Effects of the Great Recession on Women's Labor Force Participation: A Nordic Focus

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Abstract

The following study investigates the relationship between public spending and women's labor force participation rates. Specifically, this study chooses the time period 2001-2011, including the Great Recession and surrounding years. I accept the premise that family benefits primarily affect women. Using panel data from seventeen countries and the specified years, I run a series of regressions investigating the relationships among women's labor force participation, men's labor force participation, public spending on family benefits, maternity and paternity leave policies, and unemployment. The regressions used include fixed effects regressions with robust standard errors and fixed effects regressions with Driscoll-Kraay standard errors. I find that family benefits and maternity have small positive, but statistically significant effects on women's labor force participation. Interaction terms reveal that the value of the unemployment rate significantly effects how family benefits relate to women's labor force participation.

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Introduction

The gender gap is extremely visible. We see evidence in data on employment, earnings, and political inclusion. It is more than economics; broadly, the gender gap encompasses many aspects of independence and opportunity in our public and private lives. Academic observations of the gender gap include the wage gap between men and women and studies of the glass ceiling. However, we observe it daily as well. For example, it is common to see more women picking up children from school than men, and we see more male CEOs featured in business magazines because there are proportionately many more male CEOs than female. Within the developed world, the United States falls in the middle in respect to closing the gender gap. We are on par with many western European countries and have made more progress than most southern and central European countries. However, the global leaders in closing the gender gap are the Nordic countries.

The Nordic countries—Denmark, Sweden, Norway, and Finland—are known for their significant progress abolishing the gender gap. These countries foster high rates of labor force participation among women, the smallest wage disparities between men and women, and extensive public childcare and early education programs that facilitate women working outside the home. Yet, even those countries that have made the most progress toward gender equality have not mastered it. Sweden and Norway both achieved almost perfect scores in the 2014 Gender Development Index, scoring 0.999 and 0.996 respectively (United Nations). No country earned a perfect score; no country has completely closed the gender gap. In Sweden women earn ninety-five percent of men's salaries when controlling for sector, and women make up o ly ten

percent of CEOs in the largest Swedish companies ("Gender Equality in Sweden"). Likewise, in Norway the wage gap is very narrow among lower-income earners, but widens toward the top: The "top female earners make on average 17% less than their male counterpart[s]" (United Nations). These trends indicate that the Nordic countries have not yet broken the glass ceiling.

In 2003, recognizing of the varying degrees of the gender gap in European countries, the European Employment strategy called upon member states "to achieve by 2010 a substantial reduction in the gender pay gap in each Member State through a multi-faceted approach addressing the underlying factors of the gender pay gap" (European Council). Those factors included "sectoral and occupational segregation, education and training, job classifications and pay systems, awareness raising and transparency" (European Council). In the time between the call-to-action and the 2010 goal, the global financial crisis hit the United States, Europe, and most of the world. After that, the Great Recession lingered.

While the European Employment Strategy set goals for the pay gap between the genders, I investigate a different aspect of the gender gap: women's labor force participation rates. From a feminist perspective women's labor force participation (LFP) is important because increased LFP creates more opportunities for women and girls, helps break down the remnants of the patriarchal paradigm, and because women earning an income outside the home are earning economic freedom. From an economic perspective, greater LFP among all workers implies greater productivity and generates more growth. Women earning income are consumers with purchasing power, and families with two incomes have more purchasing power than they would have with just one income.

Literature Review

In the 1990s, labor force participation was lower among German mothers than Swedish mothers. Gustaffson, et al. (1997) attributed the trend to the differences in the two countries' social protection systems. Germany's system lent toward a "breadwinner" dynamic concerning home and work, and Sweden's system appealed to dual-working-parenting households. Women's labor force behavior differs before versus after having children. The differences in behavior are significantly dependent on the depth and organization of a country's social protection programs (Gustaffson, et al).

According to Mandel and Shalay (2009), men and women are "differentially situated in the class structure." The gender gap within a country is present both through inter-class inequality and intra-class inequality. Women are not only over represented in lower socio-economic classes; they fall at the lower ends of their classes in comparison to male counterparts. Their findings hold to different extents among a range of welfare states.

Magnussun (2010) finds that in Sweden women experience lower "returns" to "occupational prestige" compared to men. The gap measured is one way of measuring the glass ceiling effect that others (Pergulini and Selzneva, 2015) attribute to the Nordic countries as well. Further, Magnussun (2010) finds that the gap is driven by a depression in the returns to occupational prestige that married women, cohabitating women, and mothers experience. This implies that the gap is affected by a real or perceived struggle to balance work and family.

Likewise, Rushton and Walfogel (2007) study long-term "motherhood" earnings. Among Anglo-American countries, continental European countries and Nordic countries, Nordic countries have the smallest discount to women's wages. Continental European countries have the largest and Anglo-American countries fall in the middle. While it is that position of "smallest

discount" that earns the Nordic countries their progressive reputation, the motherhood wage penalty persists even there (Rushton and Walfogel).

In 1998, Norway reformed a family spending initiative and instituted a cash-benefit of NOK 3,000 per month to families with at least one child between the ages of one and three. Recipients included only families that did not take advantage of subsidized public childcare. Empirical analysis found that the reform was correlated with a drop in female labor force participation (Naz). To deal with the possibility that cash-benefits to families discourage women's labor force participation, the following study measures public spending on cash-family benefits and public spending on in-kind family benefits separately.

In ten non-Nordic countries during the Great Recession, Perugini and Selzneva (2015) find that the labor markets were deregulated, leading to a reduction in the wage gap at the lowest wage levels but an increase in the wage gap among middle and top earners. Studying both Nordic and non-Nordic countries, Perivier (2014) found that in the outset of the crisis, men's employment was more negatively affected than women's. Then, during the stimulus period, male employment recovered faster than female employment. After, during the third phase, austerity negatively affected women's employment more than men's because the European labor market is marked by high sectoral gender segregation. However, Nordic countries' economies behaved in these ways to a lesser extent during the Great Recession. They experience far less sectoral segregation than other European countries and have more robust social protection infrastructures, for example, Denmark's flexicurity and Sweden's democratic welfare.

The wide range of relevant literature—spanning topics such as gendered-influences on labor force participation, the gender wage gap, recession's effect on the gender gap, motherhood's effect on labor force participation—offers a great deal of insight as to how policy

response determining public spending on family benefits may influence women's LFP. Some studies look at the effect of family benefits on women's labor force choices; some studies look at the macroeconomic effects of recession on gendered outcomes; some look at the origins of the gender gap generally. However, this study adds to the literature base by providing a connection among public spending on families, recession conditions, and women's LFP.

Hypotheses

Faced with financial crisis, governments enact policies to either stabilize or stimulate the economy. Stimulus packages include various combinations of tax cuts and public spending. Packages include spending on infrastructure, energy, and technology programs to create jobs. There may be spending on education and vocational programs to equip the population for those jobs that are available. Often, there are more robust automatic stabilizers or increased investment in welfare protection programs.

Magnussen (2010) found women attached to family households experience lower returns to occupational prestige in relation to unattached women, but married men and fathers do not experience this consequence in relation to unattached men. Thus, the premise we accept is that the general trend still leans toward a default of women's being more attached to the responsibilities of the home and family. Particularly, women, as labor force participants, benefit more than men when the government offers more in in-kind benefits. In-kind services and benefits enable women to work by providing affordable childcare and schooling. They create places for their children to be other than the home while women work in the public sphere. While cash benefits to families can function similarly, a pure cash-transfer does not offer the same incentive to work that in-kind benefits do.

As Perivier (2014) argued, male employment was both more negatively affected initially and more aided by stimulus packages. When enacting policy response to crisis, governments prioritize general stimulation over focusing on the gender gap. As governments devote public spending resources toward job creation and vocational training, resources will be lost from family benefits that enable women to work outside the home. Thus, I predict that during the Great Recession, women's labor force participation will decrease along with public spending on family benefits. The Nordic countries robust welfare states and higher-than-average public spending on families will provide buffer for women's labor force participation that other countries do not have.

The Data Collection

This investigation uses panel data for seventeen countries over an eleven-year period, including years both before and after the financial crisis. Table 2 in the Appendix provides the countries included. The panel includes the years 2001-2011, inclusive. The analysis studies eleven variables over the countries and time period: seven causal variables, one dependent variable, and two interaction terms. Our dependent variable is women's labor force participation rate expressed as a natural log of the percentage of working women aged 15-64 years old within the female population bound by the same age range. This data is reported by the World Bank's World Development Indicators.

Explanatory variables come from the World Bank's World Development Indicators and OECD's Family Database. World Development Indicators provides GDP growth, the unemployment rate, and men's labor force participation rate. GDP growth is expressed as a percentage change in a country's GDP from the prior year to the specified year. Unemployment is expressed as a percentage of the workforce that is without work; the workforce is defined as

those working or those actively seeking and available for work (World Development Indicators). The statistical analysis uses the inverse of the unemployment rate provided by the World Bank for interpretation. Men's labor force participation rate is measured correspondingly to women's, as a natural log of the percentage of working women aged 15-64 years old within the male population bound by the same ages.

Maternity and paternity leave variables are from OECD's Family Database. They are measured as weeks of paid leave available to mothers and fathers, respectively. Public spending data on cash benefits to families and on in-kind benefits to families were provided by the OECD Family Database, as well. Each was measured as a percentage of GDP. For the purposes of this study, data gathered was converted into spending per capita by multiplying the figures by GDP and dividing by population. (GDP and population are from the World Bank's World Development Indicators.) Public spending on cash benefits to families "includes child allowances, with payment levels that in some countries vary with the age of the child, and sometimes are income-tested[,] public income support payments during periods of parental leave[,] and income support for sole parents families in some countries" ("PF1.1:Public spending on family benefits"). Public spending on in-kind benefits to families "includes direct financing and subsidizing of providers of childcare and early education facilities, public childcare support through earmarked payments to parents, public spending on assistance for young people and residential facilities, public spending on family services, including center-based facilities and home help services for families in need" ("PF1.1:Public spending on family benefits").

Model & Results

Initial: Fixed Effects Regression with Robust Standard Errors using GDP Growth

Initially, I regressed cash benefits, in-kind benefits, and GDP growth on Women's LFP using a fixed-effects regression with robust standard errors. GDP growth and labor force participation can be cyclically affected, and the investigation itself involves the business cycle. Thus, these variables over time are likely to be heteroskedastic, leading to an initial run including robust standard errors. Further, we know that more variables influence labor force participation rate than are included in the model. Those forces vary across countries and time, leading to a fixed effects model for the panel data. In this model, N = 187 and the F-statistic = 17.98 and is statistically significant at the one percent level. R-squares were returned within countries, between countries, and overall; they were 0.5514, 0.2647, and 0.2775, respectively. Cash benefits and in-kind benefits returned very small, seemingly significant effects on women's labor force participation, and GDP growth was highly insignificant. A Woolridge Test revealed that the panel data includes significant autocorrelation. Further, the small F-statistic and few causal variables suggested an incomplete model.

Correcting for Autocorrelation: Driscoll-Kraay (D-K) Standard Errors

In response to the Woolridge Test, I corrected the initial model for autocorrelation, while maintaining corrections for heteroscedasticity, by using a fixed effects regression with Driscoll-Kraay (D-K) standard errors. The Driscoll-Kraay method controls for autocorrelation within panels and maintains heteroskedastic corrections. As a result, it reports R-squared statistics only within panels. The model improved through making this correction. The F-statistic increased to 82.38 and maintained a significant P-value of 0.0000. The within R-squared is 0.5514. The regression coefficients for cash benefits, in-kind benefits, and GDP growth did not change, but each explanatory variable's t-statistic strengthened.

Fixed Effects Regression with D-K Standard Errors using Unemployment

GDP growth is not necessarily the best indicator of the financial crisis and recession. Recession conditions dragged on long past the period of time when growth was negative. Further, some countries hit by the financial crisis and recession never experienced negative growth, but simply slowdowns in growth. Moreover, GDP growth is not a visible statistic affecting people's choices to enter or leave the labor market. So while GDP growth is one of the defining factors in determining a recession, it is replaced with the unemployment rate in this investigation. For analysis, unemployment is expressed as one-over-the-unemployment-rate. Like the regression model using GDP growth, the initial fixed effects model with robust standard errors that included unemployment was riddled with autocorrelation. Thus, again, I used a fixed effects regression with D-K standard errors.

The model improved. The F-statistic increased to 204.39, and the within R-squared returned was 0.5547. While still statistically insignificant at the ten percent level, unemployment has a stronger t-statistic than did GDP growth. Further, cash benefits and in-kind benefits remain significant with slightly stronger regression coefficients and t-statistics. By replacing GDP growth with unemployment as an indicator, cash benefits' regression coefficient and t-statistic strengthened from 0.0000784 to 0.0000806 and 9.08 to 9.58, respectively. In-kind benefits' regression coefficient decreased in the magnitude of its impact on women's LFP slightly, from 0.0000658 to 0.0000652. However, its t-statistic strengthened from 5.04 to 5.71, suggesting a more accurate regression coefficient.

Fixed Effects Regressions with D-K SEs including Maternity & Paternity Leave

Having established that unemployment is a better indicator of recession conditions that predict labor force participation choices, I began adding other causal factors relevant to the way Nordic countries with robust social welfare policies behave differently than other countries. First,

I added maternity leave into the regression. Later, paternity leave was added. Each is measured as the number of paid weeks available to new mothers and fathers. The addition of the maternity leave measure reduced the F-statistic but improved the within R-squared statistic. Further, the coefficient and t-statistic for unemployment each became stronger and the coefficient became significant at the ten percent level. The coefficient for cash benefits shows weaker impact now, and that of in-kind benefits is slightly stronger. Both variables' t-statistics are strengthened. Moreover, maternity leave itself has a small but statistically significant regression coefficient indicating a small but significant positive relationship with women's labor force participation. Although the F-statistic decreased from 204.39 to 197.81 due to the inclusion of maternity leave, several other aspects of the model are improved. Therefore, the maternity leave measure remains in the model.

However, the addition of paternity leave did not yield similar results. The F-statistic substantially increases with the addition of paternity leave from 197.81 to 1,737.64. Paternity leave itself is not significant, and the unemployment statistic is no longer significant. According to a correlation matrix including all of the variables studied (See Table 2 in the Appendix), paternity leave is not highly correlated with any other variable. However, its behavior in the model resembles a collinearity problem. It is possible that it is collinear with a combination of other variables included. It is also possible that the shape of the variable is conflicting with the equation. Paternity leave has far less variation than maternity leave, and many more countries that offer none, or zero weeks, to men than to women. Due to its effects, including the inflated F-statistic and effects on other causal variables, and lack of contribution to the model, paternity leave is removed from the equation.

Fixed Effects Regressions with D-K Standard Errors including Men's Labor Force Participation Rate (LFPR)

As discussed by the literature, traditionally-men's sectors were affected most but the initial downturn. Men's employment suffered more than women's. As men lost their jobs at the beginning of the recession and the employment outlook continued to worsen, their labor force participation rates fell. Men's labor force participation rate is added to the model to determine whether men's labor market behavior affects women's labor market behavior. As with the addition of paternity leave, the addition of men's LFPR causes the F-statistic to substantially increase, in this case to 985.79. Again, collinearity enters to model. This time, however, the collinearity will be acknowledged and considered during interpretation, but the variable men's LFPR will not be removed from the model.

I am still using a fixed effects regression with Driscoll-Kraay standard errors, correcting for both autocorrelation and heteroscedasticity in the panel data. As mentioned, the F-statistic increased greatly, and is most likely inflated due to collinearity between men's labor force participation and unemployment. The two variables have a correlation of -0.4533 (See Table 2 in the Appendix). Their correlation is not detrimentally high, but they may be related enough to muddy the regression results. The within R-squared statistic increased from 0.5634, in the model without men's LFP to 0.6701 in this model. The regression coefficients for cash benefits and family benefits remain significant, but the magnitude of cash benefits' effect decreased and that of in-kind benefits increased. Further, the addition of men's LFP causes the relationship between unemployment and women's LFP to shift from positive to negative. Further, unemployment is now significant at the five percent level. Men's LFP is significant. It appears to highly impact women's LFP more than the other causal variables; its regression coefficient is 0.8509895. The impacts that men's LFP and unemployment have on women's LFP are slightly distorted in this

model due to their collinearity. However, collinearity with one another cannot explain each variable's entire impact on the dependent variable. The strong effect that men's LFP seems to have on women's LFP is indicative of the fact that people enter the labor force when there seems to be ample jobs. Traditionally-men's sectors were hit harder by the crisis and recession. I expected men to drop out of the labor force more quickly, forcing women to enter the labor force. However, this reveals that when the economy is good and jobs are available, the perception of availability (which is the determining factor over actual availability for a potential worker joining the labor force) is gender-blind. Moreover, while traditionally-men's and traditionally-women's sectors may be affected differently by growth and contraction, they may not be affected differently enough to cause a significant difference in LFPRs between the genders.

Fixed Effects Regressions with D-K Standard Errors including interaction variables

The additions of each new explanatory variable caused interesting variations in unemployment's effect on women's LFP. Further, the research question asks about the effect of recession on women's LFP. Thus, by testing interaction variables, I find whether any of the relationships between the significant causal variables and the dependent variable change as the unemployment rate changes. Three interaction variables are tested: an interaction between cash benefits and unemployment, an interaction between in-kind benefits and unemployment, and an interaction between the maternity leave measure and unemployment. The maternity leave and cash benefits interactions did not add to the model. Neither was statistically significant nor did they help to explain women's LFP patterns. However, including only in-kind benefits in the model offers improvements. The F-statistic increases to 2,289.39 and the within R-squared statistic reported is 0.7020. Again, due to collinearity between men's LFP and unemployment,

those statistics are inflated to an extent. However, they increased further from the time that men's LFP was added due to the inclusion of the interaction term. The interaction term itself is significant at the one percent level with a small positive impact (β=0.0002939). Thus, when unemployment is high, countries that have greater in-kind benefits to families also have more women entering the workforce. Cash benefits, in-kind benefits, and unemployment remain significant as well, and unemployment's relationship with women's LFP remains negative. Maternity leave appears to have a smaller impact and is now only significant at the fifteen percent level. This method of statistical analysis provides the following equation for estimating women's labor force participation given the present factors:

$$LFP = 0.3852 + 0.0000685\beta_1 + 0.0000172\beta_2 - 0.2011\beta_3 + 0.000026\beta_4 + 0.86489\beta_5 + 0.0002939\beta_6,$$

where β_1 = public spending on cash benefits to families, per capita
β_2 = public spending on in-kind benefits to families, per capita
β_3 = 1 / unemployment rate
β_4 = number of weeks of paid maternity leave available to mothers
β_5 = LN(men's LPFR)
β_6 = public spending on in-kind benefits to families, per capita*(1 / unemployment rate).

Conclusion

In this investigation, I asked how public spending on family benefits, among other factors, affects women's LFPR. Additionally, how do recession conditions and response policies affect this type of spending? The hypotheses predicted that stimulus packages would prioritize other types of spending and investment over spending on families. They also stated that in-kind benefits would positively affect women's LFPR because the cost of child care is reduced and the

convenience is increased, and cash benefits would negatively affect women's LFPR because they raise minimum income and change the preference pattern between working inside and outside the home.

Throughout this time, spending on cash benefits remained mostly stagnant. Norway experienced a sharp decline between 2002 and 2006, and the non-Nordic countries, on average, also experienced a decline between 2001 and 2003 (See Figure 2 in the Appendix). The other Nordics, however, experienced only marginal fluctuations. In Finland and Denmark, there were slight increases during the recession; in Sweden the spending was unaffected. Moreover, spending on in-kind benefits increased throughout this time period. During the recession years, however, spending continued to increase in the Nordics but levelled off in other countries, causing the non-Nordic average spending to stagnate (See Figure 3 in the Appendix). Thus, during the recession some countries, particularly the Nordics but a few others in the panel as well, continued to invest in families. As hypothesized, other countries, however, did prioritize away from family spending.

Figure 1 (see Appendix) depicts women's labor force participation over time. The Nordic countries experienced great fluctuations during these years. The non-Nordic average, however, is much lower and illustrates a slight but steady decline. The visual evidence realizes what the model estimates: public spending on family benefits increases women's labor force participation. The model further estimates that longer maternity leave options increase women's labor force participation rates. The Nordic countries had much longer maternity leave policies than most of the other countries in the panel, and have the highest women's LFPRs.

As the model estimates, public spending on cash benefits and public spending on in-kind benefits increase women's labor force participation. I reject one hypothesis and accept the other.

The effect of in-kind benefits was predicted, but the effect of cash benefits was not. Several reasons are possible. Perhaps the magnitude of cash benefits to families affects LFP, or perhaps families utilize cash benefits in addition to their regular incomes. It is possible that cash benefits have an alternate effect on men's labor force participation rates; that would mean the premise accepted here—that women benefit more from family benefits—is incorrect. I also found that recession conditions, represented by the unemployment rate, exacerbate the effect in-kind benefits have on women's decisions to enter the labor force. Thus, studying women's LFP in the context of a high-unemployment environment is important because the unemployment rate affects the strength of the impact public spending has on families.

Further Analysis

There are many avenues to be taken from here for further analysis. To look at the effects of recession more complexly, a study could be conducted focusing more on the macroeconomic forces behind recession. It is possible that other forces of recession interact with the relationship between LFP and benefits as well. By studying the impact of a multitude of macroeconomic forces, future studies could avoid problems with two-way causation. In this study, it is possible that there is two-way causation between unemployment and LFP. When the economy begins to improve, people tend to enter the workforce faster than jobs become available. Structurally, also there is also just time between beginning a job search (becoming attached to the workforce) and finding a job. The influx of workers often pushes up the unemployment rate, even though the economy may be improving. Thus, unemployment lags the business cycle. However, a more complex set of macroeconomic measure would help future studies of this nature avoid the possibility of two-way causation. Further, much of the literature discusses the importance of

sector in relation to the gender gap, and how differently different sectors experienced the Great Recession.

In the data available on family benefits, tax breaks were not captured. The two variables for benefits captured services and cash transfers; thus, tax breaks were not captured unless they occurred in the form of a refund. Including a measure of tax breaks to families could add a valuable missing piece to the measurements of family benefits. Lastly, austerity measures began largely in 2011 when this dataset ends. In the coming years, data through 2015 will be available. Extending the dataset into 2015 will shed light on the differences between LFP behavior during a stimulus response and LFP behavior during austerity.

Appendix

Table 1. Descriptive Statistics

Var Name	Variable Label	Mean	SD	Min	Max
gdp	Real GDP, Hundreds of Billions of Current US $	1.60	3.20	.0307	15.5
gdp_grow	Percentage growth in GDP since the previous year	2.078997	2.659331	-8.269037	10.83444
lfpf_ln	Female Labor Force Participation Rate (LN of the percentage)	4.201374	0.0991305	3.955083	4.350278
lfpm_ln	Male Labor Force Participation Rate (LN of the percentage)	4.372768	.0565494	4.203199	4.443827
lfp_gapln	The logged different in LFP rates between men and women	2.410726	.4695528	1.16315	3.226844
u_pct	Unemployment rate as a percentage	6.790374	2.948394	2.5	19.3
u_pct_inv	The inverse of the percentage unemployed	.1702666	.061636	.0518135	0.4
fam_cash_pc	Public expenditure on cash benefits for families, per capita	577.746	360.1613	38.16604	1713.313
fam_ben_pc	Public expenditure on services and in-kind benefits for families, per capita	380.3036	310.5962	28.54041	1179.559
matleave	Weeks of paid maternity leave available for mothers	67.22834	55.70816	0	164

patleave	Weeks of paid paternity leave available for fathers	4.416043	7.998055	0	52

Table 2. Countries

Australia
Austria
Belgium
Canada
Czech Republic
Denmark*
Finland*
France
Hungary
Ireland
Japan
New Zealand
Norway
Slovak Republic
Sweden
United Kingdom
United States

Table 3. Correlation Matrix

	gdp	gdp_grow	lfpf_ln	lfpm_ln	lfpgap_ln	u_pct
gdp_grow	-0.1126					
lfpf_ln	0.0126	-0.1339				
lfpm_ln	0.1336	-0.0554	0.6623			
lfp_gapln	0.1385	0.1375	-0.7379	-0.0313		
u_pct	-0.0785	0.0663	-0.2660	-0.4533	0.0025	
u_pct_inv	0.0114	-0.0097	0.2793	0.5096	0.0267	-0.8640
fam_cash_pc	-0.3940	-0.1543	0.3394	0.2152	-0.2452	-0.2437
fam_ben_pc	-0.1127	-0.2393	0.6343	0.2181	-0.6992	-0.2322
matleave	0.0363	-0.1349	0.0367	0.0291	-0.0014	0.0375
patleave	-0.07273	0.0237	0.0463	0.0607	0.0080	-0.0095

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	u_pct_inv	fam_cash_pc	fam_ben_pc	matleave
fam_cash_pc	0.2908			
fam_ben_pc	0.2683	0.5339		
matleave	-0.0589	-0.0301	-0.0452	
patleave	0.0472	0.0426	-0.0741	0.0301

Table 4.

Fixed Effects Regression with Robust Standard Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000784**	0.0000134	5.84	0.000
Public Spending on Family In-kind Benefits, per capita	0.0000658**	0.0000218	3.02	0.008
GDP Growth	0.0001453	0.000431	0.34	0.740
Constant	4.130757**	0.0129366	319.31	0.000

N = 187

F (3, 16) = 17.98

Prob>F = 0.000

Within R^2 = 0.5514

Between R^2 = 0.2647

Overall R^2 = 0.2775

* α=0.10 Significance

** α=0.05 Significance

Table 5.

Fixed Effects Regression with Driscoll-Kraay Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000784**	0.00000863	9.08	0.000
Public Spending on Family In-kind Benefits, per capita	0.0000658**	0.0000131	5.04	0.000
GDP Growth	0.0001453	0.0001378	1.05	0.307
Constant	4.130757**	0.004757	868.36	0.000

N = 187

F (3, 16) = 82.38

Prob>F = 0.000

Within R^2 = 0.5514

* α=0.10 Significance

** α=0.05 Significance

Table 6.

Fixed Effects Regression with Driscoll-Kraay Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000806**	8.41e-06	9.58	0.000
Public Spending on Family In-kind Benefits, per capita	0.0000652**	0.0000114	5.71	0.000
Unemployment	0.0394598	0.0275822	1.43	0.172
Constant	4.123288**	0.0041146	1,002.11	0.000

N = 187

F (3, 16) = 204.39

Prob>F = 0.000

Within R^2 = 0.5547

* α=0.10 Significance

** α=0.05 Significance

Table 7.

Fixed Effects Regression with Driscoll-Kraay Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000795**	0.00000684	11.63	0.0000
Public Spending on Family In-kind Benefits, per capita	0.0000681**	0.00000915	7.43	0.0000
Unemployment	0.0457375*	0.025775	1.80	0.092
Weeks of Paid Maternity Leave \Available to Mothers	0.0000379**	0.0000146	2.59	0.020
Constant	4.119179**	0.0042365	972.31	0.0000

N = 187

F (4, 16) = 197.81

Prob>F = 0.000

Within R^2 = 0.5634

* α=0.10 Significance

** α=0.05 Significance

Table 8.

Fixed Effects Regression with Driscoll-Kraay Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000771**	0.00000668	11.54	0.000
Public Spending on Family In-kind Benefits, per capita	0.0000752**	0.00000933	8.06	0.000
Unemployment	0.0452626	0.0270766	1.67	0.144
Weeks of Paid Maternity Leave Available to Mothers	0.0000378**	0.0000138	2.75	0.014
Weeks of Paid Paternity Leave Available to Fathers	0.0002469	0.0002365	1.04	0.312
Constant	4.116892**	0.0055315	744.27	0.000

N = 187

F (5, 16) = 1,737.64

Prob>F = 0.000

Within R^2 = 0.5705

* α=0.10 Significance

** α=0.05 Significance

Table 9.

Fixed Effects Regression with Driscoll-Kraay Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000631**	0.00000749	8.42	0.0000
Public Spending on Family In-kind Benefits, per capita	0.0000842**	0.00000550	15.31	0.0000
Unemployment	-0.042665**	0.0155288	-2.75	0.014
Weeks of Paid Maternity Leave Available to Mothers	0.0000312**	0.000014	2.22	0.041
Men's Labor Force Participation Rate, LN	0.8509895**	0.1043065	8.16	0.000
Constant	0.4169047	0.4548128	0.92	0.373

N = 187

F (5, 16) = 985.79

Prob>F = 0.000

Within R^2 = 0.6701

* α=0.10 Significance

** α=0.05 Significance

Table 10.

Fixed Effects Regression with Driscoll-Kraay Standard Errors

Dependent Variable: Women's Labor Force Participation Rate, LN

Explanatory Variables	**Correlation Coefficients**	**D-K Standard Error**	**t**	**P> |t|**
Public Spending on Family Cash Benefits, per capita	0.0000685**	.00000697	9.83	0.000
Public Spending on Family In-kind Benefits, per capita	0.0000172**	0.00000731	2.36	0.040
Inverse of the Unemployment Rate	-0.2011398**	0.0263662	-7.63	0.000
Number of Weeks of Paid Maternity Leave Available to Women	0.000026	0.0000167	1.56	0.150
Men's Labor Force Participation Rate, LN	0.8648936**	0.921308	9.39	0.000
Interaction term: (Public Spending on Family Cash Benefits, per capita) * (Inverse of the Unemployment Rate)	0.0002939**	0.0000463	6.35	0.000
Constant	0.3852425	0.4018498	0.96	0.360

N = 187

F (6,10) = 2,289.39

Prob>F = 0.0000

Within R^2 = 0.7020

* α=0.10 Significance

** α=0.05 Significance

Figure 1. Women's Labor Force Participation over Time

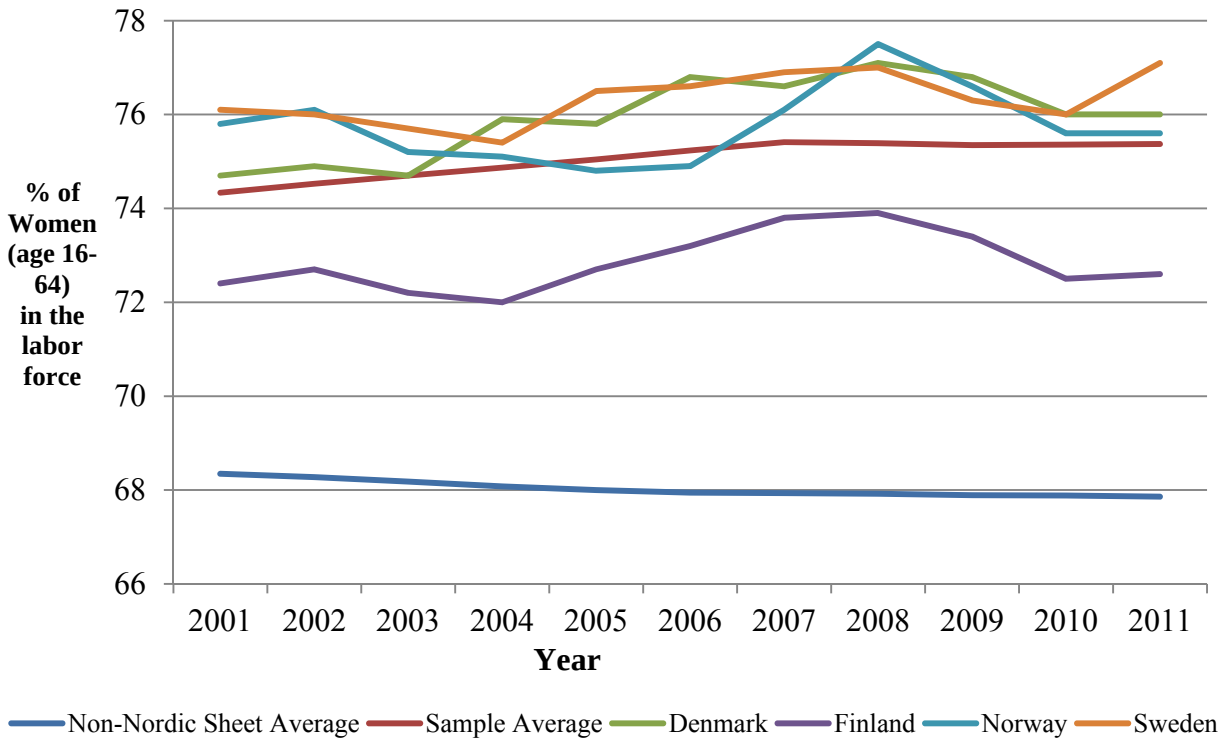


Figure 2. Public Spending on Cash Benefits to Families, per capita, over Time

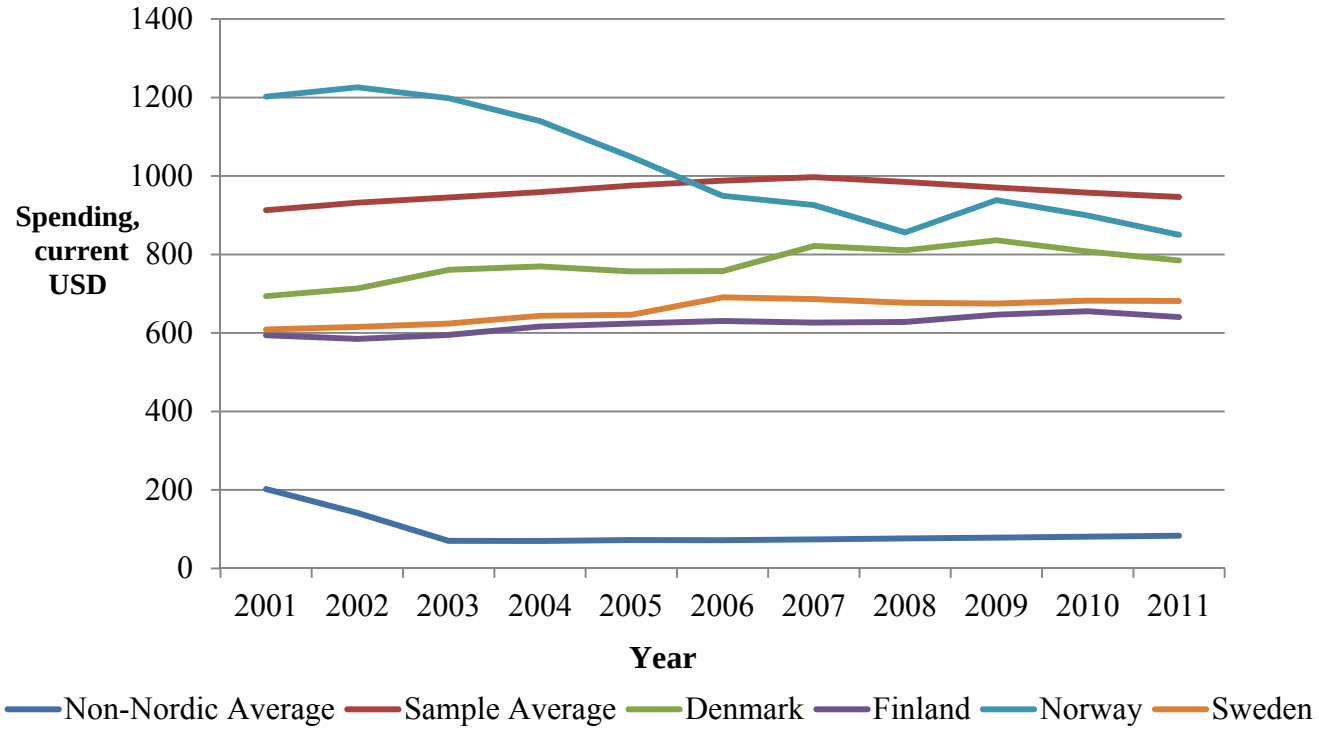
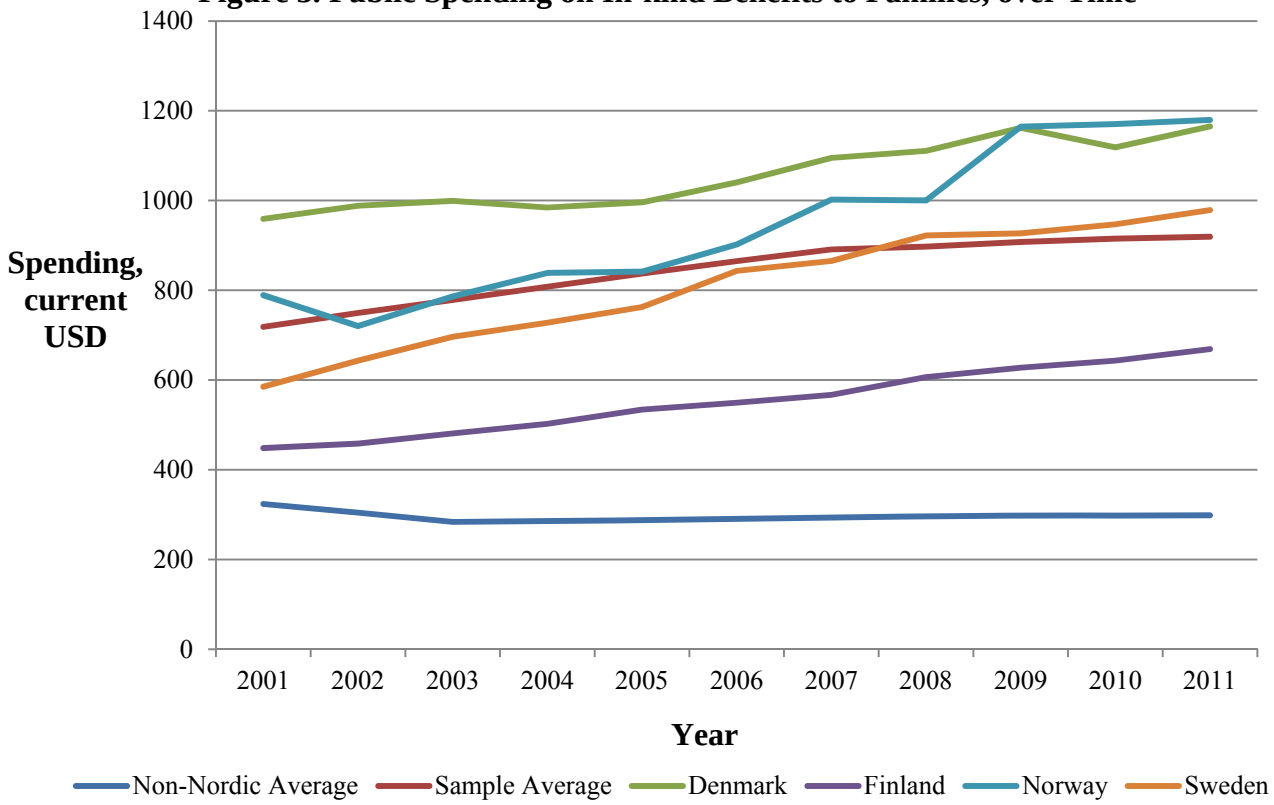


Figure 3. Public Spending on In-kind Benefits to Families, over Time



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