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Amie Bostic

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No. 860

Family, Work, Economy, or Social Policy: Examining Poverty among Children of Single Mothers in Affluent Democracies between 1985-2016

Amie Bostic

June 2023



Luxembourg Income Study (LIS), asbl

Family, Work, Economy, or Social Policy: Examining Poverty among Children of Single Mothers in Affluent Democracies between 1985-2016

Abstract

Children of single mothers face higher rates of poverty than children in two-parent households in practically every affluent democracy. While this difference is widely acknowledged, there is little consensus regarding the causes of their poverty and, as a result, little consensus on the best way to address poverty among these children. Explanations include both individual-level, structural, and political explanations in four areas: family structure, labor force activity, economic performance, and welfare generosity. Previous research, however, tends to focus on only one of these four aspects at a time. Using data from the Luxembourg Income Study and the Organisation for Economic Co-operation and Development, spanning a period of 31 years and 25 countries, I test each of these four explanations, examining the effects on children in single mother households separately (n=105,814) and children in both single mother households and children in two-parent households (n=668,549), conducting random intercept between-within logistic regression analysis. Individual-level measures of family structure and labor market activity affect child poverty generally in the expected way. Taking advantage of the longitudinal data at the country level, I focus on within-country change of the structural and political variables. Within-country economic performance is not significantly related to poverty, but welfare generosity, namely family allowances, significantly reduce the odds of poverty. Further, while the effects of family allowance spending are similar for children in both single mother and two parent households, they are stronger for the former than the latter. Yet, the disadvantage of living in a single mother household persists.

Key words: poverty, child poverty, single mothers, social policy, family allowances

Family, Work, Economy, or Social Policy: Examining Poverty among Children of Single Mothers in Affluent

Democracies between 1985-2016

Introduction

Previous research on child poverty has highlighted both cross-national variation and trends over time (Bradbury & Jäntti, 2001; Rainwater & Smeeding, 2003). While child poverty rates often correspond with overall poverty rates (Brady 2009), child poverty rates have seen little improvement in past decades. In fact, during the second half of the last century, no affluent democracy experienced a notable decrease in child poverty (Rainwater and Smeeding, 2003). Child poverty is of particular concern due to its consequences for children's physical and mental health (Chaudry & Wimer, 2016; Phipps, 2001; Pryor et al., 2019; Torsheim et al., 2004), educational attainment (Chaudry & Wimer, 2016; Crosnoe et al., 2002; Mayer & Leone, 1997), and school attendance (Büchel et al., 2001; Zhang, 2003). Child poverty also influences later life outcomes such as job opportunities and adult income (Duncan et al., 2010; Gregg & Machin, 2001) as well as active life expectancy (Montez & Hayward, 2014).

One of the key risk-factors for child poverty is living in a single-parent household (Gornick & Jäntti, 2012), particularly a single mother household (Chen & Corak, 2008; Heuveline & Weinshenker, 2008). Children of single mothers often face disproportionately high poverty rates (Brady & Burroway, 2012). Figure 1 displays, by country, the average poverty rate for children living in households with single mothers and with two parents (Luxembourg Income Study: Key Figures, 2020). Children of single mothers experience poverty at a rate of around 3 to 4 times higher than those living in two-parent households. In every case, children of single mothers are more likely to be poor than those living with both parents, ranging from a low in 1989 Italy at just slightly greater than parity (1.08) to a high of over 12 times as likely in the Netherlands in 1999.

[Figure 1 about here]

While the disproportionate rate of poverty for children of single mothers may come as no surprise, as living in a two-parent household increases the number of potential earners, and hence income of its residents, what is shocking is the great variation in poverty rates among children of single mothers. While the cross-national differences have been well-documented, there are also substantial differences within countries over time. For example, in Italy the poverty rate for children of single mothers has experienced notable ups and downs. Italy had a poverty rate of 11.7% in 1989 for this group. In 1993, the rate grew to 46%, then fell to 19% in 2000, only to rise

again to a high of 49.4% in 2014. Meanwhile, Australia saw its poverty rate for children of single mothers drop by more than half between 1985 and 2014.

Not only are children living in single mother households at greater risk of poverty than children living with two parents, the proportion of children living with single mothers is far from trivial. For most affluent democracies, according to the Luxembourg Income Study Key Figures, at least 15% of children were living in single mother households by 2000, reflecting a general increase over the prior two decades. In Ireland, Sweden, the United Kingdom, and the United States, the proportion is closer to 20% and not since 1990 was the percent of children living in single mother households less than 5% anywhere except Greece. Considering the sizable proportion of the child population living in single mother households, their disproportionate risk of poverty, and the negative and enduring consequences of child poverty, there has been much debate about how best to address poverty among children of single mothers.

This study contributes to the debate by examining dominant explanations in the literature, identifying which factors may have the most influence, and offering suggestions for key ways to address poverty among children of single mothers. While previous studies have examined potential solutions to address poverty, particularly as it relates to single motherhood, this paper contributes to the discussion in several ways. First, many studies on the topic test only one or two of the dominant explanations in the literature (e.g., Baker, 2015; Maldonado & Nieuwenhuis, 2015). Instead, I bring together and test four. Second, studies that have considered multiple explanations for poverty have tended to focus primarily on the overall population (e.g., Brady, 2006) or the working population (e.g., Brady et al., 2010). In the present paper, I seriously consider how competing explanations affect an especially vulnerable group: children, both in single mother households and two-parent households. Third, using the LIS micro-data and multi-level between-within modeling, I improve upon previous studies that have used either only country-level data (e.g., Esping-Andersen et al., 2002), only one wave of data (e.g., Gornick & Jäntti, 2012), or have taken less conservative estimation approaches (e.g., Maldonado & Nieuwenhuis, 2015). Furthermore, this paper presents two sets of analyses. The first includes only children living with single mothers, while the second includes children from both single-mother and two-parent families. This way it is possible to see how the variables of interest affect the first group specifically, how these variables affect children in both household types, and how the effects differ. Finally, I add to policy discussions by testing the effects of social policy generosity, measured as social spending, looking at general spending, spending on specific types of programs, and spending on specific types of benefits. This is especially important, as different types of spending are associated with different levels of political support (Gilens, 1999). Additionally, examining spending levels, instead of benefits received, allows for the consideration of in-kind benefits, which are typically hard to measure, seldom included as part of reported income (Rothwell & McEwen, 2017), and are often left out of cross-national quantitative analyses. As a result, the present research addresses an important gap in the literature on how in-kind generosity affects poverty, and how the effect compares with cash benefit spending.

The following section will summarize the dominant positions in the literature used to explain differences in poverty among children living in single mother households. I divide these arguments into the four major areas: family structure, labor force activity, economic performance, and welfare generosity. Next, I test these competing hypotheses using micro-data from the Luxembourg Income Study. Finally, I conclude with a discussion of the results and a reflection on how these findings fit with current debates in the research literature and public policy. Literature Review

In the effort to explain differences in poverty among children living with single mothers, several factors have been highlighted as key determinants and have informed suggested approaches to poverty reduction among this population. These explanations often focus on either the individual or macro-level characteristics that span the entire population (Brady, 2019). Among these explanations, family structure and labor market participation have been centrally featured. The strength of the economy has also been highlighted as an important factor, and, more recently, political factors, such as welfare generosity, have been included among the major explanations. However, there is also reason to be skeptical about the strength of each of these influences. This includes the growing debate surrounding the (dis)connection between family structure and poverty (Brady et al., 2017), women's and particularly mothers' disadvantaged position in the labor market (Correll et al., 2007; Sidel, 1991), concerns about whether a rising tide of economic growth actually lifts all boats (Blank, 2009), and issues related to both efficacy and access to certain social policies (Gornick & Meyers, 2003; Schram et al., 2009).

Family Structure

Changes to family structure have often been cited as the reason for growing child poverty and the especially vulnerable position of children living in single mother families. Over the past several decades marriage rates have declined, with people waiting longer to get married (Eickmeyer et al., 2017), higher divorce rates (Kennedy & Ruggles, 2014; Lester, 1996), and a growing disconnect between marriage and childbearing (Gibson-

Davis & Rackin, 2014). It is relatively straightforward how this change increases the likelihood of poverty among women and children, as married couples typically pool income and benefit from economies of scale (Huang et al., 2019; Lyngstad et al., 2011). Similarly, it is often expected that a high rate of single motherhood corresponds to a high rate of poverty among single mothers and their children, especially if single motherhood is concentrated among lower educated women (Härkönen et al., 2021).

However, a recent study challenges these assumptions, finding single motherhood to be only weakly related to poverty, net of other factors (Brady et al., 2017). Meanwhile, others suggest there has been an overemphasis on marriage and that single motherhood's relationship with child poverty has declined (Baker, 2015). One reason marriage may not produce the strong expected effect is the propensity of homogamy. Economically disadvantaged women are unlikely to marry economically advantaged men (Lichter, 2001). All the same, single mothers are not a monolith, and the reasons for single motherhood vary from unmarried childbirth, the death of a spouse, or divorce. Each of which is likely to correspond with different risks of poverty for their children.

Much of the focus has been on the growth of unmarried childbearing to explain single mother poverty and the increase in child poverty more generally. Some argue that had these women been married, they would not be poor (Depew & Price, 2018). Certainly, this is one of the explanations that has received the most attention as it represents one of the more pervasive demographic shifts. Never-married mothers face many challenges. Partly, this is due to who is most likely to be a never-married mother. Often these women are younger, have less education, and poorer job opportunities (Cancian & Haskins, 2014), as well as less financial and personal support from the child's father, especially if the household includes children from other fathers (Berger et al., 2012; Meyer & Cancian, 2012). Relative to children with divorced or widowed mothers, having a never-married mother may produce the greatest disadvantages. On the other hand, children of never married mothers may also have mothers who have developed adaptive strategies to stave off poverty and have the greatest experience being financially independent due to their never-married status.

At the same time, divorce rates over the last several decades experienced a notable rise before plateauing at high levels. Since the middle of the 20th century, divorce has become more common, and more accepted (Thornton & Young-DeMarco, 2001). However, divorce provides a dramatic shock to the incomes of those formerly married. While both men and women experience economic disadvantage following divorce, women with children usually experience the greatest decline in economic well-being (Van Winkle & Leopold, 2021). Not only do they suffer

from the elimination of a second income from their household finances, and experience a sudden loss of economies of scale, they are also more likely to have custody of their children (Bourreau-Dubois & Doriat-Duban, 2016; Christopher et al., 2001, p. 201), who have financial needs but rarely contribute to the household income. Likewise, married women commonly engage in marriage specialization leading to lower-wages relative to their husbands, making the economic shock of divorce even more pronounced (Bonnet et al., 2021; Bourreau-Dubois & Doriat-Duban, 2016). Marriage specialization, in which wives prioritize care and husbands prioritize their careers, can create challenges for entering the labor force post-divorce in a way not experienced by never-married mothers. Furthermore, the risk of divorce is not equally distributed among populations. Married women from lower-class backgrounds and with lower-levels of education are more likely to experience divorce (Hogendoorn et al., 2020), meaning divorcing women often have only a short distance to fall into poverty. Therefore, a child living with a divorced mother likely experiences a unique risk to poverty, relative to children of never married or widowed mothers.

Finally, children living with a widowed mother are also likely to experience many of the same challenges as other children living with single mothers, as widows also cannot rely on the personal support or labor income of a spouse, and like divorced mothers, they may have engaged in marriage specialization. At the same time, however, unlike divorced and never-married mothers, widows typically receive financial support through their late spouse's public or private pension or through widows' assistance programs. In fact, many of the original welfare state polices, such as pensions, were built to aid mothers who had lost their breadwinner (Esping-Andersen, 1990). Likewise, unlike never-married women, who potentially never had support from their child's father, widows likely received support from their child's father up until his death and beyond yet without the costs of divorce fees and expenses which can burden divorced mothers. Similarly, while divorced and never-married mothers may receive child support payments, these represent only a portion of the father's income and often go unpaid (Huang et al., 2005), but widows' benefits may be more consistently received.

Labor force characteristics

Many poverty researchers have found female labor force participation to significantly reduce poverty (Bianchi, 1999; Blank, 2018; Christopher et al., 2001; Gornick et al., 1998). Through employment, women are expected to find a means to establish independence, exit welfare, and escape poverty (Harris, 1996). Women's labor force participation has also been shown to reduce child poverty (Brady, 2004; Eggebeen & Lichter, 1991).

Likewise, it has been established that employment among single mothers in particular reduces child poverty (Esping-Andersen, 2002). In fact, the push for welfare recipients to enter the labor force was central to the 1996 U.S. welfare reform, often referred to as "Welfare to Work." It had a profound effect on single mothers, increasing the percent of low-income single mothers employed from 58% before its enactment to nearly 75% by 2000 (Edin & Shaefer, 2015). It would seem fairly unambiguous that single mothers' labor force participation should lead to greater levels of employment, and hence incomes, for single mothers and lower levels of poverty for their children.

However, some studies conclude that increasing female labor force participation increases inequality (Alderson & Nielsen, 2002; Gustafsson & Johansson, 1999), as women entering the labor force may inflate the bottom of the income distribution. Because single mothers may be particularly likely to occupy one of the these positions (Lichter, 2001), it is unclear if their labor force participation will necessarily lead to lower levels of poverty for children of single mothers. Women with children often experience labor market discrimination, referred to as the motherhood penalty, resulting in lower rates of hire, lower wages, and less flexibility regarding absences and tardiness (Correll et al., 2007). At the lower end of the income distribution, the motherhood penalty is even more pronounced (Budig & Hodges, 2010). From the view of potential or hypothetical employers, mothers are viewed as more dedicated to their families than their jobs (Correll et al., 2007). As a sole parent, it is reasonable to expect that motherhood penalties for single mothers are even more severe as jobs typically expect workers to always be available and without family obligations (Acker, 1990). Similarly, cultural expectations, practices, and beliefs about women with children working varies (Morgan, 2013), which can result in not only social pressure to remain out of the labor force, but also a lack of institutions to support working mothers such as affordable childcare or limited availability of mother-friendly job opportunities.

In addition, there are costs to employment. There is evidence that single mothers who enter the workforce do not necessarily benefit and often face a trade-off. For example, one study in the U.S. finds that among single mothers, a low-wage job's costs often outweigh the earnings, with many low-wage working single mothers experiencing a net loss from going to work (Edin & Lein, 1997). While single mothers may receive employment income when they enter the labor force, they experience the added costs of transportation, work attire, and, importantly, childcare, in addition to a possible reduction of their government benefits, leading to an effective decrease in disposable income. Therefore, labor force participation may not necessarily produce the expected result of lowering the likelihood of poverty.

Another reason the effects of labor market activity on poverty among children of single mothers are unclear is due to the proclivity for women's employment in the service sector. Previous research has highlighted the impact of deindustrialization on increasing poverty (Callens & Croux, 2009; Wilson, 2012). Generally, the decline of the industrial sector has been replaced by growth of the service sector (Urquhart, 1984). Employment in the service sector tends to be bifurcated into high-skill, high-wage positions and low-skill, low-wage positions, including women's employment in the service sector (Albanese, 2007). As a result, many of the often well-paid, unionized jobs of the industrial sector have been replaced by service sector jobs. Women are especially likely to be employed in the service sector, often at lower end. During the 1980s, for example, the vast majority of women worked in clerical, service, and sales jobs, earning about 68 cents for every dollar a man earned (Sidel, 1991), and in the US, the rapid and broad expansion of the service economy created a large pool of contingent, low paid workers who are usually women (Smith, 1984). Among mothers previously receiving welfare benefits in the US, nearly 2/5 are in these kinds of positions, working in restaurants, nursing homes, home childcare, or bars, and only about 7% of these women have jobs with union contracts (Spalter-Roth, 1995). Therefore, while there has been a push for more women, especially single mothers, to join the workforce, the benefit to these women and their children is likely to vary based on the type of work they enter. Single mothers in the service sector, especially those with lower levels education, may be earning low wages and receiving few employment benefits or protections, thereby potentially increasing the probability their children are poor. On the other hand, those with high levels of education are likely to be in a high-skill service sector job which usually comes with higher wages, regular hours, and some job protection and benefits.

Not only is poverty expected to be influenced by labor market activity and sector, participation in part-time work is also a factor for consideration. Just as women are more likely to be employed in service-work, women are also more likely than men to be employed in atypical work, such as part-time work (Horgan, 2005). Part-time work is very common among women across affluent democracies, particularly mothers with children under 6 years old, though it does vary by country (Morgan, 2006). Moreover, many single mothers depend exclusively on part-time work (Lichter & Crowley, 2004). As primary caregivers and breadwinners, part-time work may provide an opportunity to balance these two roles, yet working part-time also reduces earnings potential versus full-time work and incurs a part-time wage penalty (Gornick & Meyers, 2003). Likewise, especially in the U.S., part-time work is less likely to come with employer-provided benefits. For example, the U.S. Fair Labor Standards Act includes no

mention of compensation and benefits for part-time workers, while the Employee Retirement Income Security Act and U.S. Internal Revenue Code allows employers to give different benefits to full and part-time workers (Gornick & Meyers, 2003). Therefore, children living with single mothers working part-time are likely to experience higher odds of poverty than those living with single mothers working full-time; however, part-time work should be more beneficial than no work at all.

Economic Performance

Other explanations for poverty rates turn to macro-level factors such as economic performance. An increase in the economic performance of a country is widely expected to reduce poverty (Alper et al., 2021; Gundersen & Ziliak, 2004). In turn, efforts to reduce poverty often call for strengthening the economy through economic growth. Some scholars have suggested economic performance is even more influential on poverty levels than other structural factors, such as the shape of the labor market or demographic composition (Williams, 1991), or even that it is the most important influence on poverty (Blank, 2000). The adage made famous by John F. Kennedy that a "rising tide lifts all boats" underscores the prominence of this expectation. If it is the case that a rising tide lifts all boats, strong economic performance should benefit single mothers and their children. However, there is some reason for skepticism. Over the last few decades, during times of economic growth, much of the growth has happened at the top of the income distribution, leading to increasing inequality (Blank, 2009). Particularly as single mothers are over-represented in the lower end of the income distribution (Bradbury et al., 2019), rising tides may not in fact lift their boats.

The Welfare State.

Over the past two decades, another explanation for poverty differences has gained attention, particularly in the cross-national literature: welfare generosity. Many have found welfare generosity to be associated with lower levels of poverty cross-nationally (e.g. Alesina & Glaeser, 2004). Looking within countries over time, research on the U.S. has presented clear evidence connecting the expansion of social policies with reductions in poverty (DeFina & Thanawala, 2001). Welfare generosity has been shown to not only reduce poverty among the overall population (Brady, 2009), but also children (Heuveline & Weinshenker, 2008), the working-age population (Brady et al., 2010), the elderly (Brady, 2004), as well as single mothers (Misra et al., 2007). Therefore, there is little doubt greater welfare generosity should reduce poverty rates among children of single mothers. However, it is unclear how the magnitude of the effects of welfare generosity compares with family structure, labor force activity, or economic

performance, which polices are most effective, and whether welfare generosity is especially beneficial for children of single mothers relative to children in two-parent homes.

Likewise, while previous research suggests greater welfare generosity should reduce poverty among children of single mothers, overall welfare generosity measures are very broad and encompass many different spending areas. As a result, it is very possible an increase in overall spending may not be as beneficial as expected, since it may not necessarily indicate more social spending on policies directed at single mothers and their children. For example, an increase in overall social spending could be the product of greater spending on childcare or healthcare, or it could be the result of greater spending on pensions or paternity leave. This is supported by previous research that found overall welfare generosity not to mitigate the poverty penalty associated with single motherhood (Brady et al., 2017). Greater generosity of particular programs on the other hand may provide more benefits to single mothers and their children, even if not specifically targeting these individuals. In contrast to overall welfare generosity, greater social spending on family policy specifically could provide greater reductions in poverty among children of single mothers by addressing their specific needs. Family policies include daycare and early childhood education, maternity/parental leave, child allowances, and can be provided as either cash transfers or as in-kind benefits. In Orloff's (1993) seminal article, family policy is highlighted as a crucial, and often overlooked, component of the welfare state as it provides women independence not just from work but also marriage. She argues that with strong family policies, women have the opportunity to form independent households without the risk of poverty.

While strong family policies may improve the economic circumstances for single mothers and their children, benefits for single mothers are often viewed with considerable criticism. Children are typically viewed as the "deserving" poor, meaning deserving of social assistance, but their mothers are not always afforded the same considerations and are generally seen as undeserving (Katz, 2013). Gaining and maintaining access to benefits can also be challenging, with women of color facing the greatest barriers (Schram et al., 2009). Cash benefits are particularly controversial. Colloquially known as "welfare" in the United States, cash benefits, especially for ablebodied adults, are viewed very harshly (Gilens, 2009). Single mothers are often one of the major targets of this animosity, particularly after Ronald Reagan popularized the figure of the "Welfare Queen"—the single mother living richly off her government benefits, shirking unemployment and marriage, and having many children to multiply her government income (see Edin & Shaefer, 2015, pp. 15–16).

As a result, in-kind benefits generally garner more public support and allow women to retain more of their incomes by not having to pay (as much) for particular services such as childcare. However, as highlighted by Edin and Shaefer (2015), without cash in their pockets, very poor and unemployed people still cannot lift themselves out of poverty with in-kind benefits alone. For example, while SNAP benefits, often referred to as food stamps, allow a single mother to spend less of her income on food for her family, she cannot use SNAP benefits to purchase bus fare, a haircut, or slacks for a job interview that could ultimately result in a job that takes her family out of poverty. Therefore, it is important to consider cash benefits and in-kind benefits separately.

Further breaking down social spending on family policies and the often-contentious nature of certain types of spending, it is important to consider whether spending on certain specific policies significantly reduces poverty among children of single mothers. Two cash family policies include maternity leave and family allowances. Both are often provided, at some level, to all mothers. As a result, they should not be unpopular, in contrast to meanstested or targeted policies (Brady & Bostic, 2015). The benefit of maternity leave has been mixed in the literature, as long maternity leaves in particular have been linked to reinforcement of traditional gender roles (Hook, 2006) and result in women being disconnected from the labor market and making their reentry more challenging (Gornick & Meyers, 2003). On the other hand, single mothers, particularly those who have given birth recently or with young children, can benefit from maternity leave, even long maternity leave, as the sole-breadwinner in the household; however, they often take less time than married women (Morgan & Zippel, 2003). All the same, longer maternity leave has been found to be associated with lower odds of poverty for single mothers (Misra et al., 2007). Paid maternity leave can provide a substitute for employment income and alleviate the burden of paying for childcare. However, the effect of maternity leave on all children of single mothers is unclear. School-age children are less likely to benefit from this generosity and may instead experience negative consequences from longer paid maternity leave as a result of their mother's prior exit from the labor market. Not only is the length of maternity leave important but also the level of payment. Regardless of the length of leave, if it does not come with a reasonable replacement rate, single mothers may not benefit, may take a reduced time, or may be unable to use it at all. Therefore, it is important to consider not just the length of maternity leave but also the typical replacement rate.

On the other hand, child or family allowances provide a direct injection of cash into the household. Child allowances have been connected with lower child poverty (Immervoll et al., 2001; Pressman, 2011), and in their study of 18 OECD countries, Maldonado and Nieuwenhius (2015) find single mother households experience lower

poverty when monthly family allowances are higher. Yet, it is possible spending on child allowances may not provide the expected reduction in poverty rates for children of single mothers, particularly if benefits are small, are a substitute for the provision of services, require employment or other restrictions, or decrease with income. However, considering poverty is the result of low incomes, increasing spending on family allowances should reduce poverty. Particularly as family allowances are generally provided based on the number of children in the household, children of single mothers will not experience the division of benefits that may be experienced if benefits are independent of household size or number of dependents. Moreover, as discussed above, as cash benefits, family allowances can be spent on the needs of the family and children as assessed by each family. If children need school supplies or extra tutoring or bus fare, or if a mother uses those funds to assist a job search, it can provide important supplemental income and opportunities for advancement.

A final specific area of spending is childcare and early childhood education. Many have touted increased provision of public daycare as the key to reducing child poverty (Gornick & Meyers, 2003), particularly among children in single mother households (Esping-Andersen, 2002). The argument is straightforward; government provision of affordable or free daycare allows single mothers to enter the labor force, gain employment income, and rise out of poverty. Simply, it removes a major barrier to single mother employment. Offered as an in-kind benefit, in countries with generous provisions of public daycare, these services are typically viewed as an extension of the education system (Morgan, 2006) and are provided directly to children, viewed as "deserving" recipients. Likewise, in most rich Western countries, more than half of children over 2 years old attend public services (Morgan, 2006), indicating the popularity of these programs. At the same time, the expansion of public childcare to the middle-class may bolster spending, but it is not clear whether or if such expansion will reduce the odds of poverty for children of single mothers. It could remove stigma and improve quality. On the other hand, additional social spending on early childhood education and care may be exclusively the result of expanding provision to the middle-class rather than to low-income children. Therefore, the relationship remains ambiguous.

Building on previous literature, the present study brings together many of the major factors expected to influence poverty in the population generally and among children of single mothers more specifically. Using crossnational data covering nearly four decades, this paper addresses three major questions: 1) How well do the major factors highlighted in the literature (family structure, labor market activity, economic performance, and welfare generosity) explain poverty for children of single mothers? 2) Are there specific types of social spending that

reduce poverty for children of single mothers more effectively than others? 3) Does this spending have a greater effect on poverty for children of single mothers than children living with two parents?

Data and Measures

The data for this study come primarily from two archival sources. The data for the individual-level variables come from the Luxembourg Income Study micro-data (Luxembourg Income Study, 2022). The Luxembourg Income Study (LIS) is the premier data source for cross-national measures of income. The LIS utilizes national surveys from countries all over the world and recodes these surveys to create harmonized measures that can be compared cross-nationally and over time. The LIS now includes data from 52 countries and a period spanning 50 years. The micro-data include information on households and their constituent members related to household composition, demographic traits of household members, and detailed financial information such as labor income and transfers received. This allows the limiting of the sample to specifically children, distinguished by household type: single mother or two-parent. Further, using the micro-data provides the opportunity to account for the traits of the parent(s) and the household more generally.

The data for the country-level variables are taken from the OECD. Stat (OECD, 2020) database, which brings together data from many of its data sources in OECD countries and even some non-OECD countries. The OECD Social Expenditure Database (SOCX) is the primary source of data, as it contains the data on social spending; however, the Annual Labor Force Statistics (ALFS), Family Database, and Annual National Accounts were also utilized. When data were unavailable through OECD. Stat, the *Comparative Welfare States* (CWS) (Brady et al., 2020) dataset serves as the source of data. Much of the CWS data originate from the OECD; however, the CWS occasionally has data from older versions of the OECD, which are not available through the OECD online database. Data for maternity leave replacement rates come from the Historical Database on Maternity Leave (HDML) (Son et al., 2020) and the PROSPERED data set (Nandi et al., 2018). The data for the country-level independent variables are generally lagged one year; however, in some cases the one-year lagged data was not available and so the best-available data were used.

[Table 1 about here]

Table 1 lists the untransformed country-level variables, a description of these measures, the source of the data for each measure, as well as the means and standard deviations for the children of single mother sample¹. The

¹ The values for the full sample are very similar.

sample of country-years was derived through both theoretical and empirical considerations. Every country with adequate data in both the LIS and OECD was included, using one survey per wave of data as available. As a result, some countries included in the LIS data had to be dropped from these analyses; however, 25 countries are represented², covering the years 1985 to 2016. Because not every country has data for every wave, there is a total of 122 country-years in the full sample. The countries in this sample share many characteristics: all have mature welfare states, all are democratic countries of at least ten years, all have high-income, industrialized economies, and most are considered "Western" countries. The time frame of this sample is also important, as it represents a time when women were increasingly entering the labor force, and single motherhood was becoming more common and divorce more acceptable, but with most of the data coming from 1995 onward, it is not a timeframe during which there were dramatic cultural shifts regarding women's roles.

Dependent Variable

The dependent variable is child poverty. A child is considered poor if they live in a household that has an income, after taxes and transfers, that falls below 50% of the median disposable income in that country-year³. Household incomes are adjusted for household size, following the International Labour Organization (ILO) convention adopted by the LIS, dividing household income by the square root of household size. This approach is widely preferred by cross-national researchers (Brady, 2003). Income is top and bottom coded at 10 times the mean equivalized disposable income in that country-year and 1% of the mean equivalized disposal income in that country-year. The average rate of child poverty for those living in a single mother household range from a low of 5.5% in Denmark in 1995 to a high of 61.6% in Australia in 1985.

Independent Variables

To estimate the effects of family structure, I include two sets of individual-level variables⁴. The first is household type. Children are categorized as living in either a single mother household or in a two-parent

² These countries include Australia, Austria, Belgium, Canada, Czech Republic, Denmark, Estonia, Finland, France, Germany, Greece, Hungary, Iceland, Ireland, Italy, Japan, Luxembourg, Netherlands, Poland, Spain, Slovakia, Sweden, Switzerland, United Kingdom, United States.

³ LIS variable DHI

⁴ In supplemental analyses, available in Appendix A, I include the individual-level measures of interest (family type and employment status) as contextual variables, averaged by country-years. The only variables that reach statical significance are % divorced mother (BE) and % mother unemployed (BE). However, because the primary interest is the within effects and because I do not discuss nor identify mechanisms for the influence of these variables, I do not include them in the main results.

household⁵. A single mother household is defined as a household headed by an unmarried woman with children in the household. This approach reflects the coding method taken by the LIS to calculate its LIS Key Figures; the code for which can be found on their website. Also replicating the designation taken for calculating the LIS Key Figures, a two-parent family is defined as a household in which the head of household is partnered⁶, there are more than two people in the household, and at least one household member is a child. Second, to further distinguish between types of single mother households, children of single mothers are designated as having either a divorced mother or a widowed mother, with never-married mother serving as the reference category. Additional controls of family structure include a continuous measure of the number of children in the household and an indicator variable if the primary-earner parent⁷ is under 25. Finally, at the individual level, several indicator variables measure labor market activity. First, I include a series of mutually exclusive indicator variables to measure labor market status. Children are categorized based on the status of their primary earner parent. These statuses are working part-time, not in labor force, and unemployed, with working full-time serving as the reference. Accounting for service sector employment presents some challenges. While the data allow for the identification of service sector employment generally, with over 85% of employed single mothers working in the service sector, what becomes more relevant is the distinction between high- and low-skill service sector employment. However, I cannot make this distinction in the data. Instead, as a proxy for high- and low-skill employment, I control for education. Using the LIS standardized threecategory education variable, I include indicator variables for high education and low education, with medium education serving as the reference. Because the reference category for employment is full-time worker and the vast majority of single mothers work in the service sector, these measures approximate the effects of full-time employment in either high or low-skill service jobs, since level of education should provide a good indication of the skill required for their job.

Moving to the level two, country-year, variables. There are two measures of the economy to test hypotheses related to economic performance and poverty. First is *economic growth*, the three-year average of

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⁵ Due to the small number of children living in "other" households and the variation within these categories, these children are dropped from the sample.

⁶ "Partnered" includes couples that are both married and in domestic partnerships. While these statuses may not be treated the same in all countries, it is not possible to distinguish between the two categories in all LIS surveys.

⁷ For children of single mothers, the primary-earner parent is straightforwardly the head of household. However, due to inconsistent coding of head of household between LIS surveys, for two-parent households, the head of household may be the primary-earner or could be someone else. Therefore, I assign the parent with the highest absolute value of labor income as the "primary-earner parent". If the parents receive equal income, the older of the two is assigned. If they are the same age, a parent is randomly chosen.

annual growth in gross domestic product (GDP)⁸ measured in millions of US Dollars using constant prices and 2015 purchasing power parity (PPP). In addition, *GDP per capita* is included as a general measure of the wealth of a nation and standard of living.

Measures of social spending generosity range from very general spending to spending on specific program areas. Starting with the most general, *social expenditure* is total public spending. To standardize values across countries, spending variables are measured as a percent of GDP. I also test spending per capita, rather than as a percent of GDP; the results are provided in Appendix B and C. The results are very similar regarding significance levels; however, the magnitude of the effects is smaller, which may be attributed to the difference in scale. The OECD (2021) defines social expenditure as "[s]ocial spending with financial flows controlled by General Government (different levels of government and social security funds), as social insurance and social assistance payments." A more specific yet still major aggregate category of social spending is *family expenditure*, also measured as a percent of GDP, which includes child allowances and credits, income support during leave, childcare support, and payments for lone parents. *Family expenditure* is then disaggregated into *family in-kind* and *family cash* benefits, again measured as a percentage of GDP. In-kind benefits include early childhood education and care, home help and accommodations, and other types of in-kind benefits, while cash benefits include spending on family allowances and maternity/parental leave, among other cash benefits.

To test the effectiveness of specific policies that are likely to affect single mothers and have disaggregated data widely available, measures are included for spending on the in-kind benefit early childhood education and care and the cash benefit family allowances (both measured as a percent of GDP). Finally, maternity leave is measured not as spending but as the number of weeks of paid maternity and parental leave available to mothers. Because this general measure does not take into account payment conditions and replacement rates, I include a measure of maternity leave replacement rate. The correlation between these two variables is quite low. This allows for testing for independent effects of time generosity and monetary generosity. This is informative as it allows for conclusions to be drawn about the differential effects, if any, of maternity leave characteristics. I also test spending on maternity leave, available upon request; however, weeks of leave is preferable as spending measures for this variable may reflect not just benefit generosity but also birth rates and average wages of parents, generally. In all, these welfare

⁸ Annual growth rate is calculated as (t-t₋₁)/t₋₁

state variables reflect conventional measures for these areas of spending and policy generosity at a level of aggregation and using a method of standardization that best facilitates the comparison of effects cross-nationally.

Analytic Technique

The unit of analysis is the individual, and the dependent variable is a binary measure of poverty (1=poor). Because individual-level variables are based on household characteristics and due to the occasionally lacking age information for respondents under 15, models are estimated using data from the lead parent (whose data for the variables of interest are the same for all household members) and then weighted by the number of children in the household. The same technique is used by the LIS to calculate its Key Figures for children of single mothers. I also estimate models using the normalized *household* weight⁹, and the results are consistent (see Appendix D and E). However, because my interest is in child poverty, and children's outcomes specifically, using the child weight, rather than the household weight, is preferable. The full sample contains 668,549 observations and 122 country-years. The sub-sample of children in single mother households contains 105,814 observations and 101 country-years, as four countries¹⁰ did not have sufficient data to distinguish between never married, divorced, and widowed single mothers.

With individuals clustered in country-years and with a binary outcome, standard OLS is inappropriate. To account for the binary outcome, I implement logistic regression, and to manage the clustering of observations, I utilize a multilevel modeling technique with random intercepts for country-years and fixed effects for wave¹¹. To fully take advantage of the comparative longitudinal survey data, in which individuals come from a repeated cross-section, but higher-level units are comparable between units and over time, I adopt a hybrid, or between-within, analytic approach (Fairbrother, 2014). This increasingly popular method allows for examinations of cross-sectional and longitudinal effects by dissecting change over time within units and cross-sectional effects. The former provides an approximation of a fixed-effects approach among higher-level units by examining change within these higher-level units, while the latter allows for comparisons between higher-level units. This is executed by

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⁹ Because the number of individuals in each country's sample varies in size, both the child weight utilized and the LIS normalized household weight are calculated to weight each country equally, providing representative samples by country, but normalizing each country-year's sample size to 10,000.

¹⁰ Australia, Italy, Japan, and Sweden

¹¹ Three-level models were also tested for the single-mother only sample, as this more adequately reflects the clustering of the data (Schmidt-Catran & Fairbrother, 2016); however, three-level models for the full and two-parent only samples failed to converge for the fully conditional (intercept only) model. Results for the three-level single mother only models, reported in Appendix F, are consistent with the two-level models.

calculating, in the case of the present data, the country-mean for each country-year variable (between), and the deviation from that mean for each country-year (within). These variables can be estimated in the same model and provide separate coefficients using Equation 1 (Fairbrother, 2014, p. 124):

$$y_{itj} = \beta_0 + \beta_1 x_{itj} + \beta_2 x_{tjM} + \beta_3 \overline{x_j} + \beta_4 time_{tj} + u_{tj} + e_{itj}$$

In this instance, the country-year level variable x_{tj} is in the equation twice but decomposed into two parts: the country-mean for that variable, x_{tjM} and the country-mean centered value x_{tjM} . It also includes a variable for time (waves) to control for potential time trends that may occur yet are unrelated the time trends in the observed variables. This approach addresses several of the concerns associated with typical multi-level models, related to pooling and the inability to distinguish cross-sectional and longitudinal effects. Because my primary interest is the within-effects (WE) and because the intra-class correlation for the single mother, three-level model (individuals nested in country-years, nested in countries) suggests most of the clustering occurs at the country-year level (country-year ICC=0.127; country ICC=0.095), I conduct two-level models with individuals, nested in country-years, and include a fixed effect for wave.

Results

To answer my research questions, I present the results in several steps. First, I examine the correlation between the various spending measures to determine if these variables can be included in the same model. I find many to be correlated, and, hence, present these spending measures in separate models. I start with the most general spending measure, then specifically examine family spending, later dividing family spending into cash and in-kind spending, and finally examining specific family policies: family allowances, early childhood education and care, and maternity leave. Next, I model the effects of family, work, economy, and spending on poverty for a sample containing only children living in single mother households. I expand these models to include both children in single mother and two-parent households to determine whether the effects are specific to children in single mother households or apply to all children in parental households. The second sample is somewhat larger, as it includes more country-years. This is because some country-years did not differentiate between never-married, divorced, and widowed, a key variable in the single mother only sample. In the two-parent and single mother sample, I only differentiate between these two family types, dropping the never-married, widowed, and divorced variables. To test the differential effects of the variables of interest and household type, I include an interaction for single mother. Because interpreting interaction terms in logistic regression is not always straightforward, I present the results as

marginal effects (the difference in the predicted probabilities for the two household types) at representative values, for an individual with the characteristics of the typical poor child in the sample. The marginal effects and confidence intervals allow for a test of significant differences between the two groups, and I use a test of second differences (Mize, 2019) to demine whether the interaction has a significant effect, examining whether a change in the marginal effect statistically significantly changes with an increase in the focal political variable.

Again, because one of the central questions of this research is not just whether the welfare state influences the odds of poverty, but, specifically, which policies and spending areas matter, the models start with the most general policies and spending types and then test more specific policies. Moreover, because the variables for specific policies are disaggregations of more general measures, specific and general measures must be tested separately. Otherwise, issues of collinearity arise, which, compounded by the relatively small country-year sample size, could lead to bias and provide invalid estimates. A correlation matrix of the welfare state variables can be found in Table 2.

[Table 2 about here]

There is little relationship between the within and between spending measures; however, the same is not true among the within spending measures and among the between spending measures. For example, country-mean-centered (within) family expenditure is moderately correlated with country-mean-centered (within) general social expenditure, and country average (between) general social expenditure is moderately correlated with country average (between) family expenditure, but within and between family expenditure are not closely correlated. Within and between in-kind and cash family benefits, as the composite parts of family spending, are not surprisingly highly correlated with within and between family spending, respectively. Interestingly, in-kind and cash family benefits are only weakly correlated with one another, suggesting that family spending generosity is the product of generous cash benefits or generous in-kind benefits but typically not both. While weeks of paid maternity leave is not strongly correlated with any of the spending variables and leave replacement rate is only weakly correlated with overall and cash spending measures. Early childhood education and care is strongly correlated with in-kind family spending, and family allowance spending strongly correlates with cash family benefits. This provides empirical support for the theoretical approach of stepwise examination of these policies.

[Table 3 about here]

Models 1-4 in Table 3 regress the effects of family, work, economic, and welfare state variables on the odds of poverty for children living in single mother households. The coefficients are reported as odds ratios to facilitate interpretation. However, the comparison of odds ratios, especially across models, can be misleading (Allison, 1999; Breen et al., 2018; Mood, 2010). This is because: 1) coefficients are a function of the base-line odds (the constant), which changes across models, and 2) the country samples have differing degrees of unobserved heterogeneity. Furthermore, the key social spending variables differ considerably in their means and standard deviations; a 1 percentage point increase represents something quite different depending on the measure. As a result, while I will discuss the direction and level of significance for the odds ratios, I compare the magnitude of key independent variables across models using predicted probabilities, calculated using values from the 5%-95% cumulative distribution of the country-level data and the characteristics of the typical poor child in the sample.

Model 1 includes family, work, and economic variables, as well as the general measure of social expenditure. Regarding family structure, children living with a mother that is divorced or widowed have significantly lower odds of poverty than children whose mother never married, though the odds for having a widowed mother are much lower than those for having a divorced mother. For the typical poor child living with a single mother living with an unmarried mother is associated with a 51% probability of poverty, living with a divorced mother a 48% predicted probability of being poor, and living with a widowed mother a 22% predicted probability of poverty. The other family structure variables, mother under 25 and number of children in the household, both significantly increase the odds of poverty for children living in single mother households. The measures of work status are significant and signed in the expected direction. Living in a single mother household in which the mother is employed part-time, not in the labor market, or unemployed all increase the odds a child is poor, relative to living with a mother who is employed full-time, by a factor of 2.2, 5.3 and 7.5 respectively. The effects of these individual-level variables are consistent across all four models.

The within-country economic variables have no statistically significant effects. The between measure of GDP per capita reaches significance, but the magnitude of the effects are very small. The within measure of social expenditure does not reach statistical significance, while the between measure does. This suggests that living in a country with a higher level of spending reduces the odds of poverty, but a country increasing its spending does not.

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¹² The typical poor child living in a single mother household is one in which the mother is divorced, is not in the labor force, has a low level of education, is over 24 years old, and in a household with two children.

To reiterate, this research is primarily interested in the within-effects, as these measures best reflect the longitudinal nature of the data and can account for unobserved heterogeneity. The between-effects primarily serve to groupmean center the time-varying measures but can be informative, nonetheless.

In all, this model supports claims that labor market participation is important, though working full time is best. Likewise, family structure is also impactful, as children living with never married mothers fair worse than children living with divorced mothers, who fair worse than children living with widowed mothers. Children with younger mothers, mothers with lower educations, and households with more children also face higher odds of poverty. On the other hand, economic performance explanations receive little support, nor does within-country general social spending. However, it is important to remember that general social spending is just that—general—meaning a spending increase can correspond with an increase in any spending area. Yet, this research is most interested in policies that are clearly intended to help children and their families. Therefore, the subsequent models add measures of more specific spending areas.

Model 2 adds a measure of social spending on family benefits to the previous model, testing the effects of family, work, the economy, and the welfare state all together, with a more specific focus on policies targeted at families. All the individual-level variables are statistically significant and signed in the same direction as the previous model. The between measures of economic performance are positive and statistically significant, but the within measures are not significant. The general social spending between measure continues to be significant while the within measure does not; however, the between measure flips signs, now *increasing* the odds of poverty. This can likely be explained by the strong, significant effect of between-country family expenditure. However, the within effect of family expenditure approaches (z=-1.78) but does not reach statistical significance.

Model 3 includes the family, work, and economic variables of Model 2, as well as the measure of general social spending, but disaggregates family expenditures into family in-kind and family cash spending. Once again, the effects of the individual-level measures (family and work) remain statistically significant and signed in the expected way. None of the measures of economic growth or general social expenditure are statistically significant nor is the within measure of GDP per capita. The between measures of GDP per capital, cash spending, and in-kind spending are all significant, while the within measures of cash and in-kind family spending are not. However, the within effect of family cash spending does approach statistical significance (z=-1.95).

Finally, Model 4 includes the variables from Model 3 but replaces family cash and in-kind spending with four specific family policy areas: early childhood education and care expenditures, paid maternity leave entitlements (in weeks), maternity leave replacement rates, and spending on family allowances. The effects of the individual level variables, economic variables, and general social spending are consistent with the previous models. The effects of neither maternity leave length nor maternity leave replacement rates (within or between) are statistically significant. This finding may speak to the mixed claims in the literature that maternity leave policies help cover expenses when mothers are unable to work yet do not offer the same protection as work, or it may be simply that single mothers cannot afford to fully utilize these benefits.

As for early childhood education and care, only the between effects are statistically significant. The lack of a significant within-effect should not be completely unexpected given the results in Model 3; however, based on previous findings in the cross-national literature, it is still somewhat surprising. However, keeping in mind that this measure only examines within-country variation, this variable does not account for levels of spending or welfare state regime type, unlike much of the previous research which focuses more heavily on the between effects, which are statistically significant. The non-effects of the within measure may also be related to the ways in which spending on these services varies across countries, targeting poor women or single mother families in some areas or times while targeting the middle class in others. This is supported by a recent study that found increased public spending to be associated with greater women's employment, but only when childcare was used by families from diverse incomes (Neimanns, 2021).

Both the within and between effects of family allowances are statistically significant. The magnitude of the within-effects is substantial, with a 1% increase in family allowances within a country reducing the odds of poverty by a factor of over 2.6, even larger than the effect of having a mother working full time rather than employed part time. Figure 2 presents the predicted probabilities for the typical poor child in this sample over a range of values in the data. It is clear from this figure that when a country increases its spending on family allowances, the probability a child in a single mother household is poor decreases, as well as the inverse: when spending is reduced, the probability increases. For example, if a country reduces its spending on family allowances by .2 percentage points of GDP, the predicted probability increases by around 4.6 percentage points, from 47.4% to 52% for the typical poor child in the sample. On the other hand, a similar positive increase decreases the probability of poverty by a similar amount: from 47.4% to 42.9%.

[Figure 2 about here]

While these models suggest work, family structure, and family allowances all have an important influence on whether a child living in a single mother household will be poor, it is worth considering whether these effects, especially those related to social spending, are unique to children living with single mothers or are in fact the case for children in two-parent families as well. Table 4 displays similar models as Table 2 but with a sample of children from both single-mother households and two-parent households. *Divorced* and *widowed mother* is replaced with the general *single mother* category and tests for differential effects of the spending measures on children living in the two different household types (single mother/two-parent) by including an interaction between living in a single mother household and the spending measure of interest.

[Table 4 about here]

The inclusion of interactions does compound the challenges of interpretation, but they are essential for accurately modeling the relationships of interest. Because statistical significance and even the direction of the interaction term does not always accurately indicate the interaction's substantive pattern (Ai & Norton, 2003), I will discuss the effects primarily as marginal effects, again focusing on the within effects. In Appendix G, I also present an alternative table using data only from children in two parent households. The results, not surprisingly, reflect the main effects seen in Table 4. However, it is important to note that even though the interpretation of the odds ratios in Appendix G, which do not include interactions, may be more straightforward, the odds ratios are not directly comparable to those in Table 2. This is due to the differences in both sample size and baseline odds. Because the true goal here is to directly compare the two groups, using the interaction approach in Table 4 is preferable.

Following the recommendation of Mize (2019), I utilize marginal effects and second differences when determining statistical significance and effects of the interaction. The marginal effects at representative values (MERs) are calculated using the individual-level characteristics of the typical poor child in this sample¹³, holding all other variables at their mean. The marginal effects indicate the difference in the predicted probabilities if this hypothetical child lived in a single mother household or two-parent household, all else equal. This can also provide information about whether the difference between household type is statistically significant. Tests of second differences expand this interpretation by evaluating the interaction specifically, testing whether a change in the

¹³ This is a child who is living in a two-child household, with a lead-earning parent that works full-time, has a low level of education, and is over 24 years old.

political variable of interest (e.g., social spending) is associated with a significant change in the marginal effects of household type. Effectively, the test of second difference indicates whether an increase in the key variable statistically increases or decreases the probability of poverty for children in these two household types at the same rate, indicating whether the slopes of the predicted probabilities are significantly different.

[Figure 3 about here]

Among the individual-level variables, the direction and level of significance of the estimates are very similar to those using the sample of only children living in single mother households. The estimates for economic performance are also fairly similar; however, the effect of GDP per capita (BE) is not significant in these models. Beginning with Model 1, Figure 3 displays the marginal effects of poverty for the typical poor child in this full sample at different levels of country-mean-centered (WE) social spending. First, based on confidence intervals, the single mother disadvantage persists at all levels of social spending; however, it *does* decrease as spending increases. Furthermore, a test of second differences indicates that while the change in spending from -3.5% to -2.5% is not significant, at higher levels (1.5% to 2.5% and 2.5% to 3.5%), this same 1 percentage point increase does significantly reduce the marginal effects of household type, significantly narrowing, while not eliminating, the disadvantage children of single mothers experience relative to children living in two-parent households.

[Figure 4 about here]

Moving onto family polices, there is a similar pattern. Family spending reduces but does not eliminate the single mother disadvantage relative to children living in two parent households. Likewise, while the single mother disadvantage for children grows smaller at an increasing rate with more spending, as seen in Figure 4, it does not do so significantly. In a test of second differences, only at the highest levels of country-mean-adjusted spending, .1% to .3% and .3% to .5%, does the change even approach statistical significance (z=-1.73 and z=-1.85, respectively). While I do not extrapolate beyond the 95th percentile of the observable data, this does suggest if spending continued to increase, it would reach a statistically significant level.

[Figures 5,6 about here]

Next, family spending is divided into cash spending and in-kind spending in Model 3. The marginal effects presented in Figure 5 illustrate the interaction effect of spending on country-mean adjusted family cash benefits and living in a single mother household on the probability of child poverty. While the difference in the predicted probabilities between these two groups remains statistically significant at all levels of spending, the gap does grow

smaller as spending increases. A test of second differences indicates that each one-unit (.1%) increase is associated with a statistically significant reduction in the marginal effects at all points in the distribution presented in Figure 5. Model 3 also includes in-kind spending. However, like with the single-mother only sample, the effects of in-kind spending are not very strong, and there is little difference between the effects on children in single mother and two-parent households. Figure 6 displays the marginal effects, which reinforces this conclusion, presenting an almost perfectly horizontal line. The marginal effects only change around .07 percentage points from the lowest to the highest level of country-mean adjusted in-kind spending.

[Figure 7 about here]

Finally, Model 4 examines the effects of specific family policy areas. Focusing on the within-country effects, the main effects are similar to those from Table 2. Looking at a specific type of in-kind spending, Figure 7 illustrates the marginal effects of poverty by country-mean adjusted early childhood education and care (ECEC) spending. It is clear from this figure that children living with single mothers consistently experience a significant disadvantage relative to children living in two parent households, with statistically significantly higher odds of poverty at all levels of ECEC (WE) spending. In fact, an increase in ECEC within-country spending corresponds to an increase in the marginal effects; however, it is not statistically significant. At no point in the distribution is a change in ECEC (WE) associated with a statistically significant change in the marginal effects.

[Figures 8,9 about here]

To test the effects of the interaction terms related to maternity leave, Figure 8 presents the marginal effects on the probability of poverty over maternity leave by household type. This figure indicates a significant difference exists between the groups at all levels of maternity leave, with very little change as spending levels increase. In fact, the marginal effects only change .04 percentage points between the highest and lowest levels of mean-adjusted maternity level weeks, not a statistically significant change. The same is true of maternity leave replacement rates (Figure 9): higher replacement rates do not eliminate the single mother disadvantage. Further, higher country-mean adjusted replacement rates are actually associated with an *increase* in the marginal effects, though not a statistically significant increase.

[Figure 10 about here]

The marginal effects for family allowances are presented in Figure 10. Once again, children of single mothers face significantly higher probabilities of poverty at all levels of within-country spending. However, this

disadvantage is significantly reduced as spending increases. At the lowest level of spending in Figure 10, the probability of poverty for the typical poor child is 10 percentage points higher if they live with a single mother. This difference is reduced to 6.7% at the highest level of within-country spending in the figure (.4% of GDP); this is a statistically significant reduction. Similarly, every one-unit increase (.1%) in within-country spending on family allowances is statistically significant. In sum, while increases in spending in family allowances may not eliminate the single mother disadvantage, it does significantly reduce it, and, based on the results of Table 2, Model 4, it also significantly reduces the probability of poverty for this group. This suggests that increasing family allowance spending provides a particularly beneficial effect on the probability of poverty for children of single mothers.

The models from Table 4 demonstrate that social spending, especially family allowances, decrease the single mother disadvantage for children. However, none of the spending areas and policies can eliminate the disadvantage experienced by children living in single mother households, relative to children living in two parent households. All the same, while not completely eliminating the gap, some areas of social spending and policy help reduce the gap, having larger effects on the probability of poverty for children of single mothers than children in two-parent households, especially as social spending reaches higher levels.

Conclusion

This paper brings together four predominant explanations for poverty: family structure, labor force activity, economic performance, and social policy. While previous researchers have encouraged others to bring these competing explanations together (Brady, 2006, 2009, 2019), when it has been applied, it has typically been used to examine overall poverty or working poverty (Brady et al., 2010, 2013). However, applying this approach to examining poverty among children of single mothers extends this literature to an especially at-risk group. The short and long-term consequences of child poverty are notable, and children living in single mother households are particularly at risk of poverty. Furthermore, the proportion of children living in single mother families is far from trivial.

Yet, explanations for the high levels of poverty among children of single mothers vary, as do the recommendations for how to address it. Because children themselves are rarely implicated in their own poverty, explanations usually turn to mothers. Many focus on recent changes to family formation, such as rising unmarried childbearing or increasing divorce rates. Others focus on employment, whether it be getting women into the labor force or emphasizing the types of employment women tend to have. Economic explanations are also popular,

suggesting a strong economy helps all, single mothers and their children included. Meanwhile, a literature focused on the role of social policy has grown in prominence over the past two decades.

The analyses presented here indicate factors related to employment are important for understanding the poverty of children of single mothers. Family structure is also important, with children from households with divorced, never married, and widowed mothers having different outcomes. This gives some support to arguments focused on family organization. The analyses, however, lend little support for economic performance arguments. Finally, I find considerable support for the influence of social policy. While the within effects of general, family, and in-kind social spending are not statistically significant, spending on family allowances has a significant effect on reducing poverty rates for children of single mothers. Further, the effect of social spending extends to children in two-parent families similarly, yet there is evidence that children living in single mother households experience a larger effect, especially at higher levels of spending.

The results suggest more emphasis should be placed on providing cash family benefits, especially family allowances, if the goal is to reduce poverty. While, historically, cash benefits, especially for single mothers, have not been politically popular (Edin & Shaefer, 2015), based on the presented findings, the effect of increasing family allowance spending is clear. Providing cash increases incomes and can lift children of single mothers out of poverty. Previous research supports this claim, finding cash benefits, or child allowances specifically, lead to a reduction of child poverty (Immervoll et al., 2001; Parolin, 2021; Pressman, 2011). For example, Parolin (2021) finds prioritizing TANF cash provisions at the state-level decreases gaps in child poverty. However, he also finds that in states with larger black populations, TANF cash provisions are less likely to be prioritized relative to states with smaller black populations, in favor of policies intended to deter lone motherhood.

This reaffirms the negative public perception in the United States towards cash benefits for the poor, who are more likely to be viewed as lazy (Gilens, 2009), particularly in contrast to Europeans who are more likely to view the poor as unlucky (Alesina & Glaeser, 2004). How this relates to the high rates of poverty among children of single mothers in the United States relative to most European countries is beyond the scope of this paper, but it certainly highlights the challenges to implementing such polices. However, in contrast to TANF, family allowances have the potential to be more popular if less strictly means tested or targeted (Brady & Bostic, 2015); likewise, if family allowances are seen as a benefit to children, rather than parents, questions about deservingness (Katz, 2013) may find more favorable responses. The generally positive reception to the recent Child Tax Credit from the Biden

Administration (Brown, 2021) as well as the Earned Income Tax Credit (EITC) (Halpern-Meekin et al., 2015) provide potential models. While limiting these benefits only to working families exclude those out of the workforce, this aspect also seems to be what makes them popular. However, the long-term effects of these policies, especially the Biden Child Tax Credit, remain to be seen.

These findings presented here extend the existing literature in important ways, and future research can expand upon these findings through several avenues. First, the present research only examines relatively general spending measures. Country experts and qualitative scholars could provide important additional insight into the patterns discovered in this paper by considering the benefit entitlements associated with each type of spending. As previously mentioned, increased spending could mean something different in different countries and during different periods. While I include measures of economic performance, which should act as controls, accounting for the possibility that spending rose to compensate for a national economic downturn, it is possible there is more to the story. To avoid this issue, other researchers have approached this question by directly examining the effects of benefits received, looking at pre- and post-transfer poverty or income. Yet such an approach typically precludes the examination of in-kind benefits; however, country experts may be able to quantify these benefits and address this gap. Finally, even with the hybrid approach, it is not completely invulnerable to omitted variable bias nor can it account for unobserved country-specific time-variable factors. For example, factors such as differences in the use of informal care may vary by country over time. This factor in particular could influence women's likelihood to work and provision of public funds for early childhood education and care. While I cannot test change over time due to data limitations, I do test the effects cross-nationally using the most recent LIS data for each country and data on informal care use from the OECD. The results are reported in in Appendix H. While, informal care is associated with poverty, it does not change the findings for the key variables in Table 2. All the same, future research could provide greater insight on how such cultural or attitudinal changes affect policy implementation and effectiveness.

Child poverty is an important problem, and its connection to single motherhood is strong in most affluent democracies. Among social scientists and politicians, there have been considerable efforts to explain and reduce poverty among children living with single mothers. Popular among these explanations have been family structure, employment, the economy, and public spending. This research finds the most influential policy spending area to be family allowances. However, particularly in the United States, cash benefits have historically been unpopular among voters (e.g. Gilens, 2009). This presents a challenge for policy makers, as implementing effective policies

could undermine their chances for reelection. Yet the findings here indicate cash benefits, specifically family allowances can play an important role in reducing poverty rates among children, especially those living with single mothers.

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Table 1: Descriptive Statistics for 21 Countries between 1985-2016*

| Variables | Description | Source | Mean | SD |
|-----------------------------------|--|--------|----------|----------|
| <u>Dependent Variables</u> | | | | |
| % Children Single Mothers Poor | % Children of Single Mothers below 50% median income | LIS | 28.956 | 11.638 |
| Independent Variables | | | | |
| Economic Growth | Three-year average annual growth | OECD | 2.3383 | 1.8826 |
| GDP per capita | USD, constant prices, 2015 PPPs | OECD | 41437.61 | 15381.85 |
| Social Expenditure | Total public expenditure (%GDP) | OECD | 21.3307 | 4.3997 |
| Family Expenditure | Public expenditure on families (% GDP) | OECD | 2.1728 | .9612 |
| Family In-Kind | Public in-kind family expenditure (%GDP) | OECD | .7471 | .4977 |
| Family Cash | Public cash family expenditure (%GDP) | OECD | 1.4257 | .7501 |
| Early Childhood Education & Care | Public expenditure (%GDP) | OECD | .5020 | .3546 |
| Maternity Leave Length | Paid leave available to mothers (in weeks) | OECD | 54.0327 | 53.9607 |
| Maternity Leave Replacement Rates | Percentage of prior wage | HDML | 73.5911 | 73.5911 |
| Family Allowances | Spending on family allowances (%GDP) | OECD | .9835 | .6149 |

^{*} Note: Due to data availability, this should not be interpreted as the entire series between these years, but of the country-years in the sample

Table 2: Correlation Matrix of Social Spending Measures

| | Social | Social | Family | Family | Family | Family In- | Family | Family |
|-----------------------------|-------------|-------------|-------------|-------------|---------|------------|---------|---------|
| | Expenditure | Expenditure | Expenditure | Expenditure | In-Kind | Kind | Cash | Cash |
| | (BE) | (WE) | (BE) | (WE) | (BE) | (WE) | (BE) | (WE) |
| Social Expenditure (BE) | 1.000 | | | | | | | |
| Social Expenditure (WE) | -0.0163 | 1.000 | | | | | | |
| Family Expenditure (BE) | .4965 | -0.0084 | 1.0000 | | | | | |
| Family Expenditure (WE) | -0.0196 | .6138 | -0.0101 | 1.0000 | | | | |
| Family In-Kind (BE) | 0.3859 | -0.0104 | .64444 | -0.0125 | 1.0000 | | | |
| Family In-Kind (WE) | -0.0130 | 0.3867 | -0.0067 | 0.6196 | -0.0083 | 1.0000 | | |
| Family Cash (BE) | 0.3900 | -0.0041 | 0.8708 | -0.0049 | 0.1851 | -0.0032 | 1.0000 | |
| Family Cash (WE) | .0.0130 | 0.4295 | -0.0067 | 0.7090 | -0.0084 | -0.1142 | -0.0033 | 1.0000 |
| Early Childhood Education & | | | | | | | | |
| Care (BE) | 0.3547 | -0.0075 | 0.6435 | -0.0090 | 0.9721 | -0.0060 | 0.2020 | -0.0060 |
| Early Childhood Education & | | | | | | | | |
| Care (WE) | -0.0157 | 0.3500 | -0.0081 | 0.4861 | -0.0100 | 0.8627 | -0.0039 | -0.1599 |
| Maternity Leave (BE) | 0.1704 | -0.0094 | 0.3152 | -0.0113 | 0.1860 | -0.0075 | 0.2854 | -0.0075 |
| Maternity Leave (WE) | -0.0064 | -0.0323 | -0.0033 | 0.0495 | -0.0041 | -0.0943 | -0.0016 | 0.1471 |
| Maternity Leave Rates (BE) | 0.3808 | 0.0037 | 0.1547 | 0.0045 | -0.0413 | 0.0030 | 0.2254 | 0.0030 |
| Maternity Leave Rates (WE) | -0.000 | -0.0571 | 0.0000 | -0.0045 | 0.0000 | 0.0698 | 0.0000 | -0.0687 |
| Family Allowances (BE) | 0.4523 | 0.0005 | 0.7630 | 0.0006 | 0.0904 | 0.0004 | 0.9224 | 0.0004 |
| Family Allowances | | | | | | | | |
| (WE) | -0.0093 | 0.2905 | -0.0048 | 0.5613 | -0.0060 | -0.1644 | -0.0023 | 0.8583 |

Table 2: Correlation Matrix of Social Spending Measures [cont.]

| | Early Childhood | Early Childhood | | Maternity | Maternity | Maternity | Family | Family |
|-----------------------------|--------------------|--------------------|------------|-----------|------------|-------------|------------|------------|
| | Education & | Education & | Maternity | Leave | Leave | Leave Rates | Allowances | Allowances |
| | Care (BE) | Care (WE) | Leave (BE) | (WE) | Rates (BE) | (WE) | (BE) | (WE) |
| Early Childhood Education & | | | | | | | | |
| Care (BE) | 1.0000 | | | | | | | |
| Early Childhood Education & | | | | | | | | |
| Care (WE) | -0.0072 | 1.0000 | | | | | | |
| Maternity Leave (BE) | 0.1809 | -0.0090 | 1.000 | | | | | |
| Maternity Leave (WE) | -0.0029 | -0.0898 | -0.0037 | 1.0000 | | | | |
| Maternity Leave Rates (BE) | 0.0159 | 0.0036 | 0.1357 | 0.0015 | 1.0000 | | | |
| Maternity Leave Rates (WE) | -0.0000 | 0.1312 | -0.0000 | -0.0646 | -0.0000 | 1.0000 | | |
| Family Allowances (BE) | 0.0985 | 0.0005 | 0.0655 | 0.0002 | 0.1869 | 0.0000 | 1.0000 | |
| Family Allowances | | | | | | | | |
| (WE) | -0.0043 | -0.2125 | -0.0054 | 0.0693 | 0.0021 | -0.1697 | 0.0003 | 1.0000 |

Table 3: Two-Level Random Intercept Within-Between Models, Odds Ratios of Poverty among Children of Single Mothers*

| | (1) | (2) | (3) | (4) |
|---|-----------|---------------------|-----------|-----------|
| Individual-Level Variables Divorced Mother | .6293*** | .6282*** | .6272*** | .6244*** |
| | (-7.24) | (-7.26) | (-7.29) | (-7.34) |
| Widowed Mother | .2919*** | .2905*** | .2899*** | .2900*** |
| | (-11.60) | (-11.64) | (-11.63) | (-11.56) |
| Mother Working Part Time | 2.2238*** | 2.2215*** | 2.2192*** | 2.2234*** |
| | (10.26) | (10.27) | (10.24) | (10.21) |
| Mother Not in Labor Force | 5.3013*** | 5.2989*** | 5.2999*** | 5.3141*** |
| | (17.60) | (17.57) | (17.58) | (17.52) |
| Mother Unemployed | 7.4671*** | 7.4674*** | 7.4565*** | 7.7245*** |
| | (22.60) | (22.39) | (22.38) | (22.46) |
| Low Education Mother | 1.3928*** | 1.3938*** | 1.3948*** | 1.3931*** |
| | (5.17) | (5.18) | (5.19) | (5.15) |
| High Education Mother | .5239*** | 5.238*** | .5243*** | .5192*** |
| | (-8.67) | (-8.67) | (-8.66) | (-8.82) |
| Mother under 25 | 1.4420** | 1.4407** | 1.4407** | 1.4324** |
| | (3.14) | (3.13) | (3.13) | (3.07) |
| Number of Children in Household | 1.1806*** | 1.1803*** | 1.1804*** | 1.1788*** |
| | (5.65) | (5.65) | (5.65) | (5.59) |
| Country-Year Level Variables Economic Growth (WE) | 1.0502 | 1.0350 | 1.0284 | 1.0046 |
| | (0.68) | (0.48) | (0.42) | (0.07) |
| Economic Growth (BE) | .9684 | 1.2338** | 1.1149 | 1.0942 |
| | (-0.43) | (2.61) | (1.19) | (1.15) |
| GDP per Capita (WE) | 1.0000 | 1.0000 | 1.0000 | 1.0000 |
| | (0.78) | (0.24) | (0.03) | (0.77) |
| GDP per Capita (BE) | 1.0000* | 1.0000*** | 1.0000*** | 1.0000*** |
| | (1.97) | (6.29) | (4.92) | (5.64) |
| Social Expenditure (WE) | .9394 | .9521 | .9489 | .9524 |
| | (-0.95) | (-0.90) | (-0.99) | (-1.01) |
| Social Expenditure (BE) | .9475** | 1.0549* | 1.0398 | 1.0433 |
| | (-2.63) | (2.38) | (1.61) | (1.62) |
| Family Expenditure (WE) | | .6482 (-1.78) | | |
| Family Expenditure (BE) | | .5309*** (-6.06) | | |

| Family In-Kind (WE) | | | .7764 (-0.66) | |
|---------------------------------------|------------------|---------------------|---------------------|---------------------|
| Family In-Kind (BE) | | | .3995*** (-4.63) | |
| Family Cash (WE) | | | .5707 (-1.95) | |
| Family Cash (BE) | | | .6540*** (-4.15) | |
| Early Childhood Education & Care (WE) | | | (-4.13) | .9375 (-0.12) |
| Early Childhood Education & Care (BE) | | | | .2352*** (-4.83) |
| Maternity Leave (WE) | | | | 1.0017 (0.53) |
| Maternity Leave (BE) | | | | 1.0009 (0.67) |
| Maternity Leave Replacement Rate (WE) | | | | 1.0085 (0.78) |
| Maternity Leave Replacement Rate (BE) | | | | .9984 (-0.80) |
| Family Allowances (WE) | | | | .3807*** (-4.13) |
| Family Allowances (BE) | | | | .5485*** (-6.17) |
| Constant | .3431 (-1.42) | .0470*** (-5.31) | .0910** (-3.45) | .0683*** (-3.81) |
| Country-Year Variance | .4886 | .3002 | .2779 | .2424 |
| Observations Country-Years | 105,814 101 | 105,814 101 | 105,814 101 | 105,669 100 |

Table 4: Two-Level Within-Between Random Intercept Models, Odds Ratios of Poverty among Children*

| | (1) | (2) | (3) | (4) |
|--|-----------|------------------|-----------|-----------|
| Individual-Level Variables Single Mother | 3.0870*** | 3.0928*** | 3.2403*** | 3.4724*** |
| | (4.15) | (4.08) | (4.31) | (4.56) |
| Lead Parent Working Part Time | 2.9405*** | 2.9313*** | 2.9366*** | 2.9469*** |
| | (17.84) | (17.62) | (17.62) | (17.70) |
| Lead Parent Not in Labor Force | 4.7745*** | 4.7540*** | 4.7656*** | 4.7848*** |
| | (15.45) | (15.24) | (15.34) | (15.44) |
| Lead Parent Unemployed | 9.0213*** | 9.0194*** | 9.0026*** | 9.0710*** |
| | (28.06) | (28.05) | (27.91) | (28.06) |
| Low Education Lead Parent | 1.7780*** | 1.7785*** | 1.7779*** | 1.7797*** |
| | (12.23) | (12.22) | (12.22) | (12.08) |
| High Education Lead Parent | .4673*** | .4669*** | .4673*** | .4647*** |
| | (-14.44) | (-14.43) | (-14.48) | (-14.82) |
| Lead Parent under 25 | 2.5536*** | 2.5445*** | 2.5418*** | 2.5361*** |
| | (13.59) | (13.40) | (13.38) | (13.38) |
| Number of Children in Household | 1.2771*** | 1.2774*** | 1.2779*** | 1.2757*** |
| | (13.50) | (13.51) | (13.52) | (13.45) |
| Country-Year Level Variables Economic Growth (WE) | .9880 | .9979 | .9896 | .9935 |
| | (-0.24) | (-0.05) | (-0.27) | (-0.17) |
| Economic Growth (BE) | .8087*** | 1.0683 | .9900 | .9753 |
| | (-3.96) | (1.28) | (-0.21) | (-0.45) |
| GDP per Capita (WE) | 1.000 | 1.0000 | .9999 | 1.0001 |
| | (0.01) | (0.22) | (-0.07) | (0.20) |
| GDP per Capita (BE) | .9999 | 1.0001** | 1.0001 | 1.0001 |
| | (-0.73) | (2.65) | (1.24) | (1.21) |
| Social Expenditure (WE) Social Expenditure (WE) * Single Mother | .9657 | .9984 | .9900 | .9994 |
| | (-0.71) | (-0.04) | (-0.25) | (-0.01) |
| | .9628 | .9888 | .9905 | .9714 |
| Social Expenditure (BE) | (-1.62) | (-0.29) | (-0.25) | (-0.88) |
| | .9285*** | 1.0110 | 1.0068 | 1.0051 |
| Social Expenditure (BE) * Single Mother | (-5.24) | (0.80) | (0.49) | (0.34) |
| | .9905 | .9856 | .9812 | .9858 |
| | (-0.75) | (-1.13) | (-1.49) | (-1.04) |
| Family Expenditure (WE) | | .7226 (-1.79) | | |
| Family Expenditure (WE) * Single Mother | | .8055 (-0.89) | | |
| Family Expenditure (BE) | | .5730*** | | |

| Family Expenditure (BE) * Single Mother | (-7.09) 1.0494 (0.69) | | |
|---|-----------------------------|-----------------------------|-----------------------------|
| Family In-Kind (WE) | | .7206 | |
| Family In-Kind (WE) * Single Mother | | (-1.09) 1.1602 (0.39) | |
| Family In-Kind (BE) | | .3587*** | |
| Family In-Kind (BE) * Single Mother | | (-7.84) 1.2108 (1.40) | |
| Family Cash (WE) | | .7306 | |
| Family Cash (WE) * Single Mother | | (-1.66) .6475 (-1.64) | |
| Family Cash (BE) | | .7640*** | |
| Family Cash (BE) * Single Mother | | (-3.51) 1.0038 (0.05) | |
| Early Childhood Education & Care (WE) | | | .5801 |
| Early Childhood Education & Care (WE) * Single Mother | | | (-1.33) 1.7947 (1.29) |
| Early Childhood Education & Care (BE) | | | .2463*** |
| Early Childhood Education & Care (BE) * Single Mother | | | (-7.57) 1.1673 (0.85) |
| Maternity Leave (WE) | | | .9986 |
| Maternity Leave (WE) * Single Mother | | | (-0.58) 1.0006 (0.16) |
| Maternity Leave (BE) | | | .9993 |
| Maternity Leave (BE) * Single Mother | | | (-0.66) .9985 (-0.77) |
| Maternity Leave Replacement Rate (WE) | | | 1.0027 |
| Maternity Leave Replacement Rate (WE) * | | | (0.28) 1.0076 |
| Single Mother | | | (0.53) |
| Maternity Leave Replacement Rate (BE) | | | 1.0012 |
| Maternity Leave Replacement Rate (BE) * | | | (0.69) .9984 |
| Single Mother | | | (-0.45) |
| Family Allowances (WE) | | | .6701** (-2.71) |

| Family Allowances (WE) * Single Mother | | | | | |
|--|-------------------|---------------------|---------------------|-----------------------------|--|
| Family Allowances (BE) | | | | .6940*** | |
| Family Allowances (BE) * Single Mother | | | | (-4.09) 1.0289 (0.25) | |
| Constant | .2874* (-2.47) | .0518*** (-7.10) | .0795*** (-6.29) | .0697*** (-6.16) | |
| Country-Year Variance | .3372 | .1994 | .1585 | .1640 | |
| Observations Country-Years | 668,549 122 | 668,549 122 | 668,549 122 | 667,569 121 | |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Two-parent household, lead parent working full time, medium education lead parent, lead parent over 24.

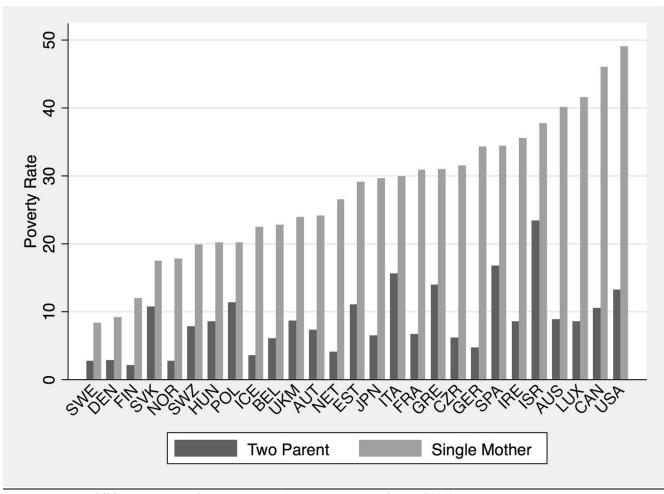


Fig. 1 Average Child Poverty Rates by Parent Type (Source: LIS Key Figures 2020)

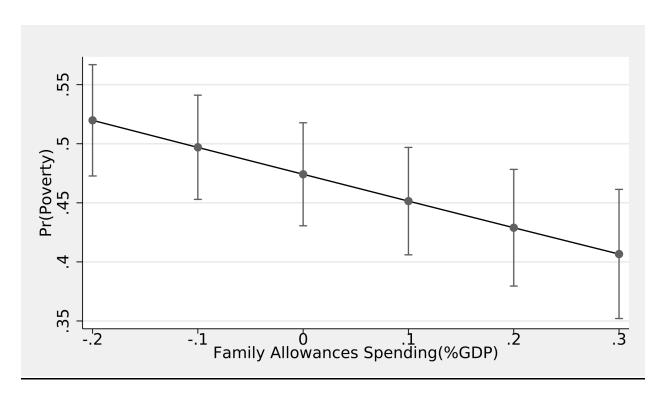


Fig. 2 Predicted Probabilities of Poverty for Children Living in Single Mother Households by Country-Mean Adjusted Family Allowance Spending (%GDP)

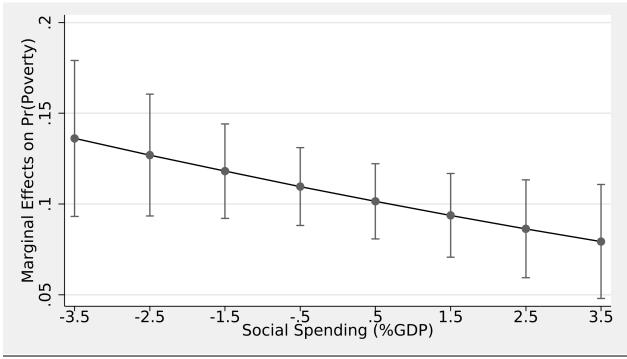


Fig. 3 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Social Spending Level

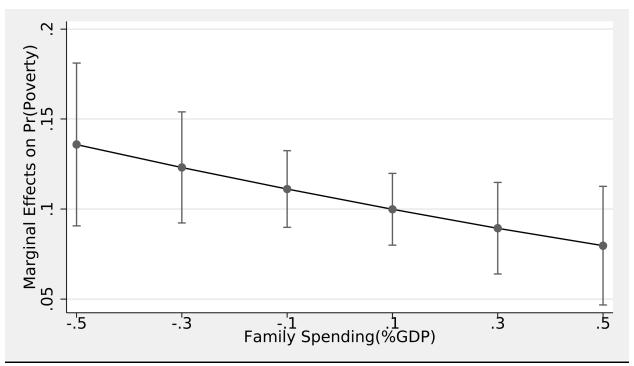


Fig. 4 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Family Spending Level

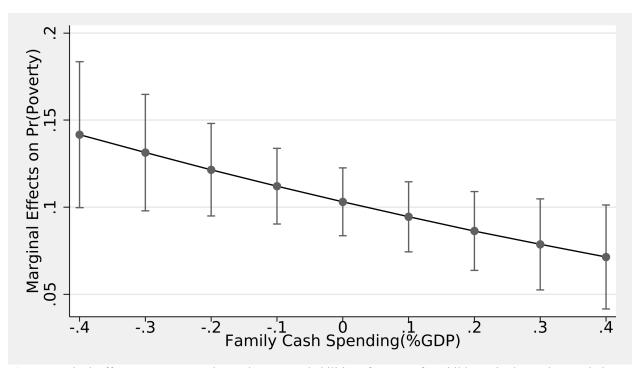


Fig. 5 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Family Cash Spending Level

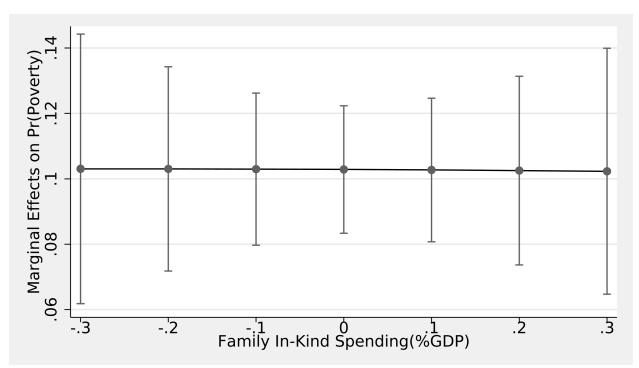


Fig. 6 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Family In-Kind Spending Level

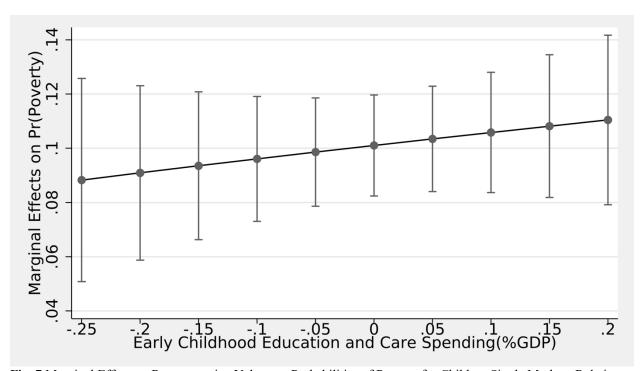


Fig. 7 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Early Childhood Education and Care Spending Level

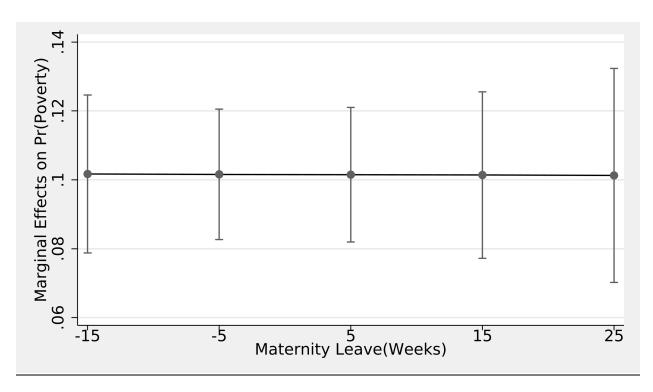


Fig. 8 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Maternity Leave in Weeks

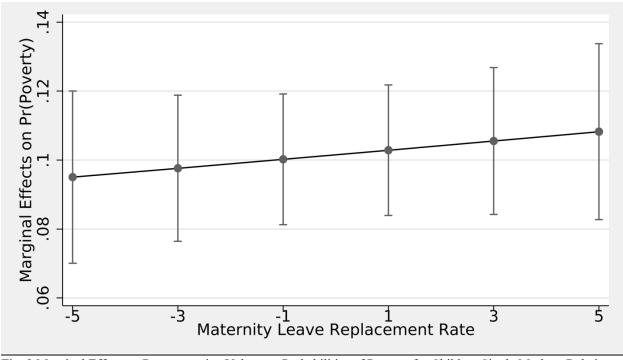


Fig. 9 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Maternity Leave Replacement Rate

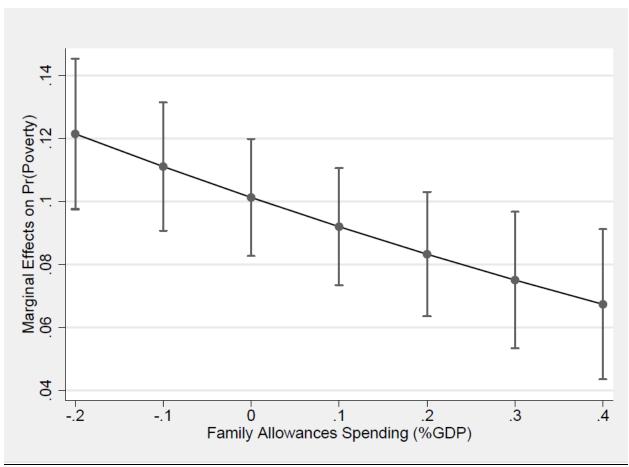


Fig. 10 Marginal Effects at Representative Values on Probabilities of Poverty for Children Single Mothers Relative to Children in Two Parent Households by Country-Mean Adjusted Family Allowances Spending

Table A: Two-Level, Random Intercept, Within-Between Models, Odds Ratios of Poverty among Children of Single Mothers including Contextual Variables*

| thers merading contextual variables | (1) | (2) | (3) | (4) |
|-------------------------------------|-------------------|------------------|------------------|--------------------|
| Individual-Level Variables | | | | |
| Divorced Mother | .6280*** | .6278*** | .6278*** | .6252*** |
| | (-7.25) | (-7.26) | (-7.26) | (-7.31) |
| Widowed Mother | .2906*** | .2907*** | .2907*** | .2907*** |
| | (-11.61) | (-11.60) | (-11.61) | (-11.54) |
| | | | | |
| Mother Working Part Time | 2.2243*** | 2.2227*** | 2.2231*** | 2.2282*** |
| | (10.28) | (10.26) | (10.27) | (10.25) |
| Mother Not in Labor Force | 5.3091*** | 5.3002*** | 5.3001*** | 5.3204*** |
| | (17.64) | (17.58) | (17.58) | (17.55) |
| M-41 I I 1 | 7.4546*** | 7.4508*** | 7.4510*** | 7.5263*** |
| Mother Unemployed | (22.36) | (22.34) | (22.34) | (22.45) |
| | (22.30) | (22.34) | (22.34) | (22.43) |
| Low Education Mother | 1.3943*** | 1.3945*** | 1.3945*** | 1.3921*** |
| | (5.19) | (5.19) | (5.19) | (5.31) |
| High Education Mother | .5250*** | .5247*** | .5245*** | .5196*** |
| Trigii Education Womer | (-8.63) | (-8.66) | (-8.67) | (-8.82) |
| | (0.03) | (0.00) | (0.07) | (0.02) |
| Mother under 25 | 1.4446** | 1.4433** | 1.4426** | 1.4347** |
| | (3.16) | (3.15) | (3.14) | (3.08) |
| Number of Children in Household | 1.1811*** | 1.1806*** | 1.1805*** | 1.1793*** |
| rumber of emidien in Household | (5.67) | (5.66) | (5.66) | (5.61) |
| | (0.07) | (2.00) | (0.00) | (0.01) |
| Contextual Variables | | | | |
| % Divorced Mother (WE) | .9958 | .9951 | .9963 | .9920 |
| 0/ D' - 1M /1 /DE\ | (-0.38) | (-0.42) | (-0.33) | (-0.71) .9557** |
| % Divorced Mother (BE) | .9925 (-0.64) | .9890 (-1.15) | .9774 (-1.87) | (-3.15) |
| | (-0.04) | (-1.13) | (-1.67) | (-3.13) |
| % Widowed Mother (WE) | .9889 | .9905 | .9911 | .9874 |
| , | (-0.75) | (-0.79) | (-0.73) | (-1.13) |
| % Widowed Mother (BE) | 1.0075 | .9923 | .9879 | .9876 |
| | (0.78) | (-1.09) | (-1.67) | (-1.53) |
| % Mother Working Part Time (WE) | .9927 | .9932 | .9917 | .9944 |
| 70 Mother Working Latt Time (WL) | (-0.66) | (-1.00) | (-1.21) | (-1.07) |
| % Mother Working Part Time (BE) | 1.0105 | 1.0050 | 1.0040 | 1.0103 |
| 70 Wollier Working Furt Time (BE) | (1.16) | (0.68) | (0.59) | (1.34) |
| | | | | |
| % Mother Not in Labor Force (WE) | 1.0101 | 1.0085 | 1.0072 | 1.0045 |
| 0/ M-4h N-4 : I -1 | (1.08) | (1.05) | (0.84) | (0.63) |
| % Mother Not in Labor Force (BE) | .9572* (-2.56) | .9932 (-0.47) | .9898 (-0.75) | .9779 (-1.77) |
| | (2.50) | (0.17) | (0.75) | (1.77) |
| % Mother Unemployed (WE) | .9810 | .9777 | .9740 | .9781 |
| | (-1.02) | (-1.60) | (-1.58) | (-1.52) |
| % Mother Unemployed (BE) | 1.0694** | 1.0822*** | 1.0728*** | 1.0737*** |
| 1 , , | (2.96) | (4.17) | (3.97) | (3.99) |

| Country-Year Level Variables Economic Growth (WE) | 1.0049 (0.07) | 1.0055 (0.08) | .9916 (-0.13) | .9905 (-0.16) |
|---|------------------|---------------------|---------------------|----------------------------|
| Economic Growth (BE) | 1.0071 (0.07) | 1.2621** (2.80) | 1.0977 (0.95) | .8911 (-0.92) |
| GDP per Capita (WE) | .9999 (-0.11) | .9999 (-1.13) | .9999 (-1.17) | 1.0001 (0.56) |
| GDP per Capita (BE) | 1.0001 (1.37) | 1.0001*** (5.13) | 1.0001** (3.29) | 1.0001** (3.08) |
| Social Expenditure (WE) | .9021 (-1.81) | .9244 (-1.51) | .9323 (-1.32) | .9468 (-1.18) |
| Social Expenditure (BE) | 1.0071 (0.07) | .9994 (-0.02) | .9880 (-0.44) | .9488 (-1.43) |
| Family Expenditure (WE) | | .6297* (-2.15) | | |
| Family Expenditure (BE) | | .5123* (-2.15) | | |
| Family In-Kind (WE) | | | .7754 (-0.63) | |
| Family In-Kind (BE) | | | .3654*** (-4.46) | |
| Family Cash (WE) | | | .5281* (-2.22) | |
| Family Cash (BE) | | | .6100*** (-4.36) | |
| Early Childhood Education & Care (WE) | | | | .7532 (-0.45) |
| Early Childhood Education & Care (BE) | | | | .1505*** (-5.17) |
| Maternity Leave (WE) | | | | 1.0013 |
| Maternity Leave (BE) | | | | (0.45) 1.0033 (1.86) |
| Maternity Leave Replacement Rate (WE) | | | | 1.0123 |
| Maternity Leave Replacement Rate (BE) | | | | (1.39) 1.002 (0.76) |
| Family Allowances (WE) | | | | .4548** (-3.15) |

| Family Allowances (BE) | | | | .5706*** (-4.53) |
|------------------------|---------|---------|---------|---------------------|
| Constant | 2.0864 | .1165 | .6627 | 7.3445 |
| | (0.51) | (-1.73) | (-0.26) | (1.13) |
| Country-Year Variance | .3644 | .2263 | .2167 | .1899 |
| Observations | 105,814 | 105,814 | 105,814 | 105,669 |
| Country-Years | 101 | 101 | 101 | 100 |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Mother never married, mother working full time, medium education mother, mother over 24.

Appendix B: Two-Level Random Intercept Models, Odds Ratios of Poverty among Children of Single Mothers, Per Capita Spending Measures*

| | (1) | (2) | (3) | (4) |
|--|-----------|---------------------|-----------|-----------|
| Individual-Level Variables Divorced Mother | .6293*** | .6301*** | .6272*** | .6248*** |
| | (-7.24) | (-7.15) | (-7.29) | (-7.33) |
| Widowed Mother | .2919*** | .2909*** | .2902*** | .2906*** |
| | (-11.60) | (-11.55) | (-11.62) | (-11.55) |
| Mother Working Part Time | 2.2236*** | 2.2104*** | 2.2184*** | 2.2212*** |
| | (10.27) | (10.17) | (10.25) | (10.21) |
| Mother Not in Labor Force | 5.3017*** | 5.2973*** | 5.3002*** | 5.3125*** |
| | (17.61) | (17.50) | (17.59) | (17.52) |
| Mother Unemployed | 7.4650*** | 7.4955*** | 7.4542*** | 7.5246*** |
| | (22.40) | (22.16) | (22.37) | (22.44) |
| Low Education Mother | 1.3927*** | 1.3931*** | 1.3956*** | 1.3930*** |
| | (5.17) | (5.12) | (5.20) | (5.14) |
| High Education Mother | .5240*** | .5242*** | .5243*** | .5190*** |
| | (-8.67) | (-8.59) | (-8.66) | (-8.83) |
| Mother under 25 | 1.4422** | 1.4297** | 1.4402** | 1.4314** |
| | (3.14) | (3.06) | (3.13) | (3.06) |
| Number of Children in Household | 1.1807*** | 1.1790*** | 1.1803*** | 1.1785*** |
| | (5.65) | (5.58) | (5.65) | (5.58) |
| Country-Level Variables Economic Growth (WE) | 1.0688 | 1.0234 | 1.0424 | 1.0357 |
| | (0.97) | (0.35) | (0.65) | (0.55) |
| Economic Growth (BE) | 1.0141 | 1.3830*** | 1.2253* | 1.1901* |
| | (0.18) | (3.81) | (2.27) | (2.14) |
| GDP per Capita (WE) | 1.0001 | 1.0001 | 1.0001 | 1.0001 |
| | (1.04) | (0.31) | (0.89) | (0.98) |
| GDP per Capita (BE) | 1.0001** | 1.0001*** | 1.0001* | 1.0001* |
| | (2.67) | (3.56) | (2.36) | (2.16) |
| Social Expenditure (WE) | .9999 | .9998 | .9999 | .9999 |
| | (-0.62) | (-1.48) | (-0.87) | (-0.98) |
| Social Expenditure (BE) | .9999 | 1.0002** | 1.0002** | 1.0002** |
| | (-1.89) | (3.23) | (2.95) | (3.04) |
| Family Expenditure (WE) | | .9992* (-2.26) | | |
| Family Expenditure (BE) | | .9984*** (-5.65) | | |

| Family In-Kind (WE) | | | .9995 (-0.52) | |
|---------------------------------------|---------------------|---------------------|---------------------|----------------------------|
| Family In-Kind (BE) | | | .9972*** (-4.90) | |
| Family Cash (WE) | | | .9989 (-1.30) | |
| Family Cash (BE) | | | .9989*** (-5.04) | |
| Early Childhood Education & Care (WE) | | | () | 1.0004 (0.30) |
| Early Childhood Education & Care (BE) | | | | .9958*** (-5.22) |
| Maternity Leave (WE) | | | | 1.0017 (0.51) |
| Maternity Leave (BE) | | | | .9996 (-0.28) |
| Maternity Leave Replacement Rate (WE) | | | | 1.0112 |
| Maternity Leave Replacement Rate (BE) | | | | (0.91) .9991 (-0.45) |
| Family Allowances (WE) | | | | .9985 (-1.55) |
| Family Allowances (BE) | | | | .9985*** (-5.80) |
| Constant | .0983*** (-4.82) | .0189*** (-9.61) | .0389*** (-7.11) | .0380*** (-6.92) |
| Country-Year Variance | .5059 | .3392 | .2885 | .2632 |
| Observations Country-Years | 105,814 101 | 105,577 100 | 105,814 101 | 105,669 100 |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Mother never married, mother working full time, medium education mother, mother over 24.

Appendix C: Two-Level Within-Between Random Intercept Models, Odds Ratios of Poverty among Children, Per Capita Spending Measures*

| | (1) | (2) | (3) | (4) |
|---|-----------|-------------------|-----------|-----------|
| Individual-Level Variables Single Mother | 1.6025** | 1.5752** | 1.4720* | 1.7061* |
| | (3.06) | (2.90) | (2.35) | (2.39) |
| Lead Parent Working Part Time | 2.8950*** | 2.8885*** | 2.9010*** | 2.9179*** |
| | (17.25) | (17.19) | (17.47) | (17.67) |
| Lead Parent Not in Labor Force | 4.7933*** | 4.7961*** | 4.8099*** | 4.8423*** |
| | (15.47) | (15.44) | (15.58) | (15.70) |
| Lead Parent Unemployed | 8.9995*** | 9.0213*** | 8.9646*** | 9.0557*** |
| | (27.93) | (27.64) | (27.65) | (27.99) |
| Low Education Lead Parent | 1.7816*** | 1.7859*** | 1.7810*** | 1.7828*** |
| | (12.20) | (12.15) | (12.14) | (12.03) |
| High Education Lead Parent | .4689*** | .4692*** | .4690*** | .4661*** |
| | (-14.43) | (-14.35) | (-14.50) | (-14.75) |
| Lead Parent under 25 | 2.5700*** | 2.5578*** | 2.5595*** | 2.5525*** |
| | (13.86) | (13.62) | (13.64) | (13.56) |
| Number of Children in Household | 1.2777*** | 1.2802*** | 1.2788*** | 1.2776*** |
| | (13.51) | (13.48) | (13.55) | (13.52) |
| Country-Year Level Variables Economic Growth (WE) | 1.0060 | .9957 | .9960 | 1.0025 |
| | (0.14) | (-0.11) | (-0.13) | (0.07) |
| Economic Growth (BE) | .8367** | 1.0193 | .9914 | .9902 |
| | (-3.25) | (0.34) | (-0.19) | (-0.18) |
| GDP per Capita (WE) | 1.0001 | 1.0001 | 1.0000 | 1.0000 |
| | (0.28) | (0.06) | (0.70) | (0.30) |
| GDP per Capita (BE) | 1.0001*** | 1.0000*** | 1.0000** | 1.0000* |
| | (3.96) | (4.56) | (3.05) | (2.28) |
| Social Expenditure (WE) | .9999 | .9999 | 1.0001 | 1.0000 |
| Social Expenditure (WE) * Single Mother | (-0.30) | (-0.33) | (0.44) | (0.27) |
| | .9999 | .9999 | .9999 | .9999 |
| | (-1.18) | (-0.39) | (-0.51) | (-1.51) |
| Social Expenditure (BE) | .9998*** | .9999 | 1.0001 | 1.0000 |
| Social Expenditure (BE) * Single Mother | (-4.91) | (-1.09) | (0.15) | (0.30) |
| | 1.0001** | 1.0000* | 1.0001* | 1.0001* |
| | (3.41) | (2.53) | (2.48) | (2.59) |
| Family Expenditure (WE) | | .9993* (-2.55) | | |

| Family Expenditure (WE) * Single Mother | .9996 (-1.66) | | |
|---|-----------------------------|-----------------------------|------------------------------|
| Family Expenditure (BE) | .9990*** | | |
| Family Expenditure (BE) * Single Mother | (-4.34) .9999 (-0.43) | | |
| Family In-Kind (WE) | | .9988 | |
| Family In-Kind (WE) * Single Mother | | (-1.35) 1.0007 (0.86) | |
| Family In-Kind (BE) | | .9970*** | |
| Family In-Kind (BE) * Single Mother | | (-7.93) 1.0005 (1.44) | |
| Family Cash (WE) | | .9991 | |
| Family Cash (WE) * Single Mother | | (-1.76) .9992 (-1.28) | |
| Family Cash (BE) | | .9996* | |
| Family Cash (BE) * Single Mother | | (-2.42) .9998 (-1.35) | |
| Early Childhood Education & Care (WE) | | | .9982 |
| Early Childhood Education & Care (WE) * Single Mother | | | (-1.56) 1.0024* (2.42) |
| Early Childhood Education & Care (BE) | | | .9960*** |
| Early Childhood Education & Care (BE) * Single Mother | | | (-7.71) .9997 (-1.21) |
| Maternity Leave (WE) | | | 1.0016 |
| Maternity Leave (WE) * Single Mother | | | (0.16) 1.0000 (0.00) |
| Maternity Leave (BE) | | | .9982 |
| Maternity Leave (BE) * Single Mother | | | (-1.57) .9996 (-0.38) |
| Maternity Leave Replacement Rate (WE) | | | 1.0016 |
| Maternity Leave Replacement Rate (WE) * Single Mother | | | (0.16) 1.0106 (0.86) |
| Maternity Leave Replacement Rate (BE) | | | 1.0013 |
| Maternity Leave Replacement Rate (BE) * | | | (0.74) .9983 |

| Single Mother | | | | (-0.96) |
|--|---------------------|----------------------|----------------------|-----------------------------|
| Family Allowances (WE) | | | | .9991* |
| Family Allowances (WE) * Single Mother | | | | (-2.00) .9991 (-1.58) |
| Family Allowances (BE) | | | | .9994* |
| Family Allowances (BE) * Single Mother | | | | (-2.47) .9997 (-1.21) |
| Constant | .0639*** (-8.42) | .0221*** (-12.20) | .0366*** (-12.95) | .0367*** (-9.82) |
| Country-Year Variance | .3541 | .2783 | .1818 | .1890 |
| Observations Country-Years | 668,549 122 | 667,120 121 | 668,549 122 | 667,569 121 |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Two-parent household, lead parent working full time, medium education lead parent, lead parent over 24.

Appendix D: Two-Level Between-Within Random Intercept Models, Odds Ratios of Poverty among Single Mother Households*

| | (1) | (2) | (3) | (4) |
|--|-----------|---------------------|-----------|-----------|
| Individual-Level Variables Divorced Mother | .6463*** | .6446*** | .6430*** | .6397*** |
| | (-7.85) | (-7.88) | (-7.93) | (-8.03) |
| Widowed Mother | .2883*** | .2860*** | .2852*** | .2856*** |
| | (-13.02) | (-13.07) | (-13.07) | (-13.00) |
| Mother Working Part Time | 2.2948*** | 2.2922*** | 2.2893*** | 2.2909*** |
| | (11.21) | (11.22) | (11.19) | (11.15) |
| Mother Not in Labor Force | 5.8167*** | 5.8113*** | 5.8142*** | 5.8236*** |
| | (19.27) | (19.20) | (19.23) | (19.16) |
| Mother Unemployed | 8.0778*** | 8.0804*** | 8.0652*** | 8.1482*** |
| | (23.51) | (23.51) | (23.49) | (23.63) |
| Low Education Mother | 1.3783*** | 1.3797*** | 1.3815*** | 1.3786*** |
| | (5.00) | (5.02) | (5.03) | (4.98) |
| High Education Mother | .5354*** | .5352*** | .5361*** | .5308*** |
| | (-7.55) | (-7.54) | (-7.53) | (-7.66) |
| Mother under 25 | 1.5749*** | 1.5738*** | 1.5744*** | 1.5637*** |
| | (4.16) | (4.14) | (4.14) | (4.06) |
| Number of Children in Household | 1.2316*** | 1.2315*** | 1.2317*** | 1.2286*** |
| | (7.32) | (7.33) | (7.33) | (7.25) |
| Country-Level Variables Economic Growth (WE) | 1.0423 | 1.0275 | 1.0223 | .9969 |
| | (0.59) | (0.38) | (0.33) | (-0.05) |
| Economic Growth (BE) | .9862 | 1.2302* | 1.1112 | 1.0975 |
| | (-0.18) | (2.52) | (1.15) | (1.11) |
| GDP per Capita (WE) | 1.0001 | .9999 | .9999 | 1.0000 |
| | (0.52) | (-0.01) | (-0.22) | (0.61) |
| GDP per Capita (BE) | 1.0001 | 1.0001*** | 1.0001*** | 1.0000*** |
| | (1.67) | (5.30) | (4.07) | (5.19) |
| Social Expenditure (WE) | .9572 | .9687 | .99643 | .9697 |
| | (-0.67) | (-0.57) | (-0.67) | (-0.62) |
| Social Expenditure (BE) | .9579* | 1.0564* | 1.0413 | 1.0438 |
| | (-2.12) | (2.42) | (1.67) | (1.55) |
| Family Expenditure (WE) | | .6728 (-1.61) | | |
| Family Expenditure (BE) | | .5607*** (-5.56) | | |

| Family In-Kind (WE) | | | .7621 (-0.68) | |
|---------------------------------------|------------------|---------------------|---------------------|----------------------------|
| Family In-Kind (BE) | | | .4217*** (-4.25) | |
| Family Cash (WE) | | | .6186 (-1.64) | |
| Family Cash (BE) | | | .6894*** (-3.69) | |
| Early Childhood Education & Care (WE) | | | | . 9453 (-0.10) |
| Early Childhood Education & Care (BE) | | | | .2584*** (-4.42) |
| Maternity Leave (WE) | | | | 1.0024 |
| Maternity Leave (BE) | | | | (0.76) 1.0011 (0.79) |
| Maternity Leave Replacement Rate (WE) | | | | 1.0077 |
| Maternity Leave Replacement Rate (BE) | | | | (0.66) .9983 (-0.76) |
| Family Allowances (WE) | | | | .4001*** (-3.81) |
| Family Allowances (BE) | | | | .5787*** (-5.55) |
| Constant | .2490 (-1.88) | .0408*** (-5.43) | .0780*** (-3.59) | .0593*** (-3.82) |
| Country-Year Variance | .4566 | .2992 | .2785 | .2392 |
| Observations Country-Years | 105,814 101 | 105,814 101 | 105,814 101 | 105,669 100 |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Mother never married, mother working full time, medium education mother, mother over 24

Appendix E: Two-Level Within-Between Random Intercept Models, Odds Ratios of Poverty in Single-Mother and Two-Parents Households*

| | (1) | (2) | (3) | (4) |
|---|-----------|-----------|-----------|-----------|
| Individual-Level Variables Single Mother | 2.8810*** | 2.8444*** | 2.9563*** | 3.2314*** |
| | (3.97) | (3.81) | (4.07) | (4.36) |
| Lead Parent Working Part Time | 2.9943*** | 2.9829*** | 2.9889*** | 2.9988*** |
| | (18.82) | (18.53) | (18.47) | (18.51) |
| Lead Parent Not in Labor Force | 4.9913*** | 4.9650*** | 4.9767*** | 4.9891*** |
| | (16.08) | (15.86) | (15.94) | (15.95) |
| Lead Parent Unemployed | 9.5460*** | 9.5373*** | 9.5211*** | 9.5993*** |
| | (29.81) | (29.73) | (29.64) | (29.65) |
| Low Education Lead Parent | 1.7491*** | 1.7498*** | 1.7492*** | 1.7507*** |
| | (12.01) | (12.01) | (11.98) | (11.84) |
| High Education Lead Parent | .4903*** | .4897*** | .4916*** | .4873*** |
| | (-13.86) | (-13.86) | (-13.91) | (-14.26) |
| Lead Parent under 25 | .26252*** | 2.6157*** | 2.6129*** | 2.6084*** |
| | (13.79) | (13.56) | (13.55) | (13.55) |
| Number of Children in Household | 1.3227*** | 1.3232*** | 1.3236*** | 1.3228*** |
| | (15.56) | (15.55) | (15.57) | (15.45) |
| Country-Year Level Variables Economic Growth (WE) | .9971 | 1.005 | .9968 | .9999 |
| | (-0.06) | (0.12) | (-0.09) | (-0.00) |
| Economic Growth (BE) | .8273*** | 1.0664 | .9926 | .9848 |
| | (-3.79) | (1.28) | (-0.16) | (-0.29) |
| GDP per Capita (WE) | .9999 | .9999 | .9999 | .9999 |
| | (-0.29) | (-0.17) | (-0.57) | (-0.05) |
| GDP per Capita (BE) | .9999 | 1.0001* | 1.0001 | 1.0001 |
| | (-0.81) | (2.43) | (0.97) | (1.14) |
| Social Expenditure (WE) | .9767 | 1.0031 | .9956 | 1.0051 |
| Social Expenditure (WE) * Single Mother | (-0.51) | (0.07) | (-0.12) | (0.14) |
| | .9658 | .9891 | .9913 | .9775 |
| | (-1.53) | (-0.30) | (-0.24) | (-0.72) |
| Social Expenditure (BE) | .9359*** | 1.0121 | 1.0087 | 1.0084 |
| Social Expenditure (BE) * Single Mother | (-4.86) | (0.89) | (0.64) | (0.57) |
| | .9945 | .9885 | .9844 | .9868 |
| | (-0.45) | (-0.92) | (-1.30) | (-1.00) |
| Family Expenditure (WE) | | .7694 | | |

| Family Expenditure (WE) * Single Mother | (-1.51) .8185 (-0.84) | | |
|---|-----------------------------|-----------------------------|-----------------------------|
| Family Expenditure (BE) | .5972*** | | |
| Family Expenditure (BE) * Single Mother | (-6.72) 1.0692 (1.06) | | |
| Family In-Kind (WE) | | .8184 | |
| Family In-Kind (WE) * Single Mother | | (-0.69) 1.0367 (0.10) | |
| Family In-Kind (BE) | | .3745*** | |
| Family In-Kind (BE) * Single Mother | | (-7.47) 1.2639 (1.89) | |
| Family Cash (WE) | | .7526 | |
| Family Cash (WE) * Single Mother | | (-1.62) .7028 (-1.37) | |
| Family Cash (BE) | | .7884** | |
| Family Cash (BE) * Single Mother | | (-3.26) 1.0156 (0.21) | |
| Early Childhood Education & Care (WE) | | | .7070 |
| Early Childhood Education & Care (WE) * Single Mother | | | (-0.85) 1.4277 (0.87) |
| Early Childhood Education & Care (BE) | | | .2587*** |
| Early Childhood Education & Care (BE) * Single Mother | | | (-7.23) 1.2410 (1.27) |
| Maternity Leave (WE) | | | .9996 |
| Maternity Leave (WE) * Single Mother | | | (-0.17) 1.0002 (0.05) |
| Maternity Leave (BE) | | | .9995 |
| Maternity Leave (BE) * Single Mother | | | (-0.46) .9998 (-0.13) |
| Maternity Leave Replacement Rate (WE) | | | 1.0023 (0.25) |
| Maternity Leave Replacement Rate (WE) * Single Mother | | | 1.0089 (0.68) |
| Maternity Leave Replacement Rate (BE) | | | 1.0009 (0.52) |

| Maternity Leave Replacement Rate (BE) * Single Mother | | | | .9987 (-0.70) |
|---|--------------------|---------------------|---------------------|-----------------------------|
| Family Allowances (WE) | | | | .6977* (-2.50) |
| Family Allowances (WE) * Single Mother | | | | .6682 (-1.95) |
| Family Allowances (BE) | | | | .7129*** |
| Family Allowances (BE) * Single Mother | | | | (-3.96) 1.0432 (0.42) |
| Constant | .2283** (-3.04) | .0480*** (-7.67) | .0713*** (-6.78) | .0599*** (-6.75) |
| Country-Year Variance | .2937 | .1796 | .1428 | .1453 |
| Observations Country-Years | 668,549 122 | 668,549 122 | 668,549 122 | 667,569 121 |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Two-parent household, lead parent working full time, medium education lead parent, lead parent over 24.

Appendix F: Three-Level Within-Between Random Intercept Models, Odds Ratios of Poverty among Children of Single Mothers

| | (1) | (2) | (3) | (4) |
|---|-----------|--------------------|-----------|-----------|
| Individual-Level Variables Divorced Mother | .6279*** | .6274*** | .6272*** | .6245*** |
| | (-7.74) | (-7.74) | (-7.77) | (-7.79) |
| Widowed Mother | .2903*** | .2899*** | .2898*** | .2899*** |
| | (-10.87) | (-10.89) | (-10.88) | (-10.80) |
| Mother Working Part Time | 2.2259*** | 2.2244*** | 2.2229*** | 2.2257*** |
| | (8.29) | (8.28) | (8.27) | (8.26) |
| Mother Not in Labor Force | 5.3128*** | 5.3099*** | 5.3084*** | 5.3203*** |
| | (13.03) | (13.03) | (13.04) | (13.06) |
| Mother Unemployed | 7.4510*** | 7.4463*** | 7.4390*** | 7.5051*** |
| | (16.80) | (16.82) | (16.79) | (17.03) |
| Low Education Mother | 1.3910*** | 1.3915*** | 1.3921*** | 1.3905*** |
| | (4.41) | (4.42) | (4.43) | (4.40) |
| High Education Mother | .5232*** | .5233*** | .5235*** | .5182*** |
| | (-5.62) | (-5.61) | (-5.61) | (-5.76) |
| Mother under 25 | 1.4406* | 1.4392* | 1.4392* | 1.4312 |
| | (2.04) | (2.04) | (2.04) | (1.99) |
| Number of Children in Household | 1.1805*** | 1.1804*** | 1.1804*** | 1.1787** |
| | (3.48) | (3.48) | (3.48) | (3.43) |
| Country-Year Level Variables Economic Growth (WE) | 1.0288 | 1.0205 | 1.0143 | .9999 |
| | (0.51) | (0.38) | (0.26) | (-0.00) |
| Economic Growth (BE) | .9824 | 1.3021 | 1.1408 | 1.1197 |
| | (-0.13) | (1.62) | (0.77) | (0.73) |
| GDP per Capita (WE) | 1.0001 | 1.0001 | 1.0001 | 1.0001 |
| | (0.14) | (0.21) | (0.27) | (0.68) |
| GDP per Capita (BE) | 1.0001 | 1.0001*** | 1.0001*** | 1.0001*** |
| | (1.13) | (3.88) | (3.57) | (3.69) |
| Social Expenditure (WE) | .9008 | .9262 | .9335 | .9318 |
| | (-1.73) | (-1.82) | (-1.53) | (-1.78) |
| Social Expenditure (BE) | .9389 | 1.0554 | 1.0351 | 1.0340 |
| | (-1.34) | (1.21) | (0.68) | (0.76) |
| Family Expenditure (WE) | | .6704 (-1.72) | | |
| Family Expenditure (BE) | | .5118** (-3.48) | | |

| Family In-Kind (WE) | | | .8402 (-0.55) | |
|--|-----------------|--------------------|--------------------|----------------------------|
| Family In-Kind (BE) | | | .3816** (-2.83) | |
| Family Cash (WE) | | | .5616 (-1.78) | |
| Family Cash (BE) | | | .6869* (-2.01) | |
| Early Childhood Education & Care (WE) | | | | .9112 (-0.23) |
| Early Childhood Education & Care (BE) | | | | .2407** (-3.00) |
| Maternity Leave (WE) | | | | 1.0023 |
| Maternity Leave (BE) | | | | (1.14) 1.0001 (0.06) |
| Maternity Leave Replacement Rate (WE) | | | | 1.0103 |
| Maternity Leave Replacement Rate (BE) | | | | (1.76) 1.0002 (0.04) |
| Family Allowances (WE) | | | | .3934*** (-4.68) |
| Family Allowances (BE) | | | | .5671*** (-3.64) |
| Constant | .4559 (0.58) | .0452** (-2.71) | .0974 (-1.78) | .0778* (-2.10) |
| | , , | | , , | |
| Country-Year Variance Country Variance | .1085 .4634 | .1013 .2431 | .0992 .2107 | .0808 .2127 |
| • | | | | |
| Observations | 105,814 | 105,814 | 105,814 | 105,669 |
| Country-Years | 101 | 101 | 101 | 100 |
| Number of Countries | 21 | 21 · P 6 | 21 | 21 |

Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Mother never married, mother working full time, medium education mother, mother over 24.

Appendix G: Two-Level Within-Between Random Intercept Models, Odds Ratios of Poverty among Children in Two-Parent Households*

| | (1) | (2) | (3) | (4) |
|--|-----------|---------------------|---------------------|-----------|
| Individual-Level Variables Lead Parent Working Part Time | 3.4854*** | 3.4852*** | 3.4844*** | 3.4887*** |
| | (19.30) | (19.28) | (19.28) | (19.27) |
| Lead Parent Not in Labor Force | 4.5745*** | 4.5690*** | 4.5721*** | 4.5754*** |
| | (12.66) | (12.63) | (12.65) | (12.62) |
| Lead Parent Unemployed | 9.4204*** | 9.4197*** | 9.4139*** | 9.4669*** |
| | (24.68) | (24.67) | (24.67) | (24.69) |
| Low Education Lead Parent | 2.0108*** | 2.0121*** | 2.0130*** | 2.0110*** |
| | (13.83) | (13.85) | (13.85) | (13.77) |
| High Education Lead Parent | .4508*** | .4505*** | .4508*** | .4479*** |
| | (-13.63) | (-13.64) | (-13.63) | (-13.73) |
| Lead Parent under 25 | 3.1810*** | 3.1813*** | 3.1832*** | 3.1804*** |
| | (15.63) | (15.65) | (15.65) | (15.61) |
| Number of Children in Household | 1.3133*** | 1.3132*** | 1.3133*** | 1.3128*** |
| | (14.25) | (14.25) | (14.26) | (14.18) |
| Country-Year Level Variables Economic Growth (WE) | .9978 | 1.0056 | .9966 | 1.0034 |
| | (-0.04) | (0.12) | (-0.09) | (0.09) |
| Economic Growth (BE) | .7992*** | 1.0306 | .9397 | .9505 |
| | (-3.90) | (0.55) | (-1.23) | (-0.85) |
| GDP per Capita (WE) | .9999 | .9999 | .9999 | .9999 |
| | (-0.24) | (-0.15) | (-0.40) | (-0.40) |
| GDP per Capita (BE) | .99999 | 1.0001 | .9999 | .9999 |
| | (-1.38) | (1.45) | (-0.39) | (-0.69) |
| Social Expenditure (WE) | .9758 | .9943 | .9920 | .9921 |
| | (-0.48) | (-0.40) | (-0.19) | (-0.20) |
| Social Expenditure (BE) | .9206*** | 1.0045 | .9877 | .9947 |
| | (-5.68) | (0.09) | (-0.88) | (-0.35) |
| Family Expenditure (WE) | | .7522 (-1.54) | | |
| Family Expenditure (BE) | | .6060*** (-6.66) | | |
| Family In-Kind (WE) | | | .7112 (-1.14) | |
| Family In-Kind (BE) | | | .3675*** (-8.67) | |
| | | | | |

| Family Cash (WE) | | | .7645 (-1.38) | |
|---------------------------------------|-------------------|---------------------|---------------------|---------------------|
| Family Cash (BE) | | | .8373* (-2.31) | |
| Early Childhood Education & Care (WE) | | | (2.31) | .5022 (-1.58) |
| Early Childhood Education & Care (BE) | | | | .2639*** (-7.83) |
| Maternity Leave (WE) | | | | .9979 (-0.95) |
| Maternity Leave (BE) | | | | .9983 (-1.58) |
| Maternity Leave Replacement Rate (WE) | | | | 1.0041 (0.48) |
| Maternity Leave Replacement Rate (BE) | | | | 1.0002 (0.09) |
| Family Allowances (WE) | | | | .6977* (-2.41) |
| Family Allowances (BE) | | | | .7949** (-2.68) |
| Constant | .3500* (-2.05) | .0740*** (-5.67) | .1298*** (-4.73) | .1105*** (-4.92) |
| Country-Year Variance | .3490 | .2352 | .1772 | .1904 |
| Observations Country-Years | 555,065 122 | 555,065 122 | 555,065 122 | 554,230 121 |

^{*}Note: *** p<0.001, ** p<0.01, * p<0.05. Z-scores in parenthesis. Reference groups: Mother never married, mother working full time, medium education mother, mother over 24.

Appendix H: Two Level Random Intercept Models, Odds Ratios of Poverty among Children of Single Mothers controlling for Preponderance of Informal Care*

| | (1) | (2) | (3) | (4) |
|--|-----------|------------------|------------------|---------------------|
| Individual-Level Variables Divorced Mother | .4743*** | .4732*** | .4732*** | .4724*** |
| | (-4.07) | (-4.08) | (-4.08) | (-4.12) |
| Widowed Mother | .2396*** | .2390*** | .2387*** | .2417*** |
| | (-4.97) | (-4.99) | (-4.99) | (-5.10) |
| Mother Working Part Time | 2.2547*** | 2.2516*** | 2.2520*** | 2.2180*** |
| | (4.19) | (4.17) | (4.18) | (4.09) |
| Mother Not in Labor Force | 6.5564*** | 6.5568*** | 6.5579*** | 6.4894*** |
| | (8.28) | (8.29) | (8.29) | (8.28) |
| Mother Unemployed | 8.5429*** | 8.5353*** | 8.5377*** | 8.5081*** |
| | (8.79) | (8.79) | (8.79) | (8.75) |
| Low Education Mother | 1.50026* | 1.5032* | 1.5031* | 1.4946* |
| | (2.37) | (2.38) | (2.38) | (2.35) |
| High Education Mother | .5929* | .5932* | .5933* | .5839* |
| | (-2.38) | (-2.38) | (-2.38) | (-2.44) |
| Mother under 25 | 2.2029*** | 2.2003*** | 2.2003*** | 2.1952*** |
| | (3.58) | (3.52) | (3.53) | (3.52) |
| Number of Children in Household | 1.0932 | 1.0930 | 1.0929 | 1.0934 |
| | (1.03) | (1.03) | (1.03) | (1.03) |
| Country-Level Variables Economic Growth | 1.2889** | 1.2579** | 1.2677** | 1.5470*** |
| | (3.42) | (2.75) | (2.94) | (8.83) |
| GDP per Capita | 1.0000** | 1.0000** | 1.0001** | .9999 |
| | (3.25) | (3.08) | (2.93) | (-0.99) |
| Social Expenditure | 1.0304 | 1.0262 | 1.0255 | 1.0528*** |
| | (0.66) | (0.54) | (0.51) | (3.55) |
| Family Expenditure | | .8574 (-1.54) | | |
| Family In-Kind | | | .7293 (-1.57) | |
| Family Cash | | | .8821 (-0.94) | |
| Early Childhood Education & Care | | | | .6887*** (-3.71) |
| Maternity Leave | | | | .9901*** (-5.69) |

| Maternity Leave Rates | | | | 1.0087** (2.91) |
|----------------------------------|--------------------|-------------------|-------------------|--------------------|
| Family Allowances | | | | 1.1608 (0.84) |
| Informal Childcare Usage (0-2) | .9883 | .9764 | .9765 | 1.0142 |
| | (-0.33) | (-0.59) | (-0.59) | (1.07) |
| Informal Childcare Usage (3-5) | 1.0487 | 1.0484 | 1.0375 | 1.0382** |
| | (1.81) | (1.86) | (1.38) | (2.93) |
| Informal Childcare Usage (6-12) | .9560 | .9644 | .9729 | .9069*** |
| | (-1.59) | (-1.44) | (-0.94) | (-5.87) |
| Constant | .0203** (-3.42) | .0360* (-2.41) | .0446* (-2.21) | .0538 |
| Country-Year Variance | .1242 | .1119 | .1094 | .0122 |
| Observations Number of Countries | 16,828 | 16,828 | 16,828 | 16,828 |
| | 15 | 15 | 15 | 15 |

Number of Countries 15 15 15 15 15 15 15 15 mother working full time, medium education mother, mother over 24.