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## Welfare family policies and gender earnings inequality: A cross-national comparative analysis

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# **Luxembourg Income Study Working Paper Series**

**Working Paper No. 364**

**Welfare Family Policies and Gender Earnings Inequality:  
A Cross-National Comparative Analysis**

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# Welfare Family Policies and Gender Earnings Inequality: A Cross-National Comparative Analysis\*

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# Welfare Family Policies and Gender Earnings Inequality: A Cross-National Comparative Analysis

## Abstract

The present study examines whether and to what extent welfare-family policies are likely to affect earnings inequality between economically active men and women. Using hierarchical linear models, we combine individual-level variables (obtained from the Luxembourg Income Study) with country level data (obtained from secondary sources) to evaluate the net effects of welfare family policies on gender earnings inequality across 20 industrialized countries. The analysis reveals that net of individual-level characteristics, gender-earnings disparities are likely to be less pronounced in states characterized by developed welfare-family policies. However, when differences in the earnings structure across countries are controlled and eliminated, we find that family policies do not exert a significant net effect on earnings disparities between men and women. The apparent insignificant effect is a result of two opposite effects that offset one another. Specifically, the narrowing effect of family policy on gender earnings inequality is offset by the opposite effect of gender based occupational segregation. These findings clearly expose the unintended implications of 'protective' family policies, namely, a more gender-segregated labor market, and its detrimental implications for earnings inequality between men and women. The contradictory effects of welfare-state policies on gender earnings inequality are discussed and evaluated in light of sociological theories on the role of welfare policies in contemporary societies.

## Welfare Family Policies and Gender Earnings Inequality: A Cross-National Comparative Analysis

Students of social stratification and inequality have traditionally used individual-level variables to examine unequal distributions of socioeconomic rewards between economically active men and women. Recently, more researchers have begun studying patterns of gender-economic inequality within a cross-national comparative perspective (e.g. Rosenfeld and Kalleberg 1990, 1991; Whitehouse 1992; Blau and Kahn 1995, 2000, 2001; Gornick 1999). The growing body of research on this issue has uniformly observed that women are economically disadvantaged in all countries. Nevertheless, the size of the disadvantage varies considerably across national labor markets (e.g. Rosenfeld and Kalleberg 1990, 1991; Gornick 1999; Orloff 2002).

Variations in the gender-earnings gaps across countries appear to be neither trivial nor random. Rather they are systematically associated with structural characteristics of national labor markets, and especially with the extent to which the labor market is regulated. In general, studies reveal that the earnings gaps between men and women tend to be more pronounced in liberal market economies such as the Anglo Saxon countries than in the corporatist economies in Continental Europe and Scandinavia (e.g. Rosenfeld and Kalleberg 1990, 1991; Whitehouse 1992; Blau and Kahn 1995, 2000, 2001; Rubary et al, 1997; Esping-Andersen 1999; Gornick 1999).

When compared to liberal economies, the corporatist economies tend to be characterized by more restrictive social policies (which protect workers' social rights), by more developed welfare-family policies (which support women's and mother's economic

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activities and employment rights), and by a more comprehensive coverage of collective agreements (which protect workers' earnings and work conditions). These differences lead, indeed, to the conclusion that enactment of social and family policies and the prevalence of a corporatist payment system are likely to decrease economic inequalities between men and women.

Surprisingly, however, while the effects of corporatist payment systems on gender earnings inequality have been evaluated and discussed (i.e. Blau and Kahn 1995, 2000, 2001; Rubery 1995; Rubery et al. 1997; Almond and Rubery 1998) very little, if any, systematic research has examined the intended and unintended consequences of social policies—and in particular family policies—on gender economic inequalities. This neglect is unfortunate in light of the growing interest in the impact of welfare-state provisions on inequality in general and on gender inequality in particular.

In the present paper we intend to contribute to the literature on gender inequality by examining the effects of welfare-family policies on earnings inequality between men and women. Our interest is to explore both the intended and unintended consequences of family policies for women's economic achievements. We argue that while family policies favor women's economic independence (by encouraging their participation in the labor force), they decrease, although unintentionally and not directly, women's occupational opportunities and earnings capacity. The unintended consequences of family policies are mitigated, however, by the more egalitarian payment system that characterizes well developed welfare states.

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To test this argument, we utilize Multi-level models which combine individual as well as country level data from twenty industrialized countries. This method allows us to control for differences between countries in the distribution of men and women in demographic attributes, and thus to estimate the net effects of family welfare policies on gender earnings disparities (see, for example, Trappe and Rosenfeld 2001, on the problem of ignoring individual attributes in contextual-comparative analysis).

### **Theoretical Considerations**

#### ***The Impact of Family Policies***

Family policies are often viewed as the major mechanism through which welfare regimes operate to reduce conflict between women's aspiration to achieve economic independence and their traditional family roles. They consist of a variety of services and benefits provided by the state (such as maternity-leave benefits and availability of publicly funded childcare facilities) to meet the needs of families with children. Indeed, when implementing such policies the state directly intervenes to support women's labor market activity by freeing women from the burden of family obligations and by providing them with better opportunities to compete in the labor market. Hence, family policies are often viewed as 'women friendly' policies.

Empirical analyses carried out by students of the welfare state lend firm support to the thesis that the introduction of family-policies reduces women's conflict with traditional family roles, and enables more women, especially mothers to young children, to join the economically active labor force. These studies reveal that participation of

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women in the labor market tends to be higher in places characterized by developed family policies. Higher rates of participation are particularly evident in the Scandinavian countries, where family policies are specifically designed to encourage women's labor force participation (Esping-Andersen 1990, 1999; Daly 2000; Korpi 2000; Huber et al. 2001; Stier, Lewin-Epstein, and Braun 2001; Orloff 2002; Ferrarini 2003).

Yet, while well-developed family policies enhance women's participation in the paid economy, and consequently their economic independence, they do not seem to reduce socioeconomic inequalities between economically active men and women. Rather, they appear to reinforce gender occupational segregation on the one hand, and the practice of economic discrimination against working women on the other hand (Hernes 1987; Holmwood 1991; Langan and Oster 1991; O'Connor 1993; Freser 1994; Hansen 1995, 1997; Neramo 1996; Orloff 1996; Asplund 1988; Longva and Strom 1998; Naur and Smith 1998; Hemstrom 1998; Chang 2000).

### The Role of Gender Occupational Segregation and Economic Discrimination

The rise in gender occupational segregation is strongly associated with the expansion of the welfare state and especially with the expansion of the state-public-service sector. To be sure, in most countries, the implementation of family policies and the expansion of social services are initiated, organized and controlled by the state. Consequently, due to enactment of family policies many services have been transferred from the household (or from the private sphere) to the public sector. That is, services traditionally provided by the household (mostly care services) are increasingly provided by the state, enabling



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women, especially mothers, to allocate more time to paid work. At the same time, the public service sector provides women with new job opportunities, mainly because the majority of jobs in this sector are 'female-demanding' jobs (Rein 1985; Alestalo, Bislev and Furaker 1991(a); Kolberg 1991; Kolberg and Andersen 1991; Esping-Andersen 1999). Hence, the expansion of social services (mostly in the public sector) accounts for the dramatic increase in women's labor force participation (Rein 1985; Alestalo et al. 1991(a); Kolberg 1991; Kolberg and Andersen 1991; Esping-Andersen 1999).

It should be also noted, that the public sector has become one of 'the preferred' segments of employment for women not only due to the type of jobs it offers but also due to the convenient working conditions it provides. More specifically, the public sector is more tolerant of absenteeism and is more likely to permit flexible hours and part time employment (Esping-Andersen 1990; Alestalo, Bislev and Furaker 1991(b); Kolberg 1991; Gornick and Jacobs 1998). As such, it becomes especially attractive for women employees.

The favorable and convenient work conditions in the public sector, however, do not appear to enhance women's economic opportunities in terms of occupational positions and earnings. Rather the flexible work conditions that prevail in the public sector appear to deter women from attaining lucrative and managerial positions. More women are likely to compromise for convenient working conditions in 'female-type jobs' in the public sector. This, in turn, is likely to increase the gendered occupational division of labor (Hensen 1995, 1997; Wright, Baxter and Birkelund 1995; Gornick and Jacobs 1998). In other words, while the expansion of social and care services enables more

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women to join the economically active labor force, it seems to channel them in disproportionate numbers to the ‘female-type jobs’, away from lucrative jobs and away from positions of authority and leadership.

In fact, researchers within the feminist tradition have long criticized the generous Scandinavian welfare regimes for their highly segregated labor markets. They have pointed out that the high levels of women’s labor force participation in the Social Democratic regimes is partly achieved by ‘overcrowding’ of women in ‘female-type’ services mostly within the public sector. It has been argued that occupational segregation in Scandinavian labor markets has become an obstacle for social change; it reproduces traditional gender roles and reduces women’s opportunities to attain powerful positions and lucrative jobs (i.e. Hernes 1987; Siim 1988; Langan and Oster 1991; O’Connor 1993).

In addition to the role of occupational segregation, the implementation of “supportive family policies” may limit women’s economic opportunities by increasing practices of economic discrimination against women. According to this line of logic, in labor markets where women are ‘protected’ by regulations and legislations, employers are reluctant to hire them to lucrative jobs and to promote them to managerial and prestigious positions. For example, Hansen (1995) convincingly argued that: “if women have social rights that do not apply to men or are seldom used by men, and the practices of these rights are unprofitable for the employers, employers may choose to discriminate against female job applicants” (Hansen 1995, p. 3). In other words, social policies that intended to facilitate women’s economic activity could have the unintended detrimental

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consequences of limiting women's economic opportunities (see also Asplund 1998; Hemstrom 1998; Longva and Strom 1998; Naur and Smith 1998).

The practice of economic discrimination against women, set off by welfare state benefits, can be best understood when cast within the broad framework of the economic discrimination model, as succinctly articulated by Hemstorm (1998):

Firms do not know in advance whether their employees will have children, and if so whether the employees themselves will take on the job of parenting. What they do know, however, is that their female employees are statistically more likely than their male counterparts to go on parental leave, work part time and be absent due to childrearing responsibilities after giving birth. This produces incentives to treat male and female employees differently (Hemstrom 1998, p. 162).

In summary, gender occupational segregation and the exclusion of women from lucrative jobs tend to be more pronounced in countries with enhanced welfare family policies. The gender composition of jobs and occupations has long been viewed in the sociological literature as one of the major determinants of wage inequality. Earnings are suppressed in jobs in which women are highly concentrated; hence, workers employed in such jobs suffer from substantial wage devaluation (e.g. Jacobs 1989; England 1992; Tomaskovich-Devey 1993; Peterson and Morgan 1995; Tilly 1998). Moreover, recent studies by Cohen and Huffman (2003(a), 2003(b)) demonstrate that the overall levels of gender segregation play a significant role in affecting the gender wage gap. The authors find that the economic penalty for jobs with high proportion of women is significantly heavier in segregated labor markets and the effect of the labor market's level of

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segregation stands beyond other segregation effects (i.e. devaluation effect). While Cohen and Huffman underscore “the importance of macro-level conditions in the determination of inequality” (2003(b) p. 901), by focusing on the importance of segregation levels, we highlight the role of family policies as a contextual factor which affects occupational segregation and gender earnings inequality. By so doing we will be in a position to better understand the underlying mechanisms that prompt gender inequality in labor markets of industrial societies.

The literature discussed thus far exposes the unintended implications of family policies for women’s economic achievements within the labor market. Specifically, the discussion presented here leads to the expectation that gender earnings inequality would be more pronounced in countries with well-developed family policies, due to their high levels of occupational segregation and employer’s discrimination. That is, earnings inequalities between men and women are expected to be more pronounced in labor markets that ‘protect’ women by supportive family policies as well as in labor markets characterized by a high demand for female labor in service jobs.

Curiously, however, this theoretical expectation runs contrary to what we know about gender earnings inequality across countries. The empirical data cited at the outset of this paper point out that gender earnings inequality is actually lower in countries with well-developed family policies than in countries characterized by liberal market economies (Treiman and Roos 1983; Rosenfeld and Kalleberg 1990, 1991; Whitehouse 1992; Rubery et al. 1997; Almond and Rubery 1998; Gornick 1999). Thus we contend that the lower earnings disparities in countries characterized by well-developed welfare

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regimes cannot be attributed either to the implementation of supportive family policies or to the large public sector that characterizes such regimes.

### *An Alternative Explanation – The Payment Structure*

Both family policies and a large public sector are products of the welfare state construction. As such they are also related to other societal and economic institutions. Well-developed welfare state regimes such as the social democracies differ from liberal-market regimes not only in their social policies but also in the systems of industrial relations. Specifically, while industrial relations in well developed welfare states are ‘corporatist’ in nature—characterized by centralized-collective bargaining, strong trade unions, and high degree of co-ordination—industrial relations in liberal states are characterized by decentralized systems of wage bargaining, weak unions and a low degree of co-ordination (Katz 1993; Rubery 1995; Fortin and Lemieux 1997; Gottschalk and Smeeding 1997; Almond and Rubery 1998; Esping-Andersen 1999). As a result, low-paid labor is more protected in the former than in the latter regimes. Indeed, studies have demonstrated that earnings differentials between high-paid labor and low-paid labor tend to be lower in corporatist market economies than in the liberal market economies (e.g. Rowthorn 1992; OECD 1997; Western 1998).

Although wage bargaining and negotiations are not directly aimed at minimizing earnings differentials between men and women, the wage structure has significant consequences for gender earnings inequality. Since women are more likely than men to be employed in low-wage jobs and occupations, a more egalitarian payment system is

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expected to decrease wage disparities between the gender groups. That is, any reduction in the dispersion of the earnings distribution would benefit workers at the lower tail of the earnings distribution (mostly women) and reduce the earnings of workers at the upper tail of the earnings distribution (mostly men) (Whitehouse 1992; Blau and Kahn 1995, 2000, 2001; Rubery 1995; Rubery et al. 1997; Almond and Rubery 1998). Following this argument, we would expect gender earnings inequality to be less pronounced in countries characterized by centralized payment systems as compared to countries characterized by decentralized systems, such as the liberal-market economies.

Paradoxically, the two bodies of literature reviewed here lead us to two alternative, even contradictory, theoretical expectations regarding earnings inequality between men and women across welfare-state regimes. On the one hand, we expect the prevalence of protective welfare-family policies to increase, although not intentionally, earnings disparities between men and women (via segregation and economic discrimination). On the other hand, we expect earnings disparities between men and women to be less pronounced in countries with developed supportive family policies due to the centralized payment system that characterizes such countries.

Since the more egalitarian welfare state regimes tend to have both—developed family policies and centralized payment systems—it is important to differentiate between the two, in order to disentangle the unique effect of each on gender earnings inequality. In fact, since family policies are directly aimed to support women's economic independence, linking the development of family policy to the gender equity in wage, seems an obvious thing to do. Hence, it is crucial to find out whether the lower levels

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of earnings disparities between men and women in well developed welfare state regimes, such as the social democracies, are a result of developed family policies, or a result of the centralized payment system that characterize such regimes.

### **Data Source and Variables**

Data for the present analysis were obtained from the Luxembourg Income Study (LIS), which serves as an archive for comparable micro-dataset for a large number of industrialized countries and from a variety of secondary sources. The analysis reported here was restricted to the 20 countries that provided detailed information on demographic, labor market attributes, and earnings of individuals, age 25-60, from the most recent LIS data-waves, and for which detailed information on welfare policies at the country level were also available.

The individual-level variables included in the analysis are those traditionally employed in models predicting economic outcomes. They were recoded to ensure comparability as follows: gender (men=1), marital status (married=1), education (academic degree=1), age (in years), presence of a pre-school child (=1), and annual earnings. Annual earnings, the dependent variable in the analysis, were defined once in terms of logarithmic transformation of the local currency and once in terms of percentile ranking.

From a theoretical point of view we are mainly interested in the effect of welfare family policies on gender earnings inequality. Thus, the key independent variable utilized in the analysis is an index of welfare family policies (hereafter-WFPI), which is designed

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to capture the scope of family policies in the country. Data for construction of the index were obtained from a variety of secondary sources (detailed list of the data sources for each country is displayed in Appendix Table A1).

Following previous researchers (i.e. Gornick, Mayers and Roos 1997, 1998; Korpi 2000; Wilensky 2002) we relied on measured indicators that represent the scope of the welfare family policies in each state. We used three measured indicators to construct the index: number of paid weeks for maternity leave, percent pre-school children in publicly funded day-care facilities, and percent of the workforce employed in the public welfare sector. *Number of fully paid weeks for maternity leave* were equated with the number of paid weeks, and replacement during the leave, that are granted to workers by employers after giving birth. Percent children (under the age of 3) in publicly funded child care facilities and percent children (aged 3 to 6 years) in publicly funded child care facilities were used to estimate the *percent of pre-school children in publicly funded child care facilities*. The availability of public welfare services was captured by the size of the public welfare sector; it was measured in terms of the *percent of the work force employed in the public welfare sector*.<sup>1</sup>

These three measures capture somewhat different aspects of family policy, as described in the theoretical background. Maternity leave policy indicates the benefits that the state offers to working mothers, while publicly child-care facilities and the size of the public welfare sector capture the prevalence of social services provided by the state, and

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<sup>1</sup> Measured as the public HEW (Health, Education, and Welfare) employment as a share of total employment.



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the demand for female labor. The index was constructed using first principal component of the factor-analysis procedure,<sup>2</sup> and was scaled to range from 0 to 100. It was highly correlated with previous scales of family policies,<sup>3</sup> and with the typology offered by Esping-Andersen (1990) for classifying welfare state regimes (The distributions of the three components of the index are listed in Appendix Table A1).

In addition to the index of welfare family policies, three contextual indicators (at the country-level) were utilized as control variables to test the processes through which family policy affects gender earnings disparities, as suggested in the theoretical framework. They include: women's labor force participation rate and measures of gender occupational segregation and gender occupational inequality. The indicator for women's labor force *participation* was equated with rate of labor force participation among mothers to pre-school children. *Gender occupational segregation* was measured in terms

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<sup>2</sup> All three indicators are highly and positively correlated, as reflects in their factor loading:  $WFPI = .825 \times MATERNITY + .712 \times CHILD\ CARE + .854 \times PUBLIC\ SERVIC$  (variance explained 63.9%).

<sup>3</sup> For example, Spearman's correlation between the WFPI and Korpi's rank on the Dual Earner policy scale is  $r = .950$  (Korpi 2000, Table 2). Pearson's correlation between the WFPI and the index of family policy for mothers with children under six (Gornick et al. 1997, Table 5) is  $r = .732$ .

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of the net odds of men (relative to women) to work in a male-typed occupation.<sup>4</sup> Likewise, *gender occupational inequality* was measured in terms of the net odds of men (relative to women) to attain a managerial position.<sup>5</sup> For both occupational measures we used logistic regression equations to predicted odds for employment in male-occupations or in managerial position in each country, as a function of gender, marital status, age, education, and presence of pre-school children. The detailed distributions of the indicators of participation, occupational segregation, and occupational inequality for the 20 countries are presented in Appendix Table A2).

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<sup>4</sup> Male typed occupations were defined by performing test for statistical difference between proportions (of men and women) in each detailed occupational category at the 2-digit occupational classification, separately for each country. Occupations in which the proportion of men is higher and found to be statistically different from the proportion of men to women in the labor force (at significant level of  $P < .01$ ) are considered male-typed occupation. For the purpose of comparability countries that provided information only in major (1-digit) occupational categories were excluded from the analysis. As a result, we have data for male typed occupations for only 14 countries.

<sup>5</sup> Managerial positions were defined according to the standard classification of occupation in each country, based on two digit occupational categories (in Italy, Israel, and Australia the definition were based on the one digit occupational classification). Data on managerial occupation were available for 17 countries.

## **Analysis and Findings**

### *Descriptive Overview*

In Table 1 we list for a descriptive overview the distribution of the welfare family policy index (WFPI) (column 1), and the values of women to men earnings ratios in terms of local currency (column 2), and in terms of percentages (column 3). The distribution of the welfare family policy index is in line with previous studies of family policies, and with the classification of Esping-Andersen (1990, 1999). The data clearly show that countries traditionally classified as social democracies (e.g. Sweden, Norway, Denmark, Finland) along with Israel, are at the top of the distribution and countries representing liberal-market regimes (e.g. United States, Australia) along with Switzerland, are at the bottom of the distribution. Countries representing the conservative welfare-regimes (e.g. Italy, Spain), along with East-European countries, are in the middle of the distribution.

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Insert Table 1 about Here

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Gender earnings inequalities are substantial in all countries. The data displayed in column 2 suggests that in an average country the ratio of women to men earnings is .68. There is, however, considerable variation around this mean (s.d.= .09). In some countries disparities are rather moderate while in many others they are extreme. More specifically, gender earnings inequalities are most pronounced in United Kingdom (.50), The Netherlands, and in Switzerland (.52) and least pronounced in Italy (.79), Finland and Slovakia (.77). Earnings ratios expressed in terms of percentile rankings (listed in column 3) are quite similar to those found in the previous column (Column 2). Differences in

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percentile earnings are most pronounced in Switzerland (.45), United Kingdom (.50) and The Netherlands (.46), and least pronounced in Hungary (.81), Finland (.76) and France (.72). It is interesting to note that when earnings distributions are standardized, the relative earnings gaps between men and women are reduced in countries such as the US, Canada, Hungary, and Israel and are widened in Italy, Slovak Republic, Belgium, and Luxembourg. The data further indicate that, in general, the gender gaps in earnings tend to decline in places characterized by well-developed family policies. The correlations between WFPI and women to men earnings ratios is  $r=.427$  and  $R=.344$ , for local currency and for the percentage scales, respectively.

### *The Model*

Gross earnings differentials between economically active men and women can be a consequence of a series of factors including social policies, structure of the payment systems, economic discrimination, as well as differences in human capital resources. Thus, in order to accurately estimate the impact of country level characteristics on gender earnings inequality, it is necessary to control for variations in human capital attributes at the individual level. This could be obtained via the use of hierarchical linear models (HLM) -- a statistical procedure that enables an estimation of country-level effects while controlling for variations in individual-level characteristics (Bryk and Raudenbush, 1992, See also Cohen and Huffman 2003a, 2003b).

The two-level model can be represented by a set of equations, as illustrated below:

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$$(1) (\text{Earnings})_{ij} = \beta_{0j} + \beta_{1j} (\text{Gender})_{ij} + \mathbf{B}\mathbf{X} + e_{ij}$$

At the individual level the dependent variable is the annual earnings of individual  $i$  in country  $j$ ,  $\beta_{0j}$  is the intercept, denotes the average earning, 'Gender' denotes whether one is male or female, coded as 1 for male, and 0 for female, and its coefficient  $\beta_{1j}$  represent the average gender earnings gap.  $\mathbf{X}$  is the vector of the other individual measures (i.e., marital status, education, age, and presence of a young child), and  $\mathbf{B}$  is the vector of their coefficients.  $e_{ij}$  is the error term. This equation allows the intercept,  $\beta_{0j}$ , and the gender effect,  $\beta_{1j}$ , to vary across countries (i.e., to be random), whereas the effects of all the other variables were constrained to be the same across countries (i.e., to be fixed). At the second level, the country characteristics (e.g. WFPI) explain these random effects as presented in equations (2) and (3):

$$(2) \beta_{0j} = \gamma_{00} + \gamma_0 \mathbf{X} + \gamma_{0j}$$

$$(3) \beta_{1j} = \gamma_{10} + \gamma_1 \mathbf{X} + \gamma_{1j}$$

Where  $\beta_{0j}$  (in equation 2) denotes the countries' average earnings,  $\mathbf{X}$  represents a vector of country characteristics and  $\gamma$  denotes their respective coefficients.  $\gamma_{1j}$  is the error term. Our main interest is in equation (3), which represents the interaction between gender and earnings.  $\beta_{1j}$  – the dependent variable—denotes the average earnings gap between man and women in each country, and a vector of country-level characteristics (welfare family policies (WFPI), women's participation rates, occupational gender segregation and occupational gender inequality) are introduced to explain this variation ( $\gamma_1 \mathbf{X}$ ).

*Estimating the Model*

The results revealed by the hierarchical linear models presented in model 1 of Table 2 suggest that net of all variables men's earnings are higher than women's earnings across countries and that earnings are likely to increase with age and academic degree and to decrease with presence of pre-school children in the household. At the country level, the effect of WFPI on gender inequality is negative and significant; indicating, contrary to the theoretical expectation, that, other things being equal, earnings inequality between men and women is likely to decrease in places characterized by developed family-welfare policies.

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Insert Table 2 about Here

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Moreover, at the theoretical outset of the paper we argued that the impact of family policies on gender earnings inequality is mediated via rates of labor force participation and gender occupational segregation. Countries with developed family policies, we argued, are expected to recruit more women, especially mothers, to their economically active labor force, but to allocate them in disproportionate numbers to low-paying 'female-type' jobs. In order to examine this hypothesis, we introduced as a control variable at the country level, a measure of women's labor force participation (in model 2) and measures of gender occupational segregation and gender occupational inequality to models 3 and 4, respectively.

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Examination of models 2-4 demonstrates that the introduction of the state-level indicators for participation, segregation and inequality only slightly changed the coefficients of the individual level variables included in the models, and the effect of the index of welfare family policies on gender earnings inequality. Specifically, the effect of WFPI remains negative and highly significant when rate of female labor force participation was included in model 2, and it became even stronger when measures of gender occupational segregation and inequality were introduced in models 3 and 4. Neither rate of female labor force participation nor the measures of gender occupational segregation-inequality exerts significant effect on gender earnings differentials. Indeed, these results appear to contradict the argument discussed at the theoretical outset that progressive welfare-family policies are likely to increase the gender wage gap, by channeling more women into distinct feminine type occupation, and away from lucrative occupations and managerial positions.

### *Estimating the Model for Standardized Earnings Distributions*

In the theoretical introduction we have also argued that variations across countries in gender earnings disparities affected by differences in payment systems. Gender earnings inequality is expected to be lower in places characterized by more centralized payment structure. In what follows we argue that the negative effect of WFPI on gender earnings inequality that was observed in Table 2 is, in fact, spurious, and should be attributed to cross-national variations in earnings distributions. To test this argument, we re-estimated the HLM models using standardized earnings distributions.

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The use of standardized earnings distributions eliminates cross-national differences that result from differential structure of earnings, and therefore enables us to examine the impact of family policies on gender earnings disparities, net of the impact of the payment system. For the purpose of the present analysis we transformed earnings distributions expressed in terms of logged local currency into percentile distributions. That is, individuals were ranked in each country according to their relative earnings on 100-point (percentage) earnings scales. This procedure yielded standardized distributions of relative positions of individuals on the earning ladder in all countries. The relative positions ratio (hereafter the earnings ratios) of women to men on these percentile distributions are listed in Column 3 of Table 1. The differences between the two earnings distributions in table 1 indicate that while in some countries the wage structure contributes to widen the earning gap between men and women, in others the wage structure leads to an opposite result (see also Blau 1998; Blau and Kahn 1995, 2000, 2001).

In Table 3 the same HLM regression models (estimated previously in Table 2) are re-estimated using standardized earnings distribution as the dependent variable. In model 1 we let standardized earnings be a function of all socio-demographic characteristics (at the individual-level) and WFPI (at the country-level). In models 2 to 4, both, rate of female labor force participation and the measures of gender occupational segregation and inequality are added to the models (at country-level).

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Insert Table 3 about Here

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The effects of the individual-level variables on the standardized earnings distributions hardly differ from those observed previously in Table 2. However, the impact of the welfare family policy index (WFPI) on gender earnings differential in models 1 and 2 has become statistically insignificant. In contrast to our expectation, family policy does not appear to increase gender earnings disparities. Rather, it was found to have no effect on it. What has previously appeared to be a negative association between the prevalence of family policies and gender earnings inequality is now found to be a spurious consequence of the association of both to the shape of the earnings distribution. Net of the earnings structure, family policies do not exert a significant effect on gender earnings inequality.<sup>6</sup>

Models 3 and 4 include indicators of gender occupational segregation and gender occupational inequality at the country level. Both indicators exert positive and significant effects on gender earnings inequality, implying that an increase in the levels of occupational segregation or occupational inequality is likely to increase gender earnings

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<sup>6</sup> An additional trial to eliminate the effect of the earnings distribution was made by adding the GINI coefficient to the previous equations of Table 2, as an additional independent variable in the country level. The results were similar—net of the overall level of the earnings inequality family policy do not exert any significant effect on gender earnings inequality. We favor to control for the earnings structure by changing the dependent variable in order to emphasize the neutralization of the wage structure, and in order to maximize the degrees of freedom.

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inequality. It should be also noted that the negative effect of WFPI on gender earnings inequality in models 3 and 4 has become statistically significant, when occupational segregation and inequality are taken into consideration.

These findings suggest that family policies influence gender earnings inequality directly and indirectly and in two opposite directions. Whereas prevalence of family policies reduces earnings disparities between men and women it also increases occupational segregation between men and women.<sup>7</sup> Occupational segregation, in turn, is likely to increase gender earnings inequality, as clearly seen by the segregation coefficients in models 3 and 4, respectively. In other words, only when the positive (widening) segregation effect on earnings inequality is controlled for does the negative (narrowing) effect of WFPI on earnings inequality emerges. The effect of WFPI on gender inequality should be understood, thus, in light of the high levels of occupational segregation that characterized countries with developed family policies on the one hand, and in light of their more egalitarian wage systems on the other hand. When differences

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<sup>7</sup> This argument is also supported by the descriptive data presented in columns 2 and 3 of Table A2. In countries with developed family policy (i.e. Sweden, Denmark, Finland, and Belgium) the net odds of men (relative to women) to attain a male-type occupation or a managerial position tend to be higher in comparison to countries with low levels of family policy (i.e. the US, Canada, and Switzerland). The correlations between the segregation measures and the welfare family policy index are  $r=.400$ , and  $r= .625$ , respectively.

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in earnings structures across countries are eliminated, and when variations in levels of gender-occupational segregation are taken into consideration, the direct and indirect effects of family policies on gender earnings inequality can be revealed and understood.

### **Conclusions and Discussion**

The major objective of the present research was to provide a systematic examination of the effect of welfare family policies on earnings differentials between men and women. Our main interest was to explore the unintended consequences of welfare-family policies on gender-linked economic inequality. For this purpose we bring together two bodies of literature—sociological works on the impact of welfare family policy on women's employment opportunities, and research that studied the impact of wage systems on the gender wage gap. We suggested that both welfare family policies and payment systems are likely to influence gender earnings inequality but in opposite directions. Developed family policies are expected to increase gender earnings disparities while centralized payment systems are expected to decrease such inequalities.

The analysis reported here focuses on data gathered from twenty industrialized countries and is based on a series of hierarchical linear models that combine information on both individual and state levels. This method allows controlling for individual level attributes while estimating institutional context effects. Eliminating individual effects is crucial in this regard, since one cannot assume similarity between countries in the distribution of men and women in wage determinants such as education, age, marital status, and existence of young children.

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The findings reveal that the impact of family policies on gender earnings inequality is complex, and can be delineated and best understood only when eliminating cross-national variations in the shape of earnings distributions. Specifically, when earnings are measured in monetary terms, the analysis reveals that earnings differentials between men and women are negatively associated with the prevalence of welfare-family policies. That is, earnings gaps between men and women tend to decline in states characterized by developed family policies. This relationship holds even when controlling for individual level attributes across countries and for cross-national variations in both rates of labor force participation and gender occupational segregation. However, when differences in the shape of earnings distributions across countries are controlled for and eliminated (i.e. earnings are measured on percentage standardized distributions) we find that family policies do not exert a significant effect on earnings gaps between men and women. This finding leads us to the conclusion that the effect of family policies on gender earnings inequality is, therefore, spurious and should be attributed, first and foremost, to cross-national variations in wage structures.

Furthermore, once the wage structure is controlled for it becomes possible to untangle the full implications of family policies for gender earnings inequality. Our findings suggest that the non-significant effect of family policies on gender-earnings inequality is a result of two opposite effects that offset one another. Specifically, the narrowing effect of family policies on gender earnings inequality is offset by an opposite effect of family policies on occupational segregation. Implementation of family policies, while enabling more women to join the economically active labor force, also increases

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occupational segregation, which increases in turn, earnings inequality. These findings clearly expose the unintended indirect effect of ‘protective’ family policies on gender inequality via occupational segregation.

It should be noted, however, that in contrast to our expectations, when gender occupational segregation is taken into consideration, family-welfare policies are likely to decrease gender disparities in earnings. Apparently, we found no support for the claim that ‘protective’ family-welfare policies are likely to increase earnings inequality due to direct wage discrimination. If statistical discrimination against women is exercised, it is likely to be in the form of hiring practices and not in wage discrimination. That is, due to the family policies’ benefits, employers could be reluctant to hire women to lucrative managerial occupations.

The findings presented by this paper highlight the significant but distinct impact that social policies and payment systems exert on gender economic inequality. Curiously, family policies acclaimed as “women-friendly” have unintended detrimental consequences for women’s economic outcomes through increased occupational segregation. By contrast, corporatist payment systems, which are not concerned with gender inequalities per se, have significant consequences for reducing gender earnings inequality.

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Table 1: The Welfare Family Policy Index in a Descending Order, and Indicators of Female to Male Earnings and Percentiles Ratio, in 20 Countries

Country	(1) Index of Welfare Family Policy	(2) Female to Male Earnings Ratio	(3) Female to Male Wage Percentiles Ratio
Sweden	100	.63	.62
Denmark	93	.76	.66
Norway	72	.70	.64
Finland	57	.62	.76
Israel	57	.77	.67
Belgium	51	.71	.62
France	50	.73	.72
Hungary	50	.75	.81
Spain	44	.77	.70
Italy	41	.76	.70
Slovak Republic	34	.79	.66
Luxembourg	31	.71	.60
Czech Republic	30	.71	.62
UK	27	.50	.50
Netherlands	27	.52	.46
Germany	20	.65	.59
Canada	10	.61	.65
USA	4	.65	.69
Australia	3	.67	.63
Switzerland	0	.52	.45
Average	40	0.68	0.64
S.D.	27.6	.09	.09
Range	0-100	.50 –.79	.45-.81
N	20	20	20

Table 2: The Effect of Human Capital, Demographic Attributes, and Country Level Variables on Natural Log of Annual Earnings (P values in Parenthesis). Results of Hierarchical Linear Regression Models<sup>1</sup>.

<b>Individual level effects:</b>	(1)	(2)	(3)	(4)
<u>Natural Log of Annual Earnings</u>				
Intercept	9.161*** (0.00)	11.11*** (0.00)	16.533*** (0.00)	9.901*** (0.00)
Married	0.041*** (0.00)	0.041*** (0.00)	0.035*** (0.00)	0.043*** (0.00)
Education	0.423*** (0.00)	0.423*** (0.00)	0.452*** (0.00)	0.425*** (0.00)
Age	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)	0.004*** (0.00)
Pre-school child	-0.036*** (0.00)	-0.036*** (0.00)	-0.048*** (0.00)	-0.025*** (0.00)
Gender	0.594*** (0.00)	0.576*** (0.00)	0.272 (0.24)	0.683*** (0.00)
<b>Country level effect: on the intercept</b>				
Welfare Policy Index	0.030** (0.03)	-0.044** (0.01)	-0.071*** (0.00)	-0.0056** (0.01)
Female labor force participation		-4.444 (0.12)	-8.172** (0.03)	-0.852 (0.427)
Segregation: male-type occupation (male=1)			-0.336** (0.01)	
Segregation: managerial occupation (male=1)				-0.534 (0.163)
<b>Country level effect: on gender inequality</b>				
Welfare Policy Index	<b>-0.0038***</b> <b>(0.00)</b>	<b>-0.0040**</b> <b>(0.02)</b>	<b>-0.0057**</b> <b>(0.02)</b>	<b>-0.0054**</b> <b>(0.02)</b>
Female labor force participation		0.041 (0.456)	0.272 (0.281)	-0.190 (0.344)
Segregation: male-type occupation (male=1)			0.20 (0.130)	
Segregation: managerial occupation (male=1)				0.026 (0.318)
N (individual)	55,546	55,546	42,125	48,125
N (country)	20 <sup>2</sup>	20 <sup>2</sup>	15	17

\*p<.10, \*\*p<.05, \*\*\*p<.01(one-tailed significant)

1. Age 25-60. Source: LIS (1990-1997).

2. Similar results were obtained when analysis was performed only with the countries included in models 3 and 4.

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Table 3: The Effect of Human Capital, Demographic Attributes, and Country Level Variables on Earnings Percentile (P values in Parenthesis): Results of Hierarchical Linear Regression Models<sup>1</sup>.

<b>Individual level effects:</b>	(1)	(2)	(3)	(4)
<u>Earnings Percentile</u>				
Intercept	17.94*** (0.00)	18.35*** (0.00)	26.50*** (0.00)	14.64*** (0.00)
Married	3.61 *** (0.00)	3.61 *** (0.00)	3.43 *** (0.00)	3.58 *** (0.00)
Education	22.04*** (0.00)	22.03*** (0.00)	23.65*** (0.00)	22.61*** (0.00)
Age	0.299*** (0.00)	0.299*** (0.00)	0.284*** (0.00)	0.301*** (0.00)
Pre-school child	-1.22*** (0.00)	-1.22*** (0.00)	-1.90*** (0.00)	-1.16 (0.00)
Gender	24.16 *** (0.00)	21.28 *** (0.00)	3.96 (0.38)	25.90 *** (0.00)
<b>Country level effect: on the intercept</b>				
Welfare Policy Index	0.050 (0.13)	0.053 (0.21)	-0.100 (0.11)	0.123 (0.31)
Female labor force participation		-0.945 (0.45)	-6.41 (0.29)	9.74 (0.33)
Segregation: male-type occupation (male=1)			-0.479 (0.24)	
Segregation: managerial occupation (male=1)				-1.868 (0.13)
<b>Country level effect: on gender inequality</b>				
Welfare Policy Index	<b>-0.064</b> <b>(0.21)</b>	<b>-0.085</b> <b>(0.19)</b>	<b>-0.174**</b> <b>(0.02)</b>	<b>-0.199**</b> <b>(0.01)</b>
Female labor force participation		6.597 (0.30)	19.012 (0.12)	-9.534 (0.27)
Segregation: male-type occupation (male=1)			<b>1.067**</b> <b>(0.03)</b>	
Segregation: Managerial occupation (male=1)				<b>3.236**</b> <b>(0.04)</b>
N (individual)	55,546	55,546	42,125	48,125
N (country)	20 <sup>2</sup>	20 <sup>2</sup>	15	17

\*p<.10, \*\*p<.05, \*\*\*p<.01 (one-tailed significant)

1. Age 25-60. Source: LIS (1990-1997).

2. Similar results were obtained when analysis was performed only with the countries included in models 3 and 4.

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Table A1: The Components of the Welfare Family Policy Index: Values and Data Sources<sup>1</sup>

Country	Maternity Leave (numbers of fully paid weeks) <sup>2</sup>	Percent Children (0-6) in Publicly Funded Child Care <sup>7</sup>	Public Welfare Sector, as Share of Total (Percent) <sup>12</sup>
Sweden	41	56	25
Denmark	28	65	25
Norway	42	30	20
Finland	32	35	16 <sup>13</sup>
Israel	12 <sup>3</sup>	57 <sup>8</sup>	18 <sup>14,15</sup>
Belgium	12	63	13 <sup>14,16</sup>
France	16	61	11
Hungary	24	48	12 <sup>14,16</sup>
Spain	16	45	14 <sup>14,17</sup>
Italy	17	52	11
Slovak Republic	25 <sup>4</sup>	44	5
Luxembourg	16	35	11 <sup>14,18</sup>
Czech Republic	19	47 <sup>9</sup>	5 <sup>14,18</sup>
UK	8 <sup>5</sup>	28	16
Netherlands	16	39	8
Germany	14	35	7
Canada	8	29 <sup>10</sup>	7
USA	0	30 <sup>10</sup>	8
Australia	0	23 <sup>10</sup>	10
Switzerland	8 <sup>6</sup>	16 <sup>11</sup>	7
Average	18.5	41.6	12.4
S.D.	12.6	14.0	6.0
Range	0-42	16-65	5-25
N	20	20	20

1. Listed in a descending order of the Index values.

2. Kamerman S.B. 2000, "Early Child Education and Care (ECEC): An Overview of Development in the OECD. Countries" (www//childcareorg). (Data refer to 1995/6).

3. National Insurance Institute of Israel, Annual Survey, 1995-96. (Data refer to 1995).

4. OECD Employment Outlook, 2001, "Balancing Work and Family Life: Helping Parents into Paid Employment" Years 1999-2001. (Data refer to 1999).

5. Gauthier A. H. 2000, "Public Policies Affecting Fertility and Families in Europe: A Survey of the 15 Member States" (Data refer to 1990).

6. International Labour Organization, 1998. (<http://usilorg/news/prsrsls/maternityhtml>). (Data refer to 1998).

Gauthier A. H. 1999, "Historical Trends in State Support for Families in Europe (post-1945)". Children and Youth Service Review, vol. 21 (11/12), pp.937-965. (Data refer to 1993, except Norway and Germany (1988), Slovak and Czech Republics (1998)).

7. Statistical Abstract of Israel, 1996, no. 47 (Data refer to children age 3-6, years 1993/4). For age 0-2, data from NA'AMAT and VIZO, year 2001.

8. Data for children age 0-3 were obtained from: The Ministry of Education, Youth, and Sports of the Czech Republic, 2000, "OECD-Thematic Review of Early Childhood Education and Care Policy, Background Report for the Czech Republic" (data refer to 1994).

9. Mayers M.K. and Gornick J.C. 2000, "Early Child Education and Care (ECEC): Cross National Variation in Service Organization and Financing" (www//childpolicy.org).

10. Buhmann Brigitte. 2001, "Fait et Chiffres sur la Prise en Charge Externe des Enfants" Questions au Fédéral Office Fédéral de la Statistique, Suisse.

11. In most of the countries the data obtain from the following source: Kolberg J. E. and Esping-Andersen G., 1991 "Welfare States and Employment Regimes?" In: Kolberg J. E. (ed) "The Welfare State as Employer" M. E. Sharpe, Inc London, NY P 3-33.

12. Finland, labor force survey, 1999, Central Bureau of Statistics.

Data for the remaining countries is estimation, based upon two different sources.

13. Year Book of Labour Statistics 1995 Table 3B.



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14. Israel, labor force survey 1991/2/3, Central Bureau of Statistics.
15. OECD Economic Surveys 1998-99, France.
16. OECD Economic Surveys 1993, Finland.
17. OECD Economic Surveys 2000, Korea.

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Table A2: Indicators of Female Labor Force Participation, Gender Occupational Segregation and Gender Occupational Inequality, by country<sup>1</sup>

Country	(1) Rate of mothers (to pre-school child) labor force participation	(2) Net odds to be employed in male- type occupation (male=1)	(3) Net odds to be employed in managerial occupation (male=1)
Sweden	.85	16.9	--
Denmark	.77	16.7	4.36
Norway	.72	--	--
Finland	.66	11.6	2.73
Israel	.55	--	3.14
Belgium	.67	--	5.05
France	.62	10.4	3.41
Hungary	.41	18.1	1.41
Spain	.35	11.8	.94 (4.68) <sup>2</sup>
Italy	.49	--	2.23
Slovak Republic	.49	16.7	3.81
Luxembourg	.41	--	--
Czech Republic	.60	11.6	2.50
UK	.54	16.8	2.17
Netherlands	.51	9.4	3.34
Germany	.65	14.0	2.02
Canada	.64	11.5	1.27
USA	.63	7.2	1.06
Australia	.45	--	2.27
Switzerland	.28	16.4	.45 (1.34) <sup>2</sup>
Average	56.4	13.5	2.5
S.D.	14.4	3.4	1.3
Range	28-85	6.4– 18.1	.45 - 5.1
N	20	14	17

-- Not available (for details see footnote 4 and 5).

1. Age 25-60. Source: LIS (1990-1997).

2. To ensure that the odds of employment in a managerial occupation are not influenced by different occupational definitions between countries, we employed the same logistics regressions under more restrictive definition when occupation not only labeled as a “managerial”, but also found to be among the highest paid occupations (top three occupational wage deciles). In all countries, except Spain and Switzerland, the odds ratios were almost identical to the ratios when “managerial occupations” were defined only by labeling. The values for Spain and Switzerland under the more restrictive definition are provided in parentheses.