

SEGMENTED LABOUR MARKETS  
AND EARNINGS IN IRELAND

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**April 1996**

Working Paper No. 75

Helpful comments from Dennis Conniffe and from participants in a seminar at the Economic and Social Research Institute are acknowledged.

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# Segmented Labour Markets and Earnings in Ireland

## 1. Introduction

Human capital theory emphasizes differences among individuals as the determinants of the distribution of earnings: workers in low-wage jobs are those who have low productivity, because they have been unable or unwilling to obtain the skills necessary to improve their productivity and earnings. Dual labour market theory, on the other hand, sees the labour market as divided into distinct primary and secondary sectors, of "good" and "bad" jobs respectively, with different wage determination systems and with good jobs being rationed. More broadly, labour market segmentation theory sees the labour market as divided into distinct sectors systematically differentiating the job rewards achieved by comparable individuals. The ideas behind these segmentation theories have a long history, and inspired a substantial body of research in the 1970s, particularly in the USA (following Doeringer and Piore (1971)).<sup>1</sup> After a brief eclipse following Cain's (1976) critique there has been a resurgence of interest in segmentation in the USA in the last decade, with the work of Dickens and Lang being particularly influential (Dickens and Lang 1985, 1993). Indeed some see dual labour market theory as having recently been integrated into the mainstream of labour market theory (Blackaby, Clark and Leslie 1995), though in our view this assessment is premature.

Up to this point there has been little attempt to test or apply segmented labour market ideas in empirical work on the Irish labour market. (One exception is Hughes and Nolan (1974), which explored the value of distinguishing broad industry or occupational groupings as primary or secondary sector in explaining occupational pension entitlements). As Smyth (1996) points out, this is "primarily because of the lack of available information on pay, conditions and workforce characteristics among those working in different industries, firms and occupations". It also reflects, however, the extent to which the underdeveloped state of segmented labour market theory itself makes testing or application difficult. The purpose of this paper is to implement with Irish data empirical tests of the core element of the segmented labour market model, the divergence between sectors in the way earnings are determined. This serves two purposes. First, it provides a point of comparison between Ireland and

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<sup>1</sup> The roots of the segmented labour market model can be traced back to the work of Mill (1885) and Cairnes (1874) on "non-competing groups". Its modern development by Doeringer and Piore (1971), Gordon, Edwards and Reich (1982) and others owes much to the work of the American Institutionalists, Kerr (1954) and Dunlop (1957), on the balkanization of labour markets.

corresponding results for the USA and the UK, helping to highlight similarities and differences in labour market structures which may affect the potential role of segmentation. Secondly, it brings out difficulties inherent in testing dual or segmented labour market theory which proponents of these theories will have to overcome if they are indeed to be integrated into mainstream labour market theory.

For this purpose we use data on a large sample of employees obtained in the survey of income distribution, poverty and usage of State services carried out by the ESRI in 1987. Our empirical analysis is in two stages. In the first stage we test the dual version of the model in which the labour market is divided into only primary and secondary sector, and allocate individuals to these sectors on the basis of the broad industry group in which they work. The second stage tests a more complex version of the segmented model, developed by Gordon (1986) and refined by Waitzman and Smith (1994), in which the labour market is divided into four groups: independent primary professional and technical, independent primary craft, subordinate primary, and secondary sectors. Before describing this analysis, we describe in Section 2 the basic elements of the segmentation hypothesis and how it has been tested elsewhere, and the challenges faced in attempting to prove to the skeptic the value of the hypothesis

## **2. Segmented Labour Markets**

### *Segmented Labour Market Theory*

In the standard human capital competitive model of the labour market, earnings are a positive function of education and experience. Those on low earnings have low productivity, because they have been unable or unwilling to obtain the skills necessary to improve their productivity and earnings. As Hicks (1963) put it starkly, unskilled labour is "often badly paid, not because it gets less than it is worth, but because it is worth so appallingly little" (p. 82). Segmented labour market theory, by contrast, focuses on the characteristics of jobs rather than individuals in determining the distribution of earnings. In the simple version of this model there is a dual labour market consisting of a primary market, which pays high wages and provides significant rates of return to investment in education and employment experience, and a

secondary market, which pays lower wages and provides lower or zero returns to education or labour market experience. In Doeringer and Piore's (1971) influential formulation:

".... Jobs in the primary market possess several of the following characteristics: high wages, good working conditions, employment stability, chances of advancement, equity, and due process in the administration of work rules. Jobs in the secondary market, in contrast, tend to have low wages and fringe benefits, poor working condition, high labor turnover, little chance of advancement, and often arbitrary and capricious supervision. There are distinctions between workers in the two sectors which parallel those between jobs: workers in the secondary sector, relative to those in the primary sector, exhibit greater turnover, higher rates of lateness and absenteeism, more insubordination, and engage more in petty theft and pilfrage" (p.165-6).

The fact that primary sector jobs are rationed is central to the theory: the high pay of primary sector employees cannot be explained simply in terms of their higher quality, many secondary sector employees are capable of performing well in primary jobs but the rationing of access to good jobs denies them the opportunity to do so, the labour market does not clear (McNabb and Ryan 1990). The implications drawn for labour market policy emphasise that improving training and education will in itself be ineffective in increasing the earnings of secondary sector workers, so that policies aimed at directly influencing the structure of jobs come to the fore.

But if the higher earnings of primary sector workers are not attributable to their "quality", why are they not competed away - why does the market not clear? When this key question is asked, it becomes clear that segmented labour market (SLM) "theory" is itself a misnomer: within the segmented labour market perspective a variety of theories has been advanced, and Cain's (1976) judgement in the mid-1970s was that "the SLM theories are sketchy, vague and diverse if not internally conflicting" (p. 1221). The main theories underpinning a segmented labour market perspective he identified at the time included Thurow's (1975) "job competition theory", which saw the distribution of jobs as technologically determined and not influenced by workers' skills, wages are rigid, and workers queue at fixed wages; Doeringer and Piore's (1971) dual market theory, emphasising the way in which the growth of large firms and unions promoted internal labour markets weakly

connected to external markets; and radical dual market theories emphasising class-based employer strategies and the role of monopoly capitalism (Edwards, Reich and Gordon 1975). More recently, advocates of a segmented labour market perspective have appealed to efficiency wage theory where higher wages in the primary sector may enhance productivity, rent-sharing between employers and employees in highly-concentrated, high-profit or high-technology industries, or insider-outsider models emphasising the role of unions or the desire by employers to avoid unionisation (see for example Dickens and Lang 1993). Rather than a coherent, self-contained theory to be seen as an alternative to human capital theory, therefore, the segmented labour market perspective calls on a variety of possible theoretical underpinnings, and this agnosticism runs through much of the empirical literature.

### *Testing the Segmented Labour Market Model*

It is central to the dual labour market approach that returns to education and experience are lower in the secondary than in the primary sector. A popular test of the theory is therefore conducted through the estimation of separate earnings functions for the two sectors. If the segmented labour market model explains earnings data better than the competitive model then two wage equations or earnings functions should give a better fit to the earnings distribution than one. (As discussed below, this would not necessarily mean that primary sector jobs are rationed, the other central hypothesis of the dual labour market approach, and so does not constitute a comprehensive test: however, in the absence of diverging earnings functions the approach would not appear fruitful). Hence, a standard log earnings function is specified for each market to allow for these differences:

$$\begin{aligned}\ln w_p &= \mathbf{XB}_p + e_p \\ \ln w_s &= \mathbf{XB}_s + e_s\end{aligned}$$

where  $w$  is earnings,  $X$  is a data matrix of variables relating to jobs and workers,  $B$  is a vector of coefficients,  $e$  is an error term, and  $p$  and  $s$  refer to the primary and secondary sectors.

In the primary market there is expected to be a strong positive relationship between earnings and education and earnings and work experience. In the secondary market these relationships are expected to be weaker or earnings is expected to show little association with increases in years of education or work experience. Figures 1 and 2, reproduced from Dickens

and Lang (1985), illustrate the difference between competitive and dual labour market hypotheses. Figure 1 shows what we expect to find when the log of the wage is plotted against education if the standard human capital model is correct. In this case a single regression line should give the best fit to the data. Figure 2 shows that if the labour market is segmented there should be two distinct relationships between wages and education, in which case two regression lines should give a better fit to the data than one. This type of test has been employed in a number of studies, including Osterman (1975), Wright (1979) and Carnoy and Rumberger (1980) for the USA, and by Mayhew and Rosewall (1979), McNabb and Ryan (1986), and McNabb (1987) for Britain. The crucial issue in implementing such a test, however, is how to allocate individuals to primary versus secondary sector in the first place. Interest in dual labour market theory waned in the late 1970s principally because of the stringent critique by Cain (1976), who pointed out that the way workers are classified as primary or secondary may itself bias the results in favour of the dual labour market hypothesis. If low wage itself is used as the basis for allocation to the secondary sector, for example, or occupations are classified as secondary sector because they offer low wages and used as the basis for allocation, then as Figure 3 shows even if there is in fact a single market estimated earnings equations for the two sectors will show lower returns to education in the secondary sector. In effect, the selection criterion for allocation to the primary and secondary sectors can result in the truncation of the secondary sector sample on the values of the dependent variable, biasing the results in favour of the dual hypothesis.

Various strategies have been adopted to deal with this problem. Heckman and Hotz (1986) allocate workers to primary and secondary sectors on the basis of the observed wage, but seek to directly correct for sample selection bias in their estimated equations using Heckman's (1979) technique. Dickens and Lang (1985) develop a procedure whereby individuals do not have to be allocated to the primary or secondary sector *a priori*, with a switching model determining the worker's sector estimated together with the two wage equations. Finally, efforts have been made to distinguish sectors in a manner which minimises any bias introduced in the estimated earnings equations. We follow the third route in this paper, because in our view it is the one which has the potential to link testing to an underlying theoretical perspective. Both the Heckman/Hotz and Dickens/Lang procedures

Figure 1: Hypothetical scatter plot - standard human capital model

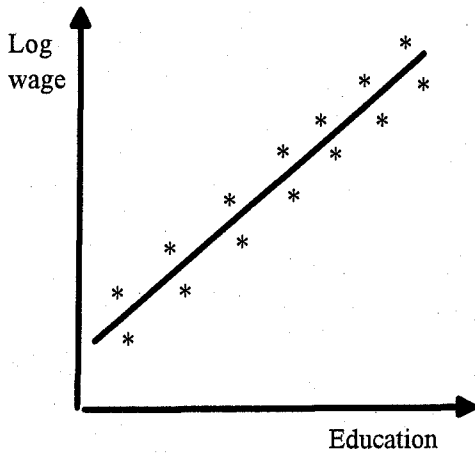


Figure 2: Hypothetical scatter plot - dual labour market theory

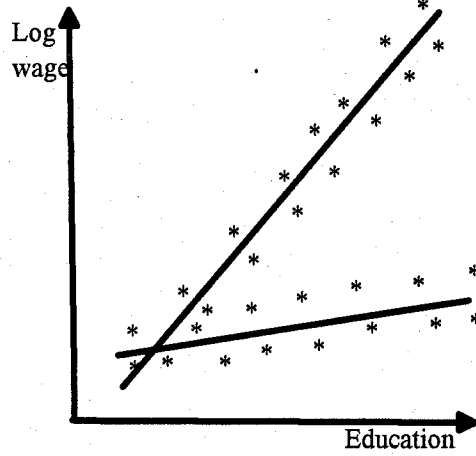
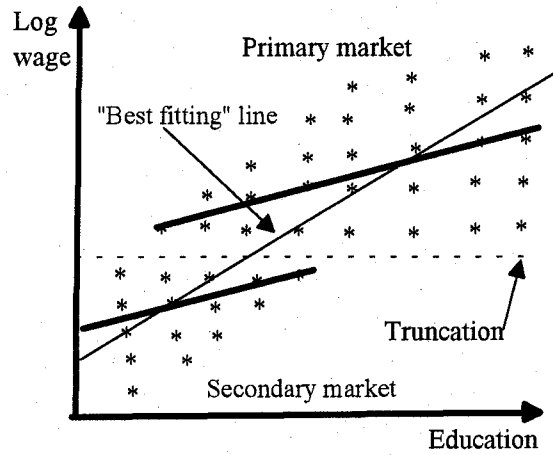


Figure 3: Example of bias imparted to regression estimates of dual labour market model by truncated endogenous variable





are open to technical objections (as the comments they make about each other demonstrate), but we see a more fundamental problem which applies to both, arising from the theoretical agnosticism to which we referred earlier. None of the range of theoretical underpinnings for a segmentation hypothesis would simply identify low-wage and secondary sector jobs, as Heckman/Hotz do. Dickens/Lang's procedure determines sector within the model on the basis of individual characteristics, when the core notion common to segmented market theories is that it is job rather than individual characteristics which matter. Neither advances a theoretical explanation for segmentation, applies an allocation procedure consistent with that theory, and then tests the segmentation hypothesis on that basis. Our aim in this paper is to apply to Irish data tests of the segmentation hypothesis which have been employed in the literature and involve an *a priori* allocation into sectors which can be linked, whether loosely or more firmly, to an underlying theoretical perspective. In Section 4, we apply a primary/secondary allocation in terms of industry, while in Section 5 a more complex procedure distinguishing four sectors is applied. First, the data to be employed are described in the next section.

### **3 The Data**

The segmented labour market model can be tested for Ireland using data from the ESRI survey of income distribution, poverty and usage of State services which was carried out in 1987 (and described in Callan, Nolan et al 1989, Nolan and Callan 1994). This survey provides information on the education and labour market experience of a national sample of the population resident in private households. Responses were obtained from a total of 3,294 households, an effective response rate of 64 per cent. The responding households were reweighted for analysis to correct for non-response bias, to ensure that the sample for analysis accords with the (much larger) Labour Force Survey in terms of four key characteristics: the number of adults in the household, urban/rural location, socio-economic group, and age of household head. Since the incomes of self-employed respondents include returns to capital as well as labour they are excluded from the analysis. Our attention is focused on the 2,002 employees who were included in sample households and on whom full information on earnings, education, labour market experience and other characteristics to be employed in the analysis was obtained.

In addition to all employees, results for heads of households are of interest for comparative purposes because Dickens and Lang's (1985) influential paper concentrates on this group for the USA. The twenty five and over age group is also of interest because segmentation theories suggest that someone who experiences secondary sector employment is more likely to experience it again. If this state dependence argument is correct we would expect that the relationships between earnings and education should be clearer for older workers than for all workers. Again for comparative purposes, we begin by estimating models consisting of only a core set of explanatory variables, namely marital status, years of education, and years of employment experience, which are similar to those employed by Dickens and Lang. We then extend to a full model, which incorporates in addition time spent out of work, part-time work, trade union membership, whether the individual is on an incremental pay scale, and pension entitlement variables. Part-time work is included in the model because this form of employment is more prevalent in the secondary sector and part-time workers are expected to have lower earnings. Trade union membership is included because industrial unionism has a homogenizing effect on job conditions, and this effect should be particularly strong in the primary sector in which most "goods producing" industries are found. Incremental pay scales are also a feature of primary sector employment, as is occupational pension entitlement, and these are included as additional control variables to take into account the fact that allocation between sectors is likely to be subject to error.

#### **4. Testing an Industry-Based Dual Labour Market Categorisation**

##### *Allocating Individuals to Primary and Secondary Sectors*

Our first set of tests apply to the relevance for Ireland of a distinction between primary and secondary labour market sectors, rather than a broader segmentation. In order to do so, our aim is to allocate workers between primary and secondary sectors in a way which minimises bias introduced by circularity via the definition of sectors in terms of earnings itself or variables highly correlated with earnings. In the standard human capital model, as Fleisher (1970) points out:

"Industries are defined according to what is produced and, hence, economic theory implies that in equilibrium there should be no differences among wage rates for the same kind of labor according to industry per se except for working conditions that vary systematically among industries. On the other hand, classifying workers by occupation and/or skill is to classify them by characteristics which, according to economic theory, should be among the most important determinants of wage rates" (p. 206).

We therefore employ in this section an allocation of individuals to primary or secondary sector on the basis of their industry of employment. Hughes and Nolan (1994) classified major groups of Irish industries as ones in which the majority of employees were likely to be working in the primary or secondary market, based principally on McNabb and Ryan's (1990) allocation for the United Kingdom. Their allocation depended on an analysis of sector characteristics, with concentration, plant size, and capital-intensity used as the main features distinguishing "core" from "periphery" sectors, and although the theoretical underpinnings need to be fleshed out the distinctions can at least be traced back to a theoretical emphasis on features of product markets likely to give rise to dualistic labour markets. The resulting allocation of major industrial groups to primary and secondary markets in Ireland is shown in Table 1. Applying this classification to the 1987 sample resulted in 1,463 employees being allocated to the primary market and the remaining 539 (27%) to the secondary market.

*Table 1: Allocation of major industrial groups to primary and secondary markets*

<b>Primary market</b>	<b>Secondary market</b>
Other production	Agriculture
Insurance	Building and construction
Professional service	Wholesale
Teaching	Retail
Health	Personal service
Public administration	Other industries

Source: Hughes and Nolan (1994).

Descriptive accounts highlight the fact that primary and secondary sectors differ in gender composition of the work force, the extent of part-time working, unionisation, employment stability, and ancillary benefits. Table 2 shows that applying the industry-based allocation procedure to the Irish data 41 per cent of workers in the secondary market are women, compared with 35 per cent in the primary market. It also shows that 62 percent of employees in the primary market belong to a trade union while only 19 per cent in the secondary market do so. The percentage working part-time (defined here as 18 hours or less per week) is 3 per cent in the primary market versus 8 per cent in the secondary market.

*Table 2: Percentage female, unionised, part-time, on incremental scales, with pension entitlement and average length of job in the primary and secondary markets*

Major industrial group	% female	% Union Members	% part-time (18 hours)	% with pension entitlement	% on incremental scale	average length of job
Primary labour market						
Other production	24.8	58.6	0.9	44.6	27.4	7.5
Insurance	49.2	58.0	1.6	69.8	61.5	7.2
Transport	13.2	75.6	2.5	73.3	45.4	11.5
Professional services	58.5	20.0	4.0	30.0	35	7.4
Teaching	60.9	70.1	8.7	68.6	61.5	10.3
Health	75.8	55.4	6.9	58.2	44.3	6.9
Public administration and defence	26.0	69.0	1.0	79.3	59.8	9.4
Total	35.2	62.1	2.6	58.9	42.8	8.5
Secondary labour market						
Agriculture	8.5	25.0	0.0	21.6	10.8	7.6
Building and construction	5.2	30.6	0.9	35.2	15.5	5.1
Personal services	65.4	14.2	16.9	10.4	16.3	4.9
Wholesale	21.6	18.6	1.1	36.0	32	6.4
Retail	48.8	19.2	8.3	12.7	19.7	4.8
Other industries	41.7	15.2	5.5	23.4	14.7	6.2
Total	40.9	19.3	7.9	18.5	18.5	5.3

Source: 1987 ESRI survey

About 43% of primary sector workers are on an incremental pay scale, compared with 18% of those in the secondary sector. The percentage with entitlement to a retirement pension from their employer is very much higher in the primary sector, 59% versus only 18% in the secondary sector. From information obtained in the survey about the number of years the respondent spent in employment and the number of different employers they have had in their career, one can also derive the average length of each job. Table 2 shows considerably greater stability in the primary sector, with each job lasting an average of 8.5 years compared with 5 years in the secondary sector. In addition to information in the 1987 survey itself, Labour Force Survey data shows that unemployment rates are particularly high in some of the industry groupings we have categorised as secondary rather than primary, notably building and

construction.<sup>2</sup> All these characteristics tend to support the notion that, since the primary labour market contains jobs which require educational and training qualifications, it offers more stable, less precarious employment with better conditions, is more highly unionised, and has a higher percentage of "core" full-time male workers

#### *Regression Results for Dual Labour Market Pared Down Model*

We now present the results of a series of regression models which test whether the industry-based dual labour market distinction helps in understanding the determination of earnings in Ireland. The coefficients which will be of most interest in these regressions are those on the education and work experience variables. If the segmentation hypothesis is valid, the coefficients of the education and work experience variables should be lower in the secondary than in the primary sector. Table 3 presents regression results for the whole sample and for the primary and secondary markets for a pared-down model in which gross hourly earnings is regressed on marital status, years of education and years of employment. The regression coefficients for the whole sample have the expected positive signs and are all significant at the 95 per cent level. Gross hourly earnings increase with years of education and years of employment, and married respondents have higher earnings *ceteris paribus* than unmarried respondents as is commonly found. In the separate regressions for the primary and secondary markets the coefficients of the marital status, education, and employment experience variables have the same positive signs as in the regression for the whole sample and all three coefficients are again significant in both regressions. The coefficient on the education variable in the secondary sector is however smaller than in the primary sector, so the relationship between earnings and education is weaker in the secondary sector as predicted by the dual labour market model. Also consistent with the model, the goodness of fit of the primary sector regression is significantly better than the secondary sector regression: in the former the explanatory variables account for about 40 per cent of the variance in gross earnings while in the latter they account for less than 30 per cent. Contrary to the prediction of the segmented model, though, employment experience has a similar effect on gross hourly earnings in the two labour markets.

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<sup>2</sup> Clarke and Kavanagh (1995) apply our industry-based primary/secondary categorisation to 1992 Labour Force Survey data and present results on the male/female breakdown, extent of part-time working and unemployment rates (Table 5). However, their analysis covers all those at work, whereas ours is confined to employees. As a result their figures show 56% in the primary and 44% in the secondary market, compared with our 73/27% split: this is largely because they include all farmers in the secondary sector, whereas we include only farm employees.

*Table 3: Regression of earnings of employees on marital status, years of education, and years of employment for whole sample and for the primary and secondary markets*

Variable	Whole sample	Primary market	Secondary market
Constant	0.5835 (22.19)	0.7541 (25.93)	0.4691 (8.56)
Married	0.2694 (11.24)	0.2264 (8.88)	0.2859 (5.76)
Years of education	0.1036 (24.70)	0.0992 (23.11)	0.0720 (6.83)
Years of employment	0.0178 (18.13)	0.0151 (14.95)	0.0178 (7.92)
Adjusted R <sup>2</sup>	.3922	.3878	.2816
F	431.4973	309.5446	71.4200
Number of observations	2,002	1,462	540

Following Fichtenbaum, Gyimah-Brempong and Olson (1994) we test if the regression results for the primary and secondary markets indicate the same underlying relationship. The null hypothesis is that there is no significant difference between the coefficients of the primary and secondary sector regression, which can be investigated using an F test. The F statistic is estimated by calculating the ratio of the difference between the restricted residual sum of squares (regression for whole sample) and the unrestricted residual sum of squares (regressions for primary and secondary markets) to the unrestricted sum of squares. This calculation gives  $F = 54.88$  which is significant at the 5 per cent level. The hypothesis that the coefficients of the primary and secondary sector regressions are not significantly different from each other is not accepted.

An alternative method of testing the value of the distinction between the primary and secondary sectors is of course simply to estimate a single equation for the entire sample with slope and intercept dummies for membership of the secondary sector. When this is done the intercept dummy for membership of the secondary sector is not significant but both the interaction terms are, education with a negative sign as hypothesised but experience with a positive (though much smaller) coefficient. The explanatory power of the equation is enhanced by inclusion of the secondary sector variables. This is an alternative way of arriving at the same results, but since the approach consistently adopted in the literature on dual/segmented

labour markets has been to test via estimating separate earnings functions for different sectors, and since the single-equation approach becomes more unwieldy with more than two sectors, we concentrate on the separate equations approach.

Since Dickens and Lang's (1985) influential test of the dual labour market hypothesis for the USA was confined to male household heads, it is interesting to also estimate separate earnings functions for primary and secondary sectors for male household heads only in the Irish sample. This reduces our sample to 819 employees, of whom 80% were in the primary sector, and the results are shown in Table 4. The percentage of the variation in hourly gross earnings which is explained by marital status, years of education and years of employment is lower for all three regressions than was the case for all employees. The F test rejects the hypothesis that the coefficients of the primary and secondary sector regressions describe a common relationship which determines average gross hourly earnings, but there is little difference between the two sectors in the education and employment experience variables - the largest difference is in fact now for marital status. These results are in striking contrast to Dickens and Lang's, who found education and employment experience to be significant for the primary but insignificant for the secondary sector in the USA (though sector of attachment was in their case determined within the model). The Irish results for male household heads are thus much less supportive of the dual market hypothesis than those for the entire sample, using the industry-based sectoral categorisation.

*Table 4: Regressions of earnings of male household heads on marital status, years of education, and years of employment for the whole sample and for the primary and secondary markets*

Variable	Whole sample	Primary market	Secondary market
Constant	0.8391 (12.16)	0.9415 (12.23)	0.6630 (4.48)
Married	0.2808 (4.80)	0.2448 (3.81)	0.3685 (2.85)
Years of education	0.1036 (20.58)	0.1001 (19.05)	0.0946 (6.38)
Years of employment	0.0090 (7.26)	0.0084 (6.28)	0.0078 (2.49)
Adjusted R <sup>2</sup>	.3534	.3638	.2291
F	150.0012	125.4939	17.2466
Number of observations	819	654	165

We also estimated this model for persons aged 25 and over to see if the results give any support to the state dependence argument of the segmented labour market model, that once the pattern of employment in primary or secondary sector is established subsequent mobility is limited, an implication being that the differences between the regression results for the two labour markets should become greater as workers grow older. There were 1,484 respondents aged 25 and over in the 1987 sample, of whom 78 per cent were working in primary sector industries and 22 per cent were employed in secondary sector industries. The regression results were similar to those for the entire sample seen in Table 3: the education coefficient for the secondary sector is lower than that for the primary sector, whereas the coefficient on years of experience is slightly higher. However, the percentage of the variance in gross hourly earnings which is explained by the equations, particularly for the secondary market, is much less. In the results for employees about 35 per cent of the variance was explained in the primary market and around 28 per cent in the secondary segment, whereas in the results for those aged over 25 only 32 per cent of the variance is explained in the primary market and less than 20 per cent in the secondary market. The sharper deterioration in the performance of the basic model for those in the secondary sector suggests that employment in the secondary sector is influenced by the respondent's previous work history. Persons whose early employment experience is in the secondary sector are more likely to be employed in this sector when they are older and the influence of education, work experience, and marital status on hourly gross earnings is likely to be much weaker than in the primary sector.

#### *Regression Results for Dual Labour Market Full Model*

Having worked so far with only a core set of explanatory variables, we now add to the earnings function a number of additional explanatory variables which may help to refine the estimates of the effects of the education and experience variables which are of central interest. These additional variables are time spent out of employment, male/female, distinct marital status variables for men and women, whether employment is full-time or part-time, trade union membership, incremental pay scale and pension entitlement. We also include the square of both time spent in employment and out of employment, to capture possible non-linearities in their effects. Categorising employees into primary versus secondary sector simply on the basis of industry is bound to mis-classify some of the sample, and full-time working, being on an incremental scale, pension entitlement and trade union membership are known to be associated



with membership of the primary rather than secondary sector: these variables are therefore likely to capture some of the influence of labour market dualism.

The results in Table 5 for the whole sample shows that gross hourly earnings have the positive association expected with education and labour market experience variables and that these and the other variables included in the regression explain 60 per cent of the variance in individual earnings. Employment experience and years out of employment have the expected positive and negative influences on earnings. Hourly earnings are higher for persons in part-time employment relative to those in full-time jobs. Trade union membership, being on an incremental scale and pension entitlement all have a strong positive association with earnings, as expected. Table 5 also presents the estimated earnings functions when the sample is divided into primary and secondary markets. An F test of the hypothesis that the coefficients of the variables in the two regressions come from a common model rejects that hypothesis. In both sectors the number of years employed has a strong positive effect on earnings although this effect does decline as years spent in employment increase. Years out of employment (in either unemployment or home duties) have a strong negative effect on earnings only in the primary sector, in the secondary sector it exerts no influence on earnings. Being female does not effect earnings in the primary sector whereas it has a strong negative effect in the secondary sector. Number of years of education exerts the expected strong positive influence on earnings in the primary sector, and a lower though still substantial effect in the secondary sector. Trade union membership, being on an incremental scale and entitlement to an occupational pension have positive effects on earnings in both sectors. The results for the full model thus confirm the results from the pared-down one that education exerts slightly less influence on earnings in the secondary sector than it does in the primary sector, as predicted by the segmented model. They also suggest that years out of the labour force has no effect on earnings in the secondary sector whereas it reduces earnings in the primary sector, which is also consistent with the dual market hypothesis, but that employment experience has the same impact in each sector, which is not consistent with the hypothesis.

*Table 5: Regressions of earnings of employees on full set of explanatory variables, full sample and primary and secondary sectors*

Variable	Full sample	Primary market	Secondary market
Constant	0.4512 (14.86)	0.5473 (15.20)	0.4500 (7.35)
Years employed	0.0389 (13.25)	0.0389 (11.71)	0.0346 (5.92)
Years employed <sup>2</sup>	-0.0599 (9.92)	-0.0594 (8.85)	-0.0583 (4.53)
Years out of employment	-0.0218 (3.99)	-0.0228 (3.40)	-0.0143 (1.37)
Years out of employment <sup>2</sup>	0.0574 (2.53)	0.0471 (1.54)	0.0528 (1.40)
Female	-0.0621 (2.34)	-0.0046 (0.15)	-0.1856 (3.82)
Married man	0.1488 (5.21)	0.1245 (3.94)	0.2425 (4.01)
Married woman	0.1256 (3.88)	0.0816 (2.34)	0.1685 (2.25)
Years of education	0.0825 (21.55)	0.0830 (20.65)	0.0659 (6.83)
Part-time	0.1457 (2.81)	0.1688 (2.38)	0.1604 (2.00)
Trade union member	0.1316 (6.84)	0.0801 (3.83)	0.1615 (3.42)
Pension entitlement	0.2880 (13.29)	0.2496 (10.64)	0.3344 (6.29)
Incremental scale	0.1026 (5.17)	0.7575 (3.59)	0.1206 (2.53)
Adjusted R <sup>2</sup>	0.5579	0.5282	0.4482
F	211.4439	137.314	37.4949
n	2,002	1,462	540

Overall, the results based on distinguishing between primary and secondary sectors on an industry basis suggest there may be some limited value to making that distinction, though the results are a great deal less clear-cut than tests of the dual market hypothesis from the USA. However, categorising employees into two sectors simply on the basis of industry provides at best a crude representation of the dual market hypothesis, since that hypothesis

