
Abstract: We analyse wage differentials between part-time and full-time workers in four English-speaking countries, using cross-nationally comparable data from the Luxembourg Income Study (LIS). An analysis of *gross* wage gaps (that is, unadjusted for human capital- and job-related differences) reveals that women part-time workers earn significantly less per hour than do their full-time counterparts in all of these countries. In an analysis of *net* wage gaps (wage gaps adjusted for a range of explanatory variables) we assess the extent to which wage differentials can be explained by measurable differences in human capital-related attributes, and in occupational and industrial variables. Findings indicate that part-time workers are positioned differently within the labour markets of these countries, and that cross-national differences in part-time versus full-time wages cannot be explained fully by inter-country differences in the degree of wage dispersion. Finally, we discuss policies and institutions that contribute to different outcomes across countries.

A CROSS-NATIONAL ANALYSIS OF THE WAGES OF PART-TIME WORKERS: EVIDENCE FROM THE UNITED STATES, THE UNITED KINGDOM, CANADA AND AUSTRALIA

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Introduction

Social scientists and policy analysts throughout the industrialised countries have become interested in part-time employment for a diverse set of reasons. Some analysts focus on the segmentation of the labour market, and portray part-time positions (especially those filled by women) as typical of the unstable and poorly-paid jobs which have heightened the economic vulnerability of workers during the recent period of economic downturn (Briar 1992; Dex 1992; Levitan and Conway 1992; Tilly 1990). These analysts maintain that part-time workers earn less, per hour, than do full-time workers, and many believe that their lower wages stem largely from the limited availability of higher-paid part-time positions – that is, from a combination of segregation between part-time and full-time jobs and the low status of part-time jobs.

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Others have emphasised the stresses faced by dual-earner families, and see part-time jobs and other non-standard forms of work as providing the flexibility needed to reduce work-family conflicts (Kahne 1985; Negrey 1993). Many recognise that women often seek part-time work despite the costs that may be associated with that decision (Beechey and Perkins 1987; Blank 1990; O'Donnell and Hall 1988). Research conducted in all four countries included in this study indicate that women frequently seek part-time rather than full-time work, due to problems associated with securing childcare (Brennan 1990; Cohen 1993; Presser 1980; White 1983).

Part-time work is also receiving much attention in another context. In a number of European countries, advocates in the labour movement continue to call for a shorter working week, across the entire labour force, as a way of reducing high rates of unemployment. Currently, reduced-hours plans are under serious consideration in several countries in the European Union, with many European Socialists calling for a reduction in the standard work week from forty to thirty-five hours. France's Senate recently approved an experimental cut in the usual working week from 39 to 32 hours, with reduced pay; firms are exempted from some payroll taxes if they take on additional workers (*The Economist* 1993).

While some comparative research has examined cross-national differences in the rates of part-time work (Blossfeld 1994; Ellingsaeter 1992; Rosenfeld 1993), there is virtually no research that systematically compares the economic status of part-time workers, relative to full-time workers, across countries – and that attempts to identify cross-national differences in factors underlying part-time wage penalties. Furthermore, there have been no cross-national studies to date that use microdata to decompose the wage differentials between part-time and full-time workers. Our paper – based on comparable data from the Luxembourg Income Study (LIS) – seeks to fill these voids. We analyse wage differentials (gross and net) between part-time and full-time workers in four similar industrialised countries: The United States, the United Kingdom, Canada and Australia.

These analyses promise to make both empirical and theoretical advances. Empirically, we will better understand the extent and nature of the wage disadvantage associated with holding a part-time job. We will identify the extent to which this differential, within countries, is due to measurable productivity-related attributes. Our cross-national analysis will place the findings for each country in comparative perspective and will allow us to address the question of the contribution of the level of wage inequality to the part-time/full-time wage differential.

Theoretically, these results promise to advance our understanding of this particular facet of labour market segmentation. The lower pay accorded to part-time workers, *ceteris paribus*, constitutes evidence that part-time jobs are concentrated in distinct labour markets. Our analyses will provide

evidence for this aspect of the segmentation thesis by disconfirming alternative explanations of the part-time/full-time wage gap. Moreover, we will document cross-national variation in the extent to which holding a part-time job is associated with a wage penalty, and will relate the extent of this gap to selected policies and labour market institutions that vary across countries. In this way, we begin to construct a causal explanation for the nature and extent of labour market segmentation as it affects part-time workers.

In the following section, we discuss the costs of part-time work in more detail and summarise the existing literature on the effect of part-time work status on workers' wages. We proceed to lay out our central research questions and state our expectations regarding cross-national differences in the part-time/full-time wage gap. After summarising the methods and presenting the results of our macro- and micro-level analyses, we discuss cross-national variation in selected policies and institutions which affect the magnitude of the part-time/full-time wage gap.

The Costs of Part-Time Work

It is increasingly understood that part-time work may bring with it a range of associated costs, both anticipated and unanticipated. Demand for part-time workers is limited largely to the secondary labour market – that is to say, jobs in which firm-specific investments are limited, where promotional opportunities are few or non-existent, and in which turnover rates are high. Costs associated with the concentration of part-time jobs in the secondary market compound the direct effect of a lower level of earnings resulting from fewer hours worked.

First of all, part-time workers have been found to receive lower hourly wages than do their full-time counterparts, across a range of countries (OECD 1994), with a larger gap reported in the UK than in Australia or in Sweden (OECD 1984). There is further evidence from the English-speaking countries that part-time workers earn less per hour than do their full-time counterparts. Rubery (1992) found that women part-time workers in the UK earned, in 1989, 75 per cent of the hourly wages of women full-time workers. In the US, the Employee Benefit Research Institute (1993) reports that the wage ratio between women part-time and full-time workers was between 73 and eighty per cent during the 1980s (with a downward trend); part-time/full-time differentials were even greater for men. Canadian studies report modest part-time wage penalties for women in the Canadian workforce (Simpson 1986; Commission of Inquiry into Part-Time Work 1983) and larger differentials for men than for women.

Only a few studies have attempted to compare part-time and full-time

earnings, controlling for differences in measurable worker and job characteristics. Using US data and a single-equation design, Blank (1990b) found that, for women, the hourly wages of part-time workers were about eighty per cent of those of full-time workers, and, among men, about 75 per cent – after controlling for a range of human capital variables, as well as industry and region-specific characteristics.¹

While analysts and advocates in several countries have written of the wage losses associated with working part-time, virtually no cross-national comparative work has been done on this question using productivity- or job-related controls. Rosenfeld and Kalleberg (1990) report that, across four industrialised countries, part-time workers earn less than do full-time workers, but they do not explore the details of this finding, due to data limitations on hourly wages. We conclude from the research conducted to date – as does Quinn (1993) – that, overall, the limited evidence to date suggests that part-time workers throughout the industrialised countries appear to be compensated at lower hourly rates than are full-time workers, even after controlling for human capital differences and a range of job characteristics.

In addition to lower wages, part-time workers in the English-speaking countries frequently face a range of additional losses in non-wage compensation (Beechey and Perkins 1987; Dex 1992). Part-time workers in most countries face a double bind: lower hourly earnings are severely compounded by less than *pro rata* employee benefit packages. Part-time workers often face limited access to employer-provided health insurance (this is particularly problematic in the US) as well as to a range of other occupational benefits including sickness, disability, maternity and retirement pensions (Callaghan and Hartman 1991; Campling 1987; Grant 1991; ILO 1989a; OECD 1994). In addition, part-time workers in many countries are subject to further losses in the public systems of social welfare benefits (Euzeby 1988; Maier 1992). Furthermore, part-time workers typically lose career advancement opportunities (DuRivage 1986), frequently lack promotion opportunities (Rosenfeld 1993) and receive less on-the-job training (Jacobs, Lukens and Useem 1994; Tilly 1990). Finally, part-time workers lack job security, risking both lay offs and cut backs in hours worked, in part because they are less likely to be unionised (Belous 1989).

Sociologists and institutional economists have studied several different aspects of labour market segmentation over the last twenty years. Much early research was devoted to differentiating the ‘core’ and ‘peripheral’ sectors of the economy. This approach has been controversial and has attracted declining support in recent years (Averitt 1968; Hodson and Kaufman 1982; Tolbert, Horan and Beck 1980; Jacobs and Breiger 1988). Subsequent research has considered variations in economic outcomes across industries, and these findings have proven more robust than the

earlier dual sector analyses (Krueger and Summers 1987; Dickens and Lang 1987). More recent work has explored supply-side segmentation (Burchell and Rubery 1990).

We use the term 'labour market segmentation' similar to that employed by Doeringer and Piore in their pioneering work. They argued that firms differentiate between valued workers whose positions are secure during economic downturns and those who are more expendable. The former constitute employees in the primary labour market, while the latter compete for jobs in a secondary labour market. '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 conditions, high labour turnover, little chance of advancement, and often arbitrary and capricious supervision' (1985: 165). While Doeringer and Piore applied these concepts to full-time workers in manufacturing jobs, this distinction can be easily extended to cover part-time workers (Pfeffer and Baron 1988). Part-time jobs, along with subcontracting, temporary employment and other forms of contingent work, reduce the security of employees by severing their claims to stable employment.

While the logic of compensating differentials holds that part-time workers should receive a wage premium to compensate them for their economic insecurity (Jacobs and Steinberg 1990), the segmentation perspective supports the opposite outcome. In short, we will assess whether the segmentation of jobs into relatively secure full-time jobs and relatively insecure part-time jobs is mirrored by a differentiation of positions into high-wage and low-wage ones. Our analysis also predicts a differentiation of jobs into those with benefits and those without, although the data examined here do not allow us to explore this issue.

The segmentation perspective further holds that the nature of segmentation varies as a result of the institutional structure of labour markets. Doeringer and Piore (1985) note wide international variation in the operation of labour market institutions. We expect that differences in levels of compensation of part-time jobs will reflect inter-country differences in public policies which affect wage-setting, including minimum wage laws, mandatory overtime and other wage-setting practices; and the extent of unionisation and the orientation of unions toward part-time workers. These ideas are more fully developed in the final section.

Research Questions and Expectations

In our empirical research, we focus on four English-speaking countries – the US, the UK, Canada and Australia – during the 1986–1987 period. We

chose to study these four English-speaking countries primarily because of their similarities in social and labour market policies (Esping-Andersen 1990), and in a range of labour market demand-side factors (OECD 1988). This backdrop of commonality helps to bring into relief the specific differences that *do* exist in employment-related policies and in labour market conditions.

Esping-Andersen (1990) argues that policy configurations emerge at the national level, and that the welfare states of the Western industrialised countries cluster into three recognisable regime types – social-democratic, conservative and liberal. In the liberal regime countries (sometimes referred to as the residual or reluctant welfare states), entitlements derive primarily from assessments of need. Benefits are generally means-tested, and public policies aimed at redistribution are limited; an overlay of more widely available benefits are closely linked to employment. Esping-Andersen identifies the US, Australia and Canada as exemplars of the liberal regime type; the UK is also included, although it has mixed features. With regard to overriding state policies that shape labour markets, there is little doubt that these countries are more similar to one another than they are to other Western welfare states.²

Furthermore, available national-level aggregate data suggest that, during the time period covered in this research, a range of labour market demand-side factors (especially with respect to women) were relatively constant across these countries. Official female unemployment rates varied little across the countries (7.0 to 9.3 per cent) during the 1986–1987 period. At the same time, the size of their service sectors – a key indicator of labour market demand for women and for part-time workers – were nearly identical (68 to seventy per cent). Furthermore, the percentage of women working part-time who were classified as ‘voluntary’ was high and fairly similar across these countries (OECD 1988). While these measures are all somewhat crude, these general labour market similarities suggest that selected variations in both policies and outcomes can be considered in a cross-national context where key demand-side factors are held constant.

In this section, we lay out a series of questions – the first concerns *gross* wage differentials (that is, unadjusted wage gaps); the second focuses on *net* wage differentials (wage gaps adjusted for a range of explanatory variables); and the third focuses on the extent to which cross-national differences in levels of wage dispersion explain variation in the part-time/full-time wage differential.

First, do the LIS data confirm that part-time workers in all four countries earn less per hour than do their full-time counterparts, as we expect? We improve on the existing comparisons among these countries, by applying uniform definitions of employment and part-time work to the LIS micro-data, as well as consistent definitions of earning. Furthermore, since nearly all studies of this differential compare the *annual* earnings of full-time

versus part-time workers (without controlling for variations in hours), our use of estimated *hourly* wages clarifies existing findings.

Second, we assess what proportions of the gross wage gaps are explained by measurable differences between part- and full-time workers in productivity-related variables, and by differences in occupation and industry. We argue that the remaining portion – the unexplained gap – of the differential represents evidence of a segmented wage structure that differentiates full-time from part-time positions.

Third, are differences across countries in the magnitude of the gross wage differential, between part-time and full-time workers, explained more by differences in the degree of wage inequality across these countries or by differences in the earnings positions of part-time workers relative to full-time workers in the same country? Blau and Kahn (1992) report that cross-national differences in the size of the gender wage gap are largely a function of differences across countries in the overall level of wage inequality.³ Women are among the lowest earners everywhere, but the gender gap (that is, the gender difference in mean, or median, wages) is smaller when the entire earnings distribution is compressed, since the compression pulls up the bottom of the distribution relative to the middle.

We ask whether this same logic applies to the differences in the part-time/full-time wage gaps across these countries. Since part-time workers typically earn low wages, those employed in countries with a low floor on the income distribution will be likely to earn a small fraction of the wages of the average full-time earner. In contrast, those employed in countries with a high floor on the income distribution will earn a higher fraction of the hourly wages of full-time workers. We expect that the cross-national variation in wage dispersion will explain more than the differences in the relative position of part-time workers. Our analysis will enable us to determine if the inter-country variation in the magnitude of the wage penalty associated with part-time work reflects differences in overall inequality in each economy, or whether it is due to factors specific to part-time work.

Data and Methods

The Luxembourg Income Study (LIS) is an archive of micro datasets from diverse industrialised countries. The datasets – based on household surveys or tax records – contain demographic, employment and detailed income data at the household and individual level. We selected datasets for four countries from approximately the same point in time: the US (1986), the UK (1986), Canada (1987) and Australia (1986).⁴ The 'LIS Information Guide' (de Tombeur *et al.* 1994) includes details on the datasets, including the official names of the surveys, the administering agencies, the sampling frames and the sample sizes.

Our analysis requires appropriate and consistent indicators of both wages and employment status. We calculated hourly wages, using variables on annual wage and salary income, weeks worked per year, and hours worked per week, when hourly wage data were not directly available.⁵ Data errors in hourly wages can occur because of misreporting of annual earnings, or total hours worked, or both. We undertook two procedures to improve the quality of the hourly wage data. First, we adjusted the hourly wage estimates by bottom- and top-coding hourly wages at the 5th and 95th percentile, for part-time and full-time workers separately; the bottom- and top-coding was done separately by gender and country.⁶ This procedure reduces the influence of outliers.

A second step involved removing those who reported working fewer than ten hours per week. This is a small group in most countries, and it is the group for whom the hourly wage data were most suspect.⁷ Our analysis indicates that those who report that they worked fewer than ten hours per week tend to understate their hours worked; the consequence is an inflation of their estimated hourly wage. These two adjustments produced more consistent and reliable wage estimates.

In order to compare the hourly wages of part-time versus full-time workers, we coded all employed workers into part- versus full-time by using the survey item 'usual hours worked'. In general, these surveys define 'work' as any form of remunerated activity, including, primarily, wage and salary income from employment and incorporated small businesses. Working-age persons (those between 18 and 64 years old) were coded as employed if they reported working at least one hour per week, during the course of the survey week. While many studies of labour supply focus on labour force participation, rather than on employment, our analysis focuses on employed individuals because we are primarily interested in earnings, and thus excludes both the unemployed and those not in the labour force.

Employed persons were then coded as part-time workers if they reported usually working fewer than 35 hours per week of paid work.⁸ We initially chose 35 hours, not thirty hours, since that is the most common cut-off used in labour force surveys in the industrialised countries (OECD 1994). Our decision to use a uniform cut-off, and 35 hours specifically, was supported by an analysis of a series of histograms depicting the distribution of hours worked in each of these countries, for women and men separately. In all countries, sharp spikes were observed at 35–39 hours, and not at 30–34 hours. The population affected by the cut-off decision, then, turned out to be fairly small; in the UK, for example, only 7.1 per cent of employed women reported working between thirty and 34 hours per week.

In order to estimate the effects of being a part-time worker *per se* on hourly wages, net of differences in productivity- and job-related variables (our second question) we estimated standard semi-log wage equations,

identically-specified across countries. We estimated the parameters of the wage equations, for women and men separately, using ordinary least squares (OLS) regression. The dependent variable is the log hourly wages. The independent variables include age and its square, and education; occupation and industry; and a dummy variable indicating part-time work. Our analysis thus includes both full-time and part-time workers, and estimates the earnings differences between these two groups. Our basic approach, drawing on techniques widely used in research on the gender wage gap, is to take the estimate of the coefficient on the part-time variable as the measure of the independent effect of working part-time on hourly wages. We interpret this differential as evidence of the undervaluation of part-time positions. (We assess the strengths and shortcomings of this approach in our discussion of net wage gaps below.)

We faced the standard estimation problem that we have observed wages only for those persons who are employed; this presents a selection problem, which can result in biased parameter estimates. We decided to resolve this by using a two-stage estimation procedure. In the first stage, we used logistic regression to model the probability that persons are employed, using data on all working-age persons. The dependent variable was employment (as described above); following labour supply theory, the independent variables include the number and age of children, marital status, own age and education, and other household income (Killingsworth and Heckman 1986). In the second stage – the estimation of the wage equations – we selected only working persons and added to the list of regressors a transformation of each worker's predicted probability of being employed.

Following the consensus in cross-national empirical research, we used relatively few categories when coding our major independent variables, in order to maximise comparability across countries. Education was coded into three levels (low, medium, high); occupation into six fields (professional, administrative, sales, clerical, service, blue-collar); and industry into six groups (commerce, construction, utilities, financial services, other services, manufacturing). The agricultural sector was excluded.⁹

In order to explore our third issue – the effect of wage dispersion on the earnings of part-time workers – we calculated the ratio of the hourly wage of the 90th percentile earner to the 10th percentile earner, and also of the 50th percentile earner to the 10th percentile earner, for part-time and full-time workers combined. These inequality measures have the virtue of being insensitive to data errors and outliers in the extremes of the wage distribution. We then identified where the median part-time earners' wages fall in the distribution of full-time earners' wages in each country; we refer to this as the 'earnings position of part-time workers'. This analysis was conducted separately by gender.

Table 1 Part-time and Full-time Employment, by Sex and Country, 1986–1987

	Percentage of Working Age Population Employed	Percentage of Workers Employed Part-time (1–34 Hours)	Percentage of Workers Employed Part-time (10–34 Hours)
<i>Women</i>			
US 1986	61.7	28.2	26.1
UK 1986	55.9	54.5	50.4
Canada 1987	65.7	29.6	27.0
Australia 1986	53.8	41.8	36.7
<i>Men</i>			
US 1986	83.5	9.8	9.0
UK 1986	74.6	4.9	4.7
Canada 1987	85.4	5.6	5.0
Australia 1986	83.7	4.4	3.8

Results

A. Employment Rates and Rates of Part-time Work

Employment rates for each of the four countries, based on the LIS data, are presented in Table 1. The results pertain to the working age (18–64) population, and are presented separately for women and men. The results in Table 1 indicate that there is moderate variation across the four countries in the employment rates of women. During the mid-1980s, Canadian women were most likely to be employed (65.7 per cent), followed by women in the US (61.7 per cent), the UK (55.9 per cent) and Australia (53.8 per cent). The percentage of working women who are employed part-time varies much more, with the UK (54.5 per cent) and Australia (41.8 per cent) far exceeding Canada (29.7 per cent) and the US (28.2 per cent).¹⁰ Clearly, the work patterns of Canadian women resemble those of US women: North American women have higher rates of employment and lower rates of part-time work, compared with their counterparts in the UK

and Australia. Employed women in the UK report exceptionally high rates of part-time work.¹¹

Among men, employment rates are much higher, and rates of part-time work are much lower – and both vary less cross-nationally. The relatively low employment rate of men in the UK, relative to the other three countries, is almost entirely due to their higher unemployment rate (13.5 per cent) in the survey year: that is, male labour force participation rates, reported by OECD, are virtually identical across these four countries (Luxembourg Income Study 1992). The highest rate of part-time work among employed men (9.8 per cent, in the US) is much lower than the lowest rate among women (28.2 per cent, also in the US).

Table 1 also presents figures for part-time employment which exclude those working between one and nine hours per week. As mentioned above, we will exclude these workers from our earnings analysis because apparent data errors in hourly wages were more common among those who reported working the fewest hours. The great majority of part-time workers in these countries are employed for ten hours or more. Part-time work at fewer than ten hours per week is relatively more common among women in the UK and Australia but, even there, these workers account for less than thirteen per cent of the part-time workforce: part-time work at this low level of hours is rare among men in all countries.¹²

Earnings Differences: Gross Wage Gaps

Table 2 addresses our first question: do the LIS data confirm that part-time workers in all four countries earn less per hour than do their full-time counterparts, as we expected? The table summarises the median hourly earnings, in each country's own currency, of part-time workers (at ten hours or more per week) and full-time workers for each of the four countries, by gender.¹³ The results in the far right column indicate that in the US and the UK, women working part-time earn approximately eighty per cent of the hourly pay of their full-time counterparts. In Canada and Australia, in contrast, the comparable figure is approximately ninety per cent.

The gap for men is greater than for women in each of the countries examined, except in the UK. The data in Table 2 indicate that men working part-time in the US fare particularly poorly compared to their full-time counterparts. Surprisingly, the UK men working part-time actually report earning more per hour than do men working full-time. This finding is difficult to interpret since only a very small percentage of men in the UK work part-time. Of these, a disproportionate number are professionals, specifically teachers, who work relatively long part-time hours. Much, but not all, of the unexpected wage premium for UK part-time men is due to the distinctiveness of their occupational distribution.

Table 2 Median Hourly Wages, by Hours Worked, Sex and Country, 1986-1987

	10-19 Hrs.	20-29 Hrs.	30-34 Hrs.	35-39 Hrs.	40-49 Hrs.	50+ Hrs.	Part- time 10-34	Full- time 35+	Ratio Part/Full 10-34
<i>Women</i>									
US 1986	\$6.31	5.47	5.52	7.25	7.45	7.30	5.77	7.42	0.78
UK 1986	£2.52	2.60	2.92	3.40	3.18	2.26	2.63	3.32	0.79
Canada 1987	\$10.82	9.04	7.65	10.97	9.16	10.03	8.96	10.08	0.89
Australia 1986	\$8.92	7.61	7.16	8.93	8.24	9.07	8.01	8.74	0.92
<i>Men</i>									
US 1986	\$9.06	6.81	9.43	11.22	11.22	9.89	7.90	10.90	0.72
UK 1986	£4.09	5.80	7.61	4.92	4.24	3.94	6.46	4.38	1.47
Canada 1987	\$10.37	13.63	9.23	17.16	14.35	10.53	11.49	14.00	0.82
Australia 1986	\$8.82	7.97	7.81	11.22	10.16	9.94	8.17	10.40	0.79
<i>Ratio Women/Men</i>									
US 1986	0.70	0.80	0.59	0.65	0.66	0.74	0.73	0.68	0.66
UK 1986	0.61	0.45	0.38	0.69	0.75	0.57	0.41	0.76	0.68
Canada 1987	1.04	0.66	0.83	0.64	0.64	0.95	0.78	0.72	0.71
Australia 1986	1.01	0.95	0.92	0.80	0.81	0.91	0.98	0.84	0.83

Note that the cross-national pattern in the wage gap between part-time and full-time female workers is not parallel to the pattern in employment rates and hours worked. Among women, the wage differential in the US resembles that reported in the UK, despite the marked divergence in rates of part-time work. Despite many other similarities between US and Canadian workers, the relative wages of part-time workers in Canada are considerably higher than is the case in the US. The part-time/full-time differential is smallest in Australia, where the hourly wages of women part-time workers are 92 per cent of full-time workers' wages.

These results are consistent with the premise of the segmentation thesis as outlined above, that part-time jobs operate in a distinct labour market with lower wages than full-time jobs. We now consider whether these differences persist after individual-level controls are added to the analysis.

Earnings Differences: Net Wage Gaps

Next, we turn to the results of our individual-level analyses. We ask across these countries, what proportions of the gross wage gaps are explained by measurable differences between part- and full-time workers in productivity-related variables? What proportions of the remaining gaps (that is, net of measured human capital differences) are explained by differences in occupation and industry?

Table 3 summarises the results of our multivariate analysis of the part-time wage penalty. The coefficients presented indicate the *independent* effect of part-time employment on the log of the hourly wage: the coefficients may be interpreted as the approximate percentage difference in hourly earnings between part-time and full-time workers. The hourly wage variable employed in this analysis is corrected for likely errors as described above in the data and methods section. Successive models add controls for age and education, occupation and industry.¹⁴

The first column in Table 3 presents the unadjusted wage gaps. Note that estimates of unadjusted gaps presented in Model 1 in this table differ slightly from results on gross gaps reported in Table 2, because Table 2 is based on medians. Nevertheless, the overall story is consistent. Among women, gross differentials are larger in the US and in the UK compared with Canada and Australia, and, among men, we see greater gaps than for women, as well as the positive wage differential reported by part-time workers in the UK.

In the UK, then, we see that the unadjusted wage gap between part-time and full-time women workers is approximately nineteen per cent. The addition of controls for age and education actually raises the differential, slightly, to twenty per cent. Occupation and industry controls narrow the gap to fourteen per cent. In other words, this analysis suggests that women in the UK who are employed part-time earn approximately fourteen per

Table 3 Gross and Net Part-time/Full-time Earnings Differentials

		Dependent Variable: Log of Hourly Wages (Corrected)			
Independent Variables	Model 1	Model 2	Model 3	Model 4	
	Part-time	Part-time Education Age	Part-time Education Age Occupation	Part-time Education Age Occupation Industry	
		B (S.E.) Adj. R2	B (S.E.) Adj. R2	B (S.E.) Adj. R2	B (S.E.) Adj. R2
<i>Women</i>					
US	-0.24***	-0.21***	-0.17***	-0.15***	
1986	(0.02)	(0.02)	(0.02)	(0.02)	
	0.04	0.16	0.22	0.25	
UK	-0.19***	-0.20***	-0.15***	-0.14***	
1986	(0.02)	(0.02)	(0.02)	(0.02)	
	0.05	0.20	0.39	0.42	
Canada	-0.10***	-0.08***	-0.05**	-0.04*	
1987	(0.02)	(0.02)	(0.02)	(0.02)	
	0.01	0.12	0.18	0.19	
Australia	-0.14***	-0.13***	-0.11***	-0.11***	
1986	(0.02)	(0.02)	(0.02)	(0.02)	
	0.03	0.09	0.14	0.15	
<i>Men</i>					
US	-0.30***	-0.24***	-0.23***	-0.23***	
1986	(0.03)	(0.03)	(0.03)	(0.03)	
	0.02	0.21	0.25	0.28	
UK	+0.23***	+0.16***	+0.12***	+0.19***	
1986	(0.04)	(0.04)	(0.04)	(0.04)	
	0.01	0.19	0.30	0.33	
Canada	-0.31***	-0.28***	-0.25***	-0.19***	
1987	(0.04)	(0.04)	(0.04)	(0.05)	
	0.01	0.12	0.14	0.14	
Australia	-0.21***	-0.20***	-0.19***	-0.15***	
1986	(0.03)	(0.03)	(0.03)	(0.03)	
	0.01	0.14	0.19	0.23	

*p < 0.10; **p < 0.05; ***p < 0.01.

cent less per hour than measurably similar workers who are employed full-time. In the UK, the control variables included in the analysis explain just over one-fourth (26 per cent) of the wage gap between part-time and

full-time women workers: the remainder is unexplained. Occupation and industry variables, in this case, account for the entire explained portion of the gap.

The three most salient findings from our individual-level analyses are as follows: First, the part-time/full-time wage gap, net of productivity- and job-related controls, is largest in the US, for both women and men – indicating that being a part-time worker *per se* is most problematic, with regard to cash compensation, in the US. Female part-time workers in the UK face nearly the same unexplained penalties as do US women.

Second, among women, control variables explain sixty per cent of the gap in Canada, compared with twenty to forty per cent in the other three countries; job-related controls explain more of the gross gaps than do human capital variables in all four countries. Thus, in all included countries, forty per cent or more of the gross wage differential remains unexplained.

Third, the net wage gaps between part-time and full-time workers are generally larger for men than for women (excluding the UK) and control variables explain less of the gap for men than for women (except in Australia). This finding is consistent with results from a separate analysis that we conducted on the extent to which part-time and full-time workers are segregated by occupation and by industry (results not shown). When we calculated standard indices of segregation – measures of the extent to which part-time and full-time workers are employed in different occupations and industries – we found that, in general, male part- and full-time workers are more segregated (by occupation and industry) than are their female counterparts. However, the relationship between the degree of segregation and the earnings position of the part-time worker is weaker among men, which suggests that occupational and industrial segregation between part- and full-time workers is more strongly associated with the concentration of part-time workers in lower-paying occupations and industries for women than it is for men.

As explained in the methods section, in order to resolve possible methodological problems we carried out an additional analysis. To resolve potential bias resulting from the exclusion of non-employed persons (that is, possible selection on the dependent variable), we did a two-stage selection correction for both women and men, including in the second stage controls for the probability of being employed. However, this correction was problematic. In the women's equations, the predicted probability of employment was often highly collinear with other variables, particularly age, education and the part-time variable itself. For the men, in general, the correction made very little difference in the wage equation coefficients. (In their research on gender wage gaps, Rosenfeld and Kalleberg (1990) used a similar selection procedure and report a similar result.)

While we know that selection bias, for the men, is minimal, there may be some bias in our women's results, due to women's lower levels of employment. Because there is relatively little variation across countries in women's employment rates (less than twelve percentage points), we are doubtful that bias seriously affects the cross-national results, among women, on part-time penalties: we consider the fact that estimated gaps paralleled gross gaps (reported in Table 2) to be further support. The differences in results between men and women seem considerably greater, especially in Canada and the US, than might be accounted for by possible bias in the women's results.

We interpret the remaining wage differences between full-time and part-time jobs as evidence of the undervaluation of part-time positions. This interpretation has limitations. The most important is the possibility that unmeasured differences in worker characteristics might explain some (or even all) of the part-time composition effect, leading to overestimates of the effect of this form of labour market segmentation. Clearly, unmeasured worker characteristics related to productivity, net of age and education, may contribute some portion of the unexplained part-time/full-time differential. If it is the case that part-time workers are less productive, our net gaps would overstate the effect of part-time status. On the other hand, OECD (1994) reports that part-time workers have been found to be more productive per unit of time, all else being equal, than full-time workers, because they display higher work intensity and lower levels of absenteeism. In addition, they often are more skilled than their jobs require. Our estimate of this form of discrimination may thus be understated.

Second, unmeasured job-level segregation, net of our occupational controls, may account for some portion of the residual. Tomaskovic-Devey (1993) found that the use of occupational controls consistently underestimates the impact of sex segregation on the gender gap in earnings. He reported that, in his study, job-level measures of sex segregation accounted for fully 75 per cent of the gender earnings gap; that is, over twice as much as that usually accounted for when occupation-level measures are used (35 per cent). If full-time and part-time workers occupy significantly different types of jobs, then portions of the full-time premiums that we find might actually be job-related premiums. This, in our view, would alter the form, but not the fact, of the labour market segmentation of part-time workers.

Finally, we raise the possibility that the causality may, to some extent, run in the opposite direction: there may be some degree to which lower earnings cause some workers to work part-time since there is less incentive to engage in full-time work. While this is possibly an important factor with the women, it is unlikely that it contributes significantly to the estimated men's part-time differential: empirical research on labour supply has established that, unlike women's, men's work intensity is generally fairly inelastic with respect to hourly wage rates (Berndt 1991).

Table 4 Wage Inequality, by Sex and Country, 1986–1987

	Ratio of Median Hourly Wages (Part-time/ Full-time)	90/10 Wage Ratio	50/10 Wage Ratio	Position of Median Part-time Worker in the Distribution of Full-time Wage Earners
	(Ratio)	(Ratio)	(Ratio)	(Percentile)
<i>Women</i>				
US 1986	0.78	4.57	2.21	31
UK 1986	0.79	3.26	1.60	27
Canada 1987	0.89	5.02	2.51	40
Australia 1986	0.92	3.12	1.77	47
<i>Men</i>				
US 1986	0.72	4.47	2.24	29
UK 1986	1.47	3.24	1.72	79
Canada 1987	0.82	3.80	2.22	35
Australia 1986	0.79	2.48	1.61	23

The Role of Wage Dispersion

The results presented in Table 4 allow us to examine our third question – does high wage dispersion increase the part-time/full-time differential? Blau and Kahn (1992) report, for example, that the average earnings of both Swedish and US women fall at the same percentile in the men's earnings distributions in their respective countries. Yet the gap between women's and men's earnings is much smaller in Sweden than in the US. They demonstrate that the gap is smaller in Sweden, compared with the US gender gap, because the overall earnings distribution is more equal. Women, we might say, fall on the 'same rung of the ladder' in the two countries, but the Swedish ladder is much shorter than its US counterpart. We sought to determine whether the same logic could account for the earnings ratios of part-time workers relative to full-time workers in our four countries.

The second column in Table 4 reports the 90/10 ratio – the ratio of the earnings of the 90th percentile to the 10th percentile worker for part-time

Figure 1 PT/FT Wage Differentials by Degree of Wage Dispersion

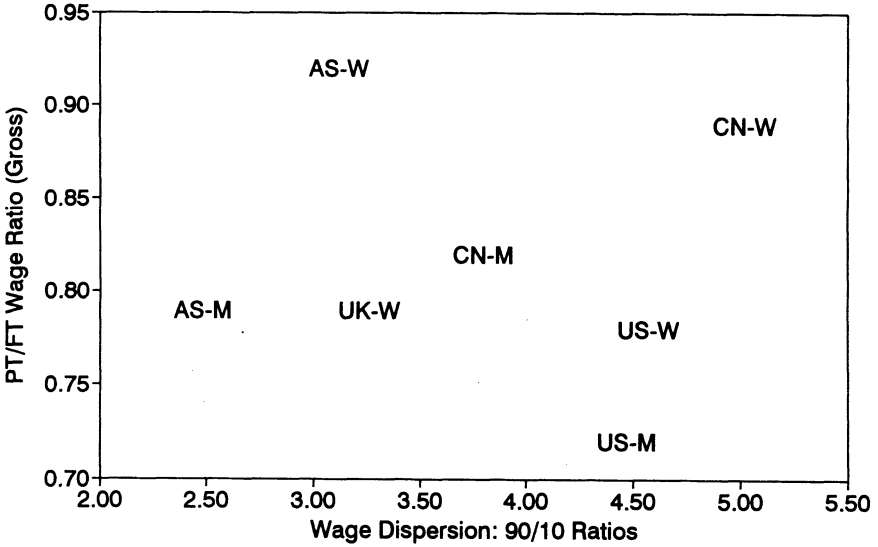
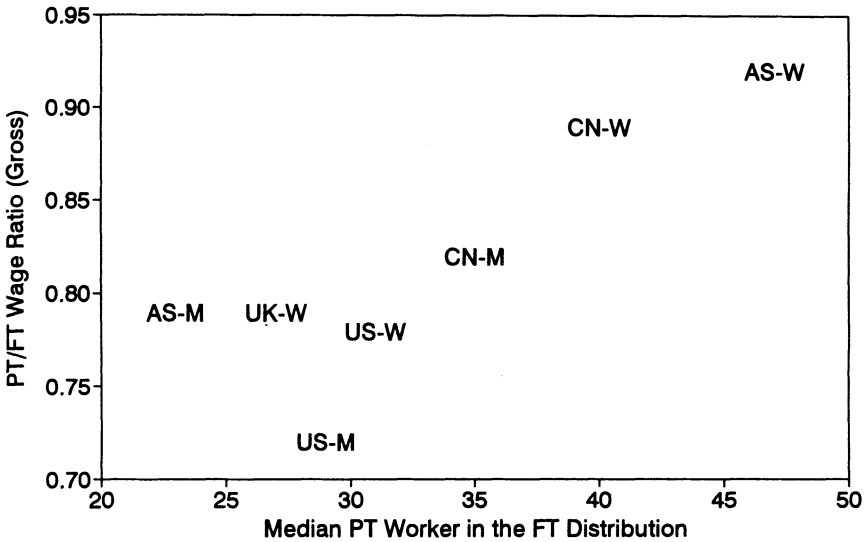


Figure 2 PT/FT Wage Differentials by Position of Median PT Worker



and full-time workers combined. In the third column, we present the somewhat less conventional 50/10 ratio. This statistic is useful in that it focuses attention on the bottom half of the earnings distribution. Among

both women and men, then, wage inequality is greater in the US and in Canada than in the UK and Australia. In Canada, for example, a woman at the 90th percentile earns 5.02 times as much as a woman at the 10th percentile. The 50/10 ratios tell largely the same story.

The fourth column in Table 4 indicates where the wages of the median part-time worker falls in the earnings distribution of full-time workers – that is, the ‘earnings position of the part-time workers’. Thus we see that, among women, Australian part-time workers earn a median wage nearly equal to that of their full-time counterparts while, in contrast, in the UK the median part-time worker earns an hourly wage equal to a full-time worker just above the lowest quartile.

The results in Table 4, and the accompanying Figures 1 and 2, indicate that the variation across countries in the part-time/full-time differentials in hourly wages is explained more by the differences in the relative *positions* of part-time workers in the wage distribution, than by the cross-national variation in degrees of dispersion. Figure 1 depicts the part-time/full-time wage ratio on the vertical axis and wage dispersion (the 90/10 ratios) on the horizontal axis, whereas Figure 2 shows wage ratios on the vertical axis and the position of part-time workers on the horizontal axis. In this analysis, we exclude UK men, due to the anomalously high earnings reported by male part-time workers in the UK. Figures 1 and 2 depict these relationships for the remaining seven groups of workers. If the relationship between the wage ratios and the degree of dispersion were strong, we would see a marked downward-sloping pattern in Figure 1: clearly, the relationship is weak. If the difference in the position of the median part-time worker were a strong underlying factor, we would see an upward-sloping pattern in Figure 2 – as we do. Thus, we conclude that cross-national differences in wage dispersion do *not* explain the part-time/full-time differentials.

We conclude that the cross-national differences in the part-time/full-time wage differentials are due more to variation in policies and practices specific to part-time work rather than to differences in the overall structure of wages across countries. We now turn to a brief review of factors that may help to account for the treatment of part-time work in different countries.

Policy Implications

We focus on two key institutional and policy variables to account for the differences in the earnings of part-time workers in the four countries studied: government policies toward wage-setting, including minimum wage laws, mandatory overtime, and other wage-setting practices; and the extent of unionisation and the orientation of unions toward part-time workers.

While some countries have passed general statutes prohibiting discrimination against part-time workers in conditions of work (Thurman and Trah 1990), none of these four countries has taken that approach. Nevertheless, public policies in these countries clearly do affect the economic status of part-time workers in a myriad of ways. As legislators, governments mandate employment standards concerning work conditions, including pay. Most relevant here are two sets of public policies which affect cash compensation – minimum wages and mandated overtime pay. For each type of policy, governments can regulate both rates of pay and rules of coverage. In addition, governments regulate industrial relations arrangements, which in turn often provide protections related to the compensation of part-time workers (Drummond 1992).

The extent and orientation of unions also plays a significant role in explaining the position of part-time workers. The overall degree of union coverage, and of part-time workers in particular, varies; and this variation helps to explain inter-country differences in the relative earnings of part-time workers. In some countries, the degree of protection offered to part-time workers (and to all workers) depends on collective bargaining and enterprise-level practices as much as on legislation. The two systems are often viewed as complementary, and their relative weights depend on the overall system of industrial relations.

In Table 2 we have seen that, among women, part-time workers face the largest pay gaps – gross and net – in the US and the UK, followed by Australia and Canada. The role of wage-setting institutions is highlighted in the Australian case. Our earlier analysis attributes the smaller Australian wage differentials to a more compressed wage spread and to the higher position of Australian women who work part-time in the distribution of earnings of full-time workers. Both these differentials are affected by aspects of the Australian wage-setting system. Australia's industrial relations system, which covers 85 per cent of workers, is characterised by the operation of independent industrial tribunals at both the federal and state levels. Wages, occupational benefits and working conditions are set out in awards made by these tribunals, under the active guidance of a Federal agency, the Australian Conciliation and Arbitration Commission (ILO 1989b). This wage-setting structure, which sets Australia apart from our other three countries, has the effect of compressing the wage distribution.

Furthermore, the conditions of pay determination for part-time workers are significantly more favourable in Australia, compared with the other countries. Hourly wages for Australian part-time workers are set within this award system: a premium hourly wage rate is set for part-time workers, usually in the range of between ten and fifteen per cent above the full-time rate (ILO 1989a). In addition, at least some awards provide for overtime pay for part-time workers working hours in excess of their normal schedules. These elements of the pay-determination system in Australia go

a long way towards explaining the smaller part-time/full-time differentials, especially compared with those found in the UK and in the US.

A comparison between the UK and the US is illuminating. Why do women part-time workers in the UK receive slightly higher average wages, relative to full-time workers, than do their US counterparts? As noted earlier, in the UK, women part-time workers are actually somewhat less well positioned *vis-à-vis* full-time workers (at the 27th versus the 31st percentile in the US). However, countervailing their low position is the fact that the entire wage distribution is more compressed. The greater wage equality in the UK is affected, in part, by the higher overall levels of unionisation in the UK – approximately fifty per cent in the middle 1980s, as against approximately nineteen per cent in the US, men and women combined (Bamber and Lansbury 1987).

While overtime pay for part-time workers is virtually non-existent in both the UK and the US (ILO 1989a), differences in the structure of minimum wage legislation may contribute to the slightly lower distributional position of UK part-time workers. The US has a unified national minimum wage law, and part-time workers are covered by the law. In the UK, minimum wage machinery operates only in selected industries; the emphasis of minimum wage legislation has been on providing wage regulation, via a system of wage councils, where effective trade union organisation is lacking (Starr 1981). Available evidence suggests that a greater proportion of US part-time working women are actually protected by minimum wage regulation.

The relatively low earnings of UK part-time workers appear to be influenced by additional policy and institutional factors. Briar (1992) argues that in the UK, since the 1940s, state policies have actively promoted part-time work for women, ostensibly to meet temporary labour shortages and increase labour market flexibility. Indeed, the rate of part-time work amongst employed women is among the highest in the industrialised world. Briar argues that UK state policy has targeted women as potential part-time workers. The state itself recruited part-time teachers, nurses and clerical workers: 'through a combination of propaganda and its own example, the state played a major role in persuading employers to test the advantages of part-time workers'. She further argues that 'there has been a policy of encouraging the recruitment of part-timers into the jobs with the least desirable working conditions'. The existence of an active state policy, as in the UK, which seeks to expand part-time employment by women (especially in less desirable jobs) is not matched in our other countries. This history may also help to explain the anomaly of high earnings of men in the UK who work part-time. If the prevalence of low-wage part-time jobs for women is the result of deliberate government policy, the uniquely favourable position of the small number of part-time men in the UK becomes more understandable.

The relatively favourable wages (gross and net) of Canadian women part-time workers compared to their US counterparts point towards another institutional factor: union density, specifically among part-time workers. Canadian women do not benefit from a more compressed wage spread – in fact, wages are more dispersed than those in the US. Overall, in the middle 1980s, approximately 38 per cent of Canadian workers were unionised – nearly twice the rate in the US. We also find that the rate of unionisation among part-time workers relative to full-time workers is considerably higher. Canadian part-time workers, overall, are about half as likely to be unionised as are full-time workers; in the US, their rates of unionisation are one-third those of full-time workers (Employee Benefits Research Institute 1993; Pupo and Duffy 1992). The relative rate of unionisation in Canada – of part-time *versus* full-time workers – is even higher among women: among women, part-time workers are fully two-thirds as likely to be unionised. Our inference that differences in unionisation patterns contribute to the different wage outcomes between the US and Canada is supported by the finding that among unionised women workers in Canada, the hourly wage of part-time workers is higher than that of full-time workers (Commission of Inquiry into Part-time Work 1983). Canadian public policy is widely recognised to be more favourable toward unions than is US policy (Bamber and Lansbury 1987), including towards part-time workers.

Important future directions for research include extending the systematic study of part-time wage differentials to a larger group of countries and, in addition, carrying out analyses concerning the costs and benefits (as well as the political feasibility) of instituting and implementing social and labour market policies aimed at improving the relative compensation of part-time workers.

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Notes

1. Blank's figures do not include controls for occupation; instead, she reports occupations separately.

2. In a future paper, we plan to flesh out the question of the relationship between regime types and part-time penalties by extending this analysis to a broader set of countries, i.e. with variation across regime types.
3. Rosenfeld and Kalleberg (1990) foreshadowed this finding with their results which indicate that, among nine industrialised countries, more corporatist countries have smaller gender earnings gaps.
4. More recent data from these countries were not available from LIS at the time that we carried out these analyses. Data from the 1989–1991 period will be available later in 1995.
5. Note that data on weeks worked per year are not available in the UK. We used 52 weeks per year for all UK workers.
6. Bottom- and top-coding replaces values below the 5th percentile with the 5th percentile value, and those above the 95th percentile with the 95th percentile value. Note that these ‘cleaned’ estimates of hourly wages were used in the models for the estimation of part-time penalties.
7. The exclusion of women workers who reported fewer than ten hours per week eliminated 2.9 per cent of employed women in the US, 8.3 per cent in the UK, 3.7 per cent in Canada and 8.1 per cent in Australia. The exclusion of men in this category eliminated less than one per cent of employed men in all four countries.
8. Some of the LIS database surveys ask employed respondents to classify their usual work status as part-time versus full-time. We chose not to use these status variables to classify workers, since the cut-off points vary by country: some use 35 hours, and others thirty.
9. Details on country-specific education, occupation and industry coding are available from the first author.
10. OECD data indicate that, in the late 1980s, there is virtually no relationship across countries between the female share in the labour force and the female share in part-time work. Findings by Blossfeld (1994) and Rosenfeld (1993) support this conclusion.
11. These results on women’s employment rates from the LIS microdata parallel OECD data on women’s labour force participation rates. Female labour force participation rates vary only moderately across these four countries and, relative to the industrialised countries as a whole, these four fall near the middle of the range. The four countries rank in the same order with respect to both labour force participation rates (from OECD data) and employment rates (from LIS microdata).

Furthermore, fairly comparable aggregate OECD indicators on part-time work rates confirm the pattern that we report among these four countries. While the US and Canadian women fall in the middle of the range, women in Australia and, especially, in the UK show relatively high rates of part-time employment. Rates of female part-time work exceeding fifty per cent, as reported by working women in the UK, are rare in industrialised countries (OECD 1990).

12. We also analysed cross-national differences in mean hours worked per week. For women, these results reflect the pattern revealed in Table 1. The average number of hours worked per week by employed women in the US (36.9 hours) and Canada (34.5 hours) significantly exceed the average for Australian women (31.6 hours), with women in the UK working the fewer hours (27.7) per week. Among part-time workers, the same patterns hold: Australian and UK women work fewer hours, US and Canadian women work more hours per week. For the men, the correspondence between rates of

part-time work and mean hours is not as straightforward. In fact, US men – who have the highest rate of part-time work – work, on average, the longest hours; however, among the men, there is very little variation overall in hours worked.

13. We calculated these part-time/full-time differentials both with and without those who work fewer than ten hours (not shown). The effect of removing them on the differentials is very limited, especially for women.
14. Results from the full regression estimations and sample means on all variables can be obtained from the first author.

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