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**CHILD CARE WORKERS' WAGES: NEW EVIDENCE ON RETURNS TO
EDUCATION, EXPERIENCE, JOB TENURE AND AUSPICE**

by

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Abstract

Child care workers receive low hourly pay, very modest returns to education, experience and job tenure, and have high rates of job turnover. Such are the stylized facts from a number of studies which have convinced some analysts to characterize child care workers as participants in a secondary, and disadvantaged, labour market. This paper uses recent Canadian data to challenge this characterization and to examine the disputed effects of auspice (non-profit vs. for-profit status) on wages. In contrast to Mocan and Viola (1997), however, improved controls for the differential availability of resources and firm size does not make the effects of auspice disappear. All else equal, the wage premium in different types of non-profits varies from 7% - 24%.

I. Introduction

Widely-accepted facts about the wages of workers in licensed child care centres seem to have been established in a number of studies in both Canada and the United States (Hartmann and Pearce, 1989; Schom-Moffatt, 1985 and 1992; Whitebook et al., 1989a,b and 1993; Blau, 1992, 1993; Mocan and Viola, 1997):

1. Child care workers' wages are low; in fact, wages are lower than in other occupations requiring similar levels of education;
2. Neither job experience, nor education are adequately rewarded, so there is little incentive for licensed child care workers to improve their abilities and stay in the sector;
3. As a result of low wages and the lack of prospects for advancement, the rate of job turnover is very high, with negative implications for maintaining an acceptable quality of care.

These facts appear to be consistent with the proposition that the labour market for child care workers does not work properly or, equivalently, that child care work is part of a secondary, and disadvantaged, labour market. This proposition has been advanced by Hartmann and Pearce¹, supported by Whitebook and Schom-Moffatt and has received some support from Mocan and Viola.

Secondary labour markets are said to provide low-paid “dead-end” jobs (Kaufman, 1994). Because of discrimination, or class divisions, or due to the operation of unions or other

¹ “In essence, the child care industry is largely characterized by a labor market that is secondary rather than primary. Secondary labor markets have poor working conditions, low wages, little advancement, and high turnover.”(Hartmann and Pearce, 1989, p.4) “...a primary labor market [is] a labor market that pays well, offers good benefits and job security, has clear lines of career progression, and generally rewards workers for their

institutional factors, labour markets are segmented. Workers will, therefore, have access to jobs in either the primary or the secondary market, but not both; workers in the two markets are, effectively, non-competing groups. Jobs in a secondary labour market do not, generally, require substantial accumulated skills; their remuneration has three characteristic observable features. First, the general level of wages is low due to market segmentation and crowding. Second, there are either no returns to schooling and general labour market experience, or, at least, the returns to education and experience are substantially smaller than for workers in the primary labour market (Neuman and Ziderman, 1986). Third, job tenure with a particular employer is unrewarded, because there are no substantial job-specific skills that are learned in the course of employment (i.e., neither firms nor employees undertake human capital investment on-the-job; there is no well-developed internal labour market). Due to the absence of any significant returns to education, experience or job tenure, there are few prospects for promotion or incentives for job stability; high rates of job turnover are a typical result.

While there has been some agreement about characterizing child care as a secondary labour market, there has been disagreement on whether the auspice of the child care employer (i.e., non-profit, commercial, public sector) matters for child care workers' wages. Studies by non-economists, relying on cross-tabulations, have concluded that wages are substantially higher in non-profit than in commercial (i.e., for-profit) centres - in Canadian data, 25% higher. Analysis of this effect has taken two related paths: developing a coherent explanation of observed patterns and exploring whether regression analysis of the determinants of compensation confirms the effects of auspice when additional control variables are introduced

seniority and acquired skills.”(ibid, p.48)

which are consistent with these explanations.

There are several plausible explanations why non-profit and public centres may pay hourly wages that are different than those paid by commercial firms for similar workers. If non-profit and public centres want to produce higher quality services than commercial centres, higher wages to apparently similar staff can be interpreted as an “efficiency wage” designed to attract and retain “better” staff (staff which is better for reasons which are unobservable to the researcher). Alternatively, non-profits may pay better compensation (even for the same quality of workers) because they have greater financial resources - either differential government funding or donated facilities or services - because they are willing to share rents with workers (Preston 1988). On the other hand, workers in non-profit centres may be willing to work for lower wages due to altruism (Preston, 1989). Finally, when all other observable factors which affect wages are appropriately controlled, it may be that auspice has no independent effect. Mocan and Viola (1997) find that controlling for human capital characteristics of workers, characteristics of firms, and using a finer breakdown of the auspice variable to control for variations in available resources, there is no significant independent effect of non-profit/for-profit status on child care wages. Only publicly-owned and -operated centres provide a wage premium for teachers and teacher’s aides and nearly all of this is a result of higher wages provided to minority (i.e., non-white) staff members - presumably as a result of affirmative action policies².

This paper uses Canadian data to test several propositions about remuneration patterns of child care workers in licensed centres. First, we confirm that child care wages are low relative to

²Mocan and Viola (1997) also find that teachers and teacher’s aides receive a lower wage in religiously affiliated centres. In this case, and in the case of centres under special regulations, there is a wage premium favouring centres in which a higher proportion of aides is white.

those paid to other female workers, even at the same levels of education and the same ages. On average, female workers with similar education get paid nearly 40% more annually than female child care workers for full-time work.

Second, we determine whether Canadian evidence supports the hypothesis that child care labour is sold in a secondary labour market. We look at both the determinants of child care earnings and the factors affecting high rates of turnover in this field. The key issues in relation to the determinants of earnings are the impacts of education, general employment experience, and centre-specific job tenure on hourly wages. In a secondary labour market, we expect that returns to these factors would be statistically insignificant, or negligible in size. The key issue in relation to turnover is whether the determinants of high turnover are consistent or inconsistent with the secondary labour market hypothesis.

The empirical results reported in this paper indicate that different levels of high school, college and university education are rewarded in licensed child care centres and that these returns are similar in proportion to those available to Canadian women in other occupations. In addition, there are returns to both job-specific and sector-specific employment experience for child care workers, and workers occupying different job categories receive differential compensation as a result. Once workers are in the licensed centre-based child care sector, therefore, they appear to receive reasonable encouragement to accumulate education and experience, or to move from assistant teacher to teacher to a supervisory position. This finding holds true not only in our Canada-wide analysis, but also in the analysis of wage data province-by-province, as well. We accordingly reject the hypothesis that child care workers in centres are part of a secondary and disadvantaged labour market.

The third issue we address is the effect of auspice on wages paid to child care workers. In contrast to Mocan and Viola (1997), we find that auspice is significant and quantitatively important in explaining wages of licensed child care workers, although the effect of non-profit status on wages is not as substantial as simple cross-tabulation studies would suggest. This is true in cross-Canada earnings regressions, as well as region-by-region results. The effect of auspice is not apparently due to the higher amount of government funding available to non-profits. Auspice effects do not disappear when a finer breakdown of the auspice variable is used, nor when other potentially intervening variables are included.

Section II of this paper reviews previous research on earnings and employment conditions of child care workers. Section III describes the data sets used in this paper's analysis. Section IV compares the annual and hourly wages of full-time female workers in Canada to the wages of similar child care workers, and concludes that child care wages are low. Section V examines the determinants and pattern of wage differentials amongst Canadian centre-based child care workers and provides an initial rejection of the secondary labour market hypothesis. It also reviews separate earnings regression results by province or region that confirm patterns from the main cross-Canada earnings regression. Section VI reviews regression evidence on factors affecting job turnover intentions of child care workers. Section VII considers the effects of child care centre auspice on child care wages. We use an associated data set to expand analysis of the effects of auspice variables, using a finer breakdown of auspice categories. At each stage, the differential effects of non-profit auspice on wages are confirmed. This provides grounds to reject, in Canadian data, the hypothesis that there is no significant difference in remuneration by auspice. Section VIII provides concluding remarks.

II. Previous Research on Child Care Wages and Employment Conditions

The best-known studies of child care worker compensation in the United States and Canada are based on data collected specifically for those studies from centre employees (Whitebook, Howes and Phillips, 1989a; Whitebook, Phillips and Howes, 1993; Schom-Moffatt, 1985 and 1992). A key weakness of the data analysis in these studies is reliance on simple cross-tabulations to draw inferences; cross-tabulations are unable to identify the net (separate) effects of explanatory variables which are themselves correlated. These studies conclude that the effects of auspice (non-profit versus commercial) and unionization are quite large, while finding that the effects of education and experience on wages are small or negligible.

The key purpose of the study by Whitebook, Howes and Phillips(1989a) was to assess the relationship between wages and working conditions of centre-based child care workers and the quality of child care provided. “Barely adequate” average quality was linked to high annual turnover (41%), itself explained by low wages and benefits and the failure to reward education or experience. Comparing average wages to those measured by Abt Associates (Ruopp et al., 1979), and correcting for inflation, real wages were calculated to have fallen by over 20%. A follow-up study (Whitebook, Phillips and Howes, 1993) found somewhat lower turnover (26%) but confirmed continuation of earlier trends in child care compensation.

Schom-Moffatt's (1985) study in Canada for the Katie Cooke Task Force on Child Care (n=279) found mean wages of licensed centre child care workers low at \$7.29 (Canadian) per hour. Workers found little incentive to further their current level of training. Schom-Moffatt found that a "[c]entre's funding source (i.e., auspice), presence of a union, and worker's job

classification emerged as the key factors influencing wage differentials in the sample." (p. 107).

Schom-Moffatt's second, more ambitious, study (1992) surveyed both staff members and directors of child care centres across Canada. Average wages were \$9.60 per hour; the average real wage was calculated to have fallen by 4.5% from the earlier study. Average annual turnover was found to be 26%. The study did find that "...a positive relationship existed between higher wages and more education." However, experience was not found to be rewarded and most workers believed they would have to leave their centre or the field in order to advance.

These studies in the United States and Canada, together with an earlier one by Hartmann and Pearce in the U.S., played a key role in popularizing the notion that centre-based child care workers sell their services in a classic secondary labour market. Ehrenberg and Smith (1997) define the contrast between primary and secondary labour market jobs in the following way:

Jobs in the primary sector offer relatively high wages, stable employment, good working conditions, and opportunities for advancement. Secondary-sector jobs, however, tend to be low-wage, unstable, dead-end jobs with poor working conditions; the returns to education and experience are thought to be close to zero in this sector. (p. 445)

Blau (1992) used Current Population Survey (CPS) data from 1977-1987 to look at the remuneration of three types of child care workers (child care workers - private household, child care workers - except private household, and teachers - prekindergarten and kindergarten). Child care workers in licensed or regulated centres are divided between the latter two categories. Kindergarten teachers in schools are included in the latter category. Blau estimates log wage equations for each of the three types of child care workers, correcting for self-selection into that

occupation. The wage equation estimation results indicate that while there are significant positive effects of education for non-household child care workers, education has insignificant effects on the wages of other types of child care workers³. Policy variables had few significant effects on wages of any category of child care workers, and no effects that were robust. Neither child-staff ratios nor legislated educational requirements affected wages. There was similar evidence that the wages of child care workers were essentially unaffected by government subsidies to either child care consumers or providers. Together with the evidence that real child care wages have remained approximately constant over this period of growing child care demand; this suggests that the supply of child care labour is relatively elastic.

Blau (1993) estimates the elasticity of the supply of labour to child care. Using data similar to Blau (1992), he finds an elasticity in the range of 1.2-1.9. This implies that the major effect of any increase in demand for child care will be an increase in its quantity rather than an increase in child care worker compensation. This article groups all kinds of child care workers together rather than separating out providers of care in centres.

Mocan and Viola (1997) estimate earnings and total compensation functions for teachers and teachers' aides in child care centres in four states using data from the Cost, Quality and Child Outcomes Study (CQCO). Their results show positive returns to education, job tenure and (for teachers only) general employment experience; however, Mocan and Viola conclude that, "[t]he 5 percent return to education for teachers, which is consistent with a similar finding by Blau (1992), is smaller than the return to education for the labour force in general. Low return to education,

³Walker (1992) reports a similar finding for the remuneration of self-employed regulated and unregulated family home providers (sitters): "These estimates present a bleak picture of the incentives facing providers to acquire additional care-specific training. Apparently, the market assigns no value to experience or formal education and training." (p. 62)

coupled with high turnover rates signal the presence of a secondary labor market.” (Mocan and Viola, 24) An annual turnover rate of 37% was found in the CQCO study data.

III. Data Sources

The primary source of data for this paper is the *Caring For A Living Study* which collected data from April-June 1991. The study comprised two linked surveys, on separate questionnaires, from staff and directors in licensed group child care centres providing at least six hours of care per day⁴ across Canada. The staff questionnaire collected information about wages, working conditions, the educational and other characteristics of individual staff members, staff attitudes and motivations. The director's questionnaire collected information about the characteristics of the centre and budgetary information, turnover rates, staff and child characteristics, typical wages and working conditions in each centre. The *Caring For A Living Study* was a joint project of the Canadian Day Care Advocacy Association and the Canadian Child Day Care Federation.

The collected sample includes 501 Director's questionnaires and returns from 2,441 staff. The data sets can be merged, so that there is information on both the workers' characteristics and additional⁵ information on the characteristics of the centre at which she is employed. Because of incomplete matching, this reduces sample sizes considerably and is used in a supplementary way in this article.

⁴This data set excludes workers in nursery schools, and centres operating part-day only. In contrast, data from National Occupational Code 6474 in the 1991 Canadian Census, used later in this article, includes workers in these other facilities.

⁵The staff data set already includes information on the auspice (but only at the aggregated levels of municipal, non-profit and commercial) and unionization status of the centre.

The second data source used is the Canadian Census from 1991, which provides information about incomes earned in 1990. Statistics Canada collects census information from one out of every five persons in the population. Census data provides comparative information about the wages paid to all female workers in Canada, at different levels of education and age.

IV. Are Child Care Wages Low?

Are child care wages low relative to those earned in other occupations? One way to answer this question is to look at wages standardized by education level and full-time work. Table 1 shows average and median annual wages earned by several occupations from Census data. Early childhood educators and assistants (workers in full-day and part-day centres and nursery schools) working full-time, full-year and having a post-secondary diploma or certificate level of education, earn slightly less than 75% of the average or median income of similar female workers in all other occupations, and just slightly more than 50% of similarly educated elementary and kindergarten teachers. The pay of child care workers is, instead, similar to that of elementary and secondary school teacher assistants.

(Table 1 here)

In most occupations, accumulated human capital increases with education level and age and this is reflected in wage increases. Figure 1 shows that hourly child care wages are low, no matter what the education or age grouping. Figure 1 provides hourly wage data, from the Census, for full-time, full-year female workers by age grouping for two different levels of education –

TABLE 1
MEDIAN AND AVERAGE INCOMES: CHILD CARE AND OTHER WORKERS, 1990

	Early Childhood Educators and Assistants	Kindergarten and Elementary Teachers	Elementary and Secondary Teacher Assistants	All Occupations (Females Only)	All Occupations
Median Annual Income of all workers	\$9,517	\$34,873	\$8,178	\$15,033	\$20,414
Median Annual Income of full-time, full-year workers with post-secondary diploma or certificate	\$18,040	\$34,994	\$19,000	\$25,019	\$30,688
Average Annual Income of all workers	\$11,639	\$32,501	\$10,565	\$18,063	\$24,753
Average Annual Income of full-time, full-year workers with post-secondary diploma or certificate	\$18,972	\$33,747	\$20,228	\$26,249	\$33,591

Source: Census, 1991, Special Runs

high school and college. Comparative data on centre-based child care workers, also working full-time, is provided from the *Caring For A Living Study*. The dark bars show hourly wages of both high-school and college educated women in all occupations rising with age; college education generates a wage premium at every age level. The first light coloured bar in each age grouping indicates hourly wages for high-school-educated child care workers; it tells a “secondary labour market” story. Hourly wages are much lower for child care workers than for all occupations and there is little appreciable rise in hourly wages until about age 45. The second light coloured bar in each grouping shows hourly wages for college-educated child care workers. These wages are lower, at every age category, than the hourly wages of all college-educated females; they are even lower than the wages of high-school-educated females. However, there is a wage premium amongst child care workers for education⁶ and, apparently, for age/experience as well, up to a point.

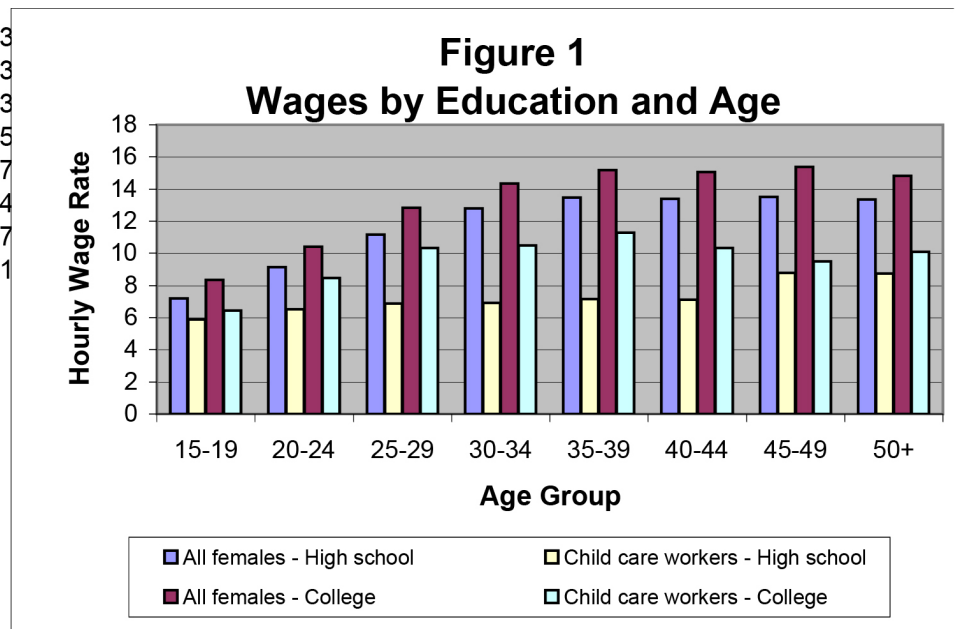
(Figure 1 here)

V. Are Education, Experience and Job Tenure Rewarded?

If child care workers sell their services in a secondary labour market, we would expect that most human capital characteristics in a standard earnings regression would have insignificant parameters, and, in any case, that the size of return to any characteristic would be small. In particular, we would expect that returns on education, general experience and job tenure would be negligible.

⁶ Comparing the returns to education for all females in regressions on Census data with returns for child care workers in Table 2, high school education provides a wage premium of 5% to all females, whereas non-university certificates or diplomas generate a wage premium of 9%. Corresponding figures derived from Table 2 for child care workers are 1% (insignificant) for high school education and from 13% (for a one-year certificate) to 25% (for a two- or three-

15-19	7.18	8.33
20-24	9.12	10.43
25-29	11.17	12.83
30-34	12.79	14.35
35-39	13.49	15.17
40-44	13.4	15.04
45-49	13.5	15.37
50+	13.37	14.81



In a competitive market for the services of centre-based child care workers, earnings will be determined, in equilibrium, by the demand for these workers' services (derived ultimately from the demand for centre-based child care services) and by the willingness of workers to supply these child care services. In the spirit of Mincer (1974), we expect that workers will be unwilling to supply their services unless the extra time and money costs of the required accumulation of skills are compensated. Since employers, whether commercial or non-profit, strive to minimize the cost per unit of quality of services delivered, employers will only be willing to reward additional education and experience if more-educated and more-experienced workers are correspondingly better at delivering quality services, and if customers (whether individual families or governments) are willing to pay for this additional level of quality produced. Education and experience, which does not contribute at the margin to the ability to produce additional quality that someone is willing to purchase, will not be rewarded with a wage premium.

In a human capital earnings function, the coefficients on education and experience variables in the earnings function measure the internal rate of return to increased abilities. Many other factors besides education and experience can affect wages; including these factors in the earnings regression will increase the precision of estimates on the main variables of interest.

Table 2 indicates that a wide range of human capital and occupational characteristics have statistically significant effects on child care worker wages in a cross-Canada regression with log wages as the dependent variable.

year diploma). Available from authors on request.

TABLE 2
DETERMINANTS OF CHILD CARE WORKERS' WAGES

VARIABLE NAME	PARAMETER ESTIMATE	t - STATISTIC
Constant	1.890**	8.43
Group 1 - Occupation Specific Occupation (Teacher omitted)		
Assistant Teacher	-0.035**	-2.46
Teacher-Director	0.096**	6.87
Administrative Director	0.333**	14.94
Other Job	0.043	0.84
Group 2 - Education/Experience Education Completed (less than high school omitted)		
High School Certificate	0.010	0.42
Some College or University	0.067**	2.90
One-year Certificate	0.115**	4.96
Two-year Certificate	0.189**	7.87
Two- or Three-Year College Diploma	0.216**	9.39
B.A. degree	0.244**	10.28
Beyond B.A.	0.203**	5.12
Experience in Child Care Field (less than 1 year omitted)		
1-3 years	0.025	1.27
4-5 years	0.060**	2.71
6-10 years	0.110**	4.77
Over 10 years	0.108**	4.19
Job Tenure		
Number of years at current centre	0.012**	6.53
Group 3 - Status of Worker Status of Worker (full-time omitted)		
Part-time	-0.047**	-3.15
Casual or substitute	-0.108**	-3.92
Other status	0.0003	0.01
Group 4 - Institutional Factors Auspice (Commercial omitted)		
Municipal	0.273**	10.15
Non-profit	0.122**	10.04
Union Status (not a union member omitted)		
Union member	0.157**	10.37
Group 5 - Province (Ontario omitted)		
B.C.	-0.075**	-3.71
Alberta	-0.200**	-9.84
Saskatchewan	-0.269**	-13.95

VARIABLE NAME	PARAMETER ESTIMATE	t - STATISTIC
Manitoba	-0.066**	-3.91
Quebec	-0.112**	-5.04
Atlantic Provinces	-0.281**	-17.09
Group 6 – Individual Characteristics		
Gender (male omitted)		
Female	-0.47	-1.49
Age (15-19 omitted)		
20-24	0.012	0.41
25-29	0.054*	1.78
30-34	0.047	1.48
35-39	0.082**	2.50
40-44	0.054	1.58
45-49	0.061*	1.69
50 and over	0.034	0.89
Marital Status (married/c.l. omitted)		
Single	-0.0001	-0.01
Divorced	-0.006	-0.30
Widowed	0.047	0.99
Has Preschool Children (no children omitted)		
Has preschool children	-0.002	-0.15
Group 7 – Motivation		
Views job as a career (views child care as "just a job" omitted)		
Career-oriented	0.035**	2.44

Adjusted R-squared - 0.635

n = 1,774

** significant at .05 level, two-tailed.

* significant at .10 level, two-tailed.

(Table 2 here)

First, different narrowly-defined occupational categories of child care workers get paid different hourly wages. All else held constant (i.e., at the same level of education, experience, auspice, etc.), assistant teachers earn less per hour than teachers do, while teacher-directors and administrative directors earn more.

Second, education and experience matter in determining child care hourly wages. Compared to workers with less than a high school education, workers with a high school diploma receive no statistically significant wage premium. However, all further types of education are rewarded in current wages. Workers with some college or university receive wages that are about 7% higher⁷. Child care workers with a one-year certificate earn a 12% wage premium, relative to less than high school. A two-year certificate is worth 21%, all other factors equal, while a college diploma is worth, on average, about 24% on its own. Although a bachelor's degree from university is not required by any provincial regulations, child care workers with this education receive an hourly premium of 28%. Workers with education beyond a bachelor's degree do not receive any corresponding additional reward (a 23% premium over less than high school education).

Two types of experience have independent, significant, positive effects on child care workers' wages (for a worker with both types of experience, these effects would be additive). The first three years of general labour-market experience in the child care field have no statistically

⁷ Percentage returns on dummy variables are calculated as $e^{\beta}-1$.

significant effect on wages, but additional years of child care experience beyond three have a positive impact. Workers with 4-5 years of experience earn a wage premium (about 6%), and those with greater work experience in child care earn yet more (about 11%). Over and above these premia for years of general experience in the child care field, workers are rewarded for years of experience with their current employer (job tenure). Each year of job tenure is worth a 1% return.

Third, the status of the worker (whether part-time, full-time or casual) generally does matter. Full-time child care workers form the omitted category. Workers with part-time status earn less per hour, while casual or substitute status knocks even more per hour off the full-time rate, all else held equal.

Fourth, institutional factors such as the auspice of the child care centre and whether the centre is unionized can make a large difference to the wage paid, even when all measured differences in education, experience and other characteristics of workers are held constant. Auspice differences will be discussed further in Section IX. With commercial child care as the omitted category, it is clear in Table 2 that workers in municipal centres typically receive substantially more per hour, *ceteris paribus*, (about 31%). In comparison to workers in commercial child care centres, workers in non-profit centres also receive a substantial wage premium (13%), all other factors (including unionization) held equal.

Unionization of workers elsewhere in the economy typically causes wages to be raised above those of non-unionized workers; the typical union premium is approximately 10% to 15%. If unionization enhances productivity, we expect to see a wage premium paid to unionized child care workers, all other factors held constant, even in a competitive market. If there is some local

monopoly power in child care markets that have important spatial characteristics, unionization may be associated with a significant wage premium. If the child care labour market is perfectly competitive and unionization does not enhance productivity, there should be no union premium observed. The results in Table 2 indicate that union status is, independently, an important determinant of child care worker wages; being a union member has a statistically significant positive effect (+17%) on the average hourly wage.

Fifth, provincial dummy variables may reflect differences in policy, differences in demand and supply conditions for this non-transportable service, or differences in average wage levels by province. With Ontario as the omitted category, these factors have negative impacts on the wage levels of every other province.

Finally, factors that are usually unobservable to researchers, like motivation and drive, may be rewarded in compensation arrangements in a competitive market. Those who treat child care as a career rather than simply a job may display additional motivation on the job, and be compensated for it. We would not expect this factor to be significant if child care labour is bought and sold in a secondary labour market. The results in Table 2 indicate that the typically unobservable motivational factors, which are summarized in the “career-oriented” variable, do matter to child care worker wages. Workers who report that they view child care as a career rather than merely a job have characteristics which appear to merit a wage premium (3 ½%), even when all of the normal observable indicators of a worker's productivity are held constant.

Our confidence in the key results in Table 2 are generally buttressed by the results in Table 3. Table 3 provides results for the key variables from provincial/regional regressions of child care worker wages. British Columbia is the outlier amongst these regressions. Apart from

auspice and unionization, none of the key variables amongst B.C. child care workers is statistically significant. We have no hypothesis to explain this anomaly. For other provinces/regions, more education is, in general, rewarded up to a bachelors. degree and either general experience or job tenure, or both, are rewarded. In all provinces/regions, except Saskatchewan which has an insignificant amount of commercial child care, non-profit status has positive and significant effects on child care workers' wages. In all provinces/regions, unionized status has a positive and significant effect on wages.

(Table 3 here)

VI. Job Turnover and Child Care Workers

In the staff survey, respondents were asked, "Do you expect to be working in the field of child care three years from now?"; twenty-six percent of respondents gave a negative answer. Rather than measuring actual turnover, this question assesses intentions. However, actual turnover measures typically conflate movement out of the field with movement between centres, while this measure focuses on the more relevant issue of departure from the field.

There are several potential theories of turnover in child care. One derives from the view that child care hires from a low-wage secondary labour market (Helburn, 1995) where staff are young, high-school educated, often secondary earners in the household, and may work part-time. These workers, not strongly attached to the labour market, are apt to turnover rapidly. In this case, we expect the above characteristics (and working in a commercial centre, if they are more likely to hire such workers) to be positively correlated with turnover. A second theory, consistent with the idea of negligible rewards to education and experience in child care, would suggest that

TABLE 3
CROSS-PROVINCIAL COMPARISON OF FACTORS AFFECTING
CHILD CARE WAGES

VARIABLE NAME	ATLANTIC	QUEBEC	ONTARIO	MANITOBA	SASK'N.	ALBERTA	BRITISH COLUMBIA
Group 2 -							
Education/Experience							
Education Completed (less than high school omitted)							
High School Certificate	0.024	-0.018	0.096	-0.049	0.054	-0.007	0.008
Some College or University	0.055	0.042	0.167*	0.050	0.097*	0.048	0.004
One-year Certificate	0.118**	0.190**	0.195*	0.143**	0.162**	0.095*	0.008
Two-year Certificate	0.199**	0.186**	0.258**	0.155**	0.313**	0.158**	0.078
Two- or Three-Year College Diploma	0.260**	0.123*	0.276**	0.152**	0.273**	0.267**	0.180
B.A. degree	0.255**	0.207**	0.353**	0.183**	0.294**	0.267**	0.043
More than B.A.	0.268**	-0.067	0.316**	0.161**	0.401**	n.a.	0.088
Experience in Child Care Field (less than 1 year omitted)							
1-3 years	0.062	0.110	0.113*	0.014	-0.038	-0.0004	-0.144
4-5 years	0.070**	0.107	0.149**	0.098*	0.039	0.021	-0.079
6-10 years	0.099**	0.259**	0.214**	0.129**	0.128**	0.001	-0.096
Over 10 years	0.136**	0.291**	0.221**	0.113*	0.093	-0.010	-0.128
Centre-specific Experience							
Number of years at current centre	0.014**	0.002	-0.005	0.016**	0.015**	0.024**	0.008
Group 4 - Institutional Factors							
Auspice (Commercial omitted)							
Municipal	n.a.	n.a.	0.210**	n.a.	n.a.	0.246**	n.a.
Non-profit	0.114**	0.208**	0.074**	0.18**	0.313	0.083**	0.133**
Union Status (not a union member omitted)							
Union member	0.274**	0.147**	0.167**	0.132**	0.089**	0.318**	0.16**
Adjusted R-squared	0.49	0.62	0.51	0.59	0.56	0.76	0.33

** significant at .05 level, two-tailed

* significant at .10 level, two-tailed

TABLE 4
FACTORS EXPLAINING PLANNED TURNOVER

VARIABLE NAME	PARAMETER ESTIMATE	t - STATISTIC
Constant	0.45**	4.55
Group 1 - Wages and Benefits		
Wage Differential	-0.012**	-2.04
Employer pays Extended Health Care	0.031	0.77
Employer partly pays Extended Health Care	0.030	0.93
EHC unknown	0.009	0.25
Employer pays Pension	-0.096**	-1.97
Employer partly pays Pension	-0.11**	-3.03
Pension unknown	-0.03	-0.83
Job-protected maternity leave	-0.0001	-0.005
Index of other benefits	-0.004	-1.38
Group 2 - Occupation		
Specific Occupation (Teacher omitted)		
Assistant Teacher	-0.03	-1.05
Teacher-Director	-0.03	-1.05
Administrative Director	0.0005	0.009
Other Job	0.19	1.67
Group 3 - Education/Experience		
Education Completed (less than high school omitted)		
High School Certificate	0.11**	2.15
Some College or University	0.13**	2.71
One-year Certificate	0.10**	2.00
Two-year Certificate	0.07	1.43
Two- or Three-Year College Diploma	0.15**	3.03
B.A. degree	0.23**	4.34
Some Graduate School	0.23**	2.56
M.A. Degree	0.14	0.74
Ph.D.	0.85**	1.96
Experience in Child Care Field (less than 1 year omitted)		
1-3 years	-0.11**	-2.38
4-5 years	-0.12**	2.61
6-10 years	-0.14*	2.89
Over 10 years	-0.12*	2.24
Job Tenure		
Number of years at current centre	0.006	1.46
Group 4 - Status of Worker		
Status of Worker (full-time omitted)		

VARIABLE NAME	PARAMETER ESTIMATE	t - STATISTIC
Part-time	0.055*	1.70
Casual or substitute	0.10	1.68
Other status	-0.10	-1.06
Group 5 - Institutional Factors		
Auspice (Commercial omitted)		
Municipal	-0.014	-0.22
Non-profit	-0.03	-1.19
Union Status (not a union member omitted)		
Union member	0.07**	2.12
Groups 6 -Province/Territory (Ontario omitted)		
B.C.	-0.05	-0.96
Alberta	0.11	2.32
Saskatchewan	0.05	1.06
Manitoba	0.10**	2.52
Quebec	0.07	1.31
New Brunswick	0.018	0.37
Nova Scotia	-0.016	-0.37
P.E.I.	-0.09	-1.39
Newfoundland	-0.05	-0.84
Yukon	-0.07	-0.87
North West Territories	0.18*	1.83
Group 7 - Individual Characteristics		
Marital Status (other than married/common-law omitted)		
Married	-0.01	-0.50
Age of Worker (less than 20 omitted)		
Age 20-24	-0.19**	-3.11
Age 25-29	-0.16**	-2.45
Age 30-34	-0.20**	-3.01
Age 35-39	-0.35**	-5.00
Age 40-44	-0.22**	-3.03
Age 45-49	-0.17**	-2.29
Age 50 and over	-0.20**	-2.51

** significant at .05 level, two-tailed.

* significant at .10 level, two-tailed.

it would be the less-educated, less-experienced workers who would stay at their jobs in child care.

Those with greater education and more experience should become frustrated with compensation in the child care field and be more likely to declare their intention to leave. A final view would be consistent with the view that those planning to leave child care will be those with the best opportunities elsewhere and the least to lose by leaving. In this case, those with more education would be more likely to leave (especially general education with transferable skills), while those with more experience would be more likely to stay.

Table 4 provides results from a linear probability regression of planned turnover on measures of wages, various benefits available, education, marital status, full and part-time employment status, narrowly defined occupation, years of experience and age, unionization, auspice, and province or territory.

(Table 4 here)

The results in Table 4 appear to be most consistent with the latter theory of turnover. All turnover theories would concur that lower compensation should increase turnover. Certainly low wages appear to increase turnover in child care and certain benefits are quite important.

Employer payment of pension benefits, either in whole or in part, appears to have strong negative effects on turnover. The effects of education and experience seem most consistent with a theory that emphasizes the rational calculation of costs and opportunities. Those with greater education are more likely to plan to leave the child care field than workers with less than high school education. Particularly those workers who have considerable general education (B.A. and above,

with likelihood of readily transferable skills) are quite likely to plan departure. Workers who apparently have specialized child care credentials (one year and two year college) show a smaller propensity to leave relative to the omitted category of less than high school education. Results on experience variables are consistent with this interpretation. Those without work experience in the child care field (less than one year) are significantly more likely to plan leaving the field than those with any experience. These results are mirrored by results on the age of the worker; those workers less than twenty year of age are much more likely to plan to leave. In particular, workers aged 30-34, all else equal, are less likely to plan to leave the field.

Auspice plays no significant role in turnover. However, in a rather surprising result, unionization increases turnover. Of course, this is unionization *ceteris paribus*, and wages and benefits are amongst the factors held constant. Apparently, unionization not only improves wages and benefits, which would reduce turnover, but increases the awareness of child care workers that there are greener pastures beyond the nursery door.

VII. The Effects of Non-profit Status on Child Care Wages

The effect of non-profit status on child care wages is a contentious issue for child care policy because of the potential link between auspice and quality of services provided. Some researchers (Krashinsky, 1973; Preston, 1988) have argued that non-profit status is observed to affect wages primarily because non-profit child care centres get either additional government funding or access to volunteer resources.

An alternative interpretation would emphasize the differential quality of different workers (Nelson and Krashinsky, 1973; Kagan, 1991). We know that a considerable amount of measured

quality variations in child care centres is unattributable to observable factors (Mocan and Viola, 1997). If community-based non-profit institutions wish to provide high quality child care, they will have to select and attract workers who, in ways unobservable to the researcher, are more productive than those in commercial centres attract. This select sample of workers in non-profit centres are, according to this line of reasoning, rewarded for their higher productivity; this wage premium is attributed to non-profit status in earnings regressions which do not either control directly⁸, or indirectly (i.e., selectivity controls), for this unobserved heterogeneity.

The hourly earnings premium due to non-profit status relative to commercial status in Table 2, controlling for a wide range of human capital characteristics, are about 13%. In provincial/regional regression results, this wage premium varied from 8% in Ontario to 23% in Quebec.

Mocan and Viola's (1997) work has challenged the finding of a non-profit wage premium for child care workers⁹. Using the Cost, Quality and Child Outcomes data set, and dividing centres into two categories - for-profit and non-profit - they find a significant wage premium. Yet, when controlling for fine breakdowns in each sector (e.g., national chain, publicly owned and operated, publicly supported, regulated, or a religiously-affiliated centre), they find that sector affiliation or auspice (for-profit vs. non-profit) has, in general, no effect on wages. In Table 5, we report four regressions which follow Mocan and Viola's methods using information from the *Caring For A Living* Director's data set linked with data from the Staff Survey.¹⁰

⁸ Mocan and Viola (1997) create and use a measure of unobserved worker quality from production function residuals. It is significant but accounts for a small amount of any wage premium. The "career-oriented" variable in our regression may play a similar function.

⁹ This is a complement to the conclusion by Helburn et al. (1995) and Mocan (1997) that there is no significant difference in quality of care provided in for-profit and non-profit child care centres.

¹⁰ We lose some observations as a result of incomplete matching between these surveys, and, in additional regressions,

TABLE 5
WAGE EQUATION ESTIMATES
SELECTED RESULTS

<u>Independent Variable</u>	Collapsed Auspice	Detailed Auspice	Auspice and Other	Detailed Auspice II
Auspice				
[Commercial]				
Municipal	0.255** (6.82)			
Non-profit	0.110** (7.36)			
Detailed Auspice				
[Commercial]				
Municipal		0.266** (7.12)	0.201** (4.90)	0.246** (5.93)
Non-Profit - independent		0.127** (7.32)	0.089** (4.53)	0.131** (6.92)
Non-profit - parent cooperative		0.107** (5.77)	0.063** (3.11)	0.099** (4.87)
Non-profit - religious organization		0.051 (1.39)	0.040 (1.09)	0.047 (1.23)
Non-profit - university or college		0.259** (3.78)	0.214** (3.07)	0.261** (6.70)
Non-profit - public school		0.401** (3.49)	-- --	-- --
Non-profit - private school		0.106** (2.27)	0.058 (1.05)	0.093** (1.65)
Non-profit - corporate/business/hospital		0.180** (4.58)	0.107** (2.29)	0.149** (3.12)
Non-profit - government agency		0.123** (5.78)	0.071** (3.02)	0.104** (4.38)
Non-profit - non-government or community organization		0.179 (0.92)	0.173 (0.90)	0.160 (0.81)
Other Variables				
Percent of centre revenue derived from fees paid by parents			-0.001** (2.51)	
Index of fringe benefits			0.012** (7.02)	
Number of teaching staff			0.001 (0.73)	
Number of observations	1,242	1,242	1,065	1,065
Adjusted R-squared	0.662	0.659	0.665	0.647

- * statistically significant at .10, two-tailed t-test.
- ** statistically significant at .05, two-tailed t-test.

The dependent variable is the log of the hourly wage. Regressions also included controls for age, education, firm-specific and job-specific experience, status (part-time, casual/contract), occupation, region, attitude toward career, and union status.

Note that in the third and fourth equations there are no results for Non-profit public school. This variable dropped out in the smaller sample.

(Table 5 here)

Since the link with the Director's data set reduces the number of observations, we show (in column 1) results from a specification similar to that in Table 2. As expected, wages in non-profit centres are significantly higher than those in the omitted (commercially-operated) category - about 13% higher. Wages in municipal centres are also significantly higher than those in commercial centres - about 31% higher.

Column 2 (Detailed Auspice) uses a finer breakdown of non-profit centres (nine types of non-profit provider according to the location/sponsorship of the centre - independent, parent co-operative, religious organization, university or college, public school, private school, corporate/business/hospital, government agency, non-government or community organization). We anticipate that these different types of non-profit centres may have differential access to supplementary resources. The results are consistent with this observation. In particular, university and college-based, public school-based, corporate and hospital-based, and community organization-based centres have wages which are both substantially different (20% or more higher) and statistically significantly different from those provided in commercial centres. Most other types of non-profits (independent, parent co-operative, private school, government agency) also pay wages which are significantly different from those provided in commercial centres, and the wage premium is smaller but still substantial (11% - 14%). Non-profit centres affiliated with religious organizations pay wages that are insignificantly different than those in commercial

because of missing answers to budgetary questions on some surveys.

centres.

Column 3 (Auspice and Other) adds some additional controls to the more detailed auspice categories. If the availability of supplementary resources is important to wage-setting, centres in which parents pay a larger percent of total revenues should be more likely to keep child care workers' wages low. The second added variable in this column controls for the number of fringe benefits offered to staff - a variable which could be correlated with auspice effects. Finally, Mocan and Viola (1997) believe that firm size affects wages through making the direct monitoring of teacher effort more difficult. As a result, larger firms (centres) may offer an efficiency-wage premium. We test this by controlling for the number of teaching staff in a centre. With these controls added, the point-estimate differences between commercial centres and non-profit centres are moderated, but still vary between 11% - 24% for the first group of non-profits and between 7% - 9% for the second group of non-profits (with the small number of non-profits in private schools no longer having significantly different wages). Non-profit centres affiliated with religious organizations provide wages that are insignificantly different than those in commercial centres. The distinction between nearly all types of non-profits and commercial operations remains even after controlling for observable human capital characteristics, institutional factors, provincial/regional differences, firm size, fringe benefits, and availability of supplementary resources to the centre. We conclude that resource differences explain only part of the wage premium in non-profit centres¹¹.

¹¹ In earnings regressions that correct for the probability of selection into commercial or non-profit sectors, we find no statistically significant evidence of selection. There are, of course, observable differences in "worker quality" in the two sectors, with workers in the non-profit sector having somewhat higher education levels and more relevant work experience than workers in the commercial sector.

VIII. Conclusions

The conventional wisdom about child care workers has been that the market for child care labour does not work in the way in which we expect, and some have concluded that government policy should therefore substitute for normal market forces in the establishment of wages. Our research comes to opposite conclusions. The market for child care labour appears to reward virtually all of the productivity-enhancing characteristics we have considered. It is true that the average full-time, full-year wage of child care workers is low, about the same as that paid to teacher assistants in elementary and secondary schools. This may partly reflect discrimination, or other institutional factors which lower the base wage rate amongst young, untrained, female workers. It may partly reflect a positive compensating differential, due to the relatively desirable nature of working with young children (Helburn et al., 1995). From the demand side, it may also reflect the tendency of many of child care's customers to believe that its purpose is fundamentally custodial, and that the base-rate worker need not, therefore, have any special abilities. To the extent that this latter factor is important, raising of child care wages may require that child care's parental and governmental customers recognize the value of developmental child care services and are able and willing to pay for child development as the key output of licensed centre care.

The evidence on turnover suggests that child care workers make deliberate decisions about leaving the sector, rather than moving into and out of it because of low labour force attachment. Given the evidence on returns to education and experience, planned turnover is also not due to the complete absence of any encouragement to remain in the sector. However, those with the best alternative opportunities appear to be most likely to leave.

A rewriting of the stylized facts about the compensation of workers in child care centres

might take the following form:

1. Centre-based child care workers' wages are low relative to other female workers with similar levels of education;
2. General job experience, firm-specific job tenure and education are all rewarded by wage premiums. The rates of return to additional education are similar to those accorded to other female workers. Further, a host of other productivity-enhancing job characteristics are rewarded in the typical structure of centre-based child care hourly wages. There do appear to be incentives for workers to upgrade their abilities within the sector;
3. Both unionization and non-profit or municipal status of a child care centre matter for the wages its workers will receive. The union effect is similar to that found in other sectors. On average, the positive effect of non-profit status is smaller than the effect of union status (although there is wide variation by province or region). The non-profit wage premium is partly due to extra resources available to non-profit centres; beyond this an earnings premium is paid in nearly all types of non-profit centre.
3. The rate of turnover is high, partly because of the typically low level of wages and benefits. More highly educated workers are more likely to plan to leave the sector. The turnover decision appears to be the result of the calculation of potential benefits and costs.

One study is, of course, not usually sufficient to rewrite the accepted wisdom. It is perhaps more than typically obvious that additional research in Canada, the United States, and elsewhere is needed to confirm or deny our observations.

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APPENDIX A
SAMPLE MEANS AND STANDARD DEVIATIONS

VARIABLE NAME	Mean	Standard Deviation
Hourly wage	\$9.13	\$3.01
<u>Group 1 - Occupation</u>		
Teacher	0.58	0.49
Assistant Teacher	0.19	0.39
Teacher-Director	0.17	0.37
Administrative Director	0.05	0.23
Other Job	0.01	0.09
<u>Group 2 – Education/Experience</u>		
Education Completed		
Less than high school	0.06	0.24
High School Certificate	0.11	0.31
Some College or University	0.15	0.36
One-year Certificate	0.15	0.36
Two-year Certificate	0.13	0.34
Two- or Three-Year College Diploma	0.23	0.42
B.A. degree	0.15	0.35
Beyond B.A.	0.02	0.13
Experience in Child Care Field		
Less than 1 year	0.07	0.25
1-3 years	0.25	0.44
4-5 years	0.21	0.41
6-10 years	0.27	0.44
Over 10 years	0.20	0.40
Job Tenure		
Number of years at current centre	3.55	3.62
<u>Group 3 - Status of Worker</u>		
Status of Worker		
Full-time	0.83	0.38
Part-time	0.13	0.33
Casual or substitute	0.03	0.18
Other status	0.01	0.11
<u>Group 4 - Institutional Factors</u>		
Auspice		
Commercial	0.24	0.43
Municipal	0.04	0.21
Non-profit	0.71	0.45
Union Status		
Union member	0.13	0.34
<u>Group 6 - Individual Characteristics</u>		
Gender		
Female	0.98	0.15
Age		
15-19	0.03	0.18

VARIABLE NAME	Mean	Standard Deviation
20-24	0.28	0.45
25-29	0.27	0.44
30-34	0.14	0.34
35-39	0.11	0.31
40-44	0.08	0.27
45-49	0.06	0.23
50 and over	0.05	0.21
Marital Status		
Married	0.56	0.50
Single	0.37	0.48
Divorced	0.06	0.23
Widowed	0.01	0.10
Has Preschool Children		
Has pre-school child	0.12	0.33
Group 7 – Motivation		
Views job as a career (views child care as "just a job" omitted)		
Career-oriented	0.85	0.35

APPENDIX B
Detailed Auspice and Additional Variable Means and Standard Deviations

<u>Independent Variable</u>	Mean	Standard Deviation
Detailed Auspice		
Municipal	0.02	0.16
Commercial – proprietorship	0.13	.33
Commercial – partnership	0.05	0.21
Commercial – corporation	0.06	0.23
Non-Profit – independent	0.24	0.43
Non-profit – parent cooperative	0.31	0.46
Non-profit – religious organization	0.02	0.16
Non-profit – university or college	0.01	0.08
Non-profit – public school	0.002	0.05
Non-profit – private school	0.02	0.13
Non-profit – corporate/business/hospital	0.04	0.20
Non-profit – government agency	0.10	0.30
Non-profit – non-government or community organization	0.001	0.03
Other Variables		
Percent of centre revenue derived from fees paid by parents	49.45	27.00
Index of fringe benefits	10.34	4.50
Number of teaching staff	9.70	5.75
Number of observations	1,242	