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More than just Nickels and Dimes: A Cross-National Analysis of Working Poverty in Affluent Democracies

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WORKING POVERTY IN AFFLUENT DEMOCRACIES***

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ABSTRACT

Despite its centrality to contemporary inequality, working poverty is often popularly discussed but rarely studied by sociologists. Using the Luxembourg Income Study, we analyze whether an individual is working poor across 18 affluent democracies circa 2000. We demonstrate that working poverty does not simply mirror overall poverty and that there is greater cross-national variation in working than overall poverty. We then examine four explanations for working poverty: demographic characteristics, economic performance, unified theory, and welfare generosity. We utilize Heckman probit models to jointly model the likelihood of employment and poverty among the employed. Our analyses provide the least support for the economic performance explanation. There is modest support for unified theory as unionization reduces working poverty in some models. However, most of these effects appear to be mediated by welfare generosity. More substantial evidence exists for the demographic characteristics and welfare generosity explanations. An individual's likelihood of being working poor can be explained by a) a lack of multiple earners or other adults in one's household, low education, single motherhood, having children and youth; and b) the generosity of the welfare state in which he or she resides. Also, welfare generosity does not undermine employment and reduces working poverty even among demographically vulnerable groups. Ultimately, we encourage a greater role for the welfare state in debates about working poverty.

MORE THAN JUST NICKELS AND DIMES: A CROSS-NATIONAL ANALYSIS OF WORKING POVERTY IN AFFLUENT DEMOCRACIES

Relative to most social problems, the working poor stand out for attracting a great deal of journalistic attention (e.g. Ehrenreich 2001; Shipler 2004) without a corresponding extensive sociological literature. Indeed, to the best of our knowledge, no article on the working poor has ever appeared in sociology's leading generalist journals.¹ There has been a modest literature on the working poor (e.g. Andress and Lohmann 2008; Blank et al. 2006; DeFina 2007; Gleicher and Stevans 2005; Hauan et al. 2000; Iceland and Kim 2001; Joassart-Marcelli 2005; Lohmann 2009; Munger 2002; Newman 1999; Newman and Chen 2007), and studies of low-wage workers or welfare certainly should inform studies of working poverty. However, as Zuberi (2006:16) remarks, "The sociology of the working poor is. . .underdeveloped." In contrast, sociologists have produced dramatically more research on welfare, single mother and concentrated inner-city poverty (O'Connor 2000).

This would not be problematic if the working poor were a particularly small or idiosyncratic segment of the poor. Yet, the working poor might actually be the most typical poor (Blank 1997; Newman 1999). In the U.S., there are more than twice as many people in working poor households as in single mother poor households, and more than four times as many as in poor households where no one is employed. In 2000, more than 11% of the U.S. population resided in poor households with at least one employed person, while only 4.1% resided in poor single mother households and 2.6% resided in poor households with no one employed. The U.S.

¹ Specifically, we are referring to *American Sociological Review*, *American Journal of Sociology*, *Social Forces*, or *Social Problems*. The only possible exceptions are Harris (1993) and Lichter (1988). Both are relevant, nevertheless, their questions and measures were quite distinct. Even among recent cross-national poverty research by American sociologists (e.g. Brady 2009; Brady et al. 2009), no study analyzes working poverty. It should be noted that European scholars have been ahead of U.S. scholars in studying working poverty (see e.g. Andress and Lohmann 2008; Lohmann 2009). This is striking because, as we show, working poverty is far more prominent in the U.S. (even compared to high U.S. overall poverty).

is not anomalous in this regard, as there is more working than unemployed poverty in 14 of the 18 affluent democracies in our study.²

Working poverty is also theoretically salient. Many conclude that employment is a key path for escaping poverty (Harris 1993), and boosting employment is essential for reducing inequality (Bluestone and Harrison 2000). Households containing employed people are far less likely to be poor (Hills 2004; Lohmann 2009). As Rainwater and Smeeding (2004:133) claim, “The most important step in reducing poverty among children is to ensure that at least one parent is employed.” Wilson (1996) even explains concentrated inner-city poverty as the result of *When Work Disappears*. Thus, that people are employed and still poor represents a critical puzzle. Moreover, working poverty speaks to growing and cross-national differences in inequality, as well as important transformations in the workplace (Kalleberg 2007).

The literature on working poverty is almost entirely comprised of case studies of individual countries (e.g. Andress and Lohmann 2008); examinations of demographics or economic performance in the U.S. (e.g. Blank et al. 2006); analyses of select groups in the U.S. (e.g. Hauan et al. 2000); or ethnographies in one (e.g. Newman 1999) or two countries (Zuberi 2006). Utilizing the Luxembourg Income Study (LIS), our study analyzes individual- and country-level predictors of working poverty across 18 affluent democracies circa 2000.

We advance the literature in at least three important ways. First, we compare the evidence for a much broader range of theoretical explanations. Previous studies often fail to explicitly offer any theory of working poverty and/or concentrate on one or two specific explanations. In turn, we aim to provide the most rigorous assessment to date of four plausible explanations for working poverty. Second, we incorporate the broadest cross-national scope of

² The exceptions are Australia, Belgium, Ireland, and the U.K. These estimates use the Luxembourg Income Study and population weights (see Methods below). The unemployed poor include those where the household head is working-aged but no household member is employed.

any study on working poverty. A cross-national comparison has three potential advantages over U.S.-specific research on the working poor. First, this provides a more rigorous test of the generalizability of individual characteristics associated with working poverty. While previous studies have identified relevant demographic characteristics, it remains unclear as to whether these are associated with working poverty in a broader cross-national sample. Second, a cross-national analysis allows us to examine substantial variation in economic and institutional contexts. Whereas there is some variation across U.S. states, there are much broader differences across affluent democracies. Third, a cross-national analysis guards against the potential dilemmas of examining only the U.S., which is arguably unusual among affluent democracies. In the one truly cross-national study we could find, Lohmann (2009) examines working poverty across Europe. Despite his clear contributions, we aim to improve and build upon his study in a variety of important ways while incorporating non-European countries. Third, we provide the first analysis to scrutinize selection into employment along with poverty among the employed. Specifically, we utilize Heckman probit models to predict whether at least one member of the household is employed and, if so, whether the household is poor.

EXPLANATIONS FOR WORKING POVERTY

Demographic Characteristics

Perhaps the conventional approach to working poverty is to draw on the demographic literature that identifies the characteristics associated with poverty (Blank et al. 2006; Gleicher and Stevans 2005; Iceland and Kim 2001). Although mostly seeking to explain poverty overall, much can be learned from a household's employment, education, family structure and age composition. This demographic characteristics (henceforth "demographic") approach parallels

status attainment research in sociology, and seeks to identify vulnerable family or employment positions that disadvantage the poor relative to the non-poor (Brady et al. 2009).

Recent research suggests some consensus on which demographic characteristics are most consequential (Blank 1997; Iceland 2003). Individuals in single-mother families, individuals who are old, young or women, or who experience parenthood early in life are more likely to be poor (Lichter et al. 2003). The argument has been that these households have a disproportionate ratio of dependents to earners, and it is harder to avoid poverty at the beginning and end of the life cycle (Rank 2005). In tandem, those with less human capital are less competitive in the labor market, have lower earnings, and are more prone to working poverty (Hauan et al. 2000), particularly for male workers in poor urban areas (Newman 2006). Sawhill (2003:83) summarizes: “Those who graduate from high school, wait until marriage to have children, limit the size of their families, and work full-time will not be poor.”

Plausibly, these same characteristics may describe the working poor across affluent democracies. Evidence suggests that the working poor (BLS 2007; Kalleberg 2007; Lohmann 2009) and low-wage workers (Kalleberg 2007; Lucifora et al. 2005) are disproportionately female, less educated and with children. Newman (1999:42) explains, “The nation’s young, its single parents, the poorly educated, and minorities are more likely than other workers to be poor.” Newman expands that single mothers reflect the dual burdens of being female in the labor market and the risks of lacking a second earner (male or female). Similarly, studies suggest that acquiring more education is a principal path for exiting working poverty (Newman and Chen 2007) or welfare among single mothers (Harris 1993).

Nevertheless, extant studies have not sufficiently explored the precise questions of our analysis. Importantly, this literature has not empirically tested whether these characteristics are

consequential for working poverty in a heterogeneous cross-national sample including the U.S. Although some (Heuveline and Weinshenker 2008; Rainwater and Smeeding 2004) examine the cross-national generalizability of demographic predictors, little research has focused on the working poor (Lohmann 2009). As well, relatively few studies investigate how demographics may be moderated by state and labor market institutions (Gornick 2004; Rainwater and Smeeding 2004). Finally, studies rarely explicitly compare the evidence for the demographic explanation against alternative explanations.

Economic Performance

A long research tradition examines how macroeconomic conditions shape trends in poverty (Blank et al. 2006; Freeman 2001; Gundersen and Ziliak 2004). When economic growth is higher and unemployment is lower, poverty is expected to decline. By raising demand for workers, economic growth increases the earnings of the poor and lifts households out of poverty (Newman 2006). Greater unemployment depresses the earnings of the employed, which should contribute to working poverty. Several scholars have explicitly argued that economic performance is the *most* important determinant of poverty (Blank 2000; Freeman 2001). Although this literature has typically concentrated on overall poverty, it is reasonable to expect that working poverty should be even more sensitive to the business cycle because earnings are a more crucial source of income for the working poor (i.e. compared to the elderly or unemployed) (esp. Blank et al. 2006).³

³ Much of this literature relies upon the official U.S. measure of poverty, a highly criticized measure (see Brady 2003) that we do not use. Many studies question how robust the effects of economic performance are with alternative poverty measures (e.g. DeFina 2002). Economic performance proponents have acknowledged the limitations of the official measure and that alternatives would be preferable, and even advocated for abandoning it (cf. Blank 1997, 2000). Importantly, however, economic performance proponents have claimed that their findings should apply to alternative measures, and have expressed confidence in the robustness of their results (Freeman 2001:480).

Although sociologists focus less on economic performance as a cause of poverty, several conclude that poverty responds to macroeconomic conditions (Iceland 2003). More often, sociologists support the related point that working poverty is a function of service sector employment (Newman 1999; Rank 2005). Following Wilson's (1996) emphasis on the role of deindustrialization in inner-city poverty, many show how the decline of manufacturing has undermined the standing of less skilled workers and contributed to working poverty (Blank et al. 2006; Cormier and Craypo 2000; Newman 2006) and lower wages (Lucifora et al. 2005). For example, Kalleberg (2007) argues that raising the skills of low-wage workers is not a sufficient anti-poverty strategy because the service sector simply fails to produce secure, well-paid jobs.

In sum, the economic performance explanation expects economic growth and manufacturing employment to be negatively associated with working poverty, and unemployment to be positively associated. Moreover, economic performance should matter to working poverty by influencing the likelihood of employment. To the best of our knowledge, only a few have assessed this explanation for working poverty (Blank et al. 2006; Lohmann 2009). As with the demographic explanation, the effects of economic performance are rarely tested outside the U.S. Moreover, and despite claims of the paramount role of economic performance, this account is rarely empirically compared against alternative explanations.

Unified Theory

In recent years, something like a consensus has emerged regarding the differences between European and U.S. labor markets. Exemplified by Blau and Kahn (2002), many have promoted "unified theory" to emphasize how institutions explain these differences. This theory contends that labor markets tend to be either efficient or egalitarian. Efficient labor markets typically feature flexibility, low unemployment and higher economic growth, and facilitate the

rapid hiring and firing of workers. Egalitarian labor markets are bolstered by strong labor market institutions, higher wages, and greater security (Gautie and Schmitt 2009; Pontusson 2005).

Both models have tradeoffs. The flexible model, exemplified by the U.S., lacks protective institutions like unions, and has greater poverty and inequality (Kalleberg 2007). The egalitarian model, exemplified by much of Europe, purportedly has slower economic growth, higher unemployment, labor market rigidity, and inhibits the entry of young workers (Pontusson 2005).

Blau and Kahn (2002) provide evidence that European labor markets are more centralized, have more extensive public employment systems, and more regulated employment contracts and protections. These institutional differences, in turn, are a key source of cross-national differences in earnings inequality (Pontusson 2005). Although this literature has predominantly focused on inequality and unemployment, scholars have implied that these institutional differences may account for patterns in low-wage work (Gautie and Schmitt 2009; Lucifora et al. 2005) and poverty (Plasman and Rycx 2001). Thus, one may expect that egalitarian labor markets remove the least skilled and least employable from the labor market. Those workers are more likely to be unemployed, or to opt to accept generous unemployment benefits instead of low-wage jobs. Egalitarian labor markets ensure that all workers receive at least moderate earnings partly because skilled workers are more likely to be employed, and partly because workers are protected by labor market institutions and/or are employed in the public sector (Gautie and Schmitt 2009). By contrast, flexible labor markets should force less skilled workers into jobs, many of which are low-wage and fail to guarantee a non-poor existence. Because flexible labor markets emphasize the quantity of jobs over the quality of employment, more working poverty should result.

Unified theory implies the opposite hypothesis regarding unemployment as the economic performance explanation. Because there is purportedly a tradeoff between inequality and unemployment, greater unemployment should be associated with lower working poverty. Further, public employment systems should reduce working poverty. Finally, working poverty should be less likely where labor market institutions like unionization, wage centralization and employment protections are present. This is because labor market institutions should reduce the likelihood of employment, and unemployment not working poverty should be the expected outcome in countries with generous welfare states and strong labor market institutions.

Welfare Generosity

Several recent studies have examined cross-national patterns in poverty and concluded that differences in poverty between the U.S. and other countries can be explained by the welfare state (Rainwater and Smeeding 2004). More generally, welfare generosity explains much of the cross-national and historical variation in poverty and inequality (Brady 2009; Brady et al. 2009; DeFina and Thanawala 2003; Hills 2004; Korpi and Palme 1998; Moller et al. 2003; Scruggs and Allan 2006). For example, Lohmann (2009) finds that welfare benefits explain differences in working poverty across Europe. Based on a comparative ethnography of Vancouver and Seattle, Zuberi (2006) concludes that a complex of integrated welfare programs provides crucial protection for the working poor in Canada but not the U.S.

Welfare states reduce poverty because of two key mechanisms: risk management and organizing the distribution of economic resources (Esping-Andersen 1999). First, welfare states are collective insurance programs that protect against risks like single parenthood (Rank 2005). Second, by influencing the rules of exchange between workers and business, regulating markets, providing public goods like healthcare, and creating jobs, welfare states are involved in all

aspects of the distribution of economic resources. Poverty is less common where people are protected against risks, and economic resources are distributed more evenly.

To assess both mechanisms fully, it is essential to define the welfare state comprehensively, encompassing spending, transfers, and services (Brady 2009). The welfare state does more than directly provide assistance in times of need, and welfare services may be equally as important as transfers (Huber and Stephens 2001). For example, because publicly funded health care is expensive, it de facto requires larger government budgets and higher taxes on households above the median. The higher taxes and large budgets end up redistributing resources downward in the income distribution because the poor disproportionately collect more services and pay fewer taxes (Blank 1997; Korpi and Palme 1998). Often unlike transfers, welfare services are granted universally as citizenship rights in generous welfare states. Such citizenship rights minimize the costs of unfortunate events and prevent descents into poverty. As a result, welfare services enhance the earning power and employment stability of workers and, thus may reduce working poverty.

Variation in welfare generosity may explain cross-national differences in working poverty, even net of demographics and economic performance. Somewhat in contrast to unified theory, this explanation does not presume social policy reduces working poverty by encouraging exit from employment. Following power resources theory, the welfare generosity explanation views labor market institutions as important mainly for encouraging the development of generous welfare states (Brady et al. 2009; Hicks 1999; Huber and Stephens 2001) – not because labor market institutions have direct effects on working poverty.

With the exception of a few (e.g. Lohmann 2009; Zuberi 2006) however, previous cross-national studies have neglected working poverty (although a few analyze working-aged poverty,

Brady et al. 2009; Moller et al. 2003). On one hand, working poverty represents a serious challenge for this literature because poverty is most prevalent at the ends of the life cycle and among the unemployed (Rank 2005), and most welfare states are designed to focus on these risks (Esping-Andersen 1999). Moreover, there has long been a concern that welfare generosity discourages employment. Perhaps, the welfare state mainly benefits those out of the labor force, and the conclusions of this literature cannot be extended to those who are employed. On the other hand, welfare generosity might be effective for working poverty because it generates egalitarianism for all. Moreover, because welfare generosity protects against risk and supports working families with public services like subsidized childcare, it may enhance the earnings and employment stability of workers.

METHODS

Individual-Level Data

The Luxembourg Income Study (LIS) provides the micro-level data, and our unit of analysis is the individual. The LIS is a cross-national and historical archive of nationally representative individual-level datasets. For example, the LIS takes the U.S. Census current population survey, and recodes, creates and imputes some new standardized variables, assigns new weights, and cleans the data. Then, it makes this new harmonized version of the U.S. data available alongside similar datasets with the same variables from over 35 other countries.

We conducted original analyses with a dataset near the year 2000 for 18 affluent Western democracies.⁴ We confine our samples to all individuals in households headed by working-aged

⁴ One limitation of the LIS is that all data are cross-sectional. Thus, we are unable to assess if an individual's poverty is transient or long-term.

adults (18 to 65 years).⁵ The analyses merge the data from the 18 countries into one file containing 578,740 individuals. Descriptive statistics and sources are displayed in Table 1.

[TABLE 1 ABOUT HERE]

The dependent variable is *Working Poverty*. We follow the vast majority of cross-national poverty studies and use the relative headcount measure of poverty (Brady 2003; DeFina and Thanawala 2003; Moller et al. 2003; Rainwater and Smeeding 2004).⁶ Also like most poverty research, we consider poverty a household-level variable. A household pools its expenses and resources, so if the household is poor, all members of the household are poor. One is defined as working poor = 1 (non-poor = 0) if s/he resides in a household with less than 50% of the median household income *and* at least one household member is employed. In turn, if an adult is not employed but has an employed adult in the household who collects a below poverty-level income, this adult is also defined as working poor (Newman 1999:41). We calculate household income after taxes and transfers using the standardized LIS variable “DPI.”⁷ To adjust for household size, we divide DPI by the square root of household members. The calculation of the poverty threshold is done in the same LIS survey in each country, and includes all individuals regardless of age or employment. The sample is reduced to households headed by working-aged adults only *after* calculating the threshold.

⁵ Unfortunately, data are not available on individuals less than 15 years old in Australia. In analyses available upon request, we dropped Australia and the results are robust. Fortunately, we can still include Australian children in the estimates of the population rates of working poverty (see Table 2).

⁶ This literature has concluded that relative measures are: a) more valid for leading conceptualizations of poverty (e.g. capability deprivation and social exclusion); b) more predictive of life chances and well-being than available absolute measures; c) more effective at measuring deprivation as defined within cultural and historical context; d) more reliable for cross-national comparison; and e) more realistic in affluent democracies where basic needs are less under threat (Brady 2003). Although relative measures are not perfect, more defensible absolute measures with fewer problems have not been developed.

⁷ DPI includes disposable cash and noncash income after taxes and transfers (including food stamps, housing allowances, and tax credits). Unfortunately, data on income before taxes and transfers (“pre-fisc”) are not available for six of the 18 countries. Hence, this prevents us from calculating pre-fisc poverty or the rate of change between pre-fisc and post-fisc poverty.

In Appendix II, we display final models while redefining the sample as those individuals aged 25-65 or 18-65 years old, and with poverty thresholds of 40 or 60 percent of the median DPI. All conclusions are consistent.

Our definition of working poverty requires that at least one member of the household is employed. Because we model this selection into employment (see below), we measure *Employment* (reference = no one employed in household) if there is at least one earner in the household. In Appendix II, we present the final models if we redefine employment to households or individuals working at least 30 hours per week.⁸ All conclusions are consistent with this stricter definition of employment.

The analyses incorporate several demographic variables. To embrace the reality that household income is a function of multiple members and involves the pooling of resources and expenses, several individual characteristics are measured at the household-level.⁹ First, we include three measures of labor market standing, beginning with a binary variable for *Multiple Earners* in the household (reference = one earner). Using the LIS standardized measures of education, we include binary measures of *Head Low Education* and *Head High Education* (reference = medium).¹⁰ Second, we include four measures of family structure. Using two-adult

⁸ Unfortunately, data is unavailable on hours/full-time status for Denmark, Finland, Norway and Sweden. For the 14 countries with hours data, the vast majority of employed households work full-time. In every country, at least 79.5% of the employed households are full-time. The proportion poor for the broader sample (.0686) is not significantly different from the proportion poor for the full-time sample (.0687) ($z=.193$). For the 14 countries with hours data, the 10th percentile is 36 hours.

⁹ Some individuals are clustered within households, which may result in underestimated standard errors. Clustering by household would ignore the clustering by country, and given the remote access of LIS, we are not aware of a modeling strategy for clustering at both household- and country-levels. In turn, the country-level variables would become dramatically over-confident. Because we cannot cluster by both, we cluster at the country-level to reflect our focus on cross-national differences.

¹⁰ This standardized measure is an innovative solution for comparing education across countries (www.lisproject.org/dataaccess/educlevel.htm). The LIS staff codes all cases as: a) less than secondary education (low), b) secondary education or some tertiary education (medium), and c) completed tertiary or more education (high). The LIS created a routine to generate these codes, and we copied the code and extended it to all 18 countries. Unfortunately, the LIS does not provide sufficient detail on vocational/technical secondary education.

couples as the reference, we include binary measures of *Single Mother Household*, *Female Head No Children Household*, *Single Father Household*, and *Male Head No Children Household*.¹¹

Third, we incorporate measures of age, beginning with *Age* and *Age-squared* of the head (in years). Also, because young households are particularly vulnerable we include a binary variable for *Young Head*, designating those households headed by someone under 25 years old.¹² We measure the presence of non-working-aged people with *# Over 65 year olds* in the household, a binary variable for *Child Under 5*, and *# of Children*. Last, we include a set of variables unique to each individual. We measure individual age with binary measures of *Over 64*, *18-24*, *5-17*, and *Under 5* (reference = 25-64 years old). Also, we include binary variables if the individual is a *Co-Residing Child* residing with parent(s) (including in-laws) and *Female*.

Country-Level Data

A variety of archival sources was used, though the proximate source for many was Huber and colleagues (2004). Table 2 displays the values of these country-level variables and details on the LIS samples and poverty. Except for economic growth, the country-level variables are measured in the same year as the LIS survey. Though it is important to be cautious about including many country-level variables in one model, 18 countries are sufficient for discerning the effects of the variables and there is no evidence of collinearity. As discussed below, we considered a wide variety of alternative specifications to ensure the country-level results were robust. In addition, we replicated our results with hierarchical generalized linear models (HGLM) (see Appendix II), which provides further support that 18 countries is sufficient.

Using the variable d10, necessary information is available for only six of the 18 countries. There is also no information on specialization, so we would be unable to differentiate between, e.g. secretaries and electricians.

¹¹ We code couples using the variable “married,” which includes married and non-married cohabiting couples (including same sex).

¹² In analyses available upon request, we modeled age linearly. All other conclusions were robust. An alternative would be to only analyze the individual’s age and omit head’s age. But, since intergenerational living arrangements are common, especially in Europe, the head’s age is likely to be consequential in its own regard.

[TABLE 2 ABOUT HERE]

To assess the economic performance explanation, we include three variables.¹³

Economic Growth is the three-year average (t, t-1, t-2) of the annual rate of change in gross domestic product (GDP) of purchasing power parity (PPP) dollars.¹⁴ *Unemployment* is the percent of the labor force without employment. *Manufacturing Employment* is the percent of industrial employees in the labor force. Because manufacturing employment is more capital-intensive and because of institutions associated with manufacturing industries, earnings have traditionally been higher in manufacturing sectors (Bluestone and Harrison 2000).¹⁵

For unified theory, we consider four measures in addition to unemployment.¹⁶ *Union Density* is employed union members as a percent of total civilian employees. *Public Employment* is measured as a percent of total civilian employment. *Wage Centralization* is the OECD's index of bargaining centralization, measuring where collective contracts are negotiated and formally set (coded 1-5, 1=least centralized).¹⁷ *Employment Protection* is the OECD's summary index of the strictness of the preservation of "regular employment" and is composed of three components: protections for "regular workers" against individual dismissal, specific requirements for collective dismissal, and the regulation of temporary and fixed term employment (coded 0-4, 0=least regulated). Unfortunately, data are unavailable for Luxembourg

¹³ In analyses available upon request, we experimented with various lags for these variables. These measures were most significant, giving economic performance the best chance to matter.

¹⁴ In analyses available upon request, we estimated ratios of economic growth over trend growth (per capita and per employee) and substituted these for economic growth. These ratios were never significant. Also, in analyses available upon request, we substituted per capita economic growth and the results were consistent.

¹⁵ In analyses available upon request, we omitted manufacturing employment from the second model of Table 3. The results for economic growth and unemployment were consistent.

¹⁶ In analyses available upon request, we considered the percent of workers that are part-time, percent on temporary contracts, average hours worked per employee, labor force participation rate, and employment rate (all measured at country-level). None had robust significant effects.

¹⁷ The results are consistent with measures of bargaining centralization or wage coordination. Unfortunately, bargaining centralization is unavailable for Ireland and Luxembourg and wage coordination is unavailable for Luxembourg and Spain. All four measures are strongly correlated with each other, and these alternatives are less correlated with working poverty.

for wage centralization and employment protection, which reduces the sample to 17 countries and 573,322 individuals for these models.

For the welfare generosity explanation, we constructed a comprehensive *Welfare State Index*. This index is a standardized score (mean=0, standard deviation [s.d.]=1 across the 18 countries) of four indicators: social welfare expenditures, social security transfers and government expenditures as a percent of GDP, and public health spending as a percent of total health spending ($\alpha=.87$). While any one indicator of the welfare state is likely to be imperfect, this index combines indicators that others have shown significantly influence poverty (Brady 2009; Moller et al. 2003). This index incorporates indicators of cash assistance that directly contribute to household income (e.g. social welfare expenditures, social security transfers), spending on welfare services (e.g. social welfare expenditures, health care spending) and the extensiveness of the public sector (e.g. social welfare expenditures, government expenditures). In Appendix I, we display analyses of each component as well as several alternative indicators (including a measure of decommodification). Our index correlates highly and the results are entirely consistent with the alternatives. Also, Appendix I shows that there is no evidence that the welfare state's effects vary across welfare regimes.

Estimation Technique

Previous studies typically examine working poverty as a single outcome (e.g. Lohmann 2009), but in actuality, it is a two-stage process of employment and poverty. Neglecting the two stages potentially leads to bias, as employed households are likely to be systematically different than households without any employed members. Estimating employment and poverty separately or estimating poverty after sampling on employment ignores the correlation of errors between equations. Modeling working poverty as a two-step process of employment and poverty

among the employed allows one to separately estimate effects on employment and poverty and to generalize the factors affecting working poverty.

We model this two-stage process using Heckman probit, which simultaneously estimates binary probit models for the binary outcome of poverty and selection into employment (Dubin and Rivers 1990; Fullerton and Borch 2008; Heckman 1979). The binary probit model of employment constitutes the selection equation. Cases in the 1 category in the selection equation are then included in the outcome equation, which is a binary probit model of poverty (reference = employed but not poor). The two binary probit models are estimated simultaneously and the errors in the two models are correlated. This correlation between equations, ρ , corrects the standard errors in the outcome equation for potential differences between the employed subsample and the broader sample. Finally, to address the fact that individuals are nested within countries, robust standard errors that adjust for the clustering within countries are utilized in the Heckman probit models.¹⁸

RESULTS

Descriptive Patterns

In addition to the country-level data, Table 2 displays the cross-national patterns in the working poor rate. We display a weighted population estimate and an unweighted sample

¹⁸ In analyses available upon request, we experimented with a variety of multi-level modeling strategies while confining the sample to individuals living in a household with at least one employed member. The results from several different binary HGLM models using adaptive quadrature (Skron dal and Rabe-Hesketh 2004: 165-170; Rabe-Hesketh and Skron dal 2008: 258-261) via the “xtlogit” command in Stata 11 showed consistently significant effects of key variables (see Appendix II). Using HGLM, a statistically significant eight percent of the variation in working poverty is between countries. The level 1 error variance is heteroscedastic in a binary HGLM. In order to calculate the intra-class correlation coefficient (i.e. the proportion of total error variance at level 2), Raudenbush and Bryk (2002: 334) recommend taking a latent variable approach, which assumes that the level 1 error variance is $\pi^2/3$ (with a logit link). The formula is: $ICC_{logit} : \rho = \tau_{00}/(\tau_{00} + \pi^2/3)$. The level-2 error variance from our intercept only model is 0.273. Therefore, the ICC is 0.08. However, due to the importance of the selection process, we confine our main presentation to the Heckman probit models.

statistic for each country. We report both because the analyses are unweighted, though the two are highly correlated ($r=.98$).

In our sample, the average working poor rate is 5.7 percent across these 18 countries (s.d. = 3.2). Belgium exhibits the lowest rates of working poverty – more than one s.d. below the mean – although all four Scandinavian countries have low rates. A truly diverse set of countries also have below average working poor rates: Australia, Austria, France, Germany, Luxembourg, and the Netherlands. Notably, these countries are not simply social democratic welfare regimes, as several are characterized as conservative and Australia is considered liberal (Esping-Andersen 1990). The U.S. stands out with a working poor rate of 14.5 percent (more than 2.7 s.d. above the mean), and no other country even exceeds 9.7. Mirroring the diversity of the low working poor countries, a heterogeneous mix (Canada, Ireland, Italy, Spain, Switzerland, and the U.K.) have above average rates.

Table 2 also shows that the sample working poor rate is lower than the overall poverty rate in every country – as poverty is more common at the ends of the life cycle and among the unemployed. Interestingly, there is greater variation in working poverty than overall poverty (coefficient of variation .56 vs. .41). Returning to the population estimates, a country's working poor rate is not a simple reflection of its overall poverty rate as the correlation is .74 and only .66 if the U.S. is omitted. Compared to poverty among other sub-samples, this correlation is much weaker.¹⁹ Although countries with low overall poverty tend to have low working poverty, the association weakens as poverty increases. Canada and Italy have higher working poverty rates than would be expected from their overall poverty rates – and the U.S. markedly so – and, Belgium, the U.K., Australia and Ireland are the opposite. Among countries with high overall

¹⁹ Across these 18 countries, overall poverty correlates .94 with child poverty, .96 with adult (>18) female poverty, and .94 with adult male poverty. By contrast, the working poverty rate correlates .80 with child poverty, .66 with adult female poverty, and .70 with adult male poverty.

poverty are countries with high (U.S.), moderate (Spain) and low (U.K.) working poor rates. Among countries with moderate overall poverty, Canada and Italy have high working poor rates and Italy) and Australia has a low working poor rate. Therefore, working poverty does not simply mirror already established cross-national patterns in poverty.

Table 2 also displays the country-level (N=18) bivariate correlations with the sample working poor rate. Consistent with the economic performance explanation, economic growth is negatively associated and unemployment is positively associated with working poverty. However, manufacturing employment is positively associated and all three correlations are modest. Consistent with unified theory, working poverty is strongly negatively associated with union density and wage centralization; and moderately negatively correlated with employment protection and public employment. Finally, the welfare state index has a strong negative correlation with the working poor rate, which supports the welfare generosity explanation.

Analyses

Table 3 displays the models of working poverty. As explained above, the first columns in these Heckman probit models predict poverty among the employed. The second column predicts whether someone in the household is employed. Model 1 assesses the influence of the demographic predictors with no country-level variables. Partly because of the large sample, the coefficients and significance levels of these variables are quite stable across Table 3.

[TABLE 3 ABOUT HERE]

Providing strong support for the demographic explanation, four characteristics reduce working poverty. The likelihood of working poverty is lower if a household has multiple earners, the head has high education, is older, or if people over 65 reside in the household. Nine variables increase working poverty. Working poverty is more likely when the head has low

education; the household is headed by a single mother, female head with no children or a male head with no children; the head is young or much older; for each additional child in the household; or if the individual is 18-24 or 5-17 years old.

The second part of model 1 shows that the probability that someone in the household is employed declines with low education, single motherhood or fatherhood, female or male headship with no children, much older heads and elderly individuals, and children under 5 in the household. Also, the probability of employment increases with high education, young or somewhat older heads, and if the individual is a co-residing child.

Two demographic variables are not significant in either part of model 1 or subsequent models in Table 3. It does not matter if the individual is under 5 years old or if she is female. We note that this is net of the other demographic variables.²⁰ Still, both parts of these models show the clear relevance of demographic characteristics for employment and poverty among the employed.

Model 2 assesses economic performance. Economic growth, unemployment and manufacturing employment all fail to significantly affect poverty among the employed. Manufacturing employment has a z-score of -1.9, but is not quite significant. These findings are robust if each of the three variables is included by itself. Thus, the business cycle and sectoral composition are not very powerful influences on poverty among the employed. However, as the second column shows, economic growth has a significant positive effect on employment. Hence, economic performance appears to influence selection into employment and thus indirectly influences working poverty.

²⁰ In analyses available upon request, we included the female variable in the poverty equation, and it was never significant. Reflecting the well-established fact that poverty is feminized (Brady and Kall 2008), females are more likely to be poor if we omit the family structure variables, and especially if we confine the analysis to adult women (not including female children). There is also evidence that working poverty may be less consistently feminized across countries than poverty in general (Andress and Lohmann 2008).

Models 3 and 4 examine the evidence for unified theory. As in model 2, unemployment does not have a significant effect on poverty or employment in model 2. Also, inconsistent with unified theory, public employment does not have a significant effect in either part of model 3.

Consistent with unified theory, union density has a significant negative effect in the poverty equations of both models. Unionization substantially reduces the likelihood that an individual residing in an employed household is poor, though the effect is smaller in model 4. Also, model 4 shows that wage centralization and employment protection do not significantly reduce poverty among the employed.²¹ Surprisingly, wage centralization appears to increase the chances that the individual resides in an employed household while employment protection is significantly negative. If included separately, these two do not have robust significant effects.²² Still, models 3 and 4 provide some support for unified theory because union density consistently alleviates poverty among the employed. Unified theory expects that unions ensure that the bottom of the labor market is adequately paid, and thus working poverty is lower where unions are widespread. The other findings for the other labor market institutions on employment neither support nor contradict unified theory. Because the effects are inconsistent and appear to be non-robust, we omit them in the final models.

Model 5 evaluates the welfare generosity explanation. The welfare state index is significantly negative in the first part of the model ($z=-12.7$). The chances of being working poor are much lower in a generous welfare state. There is no evidence, however, that welfare generosity inhibits employment. The second part of model 5 reveals that the welfare state index

²¹ In sensitivity analyses, we found *occasional* evidence for a negative effect of either wage centralization or employment protection in separate models. These results were not robust when including the welfare state index and in many permutations of model 4. Thus, we conclude that this provides only modest evidence in favor of unified theory and that union density is a more robust measure of the effects of labor market institutions.

²² Nevertheless, there is no evidence of collinearity problems when included together. The variance inflation factors are far below levels of concern.

does not significantly affect selection into an employed household. This also occurs with the alternative welfare state indicators in Appendix I. Thus, the welfare state appears to reduce working poverty without any negative consequences for employment.

Table 4 presents a series of final models combining the key country-level variables with the individual-level variables. As in Table 3, the results for the individual-level demographic variables are robust. Working poverty is less common if a household has multiple earners, an educated head, a married/cohabiting couple, more elderly, and fewer children. In the first model, working poverty declines with age until about 54 years old, and then begins to increase. Employment is more common if a household has an educated head, a married/cohabiting couple, without young children, and if the individual is less than 65 or a co-residing child. In the first model, employment increases with age until about 39 years old and then begins to decline.

[TABLE 4 ABOUT HERE]

This final model includes all 18 countries and features union density and the welfare state index in the poverty equation, and economic growth in the employment equation. In this model, union density becomes insignificant. Many have shown that union density significantly increases welfare generosity (Hicks 1999; Huber and Stephens 2001), and thus it plausibly still indirectly reduces working poverty. Yet, this qualifies the support for unified theory because that explanation has not contended that unionization reduces poverty and inequality indirectly through the welfare state (cf. Blau and Kahn 2002). Rather, unified theory expects unionization to have a direct effect on working poverty, even independent of welfare generosity.

In this final model, economic growth is positively signed but does not have a significant effect in the employment equation ($z=1.7$). Thus, economic performance does not even

indirectly affect working poverty through employment. The earlier supportive evidence in Table 3 does not appear to be robust.

Despite the insignificance of union density and economic growth, the welfare state index continues to have a significant negative effect. The effect is also comparable in magnitude to the effect in the fifth model of Table 3 without any other country-level variables ($b = -.26$ vs. $-.29$). In sum, welfare generosity appears to be the principal country-level factor shaping working poverty. This provides strong evidence in favor of the welfare generosity explanation.

To substantively interpret the results in this final model, we calculated discrete change coefficients for all variables (see Figure 1). These are the changes in the predicted probability of working poverty if a continuous variable increased one standard deviation (centered around the mean) or a binary variable increased from zero to one.²³ As Figure 1 displays, having multiple earners in the household has the largest single effect on working poverty. If a household increases from one to two or more earners in the household, the predicted probability of working poverty declines by .071. This effect is followed closely by the effects of being a single mother or female head no child household. If a household changes from being a couple to either, the predicted probability of being working poor increases by .068. If a household head has a low level of education, the predicted probability of working poverty increases by .047. The next largest effect is the welfare state index. For a standard deviation increase in the welfare state index (centered on the mean), the predicted probability of working poverty declines by .042. Thus, the effect of the welfare state is comparable to the penalty for a low-educated head,

²³ To estimate the predicted probabilities, we assigned the binary variables to the sample mode and the continuous variables to the sample mean. Because these are based on Heckman probit models, we also calculated the effects on employment (not shown, but available upon request) and the effects of variables like economic growth on working poverty are indirect. Also, available upon request but not shown, we estimated predicted probabilities for selection into employment for Figure 2.

slightly larger than the effect of the head having higher education and a few other variables, and considerably larger than the effects of the remaining demographic characteristics.

[FIGURE 1 ABOUT HERE]

To further illustrate the influence of the welfare state, we calculate the predicted probability of working poverty in the U.S. under actual and counterfactual values of the welfare state index. Figure 2 displays these predicted probabilities. Our model predicts that about 8.3 percent of the sample should be working poor (i.e. a predicted probability of .083), which is below the actual value (see Table 2).²⁴ If the U.S. increased its welfare generosity by one standard deviation (i.e. to a welfare state comparable to Canada), the predicted working poverty rate would fall to about 5.4 percent. This would reduce the predicted probability of working poverty by 35 percent (from .083 to .054). If the U.S. increased its welfare generosity to the cross-national mean (comparable to Luxembourg or the U.K.), the predicted working poverty rate would be about 3.7. This represents a 55 percent decrease in the predicted probability of working poverty. If the U.S. had a welfare state index one standard deviation above the mean (comparable to Denmark or France), the predicted working poverty rate would be about 2.2 (or a 73 percent decrease). Finally, the U.S. would have a working poverty rate of only 1.5 with the maximum value welfare state index (i.e. Sweden), which would be an 82 percent decrease from its current predicted level.

[FIGURE 2 ABOUT HERE]

This final model provides strong support for both the welfare generosity and demographic explanations. One can further the analysis by assessing working poverty among select demographically vulnerable groups. Table 4 decomposes the sample and displays the final

²⁴ The U.S. is somewhat of an outlier in the working poverty distribution (see Table 2). Therefore, it is not surprising that the predicted probability based on the Heckman probit model (including information on all countries) is lower than the actual rate of working poverty in the U.S.

model among those households with only one person employed, with low educated heads, and single mothers.²⁵ With a few exceptions, the direction and significance of the demographic variables are consistent in each of these demographic sub-samples. Moreover, the welfare state index has a significant negative effect in the poverty equation for each of the three sub-samples. Interestingly, union density becomes significantly negative in the model of single mother households. This provides some support for unified theory as this labor market institution reduces working poverty among a key vulnerable group. This is somewhat surprising as single mothers have not been typically viewed as a beneficiary of unions. Finally, economic growth has a significant positive effect in the employment equation for single earner households. This provides some support for the economic performance explanation. Ultimately, however, the strongest evidence across these three models continues to be for the demographic and welfare generosity explanations.

CONCLUSION

In her influential book *No Shame in My Game*, Newman (1999) lamented that far less attention has been paid to the working poor than to single mother poverty, welfare, and concentrated inner city poverty (also O'Connor 2000). Newman contended that the scholarship and politics of poverty would be fundamentally different if it was better understood that the typical poor household contains employed people. Unfortunately, in the ten years since, there has been little progress in redressing this imbalance in the scholarship of poverty. Using the most internationally encompassing sample to date (including both European and non-European

²⁵ Because Allison (1999) cautions against comparing probit coefficients across groups, we concentrate on direction and significance within each sub-sample. Some demographic variables cannot be included in some sub-samples (e.g. family structure among single mothers), so are omitted. Though a slight majority of the low-education sub-sample are single earner households, there is clear mutual exclusivity between these sub-samples.

countries), this study aims to partially address this neglect in sociology. Moreover, the paper has at least three distinct contributions. First, our study examines a broader range of theoretical explanations. Second, we enlarge the cross-national scope of comparison. Third, our study uniquely models selection into employment and poverty among the employed.

Like overall poverty, working poverty is most common in the U.S. The U.S. stands out with rates of working poverty more than 2.7 standard deviations above the cross-national mean. Yet, there is even greater cross-national variation in working poverty than in overall poverty. Further, even more unlike overall poverty, the cross-national patterns do not correspond with conventional expectations regarding welfare state regimes (cf. Esping-Andersen 1990). Although associated, the cross-national patterns in working poverty are far less correlated with overall poverty than, for example, adult (male and female) or child poverty.

Our analyses provide the least support for the economic performance explanation. Economic growth, unemployment and manufacturing employment all fail to have robust significant direct effects on working poverty. In two of the nine models shown (and none in the appendix), economic growth has significant positive effects on whether someone in the household is employed. Thus, it is important to acknowledge that economic growth sometimes has an indirect effect on working poverty. Moreover, it is appropriate to be cautious about rejecting the economic performance explanation wholesale as we are utilizing a cross-sectional design and business cycles may be more consequential in a longitudinal analysis. Nevertheless, the lack of support is noteworthy given this literature's strong claims about the paramount influence of economic performance, and because there are good reasons to expect economic performance to be even more influential for working poverty than overall poverty. Indeed, previous research found an association between economic performance and working poverty

(Blank et al. 2006), though such studies did not include the breadth of countries included, nor the alternative theories offered here.

Unified theory receives moderate support as unionization reduces working poverty in initial models and in the final model for single mother households. Consistent with unified theory, working poverty is more common in flexible labor markets like the U.S. where labor market institutions are weak. In more highly unionized labor markets like Northern Europe, all workers are more likely to have at least a secure income. The effect of unionization, however, is mediated by welfare generosity (see also Appendix II). As others have shown (Hicks 1999; Huber and Stephens 2001), unionization encourages welfare state development and therefore, may indirectly reduce working poverty. However, this finding is more consistent with power resources theory than unified theory, and power resources theory underlies the welfare generosity explanation. Moreover, the other four measures of unified theory are not robustly significant. In turn, this account does not garner as much support as the other two explanations.

Several demographic characteristics are influential for working poverty. Mirroring previous findings, those in households with only one earner, with more children, and where the head is young and lacks education are more likely to be working poor (BLS 2007; Kalleberg 2007; Lohmann 2009). Young adults and single mothers also face greater likelihood of working poverty. We demonstrate that these characteristics do indeed matter in a comprehensive sample of affluent democracies.²⁶ Moreover, several of these variables – most notably multiple earners in the household, low-educated heads, and female headship (with or without children) – produce

²⁶ We caution that the large number of degrees of freedom at the individual level is one reason many demographic variables are significant. This should qualify the conclusion that demographics can necessarily explain cross-national differences. There may be concern with the potential endogeneity of family structure to poverty. Nevertheless, the final model is fairly robust in the single mother sub-sample and in a sub-sample of married/cohabiting couples (not shown). By confining analyses to these sub-samples, this should partially alleviate the endogeneity concern. Nevertheless, if family structure is endogenous to poverty, this likely biases the coefficients upwards. Hence, it may be reasonable to be cautious about the demographic effects.

substantively large discrete changes to the predicted probability of working poverty. Thus, our results provide considerable support for the demographic explanation.

Welfare generosity has substantial effects on working poverty. This confirms past research showing welfare generosity explains differences in working poverty across Europe (Lohmann 2009), and confirms this holds in non-European countries as well as in the face of competing explanations. For a standard deviation increase in the welfare state index, the likelihood of working poverty should decline by about .042. Considering that the cross-national standard deviation in the rate of working poverty is 3.2, this translates to a larger than one standard deviation reduction. If the U.S. increased its welfare generosity to the mean, the predicted probability of working poverty would decline by 55 percent. We find evidence for both welfare state mechanisms of organizing distribution and managing risk. As the welfare state reduces working poverty for single mother households, this demonstrates risk management. As the welfare state reduces working poverty for single earner households, this demonstrates an egalitarian distribution. Although demographic characteristics contribute to working poverty, welfare states reduce the risks associated with demographic vulnerability, and distribute resources to the demographically disadvantaged.

Because the welfare state's effects are not mediated by unemployment and because the welfare state does not affect selection into employment, the evidence is more supportive of the welfare generosity explanation than unified theory.²⁷ It is also worth underlining that welfare generosity's lack of effect on selection into employment is at odds with much conventional wisdom. Welfare states provide support for those not working, and thus often raise concerns

²⁷ Unified theory claims that unemployment benefits encourage exit from employment, which then reduces working poverty. Because unemployment is never significant, this appears inconsistent with unified theory's expectation that unemployment mediates welfare generosity's indirect effects. Also, the welfare state index is only weakly correlated with unemployment ($r=.17$) and is not significant in the employment equation (Table 3 model 5).

with employment disincentives. Nevertheless, welfare states also support working families with public services like childcare, and enhance health and well-being and, as a result, employment by providing healthcare. In reality, there have always been countries like Austria, Denmark and Sweden with high welfare generosity and below average unemployment (see Table 2).

Further research is needed to address the limitations of the present analysis. First, we are not able to incorporate individual-level information on industry and occupation (although we include manufacturing employment as a country-level variable). Unfortunately, in the LIS, the industry and occupation variables are not standardized across countries, comparability is uncertain, and data is unavailable for some countries. Second, part-time or seasonal employment may contribute to working poverty. Also, many conceptualize working poverty as those working a considerable number of hours and yet still remain poor. Though our conclusions are robust in sensitivity analyses of full-time workers (see Appendix II), the LIS does not provide the necessary data for four countries. It is important to incorporate variation in hours worked to fully understand working poverty, and it is possible that some households in our sample only work a few hours (but see fn. 8). Therefore, future research will need to scrutinize this issue. Third, although many of the working poor are immigrants, LIS data are not consistently available or comparable on migrant status and nation of origin. Because the LIS is not ideal for these concerns, other datasets are needed to fully assess these potential influences on working poverty.

Finally, our study does not analyze longitudinal change in either individuals or countries. It could be informative to examine how country- and individual-level changes influence the temporality and incidence of working poverty. Our initial analyses suggest that working poverty has been an unfortunately stable feature of U.S. society for several decades (also BLS 2007). In analyses of the eight LIS surveys for the U.S. (1974-2004), we found that the percent of the U.S.

population residing in working poor households increased from 9.3 in 1974 to 10.8 in 1986, and remained stable at 10.6 in 2004. Interestingly, this rise and stability contrasts with declines in single mother and unemployed poverty. The percent of the U.S. population residing in single mother poor or unemployed poor households both peaked in 1991 (at 5.6 and 4.1 percent) and have fallen since (to 4.4 and 3.3 percent in 2004). This stubborn, resilient stability in U.S. working poverty may be as important as any change at the individual- or country-level.

Prominent in the journalism on working poverty is the argument that the public should pressure employers to pay higher wages (e.g. Ehrenreich 2001). Whether through regulation or protests against corporations, the argument has been that raising wages is a necessary and effective solution to working poverty. Although higher wages certainly help, we caution against this master frame for working poverty debates. Our results for the demographic explanation suggest that employers cannot truly alleviate all sources of working poverty. There appear to be generalizable disadvantages to being a single mother, low-educated, young, living without other adults, and with children. Moreover, our evidence for the welfare generosity explanation suggests that employers might be a less effective target. It may be more productive to pressure the government to expand welfare programs. Because low-educated young workers, for example, are unlikely to receive sufficient wages to avoid poverty, it is essential that governments supplement earnings. Beyond raising even hourly wages by nickels and dimes, the working poor need generous social policies. Instead of focusing working poverty debates solely in the private labor market, it may be worthwhile to demand that the public welfare state take greater responsibility for the economic security of the working poor.

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Table 1. Descriptive Statistics for Variables in Analyses (N=578,740).

	<i>Mean</i>	<i>Standard Deviation</i>	<i>Sources and Notes</i>
<i>Individual-Level Variables</i>			<i>Luxembourg Income Study</i>
Working Poverty	.069	.253	If Employed HH=1, N=536,917
Multiple Earners in HH	.661	.473	
Head Low Education	.240	.427	
Head High Education	.265	.441	
Single Mother HH	.068	.252	
Female Head No Children HH	.068	.251	
Male Head No Child HH	.075	.264	
Single Father HH	.016	.124	
Age Head	42.604	10.967	
Age Head ²	1935.368	951.873	
Young Head	.046	.209	
# Over 65 in HH	.049	.246	
# of Children in HH	1.187	1.260	
Over 64	.018	.133	
18-24	.099	.298	
5-17	.201	.401	
Under 5	.071	.256	
Co-Residing Child	.072	.258	
Female	.497	.500	
Child Under 5 in HH	.674	.469	
Employed HH	.928	.259	
<i>Country-Level Variables</i>			
Economic Growth	3.213	1.532	OECD Main Economic Indicators
Unemployment	5.662	2.302	OECD Labor Force Statistics
Manufacturing Employment	23.699	2.461	OECD Labor Force Statistics
Union Density	40.112	24.476	Golden et al. (2006)
Public Employment	14.869	5.772	Cusack, Thomas R. 2004 (May). <i>Data on Public Employment and Wages for 21 OECD Countries</i> , Science Center Berlin; OECD Labor Force Statistics
Wage Centralization	2.041	1.150	17 Countries, N=573,322; OECD (2004) <i>Employment Outlook</i> , p.151
Employment Protection	1.681	.756	17 Countries, N=573, 322; OECD (2004) <i>Employment Outlook</i> , p.117, v. 2
Welfare State Index	.034	1.004	OECD Labor Force Statistics, Eco-Sante Health Database, and Social Expenditures Database

Table 2. Luxembourg Income Study (LIS) Specifics and Values of Country-Level Variables.

	Year	<i>Weighted Population Estimates</i>		<i>Analytic Sample</i>		<i>Economic Growth</i>	<i>Unemp. Rate</i>	<i>Manufacturing Emp.</i>	<i>Union Density</i>	<i>Wage Cent.</i>	<i>Emp. Protection</i>	<i>Public Emp.</i>	<i>Welfare State Index</i>
		<i>Working Poor Rate</i>	<i>Overall Poverty Rate</i>	<i>N</i>	<i>Working Poor Rate</i>								
Australia	2001	3.389	13.010	10,718	4.296	2.381	6.700	19.280	25.960	2	1.5	9.240	-1.090
Austria	2000	3.854	7.736	4,814	5.262	4.983	3.548	29.200	34.628	3	2.4	13.380	.600
Belgium	2000	1.854	8.078	4,265	2.230	2.137	9.955	21.590	48.983	3	2.5	9.740	.433
Canada	2000	7.806	12.370	63,509	9.336	3.729	6.788	21.030	28.529	1	1.1	13.920	-.469
Denmark	2000	2.587	5.385	148,581	3.316	1.619	4.400	24.990	70.595	2	1.8	22.070	1.082
Finland	2000	2.698	5.432	25,772	3.121	4.439	9.697	24.610	67.699	5	2.2	13.390	.400
France	2000	3.525	7.308	21,816	4.187	2.200	9.300	21.450	8.658	2	2.8	14.120	.842
Germany	2000	3.788	8.361	22,670	3.891	3.433	7.992	30.420	22.832	3	2.6	7.470	.721
Ireland	2000	5.603	16.153	6,252	6.776	6.490	4.300	27.260	31.072	4	1.2	6.710	-1.473
Italy	2000	7.452	12.775	17,934	9.695	3.114	10.519	28.530	29.918	2	3.1	8.200	.336
Luxembourg	2000	4.588	6.052	5,418	5.180	8.835	1.866	22.760	34.000	--	--	10.800	.066
Netherlands	1999	2.773	4.906	8,999	3.355	5.274	3.489	20.580	23.682	3	2.3	6.070	-.349
Norway	2000	3.380	6.447	31,952	2.831	7.303	3.447	20.940	52.249	4.5	2.7	23.290	.180
Spain	2000	6.563	14.157	10,321	9.675	3.685	13.852	26.690	11.574	3	3	12.034	-.355
Sweden	2000	3.751	6.611	26,805	3.430	4.200	5.862	23.130	75.113	3	2.6	21.350	1.444
Switzerland	2000	4.534	7.670	8,311	5.739	2.316	2.612	26.140	18.804	2	1.6	8.750	-.715
UK	1999	4.028	13.680	49,113	6.213	2.481	6.000	24.330	27.981	1	1	8.860	-.098
USA	2000	11.060	17.048	111,490	14.496	3.289	3.974	22.140	12.087	1	.7	10.440	-1.555
Correlation w/ Sample Working Poor Rate (N=18)		.977	.791			-.085	.112	.144	-.547	-.529	-.386	-.281	-.577

Table 3. Heckman Probit Models of Working Poverty on Individual- and Country-Level Variables in 18 Affluent Western Democracies (N=578,740).

	<i>Model 1</i>		<i>Model 2</i>		<i>Model 3</i>		<i>Model 4</i>		<i>Model 5</i>	
	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>
<i>Indiv.-Level</i>										
Multiple Earner HH	-.812*** (-15.21)		-.817*** (-20.18)		-.786*** (-18.25)		-.799*** (-25.22)		-.820*** (-22.32)	
Head Low Education	.241* (2.25)	-.376*** (-5.94)	.288* (2.42)	-.349*** (-6.34)	.232 (1.69)	-.355*** (-6.41)	.250 (1.83)	-.394*** (-7.65)	.274* (2.13)	-.374*** (-5.82)
Head High Education	-.251* (-2.15)	.344*** (9.67)	-.326** (-3.07)	.344*** (13.20)	-.323** (-2.60)	.335*** (10.07)	-.362** (-3.25)	.337*** (7.36)	-.341** (-2.77)	.335*** (7.90)
Single Mother HH	.435** (3.05)	-1.242*** (-11.59)	.501*** (4.72)	-1.247*** (-13.04)	.440*** (3.68)	-1.260*** (-13.46)	.451*** (3.96)	-1.231*** (-15.14)	.435*** (3.58)	-1.250*** (-13.19)
Female Head No Child HH	.338*** (4.40)	-.835*** (-11.35)	.401*** (5.23)	-.837*** (-11.47)	.396*** (4.63)	-.862*** (-12.24)	.416*** (4.63)	-.833*** (-10.75)	.390*** (3.62)	-.837*** (-12.07)
Male Head No Child HH	.162* (2.40)	-.797*** (-7.81)	.222** (2.87)	-.800*** (-7.90)	.246** (3.02)	-.829*** (-8.07)	.261** (2.83)	-.807*** (-7.67)	.226** (2.15)	-.797*** (-7.98)
Single Father HH	.094 (.93)	-.535*** (-4.62)	.089 (1.17)	-.537*** (-4.86)	.086 (1.35)	-.576*** (-4.64)	.059 (.85)	-.526*** (-5.55)	.048 (.75)	-.540*** (-4.90)
Age Head	-.104*** (-7.11)	.158*** (7.74)	-.119*** (-9.73)	.159*** (8.09)	-.109*** (-6.53)	.161*** (7.96)	-.113*** (-7.29)	.155*** (7.96)	-.109*** (-5.57)	.158*** (7.68)
Age Head ²	.001*** (6.50)	-.002*** (-9.03)	.001*** (10.00)	-.002*** (-9.39)	.001*** (6.33)	-.002*** (-9.30)	.001*** (7.29)	-.002*** (-9.21)	.001*** (5.22)	-.002*** (-9.01)
Young Head	.246** (3.14)	.409*** (15.61)	.199** (2.83)	.400*** (14.20)	.244** (3.06)	.413*** (13.31)	.210** (2.55)	.401*** (18.41)	.215* (2.45)	.396*** (17.76)
# Over 65 in HH	-.192* (-2.25)	-.061 (-1.04)	-.180 (-1.91)	-.055 (-1.14)	-.247** (-3.14)	-.038 (-.73)	-.232** (-2.97)	-.049 (-.95)	-.249** (-3.37)	-.066 (-1.09)
# of Children in HH	.213*** (6.70)	-.079 (-1.81)	.208*** (9.77)	-.084* (-2.07)	.194*** (9.57)	-.078* (-2.13)	.191*** (9.81)	-.081* (-2.18)	.183*** (8.05)	-.083* (-2.31)
R Over 64	-.029 (-.74)	-.183*** (-5.56)	.011 (.25)	-.186*** (-6.22)	.008 (.18)	-.190*** (-7.80)	.026 (.58)	-.193*** (-6.82)	.021 (.41)	-.182*** (-5.76)
R 18-24	.214*** (3.69)	.011 (.22)	.181*** (3.73)	.021 (.41)	.200*** (3.76)	.004 (.08)	.200*** (4.51)	.016 (.28)	.202*** (4.59)	.025 (.45)
R 5-17	.025* (2.00)	.003 (.11)	.028* (2.26)	.002 (.07)	.030** (2.62)	.002 (.10)	.031** (2.83)	.006 (.19)	.041* (2.50)	.005 (.20)

Table 3 Cont...

R Under 5	-.006 (-.25)	-.042 (-1.24)	.015 (.55)	-.041 (-1.28)	-.0004 (-.01)	-.041 (-1.24)	.009 (.41)	-.042 (-1.17)	.010 (.41)	-.038 (-1.05)
Child Under 5 in HH		-.335*** (-7.41)		-.335*** (-7.09)		-.345*** (-7.33)		-.336*** (-6.85)		-.335*** (-7.37)
R Co-Residing Child		.678*** (9.44)		.669*** (12.92)		.714*** (11.77)		.680*** (13.33)		.654*** (8.37)
R Female		.0001 (-.11)		-.0002 (-.05)		.002 (.33)		-.001 (-.08)		-.001 (-.24)
Country-Level										
Economic Growth			.006 (.11)	.080* (2.13)						
Unemployment			.012 (.31)	-.033 (-1.52)	-.016 (-.61)	-.011 (-.48)				
Manufacturing Employment			-.061 (-1.90)	.002 (.17)						
Union Density					-.013** (-2.66)	-.006 (-1.08)	-.008*** (-3.76)	-.0001 (-.05)		
Public Employment					.008 (.37)	.039 (1.56)				
Wage Centralization							-.044 (-.59)	.210** (3.25)		
Employment Protection							-.147 (-1.25)	-.192* (-2.18)		
Welfare State Index									-.291*** (-12.65)	-.034 (-.55)
Intercept	.780*** (3.03)	-.374 (-.80)	2.474** (2.82)	-.508 (-.84)	1.364** (3.22)	-.678 (-1.08)	1.628*** (4.24)	-.390 (-.70)	.919* (2.18)	-.364 (-.76)
Rho		-.226		-.481		-.289		-.435		-.399

*** p< .001 ** p< .01 * p< .05

Note: The N for samples with Wage Centralization and Employment Protection is 573,322 (17 countries). The numbers in parentheses are z-scores.

Table 4. Final Heckman Probit Models of Working Poverty for Full Sample and Sub-Samples.

	<i>Final Model</i>		<i>Single Mothers</i>		<i>Low Education</i>		<i>Single Earners</i>	
	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>
<i>Indiv.-Level</i>								
Multiple Earner HH	-.815*** (-21.32)		-.742*** (-6.84)		-.864*** (-12.41)			
Head Low Education	.266* (2.10)	-.362*** (-6.16)	.457*** (3.86)	-.536*** (-21.34)			.330** (2.69)	-.374*** (-6.56)
Head High Education	-.341** (-2.83)	.342*** (9.55)	-.404* (-2.25)	.478*** (4.31)			-.415*** (-3.54)	.344*** (14.50)
Single Mother HH	.431*** (4.14)	-1.233*** (-12.11)			.334** (2.64)	-1.319*** (-17.19)	.478*** (5.10)	-.785*** (-7.80)
Female Head No Child HH	.390** (3.28)	-.823*** (-10.90)			.353** (3.38)	-.959*** (-11.53)	.339*** (3.60)	-.325*** (-8.03)
Male Head No Child HH	.229* (1.97)	-.786*** (-7.76)			.168 (1.42)	-.819*** (-7.62)	.209* (2.08)	-.271*** (-4.75)
Single Father HH	.051 (.97)	-.515*** (-4.60)			-.101* (-1.98)	-.484*** (-4.34)	.137** (2.91)	-.286* (-2.19)
Age Head	-.108*** (-4.30)	.157*** (7.69)	-.074* (-2.02)	.087*** (6.13)	-.078** (-3.15)	.147*** (7.42)	-.138*** (-5.38)	.120*** (5.85)
Age Head ²	.001*** (3.90)	-.002*** (-8.92)	.001 (1.77)	-.001*** (-5.90)	.001* (2.58)	-.002*** (-8.24)	.002*** (4.39)	-.002*** (-7.24)
Young Head	.222* (2.46)	.398*** (12.64)	-.002 (-.02)	.344*** (4.25)	.214* (2.03)	.579*** (16.83)	.161*** (8.77)	.180** (2.94)
# Over 65 in HH	-.253*** (-3.56)	-.073 (-1.31)	-.651*** (-5.46)	.254 (1.75)	-.239** (-2.64)	-.031 (-.68)	-.275* (-2.56)	-.007 (-.11)
# of Children in HH	.183*** (8.42)	-.082 (-1.88)	.208*** (4.66)	-.064* (-2.14)	.178*** (6.73)	-.075 (-1.49)	.161*** (8.77)	-.073 (-1.65)

Table 4 Cont...

R Over 64	.018 (.34)	-.181*** (-5.63)			.062 (1.39)	-.218*** (-7.97)	.060 (1.22)	-.117*** (-4.03)
R 18-24	.203*** (4.58)	.024 (.40)	.176* (2.21)	-.031 (-1.35)	.238** (2.73)	-.016 (-.29)	.285*** (3.66)	-.040 (-.42)
R 5-17	.040** (2.97)	.001 (.05)	.047** (2.68)	-.045 (-1.35)	.104** (3.13)	.006 (.16)	.022 (.74)	.044 (1.88)
R Under 5	.008 (.33)	-.043 (-1.39)	.223*** (6.00)	-.134*** (-3.53)	.034 (.60)	-.053 (-1.38)	.013 (.65)	.013 (.42)
Child Under 5 in HH		-.330*** (-7.43)		-.241*** (-5.18)		-.278*** (-5.48)		-.230*** (-5.86)
R Co-Residing Child		.640*** (8.40)		.479*** (8.43)		.802*** (13.86)		.313** (3.07)
R Female		-.002 (-.35)				-.006 (-.94)		.007 (1.44)
Country-Level								
Economic Growth		.071 (1.69)		.049 (.60)		.075 (1.53)		.076** (2.61)
Union Density	-.002 (-.84)		-.010** (-2.60)		-.005 (-1.53)		-.0002 (-.11)	
Welfare State Index	-.259*** (-4.58)		-.324*** (-3.97)		-.424*** (-4.33)		-.250** (-3.24)	
Intercept	.974 (1.74)	-.562 (-.97)	.942 (1.03)	-.979 (-1.83)	.691 (1.48)	-.922 (-1.60)	1.658** (2.80)	-.596 (-1.13)
Rho		-.354		.442		.028		-.695
N		578,740		39,545		139,186		196,279

*** p< .001 ** p< .01 * p< .05

Note: The numbers in parentheses are z-scores.

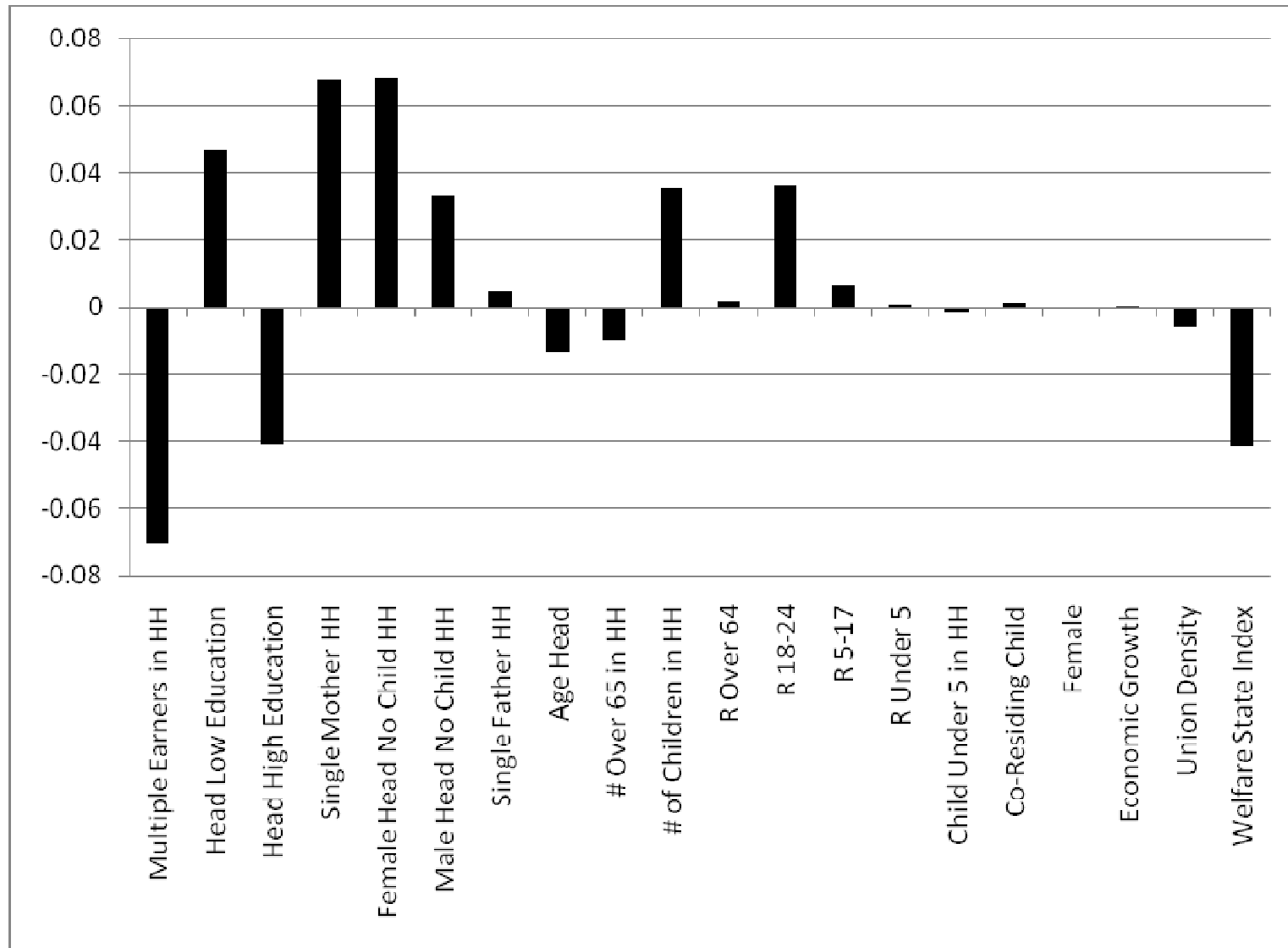


Figure 1. Discrete Change Coefficients for the Predicted Probability of Working Poverty in Employed Households.

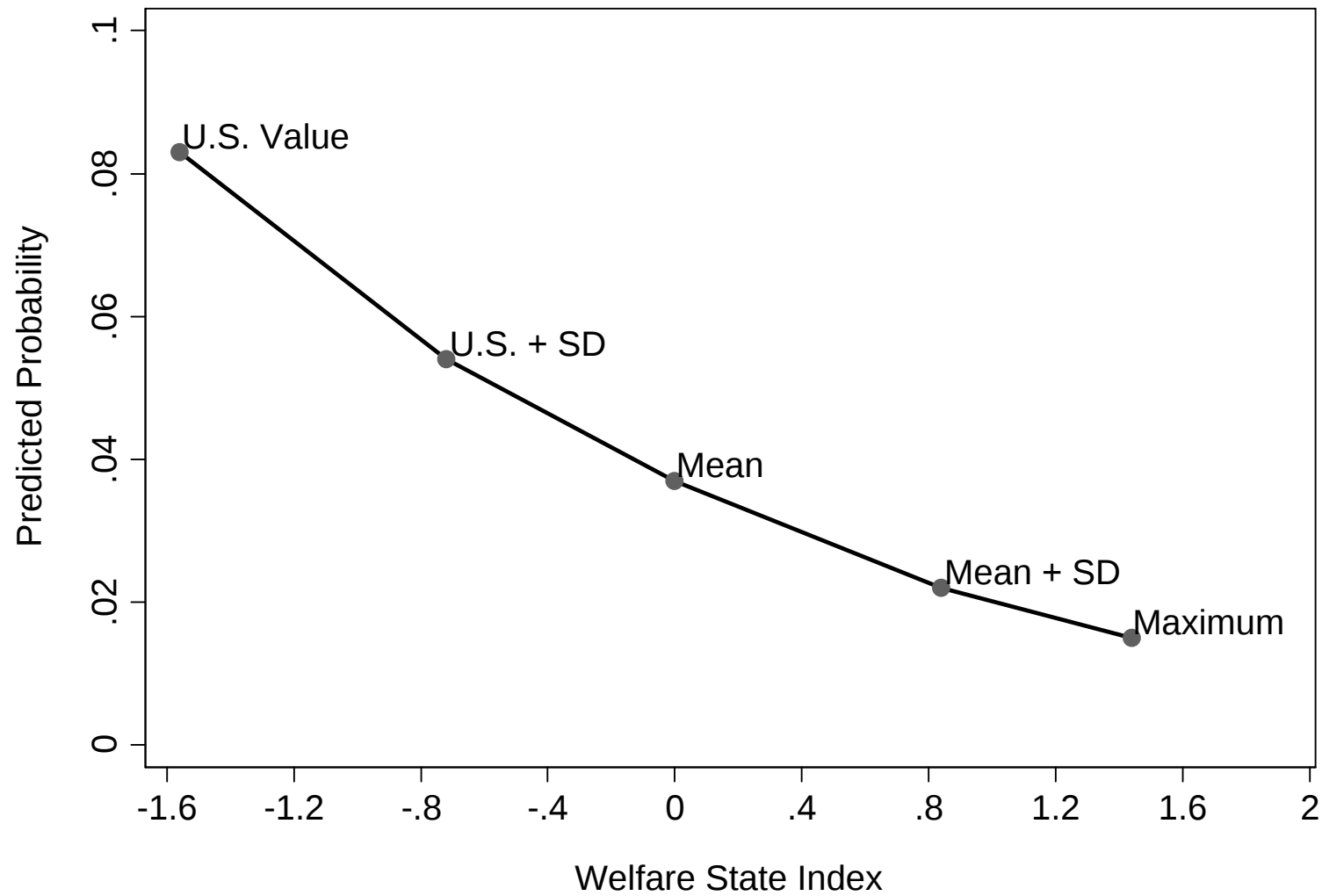


Figure 2. The Predicted Probability of Working Poverty in Employed Households in the U.S. Based on Modeled and Counterfactual Values of the Welfare State Index.

Appendix I. Sensitivity Analyses for Alternative Measures of Welfare State Generosity: Heckman Probit Models of Working Poverty (N=578,740).

<i>Measure of Welfare State</i>	<i>Each Row is a separate model. All Models Contain All Other Variables from Table 3, Model 6 (details available upon request)</i>	
	<i>Poverty</i>	<i>Employment</i>
Social Welfare Expenditures as % of GDP	-.055*** (-15.97)	-.006 (-.51)
Social Security Transfers as % of GDP	-.091** (-2.94)	.010 (.41)
Government Expenditures as % of GDP	-.034*** (-4.99)	.0005 (.05)
Public Health Spending as % of Total Health Spending	-.017*** (-7.43)	-.007 (-1.66)
Decommodification (Only 16 Countries, N=382,492)	-.047*** (-11.48)	.006 (.42)
Family Assistance as % of GDP	-.254*** (-15.05)	-.009 (-.18)
Welfare State Index * Social Democratic Regime	-.109 (-.61)	.240 (1.40)
Welfare State Index * Liberal Regime	-.053 (-.35)	-.295 (-1.50)
Welfare State Index	-.123 (-.93)	-.183 (-1.05)
Social Democratic Regime	-.020 (-.18)	.217 (1.83)
Liberal Regime	.228 (1.43)	-.444** (-3.01)

*** p< .001 ** p< .01 * p< .05

Note: The numbers in parentheses are z-scores. In the last model, the reference is Conservative regime.

Appendix II. Final Heckman Probit Models of Working Poverty Full Sample and Sub-Samples.

	<i>HGLM</i>	<i>60% of Median</i>		<i>40% of Median</i>		<i>Individuals 25-64</i>		<i>Individuals 18-65 Full-Time</i>		<i>Full-Time HH's</i>	
	<i>Logit Model</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Emp.</i>	<i>Poverty</i>	<i>Employment</i>
<i>Indiv.-Level</i>											
Multiple Earner HH	-1.694*** (-125.54)	-.860*** (-18.69)		-.784*** (-21.07)		-.861*** (-18.27)		-.825*** (-11.52)		-.750*** (-11.00)	
Head Low Education	.638*** (43.28)	.273* (2.24)	-.361*** (-6.16)	.206 (1.47)	-.361*** (-6.18)					.318 (1.94)	-.137** (-3.28)
Head High Education	-.746*** (-42.58)	-.370** (-2.90)	.342*** (9.56)	-.320** (-2.62)	.342*** (9.71)					-.347* (-2.32)	.061 (1.46)
Single Mother HH	.551*** (28.60)	.477*** (5.06)	-1.233*** (-12.16)	.392** (2.73)	-1.232*** (-12.04)	.210 (1.88)	.224 (-1.81)	.286*** (5.35)	-.021 (-.16)	.351*** (4.04)	-.510* (-2.41)
Female Head No Child HH	.693*** (28.80)	.316*** (3.67)	-.824*** (-10.85)	.377** (2.63)	-.824*** (-10.96)	.092* (2.03)	.054 (-.47)	.057 (1.00)	.203*** (4.58)	.062 (.81)	.256*** (6.24)
Male Head No Child HH	.320*** (12.97)	.110 (1.32)	-.787*** (-7.72)	.269* (2.03)	-.788*** (-7.75)	.003 (.07)	-.549*** (-5.71)	-.076 (-1.62)	-.414*** (-6.11)	-.080 (-1.20)	.305*** (4.84)
Single Father HH	-.059 (-1.46)	-.001 (-.02)	-.515*** (-4.58)	.107** (3.31)	-.515*** (-4.60)	-.010 (-.23)	-.289*** (-4.18)	.011 (.29)	-.219** (-2.40)	.006 (.16)	.077 (1.00)
Age Head	-.168*** (-31.09)	-.110*** (-6.28)	.157*** (7.71)	-.091** (-3.22)	.157*** (7.70)	-.039*** (-4.49)	-.002 (-.47)	-.055*** (-4.93)	-.029** (-2.92)	-.082*** (-5.32)	.126*** (9.47)
Age Head ²	.002*** (27.71)	.001*** (5.67)	-.002*** (-8.96)	.001** (2.91)	-.002*** (-8.93)	.0003*** (3.88)	-.00004 (-.61)	.001*** (4.53)	.0002 (1.86)	.001*** (4.95)	-.002*** (-9.98)
Young Head	.296*** (8.24)	.216** (2.98)	.401*** (13.35)	.262* (2.59)	.404*** (14.24)	.133* (2.24)	-.075 (-1.08)	.236** (2.84)	-.131* (-2.14)	.214** (3.15)	.139** (3.17)
# Over 65 in HH	-.667*** (-15.79)	-.258** (-2.89)	-.074 (-1.32)	-.271** (-3.23)	-.074 (-1.33)	-.234*** (-3.51)	-.152*** (-4.34)	-.196* (-2.44)	-.086*** (-3.64)	-.244*** (-3.64)	-.013 (-.30)
# of Children in HH	.347*** (63.13)	.206*** (13.09)	-.083 (-1.91)	.160*** (5.10)	-.081 (-1.87)	.169*** (9.79)	-.155*** (-9.23)	.205*** (15.44)	-.159*** (-3.93)	.197*** (11.64)	-.043 (-1.22)
R Over 64	-.080 (-.99)	.012 (.37)	-.180*** (-5.55)	.005 (.07)	-.180*** (-5.66)					-.015 (-.41)	-.147** (-3.28)
R 18-24	.654*** (22.19)	.229*** (4.03)	.018 (.34)	.177*** (4.29)	.017 (.30)			.132*** (3.54)	.135* (2.29)	.171*** (3.81)	-.307*** (-9.02)
<i>Appendix II Cont...</i>											
R 5-17	.042* (2.49)	.054*** (4.03)	.002 (.09)	.026 (1.68)	.001 (.03)					.035 (1.29)	.503*** (4.24)

R Under 5	.054* (2.32)	.007 (.26)	-.043 (-1.36)	-.003 (-.12)	-.045 (-1.45)				.025 (.75)	.802*** (7.93)
Child Under 5 in HH	-.129*** (-8.09)		-.331*** (-7.72)		-.328*** (-7.66)		-.186*** (-9.33)		-.064** (-2.75)	.040 (1.24)
R Co-Residing Child	-.304*** (-8.18)		.647*** (8.85)		.646*** (8.35)		-.327*** (-4.90)		-.110 (-.92)	.227 (1.82)
R Female	-.021 (-1.61)		-.001 (-.19)		-.002 (-.35)		-.580*** (-9.13)		-.919*** (-10.23)	-.370*** (-7.06)
R Low Education						.212* (2.02)	-.389*** (-6.13)	.306* (2.09)	-.259** (-2.95)	
R High Education						-.275** (-2.72)	.277*** (4.47)	-.326* (-2.58)	.242** (3.24)	
R Age						-.038 (-1.58)	.201*** (12.42)	-.022 (-1.14)	.206*** (20.03)	
R Age ²						.0004 (1.66)	-.003*** (-13.65)	.0003 (1.24)	-.003*** (-21.50)	
Country-Level										
Economic Growth	-.042 (-.60)		.070 (1.67)		.070 (1.67)		-.010 (-.36)		-.028 (-.70)	.006 (.16)
Union Density	-.005 (-.55)			-.001 (-.58)		-.002 (-.99)		-.001 (-.07)		.002 (.30)
Welfare State Index	-.537*** (-4.05)	-.234*** (-4.31)		-.249*** (-3.97)		-.236*** (-4.96)		-.258** (-3.21)		-.294** (-3.38)
Intercept	1.479*** (3.95)	1.423*** (3.65)	-.564 (-.97)	.232 (.39)	-.561 (-.97)	.332 (.50)	-1.888*** (-6.63)	.069 (.26)	-1.861*** (-6.93)	.153 (.56)
Rho			-.220		-.338		.124		-.003	-.091
N	536,917		578,740		578,740		358,257		231,952	311,646

*** p< .001 ** p< .01 * p< .05

Note: The numbers in parentheses are z-scores. The last two models only include 14 countries. “Full-time” is defined as more than 30 hours per week (summed as a household or individually).