMENTATION:
EVIDENCE FROM CYPRUS

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TABLE OF CONTENTS

1. Introduction*

Labour market segmentation (LMS) has been proclaimed to be a major contributor to poverty and inequality and the focus of much research in the past decade in both developed and developing countries. While many contributors to the debate have appealed to the notion of LMS no single universally agreed upon definition has evolved. At the core of the hypothesis, however, is the idea that workers with such identical human capital characteristics as education and work experience, are rewarded differently depending on the segment of the labour market in which they happen to be located.

Much of the US based literature, in one form or another, has stressed the role of the internal labour market as a feature of the so-called "primary" segment of the job market. The most desirable jobs are exclusively filled from the internal labour market through well defined promotion and job-upgrading ladders. Recruitment for the least desirable jobs, at the bottom of the hierarchy and falling in the "secondary" segment, takes place mainly from a pool of applicants outside the organisation. Opportunities for advancement are generally determined by the initial job the applicant attained on recruitment. Within a certain range this earliest job assignment is largely in the hands of the employer, who evaluates the candidate for a primary or secondary job. The former jobs are characterised by high wages, which induce worker stability and which is in the interest of the employer to maintain, since it is the firm which pays the costs of training in firm-specific skills. Other characteristics of such primary jobs are long promotion ladders and opportunities for advancement, good working conditions and guaranteed job security. Secondary jobs are those with numerous ports of entry, from both inside and outside the organisation, where promotion prospects are slim and wages low, and where poor working conditions and a lack of job security all discourage labour force attachment (Blau and Jusenius, 1976).

The initial occupational assignment between males and females, which is reflected later in occupational segregation of females, can result in "statistical discrimination", or segmentation of the labour market by sex, on the part of employers. Decisions regarding initial job assignment by the employer are largely based on group-derived probabilities. If the average woman compared with the average man is perceived to impose higher costs on employers because of higher turnover and discontinuities in labour force participation, resulting from her domestic duties, then without additional information about individuals the employer will minimise the risks involved by hiring a man. Since the internal labour market does not allow for flexible wages to compensate for the increased costs, the employer cannot be said to be discriminating against women, on average, if his perceptions are correct. However, to the extent that an individual woman does not conform to the stereo-type (or average) of her sex then there will be discrimination against this particular woman, and the market is segmented.

Research in developing countries has stressed LMS in the guise of the formal/informal sector dichotomy.

> "The basic distinction between the high- and low- wage sectors of the labour market turns on the idea that employ-ment in the formal sector is in some sense or senses "protected" so that wage levels and working conditions in the sector are not available, in general, to job seekers unless they manage somehow to cross that protective barrier. This kind of protection may arise from the action of trade unions, of governments, or of both acting together." (Mazumdar, 1981, p. 85)

The public/private sector dichotomy constitutes the third potential segmentation factor in the labour market. Because the public sector operates without the constraining influence of strict market forces it is often thought of as a model employer, with formalised hiring and promotion procedures and an extensive system of credentialism. Therefore, it is hypothesised that the labour market is demarcated along public-private sector lines which results in differential returns to factors associated with measures of human capital.

One means of identifying the existence of LMS has been to establish that workers face different earnings functions depending on their location in the labour market. Yet Fields (1980) argues that this is not enough to establish LMS since the researcher must also show that workers are not able to obtain access to the high wage function. If the labour market is segmented in this sense, according to exogenous factors which lie beyond the ability of the individual to change, such as race or sex, then unbiased estimates of the parameters of the earnings function may be obtained by stratifying the sample of workers by these alleged segmenting characteristics.

However, endogenous independent variables have been widely used to identify segments in the labour market, such as occupation, industry, firm size and public/private sector employment. These factors are endogenous in the sense that they result from choices made by and opportunities open to workers. As both Fields (1980) and Mayhew and Rosewall (1979) have argued, the use of these stratifying characteristics is only acceptable so long as workers are not able to change segments over their lifetime. Fields (1980) also argues that workers should be homogeneous between strata with respect to omitted variables, but in any empirical analysis, the fulfilment of the requirement cannot be easily guaranteed.

This paper examines the LMS hypothesis by drawing on data collected from the small labour market of Cyprus. It is hypothesised that the market is segmented along the lines of sex and the two endogenous variables, the public/private sector of employment and firm size. At the same time evidence is brought to bear on the question of whether individuals are able to move from low-wage jobs in the secondary segment to prime jobs in the high-wage segment, in order to estimate the degree of segmentation of the market. Section 2 contains a brief overview of the labour market in Cyprus while section 3 examines in more detail the reasons why the market could be segmented along the lines suggested. Section 4 presents data on the extent to which there is mobility between the different parts of the labour market, and in the light of these results, the estimated earnings functions are discussed in section 5.

2. The Labour Market in Cyprus

The island Republic of Cyprus can be described as a middle-income developing country, with an estimated per capita income of $2940 in 1980 (Population Reference Bureau, 1981). The population of the Government-controlled sector, with which this paper deals, is approximately 510,000 while the gainfully employed number about 210,000 (Republic of Cyprus, 1981). Twenty-two per cent of the latter are either self-employed or unpaid family workers, the great bulk of whom are engaged as small-scale, part-time farmers. Employment outside of agriculture, the armed forces and those temporarily engaged abroad measures about 135,000. In addition to Central and Local Government administration, public and semi-public employment is widespread in the sectors of banking, utilities and services, such that the broadly defined "public" sector is responsible for 16 per cent of the grand total and 24 per cent of those outside of agriculture.[1] The sector has its greatest impact in the labour market via its demand for highly skilled manpower, since it engages 60 per cent of all those in professional and managerial occupations. Not surprisingly in such a small economy there is a great preponderance of very small scale organisations. In 1979, 28 per cent of the non-agricultural labour force were engaged in establishments with less than five workers and only 30 per cent were found in plants of 100 persons and over (Republic of Cyprus, 1980).

In such a small, closely-knit economy, where the usual type of dualism found in developing countries, such as the rural-urban dichotomy, is largely absent, we might expect the labour market to be highly integrated and not segmented.[2] Yet data for wage and

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[1] The broadly defined "public" sector is composed of Central and Local Government, the Water and Electricity Authorities, the Central Bank, Grain Commissions, Cyprus Airways, Cyprus Broadcasting Corporation, the Telecommunications Authority and the Theatrical Organisation.

[2] Other than for short periods following incidents of armed conflict Cyprus has enjoyed full employment. The average level of unemployment in 1980 slightly exceeded 2 per cent, which is a fair reflection of a very tight labour market in which unemployment insurance is obligatory.

salaried employees indicate that differences in average earnings by sex, sector of employment and firm sizes are very wide, as revealed in table 1.

Average earnings differences are particularly marked betwen the public and private sectors, and between males and females within both sectors. Earnings are positively correlated with firm size, with the difference between the largest and smallest plants being 25 per cent for males and 35 per cent for females. The difference between the sexes in average earnings for each of the firm sizes approaches 100 per cent.

Table 1: Average annual earnings, by public/private sector of employment and firm size, by sex, Cyprus, 1979

Public/private sector (C£)

	Public	Private
Male	2509	1838
Female	2023	1002

Firm size, private sector (C£)	No. of Employees				
	1-9	10-19	20-49	50-99	100+
Male	1693	1882	1974	1953	2113
Female	858	1014	1051	1027	1160

Source: Republic of Cyprus, Survey of wages, salaries and hours of work, 1979, (Department of Statistics and Research, Nicosia).

While these earnings differentials are prima facie evidence that the labour market is differentiated, to establish LMS three essential requirements are necessary. Firstly the extent of movements between the segments must be assessed; secondly, earnings functions must be standardised for measures of human capital and other factors; and finally it must be established that, indeed, earnings functions are heterogeneous between the segments. However, the following

section is addressed to the reasons why we would expect the labour market to be segmented along the lines of sex, public/private sector of employment and firm size.   Who are the segmenters and how and why do they segment the labour market?

3.   The Process of Segmentation in the Labour Market by:

(i)   Sex

The extent of female segregation into a relatively small number of low-paying occupations in the more developed countries has been documented recently by the United Nations (1980).   In general, a common pattern emerges whereby women are under-represented in professional and managerial categories, except for certain traditional "female" occupations as paramedics and teachers, and over-represented in occupations in the sales and service sectors, particularly as secretaries, clerks, shop assistants and charworkers or cleaners.   In Cyprus the picture is equally bleak, where it has been shown that only 18 of 87 ISCO occupations are responsible for 85 per cent of all female employment.   Again they largely fall in the above mentioned categories as well as constituting a significant proportion of those engaged in unskilled processing occupations (House and Stylianou, 1981).

Supply-side explanations of occupational segregation and low pay are generally put in a human capital framework.   The "new home economics" and its models of family decision-making has emphasised that the biological and traditional roles of women in maternity, child-care and home-tending, have given them a comparative advantage in these non-market activities, which are largely domestically produced.   As a result, female labour force attachment is substantially different from that of their husbands, and is subject to lengthy disruptions.   Because they spend fewer years in the labour force their productivity is said to be lower because their accumulated human capital is less than for a comparable male.   And if there is discrimination in the market from the demand side, which results in lower wages, their labour force participation

and, in turn, their accumulated human capital and productivity will be further reduced.

In order to explain occupational segregation human capital theorists then predict that women choose to enter occupations which do not reward work experience, but equally, do not penalise their discontinuities in the labour market. Hence, they exclude themselves from occupations requiring expensive and lengthy periods of general training for the professions. Meanwhile they are also excluded from firm-specific training programmes for executive positions by employers who bear the cost of such training and perceive high turnover rates for women.

Demand-side factors have already been touched upon. It is the initial occupational assignment of men and women to primary or secondary type jobs which eventually leads to occupational segregation of the sexes, resulting from "statistical discrimination" of employers.

Earlier, Becker (1957) appealed to the taste of employers to discriminate against women. Only when the wage of females relative to the male wage is low enough to compensate for the disutility suffered in hiring women are they employed. Trade union fear of women as a threat to job and home security has been held to play a role in barring women from certain occupations.

Since sex-change remains a very rare phenomenon it can be taken for granted that sex is truly an exogenous factor along the lines of which the labour market may be segmented. In the following investigation of segmentation by sex, the results will yield unbiased estimates of the parameters in the separate earnings functions of males and females.

(ii) Public v. private sector of employment

The operation of the public sector in most countries is distinguished from the private sector by the nature of its operating environment, which is largely marked by the absence of strict market forces. In the public sector the profit constraint of the private sector is replaced by an ultimate political constraint. The wages of

public sector workers ultimately depend on their ability to compete with other interest groups over the allocation of the budget and with taxpayers over the size of the budget (Gunderson, 1979, p. 230). The services provided by the public sector invariably face a demand curve which is relatively inelastic so that acquiescence to wage demands can be passed on to consumers in the form of price increases with little consequence for output and employment. The private sector may provide a floor rather than a ceiling for public sector wages.

Another feature of the public sector which might help to raise its wage levels is the extent of professionalisation and unionisation which retard the use of substitute inputs. Employment security has traditionally been granted to avoid political influence and patronage, which gives the public sector the appearance of a model employer. In turn the tax and borrowing powers of government give a margin of discretion to absorb wage increases without having to use substitute inputs or reduce public services (Gunderson, 1979, p. 231).

Another consideration is that the public sector may feel a certain obligation to reward individuals according to their perceived productivity, regardless of sex, so that the second hypothesis we wish to test is that there is no wage discrimination based on sex in the public sector, or at least such discrimination is less than in the private sector. Of course, occupational discrimination may lead women into the lower paying jobs, which would be reflected in lower average wage levels.

There is less of a means of measuring individual productivity in the public sector, given the nature of the outputs. Greater stress may be placed on credentialism. Individuals may be rewarded and promoted on the strength of their academic qualifications and in general, public sector employment may be marked by more formalised incremental pay structures and promotion ladders. We would expect the rewards to age and experience to be greater in the public sector and differences in the returns to education between the sexes to be less than in the private sector.

Therefore, the over-all hypothesis to be tested is that the labour market in Cyprus is demarcated along public-private sector lines, and that this results in differential returns to such human capital factors as experience and education. And because of its role as a model employer the extent of sex discrimination will be less than in the private economy.

(iii) Firm size

In addition to the set of institutional factors, such as monopoly and union power, government wage policies, imperfect information flows and "tradition", the profit seeking private sector may also recognise the productivity-enhancing effect of a high wage policy. Mazumdar (1981) has suggested that an increase in wages per worker in certain firms will increase labour productivity more than proportionately to the cost, so that wage costs per unit of labour fall. This wage-efficiency relationship is more likely to hold in manufacturing and service sectors utilising "modern" technology, where it is essential to attract a more responsive and structured labour force. If the size of firm positively correlates with modern technology and a more formally structured workforce, then we might expect to find the private sector labour market segmented along the lines of firm size.

Because of the operation of internal labour markets, with well defined entry points and promotion ladders, and the importance of on-the-job experience, we would expect to find great difficulties encountered by persons wishing to enter highly-skilled primary jobs from outside the public sector, after their early post-graduation years. At the same time, such formalised procedures for entry and promotion are expected to be positively correlated with firm size in the private sector, such that a significant degree of immobility from smaller to larger-sized firms is predicted. Given that firm size proxies for the type of technology employed and the kind of specialised training gained through in-firm experience, it is hypothesised that such experience in smaller enterprises will be least amenable to transfer to the higher-scale technology of larger firms.

The argument does not, of course, rule out the possibility of worker mobility between firms within the same or adjacent size-class.

4. Evidence of Immobility Between the Segments in Cyprus

The use of a person's sex as an exogenous identifying factor in the segmentation process is unequivocal. However, our other proposed identifying factors in the labour market are clearly endogenous and it becomes necessary to examine evidence of the extent to which workers in the low wage segments, the private sector and small firms, are able to move into the higher paid public sector and larger-size firms. As Fields (1980) complains, nearly all of the previous studies on LMS to date have ignored the issue of job mobility between segments, with the result that their estimation of separate earnings functions for each segment is not legitimate.

(i) Mobility between the private and public sectors

In order to estimate mobility, or its absence, between the private and public sectors ideal data for individual workers would involve knowledge of all their previous jobs and employers, identified by sector, over their working lives. Clearly, such a detailed body of data remains impossible to obtain even in countries where data collection techniques are most advanced.

In Cyprus, the 1979 Wages and Salaries Survey (Republic of Cyprus, 1979) collected information from over 38,000 randomly selected wage and salary earners, representing over 20 per cent of the island's labour force or about one-third of all employees. In addition to the usual demographic information on age, sex and education, the survey obtained the number of years each worker had been employed in the current enterprise. While such information is far from ideal, in the sense that it remains impossible to account for mobility between firms in the private sector, it does allow an estimate to be made of public sector employment continuity for each age cohort.

The hypothesis to be tested is that entry points into the high wage public sector are severely restricted to the early years in a

worker's career. At this juncture applicants are screened by such easily observable characteristics as sex and education. This process will be especially relevant to primary-level jobs, those holding the greatest potential for occupational and earnings advancement.

Table 2 reports the average number of years of work experience in the public sector, by age-group, sex and work status. For purposes of comparison, mean years of work experience of those employed with private sector firms are also included in the table.

For both male and female wage and salary earners, mean years of service are much larger in the public sector than with the current private sector firm. For example, the average public sector salaried male employee aged 50-54 has 23 years of service, illustrating the lack of turnover in this sector. Salaried female employees appear equally committed to public sector employment. Wage earners, who form a small part of the public sector workforce, have lower mean years of service than their salaried colleagues, but for both sexes, their length of service exceeds comparable private sector wage-earners. The strength of this employee commitment is even more evident in table 3, which examines the distribution of experience of public sector salaried employees by age-group. For example 60 per cent of salaried males aged 30-34 have at least 9 years of service and only 12 per cent have been in the public sector for less than 5 years. Similarly, 78 per cent of the male age-group 45-49 have been continuously employed in the sector for at least 15 years, and only 3 per cent for less than 5 years. Analogous profiles are evident for female salaried employees in the public sector.

The evidence suggests that the vast majority of public sector employees tend to enter service within five years or so of completing full-time education and to maintain a lifetime commitment to their employer. Only in a small number of cases is it possible to find a public sector employee, especially a highly paid salaried person, entering the government service after the age of 35 years. Indeed, in table 3, only 3.5 per cent of all those over the age of 35 had been employed in the sector for less than 5 years. Semi-public and public sector employment appears to be protected or segmented from encroachment by new recruits from outside the sector.

Table 2: Mean years of experience in the public sector and with current firm in the private sector, by age-group, sex and work status

Age-group	Public				Private			
	Males		Females		Males		Females	
	Wage Earners	Salaried	Wage Earners	Salaried	Wage Earners	Salaried	Wage Earners	Salaried
14 – 19	2	1	2	1	1	1	2	1
20 – 24	2	2	2	2	2	2	3	3
25 – 29	4	5	5	6	4	4	5	5
30 – 34	6	9	3	10	5	7	5	9
35 – 39	7	14	4	14	7	11	5	10
40 – 44	8	18	6	18	8	15	4	10
45 – 49	9	20	8	18	8	17	4	8
50 – 54	10	23	8	23	8	17	4	7
55 – 59	11	24	11	26	8	19	5	8
60+	11	22	11	25	7	17	5	9
Mean	9	15	8	11	6	10	4	6
No. of Observations	1786	5718	362	1544	9357	9275	5891	4898

Source: Republic of Cyprus, Survey of wages, salaries and hours of work, 1979 (Department of Statistics and Research, Nicosia).

Table 3: Percentage distribution of years of experience of public sector salaried employees, by age-group and sex

Experience	Age Group																			
	14-19		20-24		25-29		30-34		35-39		40-44		45-49		50-54		55-59		60+	
	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F	M	F
<3	100	100	82	60	28	15	5	3	2	3	1	2	2	4	2	–	3	–	5	–
3 – 4	–	–	15	32	15	17	7	5	2	2	1	2	1	8	1	3	2	–	6	–
5 – 6	–	–	3	8	27	22	11	9	3	5	1	3	1	1	1	4	1	–	–	–
7 – 8	–	–	–	–	24	28	17	15	6	7	3	6	3	3	3	8	2	–	3	–
9 – 11	–	–	–	–	6	18	27	29	14	16	6	7	6	8	5	3	6	5	9	–
12 – 14	–	–	–	–	–	–	26	26	27	13	12	4	9	5	6	6	9	–	12	–
15 – 17	–	–	–	–	–	–	7	13	24	26	15	7	9	6	6	8	3	–	6	25
18 – 20	–	–	–	–	–	–	–	–	18	22	20	26	12	12	8	9	7	21	6	–
21+	–	–	–	–	–	–	–	–	4	6	41	43	57	53	68	59	67	74	53	75
Total	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100	100
No. of Observations	1	14	189	207	632	312	1128	384	1126	283	988	190	654	66	512	65	454	19	34	4

Source: Republic of Cyprus, Survey of wages, salaries and hours of work, 1979 (Department of Statistics and Research, Nicosia).

Apart from a formalised set of promotion ladders within the internal labour market this protection is rigidly enforced by the system of rules for hiring and promotion laid down by the strong trade union of civil servants. Such procedures prohibit, for all practical purposes, entry to the public sector other than at the bottom of the professional grades. At the same time, high pay and generous fringe benefits, as well as the guarantee of permanency, all ensure that once the initial barrier to entry has been overcome, very few employees leave before retirement age. Meanwhile job applicants for any single public service opening invariably run into the hundreds.

(ii) Mobility between size classes of firms

As elsewhere, individual longitudinal data on worker mobility are lacking in Cyprus. In order to build up a profile of job movements over time, particularly between different size firms, it is necessary to rely on available cross-section data collected in the 1975 and 1979 Wages and Salaries Survey. In 1975 information on over 25,000 randomly selected employees was collected, while an expanded survey in 1979 included over 38,000 employees. Almost 14,000 persons were common to both surveys and it is possible to trace their movements between firms of different sizes over the 1975-1979 period.

While relatively short in length this 4-year period was one of great reconstruction following the 1974 war, when the economy underwent considerable structural change, and economic growth rates reached double digits in some years. It might be expected, therefore, that job turnover and labour mobility would be very high during this period of dynamic change. However, of all those persons who were located in both the 1975 and 1979 surveys, 81 per cent had not changed their size class of firm during the period, as shown in table 4. And where changes occurred they were largely between adjacent size classes, invariably from a lower size class to that class

immediately above. Movements from the smallest two size classes of firms to the largest two classes were very infrequent.[1]

Table 4: Distribution percentage of employees by their size class of firm in 1975 and 1979

Size Class in 1975	Size Class in 1979						
	1-9	10-19	20-49	50-99	100+	Total	No. of Observations
1 - 9	58	20	12	3	7	100	311
10 - 19	5	45	34	9	7	100	549
20 - 49	1	5	60	25	9	100	1407
50 - 99	0	2	11	56	31	100	1511
100+	1	1	4	3	91	100	9929

Source: Derived from Republic of Cyprus, Surveys of wages, salaries and hours of work, 1975 and 1979 (Department of Statistics and Research, Nicosia).

Additional information on worker mobility, albeit an indirect one, is revealed in the age distribution of employees by size class of firm. If the labour market is freely competitive in the text-book sense, with access to the higher paying jobs in the largest size firms relatively open, we might expect to find the poorly paying smaller firms with a concentration of very young workers and by contrast, older workers making up the majority in the largest firms. Such an age distribution would arise if internal labour markets in the larger firms were not so structured that, after some initial years of training in small plants, employees graduated to the high wage jobs in very large firms.

Table 5 shows the age distribution of male workers in 1979, disaggregated by salary and wage earners and by firm size. While

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[1] Of course the movements that are observable in table 4 do not necessarily reflect changes in workers' employers. The firm of employment itself may have changed its size class during the period. Therefore, the mobility registered in table 4 represents the upper limit on changes between firms of different size and actual movements between employers of different size are likely to be considerably lower.

there is a distinct tendency for smaller firms to engage a younger workforce of wage earners, the age distribution of salary earners is remarkably similar across size classes of firms. And it is expected that within the market for better paid salaried workers we might find more formalised procedures for hiring and promotion, leading to immobility. At the same time the market for relatively unskilled wage earners could be expected to operate with less inflexibility, reasonably unhindered by such institutional barriers to mobility.

The inference that labour markets in Cyprus are differentiated along lines of firm size is confirmed by an examination of the distribution of firm experience by firm size. If workers were able to leave the smaller firms for better paid jobs we might expect to find shorter average firm experience amongst workers in these firms. At the same time larger firms should contain a predominance of longer-serving employees. From unreported tabulations from the 1979 wages survey, however, it was discovered that small firms have a lower proportion of short-serving workers, and compared with size classes 20-49 and 50-99, they have a greater proportion of more experienced employees.[1]

These results suggest, therefore, that a considerable number of workers who begin life in smaller operations find great difficulties in moving on the jobs in the larger and higher paying firms. Since there are exceptions it cannot be claimed that LMS by firm size is as well defined as that by sex and the public/private dichotomy. Nevertheless, since there remains a considerable degree of immobility, particularly from those firms with less than 20 employees to larger firms, a treatment of LMS by firm size appears justified.

The evidence in this section implies that the Cyprus labour market is segmented to a large degree along the lines of sex, public/

[1] For example, while 33 per cent and 35 per cent of male employees in size classes 1-9 and 10-19 respectively have less than 3 years of firm experience, this proportion is 49 per cent and 37 per cent in the size classes 50-99 and 100+ respectively. Meanwhile 12 per cent of male workers in the smallest size classes have more than 18 years of service and the proportion is 11 per cent and 17 per cent in the largest two size classes respectively.

Table 5: Age distribution of male employees, wage earners and salary earners, by firm size

Age Group	Size Class									
	Salary Earners					Wage Earners				
	1-9	10-19	20-49	50-99	100+	1-9	10-19	20-49	50-99	100+
14 – 19	1	1	1	2	1	9	7	5	6	3
20 – 24	9	12	13	14	13	17	20	14	17	14
25 – 29	19	17	17	17	17	17	16	13	14	13
30 – 34	18	19	17	16	18	17	14	14	13	11
35 – 39	14	12	12	12	12	10	9	10	10	9
40 – 44	12	13	13	12	12	8	8	9	9	10
45 – 49	8	8	8	10	8	5	7	7	7	9
50 – 54	7	5	7	6	8	7	5	8	8	9
55 – 59	4	5	5	5	5	5	6	8	6	9
60+	8	8	7	6	6	5	8	12	10	13
Total %	100	100	100	100	100	100	100	100	100	100
No. of observations	477	757	1834	1430	4780	534	751	1625	1541	4908

Source: Republic of Cyprus, Survey of wages, salaries and hours of work, 1979, (Deparment of Statistics and Research, Nicosia).

Table 6. Earnings Functions by Sex, Public/Private Sector of Employment and Firm Experience

	FEXP 2-5 YEARS				FEXP 6-10 YEARS				FEXP 11+ YEARS			
	PUBLIC		PRIVATE		PUBLIC		PRIVATE		PUBLIC		PRIVATE	
	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES	MALES	FEMALES
ILIT	-.087 (.07)	.085 (.11)	.052 (.03)	.021 (.03)	.022 (.09)	.042 (.13)	-.037 (.06)	-.044 (.04)	-.102** (.05)	-.026 (.07)	-.249* (.06)	.078 (.05)
SECINC	.125** (.05)	.250** (.11)	.071* (.01)	.022 (.02)	.165* (.03)	.669* (.13)	.122* (.02)	-.028 (.04)	.164* (.02)	.436* (.05)	.122* (.02)	-.034 (.06)
SECGEN	.357* (.03)	.490* (.05)	.139* (.01)	.166* (.01)	.390* (.03)	.728* (.05)	.328* (.02)	.294* (.019)	.331* (.01)	.458* (.04)	.467* (.01)	.479* (.02)
SECTEC	.309* (.04)	.599* (.17)	.198* (.02)	.169* (.06)	.455* (.03)	.575* (.12)	.312* (.03)	.380* (.10)	.361* (.03)	.340 (.22)	.406* (.04)	.517* (.18)
VOCED	.396* (.06)	.577* (.07)	.334* (.02)	.554* (.02)	.497* (.04)	.794* (.06)	.287* (.06)	.487* (.05)	.283* (.02)	.459* (.04)	.325* (.07)	.565* (.07)
PSEC	.873* (.05)	.560* (.06)	.480* (.03)	.588* (.04)	.654* (.04)	.844* (.06)	.643* (.03)	.607* (.08)	.505* (.02)	.643* (.05)	.698* (.03)	.548* (.08)
DEGS	.945* (.04)	1.012* (.06)	.777* (.02)	.664* (.04)	1.074* (.03)	1.315* (.06)	.887* (.03)	.830* (.07)	.952* (.02)	.949* (.05)	.776* (.03)	.436* (.08)
FEXP	.035* (.01)	.017* (.01)	.021* (.01)	.037* (.01)	.036* (.01)	.014* (.01)	.018* (.004)	.033* (.01)	.015* (.001)	.023* (.002)	.012* (.001)	.021* (.002)
EXPTOT	.023* (.01)	.012* (.004)	.030* (.001)	.016* (.001)	.032* (.01)	.022* (.01)	.041* (.002)	.007* (.003)	.046* (.002)	.010** (.005)	.045* (.002)	.010** (.004)
EXPTSQ[1]	-.357* (.04)	-.287* (.08)	-.489* (.02)	-.287* (.02)	-.520* (.05)	-.327* (.09)	-.654* (.04)	-.132* (.05)	-.792* (.04)	-.310* (.08)	-.690* (.03)	-.102* (.07)
CONSTANT	6.848	6.819	6.946	6.531	6.710	6.590	6.741	6.590	6.850	6.947	6.672	6.671
R^2	.510	.643	.326	.225	.602	.672	.390	.298	.609	.676	.457	.480
F	118.7	74.2	293.8	134.0	229.2	105.3	183.3	71.4	666.1	164.7	413.6	120.0
N	1134	408	6063	4593	1510	511	2854	1662	4266	787	4907	1293
Mean LnW	7.477	7.374	7.425	6.856	7.736	7.613	7.586	7.047	8.003	7.820	7.803	7.336

NOTES: * Significant at 1% level; ** Significant at 5% level.
1 Coefficient and standard errors multiplied by 1000.
Source: Republic of Cyprus: Based on Survey of Wages, Salaries and Hours of Work, 1979 (Department of Statistics and Research, Nicosia)

private sector of employment and firm size.   In this case, the estimates of the parameters of separate earnings functions for each segment will be unbiased.

5.   Earnings Functions in the Various Segments

(i)   By public/private sector and sex

Separate earnings functions were estimated for males and females in the public and private sectors and are reported in table 6.   In order to capture any non-linearities present in the relationships the sample was stratified further by years of experience with the firm. In this way earnings function for workers who are relatively immobile are under review.   The explanatory variables include measures of human capital, including formal education and work experience, both within the firm and potential years of experience from graduation to the time of the survey.   These variables are defined as:

LnW: Natural logarithm of annual earnings, the dependent variable

ILIT: Dummy variable equals 1 if employee never attended school; 0 otherwise

PRIM: Dummy variable equals 1 if employee terminated education at primary level; 0 otherwise.   This is the class excluded from the equations.

SECINC: Dummy variable equals 1 if employee attended but did not complete secondary school; 0 otherwise.

SECGEN: Dummy variable equals 1 if employee terminated school after secondary level; 0 otherwise.

SECTEC: Dummy variable equals 1 if employee terminated school after secondary technical school; 0 otherwise.

VOCED: Dummy variable equals 1 if employee underwent vocational blue-collar training; 0 otherwise.

PSEC: Dummy variable equals 1 if employee underwent vocational white-collar training; 0 otherwise.

DEGS: Dummy variable equals 1 if employee attended university; 0 otherwise.

FEXP: Years of experience with the firm.

EXPTOT: Years of potential employment experience, defined as: Age-Years of Education -6.   This assumes the employee began school at age 6.

EXPTSQ: Years of potential employment experience squared.

We wished to test the earnings functions of table 6 for significant differences between the sexes and between the public and private sectors. Using the standard Chow test (Johnston, 1972) for this purpose table 7 reports the resulting F-statistics, which are all highly significant. Ceteris paribus both males and females earn significantly more in the public sector than in the private sector while males receive higher annual earnings than females in both the public and private sectors. These conclusions hold across all three categories of firm experience.[1]

Table 7: F-statistics for tests of significance of difference in earnings functions

		Males	Females
Differences between:			
Public/private:	FEXP 2-5	16.0	83.4
	FEXP 6-10	11.9	51.3
	FEXP 11+	41.7	49.7
		Public	Private
Differences between:			
Males/females:	FEXP 2-5	21.0	853.5
	FEXP 6-10	19.9	215.0
	FEXP 11+	45.6	155.1

Note: All F-statistics are highly significant at the 1 per cent level. The critical value of F is 2.32.

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[1] For example, consider graduates aged 28, 34 and 42 years with 4, 8 and 15 years of firm experience respectively and 16 years of education. The public/private, male/female earnings differentials calculated from the equations in table 6 are as follows:

Earnings differential (%)		Male	Female
Public/private	FEXP = 4	9	70
	FEXP = 8	24	62
	FEXP = 15	46	109
		Public	Private
Male/female	FEXP = 4	10	72
	FEXP = 8	16	52
	FEXP = 15	37	96

Clearly, the greatest earnings differentials by sex occur in the private sector, while the public/private differential is largest for females.

In table 6 most of the earnings differential between the sexes in the public sector arises from the higher returns to men for both tenure in current employment and potential experience.   Men appear to have greater opportunities for upward mobility in terms of occupation and pay as their service increases.   In contrast, however, the returns to female education levels over the excluded primary level exceed those for males.   An additional source of male advantage in the public sector arises from the larger constant term for two of the three sets of equations, representing the returns to uncontrolled factors as well as pure discriminatory payments to males.   The greater rewards to men in the private sector are largely attributable to an even wider difference in the constant terms of the male and female earnings functions, which are also enhanced by the greater returns to men for attaining higher education.   Again this suggests constraints on occupational mobility for better educated women in the private sector which in part reflect discriminatory promotion practices by employers.[1]   The advantage women enjoy in terms of rewards for job tenure are more than outweighed by the male advantage in returns to over-all potential employment experience.[2]

The public sector pay differential for both sexes arises largely from higher returns to education, for the groups with up to 10 years of firm experience.   This likely reflects the more formalised system of educational credentialism in the sector.   For males the public sector rewards tenure more than the private sector, the latter's advantage arising from general experience.   In the case of females, however, perhaps as a means of reducing job turnover firm-specific experience receives the largest returns from private employers.

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[1]   As noted earlier it has been shown that 85 per cent of all women employed in Cyprus are located in only 18 of the 99 ISCO occupations (House and Stylianou, 1981).

[2]   Potential experience, in the way it has been defined, is likely to be a reasonably good proxy for actual experience in the case of male workers, whose labour force participation rates are generally very high.   Yet potential experience clearly overstates the actual work experience of females, whose participation is very sporadic over the life cycle because of maternity and domestic demands on their time.

The tendency for the returns to education for both sexes and sectors of employment to increase as firm tenure lengthens up to 10 years is worthy of comment.   In a recent paper Knight and Sabot (1981) attribute the increasing coefficient on education, as employment experience lengthens in Tanzania, to the more recently educated filtering down into lower level occupations, with occupational wage rates inflexible downwards.   This has occurred as the output of educational institutions in recent years has surpassed the capacity of the economy to absorb school-leavers into jobs formerly associated with a given level of education.   Cyprus has experienced rapidly rising standards of education in the period since Independence in 1960, such that the filtering down process may have begun in the last decade.   On the other hand, this result may also be partly explained by formally instituted internal labour markets which give the more educated greater opportunities for job and pay promotion over time, particularly in the public sector.[1]

(ii)   By firm size

Given the relatively few opportunities for mobility out of small firms and into the better paying larger firms it is hypothesised that the private sector labour market in Cyprus is segmented by firm size.   Although the lines of demarcation cannot be drawn with as much precision as in the case of sex and sector of employment, in the light of earlier evidence it seems apparent that firms with less than 20 workers form a distinct group.   In terms of their technology and general operating environment they should be treated differently from the group of larger firms.

Table 8 reports separate earnings equations for males in these two size categories of firms, again stratified by years of tenure,

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[1]   For those with more than 11 years of job tenure returns to education are sometimes smaller, although by no means insignificant, than for those with less tenure.   This suggests that educational credentialism may not have been so important in earlier years and that human capital accumulated through job experience was more important in gaining access to opportunities for promotion for older cohorts of workers.

Table 8: Earnings functions for males in the private sector, by firm size

	FEXP 2-5 years		FEXP 6-10 years		FEXP 11+ years	
	Size Class					
	1-19	20+	1-19	20+	1-19	20+
						*
ILIT	.077 (.11)	.044 (.03) *	.088 (.17) **	-.056 (.06) *	-.258 (.19)	-.253 (.06) *
SECINC	.055 (.04) *	.073 (.01) *	.130 (.06) *	.119 (.02) *	.033 (.05) *	.149 (.02) *
SECGEN	.149 (.03) *	.132 (.01) *	.321 (.04)	.316 (.02) *	.289 (.04) **	.498 (.01) *
SECTEC	.214 (.05) **	.189 (.02) *	.175 (.09) *	.300 (.03) *	.276 (.12)	.428 (.04) *
VOCED	.118 (.06) *	.351 (.02) *	.358 (.14) *	.271 (.06) *	.488 (.27) *	.307 (.07) *
PSEC	.533 (.08) *	.466 (.03) *	.628 (.10) *	.630 (.03) *	.376 (.10) *	.750 (.03) *
DEGS	.611 (.05)	.802 (.02) *	.897 (.06) **	.873 (.03) *	.551 (.07) *	.852 (.03) *
FEXP	-.003 (.01) *	.027 (.003) *	.024 (.01) *	.019 (.004) *	.008 (.002) *	.012 (.001) *
EXPTOT	.040 (.01) *	.028 (.001) *	.047 (.01) *	.039 (.002) *	.033 (.01) *	.046 (.002) *
EXPTSQ[1]	-.661 (.05)	-.458 (.02)	-.743 (.1)	-.627 (.04)	-.547 (.09)	-.687 (.04)
CONSTANT	6.851	6.965	6.534	6.786	6.886	6.658
$\bar{R}^2$	.264	.356	.374	.397	.242	.510
F	31.9	288.7	29.5	157.5	21.5	444.5
N	862	5201	478	2376	645	4262
Mean LnW	7.337	7.440	7.484	7.607	7.607	7.833
Chow-Test	F*=19.8		F*=6.0		F*=30.6	

Source: Republic of Cyprus, based on Survey of wages, salaries and hours of work, 1979 (Department of Statistics and Research, Nicosia).

which controls for non-linearities in the relationships. The Chow test results in F-statistics which are significant at the 1 per cent level in each case, indicating that wage functions are markedly different between small and large firms. In particular, the return to education rises with firm tenure in the largest firms, which suggests that the structured job ladders associated with internal labour markets are much in evidence in these firms. Occupational advancement is greatest for those with higher education in the largest firms. In the smaller firms, however, this is not so apparent. On the whole, for a given education level, the pay differential by firm size rises with tenure, and is much greater for the more educated.[1]

6. Conclusions

Earlier attempts to document labour market segmentation in various countries have often estimated earnings functions identified by such endogenous income-determining factors as occupation, industry, firm size and sector of employment. Without exploring the extent to which workers in the low-wage segment can move and

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[1] For example, from the estimated regressions in table 8 pay differentials between the two size categories of firms for the education groups Secondary General and Graduates are as follows:

	Firm tenure					
	2-5		6-10		11+	
	Size class					
	1-19	20+	1-19	20+	1-19	20+
Secondary General:	£1513	£1701	£2016	£2247	£2373	£3116
Pay Differential:	12%		11%		31%	
Graduate:	£2135	£3061	£3229	£3600	£2976	£4168
Pay Differential:	43%		11%		40%	

These calculations assume a 28 year old has 4 years of firm experience; a 34 year old has 8 years of firm experience and a 42 year old has 15 years of firm experience in the categories 2-5, 6-10 and 11+ years of tenure respectively. Those with secondary general education have on average, 12 years of schooling while graduates have 16 years.

gain access to the high-wage functions over their lifetimes the results of such analyses remain open to criticism.   In addition, the under-lying operations of the labour market by which access is gained to the more desirable segments have generally been ignored.

This paper has concentrated on the small Cyprus labour market and established LMS exists by sex, an exogenous factor beyond the realm of individual choice, and by public/private sector of employment.   Earnings differences between males and females are very large, particularly in the private sector, after controlling for various measures of human captial.   The much smaller differentials in the public sector suggest that, while not being beyond reproach, recruitment and promotion policies in the sector are much less open to the charge of being discriminatory than the private sector.

The evidence presented here suggests that pay and employment conditions are rigorously protected from encroachment by infiltration from outside.   The degree of mobility into the sector's professional ranks after the age of 30 is negligible.   Before then, the queue for entry onto the lower rungs of the public sector job ladder is very long and screening of applicants invariably takes a form of educational credentialism.   In general, graduates from British and North American universities are preferred to those from Greece and Eastern Europe.

The public sector's role as wage leader, apart from giving rise to earnings differentials between seemingly identical individuals, may also be a factor contributing to a growing problem in Cyprus. Unemployment amongst third-level education graduates has increased considerably in recent years and this group alone now constitutes nearly one-quarter of all the unemployed.   The situation is likely to worsen in the near future as young Cypriots are induced to seek expensive post-secondary education overseas in the expectation of securing one of the highly prized jobs in the public sector on their return.

It is much more difficult to document immobility between firms of different size in the private sector.   As was shown earlier some

movements take place largely between firms in adjacent size classes. On the whole movements were quite restricted between small and large firms over a four-year period of dynamic growth. In addition the age and firm tenure distributions of employees are quite similar, especially for salaried employees, between small and large firms. It has been suggested that the extent of LMS by firm size is partly explained by differences in the kinds of technology and modes of operation of the different categories of firms. Human capital acquired through experience in small firms may not be easily transferred to the higher-paying, larger scale firms. The exact demarcation of firm size, where barriers to mobility become prohibitive, remains necessarily rather ill-defined. Apparent differences in the nature of pay and conditions of employment between firms in the less than 20 and more than 20 employees size classes resulted in our choice for stratifying the sample. To the extent that mobility between these two categories of firms is restricted our estimated regression coefficients in the separate earnings functions will be unbiased.

References

Becker, G.S. (1957): The economics of discrimination (Chicago, Chicago University Press).

Blau, F. and Jusenius, C. (1976): "Economists' approaches to sex segregation in the labour market: An appraisal" in Blaxall, M. and Reagan, B: (eds.) Women and the workplace: The implications of occupational segregation (Chicago, University of Chicago Press).

Fields, G.S. (1979): How segmented is the Bogota Labour Market?, World Bank Staff Working Paper No. 434 (Washington, D.C., Development Economics Department).

Gunderson, M. (1979): "Earnings differentials between the public and private sectors" in Canadian Journal of Economics, May, Vol. XII, No. 2.

House, W.J. and Stylianou, O. (1981): Population, employment planning and labour force mobility in Cyprus, (Nicosia, Department of Statistics and Research, Ministry of Finance; mimeo).

Knight, J.B. and Sabot, R.H. (1981): "The returns to education: Increasing with experience or decreasing with expansion" in Oxford Bulletin of Economics and Statistics, February, Vol. 43, No. 1.

Mayhew, K. and Rosewall, B. (1979): "Labour market segmentation in Britain" in Oxford Bulletin of Economics and Statistics, May, Vol. 41, No. 2.

Mazumdar, D. (1981): The urban labour market and income distribution: A study of Malaysia (Oxford, Oxford University Press).

Population Reference Bureau, Inc. (1981): World population data sheet (Washington, D.C.).

Republic of Cyprus (1975): Survey of wages, salaries and hours of work (Nicosia, Department of Statistics and Research).

Republic of Cyprus (1979): Survey of wages, salaries and hours of work (Nicosia, Department of Statistics and Research).

Republic of Cyprus (1980): Manpower survey 1979 (Nicosia, Department of Statistics and Research).

Republic of Cyprus (1981): Economic report 1979 (Nicosia, Department of Statistics and Research).

United Nations (1980): The economic role of women in the ECE region (New York, United Nations).

Selected Publications of the Population and Labour Policies
Research Programme[1]

1.   General Material on the Research Programme

ILO: World Employment Programme: Population and development - A progress report
     on ILO research with special reference to labour, employment and income
     distribution (Geneva, January 1981), 3rd edition, Reference WEP 2-21/PR.6.
     (*)

     This report includes a full bibliography.   This publication
(3rd edition, summer 1981) is available in French. (*)

2.   Books and Monographs

R. Anker: Research on women's roles and demographic change: survey question-
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R. Anker and M. Anker: Reproductive behavior in households of rural Gujarat:
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     1982). (***)

R. Anker, M. Buvinic and N. Youssef: Women's roles and population trends in the
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R.E. Bilsborrow: Surveys of internal migration in low-income countries: Issues
     of survey and sample design (Geneva, ILO, 1981). (*)

---: Surveys of internal migration in low-income countries: The need for and
     content of community-level variables (Geneva, ILO, 1981). (*)

S. Braganca et al: The simulation of economic and demographic development in
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M.G. Castro, L.M. Fraenkel et al: Migration in Brazil: Approaches to analysis
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W.J. House and H. Rempel: The Kenya employment problem (Nairobi, Oxford
     University Press, 1978). (***)

A.S. Oberai: Changes in the structure of employment with economic development
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---: Migration, production and technological change: Analytical issues and
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M. Rasevic, T. Mulina, Milos Macura: The determinants of labour force partici-
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---: <u>Income transfers and remittances: A module for migration surveys</u> (Geneva, ILO, 1981).   (*)

---: <u>Migrants and the labour process: A module for migration surveys</u> (Geneva, ILO, 1981).   (*)

---: <u>Unemployment and female labour: A study of labour supply in Kingston, Jamaica</u> (London, Macmillan, 1981).   (***)

G. Standing and G. Sheehan (eds.): <u>Labour force participation in low-income countries</u> (Geneva, ILO, 1978).   (**)

G. Standing and R. Szal: <u>Poverty and basic needs</u> (Geneva, ILO, 1979).   (**)

M. Todaro: <u>Internal migration in developing countries</u> (Geneva, ILO, 1976). (**)

3.   Articles

I. Adelman, M.J.D. Hopkins, S. Robinson, G.B. Rodgers and R. Wéry: "A comparison of two models for income distribution planning", in <u>Journal of Policy Modeling</u>, 1979, Vol. 1, No. 1.

R. Anker: "The effects of group level variables on fertility in a rural Indian sample", in <u>Journal of Development Studies</u>, October 1977, Vol. 14, No. 1.

---: "An analysis of fertility differentials in developing countries", in <u>Review of Economics and Statistics</u>, February 1978, Vol. 1x, No. 4.

R. Anker and G. Farooq: "Population and socio-economic development: The new perspective", in <u>International Labour Review</u> (Geneva, ILO), 1978, Vol. 117, No. 2.

R. Anker and J.C. Knowles: "An empirical analysis of mortality differentials in Kenya at the macro and micro levels", in <u>Economic Development and Cultural Change</u>, October 1980, Vol. 29, No. 1, pp. 165-85.

W.J. House and H. Rempel: "Labour market pressures and wage determination in less developed economies", in <u>Economic Development and Cultural Change</u>, 1978.

J.C. Knowles and R. Anker: "An analysis of income transfers in a developing country: The case of Kenya", in <u>Journal of Development Economics</u> (Amsterdam, North Holland), 1981, Vol. 8, pp. 205-226.

A.S. Oberai: "Migration, unemployment and the urban labour market", in <u>International Labour Review</u> (Geneva, ILO), March-April 1978, Vol. 115, No. 2.

---: "State policies and internal migration in Asia", in <u>International Labour Review</u> (Geneva, ILO), March-April 1981, Vol. 120, No. 2, pp. 231-44.

A.S. Oberai and H.K. Manmohan Singh: "Migration, remittances and rural development: Findings of a case study in the Indian Punjab", in <u>International Labour Review</u> (Geneva, ILO), March-April 1980, Vol. 115, No. 2.

---: "Migration flows in Punjab's Green Revolution Belt", in <u>Economic and Political Weekly</u>, March 1980, Vol. XV, No. 13.

C. Oppong: "Household economic demographic decision-making: Introductory statement", IUSSP Proceedings of 1978 Helsinki Conference, 11 pp.

C. Oppong and E. Haavio-Mannila: "Women, population and development", in P. Hauser (ed.): World population and development: Challenge and prospects (New York, Syracuse University Press, 1979).

P. Peek and G. Standing: "Rural-urban migration and government policies in low-income countries", in International Labour Review (Geneva, ILO), November-December 1979, Vol. 118, No. 6.

J.L. Petrucelli, M.H. Rato, and S.L. Bragança: "The socio-economic consequences of a reduction in fertility: application of the ILO-IBGE national model (BACHUE-Brazil), in International Labour Review (Geneva, ILO), September-October 1980, Vol. 119, No. 5.

G.B. Rodgers: "Demographic determinants of the distribution of income", in World Development, March 1978, Vol. 6, No. 3.

---: "Income and inequality as determinants of mortality: An international cross-section analysis", in Population Studies, 1979, Vol. 33, No. 2.

---: "An analysis of education, employment and income distribution using an economic-demographic model of the Philippines", in Research in Human Capital and Development, 1981, Vol. 2, pp. 143-180.

G.B. Rodgers and G. Standing: "Economic roles of children in low-income countries", in International Labour Review (Geneva, ILO), January-February 1981, Vol. 120, No. 1.

R.P. Shaw: "Bending the urban flow: A construction-migration strategy", in International Labour Review (Geneva, ILO), July-August 1980, Vol. 119, No. 4.

G. Standing: "Aspiration wages, migration and urban unemployment", in Journal of Development Studies, January 1978, Vol. 14, No. 2.

---: "Migration and modes of exploitation: social origins of immobility and mobility", Journal of Peasant Studies, January 1981, Vol. 8, No. 2.

---: "Basic needs and the division of labour", in Pakistan Development Review, Autumn 1980, Vol. XIX, No. 3, pp. 211-235.

---: "The notion of voluntary unemployment", in International Labour Review, Sep.-Oct. 1981, Vol. 120, No. 5, pp. 563-579.

G. Standing and F. Sukdeo: "Labour migration and development in Guyana", in International Labour Review (Geneva, ILO), November-December 1977, Vol. 116, No. 3.

R. Wéry: "Manpower forecasting and the labour market", in International Labour Review (Geneva, ILO), May-June 1978, Vol. 117, No. 3.

R. Wéry, G.B. Rodgers and M.J.D. Hopkins: "Population, employment and poverty in the Philippines", in World Development, 1978, Vol. 6.

R. Wéry and G.B. Rodgers: "Endogenising demographic variables in demo-economic models: The BACHUE experience", in Pakistan Development Review, Autumn 1980, Vol. XIX, No. 3.

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