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BY

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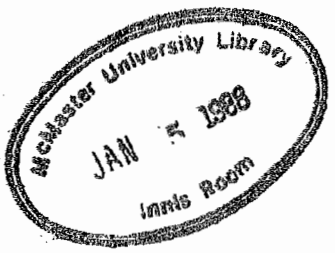

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SUBSYSTEMS IN THE DUAL LABOR MARKET

by

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SUBSYSTEMS IN THE DUAL LABOR MARKET

Abstract

This article presents a revision of the dual labor market theory by introducing subsystems based on full-time and part-time employment. Using Statistics Canada Survey of Union Membership data and dividing the primary and secondary markets into full-time and part-time subsystems, the author attempts to present that return on investment in human capital is different for full-time and part-time workers in each occupation and market segment. The results suggest the existence of subsystems in the dual labor market.

SUBSYSTEMS IN THE DUAL LABOR MARKET

In early 1970s, labor economists introduced the dual labor market (DLM) concept to analyze the structure of the labor markets[1]. Researchers argued that labor markets are divided into a primary market (PM) and a secondary market (SM). The PM is composed of occupations which provide "high wages, good working conditions, employment stability, chances of advancement and due process in the administration of work rules" (Doeringer and Piore 1971, p. 165). The SM occupations, in contrast, pay lower wages and benefits, have poor working conditions, high labor turnover, limited chance of advancement and often arbitrary management rules. Most of the workers in these occupations are low-skilled or unskilled. Unemployment and poverty are persistent characteristics of the SM (Cain 1976).

In an attempt to prove the existence of a segmented labor market, the dualists focus on the difference in earnings in each market segment and argue that wages in the PM and the SM are determined by different sets of factors. Workers in the PM increase their earnings by investing in human capital (Becker 1964), particularly through education and labor market experience. The theory of investment in human capital, however, does not apply to the workers in the SM. The dualists argue that wage determination process in the SM is primarily influenced by the employers' preferences, personal characteristics and institutional variables.

Several studies conducted in the U.S., U.K., Canada and Israel examined the existence of the dualism in labor markets. Empirical testing for the U.S. labor market was first attempted by Osterman (1975). He classified jobs into the upper- and lower-tiers of the PM, and the SM, and tested whether the wage determination process differed in each market. Following Osterman, other

researchers tested for the existence of the DLM by using various analysis methods, such as principal component analysis (Oster 1979), switching regression (Dickens and Lang 1985), and cluster analysis(Hodson 1983).

For the Canadian labor market Meng (1985) provided the most comprehensive analysis. He formulated a human capital model similar to Osterman's (1975) by using a sample of adult males in the Canadian labor force and reached to conclusions consistent with the DLM theory. Researchers in other countries also tested the DLM theory. Empirical testing of the DLM was confirmed for Israel's labor market (Neuman and Ziderman 1986), but had mixed results for the U.K. (McNabb and Psacharopoulos 1981).

Over the years, changes in the economy and the introduction of new technology, altered the structure of the labor market. New types of work, such as regular and temporary part-time work, worksharing, jobsharing and flexible work were introduced. These changes in turn necessitate a revision of the DLM theory. In this study, we first establish the existence of the DLM in the Canadian labor market, and further argue that within each market and occupation there is another category of segmentation consisting of full-time and part-time work[2]. Compared to full-time workers, part-time workers tend to earn lower wages and benefits, and have less job security even though they have the same skills and qualifications. Several studies (Labour Canada 1983; Zeytinoglu 1987; White 1983; Mangum, Mayall and Nelson 1985) have already pointed to the dichotomy between the employment conditions and wages of part-time and full-time workers in the same occupational group. This paper provides evidence that a segmentation of the labor market as suggested by the DLM theory does not suffice to account for all the existing discrepancies between occupations and therefore does not hold for contemporary labor markets.

Let us use a specific example to illustrate the necessity of introducing full-time and part-time subsystems to the DLM. First, we consider two nurses, one working full-time and the other part-time. Independent of their status, as full-time or part-time nurses, they both have the same qualifications and perform identical duties during the hours they work. However, in terms of all the indicators used in the DLM analysis, the full-time nurse receives preferential treatment over the part-time nurse. More specifically, the full-time nurse earns higher hourly wages, receives full benefits, and if all qualifications are equal, has priority in promotion decisions. Furthermore, the part-time nurse is more likely to be laid off prior to the full-time nurse[3].

We now consider a full-time and a part-time cashier working in the sales industry as representatives of a SM occupation. Compared to the nurses, whose working conditions are typical of a PM occupation, these cashiers are employed under less favourable conditions. They earn lower wages, and have less benefits and job security. More interestingly, the disparities in the relative working conditions of the full-time and the part-time cashiers show striking similarities to the difference between the employment conditions of the full-time and the part-time nurses. Therefore, we conclude that one's status either as a part-time or as a full-time worker affects the quality of employment (expressed in terms of the DLM analysis indicators) at a comparable level to the occupation one is engaged in. These examples motivate the introduction of subsystems to the DLM in an attempt to identify the internal mechanisms of the labor market that influence working conditions.

The purpose of this study is to illustrate that the DLM is not only segmented into the PM and the SM, but each market segment is further divided into full-time and part-time subsystems (See Figure 1). We hypothesize that

return on investment in human capital is different for workers in each subsystem, where:

a) the wage determination process in the full-time subsystem of the PM (SUBSYSTEM I) is positively influenced by investment in education and labor market experience;

b) human capital variables have less explanatory role in the earnings of the SM full-time workers (SUBSYSTEM III); and,

c) wages in part-time subsystems of the PM and the SM (SUBSYSTEMS II and IV) are not determined by investment in human capital but mostly by institutional variables and personal characteristics of the workers.

Insert Figure 1 here.

The remainder of this paper is organized as follows: Section 2 introduces the data and describes the methodology used in this study. Section 3 outlines the characteristics of the subsystem samples. We then proceed to display and to discuss the regression results in Section 4. In Section 5, we present our conclusions based on the regression results and make suggestions to improve the working conditions of the part-time work force.

2. DATA AND METHODOLOGY

Data

The data used in this study were compiled from Survey of Union Membership 1984[4] (SUM) conducted by Statistics Canada. The SUM contains data for three groups: i) those employed in the December 1984 reference week, ii) those who had a job in the reference week but not at work due to layoff, and iii) all others who worked at a paid job sometime in 1984. The survey was designed to allow estimation of union membership, hourly wage and employment status of full-time and part-time workers. It also provides information on the background and labor market status of the respondents. The analysis is restricted to a 25 percent random sample (4048 observations) of residents of Ontario.

This study uses the definition of part-time worker as adopted by Statistics Canada which considers those who work less than 30 hours per week to be part-time workers. This definition includes all those who work part-time on a regular basis in a work week (permanent part-time) as well as those that are casual (temporary) or seasonal workers.

Methodology

To prove the hypothesis of the subdivided DLM, this study will refer to human capital variables, institutional variables, as well as to personal characteristics.

The analysis of part-time and full-time subsystems will proceed in three stages.

1. Descriptive summary characteristics of the total sample and the subgroup samples will be presented.

2. Segmentation of the labor market and the distribution of part-time and full-time workers in each segment will be examined.

3. Multiple regression method will be applied to determine whether human capital variables, institutional variables or personal characteristics influence the wage determination process for full-time and part-time workers in the segmented DLM. Here, the expectation is to find human capital variables[5] to be significant factors in the wage determination process for the full-time subsystem of the PM. However, human capital variables are expected to be of diminishing influence on wages in the full-time subsystem of the SM and in both part-time subsystems.

The labor market division of occupations into the PM and SM is based on Blishen-McRoberts (1976) socioeconomic index for occupations that ranks 500 occupations by income, educational requirements and perceived social status. The PM consists of managerial and professional jobs as well as occupations with relatively lower social status that require less decision-making and education but nevertheless provide high income. The PM occupations are filled by a mostly unionized work force. 80 percent of the occupations in the Blishen-McRoberts index fall into this category[6]. The SM occupations have the opposite characteristics of the PM occupations. They require minimal skill, pay low wages and are perceived as having low social status. Service, trade, farming, textile, apparel and food processing occupations fall into the SM. Occupational groups and their respective market segments are listed in Appendix 1.

To divide the sample into subsystems each respondent is coded according to his/her occupation and is placed into one of the two market segments. They are subsequently separated into full-time and part-time subsystems. The sample is not restricted to males as in other studies (such as, Osterman 1975; Neuman and Ziderman 1986; Meng 1985) but it also includes females such that the analysis is

based on a sample more representative of the population. As females dominate the SM occupations (Meng 1985; White 1983), their inclusion in the sample is necessary to obtain "unbiased" results.

Variables used in this study are presented in Table 1. The dependent variable is the natural log of hourly wages. Human capital variables are labor market experience, experience squared, present tenure (on the job tenure) and education. Previous studies (Osterman 1975) have used age and age squared to show the influence of age-earnings profile on wages. For females, however, age does not necessarily indicate work experience. Therefore, in this study labor market experience, experience squared and present tenure are simultaneously used with the assumption that the quadratic form of the labor market experience variable will give results similar to the age-earnings profile, and that present tenure will show the increase in wages if workers have continuous employment in the same company. In the analysis of part-time workers, total hours of work is excluded since hours worked and wages are generally found to be interdependent (Simpson 1986).

Personal characteristics are sex and marital status, and the institutional variable is the union membership. Industry variables are coded as nine dummy variables and are entered to control for earnings that may be influenced by the industry one works in.

Insert Table 1 here.

Regression Equation. In testing the hypothesis, the following equation is

estimated by the OLSE method for the PM, the SM, and for each subsystem (full-time primary market, part-time primary market, full-time secondary market and part-time secondary market):

$$\text{logwage} = \beta_0 + \beta_1 \text{ exp} + \beta_2 \text{exp}^2 + \beta_3 \text{ prten} + \beta_4 \text{ educ} + \beta_5 \text{ sex} + \beta_6 \text{ marstat}$$

$$+ \beta_7 \text{union} + \sum_{i=8}^{16} B_i \text{ industry}_i$$

The multiple regression analysis is conducted in two phases. Following the sample characteristics of previous studies that concentrate on prime workers (Meng 1985; Neuman and Ziderman 1986), only male married workers who are older than 16 years of age are considered and the influence of human capital variables on the earnings of this group is tested. In the second phase, the sample is not restricted to married males since labor market consists of male, female, married and single workers, who all tend to have a strong commitment to their work and workplaces[7]. Persons who were not in the labor force, who have not worked in the last five years prior to the survey date, students (16 years and younger), and those who did not report their wages are excluded from the analysis.

3. CHARACTERISTICS OF THE SAMPLE

The sample characteristics in each labor market segment is presented in Table 2. Overall, the PM and the SM sample characteristics fit into the general description of the DLM: the SM occupations pay less, employ less educated workers and have a low unionization rate, whereas the PM occupations display the opposite characteristics.

In particular, the SM workers are observed to be in the labor force for a longer period of time than the PM workers, but they have less tenure in the same company. The educational level of the SM workers is substantially lower than that of the PM workers. Part-time, female, single and nonunion workers are concentrated in the SM occupations.

that of the PM workers. Part-time, female, single and nonunion workers are concentrated in the SM occupations.

Part-time workers, with an average continuous employment of only one year with the same employer, tend to have less labor market experience than full-time workers. They are often employed on an irregular basis, and are more frequently dismissed than their full-time counterparts. Since the human capital theory emphasizes the importance of tenure in the wage determination process, we may infer that part-time workers will seldom benefit from wage increases due to tenure on the present job.

In terms of gender division, females dominate both part-time subsystems. Similar but less significant gender division is also observed between the PM and the SM workers. Majority of part-time workers in the PM are married, while it is the opposite for part-time workers in the SM. It is also interesting to note that the education level of part-time workers exceed that of full-time workers in both labor markets.

Unionization within the part-time sample in both market segments is very low. As unions are known to be instrumental in obtaining wage increases for their members (Freeman and Medoff 1984), the low unionization rate has a negative impact on the part-time workers' wages.

Insert Table 2 here.

The distribution of the PM and the SM within industries is similar to findings in earlier studies by Meng (1985) and Osterman (1975), and is presented in Table 3. This study, however, displays a larger percentage of workers in the SM occupations as the data includes females who constitute the majority of the SM and the part-time work force.

The SM occupations are mainly concentrated in the agriculture, trade and service industries, but are underrepresented in the relatively high paying, highly unionized transportation, utilities, communications, construction and manufacturing industries. These observations are equally valid for the full-time and the part-time samples of the SM.

Full-time workers in the PM are mostly employed in the above listed high paying, highly unionized industries, as well as in the forestry, fishing and mining, finance and public administration industries.

Table 3 displays a large concentration of part-time workers in the service and the white-collar dominated industries. These industries are the projected growth sectors of the economy. They are highly competitive and labor intensive. In order to remain competitive, since early 1980s employers have been introducing new labor-saving technologies that have redefined the occupational characteristics and the skills required from prospective employees. Consequently, a full-time job can be performed by several part-time workers without adversely affecting the quality of the final product. Thus, the demand for more services can be fulfilled with a readily available and less costly work force. On the other hand, industries that employ a small percentage of part-time workers are capital intensive and use skilled labor. Furthermore, the number of new jobs created in these industries are on the decline and the employers prefer to replace the blue-collar jobs with new technology and to operate with less but highly skilled work force.

Insert Table 3 here.

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4. RESULTS

A total of six regressions were run to test for the significance of personal characteristics, human capital and institutional variables in each of the PM, the SM, and in the full-time and part-time subsystems of these markets. The regression results are displayed in Table 4.

The PM and the SM regressions were restricted to prime (married and male) workers only. Thus the total number of samples used in these runs were reduced to 755. The results of the PM and the SM analyses based on the prime workers confirmed the DLM theory for the Canadian labor market. These results are presented in the first and fourth columns of Table 4.

The full-time and the part-time regressions were run on data with no gender and marital status restrictions. This data set consisted of 1903 samples. The regression results for full-time subsystems in each labor market conform closely to the human capital model; indicating that the wage determination process in these subsystems is primarily influenced by the human capital variables. In both part-time subsystems, however, the institutional variables and the personal characteristics exhibit higher explanatory power than the human capital variables. Overall, the estimated regression equations support the hypothesis of subdivided labor markets.

The present tenure variable representing continuous employment in the same work place is observed to have a significant and positive impact on wages of all workers independent of their employment status as full-time or part-time workers and the market they are employed in. This result suggests that the employers consider tenure on the job as an important factor in determining the wages of all workers. The frequently used labor market experience variable may not be a true indicator of the real labor market experience and tenure of a part-time worker, as the formula used in calculating labor market experience (see Table 1) does not take noncontiguous work periods common to part-time workers into

consideration. The SM workers (both full-time and part-time) have been in the labor force considerably longer than the PM workers. However, for the SM workers labor market experience has not been found to be a significant factor in the wage determination process. This observation indicates that in the SM occupations prior labor market experience does not contribute to workers' productivity or that it is not perceived as a critical element.

Being male is the only personal characteristic that is observed to have a significant effect on the earnings' profile in all subsystems. The only exception is in the part-time sample of the PM, where female workers dominate the work force.

Unionization is shown to be a significant institutional variable in all subsystems. Furthermore, in each part-time subsystem unionization has significantly higher impact on wages than in the corresponding full-time subsystem, as displayed by the respective coefficient estimates.

In summary, this study found that with the exception of on the job tenure, human capital variables do not influence the wage determination process in part-time subsystems. Part-time workers' wages are likely to increase only if workers have continuous employment in the same company. Although part-time workers have higher education level than their full-time counterparts, investment in education does not increase their wages. In contrast, a full-time worker can significantly improve his/her earnings by investing in education and by longer tenure on the present job.

Insert Table 4 here.

---

5. CONCLUSIONS AND POLICY IMPLICATIONS

In this paper we attempted to revise the DLM theory by introducing full-time and part-time subsystems into the PM and the SM. We tested the influence of human capital variables on wages to confirm the hypothesis that in each subsystem the return to investment in human capital are different.

Findings of this study indicate the existence of full-time and part-time subsystems in each market segment of the DLM, and that the earnings of full-time and part-time workers are influenced by a different set of variables. The wage determination processes in full-time subsystems, particularly in the PM, are primarily affected by the human capital variables, whereas in part-time subsystems it is influenced to a large degree by institutional variables and personal characteristics of the workers.

The study presents important implications for policy makers. It suggests that employers evaluate part-time work as secondary to the full-time work and pay accordingly low wages to part-time workers. Since labor force projections for Canada (Labour Canada 1987) indicate employment growth in part-time work and particularly in the SM occupations, and since most part-time workers are already employed under secondary conditions (even if they are in the primary market), we may predict that a majority of the work force will be employed in substandard employment conditions. A few studies focusing on the demand side have already concluded that employers prefer part-time workers for the flexibility and low labor costs they provide (Weeks 1984; Mangum, Mayall and Nelson 1985).

Amendments to labor laws to provide equality in wages and in employment conditions between full-time and part-time workers have been suggested by the others (see, for example, Labour Canada 1983). Although legislation can be an instrument to prevent possible discrimination, it cannot resolve all the problems that exist in the labor market, particularly if one recalls that

Ontario already has a law requiring equal pay for equal or substantially similar work.

Specific policies designed for part-time workers can achieve a balance in the earnings and employment conditions of part-time and full-time workers. The government can provide various support services ranging from subsidized day care facilities to skills upgrading programs. Such policies can be implemented with the cooperation of all the parties involved and will be effective only if costs are shared by the employers, employees and the government.

The government policies, however, have to be geared to the specific interests of two types of part-time workers: those who choose to work part-time and those who work part-time because they are unable to find a full-time job.

A substantial portion of the workers in our sample (41 percent) choose part-time work. Contrary to the general beliefs these workers are committed to their work. These workers should not be discriminated against because of the type of work they choose. They should be paid equally, receive prorated benefits and be subject to the same employment policies as full-time workers in the same occupation. The second group, those who work part-time because they cannot find full-time jobs (24 percent in our sample) are the most disadvantaged of all because they are forced to work in a type of job that they do not want or deserve. Government policies should particularly focus on these workers to retrain them for the newly created full-time jobs. Here, the focus should be on retraining, not necessarily on a formal education since most part-time workers already have higher formal training than full-time workers.

Lastly, employers' perceptions towards part-time workers should change. Employers should not consider part-time workers as a variable in the production process, but as an important component in the overall success of the organization. If they want to achieve efficiency and high quality production,

employers have to adjust their employment policies to the needs of part-time workers and treat all workers with same qualifications as equal.

Footnotes:

1. For a summary of the literature on segmented labor markets, see, Glen C. Cain, (1976), and for a critique of DLMs, see, Wachter (1974).
2. In discussing the internal labor markets, a related concept of segmentation in labor markets, Osterman (1987, 1982) also argues that subsystems exist in internal labor market firms. Reporting on the same topic Mangum, Mayall and Nelson (1985) suggest that dual internal markets exist in many firms.
3. The examples are based on the author's interviews with various union staff and refer to the 1984 agreements to provide consistency with the analysis of the data presented in this study.
4. All computations on these data was prepared by the author and the responsibility for the use and the interpretation of the data is entirely that of the author.
5. See variables section for an explanation.
6. Some studies (Osterman 1975; Meng 1985) divide the PM into upper-tier of the PM and lower-tier of the PM. Here, in order to present our hypothesis of subsystems more clearly we ignore such subdivision.
7. The author does not agree with the prime worker concept used in many studies. The concept is based on the nuclear family model which is not representative of the present day family structure. Now many households consist of single parent families as well as single person households. Therefore, one cannot limit the sample to married males and claim results which are representative of the population.

Figure 1. Subsystems in the DLM[a]

Rank of Occupations	Full-Time	Part-Time	
$occupation_1$			
$occupation_2$			
.	SUBSYSTEM	SUBSYSTEM	Primary
.			
.	I	II	Market
$occupation_N$			
$occupation_{N+1}$			
$occupation_{N+2}$	SUBSYSTEM	SUBSYSTEM	Secondary
.			
.	III	IV	Market
.			
$occupation_M$			

a Full-time subsystems consist of all workers employed in occupational groups I and III. Part-time subsystems consist of all workers employed in occupational groups II and IV.

Table 1: Definition of the Variables

logwage	natural log of wages
sex[a]	sex
marstat[b]	marital status
educ[c]	education
tohrswk	usual total hours worked
exp	labor market experience (defined as, age - educ - 5)
exp^2	experience squared
prten[d]	on the job tenure
typjob[e]	type of job
union[f]	union membership
industry[g]	
agr	agriculture (reference group)
ffm	forestry, fishing and mining
man	manufacturing
cons	construction
trans	transportation, communication and other utilities
trade	retail and wholesale trade
fin	finance, insurance, real estate
ser	community, business and personal services
publadm	public administration

sex[a]: 1 = Male, 2 = Female.

marstat[b]: 1 = Married, 0 = Single or other.

educ[c]: 0 = none, 1 = high school or above.

prten[d]: 1 = 6 months, 2 = 7-12 months, 3 = 1-5 years,
4 = 6-10 years, 5 = 11-20 years, 6 = over 20 years.

typjob[e]: 1 = full-time, 2 = part-time.

union[f]: 1 = union member, 2 = not a member.

industry[g]: 1 = if in that industry, 0 otherwise.

Table 2. Summary Characteristics of the Full-Time and Part-Time Subsystems in the PM and the SM (Means, standard deviations in parenthesis).

Variable	Primary Market			Secondary Market		
	All	Full-Time	Part-Time	All	Full-Time	Part-time
typjob	1.16	---	---	1.37	---	---
	(0.36)	---	---	(0.48)	---	---
exp	20.00	20.43	17.43	22.80	25.34	17.40
	(14.89)	(14.90)	(14.57)	(18.33)	(17.89)	(18.14)
prten	3.55	3.64	2.84	3.17	3.60	2.36
	(1.50)	(1.48)	(1.51)	(1.63)	(1.59)	(1.38)
educ	0.90	0.89	0.92	0.78	0.74	0.84
	(0.30)	(0.31)	(0.27)	(0.41)	(0.44)	(0.37)
sex	1.42	1.37	1.72	1.55	1.48	1.66
	(0.49)	(0.48)	(0.48)	(0.50)	(0.50)	(0.47)
marstat	0.70	0.72	0.58	0.58	0.69	0.41
	(0.46)	(0.45)	(0.50)	(0.49)	(0.46)	(0.49)
union	1.64	1.61	1.84	1.85	1.77	1.96
	(0.48)	(0.49)	(0.37)	(0.36)	(0.42)	(0.19)
wage	10.64	11.16	7.67	6.15	7.09	4.80
	(5.30)	(5.19)	(4.99)	(3.24)	(3.21)	(2.77)
Sample Size[a]	2129	1799	330	939	588	351

[a] Respondents did not reply all the questions. Therefore, in some questions sample size is smaller than indicated.

Table 3. Labor Market Segmentation and Subsystems.
(In percentages)

Industries	PM[a] FT[a]	PM[a] PT[a]	SM[a] FT[a]	SM[a] PT[a]	TOTAL[a] (FT&PT)
Agriculture	2	2	71	25	100
Forestry, Fishing, Mining	84	9	5	2	100
Manufacturing	83	2	14	1	100
Construction	87	9	4	0	100
Transportation, Utilities, Communications	85	10	5	0	100
Trade	38	15	28	19	100
Finance	75	13	8	4	100
Service	43	15	22	20	100
Public Administration	81	11	6	2	100
Average	59	11	19	11	
Overall Average	69		31		100

[a]PM: denotes primary market.
SM: denotes secondary market.
FT: denotes full-time workers.
PT: denotes part-time workers.

Table 4. Earnings Equations for the PM, and the SM, and Full-Time and Part-Time Subsystems

	PM[a]			SM[a]		
Variables	PMMM[a]	FT[a]	PT[a]	SMMM[a]	FT[a]	PT[a]
exp	.013	.013	.001	.010	.009	.009
	(.004)**	(.003)**	(.009)	(.010)	(.005)	(.009)
exp^2	-.0002	.0002	-.0001	-.0002	-.0002	-.0002
	(.0001)**	(.0001)**	(.0002)	(.0002)	(.0001)	(.0002)
prten	.083	.084	.067	.078	.080	.088
	(.010)**	(.008)**	(.024)**	(.036)*	(.019)**	(.030)**
educ	.188	.238	.235	.170	.143	-.218
	(.054)**	(.047)**	(.182)	(.106)	(.069)*	(.145)
tohrswk	-.002	-------	-------	-.008	-------	------
	(.002)	-------	-------	(.004)*	-------	-------
sex	-------	-.238	.150	------	-.300	-.182
	-------	(.024)**	(.084)	------	(.045)**	(.084)*
marstat	-------	.071	.185	------	.057	.095
	-------	(.025)	(.084)*	------	(.051)	(.097)
union	-.021	-.109	-.283	-.136	-.236	-.418
	(.028)	(.023)**	(.080)**	(.089)	(.057)**	(.158)**

	PM[a]			SM[a]		
Variables	PMMM[a]	FT[a]	PT[a]	SMMM[a]	FT[a]	PT[a]
Industry:						
agr	--	--	--	--	--	--
ffm	-.064	-.116	.625	.194	.243	c
	(.089)	(.081)	(.506)	(.426)	(.382)	
man	-.152	-.163	-.614	.012	.142	-.425
	(.051)**	(.041)**	(.491)	(.226)	(.112)	(.285)
cons	-.100	-.106	.661	.508	.585	c
	(.066)	(.058)	(.499)	(.416)	(.375)	
trans	-.089	-.078	-.366	.327	.295	c
	(.059)	(.049)	(.457)	(.254)	(.158)	
trade	-.282	-.280	-.605	-.040	-.017	.128
	(.064)**	(.049)**	(.451)	(.215)	(.107)	(.185)
fin	.014	-.079	-.581	-.233	-.136	.095
	(.081)	(.055)	(.456)	(.251)	(.150)	(.270)
ser	-.171	-.087	-.369	-.156	-.104	-.016
	(.059)**	(.043)*	(.448)	(.221)	(.106)	(.183)
publadm	b	b	-.600	-.111	.015	c
			(.467)	(.332)	(.168)	
Constant	6.764	6.90	6.66	6.854	6.886	7.154
	(.119)	(.084)	(.444)	(.333)	(.191)	(.428)
n	660	1314	175	95	274	140
R^2	22.2	31.1	45.9	38.5	44.8	26.3
Adj.R^2	20.7	30.4	40.8	27.7	41.6	20.0

Notes: The dependent variable is the natural log of wages. Standard errors are in parenthesis. Agriculture variable is the reference group.

** Significant at 1 percent level.

* Significant at 5 percent level.

a: PM: denotes the primary market.
SM: denotes the secondary market.
FT: denotes full-time workers.
PT: denotes part-time workers.
SMMM: denotes the secondary market, male, married.
PMMM: denotes the primary market, male, married.

b: denotes a variable that is highly correlated with other independent variables and therefore removed from the equation.

c: denotes a variable that has values equal to 0 and therefore removed from the equation.

REFERENCES

Becker, Gary

1964 Human Capital. New York: Columbia University Press.

Blishen, B. and H. McRoberts

1976 "A Revised Socioeconomic Index for Occupations in Canada." Canadian Review of Sociology and Anthropology, Vol. 13, No. 1, pp. 71-79.

Cain, Glen C.

1976 "The Challenge of Segmented Labor Market Theories to Orthodox Theory: A Survey." Journal of Economic Literature, Vol. 14, No. 4, pp. 1215-1257.

Cohen, Yinon and Jeffrey Pfeffer

1984 "Employment Practices in the Dual Economy." Industrial Relations, Vol. 23, No. 1, pp. 58-72.

Dickens, William T. and Kevin Lang

1985 "A Test of Dual Labor Market Theory." American Economic Review, Vol. 75, No. 4, pp. 792-805.

Doeringer, Peter B. and Michael J. Piore

1971 Internal Labor Markets and Manpower Analysis. Lexington, MA: B.C. Heath and Company.

Freeman, Richard B. and James Medoff

1984 What Do Unions Do?. New York: Basic Books.

Gordon, David

1972 Theories of Poverty and Underemployment. Cambridge: Cambridge University Press.

Hodson, Randy

1983 Workers' Earnings and Corporate Economic Structure. New York: Academic Press.

Labour Canada

1987 The Canadian Labour Climate. Ottawa: Ministry of Labour, Government of Canada.

Labour Canada

1983 Part-Time Work in Canada. Report of the Commission of Inquiry into Part-Time Work. Ottawa: Ministry of Labour, Government of Canada.

Mangum, Garth, Donald Mayall and Kristin Nelson

1985 "The Temporary Help Industry: A Response to the Dual Internal Labor Markets." Industrial and Labor Relations Review, Vol. 38, No. 4, pp. 599-611.

McNabb, Robert and George Psacharopoulas

1981 "Further Evidence of the Relevance of the Dual Labor Market Hypothesis for the U.K." Journal of Human Resources, Vol. 16, No. 3, pp. 442-458.

Meng, Ronald

1985 "An Empirical Test for Labor Market Segmentation of Males in Canada." Industrial Relations, Vol. 24, No. 2, pp. 280-287.

Neuman, Shoshana and Adrian Ziderman

1986 "Testing the Dual Labor Market Hypothesis Evidence From the Israel Labor Mobility Survey." Journal of Human Resources, Vol. 21, No. 2, pp. 230-237.

Oster, Gerry

1979 "A Factor Analytic Test of the Theory of the Dual Economy." Review of Economics and Statistics, Vol. 61, No. 1, pp. 33-39.

Osterman, Paul

1975 "An Empirical Study of Labor Market Segmentation." Industrial and Labor Relations Review, Vol. 28, No. 4, pp. 508-523.

1982 "Employment Structures Within Firms." British Journal of Industrial Relations, Vol. 20, No. 3, pp. 349-361.

1987 "Choice of Employment Systems in Internal Labor Markets." Industrial Relations, Vol. 26, No. 1, pp. 46-67.

Piore, Michael J.

"Notes for a Theory of Labor Market Segmentation," in Richard 1971 C. Edwards, Michael Reich and David M. Gordon, eds. Labor Market Segmentation. Lexington, MA: D.C. Heath and Company, pp. 125-150.

Simpson, Wayne

1986 "Analysis of Part-time Pay in Canada." Canadian Journal of Economics, Vol. 19, No. 4, pp. 798-807.

Wachter, Michael

1974 "Primary and Secondary Labor Markets: A Critique of the Dual Approach." Brookings Papers on Economic Activity, No. 3, pp. 637-680.

Weeks, Wendy

1984 "Part-Time Work: The Business View on Second-Class Jobs for Housewives and Mothers." in Graham S. Lowe and Harvey A. Krehn, eds., Working Canadians Readings in the Sociology of Work and Industry. Toronto: Methuen Publications, pp. 137-146.

White, Julie

1983 Women and Part-Time Work. Ottawa: Canadian Advisory Council on the Status of Women, Government of Canada.

Zeytinoglu, Isik Urla

1987 "Part-Time Workers: Unionization and Collective Bargaining in Canada." Proceedings of the Thirty-Ninth Annual Meeting. (New Orleans, December 28-30, 1986). IRRA series, Madison, Wis.: Industrial Relations Research Association, pp. 487-495.

Appendix 1

Occupations in Each Segment

	Major Occupational Groups	Segment*
1.	Government Officials and Administrators	PM
2.	Other Managers and Administrators	PM
3.	Management and Administration Related	PM
4.	Physical, Life Science	PM
5.	Mathematics, Statistics, Systems Analysis, Related	PM
6.	Architects and Engineers	PM
7.	Architects and Engineering Related	PM
8.	Social Science and Related	PM
9.	University Teaching and Related	PM
10.	Elementary, Secondary Teaching and Related	PM
11.	Other Teaching and Related	PM
12.	Health Diagnosing and Treating	PM
13.	Medicine and Health Related	PM
14.	Artistic and Recreation	PM
15.	Religion	PM
16.	Nursing, Therapy and Related	PM
17.	Stenographic and Typing	PM
18.	Bookkeeping, Account Recording and Related	PM
19.	Office Machine and EDP Operators	PM
20.	Material Recording, Scheduling and Distribution	PM
21.	Reception, Information, Mail and Message Distribution	PM

Appendix 1

Continues

22.	Library, File, Correspondence, Other Clerical	PM
23.	Protective Services	PM
24.	Forestry and Logging	PM
25.	Mining and Quarrying - Including Gas and Oil	PM
26.	Other Processing Operations	PM
27.	Metal Shaping and Forming Occupations	PM
28.	Other Machining Occupations	PM
29.	Metal Products, N.E.C.	PM
30.	Electrical, Electronic and Related Equipment	PM
31.	Wood Products, Rubber; Plastics and Related	PM
32.	Mechanics and Repairmen, except Electrical	PM
33.	Excavating, Grading, Paving and Related	PM
34.	Electrical Power, Lighting and Wire Communications	PM
35.	Other Construction Trades	PM
36.	Motor Transport Operators	PM
37.	Other Transportation Operators	PM
38.	Material Handling	PM
39.	Other Crafts and Equipment Operators	PM
40	Sales, Commodities	SM
41.	Sales, Services and Other	SM
42.	Food and Beverage Preparation, Lodging and Accommodation	SM
43.	Personal, Apparel and Furnishing Service	SM

Appendix 1

Continues

44.	Other Service Occupations	SM
45.	Farmers and Farm Management	SM
46.	Other Farming, Horticulture and Animal Husbandry	SM
47.	Fishing, Hunting, Trapping and Related	SM
48.	Food, Beverage and Related Processing	SM
49.	Textiles, Furs and Leather Goods Processing	SM
50.	Last Worked More Than 5 Years Ago, or Permanently Unable to Work	SM

* PM: Primary Market

SM: Secondary Market

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