Women and Part-Time Employment:

Workers' 'Choices' and Wage Penalties in Five Industrialized Countries

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Abstract: This paper uses cross-nationally comparable data from the Luxembourg Income Study (LIS) to analyse the patterns and consequences of part-time employment among women across five industrialized countries—Canada, Germany, Italy, the United Kingdom, and the United States—as of the middle 1990s. The results reveal the influence of dependent care responsibilities related to the presence of young children and elderly household members. We also find *unadjusted* part-time wage penalties everywhere, ranging from 8-12% in Canada and Germany, to 15% in the UK, to as high as 22% in the US and Italy, meaning that part-time workers earn that much less than full-time workers. The sources of the observed wage gaps vary markedly across countries; only in Germany do we find evidence of 'discrimination' against part-time workers.

Keywords: female labour supply, part-time employment, wage differentials

JEL Classification: J21, J24, J31

Non-Technical Summary

In this paper, we use cross-nationally comparable data from the Luxembourg Income Study (LIS) to analyse the patterns and consequences of part-time employment among women across five industrialized countries—Canada, Germany, Italy, the United Kingdom, and the United States—as of the middle 1990s. First, we investigate women's employment choices, specifically the three-option decision between non-employment, part-time employment, and full-time employment. Second, we analyse the direct economic consequences for women workers of engagement in part-time rather than full-time employment.

Our empirical analysis is structured around two questions. As we assess our findings with respect to these questions, our primary interest is always in identifying cross-national similarities as well as variability:

(1) Which factors—individual and household—affect the employment decisions of adult women, that is, their decisions with respect to non-employment versus part-time employment versus full-time employment? Which factors seem to have a uniform effect on women's choices across these countries, and which appear to vary cross-nationally?

(2) How do the hourly earnings of part-time workers differ from those of full-time workers, both with and without worker- and job-related controls? Again, to what extent do we find uniform—versus varying—patterns of pay differentials across countries?

Our results indicate marked variation across these countries, but reveal a number of uniformities as well.

First, with respect to women's *employment choices*, we find significant and varying effects of many of the independent variables. The results especially reveal the influence of dependent care. Our results reveal that, as expected, *child-related factors*—both the presence and age of children—are crucial to women's employment outcomes in nearly all cases. In all countries, being a mother (compared to being childless), *ceteris paribus,* decreases the probability that a woman selects full-time work, and increases the probabilities of both non-working and of working part-time. *Among* mothers, the effects of having young children vary across countries, with the largest effects—decreases in full-time work, increases in non-work—seen in Germany and in the UK, and smaller effects seen in Canada and the US. Part-time work, as a substitute for full-time work, typically becomes a more common option as women's young children leave infancy and enter their preschool, then their school-age, years.

The cross-national pattern is consistent with our expectations; the effects of young children are smaller, overall, where part-time work is less widely available and (in the case of Italy) where the state provides more preschool slots. It is interesting that the effects of

young children are mitigated, to some extent, by the presence of non-earning elderly household members, especially in the English-speaking countries where out-of-home child care options are fewer.

We also found strong and consistent effects of the presence of a *non-wage-earning adult* in the home on working-age women's labour market attachment. These adults may be unemployed or out of the labour market for a variety of reasons; many 'adult dependents', especially those who are elderly, will be in need of care. As expected, the presence of 'adult dependents'—spouses and non-spouses—exerts substantial downward pressure on women's probability of working full-time, and in several cases on the probability of working part-time as well.

Second, we turned our attention to the direct economic consequences for women workers of engaging in part-time rather than full-time employment—that is, to the question of *wage penalties* associated with part-time employment. We find *unadjusted* penalties (i.e., with no controls for measurable worker- and job-related characteristics) everywhere, ranging from 8-12% in Canada and Germany, to 15% in the UK, to as high as 22% in the US and Italy, meaning that part-time workers earn that much less than full-time workers in each of these countries. Although controlling for measurable worker- and job-related characteristics fails to fully explain the gap in any country, our controls reduce the observed gap in all countries; the reduction due to measured characteristics ranges from 9% in Germany to over 90% in the UK. After controlling for measurable characteristics, the largest wage gaps are still found in the US (17%) and in Italy (14%). Wage gaps—adjusted and unadjusted—may be larger in these countries (the US and Italy) due in part to their smaller part-time labour markets (where part-time work is more marginalized); the very low level of regulation in the US may also drive the gap upwards.

While the unadjusted wage differential in the UK is mainly due to differences in observable characteristics, in three countries—Canada, the US and Italy—the wage gap is mostly due to the 'selection effect'. This means that women are selected into the two labour forces in a way that increases the gap between their earnings, although we are not able to explain what is different about the two groups of workers. Finally, in Germany the wage gap is mostly due to differences in returns to characteristics (combined with the differences in the constants). In this sense, only in Germany is there is evidence of pay 'discrimination' directed at part-time workers, relative to their full-time counterparts.

1. Introduction

Much recent research has demonstrated that the proportion of workers in part-time employment varies substantially across the industrialized countries, with, overall, higher levels in the northern European countries, moderate levels in the North American countries, and lower levels in the southern European countries (OECD, 1994; Rubery et al., 1998; Smith, Fagan, and Rubery, 1998; Thurman and Trah, 1990). The cross-national variation in part-time work rates is shaped by a confluence of factors, including inter-country differences in labour market structures, macro-economic conditions, social insurance rules, union preferences, public policies on part-time employment, the availability of work-family programs, and attitudes toward work. Nevertheless, despite this variation, women are over-represented among part-time workers in every OECD country. Despite dramatic labour market gains for women in the post-war period, part-time work remains 'women's work'.[1]

The extent to which women's engagement in part-time work is freely 'chosen', and the degree to which it is beneficial in both the short- and long-term, are much debated issues in the literature on part-time work. On the one hand, many women, especially those with young children, 'voluntarily' seek part-time employment, i.e., it is their chosen solution for meeting the dual demands of employment and parenting. For women for whom full-time employment is not an option—for example, if full-time child care cannot be arranged—part-time employment represents a connection to the labour market that they would not otherwise have.

At the same time, in many countries there appear to be costs for workers that are inextricably linked to the decision to work part-time. Hourly-wage penalties, and a range of other costs, suggest a more troubling interpretation of the deeply gendered nature of part-time work, and also of the recent upward trend in rates of part-time employment throughout the industrialized countries. The reasons for these costs remain, to a large degree, an open question. It is clear, however, that in most countries part-time workers—

[1] In this paper, for convenience, we use the term 'work' interchangeably with 'employment' when we mean to refer to paid (or market) work. We certainly recognize unpaid work also to be 'work', but maintaining that distinction seemed unnecessarily cumbersome.

especially women—are typically concentrated in a few low paid sectors (Meulders and Plasman, 1993), providing evidence for a particular form of labour market segmentation.

In this paper, we use data from the Luxembourg Income Study (LIS) to analyse patterns of part-time work, and its consequences for women, in five industrialized countries—Canada, Germany, Italy, the United Kingdom, and the United States—as of the middle 1990s.[2] First, we investigate women's employment choices, specifically the three-option decision between non-employment, part-time employment, and full-time employment, with a focus on the household variables that shape those choices. Second, we analyse the direct economic consequences of part-time work for women, in the form of hourly pay penalties.

In section II, we lay out the framework for our analysis, concentrating on current debates about the nature of the part-time 'choice', and we present key findings from the literature on the advantages and costs associated with part-time work. In section III, we present four research questions that structure our empirical investigation, and summarize our prior expectations. Our research questions fall within two broad areas of inquiry:

(1) How do household factors—i.e., the presence and age of children, the presence of 'dependent adults', and the level of other income in the household—affect the employment decisions of adult women, that is, their decision with respect to full-time, versus part-time, versus non-employment? Which household factors seem to have a uniform effect on women's choices across these countries, and which appear to vary cross-nationally?

(2) How do the hourly earnings of part-time workers differ from those of full-time workers, both with and without worker- and job-related controls? Again, to what extent do we find uniform—versus varying—patterns of pay differentials across countries?

In section IV, we describe our data, methods, and analysis plan, and in section V, we present our empirical findings on choice and on wage differentials in these five countries. The presentation of findings is structured around the two sets of questions that motivate our analyses.

[2] Although this paper is about women's engagement in part-time work, and the associated costs, we include men when we report rates of part-time work across countries (Table 1) so that we can assess the extent to which part-time work is female-dominated.

In the final section, we summarize the findings and comment on future directions for research on part-time employment.

2. Background and Literature

The Growth of Part-Time Work

Since 1960, the percentage of employed women working part-time increased, sometimes dramatically, in two-thirds of the OECD countries, and decreased, usually modestly, in about one-third. Growth was particularly rapid in the 1980s. At the same time, the percentage of employed men working part-time also increased—although from much lower base levels—in all of the industrialized countries (OECD, 1994; OECD, 1999; Smith, Fagan, and Rubery, 1998). As a result of the two trends, the female share in part-time work has remained fairly stable during this period. Currently, women's share in part-time work averages about 80% in the European/OECD countries (OECD, 1999), establishing that part-time work, for the most part, remains 'women's work' across the industrialized countries.

The reasons underlying the overall growth in part-time work, for both women and men, are varied and inter-related. Multiple supply and demand factors are in effect across the OECD countries. First, as is well known, labour markets throughout these countries are restructuring and an important component of that restructuring is growth of the service sector. Service industries employ the vast majority of part-time workers—in 1994, 84% of European Union part-time workers were in the service sector (Smith, Fagan, and Rubery, 1998)—so its expansion pushes up part-time work rates, even if the share of part-time workers within sectors remains unchanged. Smith, Fagan, and Rubery (1998) conclude that in the EU countries, sectoral shifts accounted for about one-third of the rise in part-time work between 1983 and 1992. However, they note that in some countries—notably the UK—the 'sector effect' on women's part-time employment is substantially higher because of the large-scale shift to services in the 1980s.

Other inter-connected demand-side factors have also influenced the expansion of part-time work. Across the industrialized countries, pressures to reduce labour costs and to increase flexibility have led to the expansion of 'atypical' employment forms, including

part-time work. Several ongoing macroeconomic shifts have contributed to these pressures on employers in a variety of sectors—including the rise of transnational and global markets and, in Europe especially, the recent period of high and persistent unemployment. Supply and demand factors dovetail here as well, in that job shortages encourage both male and female workers who want full-time employment to accept part-time jobs (Smith, Fagan, and Rubery, 1998).

In addition, multiple supply-side trends have contributed to the growth in part-time work; probably the most influential has been the dramatic increase in women's labour force participation that has taken place in recent decades. Between 1960 and 1990, women's participation rates increased in every OECD country, with the sharpest rise seen among mothers; in some countries, women's participation rates more than doubled in those thirty years (OECD, 1994). The factors underlying women's increasing participation are many, including political, social and educational changes; legal and policy shifts; economic trends, including the decline in male wages; as well as the 'pull' of various demand factors. Because women in all western countries contribute the majority of household labour, and maintain primary responsibility for childrearing, they face more intense pressure in combining parenting and employment than do men. As a result, many mothers in these countries seek and hold part-time jobs, often finding part-time work the optimal solution for juggling the multiple demands they face. The dramatic influx of mothers into paid work has constituted a substantial factor underlying the growth of part-time work in the industrialized countries.

The Part-Time Debate

As part-time work has expanded, interest in it—from many perspectives—has exploded as well. Part-time work has attracted enormous attention from academics—especially labour market scholars across disciplines as well as sociologists of the family (see, for example, edited volumes on part-time work by Blossfeld and Hakim, 1997; O'Reilly, and Fagan, 1998; and Warme, Lundy, and Lundy, 1992; see, also, the *Journal of Labor Research*'s symposium on part-time employment 1995). The growth of part-time work is also of interest to a varied group of political actors—including women's rights advocates; trade unions and other worker organizations; and policy-making bodies, including supra-national

organizations such as the Council of the European Union and the ILO, in addition to national legislatures in several countries.

Why is there so much concern with part-time employment? What are the central dilemmas embodied in the growth of part-time employment? If employers benefit from the reduced labour costs and the flexibility of the arrangement, and if many part-time workers (especially mothers) voluntarily seek—or at least voluntarily accept—part-time work, then isn't its proliferation to be applauded?

The crux of the concern with part-time work—from most of these perspectives—is that engagement in part-time work appears, in many countries, to carry with it several costs for workers. These costs include lower hourly wages (Bassi, 1995; Gornick and Jacobs, 1996; OECD, 1994; Rubery, 1992; EBRI, 1993; Simpson, 1986); reduced access to occupational benefits (Campling, 1987; Grant, 1991; ILO, 1989; OECD, 1994) and public social welfare benefits (Euzeby, 1988; Maier, 1992); as well as limited opportunities for advancement (Rosenfeld, 1993; Tilly, 1990). Finally, part-time workers often lack job security, risking both layoffs and cutbacks in hours worked—in part because they are less likely to be unionized (Belous, 1989). Because part-time work is typically 'women's work', any systematic costs borne by part-time workers are disproportionately borne by women. In other words, part-time work is deeply gendered, and its consequences—short- and long-term—are, as well.

Opponents of this perspective—that part-time work is harmful on balance—stress that most part-time workers (especially women) 'voluntarily' choose to work part-time, meaning that they seek part-time rather than full-time employment. Hakim (1997) is especially critical of both feminists and trade unionists for what she calls their 'gloomy' view of part-time work. Hakim argues, instead, that most women part-time workers have wholly different tastes and preferences about work than do women who work full-time. Researchers, she argues, are unwilling to recognize the heterogeneity of women's sex role preferences and hence of their work orientations and behaviours. While some women are committed to careers in the labour market, a second group of women are qualitatively different.

> The second group of women give priority to their domestic roles and activities, do not invest in what economists term 'human capital' even if they acquire education qualifications, transfer quickly and permanently to part-time work as soon as a breadwinner husband permits it, choose undemanding jobs 'with no worries or responsibilities' when they do work, and are hence found concentrated in lower paid and lower grade jobs which offer convenient working hours with which they [are] satisfied. (p. 43)

Indeed, in the European Union in the early 1990s, approximately 80% of female part-time workers—and 65% of male part-time workers—reported that they were 'voluntarily' working part-time (Delsen, 1998). Nevertheless, the meaning of 'voluntary' needs to be qualified. The high share of part-time work that is voluntary does not imply that these part-time workers find their employment status to be ideal, given a full range of choices, or that it is ideal. First of all, the sexual division of labour in the home—which is deeply entrenched across the industrialized countries and largely socially constructed—'assigns' women disproportionate responsibility for childrearing and other unpaid work. Thus while many women 'seek' part-time work, that does not imply that they would 'prefer' it, or 'want' it, given a vastly different social context.[3] Furthermore, as Burchell, Dale, and Joshi (1997) observe, while labour force surveys attempt to distinguish between voluntary and involuntary part-time work, they do not ask *why* respondents might state a preference for part-time work—that is, whether this was "a forced choice or their own preference" (p. 217). They add that a UK survey found that "14% of women part-timers would like full-time work but were prevented from seeking it by domestic commitments" (p. 217). Studies in several countries indicate that women frequently seek part-time rather than full-time work, due to problems associated with securing child care (Brennan, 1993; Cohen, 1993; Presser and Baldwin, 1980.)

In addition, a large and growing body of scholarship on part-time work establishes that many women who seek part-time work, and genuinely 'prefer' it, are constrained by

[3] Of course, this debate rests on a counterfactual—the existence of a world without sex-role differentiation—so it cannot be resolved empirically.

demand-side factors. In other words, many women who seek part-time work end up 'underemployed'—not because they prefer undemanding and low paid work (as Hakim, 1997, argues) but because in order to find part-time work, they have to shift toward less remunerative (and generally less desirable) sectors. While many women may have chosen reduced-hour work, they did not 'choose' the range of costs that often come with it. In many cases, the decision to work part-time cannot be 'unbundled' from its disadvantageous consequences.

Most analysts of part-time work conclude—and we agree—that it is most useful to conceptualise part-time work as fundamentally a trade-off, or series of trade-offs. For many women, part-time work offers flexibility, at the cost of some lost remuneration. For others, it constitutes a compromise state between full-time homemaking and full-time employment, when either of those might be optimal but neither is feasible. Some scholars, especially feminist scholars, have framed the trade-off for women as one of short-term gains versus long-term losses. While part-time work offers limited labour market attachment to women who might otherwise have none, women's disproportionate participation in part-time work in the short-run cements sexual divisions of labour in both paid and unpaid work in the long-term.

3. Workers' Choices and Wage Penalties: Research Questions and Expectations

This conceptualisation of part-time work as a trade-off makes explicit that any comprehensive analysis of part-time work requires incorporating both demand-side and supply-side factors. From the complex and multidisciplinary literature on part-time work, we conclude—as does Addabbo (1997)—that "[d]emand-side constraints seem to be the overriding determinants of the level of part-time work". At the same time, supply-side factors probably dominate in determining *which* women fill the available part-time jobs—especially with respect to household-related factors, our main interest.

Furthermore, a combination of demand-side and supply-side factors would contribute to the pay gap between full-time and part-time workers. Some portion of the pay gap is likely explained by measurable differences between full-time and part-time workers (which combines demand- and supply-side factors), while some portion will be due to differing

occupational and industrial distributions between the full-time and part-time labour forces, and to differing *returns* to both worker- and job-related factors (primarily, driven by demand-side factors).

This 'trade-off perspective'—and our conception of the interplay of demand and supply factors—motivated us to frame a series of research questions about the factors underlying women's decision to work part-time, and the rewards and penalties associated with that decision. In this section, we lay out four questions about workers' employment choices and wage penalties; these questions shaped our empirical analyses.

On the one hand, part-time work is understood to offer women the advantage of providing more time away from employment, primarily for family-related activities. As implied in Hakim's (1997) argument about the heterogeneity of women's sex role preferences, work orientations, and behaviours, many women may choose part-time over full-time employment because they have dependent care responsibilities at home *and* because they can well afford it economically. Thus, our first three questions concern the effects of household factors—i.e., children in the home, 'dependent adults', and the level of other income in the household—on women's employment decisions, especially on the choice of part-time work.

On the other hand, engaging in part-time work may imply losses in remuneration, in particular, in the hourly wage rate. In response to this claim, our fourth question concerns the direct economic consequences, for women, of the decision to engage in part-time versus full-time work. We are particularly interested in the extent to which the hourly earnings of part-time workers lag those of full-time workers. Furthermore, if we find that there are substantial differences in the pay of part-time and full-time workers, we need to understand what underlies those differences. Are the differences attributable to measurable differences between the two groups of workers—for example, in their qualifications? Or does the explanation lie elsewhere?

Below, we pose these four research questions, and we follow each question with a brief summary of our prior expectations about patterns of cross-national commonality, as well as our expectations about variation across these five countries.

Question #1. **How do the presence, and age, of children affect women's employment choices (i.e., between full-time, part-time, and non-employment)? And how do these child-related effects vary across these countries?**

The classic female labour supply model predicts that the presence of children in the home will have an impact on women's employment decisions in at least two ways. First, children are expected to increase women's reservation wage by raising the value that they place on their time at home. Second, the out-of-pocket costs of alternative child care arrangements will also lower women's effective market wages, i.e., their wages net of child care costs. A large empirical literature—most of it from the English-speaking countries—confirms that the more a woman's childrearing responsibilities increase, the less likely it is that she will choose to participate in paid work; and, for women who are labour force participants, greater childrearing responsibilities (for example, the presence of very young children) will reduce hours in paid work (Connelly, 1991; Leibowitz, Klerman and Waite, 1992).

At the same time, cross-national empirical research has concluded that the magnitude of the (negative) effects of children on various measures of women's labour market attachment vary across countries (Gornick, Meyers, and Ross, 1998; Knudsen and Peters, 1994; Phipps, 1993). Gornick, Meyers, and Ross (1998) found that, in half of fourteen countries studied, mothers of preschool-aged children were no less likely to be in paid work than were mothers of children over age twelve, *ceteris paribus*. They concluded that this cross-national variation in the effect of children is largely due to variation in the generosity of public policies that support maternal employment, especially short-term maternity leave and publicly-supported child care. In some countries, these policies contribute to reducing the negative effects of children on women's labour supply to low levels and, in others, to eliminating the young child effects entirely. Across the five countries in this study, public supports for maternal employment are fairly limited in cross-national terms, with the exception of Italy, the only one of the five to have adopted a policy of universal preschool enrollment for children starting at age three (Kamerman and Kahn, 1999).

Although we have argued that supply-side factors dominate in determining *which* women fill existing part-time jobs, it may be that some demand-side forces shape the cross-national pattern of child-related effects. In countries with very small part-time labour

markets, women's preferences for choosing part-time work (e.g., when they have young children) may be more constrained, in effect, forcing them to remain in either full-time work or non-work. In other words, in countries with small part-time labour markets (such as Italy), the association between child-related factors, *ceteris paribus*, and participation in part-time work may be weakened.[4]

What do we expect to see across these countries? Overall, we expect to see a general pattern in which the presence of children lowers the likelihood that women choose full-time work, and raises the likelihood that they choose non-work. Similarly, we expect that, among mothers, the presence of very young children will do the same—decrease full-time work and increase non-work—with the size of the effect decreasing as children get older. Note that the direct effect of the presence, or age, of children on the likelihood of working part-time is ambiguous, because children, especially young children, are expected to 'pull' mothers into part-time work (from full-time work) and 'push' them out as well (into non-work).

At the same time, we expect that the magnitude of the child-related effects (i.e., the direct effect on full-time and non-work) will vary across countries. Considering these two sets of factors together—the extent to which national public policies support maternal employment and the size of the part-time labour force—we expect to see strong child effects in Germany and the UK (where policies that support maternal employment are weak and part-time work is widely available), negative but smaller child effects in the US and Canada (where support for maternal employment is also weak but where part-time work is more limited), and weak or no child effects in Italy (where substitute care for children is more widely available, especially for children over age three, and where part-time jobs are much less available).

[4] This interpretation is consistent with OECD (1999) findings indicating that, across countries, as the size of the female part-time labour market increases, the share of part-time employment that is voluntary (according to the traditional definition) also increases. That relationship holds, for the most part, across these five countries. In Germany and the UK, where female part-time work is most common, the share of part-time workers who are voluntary is very high (85%-90%), whereas in Italy, where part-time work among employed women is much less common, the voluntary share is just over 50%, which is way below the European average (OECD, 1999).

Question #2. **How does the presence of other non-earning adults in the home shape women's employment choices? And how do these 'dependent adult' effects vary across countries?**

The effects of household composition on women's employment choices are not limited to child-related factors. Many working-age women have complex combinations of adults in their homes—including spouses, grown children or siblings, and elderly relatives. Furthermore, many of these household members are non-wage-earning, and their presence may affect the employment outcomes of working-age women, all else equal. Some of these non-earning adults in the home may be unemployed (i.e., able and willing to work), whereas others may be out of the labour force, perhaps because they are disabled and/or elderly (and in need of care). In either case, we expect the presence of a variety of non-earning adults, overall, to affect women's labour market attachment.

The case of the unemployed spouse has received considerable attention in economic theory and prior empirical research. Despite some expectation to the contrary—i.e., the 'added worker' effect—empirical evidence from various countries concludes that in general women married to unemployed men are less likely to be employed, all else equal (Giannelli and Micklewright, 1995; Elias, 1997; Ercolani and Jenkins, 1999). Several factors may explain this association. First, spouses generally face similar demand-side conditions. Second, they may share unobserved characteristics that are associated with unemployment. Third, psychological factors may play a role and some women may choose non-work when their husbands lose their 'breadwinner role' so as not to upset the balance in the marriage. Finally, and most importantly, the design of benefit schemes may play a role; if an unemployed husband's benefits are income-tested at the household level, that may constitute a disincentive for his wife to work for pay. While there is little research on the effect of husbands who are out of the labour force (rather than unemployed), we would expect that many of the same factors would apply, thus lessening their wives' labour force attachment. That could mean a reduction in wives' full-time employment, with some shifting into part-time employment, and others out of employment overall.

What do we expect to see across these countries? Our expectation is that in all five countries, the presence of a non-earning spouse in the home will reduce full-time work and increase non-work; the net effect on part-time work will depend on the balance of these

two effects. We also expect that the effects of a non-earning spouse will be stronger in the 'liberal' welfare states (Canada, the UK, and the US) than they will be in the two 'conservative' countries (Germany and Italy), because in the former countries, a larger share of the overall social benefit package is income-tested (Esping-Andersen, 1990). In addition, as with the child-related effects, the size of the part-time labour market may play some role. The magnitude of these effects may be further diminished in countries, such as Italy, where the part-time labour market is very small.

In addition to non-earning spouses, some non-earning adults in the home will be in need of care. Much research has established that—like child care-giving work at home—unpaid care for disabled and elderly household members is largely provided by working-age women. Thus, we expect that the presence of other non-earners in the home—especially *elderly* non-earners—will have the same effect as young children, overall. These 'dependent adults' will reduce women's likelihood of working full-time, and increase their likelihood of non-work. Again, as with children, the effect on women's part-time work is ambiguous.

One possibility is that the magnitude of these dependent-adult effects—especially for the elderly—will be smaller in countries with more extensive public home help services for older people to alleviate the burden on women family members). In actuality, all five of these countries have comparatively low levels of home help for older people (Rostgaard and Fridberg, 1998; Sainsbury, 1999), so our expectation is that these effects will be fairly uniform across these countries. Once again, we may see diminished effects in Italy, in that many women who would prefer part-time work may be constrained to either full-time work or non-work.

Question #3. **How does the level of 'other income' in the home affect women's employment choices? And how does the effect of household income vary across countries?**

The 'other income' in a woman's home (i.e., her household's income, excluding her labour market earnings) is traditionally understood as constituting her 'endowed', or non-earned, income. Classic labour supply theory predicts that, all else equal, the higher a woman's endowed income, the lower will be her labour supply, vis-à-vis both participation and hours. Once again, the effect of 'other income' on women's part-time work is ambiguous,

as higher income will push some women from full-time into part-time work, and others from part-time to non-work.

For married women—the majority of working-age women—a large portion of their 'other income' is their husband's income (assuming shared resources within the home). Recent research suggests that the expected negative correlation between husbands' income and wives' employment has fallen in recent years. One reason is that, increasingly, highly-educated men, who have high earnings, marry highly-educated women. Those highly educated women are likely to have high labour supply; this education association between spouses would counteract the negative correlation between husbands' earnings and wives' labour market attachment. Furthermore, married women's labour supply has become more elastic, over time, to their own potential wage rates, which in turn reduces their sensitivity to their husbands' income (Blau, Ferber, and Winkler, 1998). In fact, a body of empirical research suggests that the direction, and magnitude, of the effect of household income on women's participation and hours varies across countries (Cancian and Schoeni, 1992; Stichter, 1990).

Recent work by Hakim (1997) has re-awakened interest in the question of the relationship between household income and women's engagement in part-time work. Her claim that women part-time workers, for the most part, are primarily committed to their domestic roles and rely (happily) on their 'breadwinner husbands' for income, suggests that higher household income would be associated with more engagement in part-time work. Thus, women who choose part-time work, for the most part, do not 'need' the income that full-time work would bring.

What do we expect to find across countries? Despite Hakim's argument—which suggests that women part-time workers disproportionately come from high income homes—the recent empirical findings that question the association between other household income and women's labour supply lead us to expect that the effect of 'other income' on women's employment levels will be small or non-existent across these five countries. In other words, higher 'other income' will decrease full-time work, and increase non-work, slightly, or not at all. Taken together, we expect to find little relationship between other income and women's likelihood of working part-time. Once again, however, we would expect that the size of the part-time labour market might play a role in shaping

these 'other income' effects, with larger effects seen in the countries with larger part-time labour markets (such as Germany and the UK), and smaller effects seen where the option to choose part-time work is more limited (e.g., in Italy).

***Question #4*. Do full-time hourly wages exceed part-time hourly wages in all of these countries? Do these pay differentials remain after we control for full-time/part-time differences in worker- and job-related characteristics? How do these pay differentials—'unadjusted' and 'adjusted'—vary across countries?**

We expect full-time hourly wages to exceed part-time hourly wages—both with and without worker- and job-related controls—in all countries, for several reasons. The first reason is linked to the assumption that, overall, full-time workers have higher levels of *human capital* than do part-time workers. The classic human capital framework indicates that as individuals' human capital increases, their potential wage increases; in turn, as their wage increases, they will raise their desired number of hours in the labour market. Therefore, workers with higher human capital will be more likely to enter full-time work, and we would expect to find a general pattern of higher wages among them, at least before human capital controls are introduced. It is also true, however, that because 'leisure' (time out of paid work) is typically a normal good—as are the fruits of household labour—it is possible that high wage earners might also choose shorter (part-time) hours. In practicality, this is an empirical question and a positive association between current wage and hours worked is found for wages that do not exceed a given threshold, above which the relationship becomes negative.[5]

A second reason given for the existence of a full-time/part-time pay gap is that full-time and part-time workers differ on *unmeasurable characteristics*. According to Hakim (1997) and others, women workers are very heterogeneous, and a substantial number whose priority is their non-market activity choose undemanding part-time employment. That suggests that women full-time and part-time workers may differ on a host of unobservable traits; presumably, women with the 'part-time' traits are less productive (and would command lower wages) than those whose orientation is toward full-time employment and

[5] Note that the expected human capital differential between full-time and part-time workers, related to education, is likely to be reinforced by human capital differences associated with on-the-job training and learning-by-doing. Employers are likely to invest more in training for full-time workers, and workers who generally work full-time may accumulate more work experience.

toward labour market attachment more generally. Any wage gap due to differences in unmeasurable traits would remain, even after controlling for measurable traits, including human capital variables.

A third reason to expect a wage gap between full-time and part-time workers results directly from the existence of *discrimination* operating inside the enterprise. As Maier (1994) notes, "the differentials between female part-timers and full-timers have to be explained in part as a result of more or less direct wage discrimination against part-timers by excluding them from relevant parts of the overall effective remuneration (like shift-work premium, premiums for work in the late evenings or weekend, overtime premiums, and employer-provided benefits…)" (p. 168-169). This would mean that part-time and full-time workers with similar characteristics are paid differently. Employers might be especially likely to 'discriminate' against part-time workers (relative to comparable full-time workers), and pay them a lower effective hourly wage, when they face high fixed labour costs (e.g., forms of social insurance contributions that are assessed per employee); the employer may lower the part-time hourly wage to compensate for the higher per-hour fixed costs. Regulations aimed at pay equity between full-time and part-time workers would be expected to reduce this type of differential.

A fourth reason underlying the expected pay gap—the existence of *dual and segmented labour markets*—comes from the non-neoclassical framework. This perspective stresses the existence of two tiers in the labour market. The upper tier comprises good jobs offering higher wages, more security, and more extensive benefits, while the lower tier comprises bad jobs, characterised by lower wages, high job insecurity, and little chance of promotion. For several reasons—e.g., lower levels of unionization—we can expect there to be a correlation between part-time jobs and 'bad jobs'. This association is likely to be the strongest in countries where the size of the part-time labour market is small, i.e., where part-time work is more likely to be in a 'marginalised' fringe of the labour market. Regulations aimed at combating the unequal treatment of part-time workers are likely to be ineffective in alleviating this source of the pay gap.

What are our expectations about size and cross-country variation of wage differentials? Overall, we expect the adjusted wage gap—i.e., adjusted for observable worker- and job-related controls—to be smaller than the unadjusted wage gap in all countries. Furthermore,

we expect that wage differentials (both unadjusted and adjusted) will be higher in countries with higher fixed labour costs and/or weaker part-time regulations, because there are stronger incentives for employers to discriminate directly (in the form of lower returns). Finally, we expect that wage differentials will be higher in countries with smaller part-time sectors, given the likelihood of a stronger association of part-time jobs and 'bad jobs'. Because many elements of 'bad jobs' cannot be captured in standard occupational and industrial controls, we expect that this association (smaller sector, larger pay differential) will be seen with respect to both unadjusted and adjusted wage gaps.

The above forces may work in opposite directions within countries. Germany and Italy, for example, are understood to be the countries, among these five, with the strongest regulations that protect part-time workers (as of the middle 1990s), but at the same time they have quite rigid labour markets with relatively higher labour costs, and presumably higher fixed labour costs. (The former would reduce direct discrimination, while the latter might exacerbate it.) At the same time, Italy, Canada, and the US have smaller part-time labour markets; in these countries, we expect part-time work to be more concentrated 'in the fringes' of the labour market and, for this reason, we expect to find larger full-time/part-time wage gaps.

4. Data, Methods, and Analysis Plan

Our empirical analysis is conducted in two stages. In the first stage, we investigate the choice made by working-age women among three options: non-employment *vs*. part-time employment *vs.* full-time employment. In the second stage, we estimate the wage gap—among women—between part-time and full-time workers, using regression techniques and the Oaxaca decomposition of the wage differential. The analysis is carried out on five industrialized countries, using micro-data from the Luxembourg Income Study (LIS).[6]

[6] The five LIS datasets used in our analysis are Canada 1994, the United States 1994, Germany 1994, the United Kingdom 1995, and Italy 1995. Our Italian results were calculated directly from the Banca d'Italia dataset, rather than from the reduced version of the same dataset that is included in LIS. We used the original database because some key variables are missing in the LIS version.

Data

The Luxembourg Income Study is an archive of micro-datasets from a large number of industrialized countries.[7] Individual- and household-level data on income, employment and demographic variables are included in the datasets. The variables in the datasets have been standardised by the LIS staff, so that cross-country comparisons are possible.

We selected five countries for this study, based on the availability across the LIS datasets of the necessary dependent and independent variables. We also sought to include countries with varied welfare state and regulatory designs (see Esping-Andersen, 1990). Our five selected countries include three 'liberal' welfare states (the US, the UK and Canada) and two 'conservative' welfare states (Italy and Germany). Unfortunately, no 'social democratic' welfare states—primarily, the Nordic countries—could be included, because of data limitations. The period under consideration is the mid-1990s, corresponding to the last available 'wave' of the LIS data.

Variable Definitions and Sample Selection

In the first stage of our analysis, we seek to explain how working-age women choose their 'labour market status'—meaning here, the choice among non-employment vs. part-time employment vs. full-time employment. This stage involved constructing, or adjusting, a series of variables. Our first task was to identify 'employed' vs. 'non-employed' women. Ideally, the 'non-employed' should be further divided between 'out of the labour force' (inactive) and 'unemployed' (not employed but seeking employment). However, the LIS data, in general, do not reliably report unemployment status, so we pool the inactive and the unemployed, and treat that as an undifferentiated group. Fortunately, the costs of this decision are limited, given that our main interest is in comparing the behaviour and the wages of part-time *vs.* full-time workers. In that sense, the 'non-employed' group is treated as a residual category.[8]

In the second stage of our analysis, we estimate the wage differential between part-time

[7] At present, over 70 datasets covering the period 1968 to 1995 are included in the database. For details on the Luxembourg Income Study, and on the datasets, see LIS (1998).

[8] Moreover, the distinction between unemployed and out-of-the labour force is less clear cut for women than for men, because many women do not seek employment—although they would prefer it—due to supply-side constraints, such as the lack of appropriate child care.

and full-time workers. Our dependent variable is the (logarithm of the) hourly wage rate. Hourly wages are not directly available in these LIS datasets, so we built an hourly wage variable using annual gross earnings of the individual, average weekly hours worked, and the number of weeks worked during the year.

A key decision, that affects both stages, involves the definition of 'part-time' work. The definition of 'part-time' in comparative research is always problematic because no statutory definition exists in most countries and, when definitions are adopted—for example, in national labour force surveys—they vary widely cross-nationally (EIRR, 1990; Eurostat, 1984;[9] OECD, 1994; Van Bastelaer, Lemaitre, and Marianna, 1997). For example, in Italy and Germany, part-time is generally defined by a 'number of hours lower than the standard hours', whereas in the UK and Canada, despite the absence of any statutory definition, a threshold of 30 hours is adopted in most surveys. In the US, the Current Population Survey classifies a job as a part-time one if it is for fewer than 35 hours a week. Moreover, given that 'standard' working time itself is likely to vary across sectors, the definition of part-time may vary within countries as well. Finally, given that in many surveys, the individual worker is asked to define herself as part-time vs. full-time, this subjective element is likely to introduce a further variability in the definition.

In the present study, we adopt the *self-definition* of part-time work. The self-definition offers the advantage of not imposing a uniform line across countries, allowing instead the adoption of the country-specific concept of part-time and, inside each country, the sector- or industry- specific definition. We tested an alternative definition, which uses a fixed threshold of 30 hours/week, but this did not allow us to reliably distinguish between full-time and 'proper' part-time workers.[10]

In defining part-time employment, a second problem arises in that some workers report working fewer than 10 hours per week. Following Hakim (1997), we defined this employment status as 'marginal part-time', and in our multivariate analyses we combine

[9] Eurostat (1984) reported that, in the 1980s, at least six different definitions of part-time work were in use in the European Community alone. This resulted from a variety of definitions in use across employer and household surveys, collective agreements, and administrative records.

[10] The difference is evident when we consider the case, for example, of Italian teachers. A large percentage of Italian teachers (66.7%) report working fewer than 30 hours per week on average, because the official teaching time is normally 18 hours per week. However, these workers are, according to both their contract and to their self-definition, full-time workers. Furthermore, Van Bastelaer, Lemaitre, and Marianna (1997) note that using a 30-hour cut-off, rather than self-definition, would double the estimated rate of part-time

these workers with the inactive and unemployed. One reason to exclude them is that many of these marginal part-time workers hold so-called 'junk' jobs—often occasional and temporary jobs—and we expect these workers to have idiosyncratic characteristics. Moreover, inaccurate reporting of weekly hours and/or annual earnings will produce, among such short-hour workers, large errors in the estimated hourly wage rate. Given that marginal part-time workers are relatively few everywhere, excluding them from the group of part-time workers does not cause meaningful selection bias.

Finally, we have excluded from our sample all agricultural and self-employed workers, due to well-known difficulties in measuring the earnings of these two categories of workers. Moreover, we have restricted the sample to the population aged 25 to 59, in order to exclude most students and retired people. Excluding these two groups helps us to identify and analyse cross-national variation in employment patterns and wages net of the effects of educational and retirement institutions and policies, which vary substantially across countries.[11]

The Model

The choice model. As noted earlier, the model that we estimate in the first stage of our empirical analysis is a model of the allocation of workers across three employment statuses, i.e., distinguishing between part-time, full-time and non-employment. We model this 'choice' using a multinomial logit regression.[12] The model we have adopted, in fact, is a reduced form, in which the estimated coefficients of the selection equation are the combined result of supply- *and* demand-side decisions. In this sense it is not exact to refer to it as a 'choice model', but as a 'selection model'.

The multinomial logit model assumes that individual *i* allocates herself/is allocated in state *j* depending on the value of her underlying 'propensity index':

$$I_{ij}^{*} = Z_i \gamma_j + \varepsilon_{ij} \qquad (1)$$

work in Italy.

[11] For more information on the coding of individual variables, please contact the first author at ebardasi@essex.ac.uk.

[12] Note that our 'choice equation' fulfils two roles. First, it allows us to analyse, substantively, the effects of a range of variables on women's employment choices. Second, it is functionally used to correct the wage regressions in order to obtain unbiased estimates.

If the error terms are independently and identically distributed as a type-I extreme value distribution, the underlying probability of being in state *m* is given by:

$$P_{im} = \mathrm{F}(\eta_{im}) = \frac{\exp(Z_i \gamma_m)}{\sum_{k=1,2,3} \exp(Z_i \gamma_k)} \qquad (2)$$

This model has been estimated for the sample of women, in each country. The effect of the explanatory variables is assessed by computing the change in the predicted probabilities for an hypothetical woman designed as our 'reference' case. These simulations, which will help in interpreting the results of the multinomial logit, are presented in section V.

The wage model. In the second stage of our analysis, we estimate the wage gap between part-time and full-time workers. We estimate two human capital equations, one for part-time and the other for full-time workers:

$$\ln Y_1 = \mathbf{X}'\mathrm{B}_1 + u_1 \qquad (3)$$

$$\ln Y_2 = \mathbf{X}'\mathrm{B}_2 + u_2 \qquad (4)$$

where **X** is the vector of independent variables, B_1 and B_2 are the two sets of coefficients to be estimated and the subscripts 1 and 2 indicate the part-time and the full-time status.

Estimation of the two regressions (3) and (4) above may produce biased coefficients, if the two groups of part-time and full-time workers are not random samples of individuals. And we believe that this is the case, given that it is exactly this process that we have modelled at step one above.

The problem of non-random selection may be handled by adopting an extension to the three-outcome selection model of the well-known two-stage Heckman procedure:[13]

$$\ln Y_j = \mathbf{X}'\mathrm{B}_\mathbf{j} + \sigma_j \rho_j \frac{\phi\left[\mathrm{J}(\eta_\mathbf{j})\right]}{\mathrm{F}(\eta_\mathbf{j})} + v_j = \mathbf{X}'\mathrm{B}_\mathbf{j} + \mathrm{cov}(u_j \eta_j)\lambda_j + v_j = \mathbf{X}'\mathrm{B}_\mathbf{j} + \delta_j \lambda_j + v_j \qquad (5)$$

where:

$$\mathrm{J}(\eta_j) = \Phi^{-1}\left[\mathrm{F}(\eta_\mathrm{j})\right]$$

Φ^{-1} being the inverse distribution function of the standard normal. In equation (5) σ_j is the standard error of u_j, ρ_j is the correlation between u_j and η_j, λ_j is the 'correction factor' computed from the multinomial logit ($\lambda = \varphi\,[\mathrm{J}(\mathbf{Z}'\gamma)]/\mathrm{F}(\mathbf{Z}'\gamma)$), δ_j is the lambda coefficient to

[13] For a detailed explanation of the selection problem and the two-step Heckman procedure see Maddala

be estimated ($\delta_j = \sigma_j \rho_j$) and v_j is a zero mean error. Note that if δ_j is found to be significantly different from zero, this will mean that correlation between u_j and η_j actually exists.

After having estimated the two human capital equations, we measure and decompose the part-time/full-time wage differential, using the Oaxaca procedure (Oaxaca, 1973):

$$\overline{\ln w^{PT}} - \overline{\ln w^{FT}} = \sum_z \hat{\beta}_z^{PT} \left(\overline{X}_z^{PT} - \overline{X}_z^{FT} \right) + \left[\left(\hat{\beta}_0^{PT} - \hat{\beta}_0^{FT} \right) + \sum_z \overline{X}_z^{FT} \left(\hat{\beta}_z^{PT} - \hat{\beta}_z^{FT} \right) \right] + \left(\delta^{PT} \overline{\lambda^{PT}} - \delta^{FT} \overline{\lambda^{FT}} \right) \quad (6)$$

where $\hat{\beta}_z^{PT,FT}$ are the estimated coefficients in the two wage of the variable z , and $\overline{X}_z^{PT,FT}$ are the average values of the variable X_z in the two groups.[14]

The first term on the right-hand side picks up the portion of the differential attributable to differences in observable characteristics (the 'fair part' of the differential). The second term, in square brackets, captures the portion attributable to differences in the estimated coefficients—and therefore the part of the differential that cannot be explained by differences in *observed* background characteristics of the worker, but that is due, instead, to the employer, or to the 'economic system'. This component is generally referred to as the 'unexplained part' or—in the literature on discrimination—as the 'discrimination component'. Note that the difference between the constants is also included in this 'unexplained' part (as discussed in Jones and Kelley, 1984; and Oaxaca and Ransom, 1999). The last term is the part attributable to the sample selection effect.[15]

The Independent Variables

<u>*The choice analysis*</u>. In our 'choice analysis', the dependent variable is the 'employment

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(1983), Lee (1982, 1983), and Mansky (1989).

[14] In the specification above, the average wage differential is decomposed under the assumption that full-time workers are paid according to the part-time wage coefficients. Different results for each single component of the decomposition would be obtained if the opposite assumption were made (part-time workers being paid as full-time workers), even though the total differential will be the same. We thought that it is more reasonable to imagine that full-time workers can be paid as part-time workers, because not all part-time jobs have a full-time counterpart.

[15] Oaxaca, and Ransom (1999) show that an identification problem arises when attempting to further decompose the wage differentials into the separate contributions of the single explanatory variables (and of the constant). This is particularly true when the explanatory variables are dummies. The reason is that, for each set of dummies, the reference group—whose effect is reflected in the constant term—is arbitrarily chosen.

status' of the working-age woman, i.e., the choice among non-employment versus part-time employment versus full-time employment. It is widely known that this 'choice' is influenced by a series of individual and household variables. In section III we examined in detail the expected effects on a woman's labour supply of the factors that we are most interested in, i.e., a range of household factors.

First, the (potential) wage rate is a fundamental explanatory variable in any labour supply equation. To proxy the wage rate, we have included among the explanatory variables the age of the woman, and her education level. In a comparative context, it is quite difficult to include detailed education categories, partly due to data limitations and partly due to fundamental differences in educational institutions across countries. Thus, we were only able to construct three education categories: 'low', 'medium', and 'high'.[16] Despite the importance of including age and education in the selection equation, these two variables are not the focus of our analysis, and we treat them as controls.[17]

Second, the presence and the age of children in the household are crucial variables in our analyses.[18] We first coded women as 'mothers' or not. (Unfortunately, in our datasets it is not possible to determine parental status for individuals who are not heads of household or spouses of heads of households. However, we believe that the vast majority of mothers in these countries are either heads or spouses.) We further assume that every child living in the household influences the labour market behaviour of these women. In addition, parental and marital status are likely to interact, so we included an interaction term ('married *and* parent'). Children's ages have been captured by a set of dummy variables that indicate whether or not the household contains children in a specific age range. We have identified four age intervals that correspond generally to children's involvement in different categories of child care and after-school programs: 0-2 years old, 3-5, 6-11 and 12-17.

[16] In general, 'low' means completion of the first stage of secondary education (8-10 years of schooling), corresponding in most countries to the duration of compulsory education; 'middle' corresponds to completing secondary education, and 'high' indicates having attended or completed post-secondary education (either technical or academic).

[17] Note that the occupation and industrial sector, included among the regressors in the wage equation, are not included in the choice equation because they cannot be observed for the non-employed group.

[18] This model disregards the possibility of endogeneity between women's employment outcomes and child-related (fertility) variables. Lehrer (1992) notes that the consensus in the labor supply literature is that no adequate empirical solution to the problem exists; instrumenting fertility is virtually impossible due to incomplete theoretical specifications and data limitations. Lehrer summarizes: "In light of these difficulties, many recent analysis of short-run female labor supply (hours, weeks, or some other dimension of current employment status) have treated the number and ages of children as predetermined variables" (p. 425). We

A third independent variable—one that is less often included in labour market analyses—captures the presence of 'adult dependents' in the household. By 'adult dependent', we mean an adult in the household who reports no earnings in the reference year. We have singled out four categories of adult dependents, first a 'dependent spouse aged 18-64' (for example, a retired or disabled or long-term unemployed husband[19]); second, 'other adult dependent aged 18-64', including children, parent(s), and other household members who are unemployed or out-of-the-labour-force; third, 'persons aged 65-74' and, fourth, 'persons aged 75 and older', these two last categories including mainly retired household members. As in the case of the child variables, the dummies indicate the presence in the household of an individual in the specified category.[20]

Finally, we included among the regressors in the selection equation, 'other household income'. This variable has been constructed as the total earnings of other adult household members (other than the woman in question) plus the cash property income of the household as a whole. In economic terms, this captures the woman's 'endowment'.[21]

The wage analysis. In the second stage of our empirical analysis—the estimation of the wage equations—we employ the classical human capital model. The dependent variable is the employed woman's estimated (logarithm of) hourly wage, and the independent variables include age, education (coded, again, as 'low', 'medium', and 'high'), as well as dummy variables indicating both her occupation and industrial sector. Age both exerts an independent effect and acts as a proxy for total work experience.[22] As with education, only

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also assume, for the sake of these estimations, the exogeneity of the adult dependent variables.

[19] Throughout this study, 'spouse' is coded in such a way as to include cohabitors as well as legal marriage partners. The US is an exception; 'spouses' are limited to partners in legal marriages and, unfortunately, cohabitors cannot be identified.

[20] Note that including the household variables in the selection equation—in addition to having substantive meaning in explaining the allocation of workers—also serves the econometric function of allowing identification of the selection equation coefficients.

[21] This specification assumes, for simplicity, that the level of 'other household income' is exogenous to a women's own employment decisions. Clearly, among married couples, this can be problematic, in that husbands' earnings may be shaped by their wives' labour market status. Nevertheless, most labour economists consider this to be a reasonable assumption in the industrialized countries, even into the 1990s, because, for the most part, very high rates of labour force participation and of full-time work are the norm among married men.

[22] Labour economists often measure 'total work experience' as age minus years of education minus age of compulsory school entry; we rejected that formulation because our education variables are generally categorical rather than continuous and, furthermore, because this estimation method is poorly suited to women.

three categories have been created for the occupational classification: 'professionals', 'sales and clerical', and 'blue-collar'. Industrial sector dummies are included as well, to capture demand-side effects on the differentials. Unfortunately, information on the industrial sector is not available for the UK.[23]

5. Results

Patterns of Part-Time Employment in the 1990s

Cross-national variation in part-time employment. An overall portrait of women's and men's labour market activity in these five countries is presented in Table 1. In the top panel, we present activity breakdowns first for all working-age adults, and then for workers only (i.e., excluding the marginally- employed and the non-employed).

[Table 1 about here]

Table 1 reveals a set of inter-related findings. First of all, there is substantial variation in women's rates of part-time work across these five countries. Among working-age women as whole, the percentage working part-time (excluding marginal part-time work) ranges from a low of 4.7% in Italy, to a much higher 17.1% in Germany. Figure 1 summarizes the distribution of women between full-time and part-time work, as well as the overall employment rates in the five countries. Among *employed* women, part-time work rates vary from 12.0%, again in Italy, to a high of 31.8% in Germany. Part-time work among women in the UK is nearly as common as in Germany. In the two North American countries, the US and Canada, part-time employment is much less common than in the UK and Germany, but much more so than in Italy.

[Figure 1 about here]

Second, men's rates of part-time work vary as well, but much less. Among employed

[23] Industrial sector dummies include 'agriculture', 'manufacturing', 'trade', 'transportation', 'finance/insurance', 'services', and 'public administration'.

men, for example, rates of part-time work—which are far lower than women's—range from approximately 1.5% in Italy, Germany, and the UK, to 3.3% in Canada, to a high of 4.6% in the US.

Third, there is no clear relationship between rates of female part-time work and overall women's employment rates, as Figure 1 clearly reveals. The two countries with the lowest women's employment rates, Germany and Italy, also have both the least and most part-time work. The two with the highest women's employment rates—the US and Canada—both have moderate rates of part-time employment.[24]

Finally, marginal part-time work is clearly a limited phenomenon—with the highest rate (among working-age women) reported in the UK (3.4%). This supports our decision to include the marginal part-time workers in the group of non-working population.

The gendered nature of part-time employment. It is often noted in the literature that *'part-time work is women's work'* and that is clearly confirmed throughout these countries (see the lower panel of Table 1). Here, we see, that among working-age adults, women's probability of being employed part-time is three to five times greater than men's in Italy, Canada, and the US—and over fifteen times greater in Germany and the UK. Among the employed, the gender differentials are even greater because smaller percentages of women than men are employed.

The highly gendered nature of part-time employment can be seen as clearly when we look at women's share in part-time work. Even in the US—the country with the least gender differentiation in part-time work—the part-time labour force is nearly 80% female. In the UK and Germany, part-time workers are nearly 95% female.

Workers' Choices

Simulation. The results from the estimation of the multinomial logit models are reported in Table 2. Here, we estimate a three-way decision structure, where the dependent variable is: not employed *versus* part-time employed *versus* full-time. The non-employed are designated as the base category. In the table we have reported the relative risk-ratios, which

[24] Other have reported little or no relationship between employment rates and rates of part-time work, over-

are more easily interpretable than the coefficients themselves.

[Table 2 about here]

However, to facilitate the assessment of the effects of the explanatory variables on the probabilities of working full-time, part-time, or not at all, we carried out a simulation exercise to produce a story that is more easily interpreted. We computed the independent, or marginal, effect of each explanatory variable as the change in the 'base' probability of being in each of the three outcome states, given a change in the independent variable under consideration, *ceteris paribus*. The 'base' probabilities were computed for a hypothetical woman, with a set of fixed individual and household characteristics: she is 35 years old, has a medium level of education, is married, has one child in the age range 12-17, has no dependent adults in the household, and has other household income at the country mean[25].

This hypothetical woman has the following predicted employment probabilities:

	full-time	part-time	non-work
Canada	0.596	0.142	0.263
US	0.585	0.171	0.244
UK	0.685	0.176	0.139
Germany	0.515	0.233	0.252
Italy	0.502	0.129	0.368

The marginal effects of each of our categorical variables of interest (i.e., children and adult dependents) are then shown in Figure 2. The effect of 'other household income', a continuous variable, is depicted in Figure 3.[26] Note that these graphs are read as follows. The hypothetical woman in the UK, for example, has a 68% probability of working full-

time or across countries (Gornick, 1999; OECD, 1994; Rosenfeld and Birkelund, 1995.)

[25] Throughout our empirical analyses on 'choice', we focus on the effects of our household variables on *married* women's employment choices. The labour supply of single mothers is very complex, largely due to the effects of income transfers. A full analysis of single mothers' employment choices is beyond the scope of this paper.

[26] Note that the marginal effects of the explanatory variables in logit models can be computed only after setting values for the regressors; they are not independent of these chosen values.

time, an 18% probability of working part-time, and a 14% probability of not working at all. If we 'take away' her 12-17 year-old child and 'replace' that child with one aged 3-5 (holding all other individual and household characteristics constant), her probability of working full-time would fall by 28 percentage points; concomitantly, her probability of working part-time would rise by 10 percentage points and her probability of non-work would rise by 18 percentage points. The sum of the three changes is always equal to zero.

[Figure 2 about here]

Child-related effects. Our first research question concerned the effects of the presence and age of children in the household. We first assess the effect of *parenting status* per se. The effect of being a parent can be seen (in reverse) in Figure 2 when this hypothetical woman is 'changed' from being a parent to being childless (in other words, when her one child, aged 12-17, is 'taken away'). The effect is uniform across countries: a decrease in the probability of working part-time. Moreover, in all countries, the decrease in part-time work is more than compensated for by the increase in the probability of working full-time; thus we see a net decrease in the probability of non-working. In other words, as we expected, for married women, the presence of children, overall, decreases the probability that a woman chooses to participate in full-time work and increases the probabilities of both non-working and—our empirical results show—of working part-time.

In order to assess the effects, among mothers, of the *age of children*, we 'take away' the 12-17 year-old child from our hypothetical woman, and replace that child with a younger one. Figure 2 shows a strong common pattern of those changes; in all of our countries—except Italy—the probability of working full-time decreases, sometimes substantially, and the probability of non-working increases. The age-of-children effects are particularly strong for children below school age (i.e., age 6, in most cases), especially in Germany, the UK, and—to a lesser extent—the US. This confirms our expectation that, overall, the presence of young children decreases their mothers' probability of full-time work and increases the likelihood of non-work. At the same time, the magnitude of the effects varies considerably across countries, and in accord with our expectations. We find larger age-of-children effects in Germany and in the UK, and smaller—although still substantial—effects in

Canada and in the US. Finally, in Italy, the employment status of the mother is virtually unaffected by the age of her children.[27] The larger effects in Germany and the UK are likely driven by the widespread availability of part-time jobs—in accord with our expectations—and the minimal child effects in Italy may be attributed to a combination of limited part-time work and the availability of nearly universal preschool for children starting at the third birthday.

The empirical effect on part-time work—the direction of which is theoretically ambiguous—varies depending on the age of the child. The presence of a very young child, aged 0-2, decreases the probability of working part-time in three countries, namely Canada, the US, and Germany, and increases it in Italy and the UK. When we 'give' the mother a child aged 3-5—again, in comparison to a child aged 12-17—the effect on the probability of the mother's working part-time is very small. An important exception is the UK, where the probability of working part-time increases substantially when the child is in this age range. The presence of a child aged 6-11 has a positive effect everywhere, except Italy, on the probability of working part-time, and always at the expense of working full-time. To summarize, when the child is very young (age 0-2), non-work is more likely to be the preferred solution adopted by mothers needing to balance employment and dependent care responsibilities. As their children leave infancy (0-2), and enter the preschool age (3-5), and then eventually reach the young school-age years (6-11), part-time—instead of non-work—becomes the more common alternative to full-time work.

Can other household members mitigate the age-of-children effects? These results show that, as we expected, the presence of very young children (under age 6) generally lower mothers' likelihood of full-time work and raise their probability of non-work. However, one possibility is that the presence in the household of an older person—especially one aged 65-74—might mitigate these 'child-penalties'; these (relatively young) elderly household members may assume some 'babysitting' responsibilities for young children in the household. To assess this possibility, we included an interaction term among the regressors ('non-earning adult aged 65-74 *and* child aged 0-5'). The results in Table 2 allow us to begin to disentangle the positive effect of this (potentially) 'babysitting' elderly household member from the negative effect of the presence of a young child**.**

[27] The surprising absence of child-related effects in Italy has been reported, previously, by Gornick, Meyers,

Unfortunately, there are a small number of cases—especially in Germany, Italy, and the UK—in which a woman works part-time and lives in a household where both an adult dependent aged 64-74 and a child aged 0-5 are present, so we are limited, for the most part, to assessing the effects of these 'babysitters' on women's likelihood of working full-time. Table 2 reveals that in three countries—Canada, the US, and the UK—the coefficient on the 'babysitter' is significantly positive with respect to full-time work, meaning that having these adults in the home raises the likelihood that mothers work full-time instead of not at all. Note that this 'babysitter effect' is strong enough in Canada and the UK (although not in the US) to reverse the negative effect of the presence of a young child (both 0-2 and 3-5) [28]. The effect on part-time work is much less clear, mainly because of the limited number of cases. Nevertheless, in the four countries in which we could estimate the 'babysitter' effect on part-time employment (versus non-employment), the coefficient is positive (though non-significant) in three; the exception is in Italy, where the effect on part-time work is negative (also non-significant). These results suggest that the 'babysitter' effect on women's employment choices—both full-time and part-time—might be greater in those countries where out-of-home child care alternatives are fewer.

Dependent adults. We suggested, in our second research question, that the presence of various non-wage-earning adults in the household might exert separate, independent, effects on women's employment choices. First, we consider non-earning, or 'dependent', spouses. Figure 2 shows that, in all five countries, the effect on full-time work and on non-working has the sign that we expected—negative in the first case, positive in the second. Moreover, as we expected, these estimated effects are stronger in Canada and in the UK, weaker in Germany, and almost non-existent in Italy—an outcome that we attribute to the larger share of means-tested income in the social benefit packages in the former countries. (These effects in the US, however, are weaker than those in the other 'liberal' welfare states, and the explanation for that is not evident.) The estimated effect on part-time work, which again was theoretically indeterminate, varies across countries. In two countries—Germany and the UK—the presence of a non-earning spouse has no effect on the

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and Ross (1998) and by Colombino and Del Boca (1990).

[28] The total effect of a variable that is included both alone and in interaction with another variable among the regressors is computed by multiplying the two rr-ratios.

probability of working part-time; in the other three countries—Canada, the US, and Italy—the estimated effect is negative.

If the 'dependent adult' in our hypothetical woman's home is not her spouse, but instead another household member aged 18-64 (e.g., a non-working child older than age 17, parents or siblings who are unemployed, retired, or out of the labour force), the effects are very similar (as we expected). That is, the probability of working full-time decreases and the probability of non-working increases, while the probability of the woman working part-time decreases—or varies very little.

When the 'dependent adult' is an elderly individual—aged 65-74 or older than 75—the effects on women's employment choices are again very similar as in the previous cases, although not as strong. The probability of working full-time decreases everywhere, and the probability of non-working increases; we attribute these effects to the fact that many of these household members are in need of care, and much of that care is provided by working-age women in the home. The estimated signs on the probability of working part-time, again, vary by country. In general, the probability of working part-time increases, except in Canada and in the US in the case of an elderly individual aged 75 or more, and in the UK in the case of an individual aged 65-74.

To summarize, when the non-earning adult is aged 18-64 (either the spouse or another household member), the probability of being employed both full-time and part-time decreases everywhere. In the case of elderly household members, there is instead some shift to part-time from full-time (even if the most substantial shift is again from full-time to non-employment).

Other household income. Finally, our third research question concerned the effect of *other household income* on women's employment choices. These results can be seen in Figure 3, where the 'base' income of our hypothetical woman—which has been set at the country mean for all the prior simulated employment patterns—varies across the 'other household income' distribution. Interestingly, the effect of other household income, when controlling for all other variables, is almost non-existent on any of the three employment probabilities. Only in Germany does the part-time rate increase substantially when the other earnings in the household increase (and this at the expenses of full-time employment). Therefore, the

hypothesis that part-time work is heavily concentrated among women in relatively high-income families does not seem to be confirmed in our empirical findings. The exception, in Germany, may be partially explained by the large part-time labour market operating there, i.e., if there is an income effect, it will likely be most evident where women have the greatest options to choose part-time work.

[Figure 3 about here]

Wage Differentials

The results in the top row of Table 3 indicate that, among employed women, part-time workers suffer unadjusted wage penalties, relative to full-time workers in all five countries; these wage differentials are unadjusted in the sense that no controls are included.[29] The results in this table reveal that the largest unadjusted gaps between part-time and full-time wages (approximately 22%) are found in Italy and the US The UK ranks in an intermediate position with a full-time/part-time wage gap of 15%. Finally, in Canada and Germany, the wage differentials are lower: 12% and 8%, respectively. These results are, to some extent, in line with our expectations. The large full-time/part-time differential in Italy may be explained by the fact that the part-time sector is especially small (and perhaps disproportionately comprising 'bad jobs'); the US gap is likely due, in part, to the lack of regulations that affect the pay of part-time workers. The decomposition analysis that follows allows us to begin to investigate the sources of these unadjusted pay differentials.

[Table 3 about here]

In the subsequent rows of Table 3, we present the results of the Oaxaca decomposition of the full-time/part-time wage differential, computed according to equation (6). Here, we report the contribution to the wage gap of the various components—differences in observable characteristics, in returns (and the constant), and in unobservables (the selection

[29] These unadjusted part-time/full-time wage gaps are calculated as the exponential of the difference between mean *logged* part-time wage and mean *logged* full-time wage.

component).[30] The complete OLS results that underlie the decomposition are presented in Appendix Table 1.

Table 3 reveals that the composition of the gap varies remarkably across countries. First of all, in the UK, differences in *observable characteristics* between full-time and part-time workers explain almost the entire unadjusted wage gap (93%). In this case, the wage differential is interpreted primarily as a 'fair' one, in the sense that measured full-time/part-time differences in age, education, and occupation explain a large portion of the unadjusted wage gap. That the wage differential is largely 'explained' in the UK is not surprising because, in recent decades, the UK—unlike the other four countries—had an explicit policy aimed at fostering the growth of part-time jobs for women. As a result of organized state intervention, many less-educated and low-skilled women were pulled into part-time work in low-paid occupations with little prospect of advancement.[31]

In contrast, in Germany, the *returns* component, combined with the *constant* component, is the dominant one. In this case, the largest share of the differential is due to differences in the 'base' pay of part-time versus full-time workers, combined with differences in returns to observable characteristics between the two labour forces. In other words, in this case, part-time workers are 'discriminated against' in that a broadly similar full-time worker is paid more per hour. This may be due to the very high fixed labour costs in Germany; these could lead employers to discriminate against part-time workers to keep their hourly costs in line with full-time workers, despite protective legislation.

Finally, in Canada, the US, and Italy, the *selection effect* component—i.e., the role of the 'unobservable' characteristics—explains the largest share of the differential. In these countries, the gap is primarily explained by differences between the two groups of workers in unobservable factors that we are not able to control for in our model. These could be supply- and/or demand-driven differences, including, for example, differences in aptitude,

[30] These are expressed as ratios to the total differential—the three components indicated on the right hand side of equation (6).

[31] Burchell, Dale, and Joshi (1997) note that in response to labour shortages in the 1960s, an active UK state policy began recruiting women into part-time work. "Jobs were set up in a context in which married women were seen as 'a necessary expedient to tide over a period of labour shortage'... and on the assumption that their primary responsibilities lay at home. Thus, part-time work was explicitly designed to be undemanding and lacking in promotion prospects and responsibility. The ramifications of this are still being experienced by women today" (p. 211).

motivation, tenure, or other worker- and job-related factors.[32] Interestingly, these countries are again the ones with the smallest part-time labour markets, i.e., the countries where part-time work is more likely to be confined to 'marginal areas' of the labour market. Therefore, although this component cannot be 'technically' defined as 'discrimination', it is possible that it is nevertheless related to some sort of discrimination mechanism that operates through the selection of workers into the two labour markets.

Finally, how do the unadjusted wage gaps compare to the adjusted ones? That is, what is the direction and magnitude of the wage differential, across these countries, *after* we remove the component attributable to differences in observable characteristics between the two groups of workers? The second row in Table 3 reports, for each country, the direction and magnitude of the component attributed to observable characteristics. As we expected, that number is positive everywhere, which means that controlling for differences in observables reduces the part-time/full-time wage gap in all countries. However, the portion of the unadjusted gap explained by observables varies dramatically—from only 9% in Germany, to 20-35% in Canada, the US, and Italy, to nearly 93% in the UK.

The last row of Table 3 presents the adjusted wage gaps. Clearly, the ranking of the countries is considerably different than the ordering with respect to the unadjusted gaps. The largest gaps—when measured worker- and job-related differences are accounted for—are still found in the US (17%) and in Italy (14%). However, the ranking of the UK shifts markedly; if part-time and full-time workers had the same observable characteristics the wage gap would have been only slightly more than 1%. Germany and Canada rank in an intermediate position (8% and 9%).

6. Conclusions.

Summary of Findings

In this study, we used cross-nationally comparable micro-data to analyse the patterns and consequences of part-time employment among women in Canada, Germany, Italy, the United Kingdom, and the United States, as of the middle 1990s. Our results indicate that

[32] Note that some of these factors are theoretically unobservable (e.g., aspects of motivation), while others are unobservable due to lack of information in the dataset (e.g., tenure).

there is marked variation across these countries, but they reveal a number of uniformities as well.

First, we explored overall *patterns of part-time employment* in these countries, and found that, as expected, the percentage of working-age women who work part-time (versus full-time or not at all) varies substantially across countries—from 5% in Italy to 17% in Germany. We also found, again as expected, that men's rates of part-time work are much lower everywhere, and vary less. These results, taken together, are clearly consistent with the widely-reported claim that, in all of the industrialized countries, 'part-time work is women's work'. We found that women's share in part-time work ranges from about 80% in the US to 95% in the UK. Clearly, part-time work is deeply 'gendered' in all of these countries. Any analysis of its roots and consequences must be based in an understanding that part-time work is extremely female-dominated.

Second, we turned our attention to *women's employment 'choices'*, specifically to the three-option decision between non-employment, part-time employment, and full-time employment. Our results reveal that, as expected, *child-related factors*—both the presence and age of children—are crucial to women's employment outcomes in nearly all cases. In all countries, being a mother (compared to being childless), *ceteris paribus*, decreases the probability that a woman selects full-time work, and increases the probabilities of both non-working and of working part-time. *Among* mothers, the effects of having young children vary across countries, with the largest effects—decreases in full-time work, increases in non-work—seen in Germany and in the UK, and smaller effects seen in Canada and the US. Part-time work, as a substitute for full-time work, typically becomes a more common option as women's young children leave infancy and enter their preschool, then their school-age, years. The cross-national pattern is consistent with our expectations; the effects of young children are smaller, overall, where part-time work is less widely available and (in the case of Italy) where the state provides more preschool slots. It is interesting that the effects of young children are mitigated, to some extent, by the presence of non-earning elderly household members, especially in the English-speaking countries where out-of-home child care options are fewer.

One of our most interesting findings is the strong and consistent effect of the presence of a *non-wage-earning adult* in the home on working-age women's labour market attachment.

These adults may be unemployed or out of the labour market for a variety of reasons; many 'adult dependents', especially those who are elderly, will be in need of care. As expected, the presence of 'adult dependents'—spouses and non-spouses—exerts substantial downward pressure on women's probability of working full-time, and in several cases on the probability of working part-time as well. The effects of 'adult dependents' are more widespread in the English-speaking countries, possibly because a larger share of the overall social benefit package is means-tested in these countries, which may introduce some work disincentives for wives whose husbands (or other relatives) collect benefits. In general, we find weaker effects in Italy, where the part-time labour market is smaller and women's options to choose part-time work are more limited.

Finally, we were somewhat surprised to find that the effect of the level of *market income earned by other household members* is not particularly influential, at least not once control variables are introduced. Actually, only in Germany does the part-time rate increase substantially when the other earnings in the household increase. This means that, despite some claims to the contrary, we find that women from relatively high-income homes are not disproportionately likely to work part-time. Further research on the relationship between women's engagement in part-time work and household economic well-being is clearly needed. We need to better understand both the impact on women's decision-making of her family's economic status, as well as the consequences of her choices.

Third, we turned our attention to the direct economic consequences for women workers of engaging in part-time rather than full-time employment—that is, to the question of *wage penalties* associated with part-time employment. We find *unadjusted* penalties (based on mean logged wages) everywhere, ranging from 8-12% in Canada and Germany, to 15% in the UK, to as high as 22% in the US and Italy, meaning that part-time workers earn that much less than full-time workers in each of these countries. Although controlling for measurable worker- and job-related characteristics fails to fully explain the gap in any country, our controls reduce the observed gap in all countries; the reduction due to measured characteristics ranges from 9% in Germany to over 90% in the UK. After controlling for measurable characteristics, the largest wage gaps are still found in the US (17%) and in Italy (14%). Wage gaps—adjusted and unadjusted—may be larger in these countries (the US and Italy) due in part to their smaller part-time labour markets (where

part-time work is more marginalized); the very low level of regulation in the US may also drive the gap upwards.

While the unadjusted wage differential in the UK is mainly due to differences in observable characteristics, in three countries—Canada, the US and Italy—the wage gap is mostly due to the 'selection effect'. This means that women are selected into the two labour forces in a way that increases the gap between their earnings, although we are not able to explain what is different about the two groups of workers. Finally, in Germany the wage gap is mostly due to differences in returns, combined with the differences in the constants. In this sense, only in Germany is there is evidence of pay 'discrimination' directed at part-time workers, relative to their full-time counterparts.

Directions for Future Research: Comparative Policy Analysis

Our results reveal that there is considerable uniformity across these countries; in all five, part-time work is women's work, household variables 'matter', and women part-time workers earn substantially less than their full-time counterparts. However, there is also marked variation across these countries. One obvious and important place to look for explanation is at policy and institutional variation. In this paper, our comments about the roles that policy and institutions play in shaping women's employment choices, and the consequences of those choices, are necessarily speculative and *ad hoc.* In order to test—and quantify—policy impacts, more countries and (in several arenas) more policy variation is needed. Three important questions stand out as the basis for future research on the interplay between policy and part-time work across countries.

First, how—and to what extent—does cross-national policy variation help to explain variation in women's employment statuses (part-time versus full-time versus non-work) as well as variation in the factors that influence women's choices? In this paper, we have argued that some of the cross-national variability in employment patterns appears to be shaped by cross-country variation in a range of social and family policies, for example, in services that support mothers' employment, and in policies that provide assistance to persons caring for elderly family members. A large literature has established that all of these policies vary dramatically across the industrialized countries; provisions are particularly limited in the English-speaking countries (e.g., Gornick, Meyers, Ross, 1997;

Rostgaard and Fridberg, 1998, Sainsbury, 1999). One important line of research entails assessing—and quantifying—the extent to which variation in the effects of dependent care responsibilities is explained by cross-country variation in policies that potentially offset the downward pressure that caregiving demands exert on women's labour market attachment. Other policies, as well, shape the interaction between family-related variables and employment choices—including income transfer policies (especially the structure of means testing), income taxation rules, and various elements of family law—and the potential effects of these, too, demand further study.

Second, does cross-national policy variation help to explain the variation that we find in the size and source of the part-time/full-time wage differentials? There has been substantial policy development in recent years, at both the supra-national and national levels, aimed at insuring equity in remuneration between part-time and full-time workers. For example, both the 1994 adoption of the ILO's *Part-Time Work Convention* (175) & *Recommendation* (182) and the 1997 passage of the Council of the European Union's *Directive on Part-Time Work* were directed at assuring equal treatment of part-time workers relative to full-time workers (Bolle, 1997). It is interesting that as of the middle 1990s, we find the strongest evidence for wage 'discrimination' aimed at part-time workers in Germany, one of the two countries (along with Italy) that had the most formal protections in place at that time (EIRR, 1990). The development, implementation, and effectiveness of these part-time equity policies constitute an important line of future research.

And finally, do public policies operating in these countries tend to re-enforce or counteract the wage penalties? We find clear evidence that part-time workers in all of the countries earn less in cash wages than do full-time workers, both before and after controls. But we know little about how other factors operate—including policies and legislation—that either exacerbate or offset the wage penalties. Social security and labour market regulations, which vary across countries, affect the degree to which part-time workers have access to public and occupational benefits, as well as the extent to which they are awarded job-related protections, including the right to overtime, holiday and vacation days, and training and career-enhancement opportunities (ILO, 1989; Maier, 1991, 1992). Understanding the ways in which policies that affect part-time workers overall interact with the part-time/full-time wage structure constitutes a third crucial area for future research.

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Appendix

[Table A1 here]

APPENDIX

Table A1 - Wage Estimation Results in Five Countries, Women

	Canada		United States		United Kingdom		Germany		Italy	
	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.	Coeff.	t-stat.
Part-time										
lambda	-0.147	*-1.918*	-0.207	*-4.643*	-0.040	*-0.499*	-0.043	*-0.509*	-0.137	*-1.067*
age	0.025	*2.196*	-0.001	*-0.181*	-0.029	*-1.592*	0.026	*1.398*	0.040	*1.778*
age squared	0.000	*-1.712*	0.000	*0.186*	0.000	*1.308*	0.000	*-1.212*	0.000	*-1.457*
education level: high	0.054	*1.286*	0.267	*10.294*	0.389	*6.062*	0.128	*1.720*	0.060	*1.245*
education level: medium	-0.017	*-0.406*	0.113	*4.401*	0.154	*3.508*	-0.001	*-0.017*	-0.032	*-0.497*
professional	0.234	*8.457*	0.253	*13.392*	0.371	*7.345*	0.176	*3.816*	0.174	*2.267*
blue-collar	-0.083	*-1.517*	0.010	*0.339*	-0.073	*-1.684*	-0.160	*-3.668*	-0.124	*-2.908*
trade	-0.140	*-4.437*	-0.138	*-7.761*			-0.173	*-3.995*	0.029	*0.691*
transport	0.125	*1.983*	0.089	*2.238*			0.095	*1.287*	0.085	*0.504*
finance	0.021	*0.595*	0.010	*0.366*			0.288	*3.021*	-0.032	*-0.291*
manufacturing	-0.051	*-0.907*	0.019	*0.606*			-0.140	*-2.965*	0.048	*1.169*
public administration	-0.094	*-1.580*	-0.055	*-1.149*			0.066	*1.214*	0.000	*-0.004*
constant	1.994	*6.712*	2.255	*11.761*	2.326	*5.542*	2.360	*5.128*	1.662	*2.780*
Observations	2543		4247		568		587		219	
Adj. R2	0.087		0.159		0.267		0.170		0.143	
Full-time										
lambda	-0.070	*-3.402*	-0.017	*-1.137*	0.013	*0.499*	-0.154	*-5.166*	0.024	*0.620*
age	0.024	*5.958*	0.029	*10.705*	0.022	*2.688*	0.022	*2.792*	0.028	*3.400*
age squared	0.000	*-4.508*	0.000	*-9.197*	0.000	*-2.715*	0.000	*-2.277*	0.000	*-2.539*
education level: high	0.184	*10.122*	0.355	*25.707*	0.255	*9.735*	-0.004	*-0.112*	0.145	*4.408*
education level: medium	0.094	*5.641*	0.187	*15.022*	0.112	*5.054*	-0.070	*-2.922*	0.070	*2.140*
professional	0.211	*25.442*	0.261	*39.794*	0.263	*13.625*	0.169	*7.302*	0.214	*13.732*
blue-collar	-0.003	*-0.179*	-0.054	*-4.998*	-0.121	*-4.827*	-0.140	*-5.480*	-0.102	*-5.274*
trade	-0.118	*-9.523*	-0.092	*-10.618*			-0.143	*-5.041*	0.043	*1.372*
transport	0.200	*11.689*	0.189	*14.779*			0.027	*0.575*	0.105	*1.738*
finance	0.022	*2.022*	0.053	*6.111*			0.232	*6.188*	0.171	*4.315*
manufacturing	0.032	*2.209*	0.092	*9.741*			0.068	*2.927*	0.046	*1.733*
public administration	0.160	*12.576*	0.108	*9.267*			0.041	*1.535*	0.126	*4.925*
constant	1.777	*19.610*	1.343	*22.821*	1.260	*7.710*	2.604	*17.035*	1.558	*7.868*
Observations	9843		18113		1415		1360		1574	
Adj. R2	0.186		0.251		0.312		0.169		0.438	

Note: The standard errors have been corrected following the procedure described by Lee (1983) in order to handle the problem of heteroskedasticity of the residuals illustrated by Heckman (1979) and Greene (1981).

Table 1 - Activity Rates in Five Countries, Women and Men (Percentages)

	Canada		United States		United Kingdom		Germany		Italy	
	tot. %	% in empl.	tot. %	% in empl.	tot. %	% in empl.	tot. %	% in empl.	tot. %	% in empl.
Women:										
full-time	50.6	81.1	54.6	81.2	41.4	71.9	36.8	68.2	34.4	88.0
part-time	11.8	18.9	12.7	18.8	16.2	28.1	17.1	31.8	4.7	12.0
marginal part-time	1.6	--	1.4	--	3.4	--	0.9	--	0.3	--
non-employed	36.0	--	31.3	--	39.1	--	45.2	--	60.7	--
total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Men:										
full-time	72.7	96.7	79.9	95.4	70.0	98.5	76.4	98.6	71.1	98.6
part-time	2.5	3.3	3.9	4.6	1.1	1.5	1.1	1.4	1.0	1.4
marginal part-time	0.4	--	0.3	--	0.4	--	0.1	--	0.0	--
non-employed	24.4	--	15.9	--	28.5	--	22.4	--	27.8	--
total	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0	100.0
Part-time rate, ratio: women/men:	4.8	5.8	3.3	4.1	15.2	18.8	15.4	22.2	4.5	8.3
Female share in:										
full-time labour market	42.5		44.0		41.8		34.1		36.8	
part-time labour market	83.7		79.1		94.9		94.3		84.5	
marginal part-time	80.3		82.5		91.6		91.4		93.6	
non-employed	61.1		69.4		62.4		68.4		72.5	

Notes: Agricultural, military, and self-employed workers are excluded.
The sample is restricted to persons aged 25-59.
Part-time status is self-defined.

Table 2 - Multinomial Logit Results in Five Countries, Women

	Canada	US	UK	Germany	Italy
	RR ratio	*RR ratio*	*RR ratio*	*RR ratio*	*RR ratio*
Full-time					
married	0.993	0.816**	1.462**	1.025	0.480**
parent	0.552**	0.788**	0.167**	0.475**	1.475
married*parent	1.378**	1.109*	2.062**	1.206	0.747
children 0-2	0.583**	0.511**	0.346**	0.056**	0.753**
children 3-5	0.547**	0.502**	0.358**	0.287**	0.783*
children 6-11	0.567**	0.606**	0.473**	0.477**	0.656**
children 12-17	0.987	0.940*	1.386**	1.003	0.642**
spouse dependent 18-64	0.504**	0.562**	0.270**	0.573**	0.928
adult dependent 18-64 (no spouse)	0.592**	0.753**	0.575**	0.884	0.636**
adult dependent 65-74	0.637**	0.623**	0.505**	0.607*	0.686**
adult dependent 75+	0.722**	0.806**	0.549*	0.622	1.042
adult dependent 65-74*child 0-5	3.072**	1.619**	10.484**	2.099	0.542
other household income	1.002**	0.997**	0.995	0.994**	1.050*
other household income squared	1.000**	1.000**	1.000	1.000	0.996**
age	1.306**	1.179**	1.280**	1.179**	1.697**
age squared	0.996**	0.998**	0.996**	0.997**	0.993**
education level: high	4.551**	4.281**	3.048**	3.412**	5.517**
education level: medium	2.819**	2.503**	2.285**	1.496**	3.836**
Part-time					
married	1.171*	1.032	2.440**	2.133**	0.669*
parent	0.625**	0.873*	0.921	2.359**	3.000**
married*parent	1.689**	1.484**	1.664*	0.582*	0.520
children 0-2	0.690**	0.628**	0.409**	0.140**	0.860
children 3-5	0.835**	0.686**	0.609**	0.418**	0.827
children 6-11	0.937	0.932	0.688**	0.703**	0.524**
children 12-17	1.130*	1.147**	0.876	0.870	0.597**
spouse dependent 18-64	0.481**	0.521**	0.381**	0.697*	0.749
adult dependent 18-64 (no spouse)	0.717**	0.752**	0.605**	0.954	0.611**
adult dependent 65-74	0.871	0.765**	0.360**	0.822	0.880
adult dependent 75+	0.625**	0.764**	1.025	1.164	1.205
adult dependent 65-74*child 0-5	1.211	1.203	dropped	2.042	0.491
other household income	1.008**	1.003**	1.002	1.002	1.011
other household income squared	1.000**	1.000**	1.000	1.000	0.998
age	1.110**	1.091**	1.128**	1.193**	1.733**
age squared	0.999**	0.999**	0.999**	0.998**	0.993**
education level: high	3.314**	2.796**	1.236	2.535**	1.629**
education level: medium	2.138**	1.991**	1.404**	1.607**	2.506**
Observations -- total	22607	37084	3856	3806	5248
Observations -- full-time	9843	18113	1415	1360	1574
Observations -- part-time	2543	4247	568	587	219
Observations -- non-worker	10221	14724	1873	1859	3455
Log-likelihood	-20241.11	-32971.42	-3418.14	-3446.87	-3645.01
Pseudo R2	0.084	0.073	0.135	0.118	0.147

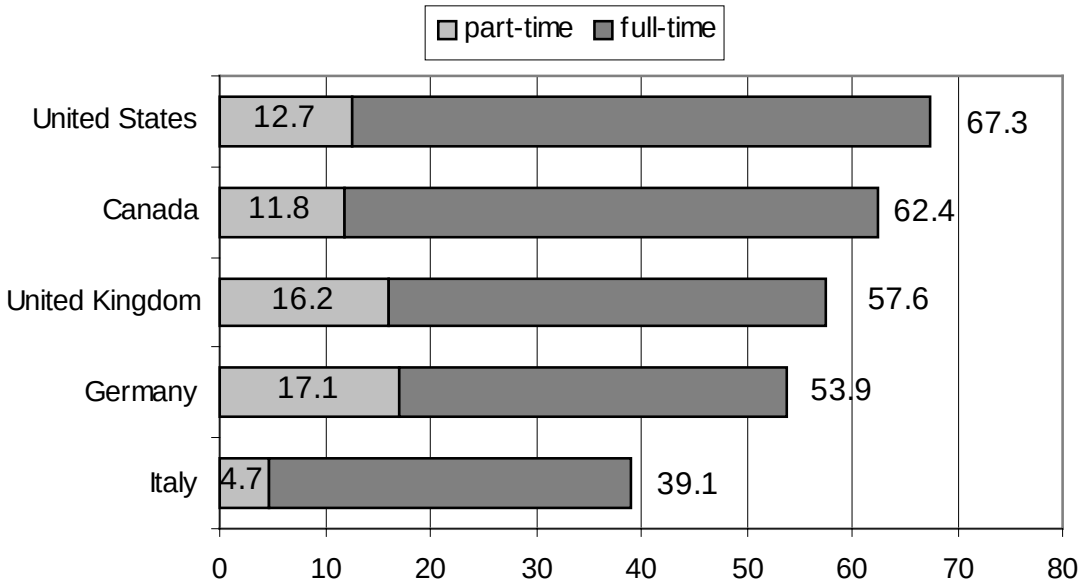
Note: The comparison group is the outcome "non-worker".
Relative risk ratios (rather than coefficients) are reported in this table; the relative risk ratio associated with a one unit change in the explanatory variable is measured as $\exp(b_i)$ where b_i is the estimated coefficient of variable *i.*
** indicates significance at the 5% level; * indicates significance at the 10% level

Table 3 - Decomposition Results, Part-time/Full-time Differentials in Five Countries, Women

	Canada		United States		United Kingdom		Germany		Italy	
Total (unadjusted) differential	-11.7%	1.000	-21.7%	1.000	-15.1%	1.000	-8.4%	1.000	-22.1%	1.000
Component attributable to:										
Characteristics		0.205		0.213		0.928		0.089		0.350
Returns (includes the constant)		-0.684		-0.520		-0.333		1.681		-0.524
Selection		1.479		1.307		0.405		-0.770		1.174
Adjusted differential	-9.3%		-17.1%		-1.1%		-7.7%		-14.4%	

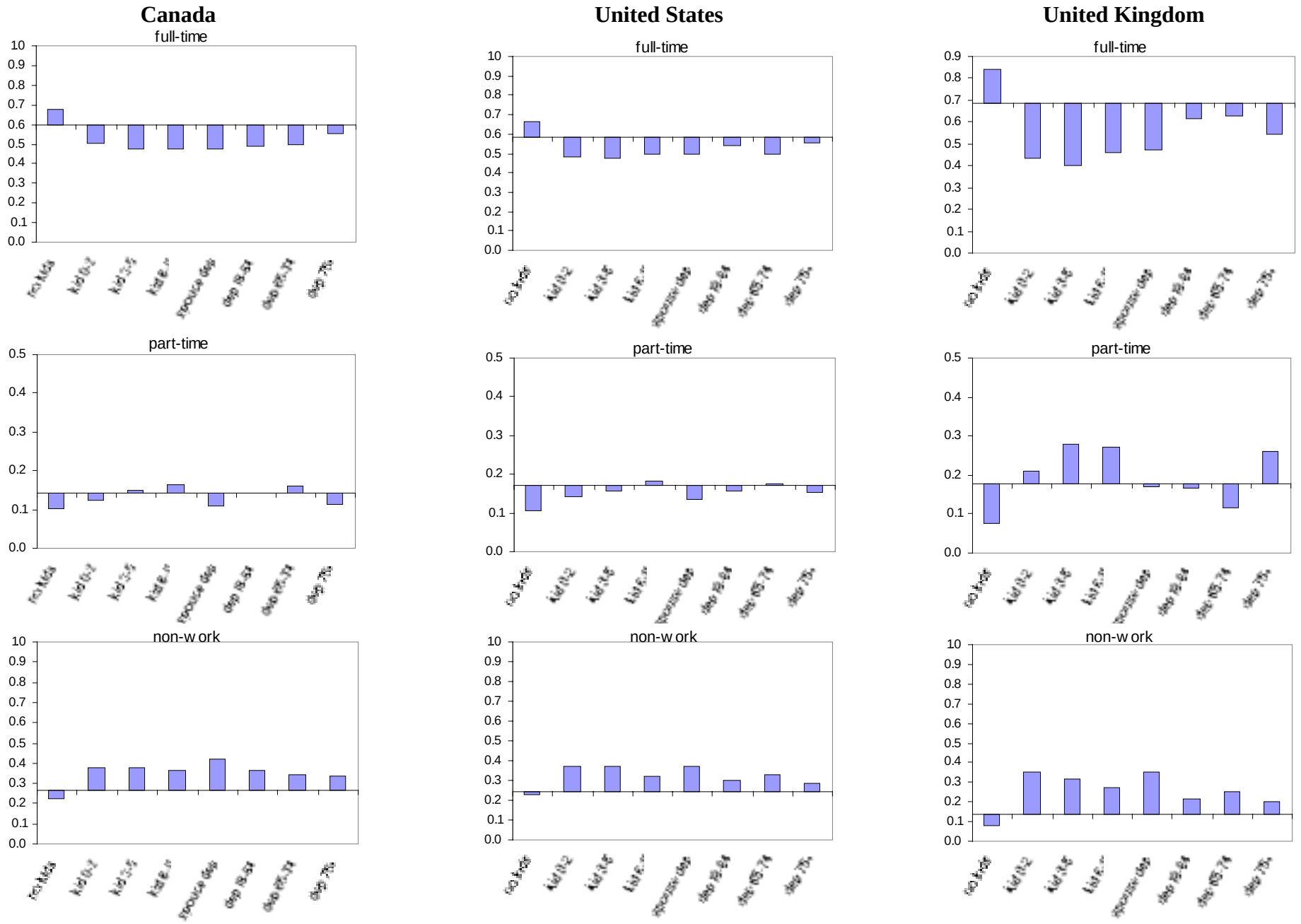
Notes: Agricultural, military, and self-employed workers are excluded.
The sample is restricted to persons aged 25-59.
Marginal part-time workers (fewer than 10 hours) have been excluded.
The distribution of wages have been "cleaned" of outliers by dropping the top and the bottom 5th percentile groups.
The total differential indicates the gap between part-time and full-time workers in percentage terms (-11.7% means that part-time workers are earning 11.7% less than full-time workers).
The decomposition reported in the second column of each country section is expressed in percentage points out of the total differential. Given that the total differential has been rescaled to 1, a positive number indicates that that component explains a portion of the unadjusted wage differential, while a negative number indicates that that component actually reduces the unadjusted wage differential.
The adjusted differential has been computed as the total (unadjusted) differential reduced by the percentage attributable to observable characteristics.

Figure 1 - Full-Time and Part-Time Employment in Five Countries, Women

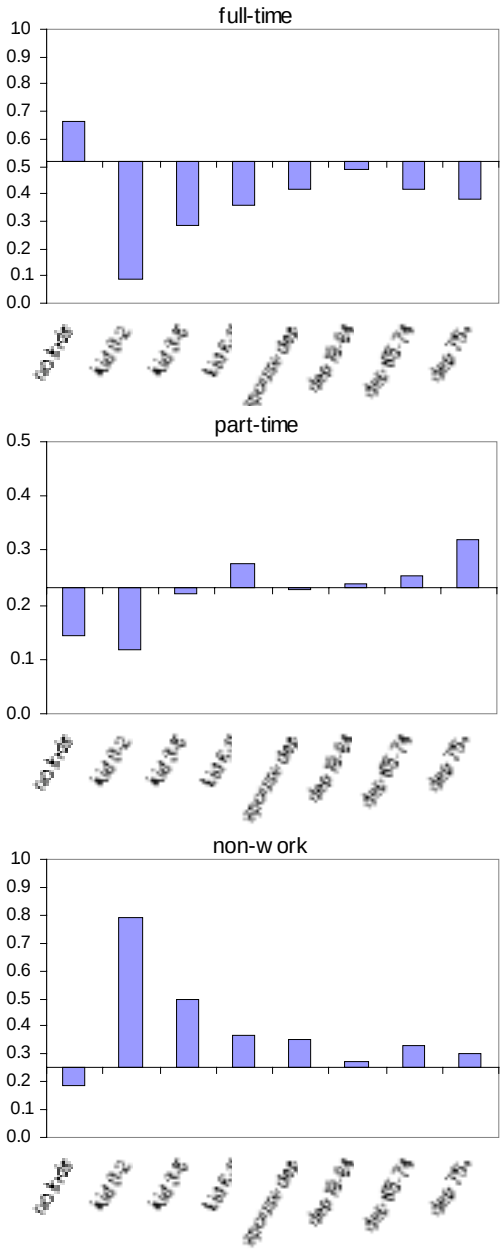


Note: See table 1
The numbers to the right of the bars indicate total employment rates (part-time and full-time combined).

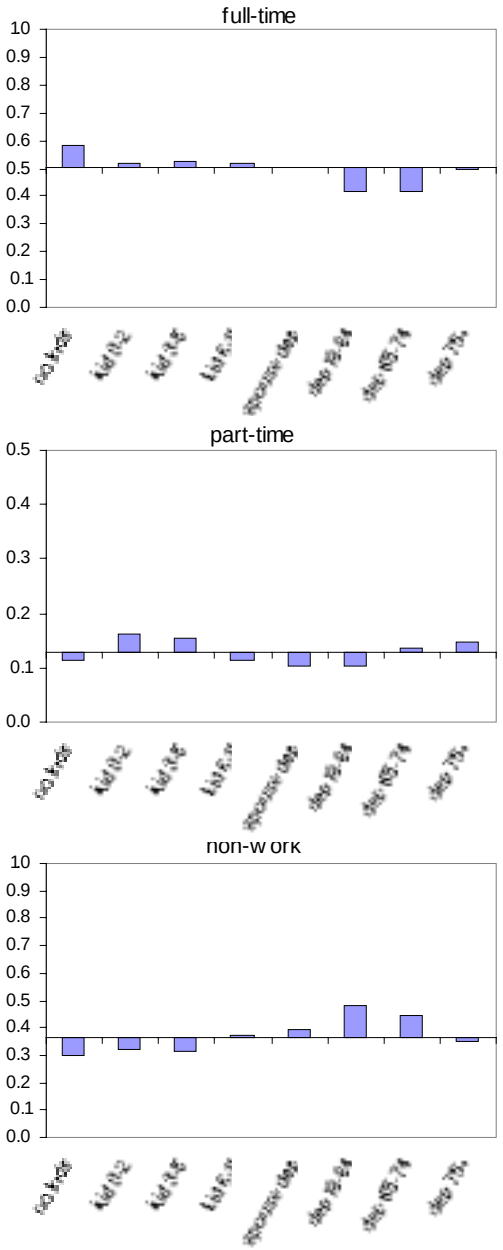
Figure 2 - Effects of Children and Adult Dependents on Three Employment Outcomes in Five Countries, Women



Germany



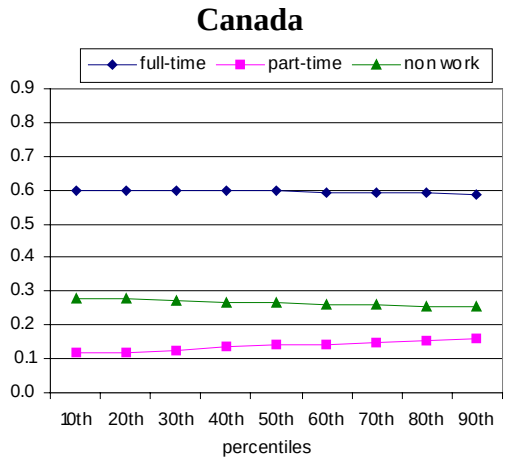
Italy

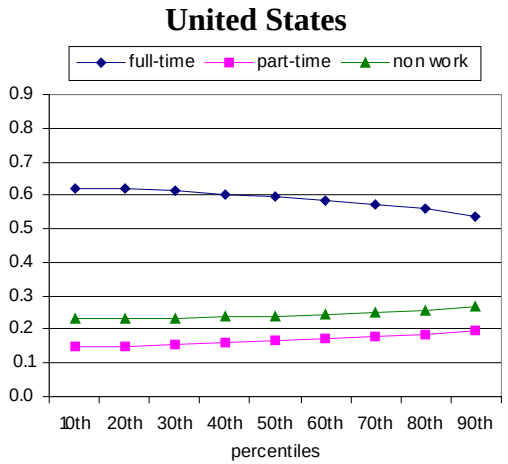


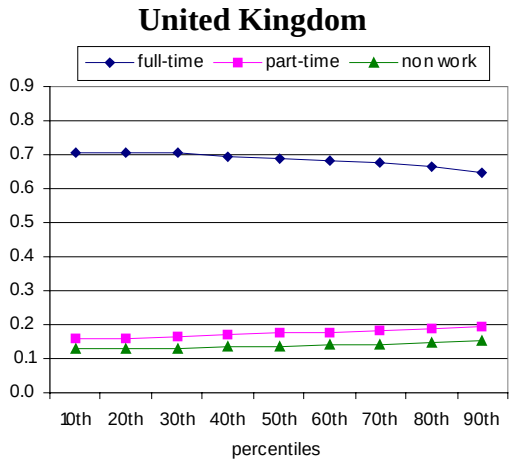
Note:

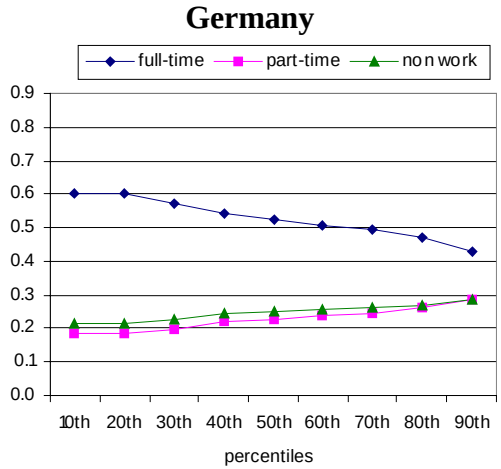
The three bar graphs drawn for each country represent the estimated effects on women's probability of working full-time, part-time or not at all, produced by a change in one explanatory variable at a time. The horizontal line in each panel corresponds to the base probability of each employment outcome (see the text of the paper), and the length of each bar represents the magnitude of the predicted change (positive or negative) in the probability of each outcome that is associated with a change in that one explanatory variable.

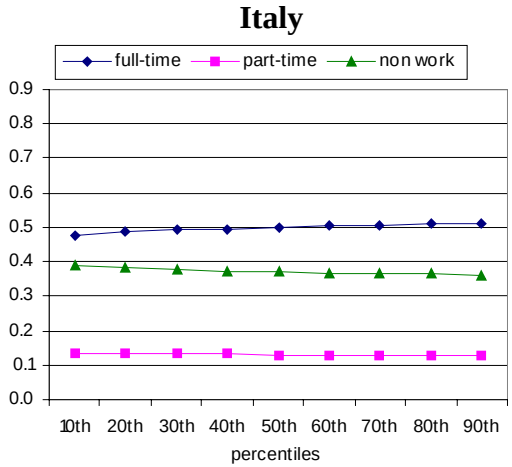
Figure 3 - Effect of Household Income on Three Employment Outcomes in Five Countries, Women











Note:

The graphs show predicted changes in the probabilities of each outcome state, as women's "other family income" varies across income deciles. All other explanatory variables are fixed at the level designated for the hypothetical woman (see the text of the paper for her characteristics).