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Who Benefits from Social Investment? The Gendered Effects of Childcare, Employment, and Family Policies on Cardiovascular Disease in Europe

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ABSTRACT

In the context of fiscal austerity in many European welfare states, policy innovation often takes the form of "social investment," a contested set of policies aimed at strengthening labor markets and fostering gender equity. Social investment policies include employment subsidies, skills training, job-finding services, early childhood education and childcare, and public support for parental leave. Given that such policies can enhance gender equity in the labor market, we analyzed the possible effects of such policies on gender health equity. Using age- and sex-stratified data from the Global Burden of Disease Study on cardiovascular disease morbidity and mortality, and policy indicators on employment supports, childcare, and parental leave from multiple sources, we find mixed effects of social investment for men versus women. Government spending on public employment services and the percent of children in early childhood education or care are associated with lower mortality rates for men, but the associations are not significant for women. Government spending on employment training and the number of eligible weeks of paid parental leave are associated with lower mortality rates for women, but the associations are not significant for men. Government spending on paid parental leave is associated with lower mortality rates for both men and women, although with a stronger association for women. Finally, government spending on early childhood education and care is associated with lower mortality rates for both men and women equally. We discuss the implications of these effects for gender equity, and of these findings for the social investment policy turn and future research on gender health equity.

INTRODUCTION

To reduce gender inequalities in the labor market, many European states have adopted or strengthened policies that reflect a social investment approach, which refers to government regulations and expenditures expected to improve human capital and productivity (Bouget et al., 2015; Kersbergen & Hemerijck, 2012; Morel, Palier, & Palme, 2012). Its advocates argue that welfare states should move away from expensive, passive safety nets and instead support both individuals and macroeconomic performance through strengthening attachment to the paid labor market. We focus on those social investment policies intended to improve gender-equity by supporting female labor force attachment and reducing work-family strain. Specifically, several European countries adopted new policies and raised spending to support paid parental leave, public childcare for young children under the age of two, job training programs to facilitate re-entry into the paid labor market after parental leaves, and public employment services to match the short-term and long-term unemployed to job vacancies. Nevertheless, critics of the social investment approach argue that such policies have limited gender-equity effects, because paid parental leaves may still reinforce traditional gender norms or even discourage return to employment, and public employment services may benefit men disproportionately given occupational sex segregation, pay differentials, and current gender differences in labor market attachment (Jenson, 2009; Saraceno, 2015).

Social investment policies are new to several European welfare states, and their effects are only beginning to be assessed. One area that has not received attention is population health: social investment policies seek to enhance gender-equity in European labor markets, but what effects are they having on the health of men and women? Cardiovascular disease (CVD) in particular responds to employment and working conditions. Since the first Whitehall study showed

employment rank was strongly associated with CVD morbidity (Marmot et al., 1991), decades of scholarship have established a close connection between CVD and unemployment, precarious employment, and dependent working conditions (Bambra, 2011). These relationships are gendered, with rates of CVD morbidity and mortality higher amongst men but increasing amongst women, especially where high job demands are coupled with traditional gender norms of care-work in the family and low levels of public support for work-family reconciliation (National Research Council, 2011).

We draw from previous research documenting the beneficial effects of government social spending relative to health care spending on life expectancy and potential life years lost in addition to prevalence of asthma, activity limitations, and mental health (Bradley, Elkins, Herrin, & Elbel, 2011) and mortality due to myocardial infarction, lung cancer, type 2 diabetes (Bradley et al., 2016). However, to our knowledge, this article is the first study to assess the association between social investment policies that support gender-equity, and CVD morbidity and mortality among women and men using data disaggregated by age and sex (cf. Backhans, Burström, de Leon, & Marklund, 2012). Using disaggregated data for the working-age population allows us to explicitly test who benefits from the adoption of social investment policies.

This paper hypothesizes that both active labor market policy measures – by facilitating entry and continuity in paid work – and paid family and parental leave and early childhood education and care measures – by easing the burden of care-work – improve the health of women. By so doing, they may inadvertently increase gender inequalities in CVD. We model CVD morbidity and mortality, separately for women and men, as a function of three sets of indicators of social investment policy in 13 European countries for the 2005-2010 period.

BACKGROUND

CVD is the leading cause of death in the majority of wealthy countries accounting for almost 40% of total deaths – four million per year (World Health Organization, 2012). CVD is a general term that describes a disease of the heart or blood vessels. The two most common types of CVD are coronary heart disease and stroke. Coronary heart disease occurs when the flow of oxygen-rich blood to the heart is blocked or reduced by a build-up of fatty material in the two major blood vessels that supply blood to the heart. This restricts blood supply to the heart and if completely blocked, a heart attack results. Heart failure occurs when the heart's ability to pump blood is reduced. Stroke occurs when a blood vessel to the brain bursts or is blocked by a blood clot. In the European Union in 2017, CVD accounted for 22% of total deaths for men and women under age 65 (192,000) (Wilkins et al., 2017).

There is a gender divide in CVD morbidity and mortality rates: men are far more likely to die of CVD than women. For example, in the US in 2014, prevalence for heart disease among men was 11.9% and 9.1% among women while mortality rates were 210 per 100,000 among men and 130 per 100,000 among women (US Department of Health and Human Services, Centers for Disease Control, & National Center for Health Statistics, 2015). However, due to higher female life expectancy, the average patient receiving treatment for CVD is female (Rieker & Bird, 2005). Additionally, while many CVD-related morbidity and mortality causes have declined in men, they continue to rise among women (Crimmins & Beltrán-Sánchez, 2011).

There is also substantial cross-national variation in CVD morbidity and mortality (GBD 2013 Mortality and Causes of Death Collaborators, 2015; Vos et al., 2012). However, these

differences cannot be explained by country differences in social and demographic distributions, individual behaviours, or the environment. As a result, scholars have called for research on CVD morbidity and mortality that investigates *social policy* as a potential root cause of CVD risk factors and outcomes (Avendano & Kawachi, 2014; National Research Council, 2011). For example, Hedel et al. (2016) find that single-motherhood has a stronger association with stroke in the US compared to Europe; they hypothesize that this difference is due to differences in the work-family policy context in both regions, given the well-established connection between work-family strain and CVD risk factors and outcomes.

Gender gaps in CVD mask the more general paradox identified by gender health equity research. In high-income countries, men have shorter life expectancies and higher mortality rates than women across almost all causes of death and across all age-groups (Bird & Rieker, 2008). And yet, women – despite their lower mortality rates – actually report higher physical and mental morbidity across many surveys and multiple measures: women get sick, men die (Doyal, 1995; Macintyre, Hunt, & Sweeting, 1996).

Explanations for this gender health equity paradox focus on variations in the behaviour of men and women and the links with constructions of masculinity (Gkiouleka, Huijts, Beckfield, & Bambra, 2018; Hill, 2015). Men are more likely to engage in risk-taking behaviours such as excessive alcohol consumption, drug taking, or eating an unhealthy diet (Stanistreet, Bambra, & Scott-Samuel, 2005). They are also less likely to access healthcare services and more likely to present late with symptoms. Further, psychosocial theories of health suggest that men have been more exposed to the stresses and negative health effects which result from workplace hierarchies, discontinuous employment and persistent unemployment, and the need to be the main

breadwinner – all factors which are associated with an increased risk of CVD (Bambra, 2010, 2011).

We propose that these gendered risk factors may be mitigated by parental leave, early childhood education and care, and active labor market policies included in the European Commission's "Social Investment Package," which was communicated to its Member States on February 20, 2013. Drawing from the 2000 Lisbon Strategy and motivated by the needs of a globalized knowledge economy, increasing rates of precarious employment, and persistent or rising social and economic inequalities, the strategy outlined by the "Social Investment Package" aims to "[help] `prepare' people to confront life's risks, rather than simply 'repairing' the consequences" (European Commission, 2013, p. 3). The strategy adheres to three principles: First, to enact policies that invest in human capital, including early child education and care, secondary and higher education, and life-long learning and employment retraining programs. Second, to enact policies that help reconcile work and family demands, especially among women. Third, to target enacted policies toward the social inclusion of traditionally excluded groups, including the young and old, women, and racial and ethnic minorities.

We aim to evaluate the potential gender health equity effects of social investment policies. Advocates emphasize that this policy framework has potential to ameliorate gender inequalities by supporting female employment, facilitating male household labor, and enforcing antidiscrimination policies. For example, Esping-Andersen (1990, pp. 94–95) argues that the social investment strategy allows for "female life course masculinization" and for men to undertake "a more feminine life course." The set of which policies constitute a social investment policy is debated (cf. Bouget et al., 2015; Hemerijck, Dräbing, Vis, Nelson, & Soentken, 2013;

Kuitto, 2016). We do not attempt to engage that debate here but focus on proposed social investment policies and government spending categories with the greatest documented effects on gender equity (cf. Mahon, 2013): parental leave, early childhood education and care, and active labor market policies.

We use age- and sex-specific estimates of CVD morbidity and mortality, which allows us to examine who benefits from social investment, whether: women and men benefit equally, neither men nor women benefit, women benefit more than men, or men benefit more than women. We focus on gender differences in CVD for two reasons: because its association with health conditions and symptoms more frequently reported by women such as psychological distress and hypertension and because while CVD has declined in men, it has risen among women.

DATA AND METHODS

To describe associations between social investment policies and CVD morbidity and mortality for women and men, we built a novel dataset that includes sex- and age-specific morbidity and mortality rates, and indicators of social investment effort in the areas of parental leave, early childhood education, and employment services. We then estimated a series of regression models with country fixed-effects, which model over-time, within-country changes in CVD morbidity and mortality as functions of over-time, within-country changes in social investment. Below, we describe our sample, health measures, policy indicators, and estimation technique in detail.

Sample

We examine whether changes in social investment strategies – increases or decreases in social investment by the national government – are associated with changes in CVD mortality and years lived with disability (YLD) between 2005 and 2010 in 13 European countries, including:

Austria; Belgium; Denmark; Finland; France; Germany; Ireland; Italy; Netherlands; Norway; Sweden; Switzerland; and the United Kingdom. We are limited to the 2005-2010 period because of data availability on our measures of social investment, which are described below. Because social investment policies are targeted toward young families, working-age people, and older adults nearing retirement age, we exclude from our analysis morbidity and mortality rates for those under the age of 25, and over the age of 64. Rates are reported per 100,000 persons.

CVD Morbidity and Mortality

We use data from the 2015 Global Burden of Disease Study (GBD) for men and women ages 25-64 (Vos et al., 2012; Wang et al., 2016). The GBD CVD cause-group includes rheumatic and ischemic heart disease, cerebrovascular disease or aneurysm, hypertension, cardiomyopathy and myocarditis, atrial fibrillation and flutter, peripheral artery disease, and endocarditis. Rates are estimated separately for men and women in 5-year age-groups for each year and country. YLD rate estimates are provided for every 5 years (Vos et al., 2012) whereas mortality rate estimates are provided for every year (GBD 2013 Mortality and Causes of Death Collaborators, 2015; Murray et al., 2012). YLD rates are estimated by GBD using disease-specific prevalence multiplied by disability weights. Figure 1 displays the age standardized CVD YLD and mortality rates for men and women by country.

[Figure 1]

Social Investment Policy Indicators

Social investment policies refer to those programs designed to increase individuals' current and future skills and capacities on the labor market. While the subject of debate (Mahon, 2013), we define social investment policies to include those related to education and job training in addition

to early childhood education and care, with the rationale that these facilitate female labor force attachment and continuity. We use seven social investment policy indicators from three different sources, described below.

First, we use public and mandatory private spending indicators from the OECD Social Expenditure Database (SOCX) within two policy areas: family and active labor market policies (Adema, Fron, & Ladaique, 2011; Grubb & Puymoyen, 2008). We use five indicators measured per capita at constant (2010) Purchasing Power Parity (PPP) rates in US dollars, including: early childhood education and care; maternity and parental leave; public employment services (PES) and administration; employment training; and private sector employment incentives, including subsidies for private sector hiring and workers' mobility allowances.

Second, we use a parental paid leave full-time equivalent measure (FTE) from the Social Policy Indicators' (SPIN) Parental Leave Benefit Dataset (PLB), calculated as the total maternal, paternal, and dual post-delivery weeks paid leave multiplied by the weekly net replacement rate for the average production workers' wage. This results in a summary measure of family-leave generosity that captures both the percentage of wages that can be replaced by family benefits, as well as the duration of such benefits (Ferrarini, Nelson, Korpi, & Palme, 2013). Supplementary analyses not shown also control for whether each country's parental leave policy includes a provision for paternal leave in addition to maternal or dual leave. Research shows that paternal leave policies – more than dual leave policies – promote greater gender equity in care provision and decrease the burden on women (O'Brien, 2009; Ray, Gornick, & Schmitt, 2010). The results do not change.

Third, we measure the percentage of children ages two and under who are enrolled in formal childcare or pre-school. Data come from the OECD Family Database (OECD, 2017). This and all other measures of social investment used herein are publicly-available. Table 1 below describes the seven social investment policy indicators and GDP per capita pooled over countries and years.

[Table 1]

Estimation

All models include country fixed-effects. A major motivation for cross-national comparative analysis is to learn how policymakers shape health equity through social policy, but a major limitation of such analysis is national societies differ in more ways than can be incorporated into statistical analysis. To address this unmeasured heterogeneity, we estimate fixed-effects models that leverage over-time observations on the same units of analysis to simulate "control" for all the cross-national differences that are unmeasured but can be assumed to have effects that are stable over time (Halaby, 2004). Examples of such stable cross-national effects could include language, legal systems, relative population sizes, national religious norms about family formation and caregiving, and occupational sex segregation.

We estimate the association of each social investment indicator using separate regression equations, given the overlap among the measures, and the fact that our study is an initial exploration. For example, the correlation coefficient for government spending on early childhood education and care and spending on family and parental leave is 0.80. We control for gender and age and include age-by-gender and policy indicator-by-gender interactions. Because it may be associated with health and the capacity for government social investment, we control for the log

of expenditure-based real gross domestic product (GDP) in 2005 US dollars at chained PPP rates per capita from the Penn World Table Version 8.1 (Feenstra, Inklaar, & Timmer, 2013). The policy indicators and GDP are lagged one year. To compare the associations of each indicator across models, we limit our analysis to countries and years for which each indicator is available and we estimate standardized beta coefficients.

RESULTS

The coefficients of interest, the main effect of the social investment indicator and its interaction with gender, are shown in Tables 2 and 3 with their p-values. The association between the policy indicator and the health outcome for men is represented by the main effect of the policy indicator, since men are the omitted category. The association between the policy indicator and the health outcome for women is the product of the main effect of the policy indicator plus the policy-by-gender interaction term.

Table 2 displays estimates of interest for YLD; the full models, excluding the country fixed-effects, can be found in Appendix Table 1. These results show that – consistent with earlier research – women have lower CVD morbidity than men. The age effects are also consistent with earlier research and show a clear gradient of higher CVD morbidity at older ages. The results further appear show that – consistent with the hypothesis that social investment improves women's health but thereby actually decreases gender-equity – a standard deviation increase in government spending on employment incentives, early childhood education and care, and family and parental leave is associated with a higher female advantage. However, Chow tests of these policy effects for women is not statistically significant.

[Table 2]

Table 3 displays estimates of interest for mortality; the full models, excluding the country fixed-effects, can be found in Appendix Table 2. Figure 2 displays the predicted values from these models for men and women, demonstrating their positive or negative effects on gender health equity. The results from the regression models and post-estimation Chow tests show that a standard deviation increase in government spending for employment training programs and the number of eligible weeks full-time equivalent paid maternity or paternity leave are associated with lower CVD mortality for women. However, a standard deviation increase in government spending on public employment services and administration and the percent children under two in early childhood education or care are associated with lower CVD mortality for men. Additionally, a standard deviation increase in government spending for early childhood education and care is associated with lower mortality for men and women, and the interaction term shows that the association between this social investment indicator and CVD mortality among women is not different. That is, both women and men gain from government investment in early childhood education or care. Finally, the results show that a standard deviation increase in paid family and parental leave is associated with lower mortality for men and women, and the interaction term shows that the association between this social investment indicator and CVD mortality is greater among women.

[Table 3]

DISCUSSION

The beneficial effects of compensatory social policies on health are well-established, including the generosity of unemployment insurance, pension benefits, and the Earned Income Tax Credit across states within the US (Cylus & Avendano, 2017; Cylus, Glymour, & Avendano, 2015; Evans & Garthwaite, 2014) and in terms of social expenditure across different types of welfare

state (Bambra & Eikemo, 2009; Beckfield & Bambra, 2016; Eikemo, Bambra, Judge, & Ringdal, 2008). This article follows from current policy debates and extends previous research by drawing attention to health effects of social investment policies similarly not explicitly designed to increase well-being but rather to raise human capital and promote life-long labor force attachment. This paper hypothesized that both active labor market policy measures and policy measures supporting the provision of early childhood education and care improve the health of women and inadvertently decrease gender health equity. This paper shows mixed results in terms of who benefits from social investment policies and our hypothesis is only partially supported.

On the one hand, women clearly benefit. Government spending in employment training and family and parental leave and the number of eligible weeks full-time equivalent paid parental leave are associated with decreased CVD mortality for women. However, leave expenditures have a greater effect for women while training expenditures and weeks paid leave have no effect on the disease burden experienced by men and so these aspects of social investment actually increase gender inequality in cardiovascular mortality. These findings are as expected in terms of how these policies are particularly beneficial for women who have traditionally had the main care burden for young children and who are more likely to take parental leave. Social investment policies that facilitate labor market participation through training programs have previously been shown to be especially beneficial for women (Kluve, 2010). However, the magnitude of the effects is quite small (see Figure 2 panels C and F).

On the other hand, men also benefit. Government spending on public employment services and administration and percent children ages 0-2 in early childhood education and care are both associated with lower mortality for men, but these associations insignificant for women.

Additionally, government spending on early childhood education and care benefits both men and women equally. This means that increases in government spending on employment services in addition to the proportion of children in early childhood education or care has a positive effect on gender-equity in cardiovascular mortality rates while government spending on early childhood education and care has a net effect. These are unexpected findings in terms of our hypothesis and there are therefore at least two different things that require further exploration: Firstly, why do men benefit from these policies and secondly, why do women not – or experience a smaller effect, particularly for early childhood education or care?

For early childhood education and care indicators, it is possible men benefit from increased household earnings due to increased labor force attachment facilitated by children being supervised outside the home in childcare or pre-school. Additionally, while childcare provision effectively increased women's participation in paid work (Meyers, Gornick, & Ross, 1999), as a result they are then subject to the dual burden of both work and care. Further, mothers are disproportionately likely to be employed on a part-time basis across Europe and so whilst their labor market activity rates increase as a result of childcare, their earnings might actually decrease. It should also be noted that men and women in older age-groups where mortality rates are significantly higher, will not have benefited as much from social investment policies as those in younger age-groups both due to their age and the recency of these policy innovations.

These mixed results show that more research is needed using micro-level longitudinal data with finer-grained detail on both social benefit eligibility and take-up and physical and mental health outcomes across the life course. Furthermore, future work should analyze the life course timing

of exposure to social investment policies, which are heterogeneous in the ages of their target populations.

Limitations

Our objective is to evaluate gender differences in the associations between social investment policies and CVD morbidity and mortality; we interpret the results with due caution in light of the limitations of our analysis.

First, we are restricted in the number of years of data we can include in the analysis because the social investment policy strategy is relatively new, and because the creation of comparable policy indicators follows the establishment of relevant policies by several years. In future work, we will extend our analysis as data become available.

Second, we use observational, not experimental, data, and so our analyses are vulnerable to several threats to causal inference. We argue that year-to-year changes in social investment effort by the welfare state is plausibly exogenous to year-to-year changes in CVD morbidity and mortality because labor-market conditions exist outside and prior to individuals' entry into employment, and because labor-market regulations have been shown to affect individuals' labor market attachment. Nevertheless, we cannot rule out all forms of endogeneity.

Third, while our models do control for several predictors of CVD morbidity and mortality, including age, sex, and GDP per capita, our inferences would be strengthened by the inclusion of a broader range of control covariates. Unfortunately, few controls are available from the GBD data, but in our ongoing work we use individual-level data from health surveys to address other forms of residual confounding. Still, we emphasize that our fixed-effects estimates can be

interpreted as net of very general ceteris paribus conditions, where all between-country differences that do not change over time in their levels (or, equivalently, in their effects) are held constant.

Fourth, we use data that are aggregated into age-by-sex-by-country-by-year categories, which means that we cannot draw inferences about processes or associations at the individual level. In our ongoing work, we use individual-level data to measure processes and associations at this level of analysis. For the present paper, we note that an aggregated approach fits with our overarching aim of evaluating inequality in the health effects of social investment policies by gender – an inherently aggregated question.

Fifth, since the data are cross-sectional, we are unable to explore the possibility that social investment policy associations with CVD morbidity and mortality may vary by the timing of exposure or accumulate over the length of exposure. We view our estimates as conservative, since the immediate effects of social investment should be smaller than the accumulated long-term and asynchronous effects of sensitive-period in later life. However, these conservative estimates offer important insights for CVD among working-age populations, among whom it is a leading cause of morbidity and mortality.

CONCLUSION

Many European governments have enhanced citizenship rights and committed substantial spending in the domains of early childhood education and childcare, job creation, and paid parental leaves. Advocates of such social investment policies argue that these policies should enhance gender-equity by enhancing female labor market power and reducing the gendered burden of care-work in families. In this article, we have contributed to the debate surrounding

social investment policies by exploring the implications of social investment for the cardiovascular health of women and men and corresponding gender health equity. In doing so, we advance a recent turn in social epidemiology toward social policy and institutional factors in explaining the distribution of population health (Beckfield et al., 2015). We find that social investment policies are associated with reduced mortality for both women and men. These policies are also associated with reduced morbidity, but only for women.

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APPENDIX

Appendix Table 1. Standardized Beta Coefficients from OLS Regression Models Predicting CVD YLD Rate per 100,000 in 13 European Countries, 2005 and 2010

VARIABLES	(1) ALMP PES Spending	(2) ALMP Private Sector Incentive Spending	(3) ALMP Training Spending	(4) % Ages 0-2 in Education or Childcare	(5) ECEC Spending	(6) FTE Paid Parental Leave	(7) Family and Parental Leave Spending
Women	4.580	12.09	1.381	23.53*	36.59***	12.64	21.84**
	(12.60)	(10.53)	(11.56)	(13.72)	(11.53)	(10.58)	(10.32)
Ages 30-34	23.68**	23.68**	23.68**	23.14**	23.68**	23.68**	23.68**
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Ages 35-39	54.59***	54.59***	54.59***	53.72***	54.59***	54.59***	54.59***
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Ages 40-44	116.3***	116.3***	116.3***	114.8***	116.3***	116.3***	116.3***
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Ages 45-49	213.8***	213.8***	213.8***	210.7***	213.8***	213.8***	213.8***
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Ages 50-54	386.4***	386.4***	386.4***	381.1***	386.4***	386.4***	386.4***
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Ages 55-59	633.1***	633.1***	633.1***	625.9***	633.1***	633.1***	633.1***
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Ages 60-64	997.9***	997.9***	997.9***	989.7***	997.9***	997.9***	997.9***
	(9.895)	(9.771)	(9.895)	(10.27)	(9.490)	(9.765)	(9.503)
Women X Ages 30-34	-8.501	-8.501	-8.501	-8.288	-8.501	-8.501	-8.501
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Women X Ages 35-39	-21.08	-21.08	-21.08	-20.80	-21.08	-21.08	-21.08
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Women X Ages 40-44	-41.29***	-41.29***	-41.29***	-41.04***	-41.29***	-41.29***	-41.29***
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Women X Ages 45-49	-77.81***	-77.81***	-77.81***	-76.91***	-77.81***	-77.81***	-77.81***
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Women X Ages 50-54	-158.7***	-158.7***	-158.7***	-156.7***	-158.7***	-158.7***	-158.7***
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Women X Ages 55-59	-260.5***	-260.5***	-260.5***	-258.0***	-260.5***	-260.5***	-260.5***
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Women X Ages 60-64	-407.6***	-407.6***	-407.6***	-405.6***	-407.6***	-407.6***	-407.6***
	(13.99)	(13.82)	(13.99)	(14.52)	(13.42)	(13.81)	(13.44)
Log GDP	-68.85	-76.04	-75.32	-114.0	-77.86	-57.51	-71.22
	(60.44)	(55.07)	(55.75)	(110.2)	(83.72)	(63.33)	(53.76)
Indicator	-0.0242	0.136	-0.0458	0.713	0.0594	0.133	-0.0503
	(0.166)	(0.318)	(0.0867)	(0.941)	(0.0521)	(0.562)	(0.131)
Women X Indicator	-0.0524	-0.211***	-0.0117	-0.653***	-0.116***	-0.913***	-0.161***
	(0.0902)	(0.0688)	(0.0527)	(0.248)	(0.0208)	(0.295)	(0.0299)
Constant	760.7	828.1	834.7	1,217	835.4	634.9	782.2
	(627.7)	(575.9)	(582.6)	(1,141)	(869.5)	(662.0)	(561.2)
Observations	384	384	384	384	384	384	384
R-squared	0.929	0.928	0.928	0.928	0.930	0.928	0.929
Country FE	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 The reference category for gender is men. The reference category for age-group is Ages 25-29. PES = public employment services; ECEC = early childhood education and care.

Appendix Table 2. Standardized Beta Coefficients from OLS Regression Models Predicting CVD Mortality Rate per 100,000 in 13 European Countries, 2005-2010

VARIABLES	(1) ALMP PES Spending	(2) ALMP Private Sector Incentive Spending	(3) ALMP Training Spending	(4) % Ages 0-2 in Education or Childcare	(5) ECEC Spending	(6) FTE Paid Parental Leave	(7) Family and Parental Leave Spending
Women	-10.43**	-4.159	5.375	-19.34***	-4.292	0.292	2.471
	(4.518)	(3.713)	(4.083)	(4.678)	(4.217)	(3.781)	(3.731)
Ages 30-34	3.295	3.295	3.295	3.270	3.295	3.295	3.295
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Ages 35-39	11.58***	11.58***	11.58***	11.52***	11.58***	11.58***	11.58***
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Ages 40-44	28.45***	28.45***	28.45***	28.32***	28.45***	28.45***	28.45***
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Ages 45-49	61.24***	61.24***	61.24***	60.99***	61.24***	61.24***	61.24***
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Ages 50-54	115.1***	115.1***	115.1***	114.9***	115.1***	115.1***	115.1***
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Ages 55-59	194.1***	194.1***	194.1***	194.2***	194.1***	194.1***	194.1***
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Ages 60-64	323.3***	323.3***	323.3***	322.9***	323.3***	323.3***	323.3***
	(3.446)	(3.460)	(3.447)	(3.511)	(3.452)	(3.455)	(3.435)
Women X Ages 30-34	-1.766	-1.766	-1.766	-1.766	-1.766	-1.766	-1.766
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Women X Ages 35-39	-7.168	-7.168	-7.168	-7.154	-7.168	-7.168	-7.168
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Women X Ages 40-44	-18.19***	-18.19***	-18.19***	-18.16***	-18.19***	-18.19***	-18.19***
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Women X Ages 45-49	-40.56***	-40.56***	-40.56***	-40.50***	-40.56***	-40.56***	-40.56***
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Women X Ages 50-54	-78.74***	-78.74***	-78.74***	-78.75***	-78.74***	-78.74***	-78.74***
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Women X Ages 55-59	-134.0***	-134.0***	-134.0***	-134.3***	-134.0***	-134.0***	-134.0***
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Women X Ages 60-64	-213.5***	-213.5***	-213.5***	-213.6***	-213.5***	-213.5***	-213.5***
	(4.873)	(4.894)	(4.875)	(4.966)	(4.882)	(4.886)	(4.858)
Log GDP	-35.94**	-47.31***	-46.61***	-29.88*	-23.87	-36.77***	-37.75***
	(14.07)	(13.04)	(12.98)	(15.68)	(15.47)	(13.82)	(13.22)
Indicator	-0.190***	-0.0244	-0.0214	-0.513***	-0.0608***	-0.477*	-0.222***
	(0.0695)	(0.137)	(0.0399)	(0.196)	(0.0207)	(0.248)	(0.0685)
Women X Indicator	0.0980***	0.0446*	-0.0627***	0.476***	0.00830	-0.140	-0.0314***
	(0.0329)	(0.0245)	(0.0193)	(0.0835)	(0.00780)	(0.107)	(0.0109)
Constant	393.4***	499.8***	495.7***	328.4**	262.3	387.2***	410.9***
	(145.6)	(136.4)	(135.8)	(163.0)	(160.5)	(144.6)	(137.5)
Observations	1,184	1,184	1,184	1,120	1,184	1,184	1,184
R-squared	0.947	0.946	0.947	0.947	0.946	0.946	0.947
Country FE	YES	YES	YES	YES	YES	YES	YES

Standard errors in parentheses. *** p<0.01, ** p<0.05, * p<0.1 The reference category for gender is men. The reference category for age-group is Ages 25-29. PES = public employment services; ECEC = early childhood education and care.

TABLES AND FIGURES

Table 1: Macro-Level Measures of Social Investment and GDP, 13 European Welfare States, 2005-2010

Indicator	Mean	Standard Deviation	Minimum	Maximum
Public Employment Services and Administration Spending	92.19	36.87	31.07	164.87
Employment Incentive Spending	55.11	51.15	4.35	204.10
Training Spending	114.48	66.28	6.01	274.56
% Ages 0-2 in Early Childhood Education and Care	37.73	15.10	9.70	66.40
Early Childhood Education and Care Spending	324.30	160.11	113.09	710.80
Weeks Full-time Equivalent Paid Leave	14.99	11.61	0.00	43.00
Paid Leave Spending	136.36	111.00	0.00	384.41
Expenditure-Based Real GDP per Capita	35529.92	5407.225	28351.94	53772.11

Notes: Authors' analysis of macro-level data pooled for 13 European Welfare States from 2005 to 2010 using the following sources: (1) the OECD Social Expenditure Database (SOCX); (2) the OECD Family Database; (3) the Social Policy Indicators' (SPIN) Parental Leave Benefit Dataset (PLB); (4) the Penn World Table Version 8.1. Spending indicators are measured in 2010 US dollars at constant Purchasing Power Parity (PPP) rates per capita. GDP is measured in 2005 US collars at chained PPP rates per capita. In all regression analyses in Tables 2 and 3, we lag the measures and log GDP per capita.

Table 2: Standardized Beta Coefficients for Effects of Social Investment Policy Indicators for Men and Women from Regression Models Predicting CVD YLD Rate per 100,000 in 13 European Countries, 2005 and 2010

Variables	Coefficient Estimate	Standard Error	P-Value	Chow Test P-Value
PES and Administration Spending				
Indicator	-0.024	0.166	0.884	0.644
Women ×Indicator	-0.052	0.090	0.561	
Employment Incentive Spending				
Indicator	0.136	0.318	0.670	0.812
Women × Indicator	-0.211	0.069	0.002**	
Employment Training Spending				
Indicator	-0.046	0.087	0.598	0.507
Women × Indicator	-0.012	0.053	0.824	
% Ages 0-2 in ECEC				
Indicator	0.713	0.941	0.449	0.948
Women ×Indicator	-0.653	0.248	0.009**	
ECEC Spending				
Indicator	0.059	0.052	0.255	0.276
Women × Indicator	-0.116	0.021	0.000***	
Weeks Full-time Equivalent Paid Leave				
Indicator	0.133	0.562	0.812	0.166
Women × Indicator	-0.913	0.295	0.002**	
Paid Leave Spending				
Indicator	-0.050	0.131	0.701	0.107
Women × Indicator	-0.161	0.030	0.000***	

Notes: PES = public employment services; ECEC = early childhood education and care. The table reports standardized beta coefficients and p-values from seven separate linear regression models, one for each social investment indicator. The models regress CVD YLD rate on age, gender, the social investment indicator lagged one year, log GDP per capita lagged one year, and country fixed effects with age-by-gender and indicator-by-gender interactions. GDP and the indicator are each lagged by a year in all models. The coefficients for the main effect of the social investment indicator and the coefficient for the indicator-by-gender interaction are presented. Men are the reference category. The association with CVD for men is captured by the indicator main effect. The Chow test column displays the two-sided p-value for the association for women. Full results, excluding country fixed-effects, are presented in Appendix Table 1. Observations are country-year-age-sex groups. *** p<0.01, ** p<0.05, * p<0.1

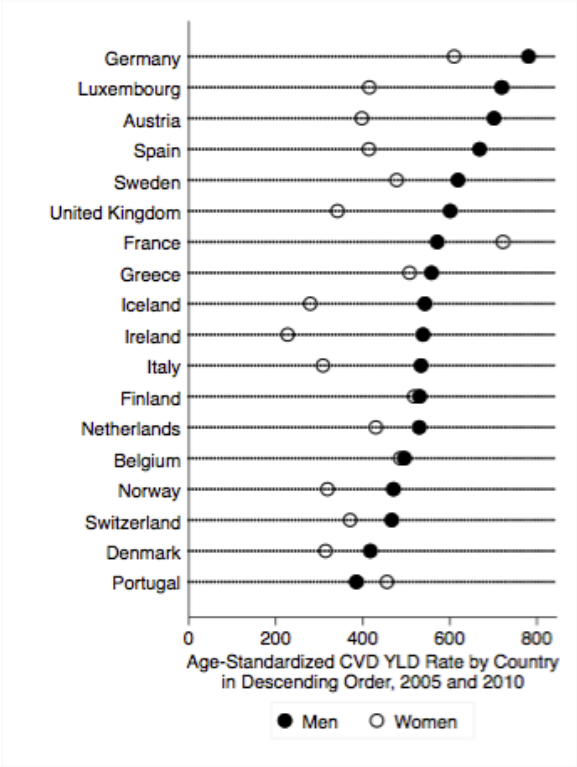
Table 3: Standardized Beta Coefficients for Effects of Social Investment Policy Indicators for Men and Women from Regression Models Predicting CVD Mortality Rate per 100,000 in 13 European Countries, 2005-2010

Variables	Coefficient Estimate	Standard Error	P-Value	Chow Test P-Value
PES and Administration Spending				
Indicator	-0.190	0.070	0.006**	0.187
Women ×Indicator	0.098	0.033	0.003**	
Employment Incentive Spending				
Indicator	-0.024	0.137	0.859	0.883
Women × Indicator	0.045	0.025	0.070*	
Employment Training Spending				
Indicator	-0.021	0.040	0.592	0.035**
Women × Indicator	-0.063	0.019	0.001**	
% Ages 0-2 in ECEC				
Indicator	-0.513	0.196	0.009**	0.852
Women ×Indicator	0.476	0.084	0.000***	
ECEC Spending				
Indicator	-0.061	0.021	0.003**	0.011**
Women × Indicator	0.008	0.008	0.287	
Weeks Full-time Equivalent Paid Leave				
Indicator	-0.199	0.157	0.207	0.036**
Women × Indicator	-0.132	0.107	0.217	
Paid Leave Spending				
Indicator	-0.222	0.068	0.001**	0.000***
Women × Indicator	-0.031	0.011	0.004**	

Notes: PES = public employment services; ECEC = early childhood education and care. The table reports standardized beta coefficients and p-values from seven separate linear regression models, one for each social investment indicator. The models regress CVD mortality rate on age, gender, the social investment indicator lagged one year, log GDP per capita lagged one year, and country fixed effects with age-by-gender and indicator-by-gender interactions. GDP and the indicator are each lagged by a year in all models. The coefficients for the main effect of the social investment indicator and the coefficient for the indicator-by-gender interaction are presented. Men are the reference category. The association with CVD for men is captured by the indicator main effect. The Chow test column displays the two-sided p-value for the association for women. Full results, excluding country fixed-effects, are presented in the Appendix Table 1. Observations are country-year-age-sex groups. *** p<0.01, ** p<0.05, * p<0.1

Figure 1. Age-Standardized CVD YLD and Mortality Rates for Men and Women in 13 European Countries

1.A. CVD YLD Rate



1.B. CVD Morality Rate

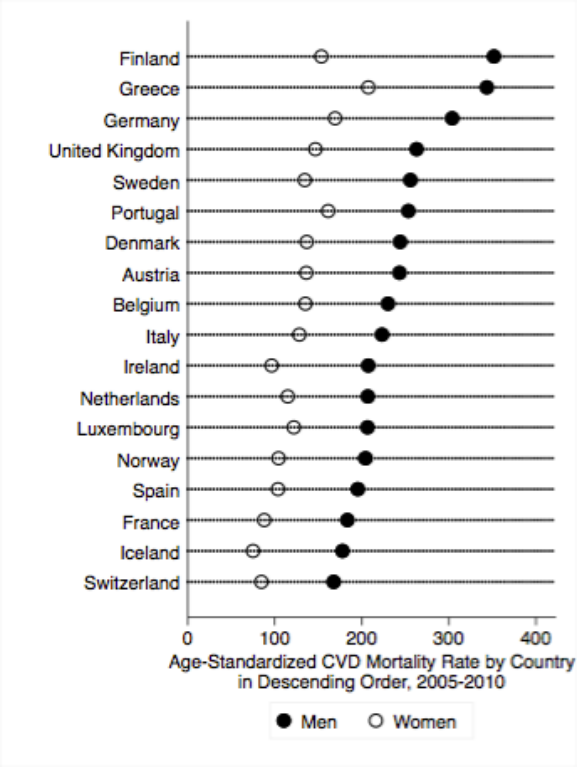
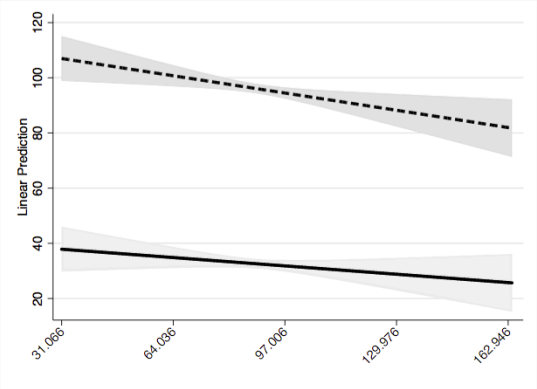
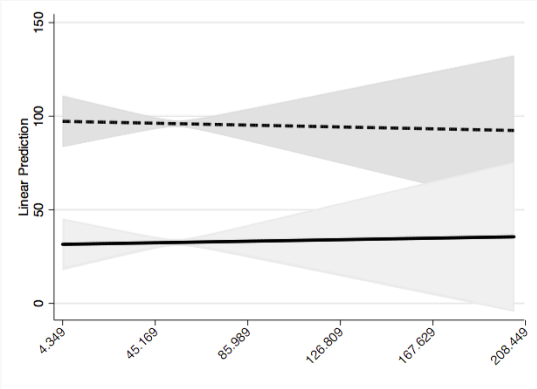


Figure 2. Predictive Margins for CVD Mortality Rate per 100,000 in 13 European Countries, 2005- 2010 with 95% Confidence Intervals

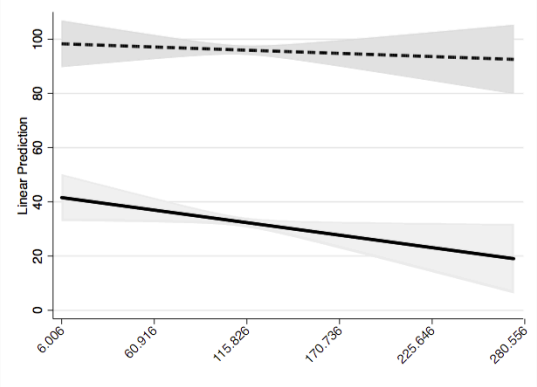
A. PES and Administration Spending



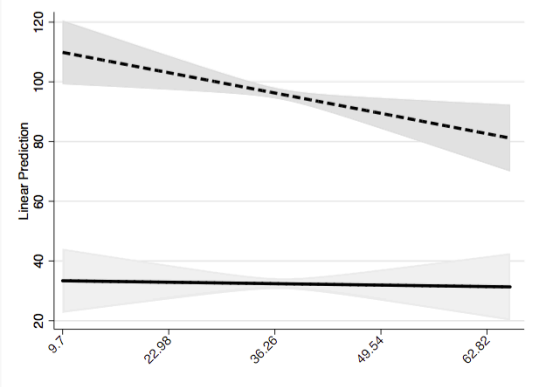
B. Employment Incentive Spending



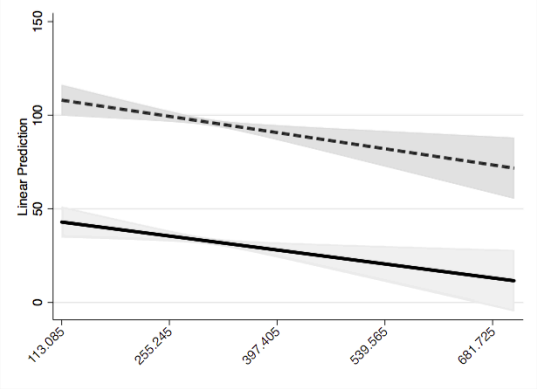
C. Employment Training Spending



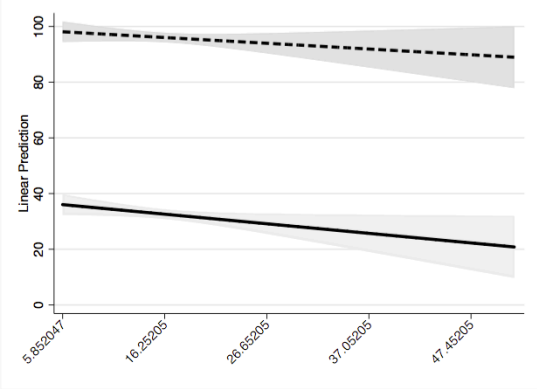
D. % Ages 0-2 in Early Childhood Education and Care



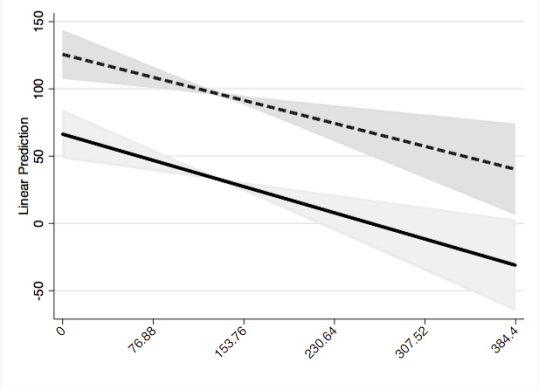
E. Early Childhood Education and Care Spending



F. Weeks Full-time Equivalent Paid Parental Leave



G. Paid Parental Leave Spending



Notes: Predicted margins for women denoted by a solid line; predicted margins for men denoted by a dashed line. PES = public employment services. Margins predicted using estimated models in Table 3. Covariates held at their means.