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**New Perspectives on Poverty among Single  
Parents: Accounting for Diversity and Pre-  
Parenthood Characteristics**

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*Pentru mama mea, părintele singur care m-a inspirat.*

*To my mother, the single parent who inspired me.*

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# Abstract

Persistent poverty remains a pressing issue in the United States (U.S.), particularly in comparison to other high-income countries. A dominant explanation for high poverty rates in the U.S. centers on family structure – especially the declines in marriage rates and the rise in mother-headed households. This line of reasoning aligns with behavioral explanations to poverty, which emphasize personal responsibility and individual choices. In contrast, this dissertation adopts an institutional and life-course perspective, arguing that poverty among single parents is not a consequence of family structure per se, but a reflection of long-term disadvantage and insufficient welfare support.

While existing institutional theories have highlighted the importance of welfare regimes in mitigating poverty, they often treat single parenthood as a monolithic or static experience. This thesis argues that poverty must be understood as a cumulative outcome of life-course disadvantages and inadequate policy support. In doing so, it aims to adapt institutional theories to better account for the diversity and lived realities of single parents.

Using longitudinal panel data from five high-income countries (U.S., United Kingdom, Australia, Germany, Switzerland), the thesis analyzes the poverty experiences of single parents over time. It accounts for heterogeneity in single parenthood by distinguishing pathways into single parenthood (divorce, separation, widowhood, nonmarital births) and by exploring the sociodemographic composition of these pathways across time. Then, it explores different poverty outcomes of single parents and their children across these pathways and across time. Using decomposition techniques, it disentangles the relative contribution of family structure, pre-parenthood disadvantage, and policy interventions to poverty outcomes.

The results show that poverty among single parents is not evenly distributed. Never-married and separated single parents in the U.S. face the highest poverty risks, while divorced and widowed parents fare better. Cross-national comparisons reveal stark differences: U.S. single parents are uniquely vulnerable, in part due to weak income protection policies. Importantly, the pathways into single parenthood explain within-country variation but do little to explain cross-national differences—policy generosity is the key factor in explaining cross-country differences.

Longitudinal analysis reveals that many single parents already experience poverty up to a decade before becoming parents. Over 60% of single-parent poverty is attributable to pre-

parenthood conditions, suggesting that single parenthood mediates, rather than causes, adult poverty. These findings challenge the logic of marriage promotion as an anti-poverty strategy and instead point to the need for comprehensive welfare programs to reduce child poverty.

This dissertation reframes the debate on the relationship between single parenthood and poverty. It challenges behaviorally driven explanations and demonstrates that poverty among single-parent families stems not from marital choices but from life-long disadvantages and policy failure. By integrating insights from life-course analysis, and within-group differentiation, it extends the theoretical scope of institutional explanations to poverty. The findings underscore the importance of comprehensive policies to improve material resources among single-parent families as opposed to marriage promotion.

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# Chapter 1. Introduction

Explanations for persistent poverty in the U.S. fall into three categories: behavioral theories, structural theories, and political theories (Brady 2019). The first focuses on individual characteristics and behaviors that lead to poverty and tend to place the responsibility on “the poor” for their own hardship. To complement the behavioral theory, structuralism emphasizes the direct and indirect (through behavior) effects of economic and demographic contexts on poverty outcomes. Lastly, political theories focus on power relations and how they shape the distribution of resources. In this view, poverty is a result of institutional characteristics that can, but do not always, shape behavior.

Among individual explanations, single parenthood<sup>1</sup> has received substantial attention as one of the most important behaviors leading to (child) poverty. Researchers have highlighted the high risk of poverty among single-parent families (Rank 2000), the widening income gap between single- and two-parent families (McLanahan 2004; McLanahan and Percheski 2008), and the negative consequences for children growing up in single-parent families, including increased risk of poverty in adulthood (McLanahan 2009a). Critics of this perspective, however, used cross-national data to show the importance of welfare in reducing the risks of poverty for single-parent families (Brady, Finnigan, and Hübgen 2017; Misra et al. 2012).

I argue that the current literature on the relationship between poverty and family structure requires reevaluation. In this dissertation, I offer a new perspective to better understand the poverty experienced by single parents and their families, and to credibly critique behavioral arguments. Existing literature often fails to adequately account for the diversity within single parent families and the life-course dynamics that contribute to their disadvantage. My approach aligns with institutional explanation by highlighting the role of family policy and welfare programs in supporting the economic well-being of single parents. However, it moves beyond this framework by challenging the notion that single-parent families are a homogeneous and temporally static group.

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<sup>1</sup> Throughout this dissertation, I talk about single parenthood rather than single motherhood, except when describing studies that solely investigate single mothers, as many do. I do this for two important reasons. First, I argue that talking about single mothers has become improper, as the share of single fathers is increasing. Second, the stigmatization of single parents is partly an issue of gender discrimination and part of the destigmatization process lies in promoting a gender-neutral language.

## 1.1. The ‘Family Crisis’ Argument: Individual Explanations for Poverty

Recently, arguments linking high U.S. poverty rates to declining marriage rates and increasing non-marital childbearing have resurfaced in both academic and public discourse (P.R. Amato and Maynard 2007; Kearney 2023; Sawhill 2014). Sara McLanahan's influential study of poverty among single mothers concludes with this recommendation: ‘to break the intergenerational cycle of poverty, we will need to find a way to persuade young women from disadvantaged backgrounds that delaying fertility while they search for a suitable partner will have a payoff that is large enough to offset the loss of time spent as a mother or the possibility of forgoing motherhood entirely’ (McLanahan 2009a:128). Similarly, Isabel Sawhill offers this solution for avoiding poverty: ‘The ideal would be education, work, marriage, children—in that order. The achievement of these benchmarks will, in almost all cases, ensure that any children a couple decides to have are not born into poverty’ (Sawhill 2014:14). A 2022 AEI-Brookings ‘Consensus Report’ advocates that ‘Child poverty would be markedly reduced if the marriage rate was the same as it was in 1970’ (p.28). In her recent book, economist Melissa Kearney argues that we should ‘Work to restore and foster a norm of two-parent homes for children’ (Kearney 2023:170). Even in public discourse, these arguments are common among conservative politicians and policy makers (Cohen 2018). These arguments can be boiled down to one simple issue: the high prevalence of single-mother families is a leading cause of poverty in the U.S.

The tendency to attribute poverty to individual failings – particularly the choice to remain single and have children outside marriage – is not new. Family dissolution arguments have been prevalent in the U.S. since the late 1960s (Coontz 1992). Throughout the 20th century, social and economic changes – especially the rise in women's labor force participation – reshaped family life, increasing divorce and single motherhood rates, particularly among low-income women. These changes fueled concerns over a “family crisis,” leading policymakers to promote marriage as a solution to poverty. Unfortunately, this often resulted in blaming single mothers for a wide range of social problems (Cohen 2018; Katz 2013). Rooted in American ideals of self-reliance, this narrative stigmatized single mothers and influenced welfare policies by portraying them as undeserving of support. However, as Coontz (1992:258) warns, ‘Blaming our ills on family breakdown oversimplifies the issue and ultimately leads to scapegoating mentality that is unfair and unhelpful’.

Beyond stigmatization, the ‘family crisis’ arguments have a second, potentially even more harmful limitation: they distract the attention of policy makers from real drivers of poverty as well as real solutions to it that could improve the well-being of single parents and their families (Coontz 1992:22). In an attempt to address this issue, scholars have focused on institutional explanations to poverty.

## 1.2. Alternative Approaches: Institutional Explanations for Poverty

‘Despite what you may have heard, the institution of marriage is alive and well’ (Karney and Bradbury 2020:100). The family is not in crisis either but is instead adapting to new economic and social realities (Coontz 1992). Although marriage rates are lower, those who marry stay married much longer than in the past and have happier marriages. Fathers are more likely to walk out on their children than before, but those who remain are more involved in childrearing (Altintas and Sullivan 2017). Divorce rates are higher, but domestic abuse decreased substantially as women have gained the ability to leave conflictual relationships (Powers and Kaukinen 2012). More mothers work today than ever before (Vlasblom and Schippers 2006), but the problem is not that they do, but that many social activities such as work, school, and medical care are still organized as if every family has a stay-at-home mother available to drive kids around and take care of them when they are sick (Coontz 1992).

In the European context, many studies find that individual characteristics are unable to explain high poverty rates among single-parent families compared to those of two-parent families (Alm, Nelson, and Nieuwenhuis 2020; Bernardi and Boertien 2017; Bradshaw and Nieuwenhuis 2021; Härkönen 2018).

Researchers seeking plausible solutions to high child poverty rates and the elevated risk of poverty among single-mother families have pointed to the lack of governmental support for single parents in the U.S. as compared to other high-income countries (Aerts, Marx, and Parolin 2022; Brady, Baker, and Finnigan 2024; Brady et al. 2017; Gornick, Maldonado, and Sheely 2022; Misra et al. 2012). These studies also suggest that even if the U.S. had a lower rate of single motherhood, child poverty would remain high (Brady et al. 2024). This is because the penalty associated with single motherhood is higher in the U.S. than in many other high-income countries, largely due to weak welfare support (Aerts et al. 2022; Brady et al. 2017). Parents in the U.S. often lack access to guaranteed maternity and parental leave, which increases their work-life conflict (Nieuwenhuis 2020). When available, child benefits are small and available to a selected few. Childcare and early education and care is privatized and expensive, or of poor

quality when it is public. These are only a few examples of how the U.S. lags behind other high-income countries in supporting (single) parents and decommodifying goals. In the absence of these services, single parents cannot find or maintain a well-paying job without sacrificing other parental duties, such as caring for and supervising their children. (Brady et al. 2017; Maldonado and Nieuwenhuis 2015; Misra et al. 2012).

The lessons from this line of research are clear: to reduce poverty, we must increase welfare support for families and restructure employment and public services to enable parents to work without compromising their childrearing responsibilities (Nieuwenhuis and Maldonado 2018).

### 1.3. The Limitations of Current Research

Despite cross-national research disproving the ‘family crisis’ narrative (Coontz 1992) and studies demonstrating the ineffectiveness of marriage promotion policies (Graefe and Lichter 2008; Lichter, Graefe, and Brown 2003), these arguments have resurfaced in recent academia and public discourse (Kearney 2023; Sawhill 2014; Wilcox 2024). Why do these arguments remain so resilient despite substantial evidence to the contrary? Similarly, how can institutional explanations be strengthened to more effectively critique prevalence-based claims?

One key issue is that much of the current literature on the relationship between poverty and single parenthood treats single parents as a monolithic group – a parent is either single or not. This binary classification overlooks significant within-group variation. Most studies compare single-parent outcomes with those of two-parent families without accounting for how individuals became single parents. The few studies that address differences in single parenthood have done so in a different context to that of the United States (Hubgen 2020; Zigel 2023) and with qualitative methods (Bernardi and Larenza 2018). In the U.S., a few studies have investigated heterogeneity in single parenthood but focused on other child outcomes rather than poverty (McLanahan and Sandefur 1994). As a result, this approach potentially overestimates the poverty of some single parent families and underestimates it for others.

In contrast, this thesis explores within-group heterogeneity in single-parent poverty both in the U.S. and across other high-income countries. Specifically, I explore differences in poverty based on the pathways into single parenthood and track changes in the prevalence and composition of these pathways over time. The analysis also reveals that the poverty-reducing effects of policy interventions are not distributed evenly across different subgroups of single parents.

Another important limitation in current research is the neglect of transitions in and out of single parenthood. By treating single parents as a static group – once a single parent, always a single parent – most studies overlook life-course changes in family structure. Often constrained by cross-sectional data, these studies cannot observe family structure changes over time.

In this thesis, I take advantage of longitudinal panel data sets from five high-income countries that allow me to better operationalize single parenthood by moving beyond point-in-time measurements. Following Cross (2020), I calculate the share of time, in years, each parent spends in each family structure. This method is preferred to a static measure of single parenthood that does not consider the relative influence of past and future family structures on poverty among single parents (Cross 2020a). It also emphasizes the importance of the cumulative effect of family structure over static snapshots of family structure.

Perhaps even more critical is the limited ways in which research deals with selection into single parenthood. Scholars have acknowledged that single parents tend to have lower levels of education and higher poverty rates even before having children (Harkness 2022; Hubgen 2020; Kearney 2023; McLanahan 2009). Some have attempted to account for this negative selection into single parenthood by controlling for family background characteristics (McLanahan and Sandefur 1994) or by using sibling comparisons (Geronimus and Korenman 1992; Hoffman, Foster, and Furstenberg 1993). However, the extent to which these selection effects shape poverty rates of single parents (in general and relative to two-parent families) has rarely been addressed.

My research not only estimates the contribution of selection effects to single-parent poverty but also introduces a framework that emphasizes the persistent and cumulative nature of disadvantage across the life course. I argue that the observed poverty among single parents is not merely a consequence of family structure but is also shaped by long-standing, often compounding, disadvantages.

Another important methodological limitation concerns how poverty itself is measured. Usually a binary measure – either poor or not, this operationalization of poverty cannot evaluate long-term experiences with poverty (sometimes due to limitations of cross-sectional data). By doing this, it treats individuals who are in poverty temporarily the same way it does those who experience chronic poverty. In this dissertation, I use a measure of poverty intensity that calculates the share of an individual's life spent in poverty. This allows for more nuanced

comparisons not only between those who experience poverty and those who do not, but also among individuals with varying degrees of poverty exposure.

Furthermore, institutional explanations have largely focused on the role of **family policy** in reducing poverty among single-parent families (Maldonado and Nieuwenhuis 2015; Misra et al. 2012; Zagel and Van Lancker 2022). Although family policy is the main direct tool to address poverty among single parents, the broader welfare system also influences the life-chances of single parents. Single parents are also subject to other types of redistribution policies – especially income protection policies such as unemployment benefits, social assistance, sickness benefits, and tax credits, as well as policies with more or less direct consequences on income such as health care and educational provisions. This thesis acknowledges this reality and investigates the poverty reduction effect of a comprehensive set of income protection policies, by comparing poverty before and after taxes and transfers.

Finally, it is important to note that marriage promotion remains a U.S.-centric solution that often ignores international comparisons. Proponents of the prevalence perspective often draw conclusions from U.S. data alone, without examining how single parents fare in other high-income countries. This narrow focus makes arguments about the prevalence of single parents seem more credible than they actually are. I join the advocates of institutional explanations in investigating the relationship between poverty and single parenthood cross-nationally, while integrating the new perspectives outlined in this section.

## 1.4. Summary of empirical chapters

The first chapter – “Diverging Paths: Heterogeneities in Single Parenthood and Consequences for Child Poverty” deals with diversity among single parents – especially as it pertains to pathways into single parenthood. In this chapter, I argue that the reason a parent becomes single plays a substantial role in shaping life circumstances and economic conditions of single parent families. Using data from the Panel Study of Income Dynamics from the United States (US), I show that poverty is not uniformly distributed across different types of single parents: children who grow up with never married and separated single parents experience more time in poverty compared to children of divorced and widowed single parents. Moreover, some of the disadvantages accumulated while growing up in single parent households continues to shape poverty into adulthood.

Subsequently, Chapter 2 expands the research in the first chapter to the international arena by using data from the Cross-National Equivalent File. In “Single Parenthood and the

Poverty Debate: How Pathways and Policies Explain Cross-National Differences”, I employ a similar methodology to test how pathways into single parenthood shape poverty across five high income countries, Australia, Switzerland, Germany, the United Kingdom, and the United States. This comparison confirms that poverty among single parents is not equally distributed across pathways into single parenthood but highlights that this distribution varies widely across countries. Not only does the U.S. stand out as a country where single parent poverty is high, it also stands out as the country where never married single parents fare much worse in comparison to other single parents. In countries like Germany and the UK, poverty is more uniformly distributed across different pathways into single parenthood. Importantly, this paper also shows that while pathways matter a great deal in explaining within-country differences in single-parent poverty, they do not go a long way in explaining cross-national differences in single parent poverty; these are mainly explained by differences in income protection policy.

Together, these chapters provide descriptive evidence of the importance of considering various sources of heterogeneity when examining the poverty of single parent families. It also highlights the vulnerability of never married and separated single parents (especially in the U.S. and Australia) as compared to other types of single parenthood, vulnerability that is obscured by estimations of poverty for a homogenous group of single parents. For example, in the US, the difference in poverty between never married single parents and divorced single parents is almost as big as the differences between single parents and coupled parents.

The last chapter addresses the life-course dynamics that lead to disadvantage among single parents. In “Cumulative Disadvantage and Single-Parent Poverty”, I employ longitudinal methods that track poverty for single parents for 10 years before and 10 years after they become parents and compares it to the trajectories of those who do not become single parents. I descriptively show that individuals who go on to become single parents have higher poverty even 10 years before they become single parents compared to those who do not go on to become single parents. By doing this, I estimate the impact of pre-parenthood characteristics on the likelihood of adult poverty and the likelihood of becoming a single parent. In a cumulative disadvantage framework, I employ decomposition methods to show that more than 60% of single parent poverty can be attributed to pre-parenthood characteristics – such as poverty in the parents’ childhood and neighborhood disadvantage. I argue that single parenthood is only a mechanism that mediates the relationship between childhood disadvantage and adult poverty, rather than being a cause of poverty itself. This chapter also address a common issue in the poverty literature – that of failing to account for cumulative disadvantage

when comparing poverty between different groups and thus incorrectly concluding that it is group membership that has a persistent effect on poverty (DiPrete and Eirich 2006).

In conclusion, this dissertation challenges the prevailing narratives that link single parenthood to poverty, particularly in the U.S. context. By revealing the diversity within single-parent families and tracing their varied life-course trajectories, it underscores the limitations of behavioral explanations and advocates for a more nuanced, institutionally grounded understanding of poverty. The empirical findings show that both the pathways into single parenthood and the policy environment shape poverty outcomes in complex and often overlooked ways. Poverty among single parents is neither uniformly distributed, nor is it simply a consequence of family structure; rather, it is deeply intertwined with life-course disadvantages and inadequate governmental support. This dissertation calls for a reframing of the poverty debate: one that centers not on the marital choices of individuals, but on the institutional shortcomings in addressing the material needs of single-parent families.

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# Chapter 2. Diverging Paths: Heterogeneities in Single Parenthood and Consequences for Child Poverty

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## 2.1. Introduction

Single parenthood is commonly identified as a risk for poverty and economic disadvantage (Brady, Finnigan, and Hübgen 2017; McLanahan 2009; Moullin and Harkness 2021). Moreover, greater exposure to childhood poverty, which is more common in single-parent families, is associated with greater economic challenges in adulthood (Lersch and Baxter 2021; Jenkins and Siedler 2007; Lesner 2018). Many studies into the poverty of single parents and their families have generally treated single-parent (or single-mother) families as a homogenous group, comparing their performance to two-parent families. The few studies that address differences in single parenthood based on pathways have done so in a different context to that of the US (Hubgen 2020; Zagel 2023) and with qualitative methods (Bernardi and Larenza 2018). In the US, a few studies have investigated heterogeneity in single parenthood based on pathways but focused on other child outcomes rather than poverty (McLanahan and Sandefur 1994). This study, in contrast, asks: (1) *are there substantial within-group heterogeneity among single parents in the US?* And (2) *How are these heterogeneities relevant for the short- and long-run poverty outcomes of children raised by different types of single parents?* Additionally, we recognize the importance of contextualizing the individual characteristics associated with poverty (Brady, Fullerton, and Cross 2009), and investigate the effects of social policy and family characteristics on poverty reduction across family structures.

We propose three arguments for understanding and comparing pathways into single parenthood: statistical, conceptual, and practical. Statistically, children of single parents are a

common demographic in the U.S. One in four children spend at least some of their childhood in a single-parent family (Weinraub and Kaufman 2019). This is a large population that is potentially at risk for economic disadvantage and deserves more careful investigation than past literature typically provides.

Conceptually, the differential experiences associated with pathways into single parenthood (e.g., a parent never being married/partnered versus a widowed parent) necessitate investigation of how differential selection into single parenthood affects children's well-being. Consider that children of divorce might be affected by parental conflict, custody battles, or guilt over their parents' separation, while children of nonmarried adolescent mothers might be more influenced by fear of abandonment due to a missing parent or the lack of parental experience, and children of widowed parents might mourn their lost parent (Weinraub and Kaufman 2019). Given these different experiences of parents and children alike, and their interaction with cognitive, behavioral, and emotional aspects of children's development, it is important to understand if and how different single-parenthood pathways influence children's well-being.

Practically, if differential pathways into single parenthood are associated with differential outcomes among single-parent families, then policy strategies intending to address the challenges of single-parent families may likewise need to be differentiated. Studying heterogeneity among single parents may thus be important for more accurately identifying vulnerable groups and improving policies meant to address their needs.

With these motivations in mind, this study uses longitudinal data from the Panel Study of Income Dynamics from 1970 to 2019 to pursue three aims. First, following conceptualizations from previous research (Bernardi and Mortelmans 2018; Zagel 2023) we identify different pathways into single parenthood, distinguishing between never-married, divorced, widowed, and separated single parents. Here, pathways are used as a way of

describing the ‘reason’ a parent is single or the event leading to single parenthood (Nieuwenhuis and Van Lancker 2020, 309), and not the life-course trajectory of an individual’s family structure. However, our analysis indicates that the never-married category is mostly made up of individuals who have never been partnered, as well as individuals whose cohabitating units have dissolved, while separated individuals are mostly those who were previously married. Second, we document trends and demographic differences in each type of single parenthood. Third, we empirically (but non-causally) connect different pathways into single parenthood with short- and long-run poverty outcomes for the children of single parents. We do so by measuring the time spent in each family structure over a child’s entire childhood and not by simply looking at point-in-time family composition.

Our findings confirm previous research showing that single parenthood has increased over time (Dunifon 2009) and that the incidence of different pathways into single parenthood has changed meaningfully over time. In the 1970s, single-parent children were most often raised by divorced single parents; in the 2010s, the most common pathway into single parenthood was never getting married. Additionally, we identify meaningful differences in the characteristics across these types of single parenthood. Never-married single parents are substantially younger and less educated than other single-parent types. Moreover, never married single parenthood is far more common among Black families, while single parenthood due to divorce is relatively more common among White families.

We also find large heterogeneity in poverty for children of single-parent families. In broad terms, we find that within-group differences in child outcomes among single parents often match or exceed the between-group differences in outcomes of children in single-parent families compared to two-parent families. Specifically, we demonstrate that the poverty penalty for single parenthood is higher for never-married groups compared to any other pathway, followed by separation. The association between separated and never married single parent

households and poverty is almost double compared to the one between divorced and widowed households and poverty. In line with previous results in the literature (Zagel, Hübgen, and Nieuwenhuis 2022), we demonstrate that the variation in outcomes associated with each single parenthood type is partly due to compositional differences (such as age, education, employment, occupation type, and more) across the single parents in each pathway, as well as different poverty reduction effects of social policy. Particularly important, the employment status of single parents seems to matter more for poverty outcomes than single parenthood status (Baker 2015; Brady, Baker, and Finnigan 2024). However, unlike previous research, we find that the difference in poverty among pathways remains even after controlling for these factors, indicating that pathways identify unique factors related to single parenthood that influence child poverty. This is partly true because single parents, and never married single parents, in particular, are disadvantaged with respect to education, employment, and age, making them more vulnerable to poverty risks (Brady et al. 2024; Brand et al. 2019; Cohen 2018; Cross 2020; Ellwood and Jencks 2004; Härkönen 2018; Hogendoorn, Leopold, and Bol 2020; Rodríguez Sánchez 2022).

For the sociology, family demography, and inequality literatures, our study reveals disadvantages are not uniformly distributed among different types of single-parent families. Instead, single parents are a heterogeneous group with varying implications for children's later-life poverty depending on the specific pathway into single parenthood.

## 2.2. Background

### 2.2.1. Poverty and Family Structure

Poverty – generally defined as a shortage of resources relative to need (Brady 2019) – is associated with a variety of negative consequences for the individual and the community. Understanding the determinants of poverty has thus been a central focus of past research. In a

review of the literature on the causes of poverty, Brady (2019) concludes there are three broad perspectives: behavioral causes (i.e., those who are poor are more likely to engage in counter-productive, risk behaviors), structural causes (i.e., poverty is a result of economic and demographic contexts), and political causes (i.e., poverty is the result of power dynamics determining collective decision making and thus the redistribution of resources). Among the behavioral (or individual) causes, the most important risk factors for poverty are low education, young headship of the household, unemployment, and single motherhood (Brady, Finnigan, and Hübgen 2017; Dahl 2010; Edin and Kissane 2010).

The latter of these risk factors – single parenthood, and single motherhood especially – has been a central focus of poverty and inequality research in recent decades (Brand et al. 2019; McLanahan 2009; Moullin and Harkness 2021; Musick and Mare 2004). Most notably, Sara McLanahan’s (2004, 2009) foundational work on family structure and its consequences on child development have demonstrated that children who live in families without a father tend to have worse life outcomes as a result of the mother’s reduced mental health, parenting challenges, and lower financial resources (see also McLanahan and Percheski 2008). McLanahan’s (2004) “diverging destinies” theory demonstrates that children who are raised in single-parent families have worse socioeconomic outcomes than those raised in two-parent families, and that this gap is increasing over time as a result of the social transformation associated with the second demographic transition. Although unable to provide causal evidence of this relationship, McLanahan argues that the increased employment and income among highly educated, partnered women, coupled with the increase in singlehood among low-educated, low paid women have led to increased inequality and poverty among the latter.

Many studies have since corroborated these claims, showing the *association* of single parenthood with a variety of negative outcomes for children. Single motherhood can negatively affect child outcomes such as cognitive and academic achievement (Demir-Dagdas et al. 2018),

emotional symptoms, conduct problems, hyperactivity and inattention, peer problems and prosocial behavior (Flouri, Narayanan, and Midouhas 2015), and a variety of other behavioral problems (Waldfogel, Craigie, and Brooks-Gunn 2010). Children of single mothers (and fathers) seem to be more likely to engage in risk behaviors, such as substance abuse and delinquency (Jablonska and Lindberg 2007). Family instability and low family income are two oft-identified mechanisms that can generate these challenges among single-parent families (Fomby and Cherlin 2007; Martinez and Forgatch 2002; Lee and McLanahan 2015; Waldfogel, Craigie, and Brooks-Gunn 2010). In contrast, a few studies point to the importance of context (Zagel 2014) and warn that the relationship between single parenthood and economic outcomes may be overstated (Cooper and Pugh 2020). Amidst debate over the relative role of single parenthood compared to other factors in driving poverty rates, however, one important aspect remains understudied: the within-group heterogeneity among single-parent families.

### **2.2.2. Heterogeneities in Single Parenthood**

Research on the effects of single parenthood on poverty generally treats single parents as a homogenous group, and compares them to two-parent families, or looks at different processes that lead to single parenthood and investigates them individually. Some exceptions (McLanahan 1997; Weinraub and Kaufman 2019) acknowledge diversity among single parent families and some examine time trends in different pathways into single parenthood (Dunifon 2009). Other studies compare the income of unpartnered mothers at birth to those whose union dissolves sometimes later on (Fomby, Harvey, and Musick 2023; Page and Stevens 2004), or cohabitating to marriage families (Cooper and Pugh 2020). Some studies acknowledge the differences in child outcomes based on the age when they experience single parenthood (Harkness, Gregg, and Fernández-Salgado 2020). In her book, Zagel (2023) investigates the different effects of parental leave policies on different family types in Germany. Overall few studies empirically investigate differences in child poverty based on pathways into single

parenthood, but when studies do examine particular single-parent pathways, they tend to do so in isolation (for a recent review see Härkönen, Bernardi, and Boertien 2017).

Many studies have focused, for example, on the effects of divorce on child outcomes, (Amato and Anthony 2014; Cao, Fine, and Zhou 2022; Demir-Dagdas et al. 2018), including education and emotional development (Brand et al. 2019; Demir-Dagdas et al. 2018), well-being (Booth and Amato 2001), adult labor outcomes (Johnson and Mazingo 2000), as well as intervention to limit the negative effects of divorce (Grych and Fincham 1992). Most of these studies find a detrimental effect of divorce on child outcomes; others, such as Cao, Fine and Zhou (2022), argue that it is not the divorce per se creating negative outcomes for children, but rather it is a matter of the pre- and post-divorce family environment that account for how children react to a divorce. There is limited exploration, however, of the economic circumstances of divorced parents compared to other types of single parents, with the exception of one study that concludes that divorced mothers suffer from larger income declines compared to mothers who were single at the birth of their child (Harkness 2022).

Some studies also investigate separation – either individually or compared to divorce – (Clarke-Stewart et al. 2000; Garriga and Pennoni 2022). The results point to similar a direction: there is an association between separation and worse child educational, social, behavioral outcomes (compared to children from two-parent families), but these are explained by family characteristics, such as income, mother’s education, ethnicity, and mother’s emotional well-being and parental practices (Clarke-Stewart et al. 2000). Compared to children of divorced families, separation seems to be even more detrimental (Garriga and Pennoni 2022).

One other pathway into single parenthood is parental death. Steele, Sigle-Rushton, and Kravdal (2009) find that parental death is less detrimental to child educational outcomes than divorce, while others find similar negative effects of both parental death and divorce (Amato and Anthony 2014).

Lastly, some have descriptively analyzed the development of non-marital births over time (Solomon-Fears 2014) or tried to investigate the effectiveness of pro-marriage initiatives on unmarried mothers (Lichter, Graefe, and Brown 2003; Wood et al. 2014). Others show that children born to unpartnered mothers have lower income levels compared to mothers who separate sometimes after the birth of their child (Fomby et al. 2023). There is little evidence, however, of the longer-run consequences of growing up in this family type. In short, most studies have investigated the consequences of individual pathways into single parenthood but have not offered a unified analysis of how differential pathways into single parenthood are associated with distinct poverty outcomes for the single parents and their children (see Zigel 2023 for an exception).

Another strand of literature has shown that family instability (i.e., multiple transitions from one family structure to another) can better explain negative outcomes of single parenthood on child's well-being and development (Fomby and Cherlin 2007). We argue that heterogeneity in single parenthood captures a different aspect of family experience as opposed to instability. As opposed to family instability approaches, we demonstrate that the unique characteristics of each pathway into single parenthood, beyond the number of transitions, influence long-term child outcomes differently. At the same time, our focus on heterogeneities in family structure allows us to engage with the literature on poverty and economic disadvantage that still focuses a lot of its attention on the predictive power of single parenthood as a family structure.

### **2.2.3. Why do pathways lead to different poverty outcomes?**

Given results of previous studies, we expect to find differential outcomes for children of single parents depending on the pathway into single parenthood<sup>2</sup>. We anticipate that divorce

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<sup>2</sup> We refrain from creating explicit hypothesis about the differences in poverty between pathways, since this study is the first one to adopt this strategy. Our goal is exploratory in nature: to identify the possible differences and advance some initial potential mechanisms about differences in poverty across pathways, and not to test pre-existing expectations. However, based on previous research, we formulate some general expectations in this section.

will be the least detrimental pathway into single parenthood, as it is more common among older individuals with more secure employment and implies some formal arrangements about custody and child support (Skinner and Hakovirta 2020). Compared to other pathways into single parenthood, divorce does not necessarily imply reduced support from the non-residential parent. Rather, child support and childcare are regulated by court orders allowing the non-residential parent to continue to help with the raising of the child (Zagel 2023; Cancian, Costanzo, and Meyer 2023).

In the case of widowhood, in which the financial and time loss of the second parent is absent, the loss of income can be mitigated due to substantial widow pensions and often inheriting material resources (Zagel 2023), leaving widowed parents with potentially a reduced likelihood of poverty relative to, say, divorced parents.

Separation is potentially more harmful to children, as it generally does not involve any formal arrangements related to contact or financial support from the absent parent. Particularly compared to divorce, separation is associated with a greater likelihood of receiving less from the second parent, both financially and in terms of childcare support (Zagel 2023).

Lastly, never marrying is increasing fastest among single parents of 20 to 24 years old (Solomon-Fears 2014), potentially leaving these parents vulnerable to the poverty risks associated with youthhood (Brady, Finnigan, and Hübgen 2017). Never-married single parents often lack access to formal ways of securing child support, which might leave them worse off compared to the rest of the pathways (Cancian et al. 2023). The increase in childcare is common among all transitions into single parenthood, but it is most intense after birth, leaving never-married single parents in situations where the responsibilities of care are demanding to the point that they often do not allow time for employment (Zagel 2023) or pursuing education, both with potential negative consequences on income and poverty.

#### **2.2.4. Short- and Long-Run Consequences**

Another limitation of prior research is the frequent focus of the short-run, rather than longer-run, consequences of single parenthood. A focus on short-run associations of single parenthood with poverty, as one example, is useful for describing point-in-time disadvantages. For understanding the consequences of single parenthood (and variations within it) for children, however, a longer-run perspective is required. Life-cycle bias – a common concern in the intergenerational mobility literature regarding the age period in which adult outcomes are examined – suggests that the negative associations of single parenthood with economic outcomes may vary depending on the age in which we measure the child's later-life economic circumstances. Economic consequences during childhood, when the individual is living with the single parent, are likely to be strongest; in contrast, consequences during adulthood may be notably smaller (though perhaps still negative) as the child of the single parent establishes an independent employment, education, and family structure profile.

#### **2.2.5. Social Policy and Single Parenthood**

Previous research has identified social policy as one of the main ways to mitigate the negative effects of single parenthood. Studies have shown that in countries with more comprehensive welfare programs, single parents and their families are less often in poverty and have higher incomes compared to countries with limited welfare regimes, such as the US (Aerts, Marx, and Parolin 2022; Maldonado and Nieuwenhuis 2015). Child benefits, parental leaves, and quality affordable childcare all support single parents allowing them to work and raise their children at the same time and keeping them out of poverty. In the US, the limited family policies contribute to the increased association between single parenthood and poverty (Fomby et al. 2023).

Even in the US, the Earned Income Credit Tax (EITC), as well other programs such as SNAP and TANF have been shown to reduce poverty among families with children, including

single parents (Biegert, Brady, and Hipp 2022; Brady et al. 2024). In this paper, we acknowledge the importance of social policy and examine how poverty among different pathways into single parenthood is reduced as a result of taxes and transfers. We argue that depending on the pathway into single parenthood, families will have access to different social policies (or to different degrees) contributing to maintaining differences in poverty outcomes. For example, unmarried parents and their children receive child support payments far less than other single parents (Cancian and Meyer 2018) and widowed parents can access widowhood benefits.

In short, studies have investigated the consequences of different types of single parenthood (divorced, widowed, separated, and never married single parents) in past research, but clear shortcomings remain: the literature lacks a thorough and unified investigation of within-group heterogeneities in pathways to single parenthood, the changing incidence of these pathways over time, diversity of demographic characteristics across the pathways, and the long-run implications of each pathway for child poverty. This study investigates poverty, positing, in broad terms, that variation in the incidence and consequence of different single parent pathways warrants the study of single parenthood as a diverse, rather than homogenous, family structure.

## 2.3. Data and Methods

We investigate the incidence and consequences of single parenthood pathways using data from the Panel Study of Income Dynamics (PSID), a longitudinal data set that follows the same U.S. households over a long period of time. The PSID provides data on household-level, as well as individual-level variables. This allows us to identify family relationships between members and household income, but also individual outcomes, such as education, employment, and marital status. The PSID offers the unique ability to follow people from childhood into

their adulthood always observing their household composition. The PSID covers the period between 1968 and 2019 with a total sample size of almost 900,000 respondent-years observations (around 16,000 to 30,000 individuals per year). Specifically, we use the WZB-PSID file (Brady and Kohler 2022) which offers post-tax/transfer income components and combines individual and household-level indicators for more efficient analysis.

*Sample Selection and Characteristics:* Our initial sample is composed of heads of households, their partners, and their children (we drop all individuals who live in households with no children, as well as other household members such as grandparents, siblings of parents, roommates, and other unrelated adults). This sample selection is conducted after we construct the relative poverty measure. We drop data for the years 1968 and 1969 because of limited sample size and incomplete information on marital status and other important variables. The full sample is used to define the median income and poverty status. We determine each individual's family type for each year based on the marital status of the head (or partner) of the household. Then, we restrict our sample to individuals observed for at least for five years in the PSID before they turned 18 (In Supplementary Material 5 we replicate these results with a criterion of three years or more). We do this because it is important to have enough observed years to confidently infer the type of household a child grew up in. For example, if a child in the PSID is observed starting at age 17 years old it is not feasible to assess their family structure over the entire childhood. Our final sample contains all individuals observed for at least five years before they turned 18 (including the adult time periods for individuals who meet these criteria). All our analyses use "children" as the unit of analysis, referring to all individuals under 18 years old and the observations from these individuals in adulthood. Thus, we analyze and present results for "children" of single parents both before and after they turn 18 years of age.

In the first part of our analysis, we present descriptive evidence on trends in the share of children in each single parenthood pathway. In this analysis, we focus on children (i.e., individuals under 18 years old), regardless of their presence in the sample later in life. This sample contains 295,739 observations from a total of 20,677 distinct individuals, of which 51.15% identify as female, 50.2% are self-classified as White, 42.5% as Black, and 7.3% as part of other racial groups. We apply cross-sectional sample weights available in the WZB-PSID in all analyses. Because this analysis is based on yearly estimates of family structures - meaning that in each year, we classify family structure independently of the family structure of other years – truncation is not an issue.

We then analyze children's outcomes over their life both comparing single-parent households to two-parent households, and within single-parent households based on pathways into single parenthood. As detailed, this analysis focuses on three stages of individual development: childhood (0 to 17 years old), young adulthood (18 to 25 years old), and adulthood (26 to 35 years old). As such, an individual will be part of the analysis only if they are observed for at least 5 years before they turn 18, and at least once between 18 and 25, and once between 26 and 35. Next, we present descriptive results of the contribution of each pathway to the overall poverty rate of single parents to contextualize the consequences of changing single parenthood. Lastly, we investigate two mechanisms that can explain differences between pathways: family characteristics (number of siblings, parental education and occupation, and racial belonging), and social policy.

*Measuring Family Structure:* In some studies, single motherhood is defined as an unmarried or unpartnered female who resides with her own underage children and who heads her own household (Brady, Finnigan, and Hübgen 2017; Zagel 2014). This creates at least two challenges: (1) by including or excluding cohabitation from the definition of single mothers, studies reach different and sometimes conflicting conclusions, and (2) single-mothers who co-

reside in households with other adults are excluded from such a definition (Moullin and Harkness 2021). A second approach, aimed at addressing this second issue, is to count any household containing a single mother as a single motherhood household (Moullin and Harkness 2021). This approach also has shortcomings: a single mother co-residing with other adults, say her parents, is different than a single mother living only with her children, both in terms of pooling resources and the support she might get, for example in the form of childcare.

Acknowledging its limitations, we adopt the first approach of defining single parenthood: a single parent is an adult living alone with their minor children, in line with other approaches in the literature (Maldonado and Nieuwenhuis 2015; Van Lancker, Ghysels, and Cantillon 2015). (In Supplemental Material 6 we replicate our analysis by eliminating single father households from our sample of single parent families. Results are very similar.) This approach is particularly suitable in our circumstances, because it allows us to only investigate the resources available to single parents who are the sole provider in their family – as most US single parents are (Kearney 2023), and thus understand the poverty of children raised by single parents who do not pool resources or share costs with other individuals in their household, allowing us to identify the most vulnerable populations. Additionally, previous research shows that definitions not including single-mothers who co-reside with adults other than their partner have similar results with those who do include them (Brady, Finnigan, and Hübgen 2021).

Based on the marital status of heads of household, we create a variable for household type that can take any of the following values: “married”, “single-parent: never married”, “single-parent: widowed”, “single-parent: divorced”, “single-parent: separated”, “cohabitating”. We assign to each child (individual under 18 years old) in the household a year-specific value for the type of family they were part of in that year. Following the example in Cross (2020), we then calculate the share of childhood each individual spent in each family type by dividing the total number a child has lived in a particular family type and divide it by

the total number of years a child is observed in the sample before turning 18 years old. Consider the example of a child observed in our data for 16 years between birth and age 17: if that child's parents are married for the first 5 years of this observed period, followed by a year of separation, and then divorced for the rest of the time, then this individual will have the value 0.3125 for the variable recording the share of time spent in a two-parent family, 0.0625 for share of separated single-parent family, 0.625 for the share of divorced single-parent family, and 0 for the widowed single-parent, never married single-parent, and cohabitation. In Supplementary Material 7, we offer more details on the transitions from one family structure to the others and the composition of each category based on the family structure in the previous year. We show that all family structures are stable across time, with some variation: while 87% of children remain in a married family from one year to the next, only 58% do so in cohabitating families. For single parenthood, the percentage is as high as 80 for never married single parents, and as low as 61 for separated single parents.

The literature is not united in its classification of cohabitation: some authors include cohabitation as a form of single parenthood, either due to data limitations (David Brady and Burroway 2012; Sara McLanahan 2004; Bitler, Hoynes, and Kuka 2017), or conceptual arguments that cohabitating households are more similar to single-parent household (McLanahan 1997). Others, conversely, argue that cohabitation should be considered a form of two-parental household (Kennedy and Fitch 2012; Moullin and Harkness 2021; David Brady and Burroway 2012). We adopt the second approach and argue that cohabitating households should be included in the definition of two-parent households for three reasons: (1) they are more similar in economic resources because of the dual-earner potential, (2) there are two adults in the household who can provide the time resources required for childcare and supervision of a child, and (3) the cohabitating partner of a "legal" parent (i.e., biological or adoptive parent) can be an important compensation for children lacking parental role models

or emotional support due to having only a single-parent (Cross and Zhang 2022). All three arguments have been used in the literature to explain why single-parent families lead to negative child outcomes. Additionally, the PSID only allows us to identify cohabitating couples after 1983. For all these reasons, we will treat cohabitating and married families as one type of family structure and refer to them as two-parent families from hereafter. When a cohabitation union dissolves, the pathway assigned to the child depends on the reported marital status of the residential parent.

*Outcome of Interest:* We seek to understand how different single parenthood types are associated with children's poverty outcomes during their childhood, young adulthood (age 18 to 25), and adulthood (age 26 to 35).

To measure poverty, we follow the standard approach in the literature of computing relative poverty indicators with a threshold set at 50 percent of the annual median equivalized household income. The household income is a sum of total family income from labor earnings, asset flows, private transfers, public transfers, and social security pensions minus total household taxes. We adjust household incomes with the square root equivalence scale and for the number of individuals in the household. The poverty of an individual is then based on the income reported in the household where the individual resides in any given year. The Supplemental Poverty Measure (SPM) is not generally available in the PSID. The official poverty measure, meanwhile, does not include near-cash and tax-based transfers, and is thus well-regarded as an incomplete measure of poverty. Accordingly, we do not use it in this study. The relative poverty measure is also superior to the OPM because of its adaptability to changing living conditions. We measure the share of childhood spent in poverty by dividing the number of years an individual was in a household with an income below 50% of the median to the total number of years they were observed before they turned 18. We do the same, for young adults,

defined as individuals between 18 and 35 years old, and adults, as individuals with ages between 26 and 35 years old.

### 2.3.1. Methods

Our initial set of results relies on descriptive data, documenting trends in the share of children living in two-parent families compared to single-parent families, and in different types of single parenthood, from 1970 to 2019. We will also present heterogeneities by race and gender, as well as demographic characteristics of the individuals in each family type. We then apply a series of regression estimates to evaluate the unconditional association between single parenthood (and its variants) with childhood, young adult, and adult outcomes described above. We apply two main models, as follows:

$$Outcome_{ib} = \beta_1 Single_i + X_i + \delta_b + \varepsilon_i \quad (1)$$

$$Outcome_{ib} = \beta_1 NeverMarried_i + \beta_2 Divorce_i + \beta_3 Widow_i + \beta_4 Separation_i + X_i + \delta_b + \varepsilon_i \quad (2)$$

In both equations,  $Outcome_{ib}$  is poverty as described in the section above, for individual  $i$  born in year  $b$ . We apply linear probability models (conclusions are consistent when applying logistic regression models).  $Single_i$  as well as  $NeverMarried_i$ ,  $Divorce_i$ ,  $Widow_i$ , and  $Separation_i$ , are shares of the time spent in each family type during childhood.  $X_i$  is a control for the gender of individual.  $\delta_b$  are year of birth dummies that control for cohort-specific factors, ensuring that differences in the outcome across individuals are not driven by cohort effects when pooling data from multiple years. Because the analysis uses individual-level summary measures — such as the average poverty exposure between ages 0 and 17 — each person contributes only one observation to the regression. Consequently, there is no within-individual variation over time, and thus no serial correlation in the error term to adjust for. For this reason, clustering standard errors at the individual level is unnecessary, and standard (robust) standard errors are sufficient. When accounting for composition, we replicate these

models while including controls for the maximum level of parental education, employment rate and occupation, the age of the youngest parent at childbirth, the number of siblings, and race/ethnicity (largely following Brady et al. 2024). The employment rate is the share of each individual's childhood (between 0 and 17 years old) when either of their parents is employed if they are in a two-parent family. If they are in a single parent family we only consider the employment of the residential parent. We control for occupation because, even when single parents work, they tend to do so in vulnerable, less flexible, low-pay occupations. Occupation is a categorical variable with 6 levels: Higher Service, Lower Service, Routine Clerical/Sales, Self-Employed and Farmers, Skilled Manual, Unskilled Manual and Farm. In Supplementary Material 9 we present alternative results that do not include occupation as one of the controls. We include a comparison of pre-child support and pre-taxes and transfer poverty estimates to test for the effects of help from non-residential parents and social policy in explaining differences between pathway. We acknowledge that our analyses are non-causal.

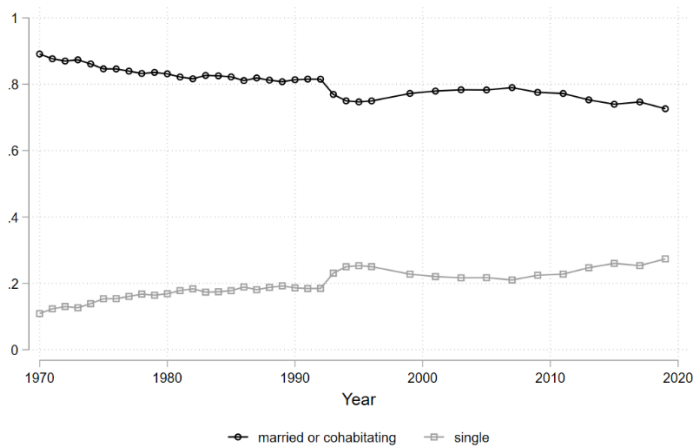
Lastly, we calculate the average annual poverty rate among children in single parent families (as well as each pathway) and children in two-parent families in a linear regression set-up, and weight it by the size of each group to determine the (non-causal, descriptive) contribution of single parenthood in determining child poverty and the contribution of pathways in determining child poverty among single parents.

## 2.4. Findings

### 2.4.1. Trends in Single Parenthood

We first document trends in the share of children living in single parent families. Figure 2.1 shows that in 1970, 15.2% of U.S. children lived in single-parent families. This share increased to 25.8% in 2019 (results are similar to Brady et al. 2024). These aggregate trends, however, conceal large heterogeneities in levels and trends across *types* of single parenthood.

**Figure 2.1:** Trends in the share of children in single-parent and two-parent households

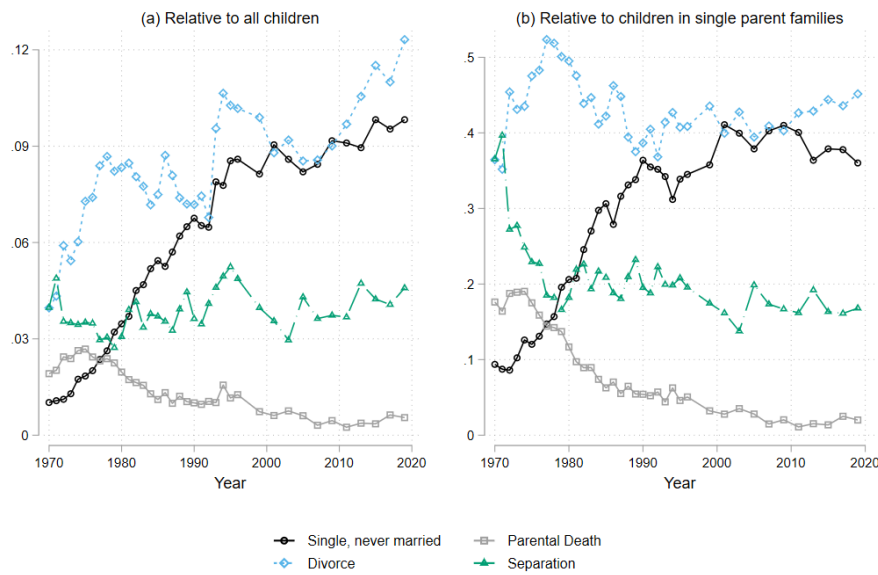


Note: Authors' estimates from the PSID. X-axis represents the percentage of children living in each family structure. The sample consists of all children (i.e., individuals under 18 years old) who are observed for at least 5 years in the data. Supplementary results displayed in Supplementary Material 1 shows similar trends from the Current Population Survey.

Alt text: Plot showing the share of children in married or cohabitating families and single families between 1970 and 2019.

Figure 2.2 documents trends across types of single parenthood observed in the PSID. Panel (a) presents trends in the number of children in each pathway into single parenthood relative to all children in our sample. This allows us to investigate how common each pathway is relative to all family structures. Panel (b) presents trends relative to children in single-parent families only, which allows us to investigate the prevalence of each pathway relative to each other. Panel (a) of Figure 2.2 shows that the share of children in the “single: never married” type of single parenthood is mostly responsible for the growth of single parent families overall, at least until 2010. From 1970 to 2019, the share of all children living in this single parent type increased from 1.8 percent to 8.9 percent. Among single-parent homes (Panel B), the share of children in the “single: never married” group climbed from 12 percent to 34.2 percent, making it the fastest growing pathway into single parenthood.

**Figure 2.2:** Trends in share of children in different types of single parent households



Notes: Authors' estimates from the PSID. X-axis represents the percentage of children in each family type. The sample consists of all children (i.e., individuals under 18 years old) who are observed for at least 5 years in the data. Panel (a) presents trends in pathways into single parenthood for children out of the total of all children in our sample to show how common each pathway is relative to all family structures. Panel (b) presents trends relative to children in single-parent families only to show how common each pathway is relative to all others. Alt text: Plot showing the share of children in never married, divorced, widowed, and separated single parent families between 1970 and 2019

The share of all children in “divorced” single-parent homes increased particularly after the 1990s, though the relative share of children in single-parent homes in this category has declined in relative terms over time, largely due to the rise of the “single: never-married” group. Though the never-married single parents temporarily became the most common pathway to single parenthood in the early 2000s, divorce reclaimed the highest share from the 2010s onward. Meanwhile, the relative share of children living in single parent households resulting from parental death or separation have decreased, over time, compared to other pathways into single parenthood, but have remained relatively stable as the share of total children in the U.S.

#### 2.4.2. Demographic Differences among Types of Single Parenthood

Though Figure 2.2 documents large heterogeneity in types of single parenthood, these subcategories also overlap with other demographic differences – such as race, ethnicity, and gender – that further emphasize the need to study heterogeneity within the population of single

parents (and their children). Table 2.1 documents descriptive differences across children of single parents according to their pathway into single parenthood and the birth cohort of children. We present results from 5 birth cohorts, each comprising of 10 years, except for the first birth cohort that includes the years 1957 to 1970 (for sample size reasons, separating the 3 years between 1957 and 1960 was impractical). In this section, our goal is to summarize the compositional differences across pathways into single parenthood and as a result we cannot account for overtime changes in demographic characteristics of single parenthood.

The average age when a parent becomes single is much lower for never-married single parents across cohorts of birth (between 23 and 26.5 years old) than other pathways (which range from 25.8 to 42 years old). Young age of childbearing is recognized as a risk for poverty (Brady, Finnigan, and Hübgen 2017), and single parents who are in their early 20s might find it harder to allocate resources and time to their personal development, such as education, due to their responsibility for raising the children. Table 2.1 verifies this association: only a quarter to a third of never-married single parents have a college degree, compared to almost half of widowed and divorced parents. However, all single parent types have lower levels of college degree completion relative to parents in two-parent homes, and this remains true across cohorts.

With respect to race/ethnicity (we rely on WZB-PSID labeling to determine the race/ethnicity of an individual), Table 2.1 demonstrates that Black children are far more likely than White children to live in single-parent homes across cohorts. In fact, our sample of Black children in the PSID are more likely to live in single-parent homes relative to two-parent homes. Nearly 90% of children in families with never-married single parents are Black; only 5 to 10% are White. In contrast, 38-50% of children in divorced single-parent households are White, compared to 36-57% who are Black. Black children are also more common among widowed families before 2000 compared to White families.

In terms of occupation, single parents, compared to two-parent families, are less often employed in service occupations, which is usually associated with higher pay, more time flexibility, and better family support. Among single parents, those who are widowed, as well as never married single parents, are less likely to be employed in higher service jobs. Single parents are more employed in lower service and routine clerical jobs, or in manual labor, but there are again large heterogeneities between pathways.

The last two rows of Table 2.1 provide some information about the overtime stability of each pathway. Unsurprisingly, children spend the majority of their life in a two-parent household (between 86.5 and 78%), even when they experience single parenthood. For children who spend time in never-married single parent households, the average amount spent is between 59 and 70% of their childhood, making this pathway the most stable one. Children who experience a parental death will spend almost one third of their childhood, on average, in a widowed single parent household. The least stable pathway, separation, with 24 and 41% of childhood spend in this family structure comes close to the 32 to 44% of childhood spent in a divorced family. Additionally, 45.8% of children do not transition in a divorced household any time after the first separation spell (if they have any), indicating that separation is a unique pathway into single parenthood and not just a way into divorce (not shown in table). Lastly, between 23 and 55% of children who spend some time in a divorced or separated single parent household will experience a parental repartnering, while only a quarter of children of never married single parents do the same; The percentage of children experiencing a parental repartnering is lowest among widowed single parents.

**Table 2.1:** Differences in characteristics across single-parent families and two-parent families

|                                                                                                   | Never-married single parent |               |               |               |               | Widowed single parent |               |               |               |               | Divorced single parent |               |               |               |               | Separated single parent |               |               |               |               | Two-parent family |               |               |               |               |
|---------------------------------------------------------------------------------------------------|-----------------------------|---------------|---------------|---------------|---------------|-----------------------|---------------|---------------|---------------|---------------|------------------------|---------------|---------------|---------------|---------------|-------------------------|---------------|---------------|---------------|---------------|-------------------|---------------|---------------|---------------|---------------|
| Year of birth                                                                                     | 1957-<br>1970               | 1971-<br>1980 | 1981-<br>1990 | 1991-<br>2000 | 2001-<br>2010 | 1957-<br>1970         | 1971-<br>1980 | 1981-<br>1990 | 1991-<br>2000 | 2001-<br>2010 | 1957-<br>1970          | 1971-<br>1980 | 1981-<br>1990 | 1991-<br>2000 | 2001-<br>2010 | 1957-<br>1970           | 1971-<br>1980 | 1981-<br>1990 | 1991-<br>2000 | 2001-<br>2010 | 1957-<br>1970     | 1971-<br>1980 | 1981-<br>1990 | 1991-<br>2000 | 2001-<br>2010 |
| Age of becoming single                                                                            | 27                          | 23            | 24            | 25            | 25            | 42                    | 32            | 32            | 32            | 33            | 33                     | 28            | 30            | 32            | 32            | 33                      | 26            | 28            | 30.4          | 30            |                   |               |               |               |               |
| Female (%)                                                                                        | 99                          | 99            | 98            | 97            | 95            | 79                    | 87            | 84            | 87            | 81            | 95                     | 93            | 90            | 90            | 85            | 95                      | 96            | 94            | 89.9          | 88            |                   |               |               |               |               |
| College degree (%)                                                                                | 18                          | 18            | 19            | 26            | 29            | 6.6                   | 56            | 49            | 55            | 62            | 30                     | 34            | 38            | 42            | 63            | 21                      | 29            | 36            | 38.8          | 41            | 49                | 56            | 64            | 65            | 70.6          |
| Race: White (%)                                                                                   | 4                           | 6.5           | 6.7           | 7.7           | 9.6           | 26                    | 38            | 26            | 30            | 55            | 38                     | 48            | 42            | 44            | 50            | 14                      | 21            | 23            | 28.9          | 34            | 61                | 64            | 65            | 65            | 66.5          |
| Race: Black (%)                                                                                   | 94                          | 90            | 88            | 86            | 89            | 71                    | 51            | 70            | 59            | 18            | 57                     | 45            | 49            | 45            | 36            | 82                      | 73            | 69            | 60.2          | 59            | 33                | 30            | 28            | 23            | 20.7          |
| Race: Other(%)                                                                                    | 1                           | 4             | 5.8           | 6.8           | 1.9           | 3.3                   | 11            | 3.8           | 11            | 27            | 4.4                    | 6.3           | 9.1           | 12            | 14            | 4                       | 5.8           | 8             | 10.9          | 7.6           | 5.7               | 6             | 6.7           | 12            | 12.8          |
| Employed                                                                                          | 56.5                        | 55.6          | 61.9          | 78.3          | 82.3          | 67.8                  | 73.1          | 72.4          | 76.9          | 86.4          | 76.4                   | 83.3          | 87            | 87.4          | 90.1          | 58.3                    | 75.8          | 76.2          | 84.6          | 85.3          | 95.9              | 96.5          | 96.5          | 96.4          | 97.2          |
| Higher Service Occupation (%)                                                                     | 0                           | 4.4           | 3.1           | 4             | 1.8           | 0.6                   | 1.9           | 7.2           | 4.1           | 9             | 4.9                    | 5.6           | 5.5           | 5             | 10            | 2                       | 3.9           | 4.3           | 4.1           | 5.9           | 7.8               | 14            | 16            | 18            | 20            |
| Lower Service Occupation (%)                                                                      | 20                          | 21            | 28            | 32            | 26            | 15                    | 29            | 34            | 47            | 22            | 30                     | 31            | 30            | 35            | 33            | 26                      | 31            | 28            | 32.7          | 33            | 20                | 33            | 35            | 38            | 35.4          |
| Routine Clerical/Sales Occ. (%)                                                                   | 24                          | 22            | 26            | 24            | 27            | 23                    | 13            | 24            | 21            | 37            | 20                     | 28            | 27            | 25            | 22            | 23                      | 25            | 24            | 20.4          | 18            | 7.9               | 12            | 12            | 14            | 13.4          |
| Self-Employed and Farmers Occ. (%)                                                                | 6                           | 4.2           | 6             | 8.7           | 16            | 20                    | 16            | 14            | 8.3           | 13            | 8.4                    | 6             | 7.1           | 9.8           | 14            | 11                      | 5.2           | 8.1           | 9.5           | 17            | 44                | 13            | 11            | 9.9           | 12.4          |
| Skilled Manual Occupation (%)                                                                     | 22                          | 23            | 18            | 15            | 15            | 15                    | 27            | 7.2           | 8.3           | 13            | 19                     | 14            | 17            | 15            | 9.6           | 22                      | 18            | 17            | 18.6          | 16            | 12                | 17            | 15            | 12            | 11.4          |
| Unskilled Manual and Farm Occ. (%)                                                                | 27                          | 25            | 19            | 16            | 15            | 26                    | 12            | 13            | 11            | 7             | 169                    | 16            | 13            | 11            | 10            | 17                      | 17            | 18            | 14.7          | 11            | 8.8               | 11            | 10            | 8.6           | 7.6           |
| Average share of childhood spent in each family structure (until the child is 18) (%)             | 59                          | 64            | 64            | 67            | 70            | 54                    | 32            | 35            | 40            | 39            | 44                     | 34            | 32            | 38            | 39            | 41                      | 26            | 24            | 24.3          | 30            | 87                | 83            | 81            | 78            | 79.4          |
| Share of children who transition into two-parent family after being in a single parent-family (%) | 18                          | 27            | 25            | 23            | 22            | 11                    | 35            | 30            | 19            | 38            | 28                     | 48            | 46            | 31            | 36            | 23                      | 55            | 48            | 40            | 35            |                   |               |               |               |               |

Note: Authors' calculations from PSID. Education is measured as a binary variable for whether the parent has a college degree or not. Occupation is measured on a 6-point scale inspired by the EGP classification. The percentage on occupation is relative to individuals who are employed (not the total sample).

For children in two-parent families, we use the education of the lowest educated parent, and for occupation we choose the occupation belonging of the parent with the lower occupational class.

Percent values represent the share of the parent type (see labeled columns) who have the demographic feature in the labeled row.

The sample consists of all children (i.e., individuals under 18 years old) who are observed for at least 5 years in the data.

All cells refer to individuals who we observe in childhood, for example 24.5% of our sample lived in a never married single parent household where the parent has a college degree.

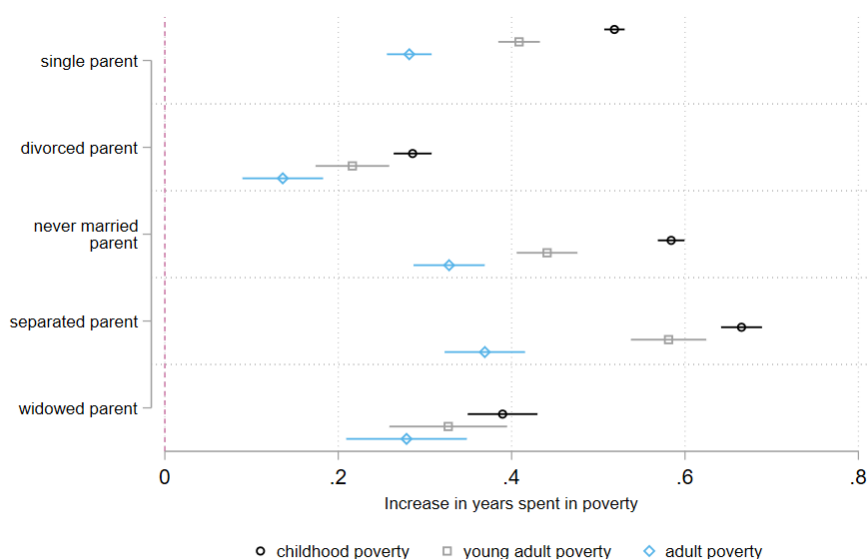
### 2.4.3. Differential Consequences of Types of Single Parenthood

Our descriptive information revealed notable heterogeneities among single parent pathways, while Supplementary Material 8 shows overall child poverty trends, finding trends comparable to those produced in the Current Population Survey, as in Parolin and Filauro (2023). We now turn toward our empirical estimates that seek to understand heterogeneous poverty outcomes of children who grow up in different types of single-parent households.

Figure 2.3 focuses on poverty outcomes in childhood, young adulthood, and adulthood by single parent type. For simplicity, we only plot the association of an entire childhood spent in the given single-parent household type with the poverty rate in the specified age period; as such, the reference group in each row is children who did not spend any time during their childhood in that given type of single parenthood. However, recall that we use a continuous measure of family type that quantifies the share of one's childhood spent in each family structure.

The “single parent” line documents the association of being raised by a single parent (as opposed to a two-parent family) over the entire childhood with poverty status. An increase in the share of childhood being spent in a single parent family is associated with an increase in poverty during each life stage. This relationship is stronger for individuals under 18, who depend entirely on their parents' income: an individual who is in a single parent family their entire childhood will spend 50 percentage points more time in poverty during their childhood. This coefficient declines, but remains large, for young adults (37 percentage point disadvantage) and adults (28 percentage point disadvantage). Thus, from childhood to adulthood, the penalty associated with growing up solely in a single-parenthood falls by nearly half, consistent with concerns of life-cycle bias.

**Figure 2.3:** Changes in The Probability of Experiencing More Years in Poverty Based on Pathway



Note: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 5 years in the data before they turn 18 years old. Coefficient plots show the association of the share of childhood spent in each household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child and year-of-birth fixed effects. Childhood refers to birth through age 17. Young adulthood refers to ages 18 through 25. Adulthood refers to ages 26 through 35. Poverty is measured relative to 50% of the national equivalized median household income. The estimation of household income is pre-government income, thus excluding taxes, public transfers, and child support payments.

The subsequent rows display large heterogeneity in the associations depending on the specific pathway into single parenthood. Children raised by separated parents have the strongest increase in poverty: 65 percentage points relative to children who are never in separated single-parent households. Never-married single parents also have high poverty rates among their children: nearly 60 percentage point disadvantage. In contrast, the poverty of children of divorced parents is consistently the lowest: 27 percentage point disadvantage in childhood, falling to a 12-percentage point disadvantage by adulthood. Though children of all single parent types still experience a poverty penalty (relative to children from two-parent families) in each of the observed life stages, the strong heterogeneity in those penalties indicate that different pathways into single parenthood affect child poverty differently. The difference in poverty rates for children of separated versus divorced single parents, for example, is almost 40 percentage

points, comparable to the 50 percentage points differences between single-parent versus two-parent families.

#### **2.4.4. Explanations for differentiation**

In this section, we investigate and document two reasons that could explain the differences in poverty among pathways. First, we analyze the poverty pre-taxes and pre-transfers, as well as income from child support as a way to understand if access to resources from the non-resident parent and the state could be behind differences among pathways in poverty outcomes. Second, we explore changes in association with poverty among pathways as we include demographic controls in our regression models. This will tell us how much of the differences in pathways is due to compositional effects. Comparing across estimates in models in Figure 2.3, 2.4 and 2.5 will tell us how much the association between single parenthood and poverty can be attributed to compositional effects, while comparing the estimates within each model tells us the difference in association between pathways (if we compared dots of the same color and shape). Each figure also presents models that estimate the association of single parenthood with poverty outcomes in three different age groups – childhood, young adulthood (18-25) and adulthood (26 to 35) to assess long-term consequences of single parenthood.

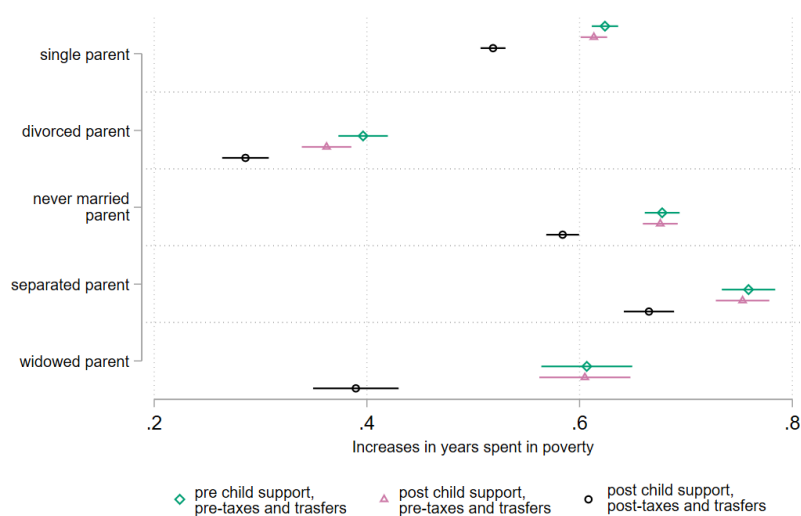
One potential channel of differentiation across the consequences of pathways is economic resources beyond income from work activities. We argue that differential help from the non-residential parent through child support, as well as access to social policy programs can be an important mechanism that explains differences across pathways in poverty outcomes.

To test this expectation, we estimate the associations between pathways and poverty among children of single parents before accounting for the income received from the absent parent, as well as the one received from tax credits, the face value of food stamps (SNAP), transfers from TANF (or AFDC payments), housing benefits, supplemental security income (SSI), unemployment compensation, and worker's compensation. We present the results of this analysis in Figure 2.4. Child support only reduced poverty associations among divorced single

parents, but the magnitude is very small. However, it does indicate that the child support system is failing single parents across pathways. Compared to 44% of children in divorced single parent families who receive child support payment, only 19% of never married, and 22.4% of separated families have some income from this source.

In the US, social policy has the biggest poverty reduction effect for widowed single parents whose poverty is reduced by 20 percentage points. For all other pathways, social policy reduces association with poverty to a much lesser extent: 7 percentage points for divorced single parents, 11 for never married, and 9 for separated. This is particularly problematic for never married and separated single parents, as it is coupled with a high level of baseline poverty and very little help, if any, from the non-resident parent.

**Figure 2.4.** Child poverty before and after accounting for child support and taxes/transfers



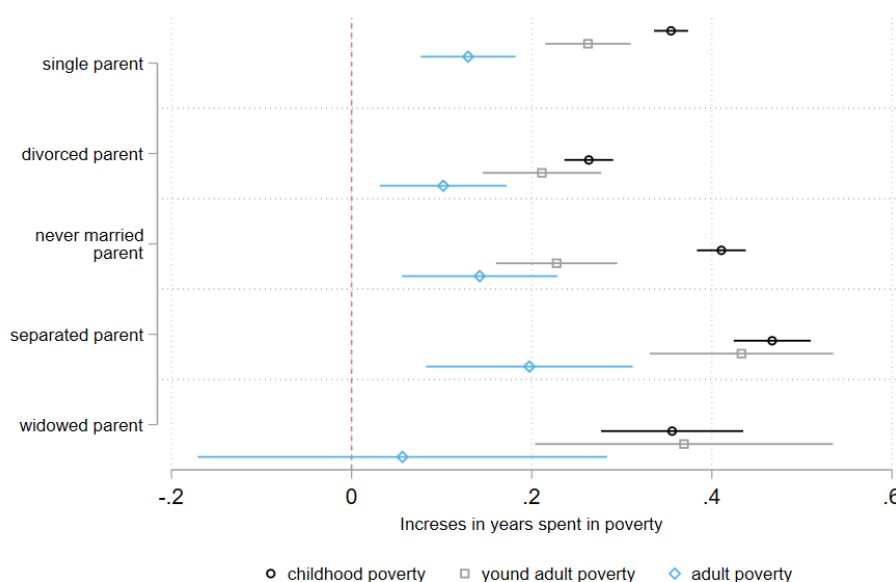
Notes: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 5 years in the data before they turn 18 years old. Coefficient plots show the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child and year-of-birth fixed effects. Childhood refers to birth through age 17. The black dot, post-child support and post-taxes and transfers is the same estimation as the one in Figure 3. We add child support and taxes/transfers to the estimation of household income compared to Figure 3.

This demonstrates that the poverty reduction effects of social policy and of child support are differential across pathways. Divorced single parents benefit from some help from the non-resident parent, while for never married and separated the magnitude of the reduction is,

however, far smaller than for divorced single parents. At the same time, the reduction in poverty due to social policy is small for never married single parents, and even smaller for separated parents, especially as opposed to widowed single parents (but divorced single parents fare better as well).

Next, we rerun our models in equations 1 and 2 by controlling for the number of siblings, the age of the youngest parent at childbirth, parents' education, employment and occupation, and the racial belonging of the child. Because the number of single fathers in the sample is small, we only analyze single mothers in this section.

**Figure 2.5.** Coefficient plot for poverty with composition controls



Note: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 5 years in the data before they turn 18 years old. Coefficients plot the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child, the age of the youngest parent at childbirth, parental education, employment and occupation (unemployment is the reference category for occupation, all those employed have a specific occupation attributed to them), race/ethnicity, the number of siblings in the household, and year-of-birth fixed effects. Childhood refers to birth through age 17. Young adulthood refers to ages 18 through 25. Adulthood refers to ages 26 through 35. Poverty is measured relative to 50% of the national equivalized median household income. Table A3 in Appendix 3 presents the detailed results of the regression analysis on which this figure is based.

Unsurprisingly, given the large demographic heterogeneity demonstrated in Table 1, differences in the penalties associated with each single parenthood type generally narrow (Figure 5), but do not generally close, when adding demographic controls to our regression

model, indicating differential selection into each single parenthood pathway and confirming previous results (Hubgen 2020). The most important reduction in the association with poverty is apparent for separated single parents and never married single parents. Once we control for demographic characteristics, this association with child poverty drops by 20 percentage points (from 67 to 47 percent), and by 17 percentage points, respectively. The association decreases slightly for widowed single parents for divorced single parents, by 2 percentage points each. Similar, but smaller in magnitude reductions are also registered for later in life. These results indicated that single parents, and especially never married and separated single parents are more vulnerable to poverty partly due to their employment and educational characteristics. Supplementary Table A3, in Supplementary Material 3, shows the results of the regression analysis that controls for family characteristics and is used to create Figure 5. Based on the coefficients in this table, the decrease in the association between pathways and poverty with higher level of education, employment and occupational class indicate that children might experience single parenthood differently based on socioeconomic status, while the increase in poverty associated with identifying as Black or as other racial/ethnic minority point towards unequal distribution of consequences across racial/ethnic groups.

When focusing on *adult* poverty outcomes, we lose precision in our conditional estimates, and cannot claim that adult poverty outcomes vary (in a manner that is statistically significant) across the pathways. This is largely due to a decline in sample size and wide confidence intervals around each conditional estimate, however. Together, the findings confirm that a non-trivial part of the heterogeneities between pathways is a result of compositional differences, and reinforce a point advanced earlier: our analyses are not evaluating causal effects of single parenthood and should not be used to argue that one type of single parenthood is ‘better or worse’ for a specific outcome. Even when accounting for composition, however, we find consistent evidence that children’s poverty outcomes vary meaningfully across single parenthood types, and often vary more than the mean differences in outcomes between single-

parent versus two-parent families overall. This suggests that pathways into single parenthood shape life-outcomes through additional channels beyond demographic and family characteristics.

Differences across pathway in poverty outcomes are then partly, but not fully explained by family characteristics and social policy.

#### **2.4.5. Contextualizing the Consequences of Single Parenthood Heterogeneity**

As a final analytical step, we contextualize the consequences of single parent heterogeneity with respect to trends in child poverty rates in the U.S. We emphasize that the results in this section should be viewed as a descriptive accounting exercise, rather than any claims regarding the ‘causal’ effect of single parenthood on poverty. Specifically, Figure 2.6 documents the contribution to the overall poverty rate of children in two-parent families compared to children in single-parent families. The relative child poverty rate in the U.S. has been increasing with about 7 percentage points from 1970 to 2019, but the descriptive contributions of each family type vary notably. The contribution of children from single-parent families has doubled from the 1970s to 2019. In other words, single parents contributed 6 percentage points of the overall 16.3% child poverty rate in 1970, but contributed 13.8 percentage points out of the 23% poverty rate in 2019.

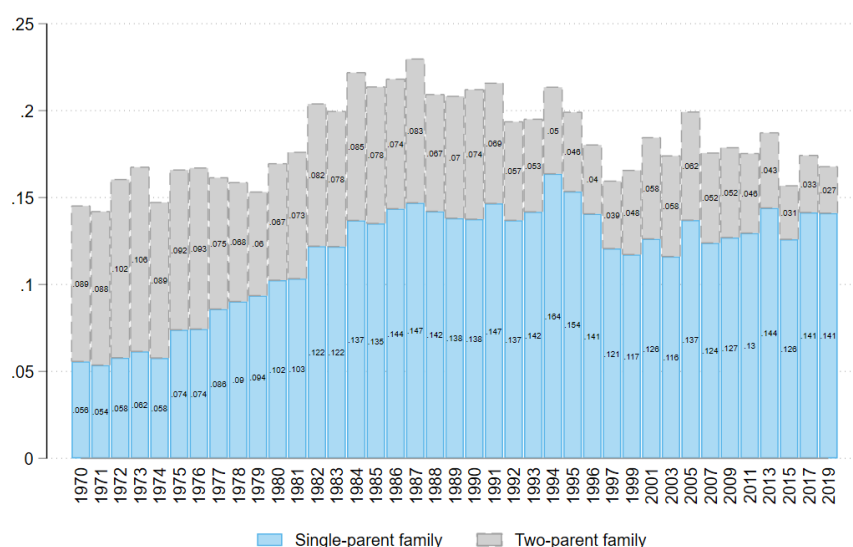
How do different pathways into single parenthood, combined with the heterogeneities in outcomes across the single parenthood types, influence poverty rates? Figure 2.7 zooms in on child poverty among single parent families from Figure 6 and shows the composition by pathway over time.

The changing contribution of each single parenthood over type emphasizes the usefulness of accounting for single parent heterogeneity. Specifically, three takeaways emerged. First, widowhood contributions to single-parent poverty has declined from 1.5 percentage points in the 1970s to only 0.8 percentage points in 2019. Second, the reverse is true for children of never married parents, who contributed very little in the 1970s but account for more than 6

percentage points of poverty among children of single parents since 1984. Divorced single-parents, meanwhile, added 1.4 percentage points to child poverty in the early 1970s but today they contribute 4 percentage points. Third, the contribution of separation is much more stable at around 2.5 percentage points throughout the time period examined.

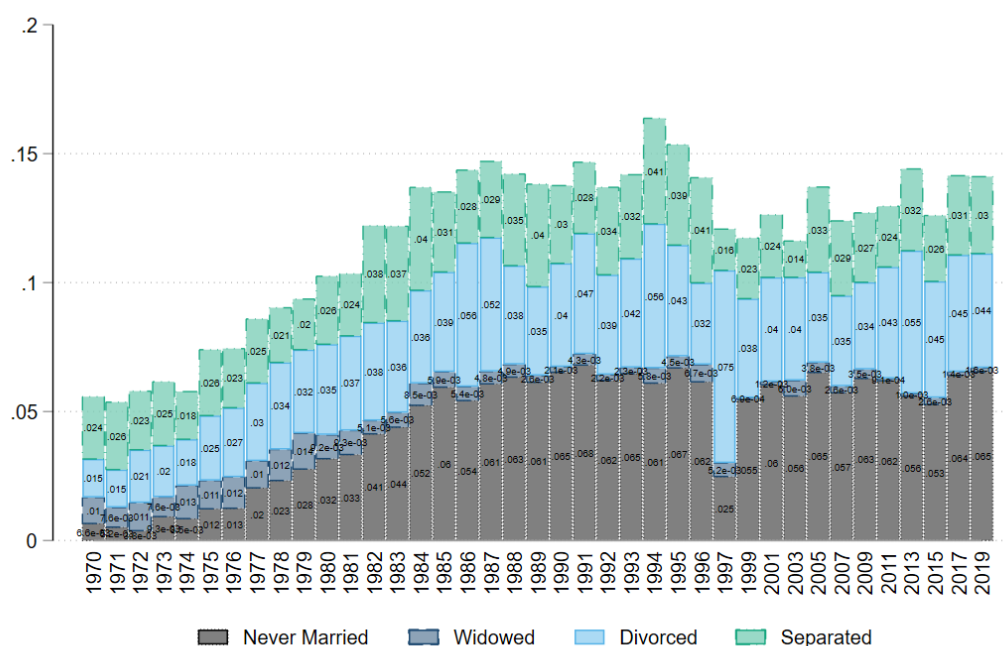
The increase in poverty among children of single parents can be a consequence of an increase in overall single parenthood, an increase in poverty among single parents, or a change in the composition of the single-parent group. The evidence suggests that all three are mechanisms at play. As shown in Figure 1, and elsewhere in the literature (Bernardi and Mortelmans 2018; Bianchi 1994), the share of single-parent families is increasing over time.

**Figure 2.6:** Contributions of children from single- and two-parent families to overall child poverty



Note: Authors' calculations from the PSID. Poverty is measured relative to 50% of the national equivalized median household income.

**Figure 2.7:** Contributions of children from different types of single-parent families to child poverty



Note: Authors' calculations from the PSID. Poverty is measured relative to 50% of the national equivalized median household income.

At the same time, some types of single parents might grow poorer over time (Christopher 2005). For example, while the share of separated single parent families among all single parent families has decreased over time, their contribution to overall poverty did not, possibly indicating that the average single parent of this pathway might have experienced an increased likelihood of poverty over time or that there may have been compositional changes in the separated single parent population. Lastly, our results point towards the importance of the changing composition of single parenthood in shaping child poverty trends. As shown in Figure 2, the most economically disadvantaged group (never married single parent families) has recently become the most common pathway into single parenthood.

#### 2.4.6. Sensitivity Checks

We take several steps to validate our results. First, in Supplementary Material 1 we demonstrate that the time trends in single parenthood presented in Figures 1 and 2 are not a result of the

sampling technique in the PSID by replicating them using nationally representative data from the Current Population Study. Next, in Supplementary Material 2, we replicate our regression analysis with two different outcome variables – education and employment – two variables that are highly related to poverty. We do this to understand if the differences in long-term consequences associated with pathways into single parenthood are consistent across different specification of economic well-being. We find that, while there are some differences between poverty, education, and employment the bottom line is the same: growing up in separated single parent households, as well as never married ones is more negatively associated with long-term outcomes, then divorced and widowed households. In Supplementary Material 4 we show that even when controlled for both compositional effects and social policy effects, differences in the association of pathways into single parenthood and child poverty persist, indicating that there are unique characteristics of these pathways that have consequences on child outcomes. We further explore the important role of employment in Supplementary Material 9, which only controls for employment, and not for occupation. The associations between single parenthood and poverty decrease to some extent, but the differences between pathways remain, indicating that while employment plays a major role in explaining poverty among single parents (Brady et al. 2024), the unequal distribution of poverty across pathways cannot be completely accounted for by employment. In Supplementary Material 5 we replicate our regression results by relaxing the inclusion criteria to 3 years instead of 5 observed in childhood. Results are very similar.

## 2.5. Discussion

Much of the sociological, demographic, and poverty literatures have treated single parenthood as a homogenous demographic group. This paper, instead, opens the black box of single parenthood to explore different pathways into single parenthood, compositional

differences across each pathway, and the implications for children's short- and longer-run economic well-being conditional on being raised in a given single parenthood type.

Using U.S. PSID data, we have identified four pathways into single parenthood (divorce, separation, widowhood, and never getting married) and have documented the prevalence of each over time. We find that in the 1970s, single-parent children were most often raised by divorced single parents; in the 2010s, however, the most common pathway into single parenthood was never getting married. Confirming previous studies that illustrate how child poverty is affected by long-term changes in family structure (Iceland 2003), our study further shows that the rise of never-married single parents explains the vast majority of the rising contribution of single parenthood to child poverty rates in the U.S. over the last five decades, while the relative contributions of parental death and separation have been steadily declining over time (Figure 7).

Next, we connect the distinct single parenthood pathways to heterogeneities in poverty for children of single parent families. In broad terms, we find that within-group differences in child outcomes among single parents often match or exceed the between-group differences in outcomes of children in single-parent families compared to two-parent families. In line with Brady et al. (2024), we argue that the focus of poverty among single parent families in the US is best placed on the high penalties for single parents (i.e. the strong association of poverty with single parenthood); beyond Brady et al. (2024), however, we show that these penalties are not uniformly distributed across different pathways into single parenthood.

We also document large compositional heterogeneity across the single parenthood types. Never married single parents are substantially younger and less educated than other single parent types. Moreover, never married single parenthood is far more common among Black families, while single parenthood due to divorce is relatively more common among White families. Our results also indicated heterogenous effects of pathways into single parenthood based on parental education, employment, and occupation, as well as racial belonging. At the

same time, divorced single parents are the only one benefiting from income from child support. The lack of child support among separated and never married single parent families could also be an indication of the lack of contact with the non-residential parent, potentially further explaining the more negative consequences of these two pathways.

However, composition cannot fully explain the differences between pathways (as seen in Figure 4, Figure 5, and Supplementary Material 3), and neither can social policy (or a combination of the two). We argue that the remaining differences are a result of differential experiences accumulated as part of different family structures. For example, divorce and separation might affect children differently because they could imply different degrees of stability, parenting styles, or family conditions that are unexplained by demographic differences (Augustine 2014). Consider also that separation can be involuntary, for example due to incarceration or other forms of institutionalization (Massoglia, Remster, and King 2011), which can be damaging for children and their developmental paths. Children born to never married single parents are likely to experience these types of family structure for most of their childhood (Kearney and Levine 2017, 335), as partnering among these parents is contingent on the economic potential of a new partner (Bzostek, McLanahan, and Carlson 2012), while divorce and separated households are more exposed to repeated family transition. In sum, all of these differences emphasize the need for acknowledging substantial heterogeneity across the different categories of single parenthood.

Our findings have important consequences for analyses of economic outcomes associated with single parenthood. Across the vast majority of such research, scholars treat single parents as a homogenous demographic group; this is true even in studies that are critical of academic perspectives that overlook the role of political and institutional sources of poverty (e.g., Brady 2019). Our findings instead reveal that it matters *what type* of single parenthood one is discussing, particularly when evaluating longer-term consequences of single parenthood (which cross-sectional studies also tend to overlook). Consider that the two most common

pathways into single parenthood in recent years – divorce and never-married single parenthood – are associated with vastly different outcomes for affected children: divorce is associated with only a small poverty penalty among affected children in adulthood, while children of never-married single parents face large and persistent penalties. The never-married single parents are predominantly Black, whereas divorce is relatively more common among White families experiencing single parenthood, also emphasizes the need for studies connecting single parenthood to racial/ethnic differences in poverty to fully interrogate heterogeneous paths into single parenthood, a clear opportunity for future research.

Similarly, our findings point to important limitations of current social policy aimed at reducing single parent poverty. While previous research warns about the weakness of social policy in the US (Aerts et al, 2022), our results complement this line of research by showing that in the US, social policy works better for some single parents than others. The poverty of widowed single parent families decreases by one-third after accounting for public transfers, while the poverty of other pathways only decreases by approximately 10 percentage points, indicating unequal distribution of social policy benefits across single parents. The most vulnerable of single parents, the ones who never marry, are also the ones who have access to the least social support.

Our study has limitations. First, our data do not allow us to investigate one important pathway into single parenthood: choice. The category of never-married single parent may obscure differences between teenage parents who raise their children alone, parents who are single because they have been abandoned by the other parent of their children, as well as those who chose to be parents without a partner. This could bias our representation of this family type if so. Additionally, due to data limitations, we are unable to identify other sources of heterogeneity of single parent families, such as adoption, fostering, or union dissolution of same-sex couples. These are important distinctive characteristics with consequences on family

and life course circumstances that further increase the complexity of single parent families and are potentially impacting outcomes of children raised in these families.

Second, our analysis corroborates that single parenthood is an intersectional issue, and that both gender and race substantially interact with it. In this paper, we lack space to deeply investigate gender and racial/ethnic differences in each single parenthood type, though this would make a useful exploration in future research. In practice, the vast majority of single parents are women (see Table 1), but we have largely focused on single parenthood as a whole to be inclusive of the broader single parent population.

A third limitation is our inability to observe the help from and interaction with the non-resident parent. Some divorced parents might have joint custody of their children, separated parents might be away from the main household because of work-related migration but still be very involved in childrearing, and people who never married might have some co-parenting agreement. These are important factors, especially if they involve material resources that could affect our results by underestimating the poverty among parents who are truly the only provider for their children.

Lastly, the results from this paper are limited to the circumstances of single parents in the US, a country with particularly weak family policies, such as child benefits, parental leaves, and early education and childcare services, all known to alleviate poverty among single parents elsewhere (Maldonado and Nieuwenhuis 2015). Further research is needed to understand if pathways into single parenthood are as consequential for child outcomes as in the US in other high-income countries. At the same time, our results can consider changes in policies and social norms and their potential effects on poverty only to a limited degree by including year fixed effects.

Despite these shortcomings, our empirical results confirm that different pathways into single parenthood are differentially associated with poverty and other child outcomes, with

important implications for the ways in which scholars conceptualize single parenthood in economic analyses.

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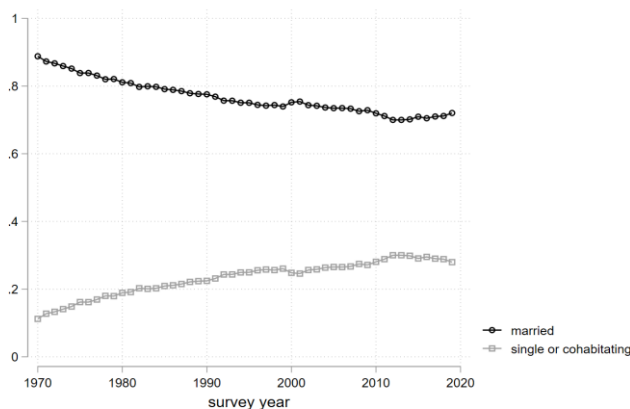
## Supplementary Material

### Supplementary Material 1. Replication of time trends with CPS data

In this Supplementary Material we replicate our time trend analysis using data from the Current Population Study (CPS). We do so to make sure that the observed patterns in the PSID are generalizable and representative of the US population of children for which data was collected between 1970 and 2019.

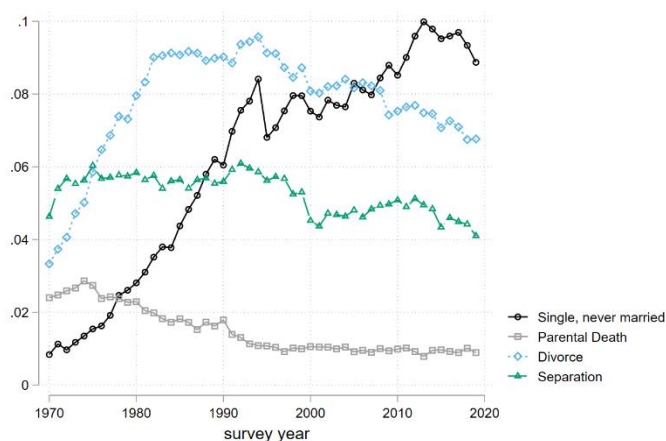
Unfortunately, CPS has only been collecting data on cohabitation starting in 2007, which does not allow for a relevant trend analysis. As such, we will compare PSID and CPS time trends for the single parenthood definition that does not consider cohabitating parents as two-parent families. Prior to 2007, CPS considers cohabitating parents as single parents (Kennedy & Fitch, 2012). After adjusting for differences in the way CPS categorizes cohabitating parents before and after 2007, the PSID trend in children living with single parents is comparable to the CPS (see Supplementary Material 1, Supplementary figure A1.1. for comparison).

**Supplementary Figure A1.1.** Trends in the share of children in single-parent and two-parent households



Note: Authors' calculations from CPS.

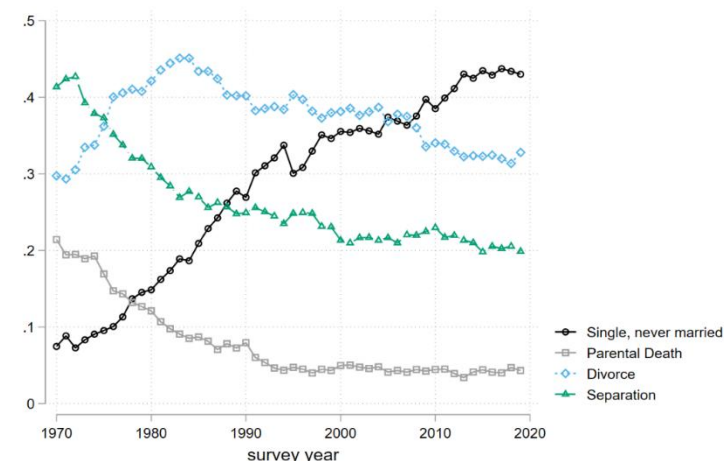
**Supplementary Figure A1.2.** Trends in share of children in different types of single parent households



Data Source: CPS

Note: Authors' calculations from CPS. Pathways are relative to all children.

### Supplementary Figure A1.3. Trends in share of children in different types of single parent households



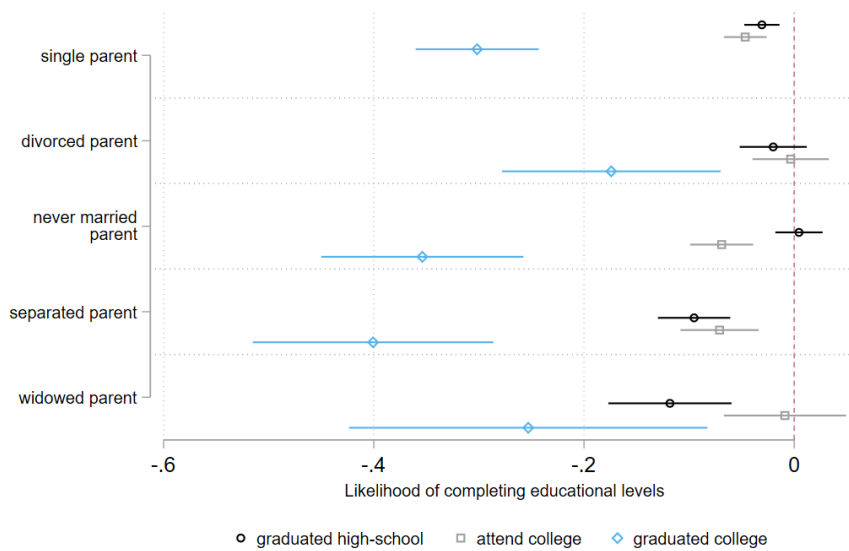
Note: Authors' calculations from CPS. Pathways are relative to children living in single-parent families.

### Supplementary Material 2. Alternative outcome variables

Educational achievement is measured as a binary variable of whether the individual graduated college (for education in childhood), is attending college *at any time* between ages 18 and 25 (this includes individuals who already graduated college by age 25) – for young adults, and graduating college for adults between 26 and 35 years old. The PSID asks individuals to answer the following question: “Did you attend college?” (“Do you have a college degree?”), leaving it to the respondent to categorize their tertiary degree as college – we have no way of knowing what respondents consider as college, and thus no control over the inclusion or exclusion, of for example associate degrees. We apply an employment measure that accounts for whether the individual is or not formally employed – meaning engaged in any activity that contributes to a household’s income. We again take the mean unemployment rate over the young adult period.

**Education:** Figure 4 shifts focus to education outcomes. Individuals who lived their whole childhood in single-parent families are 9 percentage points less likely to graduate high-school, 16 percentage points less likely to attend college, and 29 percentage points less likely to graduate college compared to individuals raised in two-parent households. However, focusing on differences between single and two-parent families hides the extent of heterogeneities between pathways. Children of divorced parents are only 3 percentage points less likely to finish high-school by the age of 20 compared to children raised in two-parent families, 8 percentage points less likely to attend college and 17 percentage points less likely to graduate college. The association is similarly small in magnitude for widowed single parents whose children are 7, 11 and 19 percentage points less likely to graduate high school, attend or graduate college respectively.

**Supplementary Figure A2.1: Coefficient plot for educational outcomes**



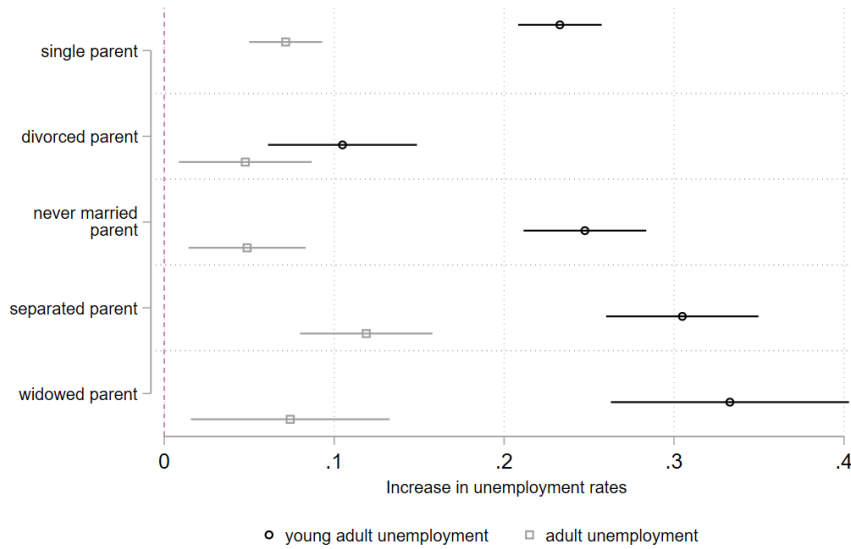
Note: Authors' calculations from the PSID. Coefficients plot the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2).

Children who are raised in never married and separated single-parent families have the strongest negative associations with their educational outcomes. Being raised by a separated single-parent is associated with a 15 percentage point decline in the likelihood of graduating high-school (climbing to a 40 percentage point disadvantage in completing college), while being raised in a never-married single parent family is associated with 10 percentage point decline in likelihood of having a high-school diploma (also near a 40 percentage point disadvantage in completing college).

Living one's entire childhood in a separated single parent family reduces the likelihood of completing college twice as much compared to the mean among single parents generally, and is nine times higher (for graduating high school and attending college) compared to divorced parents. These differences between pathways suggest that within-single parenthood heterogeneities are larger than the differences between single and two-parent families.

**Employment:** For employment, the story is similar (see Figure 5). Being raised in single-parent households is associated with an increased risk of unemployment, ranging from a 23-percentage point disadvantage in young adulthood to 12 percentage points in adulthood. However, large heterogeneities exist across pathway: separated single parenthood is associated with the largest increases in unemployment likelihood (31 percentage points in young adulthood and 16 percentage points in adulthood), followed by never-married single parenthood (27 percentage point disadvantage in young adulthood and 15 percentage point in adulthood) and widowed households (25 and 11 percentage points, respectively).

**Supplementary Figure A2.2: Coefficient plots for employment outcomes**



Note: Authors' calculations from the PSID. Coefficients plot the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2).

Similar to educational outcomes, children of divorced parents are not statistically different from children raised in two-parent households in their employment in young adulthood, and the differences are small in magnitude later in life. The relative differences between divorced single parent families and any other types of single parent family are much larger than the difference between single- and two-parent families, revealing again that investigating single-parenthood as a homogenous group overestimates the association for divorced-single parents and substantially under-estimates it for the other types of single parents.

### Supplementary Material 3. Compositional effects

**Supplementary Table A3.** Regression table for the association of poverty with pathways (controlled for family characteristics)

|                                | Childhood              |                        | Young Adulthood        |                        | Adult                  |                        |
|--------------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|------------------------|
| Single                         | 0.355***<br>(0.00965)  |                        | 0.262***<br>(0.0242)   |                        | 0.129***<br>(0.0268)   |                        |
| Divorce                        |                        | 0.263***<br>(0.0138)   |                        | 0.211***<br>(0.0335)   |                        | 0.102***<br>(0.0359)   |
| Never married                  |                        | 0.411***<br>(0.0138)   |                        | 0.228***<br>(0.0344)   |                        | 0.142***<br>(0.0440)   |
| Separated                      |                        | 0.467***<br>(0.0218)   |                        | 0.433***<br>(0.0520)   |                        | 0.197***<br>(0.0585)   |
| Widowed                        |                        | 0.356***<br>(0.0403)   |                        | 0.369***<br>(0.0843)   |                        | 0.0565<br>(0.116)      |
| Gender (child, ref.=male)      | -0.00712<br>(0.00495)  | -0.00605<br>(0.00492)  | 0.0413***<br>(0.0126)  | 0.0424***<br>(0.0125)  | 0.0472***<br>(0.0128)  | 0.0475***<br>(0.0128)  |
| Parental Education             | 0.0102***<br>(0.00142) | 0.0106***<br>(0.00141) | 0.0123***<br>(0.00358) | 0.0124***<br>(0.00357) | 0.000902<br>(0.00361)  | 0.000883<br>(0.00361)  |
| Higher Service Occupation      | -0.126***<br>(0.0293)  | -0.125***<br>(0.0291)  | -0.158**<br>(0.0765)   | -0.148*<br>(0.0764)    | 0.0102<br>(0.0711)     | 0.0121<br>(0.0711)     |
| Lower Service Occupation       | -0.107***<br>(0.0180)  | -0.105***<br>(0.0179)  | -0.0857**<br>(0.0423)  | -0.0770*<br>(0.0424)   | -0.0460<br>(0.0453)    | -0.0448<br>(0.0453)    |
| Routine Clerical/Sales Oc.     | -0.142***<br>(0.0178)  | -0.141***<br>(0.0177)  | -0.126***<br>(0.0417)  | -0.122***<br>(0.0417)  | -0.0863*<br>(0.0442)   | -0.0851*<br>(0.0442)   |
| Self-Employed and Farmers Occ. | -0.0597***<br>(0.0164) | -0.0600***<br>(0.0163) | -0.0486<br>(0.0362)    | -0.0425<br>(0.0362)    | -0.0345<br>(0.0386)    | -0.0323<br>(0.0386)    |
| Skilled Manual Occupation      | -0.0707***<br>(0.0171) | -0.0681***<br>(0.0170) | -0.0721*<br>(0.0398)   | -0.0662*<br>(0.0398)   | -0.0340<br>(0.0421)    | -0.0321<br>(0.0421)    |
| Race: Black                    | -0.0472***<br>(0.0168) | -0.0453***<br>(0.0167) | -0.0155<br>(0.0386)    | -0.0113<br>(0.0385)    | -0.0310<br>(0.0408)    | -0.0302<br>(0.0408)    |
| Race: Other                    | 0.0730***<br>(0.00639) | 0.0632***<br>(0.00645) | 0.103***<br>(0.0164)   | 0.0978***<br>(0.0166)  | 0.0816***<br>(0.0171)  | 0.0788***<br>(0.0173)  |
| No. of siblings                | 0.0541***<br>(0.0100)  | 0.0510***<br>(0.00998) | 0.0621**<br>(0.0243)   | 0.0602**<br>(0.0243)   | 0.0308<br>(0.0229)     | 0.0288<br>(0.0230)     |
| Age of Parents at Childbirth   | 0.0648***<br>(0.00270) | 0.0650***<br>(0.00269) | 0.0526***<br>(0.00722) | 0.0526***<br>(0.00721) | 0.0664***<br>(0.00866) | 0.0660***<br>(0.00867) |
| Year FE                        | YES                    | YES                    | YES                    | YES                    | YES                    | YES                    |
| Year of birth FE               | YES                    | YES                    | YES                    | YES                    | YES                    | YES                    |
| Constant                       | 0.0360<br>(0.0357)     | 0.0297<br>(0.0355)     | 0.0962<br>(0.0682)     | 0.101<br>(0.0681)      | 0.250***<br>(0.0734)   | 0.252***<br>(0.0734)   |
| Observations                   | 6,746                  | 6,746                  | 2,771                  | 2,771                  | 1,750                  | 1,750                  |
| R-squared                      | 0.396                  | 0.404                  | 0.208                  | 0.213                  | 0.199                  | 0.200                  |

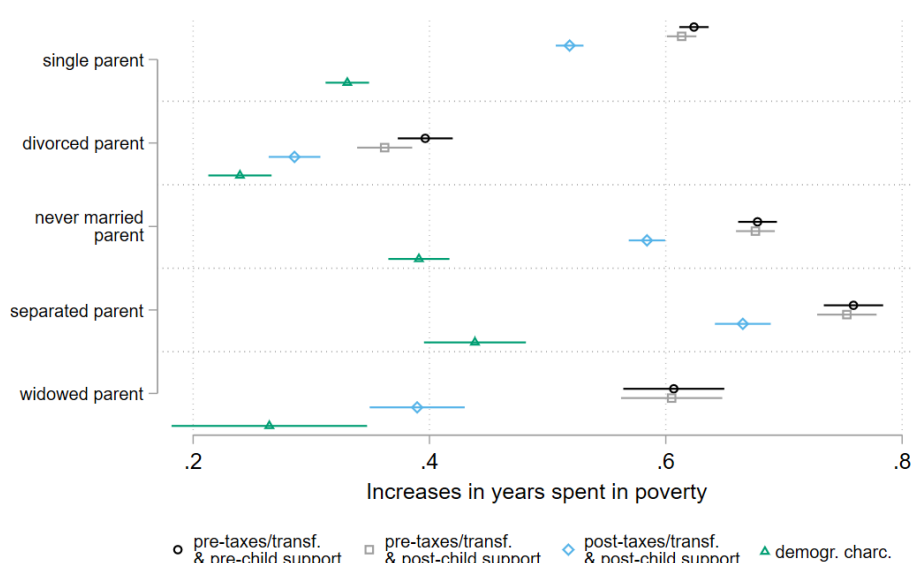
Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. For occupation, the reference category is unemployed.

## Supplementary Material 4. Compositional effects and social policy effects

In this supplementary material we prove that while both compositional effects and social policy effects have a role in explaining the differences between pathways in the association with poverty, even after including all elements in the regression models in Equation 1 and 2, the differences are reduced but persist. Separation and never-married single parent families are still the poorest, while divorced and widowed single parent families fare better economically in comparison to the estimation that treats single parents as a homogenous group.

This proves that pathways into single parenthood identify a unique set of factors that bare consequences on child poverty.

**Supplementary Figure A4.1.** Child poverty controlling demographic characteristics and taxes/transfers

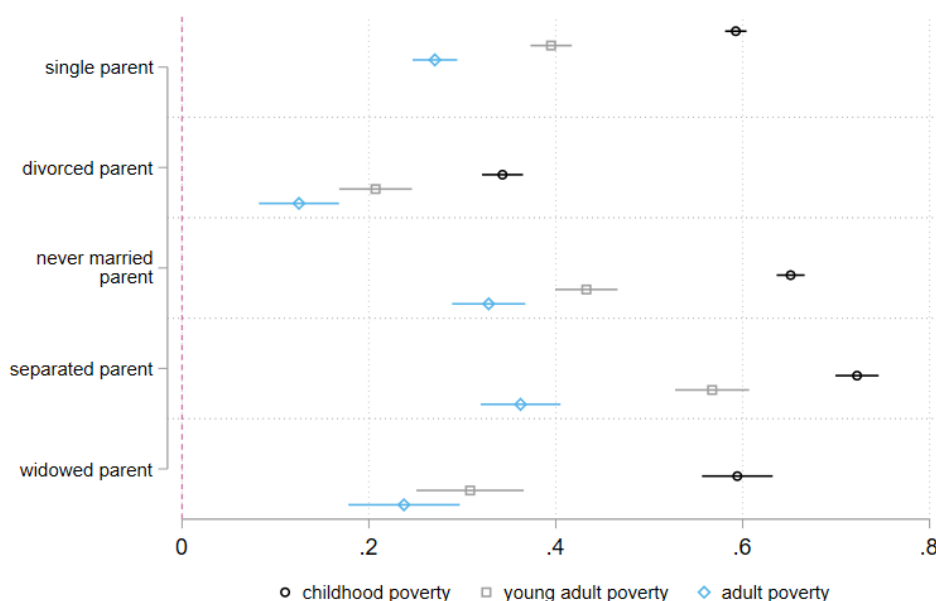


Note: Authors' calculations from the PSID. Coefficients plot the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2).

## Supplementary Material 5. Results using a sample of individuals observed for at least 3 years in childhood

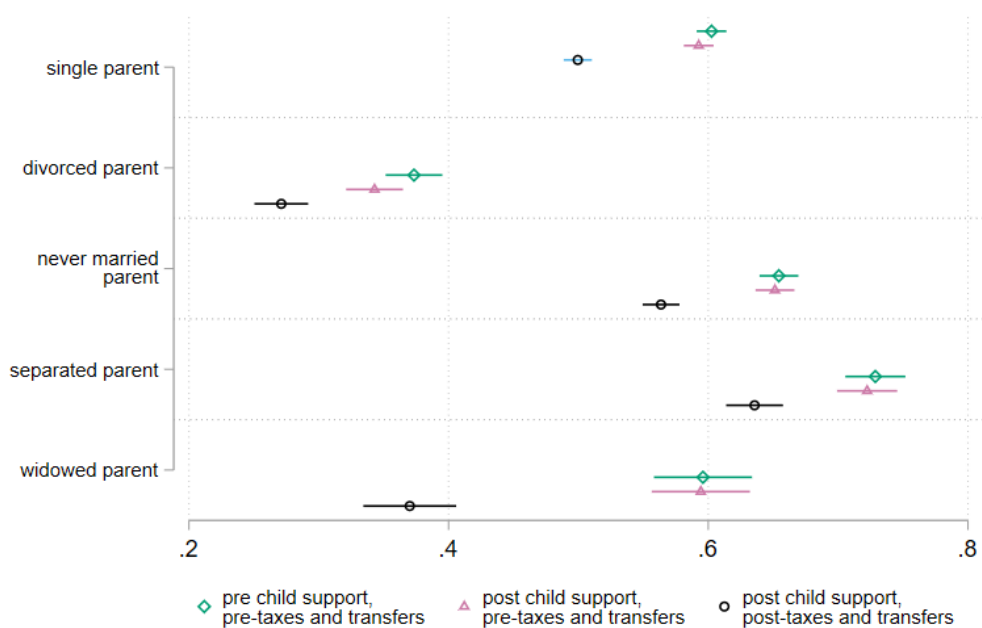
In this supplemental material, we relax the restriction for sample inclusion by incorporating all individuals who are observed for 3 or more years before they turn 18 years old, compared to the main results, where the criteria is 5 years. Figure A5.1 is a replication of Figure 3 in the main text, while Figure 4 is replicated in Figure A5.2. Results are very similar.

Figure A5.1. Coefficient plot of association of childhood poverty with shares of childhood spent in single parenthood type



Note: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 3 years in the data before they turn 18 years old. Coefficient plots show the association of the share of childhood spent in each household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child and year-of-birth fixed effects. Childhood refers to birth through age 17. Young adulthood refers to ages 18 through 25. Adulthood refers to ages 26 through 35. Poverty is measured relative to 50% of the national equivalized median household income. The estimation of household income is pre-government income, thus excluding taxes, public transfers, and child support payments.

**Figure A5.2.** Child poverty before and after accounting for child support and taxes/transfers

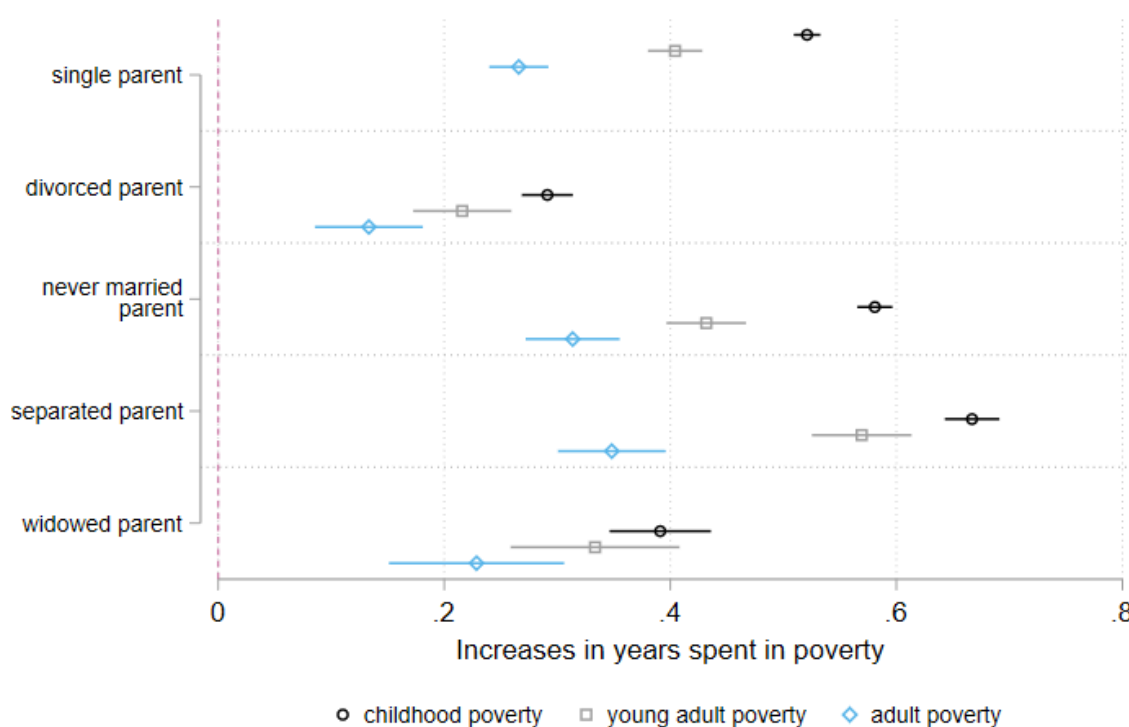


Notes: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 3 years in the data before they turn 18 years old. Coefficient plots show the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child and year-of-birth fixed effects. Childhood refers to birth through age 17. The black dot, post-child support and post-taxes and transfers is the same estimation as the one in Figure 3. We add child support and taxes/transfers to the estimation of household income compared to Figure 3.

## Supplementary Material 6. Results using only single mothers

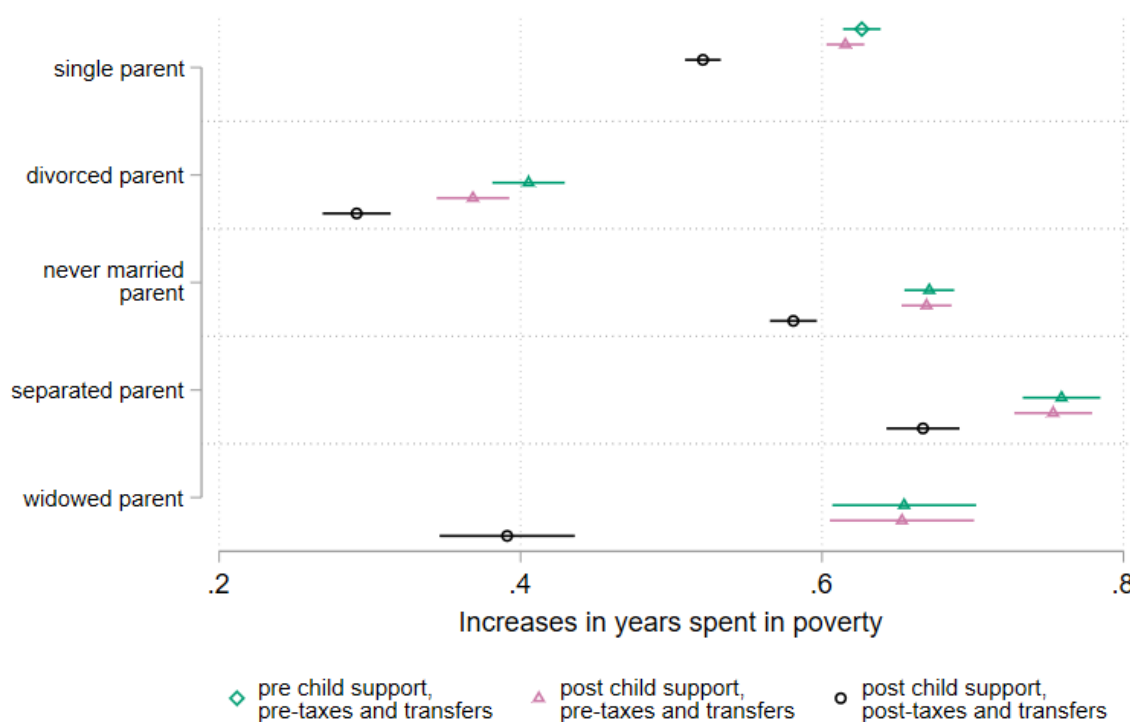
In this supplemental material, we exclude from the definitions of single parents father, resulting in a sample of individuals who during their childhood live in either married households or single mother households. Figure A6.1 is a replication of Figure 3 in the main text, while Figure 4 is replicated in Figure A6.2. Results are very similar but indicate that for children raised by single mothers the association between the time they spent in each single mothers families and poverty is slightly stronger than for children in all single parent families.

**Figure A6.1.** Coefficient plot of association of childhood poverty with shares of childhood spent in single parenthood type



Note: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 5 years in the data before they turn 18 years old. We exclude individuals who live in single father families from the sample. Coefficient plots show the association of the share of childhood spent in each household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child and year-of-birth fixed effects. Childhood refers to birth through age 17. Young adulthood refers to ages 18 through 25. Adulthood refers to ages 26 through 35. Poverty is measured relative to 50% of the national equivalized median household income. The estimation of household income is pre-government income, thus excluding taxes, public transfers, and child support payments.

**Figure A6.2.** Child poverty before and after accounting for child support and taxes/transfers



Notes: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 5 years in the data before they turn 18 years old. We exclude individuals who live in single father families from the sample. Coefficient plots show the association of the share of childhood spent in a given household type with the variable labeled on the X-axis. See Equations (1) and (2). We control for gender of the child and year-of-birth fixed effects. Childhood refers to birth through age 17. The black dot, post-child support and post-taxes and transfers is the same estimation as the one in Figure 3. We add child support and taxes/transfers to the estimation of household income compared to Figure 3.

## Supplementary Material 7. Transitions between family structures

In this Supplementary Material, we present the pair-wise percentages of individuals who move from one marital status to another as a total of the children in each family structure in time T+1. In Table A7, the family structures in time T are represented on the column, while those in time T+1 are represented on the rows. The numbers represent the percentage of children who have transition in the family structure in time T+1 from the family structure in time T. The total on column is close to 100, but not exactly, because of missing information on the transition between the first year an individual appears in the data set and the family structure before that.

As expected, all family structures are stable across waves, indicated by the fact that each family structure is made up of individuals who in the previous wave were part of the same family structure. This is especially true for children in married, never married, and widowed families. Apart the children who maintain the same family structure between waves, children in never married single parent families most often transition from cohabitating households, presumably by a dissolution of that cohabitation union, indicating that never married single parents are mostly never partnered single parents, and sometimes separated previously cohabitating individuals. Transitions into widowhood most often happens from marriage, but sometimes even from separation and divorce. Transitions into divorce also are common from previously married individuals and previously separated individuals. Separated single parents transition most often from marriage, and very rarely from other family structures.

Table A7. Pair-wise Family Structure Transitions

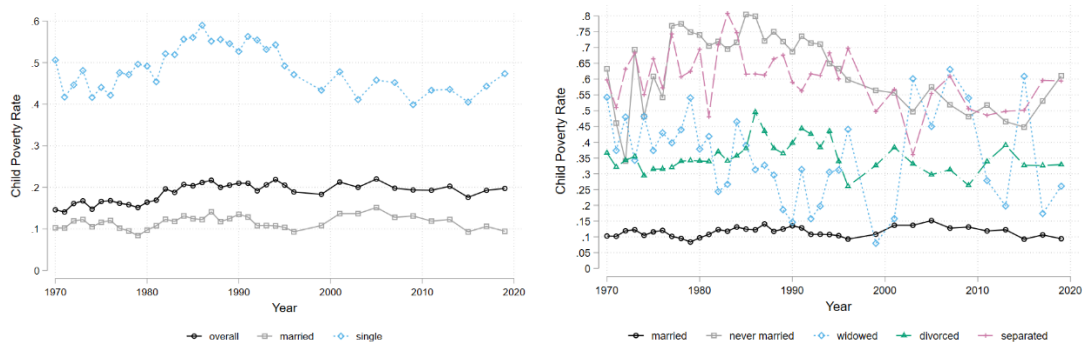
| Family Structure<br>– Time T | Family Structure – Time T+1 |               |         |          |           |              |
|------------------------------|-----------------------------|---------------|---------|----------|-----------|--------------|
|                              | Married                     | Never Married | Widowed | Divorced | Separated | Cohabitating |
| Married                      | 86.64                       | 0.37          | 10.98   | 9.77     | 24.84     | 5.40         |
| Never Married                | 0.51                        | 79.35         | 0.73    | 0.60     | 1.73      | 6.78         |
| Widowed                      | 0.08                        | 0.12          | 74.87   | 0.22     | 0.36      | 0.45         |
| Divorced                     | 0.79                        | 0.48          | 2.24    | 68.93    | 2.36      | 5.76         |
| Separated                    | 0.64                        | 0.54          | 3.31    | 12.67    | 61.30     | 3.46         |
| Cohabitating                 | 0.86                        | 3.97          | 0.69    | 1.96     | 0.75      | 57.97        |

Notes: Authors' own calculations based on PSID data. The numbers in the cells represent the percentage of each family structure (pooled over the period of observation) made up of individuals who transition from the family structure in time T (on the rows) to the family structure in time T+1 (on the columns).

## Supplementary Material 8. Trends in Child Poverty

Here, we present long-term trends in child poverty in the US.

**Figure A8. Child Poverty Trends**



Note: Authors' calculations from the PSID. The sample consists of all individuals who are observed for at least 5 years in the data before they turn 18 years old. The Y-axis represents the share of children who are in poverty in each year. The left panel compares poverty rate of all children in the sample, as opposed to those in married families, and those in single parent families. The right panel refers to the poverty rate of children by pathways into single parenthood.

Similar to other recent publications (Parolin and Filauro 2023), we show that overall child poverty was on the rise over the 1970s and 1980s, and stabilized at around 20% after that. Compared to Parolin and Filauro (2023), we do not register a substantial decrease in child poverty due to the expansion of benefits in the 2021 period, as our data coverage finishes in 2019. Additional to previous research, we show that child poverty is 20 to 30 percentage points higher for children in single parent families, as compared to the overall estimations, and even higher compared to children in married families. The left panel of Figure 3 also shows high heterogeneity in child poverty across pathways into single parenthood.

## Supplementary Material 9. No control for occupation

In this Supplementary Material, we show alternative results to those presented in Figure 5 and Supplementary Material 3 that exclude occupation from the list of controls.

**Supplementary Table A9.** Regression table for the association of poverty with pathways (controlled for family characteristics)

|                                       | Childhood                 |                           | Young Adulthood          |                          | Adult                   |                         |
|---------------------------------------|---------------------------|---------------------------|--------------------------|--------------------------|-------------------------|-------------------------|
| Single                                | 0.199***<br>(0.00908)     |                           | 0.140***<br>(0.0235)     |                          | 0.0822***<br>(0.0280)   |                         |
| Divorce                               |                           | 0.144***<br>(0.0124)      |                          | 0.136***<br>(0.0312)     |                         | 0.0889**<br>(0.0358)    |
| Never married                         |                           | 0.245***<br>(0.0128)      |                          | 0.0878***<br>(0.0334)    |                         | 0.0588<br>(0.0463)      |
| Separated                             |                           | 0.266***<br>(0.0200)      |                          | 0.257***<br>(0.0499)     |                         | 0.112*<br>(0.0594)      |
| Widowed                               |                           | 0.151***<br>(0.0332)      |                          | 0.130*<br>(0.0777)       |                         | -0.00950<br>(0.109)     |
| Gender (child, ref.=male)             | -0.0102**<br>(0.00442)    | -0.00953**<br>(0.00441)   | 0.0354***<br>(0.0119)    | 0.0353***<br>(0.0119)    | 0.0453***<br>(0.0129)   | 0.0454***<br>(0.0130)   |
| Parental Education                    | 0.00971***<br>(0.00123)   | 0.0100***<br>(0.00123)    | 0.0135***<br>(0.00326)   | 0.0132***<br>(0.00326)   | 0.00186<br>(0.00345)    | 0.00173<br>(0.00345)    |
| Race: Black                           | 0.0623***<br>(0.00561)    | 0.0560***<br>(0.00567)    | 0.101***<br>(0.0153)     | 0.100***<br>(0.0155)     | 0.0729***<br>(0.0169)   | 0.0732***<br>(0.0171)   |
| Race: Other                           | 0.0469***<br>(0.00900)    | 0.0451***<br>(0.00897)    | 0.0555**<br>(0.0235)     | 0.0536**<br>(0.0234)     | 0.0345<br>(0.0228)      | 0.0334<br>(0.0229)      |
| No. of siblings                       | 0.0487***<br>(0.00242)    | 0.0490***<br>(0.00241)    | 0.0472***<br>(0.00690)   | 0.0475***<br>(0.00689)   | 0.0660***<br>(0.00863)  | 0.0658***<br>(0.00864)  |
| Age of Parents at Childbirth          | -0.00571***<br>(0.000546) | -0.00540***<br>(0.000546) | -0.00352***<br>(0.00125) | -0.00376***<br>(0.00127) | 0.00823***<br>(0.00164) | 0.00826***<br>(0.00165) |
| Parental Employment (ref= Unemployed) | -0.818***<br>(0.0196)     | -0.806***<br>(0.0197)     | -0.676***<br>(0.0494)    | -0.674***<br>(0.0498)    | -0.303***<br>(0.0537)   | -0.306***<br>(0.0545)   |
| Year FE                               | YES                       | YES                       | YES                      | YES                      | YES                     | YES                     |
| Year of birth FE                      | YES                       | YES                       | YES                      | YES                      | YES                     | YES                     |
| Constant                              | 0.855***<br>(0.0352)      | 0.841***<br>(0.0352)      | 0.686***<br>(0.0763)     | 0.691***<br>(0.0766)     | 0.492***<br>(0.0848)    | 0.496***<br>(0.0852)    |
| Observations                          | 6,857                     | 6,857                     | 2,861                    | 2,861                    | 1,724                   | 1,724                   |
| R-squared                             | 0.505                     | 0.509                     | 0.253                    | 0.256                    | 0.207                   | 0.208                   |

Note: Robust standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. For occupation, the reference category is unemployed.

# Chapter 3. Single Parenthood and the Poverty Debate: How Pathways and Policies Explain Cross-National Differences

Roxana-Diana Burciu (Journal of Marriage and Family)

## 3.1. Introduction

Single parenthood is a common and long-standing topic in poverty research. Authors consistently find that single parents and their families are at high risk of poverty (Edin & Kissane, 2010; McLanahan, 2009; Rank, 2000). However, cross-national studies challenge these US-based findings, showing that single parents are less likely to experience poverty in high-income countries with comprehensive family policy (Biegert et al., 2022; Brady & Burroway, 2012; Maldonado & Nieuwenhuis, 2015). Although these studies contribute to our understanding of single parents' economic circumstances, they often treat single parents as a homogenous group, masking important within-group variation in disadvantage (Zagel, 2023).

This paper builds on this long-standing theoretical debate in poverty research: the institutional versus individual perspectives on the causes of poverty. The institutional perspective emphasizes the role of social policy in shaping poverty outcomes, while the individual perspective highlights the importance of personal characteristics and behaviors (Brady 2019). I test these competing explanations by examining whether, and to what extent, cross-national differences in single-parent poverty are better explained by differences in social policy or by differences in single parents' characteristics.

This paper has a twofold purpose. First, it asks *how do pathways into single parenthood differ within and across countries?* Different pathways (i.e., the reason for becoming a single parent) into single parenthood are associated with differences in parents' characteristics, such as their employment, financial circumstances, their ability to be involved and attentive to their children's lives and their parenting capacities (Weinraub & Kaufman, 2019, p. 276). Given these

different experiences of parents and children alike it is important to understand if and how different pathways can influence children's poverty outcomes. I consider four distinct pathways: never getting married, divorce, widowhood, and separation.

Using longitudinal data from the Cross-National Equivalent File (CNEF, <https://www.cnefdata.org/>) a dataset that harmonizes national panel studies for the United States (US), Australia, Switzerland, Germany and the United Kingdom (UK), I examine cross-national heterogeneity among single parents. In contrast with much existing literature, I acknowledge that poverty is not uniformly distributed across different types of single parents. Additionally, my analysis does not focus on the risk of poverty in a given year – a strategy often used in existing research – but it shows increases in the time spent in poverty across countries and pathways into single parenthood.

Second, the study explores *to what extent the variation in pathways can explain cross-national differences in single-parent poverty?* If the prevalence and characteristics of specific pathways differ across countries, they may account for some of the observed differences in single-parent poverty. An alternative explanation emphasizes the role of welfare state institutions, particularly family policy. Previous research finds that offering affordable and accessible early education and care, paid parental leave, and child benefits lowers poverty among single parents and their families (Brady & Burroway, 2012; Maldonado & Nieuwenhuis, 2015; Zagel & Van Lancker, 2022).

To evaluate these competing explanations, I introduce a novel accounting framework that descriptively decomposes the cross-national differences in the association between single parent and poverty in three components: differences in social policy, differences in pathways into single parenthood, and differences in parents' sociodemographic characteristics.

This paper contributes to the theoretical debate on the causes of poverty among single parents by empirically testing two competing perspectives: the institutional and the individual approaches. My findings support the institutional approach but move beyond existing research

by accounting for the heterogeneity of single parents. Importantly, even when pathways into single parenthood and their associated individual characteristics are considered, social policy remains the most important factor in explaining cross-national variation in single-parent poverty.

## 3.2. Single Parenthood and Poverty

### 3.2.1. The prevalence of single parent families

For decades, scholars have been concerned with the increase in single-parent families. Since the 1970s, the percentage of children in the US who live with a single parent has increased (Bianchi, 1994; McLanahan & Sandefur, 1994; Weinraub & Kaufman, 2019). Initially, the driving force of this upward trend was an increase in divorce rates, but since the 1990s, the increase in nonmarital births has become more important. These changes are commonly attributable to the second demographic transition – which is characterized by increases in female labor market participation, delays in fertility and marriage, increases in cohabitation, divorce, and nonmarital childbearing (Lesthaeghe, 2014). The increase in female labor force participation has boosted the economic independence of women, while reshaping men's earning power relative to women's and thus declining the economic gains for marriage. Simultaneously, the increase in alternatives to the two-parent family has contributed to the destigmatization of single parenthood, divorce, and non-marital births. Some authors view these trends as the reason for the increase in single-parent families (McLanahan, 2004; McLanahan & Sandefur, 1994).

These demographic trends alarmed some US researchers, who have been concerned with the “breakdown” of the traditional family, lamenting the *choices* individuals make to not marry and have children outside marriage as one of the main causes for high poverty and inequality (Amato and Maynard 2007; Kearney 2023; McLanahan and Sandefur 1994; Sawhill 2014; Thomas and Sawhill 2002). These authors stress the importance of economic loss associated with the lack of a parent, which increases economic hardship for single parents and

their children (Kearney, 2023). Moreover, starting from McLanahan's (2004, 2009) "diverging destinies" theory, authors have observed that the increase in single parenthood is accentuated at the bottom of the income distribution, further exacerbating the disadvantages of children born in poor families (Kearney, 2023). The high association between single parenthood and poverty in the US apparently supports this line of argumentation (Amato, 2000; Kearney, 2023; McLanahan, 2009), which focuses on the individual characteristics and the behaviors of single parents to explain their economic disadvantage. Authors argue that single parents are less educated, less often employed or working in low-income occupations, and choosing to have children before marriage, all factors that increase their risk to poverty (Sawhill, 2014).

Critics of this approach leveraged cross-national data to show that single parents in the US are particularly vulnerable to poverty compared to single parents in other high-income countries (Biegert et al., 2022; Brady et al., 2017, 2024; Misra et al., 2012). Contrary to explanations focusing on the increase in single parenthood, the high poverty among US single parents cannot be explained by the high prevalence of single parents (Brady et al. 2017).

### **3.2.2. The penalties for single parent families**

The institutional approach, an alternative explanation for high poverty among single parents in the US that accommodates these cross-national findings, highlights the high penalty of single parenthood in the US compared to other countries (Brady et al., 2017). Penalty refers to the association between the risk of poverty – in this case, single parenthood, and poverty outcomes. Scholars have found that the penalty for single parenthood is higher in the US compared to other countries because of its restricted welfare system, and in particular because of weak family policy (Aerts et al., 2022; Alm et al., 2020; Biegert et al., 2022; Gornick et al., 2022; Maldonado & Nieuwenhuis, 2015; Misra et al., 2012).

Multiple papers demonstrate that in countries with more comprehensive welfare systems, the penalty for single parenthood is lower, or even non-existent (Backman & Ferrarini,

2010; Brady & Burroway, 2012; Chzhen & Bradshaw, 2012). Some authors show that single parents are less likely to be poor in countries that have longer parental leave, a smaller proportion of unpaid leave, and higher amounts of family allowances (Maldonado & Nieuwenhuis, 2015). Child benefits seem to be the most effective way in reducing poverty among single parents and working families (Nieuwenhuis, 2020).

The main argument of these researchers rests on the observation that the economic characteristics of single parents differ from married parents even before they become single. Not only does the education of parents diverge in the US, with higher education concentrated among married parents (Kearney, 2023; McLanahan, 2004), but McLanahan (2009) observes that married parents report higher income compared to unmarried parents a year before childbirth, results further confirmed by other studies (Harkness, 2022). Given these realities, single parents seem to be “trapped” in a pattern of disadvantage (Edin & Kefalas, 2011; Lesthaeghe, 2014; Perelli-Harris & Gerber, 2011), characterized by low education and low-income employment even before they become parents. Some authors argue that these patterns are the result of life-course disadvantages that accumulated over time and contributed to the creation of economic vulnerability of single parents (DiPrete & Eirich, 2006; Harkness, 2022; Layte & Whelan, 2002; Vandecasteele, 2011). Given the cumulative disadvantage that characterizes single parents’ life-course, social policy is a major way to reduce their poverty.

What remains mostly unexplored in both perspectives are the diverse characteristics of single parents (see Zagel, Hübgen, and Nieuwenhuis 2022 for an exception). Whereas most literature assumes that single parents are a homogenous group, this paper speaks to the need to acknowledge and investigate the heterogeneity of single-parent families within and across countries (Gornick et al., 2022; Zagel, 2023). To address this limitation of previous studies, I explore pathways into single parenthood. Divorce, widowhood, separation, and never-married parenthood have distinct economic consequences (Zagel 2023). Understanding these pathways

is crucial for explaining both within-country and cross-national variation in single-parent poverty rates.

Similarly, most studies focus on the risk of poverty associated with single parenthood in a given year (Brady et al., 2017). My approach moves beyond static estimations of poverty. I take a dynamic, life-course approach that investigates increases in time spent in poverty (while children are in the household) as a function of pathways into single parenthood.

### **3.2.3. How do pathways shape poverty outcomes?**

Previous studies recognize that poverty is not uniformly distributed across social groups but has rarely applied this knowledge to single parents. This paper investigates one key source of diversity: pathways into single parenthood.

Following previous definitions, I use ‘pathway’ as a way of describing the event leading to or reason for single parenthood (Nieuwenhuis & Van Lancker, 2020, p. 309) and distinguish between four distinct pathways: never married, divorced, separated, and widowed (Zagel, 2023). This approach acknowledges that single parenthood is not a static phenomenon and that individuals may experience multiple family structures over time (See Appendix 5, for descriptive analysis of duration of time spent in each pathway, as well as transitions from one family structure to the other.)

Prior research has focused on the economic and well-being outcomes of parents and children following transitions into single parenthood. Across high-income countries, when compared to married families, divorce negatively affects children (Amato & Anthony, 2014; Booth & Amato, 2001; Brand et al., 2019; Demir-Dagdas et al., 2018; Johnson & Mazingo, 2000) and parents (Harkness, 2022), separation leads to challenges in education, social functioning, and behavior (Clarke-Stewart et al., 2000; Garriga & Pennoni, 2022). Widowhood

also has adverse effects (Steele et al., 2009). However, few studies examine the differences across these pathways in the US and beyond (see Amato 2000; Zagel 2023 for exceptions).

The transition to parenthood has profound effects on household finances and time availability, particularly for never-married parents who must balance work and childcare in the most intensive childcare years, often without access to parental leave or flexible work (Zagel 2023). This increases their risk of unemployment and financial insecurity (Nieuwenhuis 2022). In contrast, divorced and separated parents typically have higher incomes (Fomby et al., 2023; Page & Stevens, 2004). They also tend to have fewer childcare demands, since divorce and separation usually happened later in life, as children enter the school system (Chłoń-Domińczak et al. 2024). This means that divorced and separated single parents have higher changes to maintain continuous employment (Brady et al. 2024). Widowed parents tend to have the highest incomes among single parents (Zagel 2023:53).

Financial support from non-residential parents also varies. Never-married and separated parents often lack formal child support arrangements in the US, relying on small informal transfers, if any (Fomby et al. 2023). Divorced parents are more likely to receive formal support across countries, improving their financial situation (Skinner and Hakovirta 2020; Zagel 2023). Widowed parents, lacking spousal contributions, may receive inheritance or widowhood benefits which reduce their economic hardship (Zagel 2023).

Demographic differences further shape single parent diversity in high-income countries (Zagel et al. 2022). Never-married parents are increasing most among those aged 20–24, often still in education or beginning careers (Solomon-Fears 2014). In contrast, widowed parents are typically the oldest, followed by divorced parents (Burciu and Parolin 2024). Gender is also crucial—single mothers face greater economic challenges than single fathers (Amato 2000; Maldonado and Nieuwenhuis 2015) and are more likely to be never married or separated, but single fathers are more common among divorced and widowed parents.

The impact of pathways and sociodemographic characteristics on poverty depends on country context. Education strongly influences single parents' economic outcomes, but its effect is greater in the U.S. than in Germany (Zagel et al. 2022). Employment intensity also varies, with the UK showing high single-parent unemployment (Zagel 2014). This study provides a cross-national analysis of the variation in pathways and examines how these differences shape cross-country variations in poverty.

**Table 3.1.** *Summary of Family and Income Protection Policies Across Countries*

|                                           | Australia                                                         | Switzerland                                                        | Germany                                                        | UK                                                                | US                                                            |
|-------------------------------------------|-------------------------------------------------------------------|--------------------------------------------------------------------|----------------------------------------------------------------|-------------------------------------------------------------------|---------------------------------------------------------------|
| Child support (maintenance)               | Agency-based; No guarantee/advanced payment<br>11.0               | Court-based; Means-tested advanced payment<br>n.a.                 | Court-based; Advance payment from public funds<br>19.1         | Agency-based; No guarantee/advanced payment<br>11.7               | Hybrid; No guarantee/advanced payment<br>13.9                 |
| Early Childhood Education and Care (ECEC) | Privately & publicly funded; Covers over 50% of 3 to 5 years olds | Mostly privately funded; Covers less than 50% of 3 to 5 years olds | Publicly funded; Covers over 90% of 3 to 5 years olds          | Privately & publicly funded; Covers over 90% of 3 to 5 years olds | Mostly privately funded; Covers over 60% of 3 to 5 years olds |
| Parental leave                            | 18 weeks guaranteed; 41% replacement rate for median earners.     | 14 weeks guaranteed; 57% replacement rate for median earners.      | 58 weeks guaranteed; 100% replacement rate for median earners. | 39 weeks guaranteed; 31% replacement rate for median earners.     | 0 weeks guaranteed;                                           |
| Child benefits                            | 16.8                                                              | 6.2                                                                | 29                                                             | 18.4                                                              | 0.6                                                           |
| Minimum wage                              | 53.8                                                              | No national-level minimum wage.                                    | 47.2                                                           | 52.7                                                              | 34.9                                                          |
| Unemployment benefits                     | 50                                                                | 83                                                                 | 71                                                             | 39                                                                | 25                                                            |

Notes: The institutional context for child support policies refers to the years 2023/2024. Data comes from the OECD Family Database. Estimates for child support is expressed in the percentage of household disposable income for a single-parent family. Data comes from the OECD Family Database for the year 2018. Estimates for child benefits are based on the amount a single parent family with two children aged 9 and 12 would receive. The values are expressed as a percentage of the median full-time wage. Data comes from the OECD Family Database for the year 2018 (<https://www.oecd.org/en/data/datasets/oecd-family-database.html#123456>). Minimum wage is expressed as the percent of the median wage for full-time employees. The data comes from the OECD Earnings and Wages data base for the year 2016 (<https://www.oecd.org/en/topics/employment-protection-and-minimum-wages.html>). Unemployment benefits refer to the replacement rate (%) of disposable household income before job loss for a single parent earning the median wage, with two dependent children for the year 2016, for a period of unemployment of 12 months.

### 3.2.4. How do policies shape poverty outcomes?

Much cross-national attention has been given to differences in policies and how they shape poverty outcomes among single parents. From the most direct policies affecting single parents and their resources – such as regulations about child support/maintenance<sup>3</sup>, to more universal policies that regulate family life and indirectly shape life circumstances for single parents as well – such as early childhood education and care, parental leave, and child benefits, the implementation and generosity of these policies differ across the countries in this sample.

Table 3.1 summarizes the main policies available in each country, and Appendix 1 offers further details about differences in the main family and income protection policies.

In short, some countries have a court-based system which is punitive and sometimes hinder reaching agreements (Cuesta et al., 2018), others have an agency-based or hybrid system. Germany offers advanced payments from public funds to ensure that the family will have financial support even in the absence of consistent and on-time payments from the non-residential parent (Hakovirta, 2011), but neither of the other countries do. The countries also differ in the coverage and government investments in early childhood education and care (ECEC), which are essential to allow parents to dedicate time employment (Nieuwenhuis, 2020). All countries except the US (and Australia until 2011), have a guaranteed parental leave scheme. However, the wage replacement rate varies between 28% and 100% (OECD, 2014). Lastly, most countries have universal child benefits, which vary in sum. In the US, the child benefit is small and means-tested (Parolin and Daiger von Gleichen, 2023). Beyond family policies, the countries in this sample differ with regards to other income protection policies,

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<sup>3</sup> Note that child support/maintenance payments are private transfers of financial resources, from the non-residential parent to the residential parents. In these terms, it is not a public transfer – or an income protection policy, unless the government provides advance payments, such as in Germany or Switzerland. However, governments have an important role in setting the regulations around child support, including the amounts to be paid, and the consequences of lack of compliancy, and for this reason, they are included in my analysis.

such as minimum wage policies and unemployment benefits, both with implications on family income and poverty outcomes.

In a novel approach to cross-national comparisons of single parents, I propose an investigation of the diverse circumstances of single parent families that lead to increased risk of poverty. First, I investigate the prevalence of single parenthood by pathways in the five countries under investigation. Then, I investigate the diversity of socioeconomic characteristics of single parents both between and within countries. Lastly, I will compare how much pathways into single parenthood can account for cross-national differences in single parent poverty as opposed to social policy.

I selected of the United States, the United Kingdom, Australia, Germany, and Switzerland for two main reasons. The countries are comparable enough in economic development and institutional capacity to make policy differences meaningful, yet diverse enough in welfare design to reveal important variation in income protection policies. My goal is to compare both within- and across-regime. The United States, the United Kingdom, and Australia represent liberal welfare states that share similar market-oriented traditions and English-speaking political cultures (Esping-Andersen 1990). Comparing these countries makes it possible to assess whether the weak income protection in the U.S. is an inherent feature of the liberal model, as is often argued in the literature (Alesina and Glaeser 2004), or the result of specific policy choices. In contrast, Germany serves as a benchmark case from more universalistic welfare traditions, offering reference points for how alternative institutional arrangements manage poverty risks. I also include Switzerland as a hybrid case that blends elements of both liberal and conservative welfare traditions—featuring high levels of social insurance but modest redistribution and strong federalism (Esping-Andersen 1990). This choice of countries allows me to draw both practical and theoretical insights: the policy implications of this study can be realistically implemented in the U.S. without reforming the welfare

tradition, while also allowing me to test broader claims about the limits of income protection within different welfare state traditions.

### 3.3. Data and Methods

#### 3.3.1. Data and measures

My primary data source is the Cross-National Equivalent File (CNEF), a data file that harmonizes international household panel studies hosted by The Ohio State University. I further harmonize this cross-national file to allow for comparable investigations of single parenthood status and poverty. As a result, I investigate five countries: Australia, Switzerland, Germany, the UK, and the US. The years covered and sample sizes in each survey vary by country, as can be seen in Table 3.2. All but one study have annual data collection – the US, since 1997 is biannual.

**Table 3.2.** *Data Sources and Samples*

| Country     | Data Source                                                           | Years covered | Number of individuals in sample |
|-------------|-----------------------------------------------------------------------|---------------|---------------------------------|
| Australia   | Household Income Panel                                                | 2001-2020     | 4451                            |
| Switzerland | Swiss Household Panel                                                 | 1999-2020     | 2614                            |
| Germany     | Socio-Economic Panel                                                  | 1984-2016     | 10047                           |
| UK          | British Household Panel Survey & the UK Household Longitudinal Survey | 1991-2018     | 10902                           |
| US          | Panel Study of Income Dynamics                                        | 1970-2019     | 10308                           |

Notes: Years covered refers to the years when individuals in our sample are observed. For the US, the data was collected every 2 years since 1997. Number of individuals in the sample refers to the maximum sample sized used for analysis that comply with the criteria detailed in the text. The sample sizes are smaller for the regression analyses because additional criteria restricting it to individuals observed for at least 5 years in the sample. The CNEF file is missing the following information for the UK: post-tax income for 2007 and 2008, current (monthly) income for the years before 2008 and education for all years. I supplement this data from the original British Household Panel Survey and the UK Household Longitudinal Survey. Both the BHPS and UKHLS are available at <https://ukdataservice.ac.uk/>.

The advantage of the CNEF is that it offers longitudinal panel data that is comparable across countries, while being able to capture detailed and annual information about family

structure, income, and other observable characteristics for all members of a household. Thus, it allows me to observe the relationships between household members, transitions from one family structure to another, demographic characteristics, and pre- and post-tax and transfer income in a comparable way across the five countries. My initial sample is formed of all households with children (N=460,432) for which I compute their family structure and poverty status. A total of 880,034 households are eliminated because there are no children in the household.

To measure family structure, I rely on two variables in the data file: relationship to the household head and marital status of the household head. The relationship status of the head will determine the family structure of the household in the following manner: if the relationship status of the head is married or living with a partner, the family will be categorized as a two-parent family; a single parent family is a family in which the head does have a partner living in the household and has any of the following marital statuses: divorced, widowed, separated, and never married. These last categories are then further used to identify the pathway into single parenthood. This approach allows me to include in my definition of single parenthood households in which adult children, other adults, or grandparents live as well (similar to Zagel and Van Lancker 2022) – an omission to many single parent studies who are unable to observe single parents when they are imbedded in larger households (Moullin & Harkness, 2021). Additionally, following Cross (2020), for analyses that are not year specific, I compute the share of time (from childbirth until their child turns 18 years old or leaves the household), in years, each parent spends in each family structure that can be identified with this measure. This method is preferred to a static measure of single parenthood that does not consider the relative influence of past and future family structures on poverty among single parents (Cross, 2020). This measure is also more appropriate for analysis that pools over larger periods of time when individuals tend to move in and out of single parenthood.

The final sample (224,918 individuals, for a total of 1,393,152 individual-year observations) is composed of parents – my unit of analysis (for sample sizes by country see Table 2). For households in which both parents are present, I will only keep the mother, to ensure the best comparison with single parents, who are more often single mothers. I restrict the sample used in regression analyses to those who are observed for at least five years while any of their children live in their household (N=36,846 individuals) to allow for a confident calculation of the time spent in different family structures. In Appendix 9, I present the results for regression analyses where the threshold to be included in the sample is reduced first to 3 years, and then to 1 year. However, note that each individual contributes a single observation based on time-averaged measures (see below how poverty is averaged across time). Since the data are collapsed to one record per person, there are no repeated observations within individuals that could generate serial correlation in the residuals. Therefore, clustering standard errors at the individual level is not required, and conventional robust standard errors are appropriate.

To measure poverty status, I use the standard approach in the literature by investigating income poverty using a relative measure (Baker et al., 2022; Brady et al., 2017; Brady & Burroway, 2012; Parolin, et al., 2022; Smeeding, 2016; Zagel et al., 2022). This method classifies a household as poor if the annual equivalized household income is below 50% of the national median of each year (Baker, 2015; Brady et al., 2017, 2024; Smeeding, 2016). I apply a square root equivalent<sup>4</sup> scale to take into consideration the number of household members to obtain this relative measure of poverty (this measure is computed before any of the sample restrictions are applied). I compute this measure both before and after applying taxes and

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<sup>4</sup> Alternatives to this equivalence scale exist, such as the OECD modified scale, however I choose to use the square root equivalence scale for a few different reasons: (1) it provides a consistent adjustment that does not depend on country-specific consumption patterns, cost structures, or assumptions about children's relative needs, making it particularly appropriate for cross-national comparison; (2) it offers a transparent, easily interpretable adjustment that avoids the subjective parameterization of adult-child cost ratios, which may differ across countries; and (3) to maintain consistency across the different chapters of this dissertation, which employ the square root equivalence scale, a widely used method in US studies.

transfers. Income post-taxes and transfers includes income from labor earnings, asset flows, private transfers, private pensions, public transfers, and social security pensions minus total household taxes. This also includes the face value of near-cash transfers like food stamps (SNAP in the US). In the analysis, I use a measure of poverty intensity – that calculates the share of years spent in poverty (as described above) while a parent’s children are in the household.

I use the difference between the pre- and post-taxes and transfers to measure the social policy. Compared to research that focuses on family policy alone, my approach offers a comprehensive measure, that allows me to capture the contribution of income protection policies to the reduction of poverty among single parents. Not only does this approach offer a comparable measure across countries but it also highlights the importance of unemployment and tax benefits, as well as minimum wage policies, to the overall economic situation of single parents, beyond family policy encompassed in parental leave wage replacement, child benefits, and other income benefits tailored towards (single) parents.

Additional measures from the CNEF file are used as control variables, such as the year of birth, parents’ gender, maximum level of parental educational level, the age of the mother at birth, average rate of parental employment, and the number of children in the household. Previous studies show that these are the most important household characteristics that shape poverty outcomes. I use cross-sectional weights for all the analyses.

### **3.3.2. Methods**

The paper presents a series of descriptive analysis exploring time trends of pathways into single parenthood. This will allow me to describe two potential sources of diversity across single parents in different countries: (1) the prevalence of different pathways into single parenthood might be different across countries and (2) the reasons for becoming a single parent could have changed over time differently across countries. I will then show descriptively the demographic

characteristics of single parents in each pathway compared to coupled parents. Take together, these descriptive analyses will show if and how the composition of single parents is different across countries, and if this diversity is ignored, cross-national investigation of single parent poverty can lead to flawed or incomplete conclusions. Next, I employ a series of OLS regression analyses to evaluate the associations between single parenthood and poverty in each country, as well as differences in associations between single parenthood and poverty between each pathway. This will allow me to uncover two sets of heterogeneities: (1) between-country heterogeneities in poverty and (2) between pathways heterogeneities in poverty. Using this method, I will be able to describe two sources of poverty among single parent families. The first one is the vulnerability resulting from the lack of support from the state in the form of income protection policy. The other one is the vulnerability determined by their individual experiences as a single parent encompassed in the reasons for which they became single. I estimate separate models for each country to ensure that results are interpreted within each country's specific institutional and policy context. Pooling across countries would introduce additional modeling complexity and assumptions about cross-national comparability. The goal of these regressions is to descriptively describe poverty outcomes, rather than causal identification of institutional or mediation effects, and thus, country-specific regressions are the most appropriate choice to maintain clarity and interpretability.

I will employ two regressions that are formalized in the following equation (repeated for each country):

$$PovPreTT_i = Single_i + X_i + \varepsilon \quad (1)$$

$$Pov_i = Single_i + X_i + \varepsilon \quad (2)$$

Equation 1 predicts the association between the time spent by an individual  $i$  in a single parent family (*Single*) and the average poverty of this individual pre-taxes and transfers (*PovPreTT*). The pre-taxes and transfers poverty is the poverty rate of an individual  $i$  without

taking into consideration the taxes and transfers a household receives. Equation 2 does the same thing but on the poverty measure that accounts for taxes and transfers. Both equations also control for a vector  $X_i$  of individual characteristics (gender and year of birth in the basic model). I control for year of birth fixed-effects to make sure that cohort effects do not alter my results, given that individuals in my sample are born in different years. Additional control variables are included in models presented in Appendix 2, such as parents' education and employment, number of siblings, and the age of mother at birth.

To uncover the differences in income protection policies, I will compare the change in the coefficient for  $Single_i$  from equation 1 to those from equation 2. Pre-taxes and transfers poverty associations are stronger than the post-taxes and transfers poverty associations in countries where income protection is more effective. Small reductions in associations also indicate less income protection.

Next, to uncover differences between pathways, I will employ two other regression analyses, as follows:

$$PovPreTT_i = Divorced_i + Widowed_i + Separated_i + NeverPartnered_i + X_i + \varepsilon \quad (3)$$

$$Pov_i = Divorced_i + Widowed_i + Separated_i + NeverPartnered_i + X_i + \varepsilon \quad (4)$$

As before,  $PovPreTT$  is the pre-taxes and transfers poverty of individual  $i$ . However, this time it is determined by the share spent in each single-family type (divorced, widowed, separated, and never married, respectively).

The mean poverty  $Pov$  of individual  $i$  is associated with the same variables as before and measures the associations with the share spent in each single-family type (divorced, widowed, separated, and never married, respectively).

Differences between pathways are revealed by the differences in coefficients of each of the four share variables ( $Divorced_i, Widowed_i, Separated_i, NeverPartnered_i$ ).

Additionally, by comparing the results of equations 3 and 4, I can indicate which pathways are more vulnerable to poverty due to a lack of efficient income protection policy.

Lastly, to understand differences in the poverty penalty for single parenthood between the US and other countries, I adopt a stepwise regression-based accounting framework. At each stage, I estimate the difference in poverty penalties (captured by the interaction between single parenthood and country) and observe how this difference changes as additional explanatory factors are introduced. This allows me to attribute portions of the gap to specific sets of variables.

I begin by estimating the post-tax, post-transfer poverty penalty associated with single parenthood across countries in equation 5a, while equation 5b how I decompose the differences between countries (*CountryDiff*) in its four main components:

$$PovPostTT_i = \beta_1 Single_i * Country + X_i + \varepsilon \quad (5a)$$

$$\beta_1 = CountryDiff = P + S + T + R \quad (5b)$$

Here,  $\beta_1$  captures the baseline difference in the poverty penalty between *Country* and the US, controlling for a basic vector  $X_i$  that includes year fixed effects and the parent's gender.

Next, to isolate the portion of country differences accounted for by pathways ( $P$ ), I add controls for the time spent in each family structure in equation 6a,:

$$\begin{aligned} PovPostTT_i = & \\ & \delta_1 Single_i * Country + \delta_2 Divorced_i + \delta_3 Widowed_i + \delta_4 Separated_i + \\ & \delta_5 NeverPartnered_i + X_i + \varepsilon \quad (6a) \end{aligned}$$

$$P = \beta_1 - \delta_1 \quad (6b)$$

Subsequently, the model in equation 7a includes additional sociodemographic characteristics ( $S$ ) in  $X_i$ :

$$\begin{aligned}
PovPostTT_i = & \\
& \theta_1 Single_i * Country + \theta_2 Divorced_i + \theta_3 Widowed_i + \theta_4 Separated_i + \\
& \theta_5 NeverPartnered_i + X_i + \varepsilon \quad (7a)
\end{aligned}$$

$$S = \delta_1 - \theta_1 \quad (7b)$$

The difference between  $\delta_1$  and  $\theta_1$  in equation 7b represents the portion of the country differences explained by  $S$ .

Finally, I shift to a pre-tax, pre-transfer poverty measure to isolate the impact of taxes and transfers ( $T$ ) in reducing the country differences in poverty penalty:

$$\begin{aligned}
PovPreTT_i = & \\
& \gamma_1 Single_i * Country + \gamma_2 Divorced_i + \gamma_3 Widowed_i + \gamma_4 Separated_i + \\
& \gamma_5 NeverPartnered_i + X_i + \varepsilon \quad (8a)
\end{aligned}$$

$$T = \theta_1 - \gamma_1 \quad (8b)$$

$$R = \gamma_1 \quad (8c)$$

The remaining interaction coefficient  $\gamma_1$  reflects the residual difference in the single-parent poverty penalty between *Country* and the US that is not explained by the observed factors included in the model. A summary of the decomposition logic is presented in Table 3.3. In equations 5a, 6a, 7a, 8a, I omit the intercept term for simplicity. The intercept in each of these equations can be interpreted as the association between single parenthood and poverty in the US, or the value of the association when the interaction term is 0. However, because the focus of my analysis is on differences in the poverty penalty for single parenthood between the US and other countries, the relevant quantity of interest is the interaction term between the time spent in single parenthood and country (i.e.,  $Single_i * Country$ ). This term captures how much larger (or smaller) the poverty penalty for single parents is in each country compared to the US. For this reason, the changes in the intercept are not of interest in this decomposition. The US is

the reference country because it stands out among high-income countries with its high poverty penalty for single parents (Brady et al., 2017). In Appendix 11, I present alternative results with Australia as the reference category. The results show similar patterns.

**Table 3.3.** *Logic of the Decomposition Framework*

| Component                                     | Parameter             | Description                                                                                                                                                                                                                                                                                                                                                                                                                             |
|-----------------------------------------------|-----------------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| Baseline difference ( <i>CountryDiff</i> )    | $\beta_1$             | The differences in the poverty penalty between <i>Country</i> and the US (as the reference category), controlling for vector $X_i$ which includes year fixed effects, and parent's gender.                                                                                                                                                                                                                                              |
| Pathways ( <i>P</i> )                         | $\beta_1 - \delta_1$  | When adding controls for the time spent in each pathway into single parenthood, the difference between coefficients $\beta_1$ and $\delta_1$ represents the portion of the differences in poverty penalties between <i>Country</i> and the US accounted for by pathways.                                                                                                                                                                |
| Sociodemographic characteristics ( <i>S</i> ) | $\delta_1 - \theta_1$ | The control vector $X_i$ now includes the age of the parent at birth, their education and employment, as well as the number of children in the household, beyond parent's gender and country fixed effects. The change in the interaction coefficients $\delta_1$ and $\theta_1$ represents the portion of to the difference in poverty penalty between <i>Country</i> and the US accounted for by of sociodemographic characteristics. |
| Taxes/ Transfers ( <i>T</i> )                 | $\theta_1 - \gamma_1$ | I switch to a pre-taxes /transfers poverty measure. By subtracting the new interaction coefficient ( $\gamma_1$ ) from $\theta_1$ , I calculate the portion of the differences in single parent poverty penalty between <i>Country</i> and the US accounted for by taxes/transfers.                                                                                                                                                     |
| Residual ( <i>R</i> )                         | $\gamma_1$            | The unexplained component of the differences in poverty penalty between <i>Country</i> and the US.                                                                                                                                                                                                                                                                                                                                      |

Notes: In Appendix 7, I replicate this analysis by changing the order in which I include variables in the models to make sure the results are not affected by the sequencing order. The results are similar, indicating that sequencing does not alter my results.

## 3.4. Results

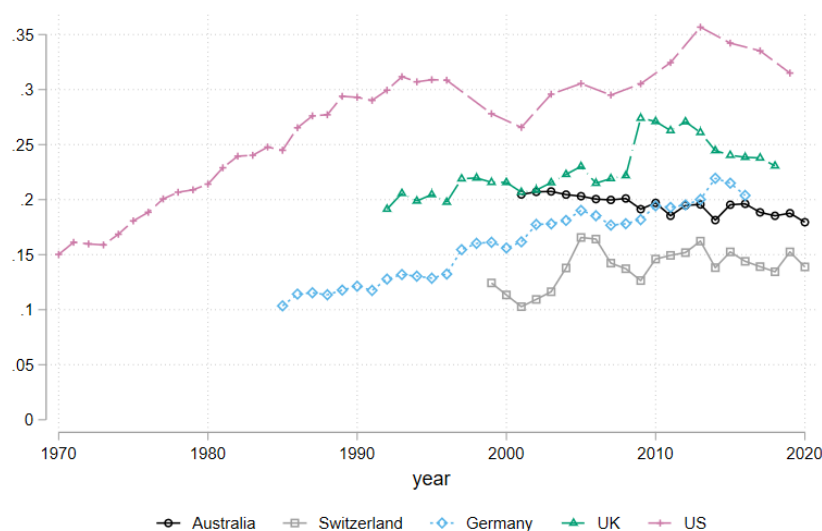
### 3.4.1. Single Parent Prevalence

Recent estimations show that single parenthood has become more common over the last few decades (Kearney, 2023; Weinraub & Kaufman, 2019). However, as the share of single parents increases, so does their diversity (Weinraub & Kaufman, 2019). One source of diversity is the pathway into single parenthood that reflects and has the potential to influence different life courses, experiences, and outcomes both for the single parents and their children. This section is dedicated to understanding the cross-national differences in long-term time trends in the prevalence of single parent families and pathways into singlehood.

Figure 3.1 reveals some important cross-country differences. The percentage of single parents has increased over time in all countries except Australia, reaching over 30% in the US (in 1990) and over 25% in the UK (in 2009, but decreasing since then), 20% in Germany (in 2014), and 15% in Switzerland (in 2005). A similar increase is absent in Australia where the number remains constant over time at around 20% and even slightly decreasing since 2010.

An investigation of prevalences of each pathway into single parenthood is presented in Figure 3.2. In countries with an overall increase in children raised by single parents, the increase is almost entirely driven by an increase in never-married single parent families (from the least common pathway at the beginning of the observation period). In all countries, in the recent year, never-married is the most common pathway into single parenthood, followed by divorce. The only exception is Switzerland, where never married single parents make up only about 30%

**Figure 3.1.** Prevalence of Single Parenthood Over Time

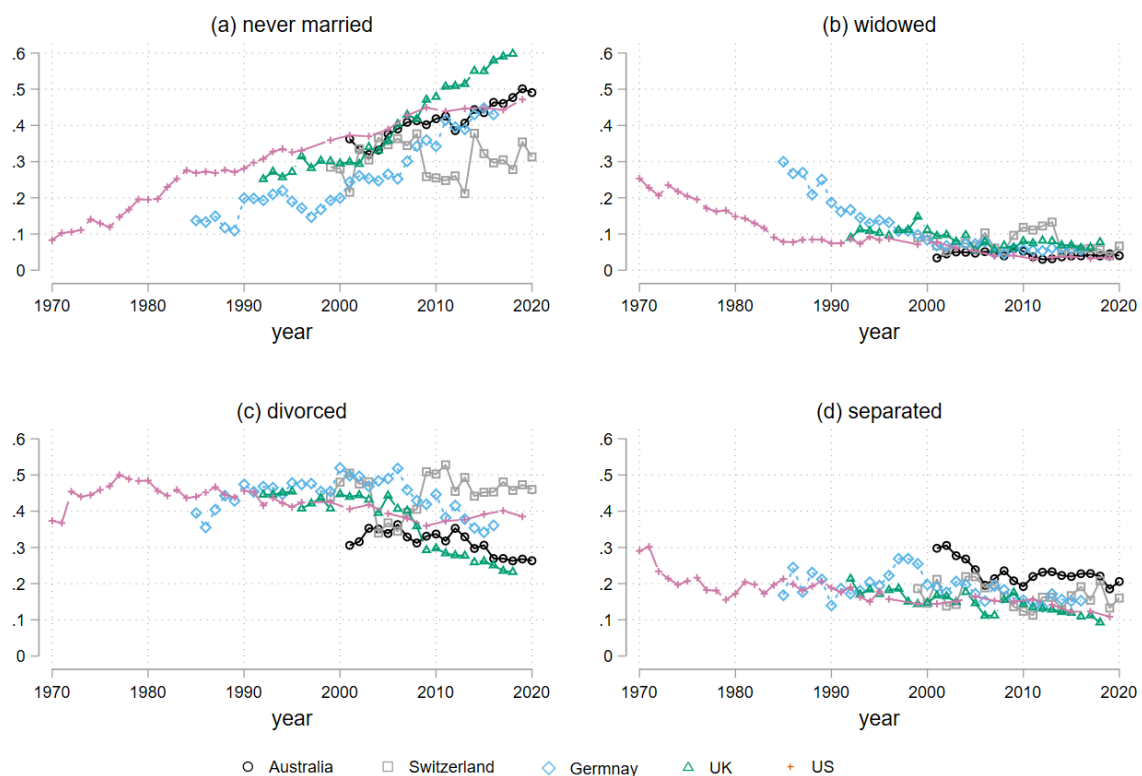


Note: Author's own calculations based on CNEF data. Y-axis represent the percentage of single parents (relative to all parents in the sample) in any given year.

of the single parent population in 2020, as compared to around 50% in the US (in 2019) and 40% in Germany (in 2016), around 60% in the UK (in 2018), and almost 50% in Australia (in 2020). Divorce is the most common pathway into single parenthood in Switzerland (at around

50% but fluctuating as low as 30% in some years), followed by 20-25% due to separation. In Australia, Germany and the UK, the recent increase in never married single parents is accompanied by a substantial decrease in divorced single parents (especially after 2010, 2005, and 2005 respectively). This is true to a much lower degree in the US and Switzerland, where the proportion of divorced parents decreased very slowly, while never married single parents became substantially more common. Separation is either consistent over time (Switzerland, UK and Germany) or decreasing (US and Australia).

**Figure 3.2.** Prevalences in Pathways into Single Parenthood



Note: Author's own calculations based on CNEF data. Y-axes represent the percentage of single parent (out of all single parents in the sample) in each pathway in any given year.

A common trend among all countries is the decrease in widowhood over time, making up less than 10% of the single parent population in recent years. This is probably a consequence of demographic advances, such as the increase in life expectancy, the development of technologies that prevent sudden death, and as a result of changing political circumstances, such as the decrease of war and conflict.

Taken together, these trends shed light on the changing composition of the single parent group – indicating that the reasons for becoming a single parent have changed dramatically over time and are different across countries. This is particularly relevant for poverty outcomes if the socio-demographic characteristics of these parents differ across pathways and countries.

**Table 3.4.** *Sociodemographic Differences Across Pathways by Country*

|                                  |              | Never married | Widowed | Divorced | Separated | Two-parents |
|----------------------------------|--------------|---------------|---------|----------|-----------|-------------|
| <b>AUSTRALIA</b>                 |              |               |         |          |           |             |
| Age of first single parent spell |              | 29.5          | 46.7    | 42.4     | 39.5      |             |
| Female (%)                       |              | 92.1          | 82.7    | 86.5     | 85.5      |             |
| Education (%)                    | Less than HS | 39.3          | 26.5    | 21.8     | 30.4      | 21.5        |
|                                  | HS           | 43.3          | 44.5    | 37.8     | 37.6      | 31.4        |
|                                  | More than HS | 17.5          | 29.0    | 40.5     | 32.0      | 47.0        |
| Employment (%)                   |              | 46.0          | 47.5    | 72.5     | 60.0      | 61.1        |
| <b>SWITZERLAND</b>               |              |               |         |          |           |             |
| Age of first single parent spell |              | 26.2          | 51.0    | 43.5     | 41.0      |             |
| Female (%)                       |              | 74.9          | 68.0    | 85.1     | 85.7      |             |
| Education (%)                    | Less than HS | 26.7          | 14.8    | 12.7     | 11.5      | 18.9        |
|                                  | HS           | 42.2          | 52.4    | 51.7     | 60.6      | 51.0        |
|                                  | More than HS | 30.9          | 32.8    | 35.6     | 27.9      | 30.2        |
| Employment (%)                   |              | 84.4          | 77.8    | 90.2     | 82.8      | 73.0        |
| <b>GERMANY</b>                   |              |               |         |          |           |             |
| Age of first single parent spell |              | 28.2          | 50.1    | 39.0     | 37.8      |             |
| Female (%)                       |              | 93.4          | 82.2    | 90.2     | 89.7      |             |
| Education (%)                    | Less than HS | 19.0          | 38.0    | 19.1     | 21.7      | 18.5        |
|                                  | HS           | 59.9          | 48.0    | 64.6     | 62.1      | 60.9        |
|                                  | More than HS | 21.0          | 14.0    | 16.3     | 16.1      | 20.6        |
| Employment (%)                   |              | 65.3          | 37.6    | 75.7     | 74.3      | 63.0        |
| <b>UNITED KINGDOM</b>            |              |               |         |          |           |             |
| Age of first single parent spell |              | 31.6          | 62.4    | 44.7     | 39.2      |             |
| Female (%)                       |              | 95.2          | 82.1    | 88.7     | 89.5      |             |
| Education (%)                    | Less than HS | 33.9          | 50.3    | 31.2     | 33.7      | 25.4        |
|                                  | HS           | 48.1          | 33.1    | 49.4     | 52.6      | 47.7        |
|                                  | More than HS | 18.0          | 16.7    | 19.4     | 13.8      | 27.0        |
| Employment (%)                   |              | 50.3          | 37.8    | 67.5     | 66.6      | 70.3        |
| <b>UNITED STATES OF AMERICA</b>  |              |               |         |          |           |             |
| Age of first single parent spell |              | 25.6          | 56.7    | 36.6     | 34.2      |             |
| Female (%)                       |              | 87.3          | 85.5    | 83.5     | 86.8      |             |
| Education (%)                    | Less than HS | 29.9          | 53.0    | 19.7     | 32.3      | 16.7        |
|                                  | HS           | 41.8          | 26.5    | 40.2     | 37.5      | 41.0        |
|                                  | More than HS | 28.4          | 20.5    | 40.1     | 29.9      | 42.3        |
| Employment (%)                   |              | 76.7          | 53.7    | 86.2     | 74.9      | 68.8        |

Notes: All numbers represent averages pooled across years. Employment rate refers to the share of individuals who are employed in any given year, and then averaged across family structure and country.

### **3.4.2. Sociodemographic differences across pathways**

Previous literature shows that younger individuals with low education, insecure and unstable employment are more exposed to the risks of poverty (Brady et al., 2017). In this section, I investigate the sociodemographic differences across pathways and countries – if the characteristics of single parents in different pathways and countries are heterogenous, it could explain why some parents are poorer than others, both within and across countries. The previous section indicated that never married single parents are more common than any other type of single parents in all countries except Switzerland. But are they also the most vulnerable to poverty due to their socio-demographic characteristics?

As seen in Table 3.4, the age of becoming a single parent for the first time can have many implications on parenting conditions, economically but not only. Never married single parents become single at the earliest age in all countries, but the difference among countries is stark. Never married single parents are youngest in the US, becoming single at 25.6 years old on average, followed by Swiss parents at 26.2, German parents at 28.2 years old, Australian parents at 29.5 years old, and British parents at 31.6. All other categories of single parents become single much later in life; in some countries even 10 to 20 years later, on average. Unsurprisingly, the oldest average age of becoming a single parent is found among widowed single parents. In all countries, this event happens after the age of 46 – but differences across countries are visible here as well, with British widowed parents being the oldest on averaged and Australians the youngest. Divorce and separation have very close averages, although in all countries the average age for separation is slightly lower than for divorce. Most parents in these categories become single parents between their late 30s and early 40s.

Single mothers are most of the single parents across all pathways and countries. However, they do not represent the entire population of single parents. Single fathers represent 32% of the population of widowed single parents in Switzerland. In Germany, for example,

single fathers make up between 6.6 and 17.8% of single parents across pathways, with more of them concentrating in the widowed and separated categories. Similarly, more single fathers in Switzerland and the UK are among the divorced/separated and widowed single parents. Even in the US, single fathers make up around 15% of each pathway. Across countries, never married single parents are overwhelmingly dominated by single mothers.

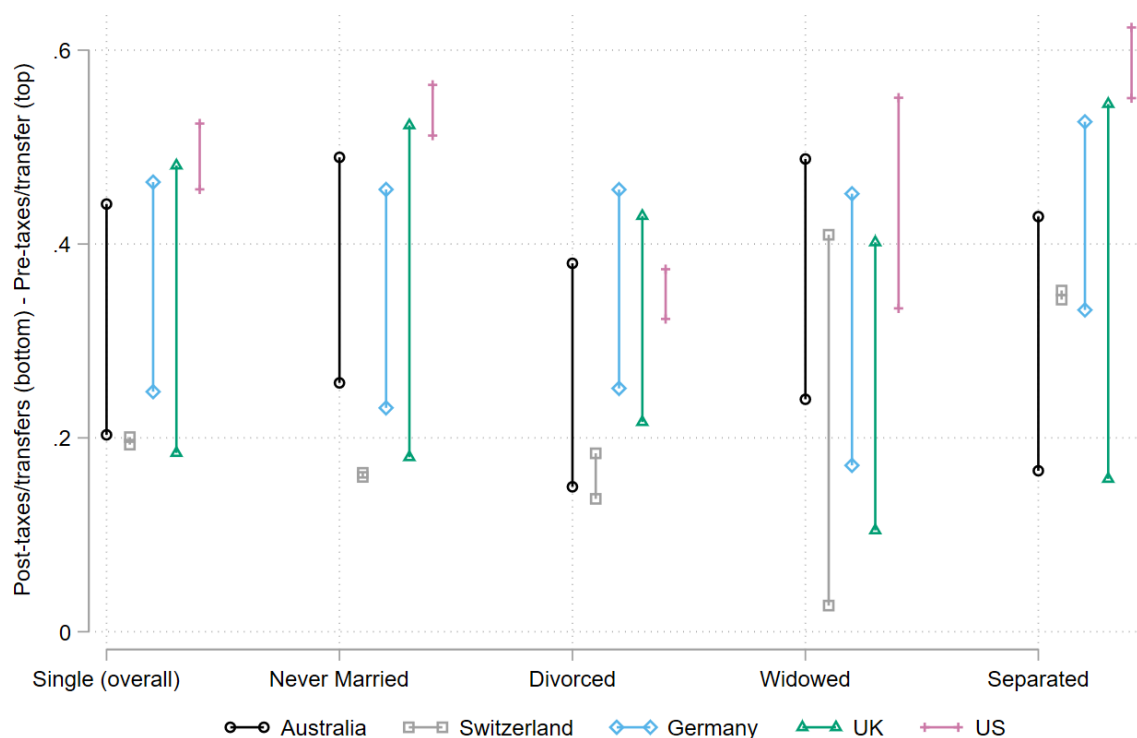
In terms of education, countries differ substantially. In Germany, there are only small differences across pathways in all three educational groups (without a high school degree, with a high school degree, and with more than a high school degree), with widowed parents standing out as slightly less educated compared to the other types of parents. Even more so, German single parents do not differ on average, from non-single parents. The situation is similar in Switzerland where single parents are often more educated than non-single parents. The same cannot be said for the other countries, where never married single parents are less educated than both non-single parents and any other type of single parents.

Employment patterns follow a similar trend. In Germany, Switzerland, the US and the UK, single parents across pathways work as much as non-single parents, and sometimes even more (with the exception of never-married and widowed single parents in the UK and widowed single parents in the US, who work less than non-single parents and the other types of single parents). In Australia, never married single parents work far less than any other parents, but divorced and separated single parents work as much as parents in two-parent families.

For the US and Australia, the vulnerabilities compound: never married single parents are younger, more often female and less educated than any other single parents. In Germany and Switzerland, education, stable employment, and older age might act as protective characteristics against the risk of poverty. For British parents, the average sociodemographic characteristics might work in different direction – single parents are older than in the other countries and work as much as non-single parents, but are less educated. Against this backdrop,

the next section investigates the association of pathways into single parenthood and poverty across countries.

**Figure 3.3.** Increases in Time Spent in Poverty as a Function of Pathways Across Countries



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty. They are all statistically significant at  $p < 0.01$ . The top dot represents the coefficient for pre-taxes/transfers poverty, and the bottom dot represents the coefficient for post-taxes/transfers poverty. The line is a visual representation for the difference between pre- and post-taxes and transfers poverty measures. The reference for the first line (black) is parents who are not single for any time while under observation, and for the next lines parents who spend no time in each specific single parent family type. The sample is composed of single parents who are observed for at least 5 years before their children turn 18 years old or move from the household. These regressions control for the gender of the parent, year of their birth fixed-effects, the number of children in the household, the average employment rate of the parent, the maximum educational level of the parent, the number of children in the household, and the age of the parent at the child's birth. See Appendix 2 for a table version of these results. See Appendix 12 for overall poverty rates across time and countries.

### 3.4.3. Associations between poverty and single parenthood.

Figure 3.3 plots the associations between single parenthood and poverty for each pathway into single parenthood and for single parenthood overall. It also presents the association before (top marker) and after (bottom marker) considering income from taxes and transfers. The

models control for a variety of characteristics, including the gender and age of the single parent, their maximum level of education and their average employment rate while their children were in the household, the number of children in the household, and parents' year of birth fixed-effects.

For ease of interpretation, I will discuss the results of the analysis by comparing individuals who were single for the entire time their children were in the households, to those who were never single, as well as those who spend their entire parenting time in a specific pathway as compared to those who did not spend any time in that pathway.

I will first consider pre-taxes and transfers poverty associations. These can be interpreted as the time a parent would be in poverty in the absence of income protection policy. A single parent would spend 19 percentage points (p.p.) more time in poverty than a coupled parent in Switzerland and 52 p.p. more time in the US. In Germany, the increase in time spent in poverty is 46 p.p., in Australia and the UK it stands at 44 p.p. and 48 p.p., respectively. This reveals large variations between countries regardless of pathways into single parenthood. However, more heterogeneity is uncovered when different types of single parents are investigated. In Australia never married and widowed single parents fare the worst, with an increase of 49 p.p. time spent in poverty compared to parents who do not spend any of their time in these family structures. In the US, separated single parents show an increase in time spent in poverty of over 60 p.p., almost double compared to Switzerland and more than 20 p.p. compared to Australia. In Switzerland, never getting married is not the most detrimental to poverty outcomes, with an increase of only 16 p.p. – however, widowed single parents in Switzerland exhibit the highest poverty among all single parents in this country - at 41 p.p. – Divorced single parents are consistently among the least exposed to poverty compared to other pathways in their respective countries – however, cross nationally, divorced single parent experience an increase in poverty as low as 14 p.p. in Switzerland and as high as 46 p.p. in

Germany. Moreover, the difference between divorced single parents and other pathways differs substantially depending on country – being as low as 2 p.p. in Switzerland (compared to never married single parents) and as high as 25 p.p. in the US (compared to separated single parents). In the UK, never married single parents are similar in their poverty outcomes to separated single parents, who spend 54 p.p. more time in poverty; divorced and widowed single parents have an increase in poverty of a little over 40 p.p. German single parents spend around 45 to 53 p.p. more time in poverty across pathways into single parenthood.

The bottom markers in Figure 3.3 show the associations between single parenthood and post-taxes and transfers poverty. Comparing the length of the line between the top and the bottom markers shows how efficient income protection policy is in reducing poverty among single parents. Associations between single parenthood and poverty are strongest in the US and Australia both pre- and post-taxes and transfers across pathways. However, Australia seems to be better at reducing poverty among single parents through policy, given that the associations become smaller and similar to the rest of the countries after applying taxes and transfers to the poverty measure. Australia's policy reduces poverty by high and similar percentages across pathways; for divorced and never married single parents the reduction is 23, for separated single parents it is 26 p.p., and for widowed parents is 25 p.p.

The US lags with the least reduction in poverty after taxes and transfers. Except for widowed single parent families whose poverty decreases by 22 p.p., all other pathways' poverty conditions are improved by only 5 to 8 p.p. This represents the smallest improvement across countries and pathways due to taxes and transfers, indicating that the US is far behind in their ability to reduce single parent poverty through income protection policy.

Small reductions in poverty are also registered among Swiss divorced and never married single parents whose poverty is decreases very little between the two models. However, Switzerland seems to have very strong family policies for widowed single parents whose

poverty penalty is practically eradicated. According to OECD (OECD, 2018) and relative to the other countries in my sample (with the exception of Germany) Switzerland invests the most amount of money on survivor benefits – potentially indicating why widowed single parents' poverty is reduced to the highest degree compared to the other pathways, especially given the relatively weak family policy oriented towards single parents in Switzerland (for example, only 0.49% of the GDP was spent in 2020 on early education and childcare, as opposed to over 1% on survivor benefits), as shown in Table A1.

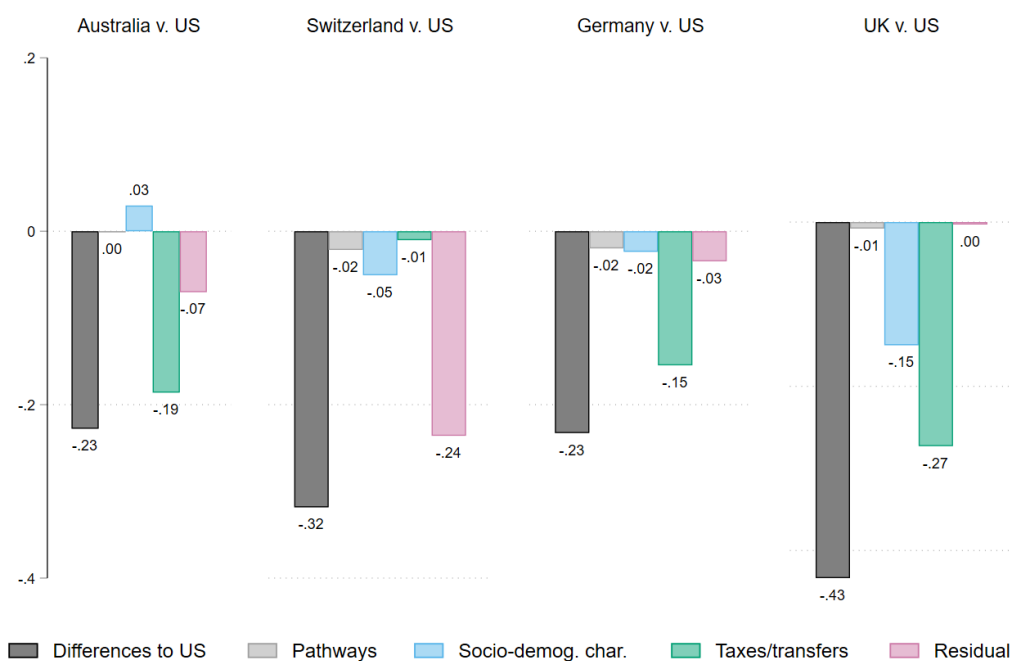
After income protection policies are taken into account, British single parents have their poverty reduced by 30 p.p. British never married parents' poverty is reduced by 34 p.p. For widowed parents the reduction is 23 p.p. and for separated families the reduction in poverty is 38 p.p. The poverty of children in divorced single parent families is reduced by 21 p.p. after applying taxes and transfers. A similar situation is common among German single parents. For all family types, the reduction in poverty after taxes and transfers is between 20 and 28 p.p. The UK and Germany stand out as the countries where the poverty penalty for single parents (after taxes and transfers) is uniformly reduced across different pathways, indicating that pathways are not as important for poverty reduction in these two countries as compared to Australia, Switzerland, and the US. However, German single parents still spend 17 to 33 p.p. more time in poverty compared to coupled parents, while the number are between 10 and 22 p.p. for British single parents.

#### **3.4.4. Does diversity matter for cross-national differences?**

In this section, I investigate how much of the difference in the likelihood of poverty for a single parent in the US compared to the rest of the countries, can be accounted for by pathways and sociodemographic characteristics on top of income protection policies. Figure 3.4 presents the results of the decomposition analysis that follows the framework described in Table 3.3. Note that these results refer to the differences in poverty penalty between the US and each of

the other countries in my sample, and they do not indicate how much each factor contributes to the poverty penalty in each country. For results of within-country decomposition consult Appendix 10, which shows that considering the time spent in each pathway into single parenthood accounts for a substantial part of the single-parent poverty rate in Switzerland, Germany, and the US. In Australia and the UK, taxes/transfers account for the biggest part of single-parents poverty rates. In the UK, socio-demographic characteristics act as a protective factor, reducing the poverty rate of single parents.

**Figure 3.4.** Decomposition of Differences in Post-Taxes/Transfers Poverty Across Countries



Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

Turning to the results of the decomposition explaining cross-national differences, the first bar (black) for each country in Figure 3.4 represents the difference in post-taxes/transfers poverty penalty between the US and each country in the sample. This difference is then decomposed in four factors.

The gray bars indicate that pathways into single parenthood explain only a very small part (if any) of the cross-national differences in poverty rates among single-parent families, 2pp

in Switzerland and Germany and none in Australia. The differences across countries are marginally accounted for by sociodemographic factors (blue bars) – and they matter more for differences between US and UK (explaining 15 pp of the difference), and US and Switzerland (explaining 5 pp) but very little for the other countries.

Lastly, the green bars indicate that taxes/transfers account for most of the cross-national difference in single parent poverty in all countries except Switzerland. In this case, income protection policy account for only about 1 p.p. of the difference in poverty penalty with the US, as compared to as much as 27 p.p. for the difference between US and the UK, 15 and 19 p.p. in Germany and Australia respectively.

A big part of the differences between US and Switzerland in poverty remains unexplained, as the residual red bar shows. Far less remains unexplained for Australia and Germany, 7 and 3 p.p. respectively. On the other hand, for the differences between the US and the UK, the cumulative contribution of pathways, socio-demographic characteristics, and taxes/transfers account for all the variation in single parent poverty.

### **3.4.5. Limitations and analytical scope**

This paper does not claim to identify causal links between single parenthood, poverty, and policy. The analysis presented in this paper is descriptive and associational, as it is unable to account for selection effects or other characteristics that may lead a person into single parenthood in the first place. Relatedly, the specification used in this paper cannot account for the potential ways in which differences in social policy might influence selection into pathways. Instead, I aim to present a comprehensive analysis of the cross-national heterogeneities among single parents that can illuminate the differences in vulnerability to poverty from one country to another.

Second, due to data limitations, my conceptualization of single parenthood does not capture all routes to single parenthood. Never married single parents, for example, may have at least two different pathways to singlehood with different implications: (1) parents who chose to have a child but are not looking or are not interested in finding a partner, and (2) parents, and especially women, who have unplanned pregnancies with unstable or absent partners. I expect, but cannot confirm, that the first category of parents is older, more educated and financially stable, and with more resources and knowledge to engage in family planning. Unfortunately, the data does not allow me to differentiate between the two or investigate their distribution across countries. Similarly, I am unable to account for diversity stemming from immigrant background, ethnicity/race, adoption or same-sex couples as these variables are not uniformly collected across countries. Appendix 6 explores the racial/ethnic differences in poverty outcomes in the US – where this factor is likely to matter to the highest degree. Previous studies show that the effects of single parenthood are different when comparing White and Black children. Appendix 6 presents results for the U.S. separated by racial belonging. Confirming previous research (Cross 2020), the associations between poverty and family structure is less strong among African Americans compared to their white peers. This is because other factors might be better at explaining poverty among single Black parents who face vulnerabilities, discrimination, and other systemic issues beyond family structure. Related, the meaning of pathways into single parenthood might be altered by cultural and institutional contexts that vary across countries. For example, divorce regulations, the legal status of cohabitating couples, or social norms around singlehood are elements I am unable to account for in this paper. Even more important, these differences in meaning could potentially limit access to specific income support policies. Further research should explore these variations and how they shape cross-national comparisons.

I am also unable to control for housing tenure, amount of savings, or other financial factors which are likely to influence poverty outcomes. Similarly, I am unable to account for

joint-custody arrangements and their impact on poverty outcomes. Additionally, I provide country estimates that do not consider sub-national variation in economic situations that can lead to single parents' different poverty outcomes based on where in a country they live. Further research is needed to understand how these factors shape poverty outcomes among single parents.

Moreover, including doubled-up single parents in my definition of family structure might alter the results – a single parent who co-lives with other adults has access to resources, both financial and in terms of care, that are not available to single parents who live alone. Appendix 4 tries to account for this by defining a single parent as an adult who lives alone with their children. The results indicate that single parents who live alone with their children are even more vulnerable to poverty.

Next, because the surveys collect data for different periods, I restrict the analysis to years 2001 – 2016 which are covered in all countries. Results are presented in Appendix 3. The results are consistent with the ones presented here. The main difference occurs in the strength of the association between single parenthood and poverty – this is not surprising, as the sample is restricted to a period of observation in which both the poverty rate and the penalty for single parenthood were smaller.

Appendix 8 provides alternative results with poverty set at 60% and 40% of the median income. Results are similar but indicate that deeper poverty (below 40% of the median income) is reduced to a higher degree in all countries, especially in the US compared to poverty set at 50% under the median income.

The main analysis requires individuals to be observed for at least five years to be included in the sample. In Appendix 9, I replicate the analysis by relaxing this criterion to three and one year. Results are similar but show smaller reduction in poverty due to taxes/transfers especially in US and Switzerland.

Lastly, the measure of income protection used in this paper is limited in its reach. Although taxes and transfers are a cross-nationally comparable and comprehensive welfare measure, it lacks the nuance required to understand which elements of a policy package are protective against poverty and which are not. More precise measures should be preferred when they are available. Additionally, social policy changes over time, and although my measure is sensitive to changes in the amount of benefits or tax credits, it is not sensitive to other changes – such as changes in enforcement of child support payments or application procedures.

Despite these limitations, the present study makes important advances in our understanding of the complexities of single parenthood, its interaction with policy and poverty.

### 3.5. Discussion and Conclusion

The study of single parenthood is dominated by a debate over the causes of poverty among this group (Brady, 2019). The individual perspective favors explanations focused on the increase in the share of single parents in the general population, particularly of unmarried childbearing (Kearney, 2023; McLanahan, 2009; Sawhill, 2014). In contrast, the institutional approach highlights the limited social support available for single parents in the US compared to other high-income countries (Biegert et al., 2022; Brady et al., 2017; Maldonado & Nieuwenhuis, 2015; Misra et al., 2012). This paper contributes to this debate by empirically testing the relative explanatory power of these two perspectives—individual-level demographic explanations versus institutional-level policy explanations—using a novel accounting framework.

The contributions of this paper are threefold. First, it offers a comprehensive longitudinal analysis of the demographic trends of single parenthood across countries, acknowledging their diversity. A common notion among the individual approach to single parent poverty is that the share of single-parent families in the population (i.e., their prevalence) is on the rise across high-income countries (Kearney, 2023). However, my longitudinal

investigation challenges this notion by showing that the prevalence of single parent families varies widely across countries and pathways. The increase, sometimes very steep, of the never married single parent family structure bears some of the explanation for the overall increase in single parenthood. In all countries (except Australia, where the data collection began later) this category makes up less than 10% of single parents at the beginning of the period covered. However, by mid-2000s, it was the most common pathway into single parenthood in all countries except Switzerland. At the same time, all other reasons for becoming a single parent are decreasing or are stable across time. Such nuances in prevalence are masked when single parents are treated as a monolithic group.

Second, in contrast to much of the cross-national literature that defines single parents as a homogenous, static group (Brady et al., 2017; Maldonado & Nieuwenhuis, 2015), I propose a conceptualization of single parents that acknowledges various sources of diversity within this population. Different pathways into single parenthood—such as never marrying, divorce, widowhood, or separation—are linked to variation in parents’ employment, financial stability, and caregiving capacity (Weinraub & Kaufman, 2019, p. 276). These differences shape families’ financial resources, making it essential to examine how pathways influence poverty outcomes (Burciu & Parolin, 2024). I also improve the measurement of single parenthood by moving beyond point-in-time snapshots. Following Cross (2020), I calculate the share of time each parent spends in different family structures, capturing the relative influence of past and future family structures on poverty among single parents and the cumulative influence of family dynamics on poverty. This dynamic, life-course approach departs from the conventional cross-sectional models and provides a more accurate reflection of the lived experiences of single parents.

The investigation into different pathways underscores the distinct vulnerabilities faced by different single parents. The results highlight that the poverty outcomes of single parents

vary widely not only across countries but also across pathways. For example, divorced single parents are the least likely to be in poverty across countries, but never married single parents are twice as vulnerable compared to divorced single parents in Australia and the US, and similarly vulnerable in Germany, Switzerland, and the UK. Notably, the analysis also reveals varying degrees of sociodemographic heterogeneity across different countries. In the US and Australia, single parents are less often employed, younger, and less educated than partnered parents – and this is especially true for never married and separated single parents. In Germany and the UK differences between single parents and partnered parents, as well as among single parents are less stringent. My results also show that single fathers represent up to 35% of single parents in specific pathways and countries and point to the dangers of only including mothers in the investigations of single parents.

By comparing pre- and post-taxes and transfers poverty, my results confirm previous cross-national studies (Biegert et al., 2022; Misra et al., 2012) that highlight the role of family policy in reducing single-parent poverty. However, my approach goes beyond previous studies in two ways: (1) by exploring a comprehensive set of social policies that shape poverty among single parents, rather than a more common narrow focus on family policy (Gornick et al., 2022; Maldonado & Nieuwenhuis, 2015; Zagel & Van Lancker, 2022), and (2) by investigating how social policy reduces poverty across pathways into single parenthood. These results highlight the uneven distribution of social support across different types of single parents. In countries like the US and Australia, never married and separated single parents are disproportionately excluded from welfare benefits. In contrast, widowed parents receive much more support than any other single parent in the US and Switzerland. In Germany and the UK, the reduction in poverty through social policy is more evenly distributed across pathways.

Third, this paper empirically tests two competing explanations for cross-national differences in single-parent poverty: individual characteristics of single parents and institutional

contexts. I propose a novel accounting framework that decomposes cross-national differences in single parent poverty into three main components: differences in pathways, differences in sociodemographic characteristics of single parents, and differences in social policy. The results align with institutional approaches to poverty among single parents and show that even when considering the diversity of single parenthood, social policy remains the most important factor in explaining cross-national differences in single parent poverty.

The results of this paper confirm that policy matters a lot for reducing poverty among single parent families and offer a series of important policy implications. First, family policy is the main direct way to reduce poverty among single parents, but it is neither the only one nor is it sufficient. Generous income protection policies, like minimum wages and unemployment benefits, are also important tools for reducing the risk of poverty among single parents. Making these programs universal and guaranteed nationwide will increase their reach to never married and separated single parents who are often excluded from social support due to their low education or low-income occupations. Second, cash transfers, like child benefits, must be combined with accessible childcare and generous parental leave to allow parents to maintain employment. Lastly, the importance of social policy to reduce poverty among single parents is evident even when comparing only among countries with similar welfare regimes. For example, in recent years, the UK has significantly expanded support for families, especially single and disadvantaged parents, offering valuable lessons for liberal welfare states with limited social protection, like the US. Major childcare reforms introduced universal free early education for 3- and 4-year-olds, extended subsidies through vouchers and tax credits, and increased public investment in early childhood services (Daly 2010). Parental leave policies have also evolved: paid maternity leave was extended to 39 weeks (with up to 52 weeks total leave), paternity leave and shared parental leave were introduced, and flexible work rights were granted to parents (Daly 2010). Additionally, the long-standing Child Benefit program has increased in value for low-income families (Blow, Walker, and Zhu 2012). This indicates that, even within

the restricted boundaries of a liberal welfare state, addressing the needs of single parents is not beyond reach.

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## Appendix 1. Differences in Policies Across Countries

Table A1. Family and Income Protection Policies Across Countries

| Policy                                    |                                          | Australia         |                    |                    | Switzerland       |                    |                    | Germany           |                    |                    | UK                |                    |                    | US                |                    |                    |
|-------------------------------------------|------------------------------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|-------------------|--------------------|--------------------|
|                                           |                                          | 2015              | 2018               | 2021               | 2015              | 2018               | 2021               | 2015              | 2018               | 2021               | 2015              | 2018               | 2021               | 2015              | 2018               | 2021               |
| Child Support                             | % of single parents who receive payments | 44.4              | 40.0               |                    |                   |                    |                    | 32.1              | 27.5               | 29.9               | 30.6              | 29.5               | 33.2               | 23.9              | 21.1               | 18.8               |
| Early Childhood Education and Care (ECEC) | Coverage (%)                             | 2010              | 2015               | 2020               | 2010              | 2015               | 2020               | 2010              | 2015               | 2020               | 2010              | 2015               | 2020               | 2010              | 2015               | 2020               |
|                                           |                                          | 0-2 years old     | 38                 | 38.6               | 44.9              | 33.5               | 38                 | 37                | 26.8               | 37.2               | 39.2              | 40.1               | 34.4               | 45.1              | 25.8               |                    |
|                                           |                                          | 3-5 years old     | 52.8               | 86.5               | 81.6              | 46.8               | 49.8               | 49.7              | 94.2               | 96                 | 93.7              | 92.3               | 100                | 100               | 65.8               | 66.6               |
|                                           | Public Spending (% of GDP)               | 2000              | 2010               | 2019               | 2000              | 2010               | 2019               | 2000              | 2010               | 2019               | 2000              | 2010               | 2019               | 2000              | 2010               | 2019               |
|                                           |                                          | 0.38              | 0.52               | 0.64               | 0.24              | 0.28               | 0.49               | 0.33              | 0.47               | 0.75               | 0.64              | 0.75               | 0.62               | 0.39              | 0.38               | 0.34               |
|                                           |                                          | 2004              | 2015               | 2022               | 2004              | 2015               | 2022               | 2004              | 2015               | 2022               | 2004              | 2015               | 2022               | 2004              | 2015               | 2022               |
|                                           | Out-of-pocket (% of household incomes)   | 11                | 14                 | 13                 | 29                | 14                 | 18                 | 5                 | 6                  | 1                  | 18                | 16                 | 19                 | 40                | 35                 | 37                 |
| Parental leave                            | Length                                   | 18 (2011)         |                    |                    | 14 (2004)         |                    |                    | 58 (2001)         |                    |                    | 39 (2007)         |                    |                    | 0 (always)        |                    |                    |
|                                           |                                          | 50% median income | 100% median income | 150% median income | 50% median income | 100% median income | 150% median income | 50% median income | 100% median income | 150% median income | 50% median income | 100% median income | 150% median income | 50% median income | 100% median income | 150% median income |

|                       |                                            |              |                 |                  |              |                 |                  |              |                 |                  |              |                 |                  |              |                 |                  |
|-----------------------|--------------------------------------------|--------------|-----------------|------------------|--------------|-----------------|------------------|--------------|-----------------|------------------|--------------|-----------------|------------------|--------------|-----------------|------------------|
|                       | Wage replacement rate (% of previous wage) | 81.5         | 40.7            | 27.2             | 80           | 56.8            | 37.8             | 100          | 100             | 100              | 48.4         | 31.1            | 25.4             |              |                 |                  |
| Child benefits        | Amount (% of wage)                         | 16.8         |                 |                  | 6.2          |                 |                  | 29           |                 |                  | 18.4         |                 |                  | 0.6          |                 |                  |
| Minimum wage          |                                            | 2001         | 2016            | 2020             | 2001         | 2016            | 2020             | 2001         | 2016            | 2020             | 2001         | 2016            | 2020             | 2001         | 2016            | 2020             |
|                       |                                            | 58.14        | 53.82           | 52.60            |              |                 |                  |              | 47.15           | 46.24            | 40.17        | 52.71           | 57.56            | 34.49        | 34.86           | 29.47            |
| Unemployment benefits | Replacement rate (%), 2016                 | Minimum wage | 67% median wage | 100% median wage | Minimum wage | 67% median wage | 100% median wage | Minimum wage | 67% median wage | 100% median wage | Minimum wage | 67% median wage | 100% median wage | Minimum wage | 67% median wage | 100% median wage |
|                       |                                            | 65           | 60              | 50               |              | 82              | 83               | 77           | 73              | 71               | 52           | 46              | 39               | 45           | 33              | 25               |
| Survivor benefits     | % GDP, 2017                                | 0.1          |                 |                  | 1.3          |                 |                  | 1.8          |                 |                  | 0.3          |                 |                  | 0.6          |                 |                  |

Notes: Coverage represents the proportion of children enrolled in formal childcare and pre-school services. The data comes from the OECD Family Database (<https://www.oecd.org/els/family/database.htm>). For Switzerland, data for 2015 from the 0-2 years old age group is not available, so the table presents data from 2014. For Germany, data for 2015 from the 0-2 years old age group is not available, so the table presents data from 2017. For the UK, data for 2020 from the 0-2 years old age group is not available, so the table presents data from 2018. For the US, data from 2015 and 2020 from the 0-2 years old age group is not available, nor are data from the 3-5 years old age group from 2020 (instead, the table presents data from 2018). Public spending is expressed as percentage of annual GDP allocated to early childhood education and care services. Data comes from the OECD Social Expenditure Database (<https://www.oecd.org/social/expenditure.htm>). Out of pocket costs are representative of a single parent with two children, earning the average income in each country, in the specific year; The values represent the percentage of net household income spent on childcare facilities fees in 2004, 2015, and 2022. Data comes from the OECD “Net childcare costs for parents using childcare facilities” (<https://stats.oecd.org/Index.aspx?DataSetCode=NCC>). The length of the parental leave represents the length of paid maternity leave in weeks. The table records the current length of the paid maternity leave as well as the year when it was introduced. The data comes from the OECD Family Database. Wage replacement rates refer to the proportion of previous earnings covered by the maternity leave benefit over the entire period of the leave entitlement. Values refer to wage replacement rates for employees earning 50% of the national average income, 100%, and 150%. Data comes from the OECD Family Database for the year 2014. Estimates for child benefits are based on the amount a single parent family with two children aged 9 and 12 would receive. The values are expressed as a percentage of the median full-time wage. Data comes from the OECD Family Database for the year 2018. Minimum wage is expressed as the percent of the median wage for full-time employees. The data comes from the OECD Earnings and Wages data base (<https://www.oecd.org/en/topics/employment-protection-and-minimum-wages.html>). Data for Switzerland is unavailable, as this country does not have a national minimum wage scheme, but the cantons set their own. Unemployment benefits refer to the replacement rate (%) of disposable household income before job loss for a single parent with two dependent children for the year 2016, for a period of unemployment of 12 months. The table presents the replacement rate for individuals from three different wage groups before unemployment: minimum wage earners, individuals who earned 67% of the median wage, and those who earned 100% of the median wage. The data is from the OECD (<https://www.oecd.org/en/data/indicators/benefits-in-unemployment-share-of-previous-income.html>). Survivor benefits are expressed as % of the GDP in 2017 spent on this type of social support. Data comes from OECD ([https://www.oecd.org/en/publications/oecd-pensions-outlook-2018\\_pens\\_outlook-2018-en.html](https://www.oecd.org/en/publications/oecd-pensions-outlook-2018_pens_outlook-2018-en.html)).

## Appendix 2. Associations between single parenthood and poverty by pathway

Table A2. Increase in time spent in poverty given pathways into single parenthood

|                                  | Australia             |                      | Switzerland          |                      | Germany               |                       | UK                    |                      | US                    |                      |
|----------------------------------|-----------------------|----------------------|----------------------|----------------------|-----------------------|-----------------------|-----------------------|----------------------|-----------------------|----------------------|
| Pre-taxes and transfers          |                       |                      |                      |                      |                       |                       |                       |                      |                       |                      |
| Single                           | 0.488***<br>(0.0135)  |                      | 0.159***<br>(0.0133) |                      | 0.443***<br>(0.00842) |                       | 0.490***<br>(0.0106)  |                      | 0.560***<br>(0.00946) |                      |
| Never Married                    |                       | 0.584***<br>(0.0184) |                      | 0.129***<br>(0.0243) |                       | 0.429***<br>(0.0128)  |                       | 0.529***<br>(0.0144) |                       | 0.616***<br>(0.0119) |
| Widowhood                        |                       | 0.600***<br>(0.0565) |                      | 0.291***<br>(0.0478) |                       | 0.398***<br>(0.0270)  |                       | 0.430***<br>(0.0336) |                       | 0.557***<br>(0.0261) |
| Divorce                          |                       | 0.358***<br>(0.0223) |                      | 0.108***<br>(0.0183) |                       | 0.442***<br>(0.0123)  |                       | 0.421***<br>(0.0183) |                       | 0.329***<br>(0.0162) |
| Separation                       |                       | 0.456***<br>(0.0297) |                      | 0.328***<br>(0.0350) |                       | 0.521***<br>(0.0260)  |                       | 0.539***<br>(0.0291) |                       | 0.727***<br>(0.0197) |
| Gender (ref.=male)               | 0.151***<br>(0.0313)  | 0.133***<br>(0.0311) | -0.0158<br>(0.0324)  | 0.0106<br>(0.0338)   | 0.229***<br>(0.0255)  | 0.225***<br>(0.0259)  | 0.0913***<br>(0.0322) | 0.0730**<br>(0.0325) | 0.336***<br>(0.0228)  | 0.302***<br>(0.0225) |
| Constant                         | 0.241***<br>(0.0454)  | 0.236***<br>(0.0453) | 0.211***<br>(0.0539) | 0.188***<br>(0.0536) | -0.00951<br>(0.0389)  | -0.00726<br>(0.0395)  | 0.293***<br>(0.0625)  | 0.316***<br>(0.0629) | 0.0467<br>(0.0303)    | 0.0628**<br>(0.0299) |
| Post-taxes and transfers poverty |                       |                      |                      |                      |                       |                       |                       |                      |                       |                      |
| Single                           | 0.203***<br>(0.00793) |                      | 0.201***<br>(0.0164) |                      | 0.248***<br>(0.00517) |                       | 0.184***<br>(0.0130)  |                      | 0.456***<br>(0.00807) |                      |
| Never Married                    |                       | 0.257***<br>(0.0110) |                      | 0.164***<br>(0.0304) |                       | 0.231***<br>(0.00781) |                       | 0.180***<br>(0.0191) |                       | 0.512***<br>(0.0102) |
| Widowhood                        |                       | 0.240***<br>(0.0330) |                      | 0.0270<br>(0.0693)   |                       | 0.172***<br>(0.0177)  |                       | 0.105***<br>(0.0397) |                       | 0.334***<br>(0.0236) |
| Divorce                          |                       | 0.149***<br>(0.0132) |                      | 0.184***<br>(0.0228) |                       | 0.251***<br>(0.00755) |                       | 0.216***<br>(0.0212) |                       | 0.323***<br>(0.0137) |
| Separation                       |                       | 0.166***<br>(0.0177) |                      | 0.343***<br>(0.0425) |                       | 0.332***<br>(0.0160)  |                       | 0.158***<br>(0.0378) |                       | 0.551***<br>(0.0167) |
| Constant                         | 0.233***<br>(0.0313)  | 0.230***<br>(0.0311) | 0.144**<br>(0.0672)  | 0.159**<br>(0.0673)  | 0.0679***<br>(0.0251) | 0.0844***<br>(0.0254) | 0.220***<br>(0.0511)  | 0.216***<br>(0.0515) | 0.0884***<br>(0.0291) | 0.111***<br>(0.0288) |
| Observations                     | 4,045                 | 4,045                | 2,335                | 2,335                | 8,825                 | 8,825                 | 3,166                 | 3,166                | 5,956                 | 5,956                |

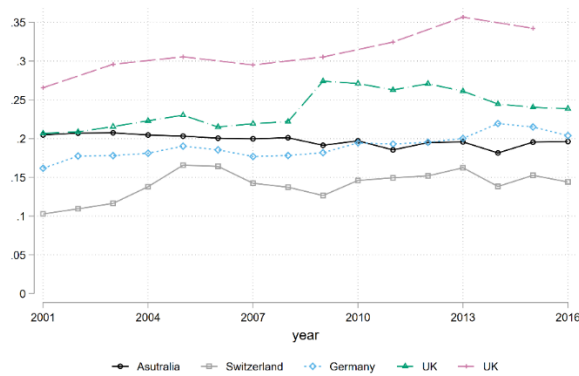
Notes: Author's own calculations based on CNEF data. The regressions are run individually for each country and control for parents' gender, age, education, employment, year of birth fixed-effects and the number of children in the household. Standard errors in parentheses.

\*\*\* p<0.01, \*\* p<0.05, \* p<0.1

### Appendix 3. Replication of main analysis for 2001-2016

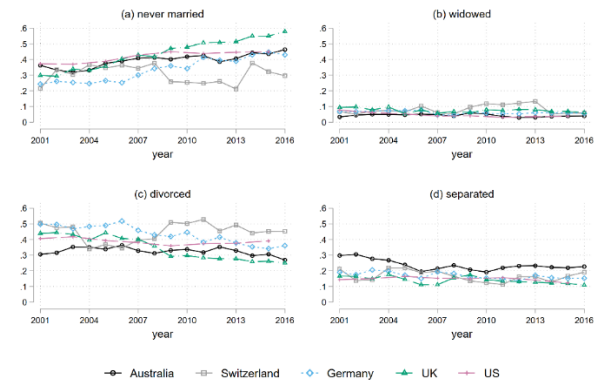
In this appendix, I replicate the main analyses by restricting the period of observation to 2001-2016, which are the years included in all data sources in my sample of countries.

**Figure A3.1.** Prevalence of single parent families



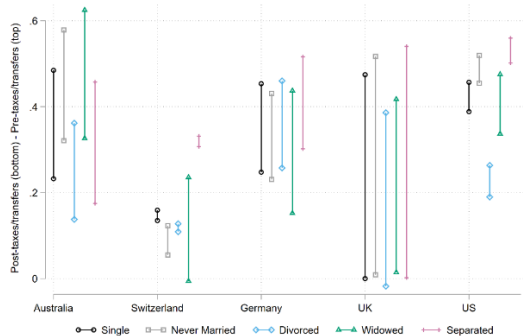
Note: Author's own calculations based on CNEF data. Y-axis represent the percentage of single parents (relative to all parents in the sample) in any given year.

**Figure A3.2.** Prevalences of pathways into single parenthood



Note: Author's own calculations based on CNEF data. Y-axes represent the percentage of single parent (out of all single parents in the sample) in each pathway in any given year.

**Figure A3.3.** Associations between single parenthood and poverty



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty.

**Figure A3.4.** Decomposition of Differences across Countries

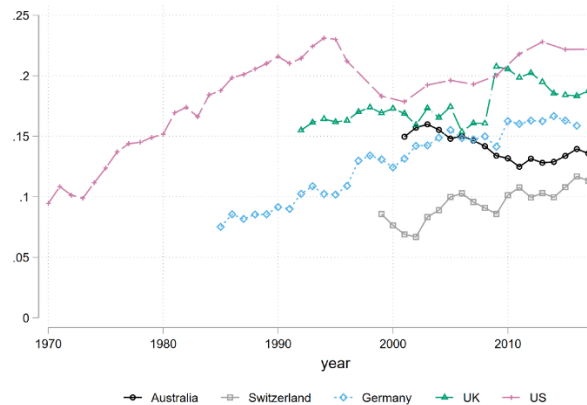


Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

## Appendix 4. Alternative single parent measurement

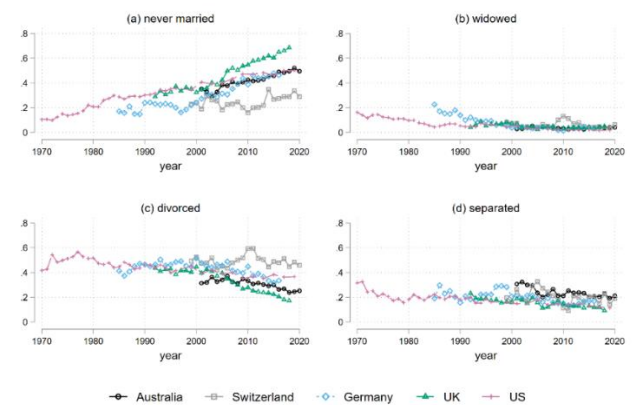
In this appendix, I use an alternative definition to single parenthood that does not only rely on the marital status of the household head. Based on the household composition, a single parent is an adult who lives by themselves in the same household as their underage children. I replicate the main analyses using this definition.

**Figure A4.1.** Prevalence of single parenthood



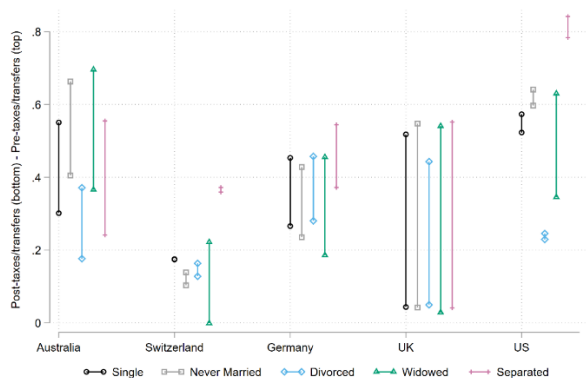
Note: Author's own calculations based on CNEF data. Y-axis represent the percentage of single parents (relative to all parents in the sample) in any given year.

**Figure A4.2.** Prevalence of single parent pathways



Note: Author's own calculations based on CNEF data. Y-axes represent the percentage of single parent (out of all single parents in the sample) in each pathway in any given year.

**Figure A4.3.** Associations between single parenthood and poverty



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and

**Figure A4.4.** Decomposition of country differences



Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

## Appendix 5. Family Structure transitions

In this Appendix, I present the transition from one family structure in year T to another family structure in year T+1. In Table A5.1, the family structures in time T are represented on the column, and those in time T+1 are represented on the rows. The numbers represent the percentage of parents in each year who have transition in the family structure in time T+1 from the family structure in time T. The total on column is close to 100, but not exactly, because of missing information on the transition between the first year an individual appears in the data set and the family structure before that. Transitions from one family structure to the same one indicate stability. All family structures are stable across waves, indicated by the fact that each family structure is predominantly made up of individuals who in the previous wave were part of the same family structure. This is especially true for partnered, never married, and widowed families. But even for divorced and separated families, the percentage of individuals who remain in the same family structure from one year to another is 76% and 61%, respectively. Apart the parents who maintain the same family structure between waves, never married single parents most often transition from partnered families, presumably by a dissolution of cohabitation unions. Transitions into widowhood most often happen from partnered, but sometimes even from separation and divorce. Transitions into divorce also are common from previously married individuals and previously separated individuals. This is probably due to legislation that requires couples to be separated for a certain amount of time before they can divorce (one year in Germany and Australia, two years in Switzerland, and as long as one year in the US depending on the state of residence). Separated single parents transition most often from partnered, and very rarely from other family structures.

Table A5.1. Family Structure Transitions

| Family Structure – Time T | Family Structure – Time T+1 |               |         |          |           |
|---------------------------|-----------------------------|---------------|---------|----------|-----------|
|                           | Partnered                   | Never Married | Widowed | Divorced | Separated |
| Partnered                 | 81.66                       | 4.78          | 6.32    | 5.79     | 23.35     |
| Never Married             | 0.69                        | 70.33         | 0.49    | 0.88     | 1.45      |
| Widowed                   | 0.04                        | 0.15          | 67.3    | 0.31     | 0.27      |
| Divorced                  | 0.57                        | 0.74          | 1.37    | 69.49    | 2.00      |
| Separated                 | 0.41                        | 0.52          | 1.89    | 9.11     | 55.48     |

Notes: Authors' own calculations based on CNEF data. The numbers in the cells represent the percentage of the sample (pooled over the period of observation) who transitions from the family structure in time T (on the rows) to the family structure in time T+1 (on the columns). Separation captures union dissolutions that are not legal (as divorce is). This refers both to married couples who did not divorce, and to dissolved unions, such as cohabitation. In most countries, a separation of one to two years must be proven when applying for a divorce.

Next, Table A5.2. offers additional information about the stability of each family structure, by providing information about the average time (as a percentage of the time while their children are in the household and only if they spent at least one of year in that specific family structure) and the average length of time spent in each family structure (in consecutive years).

Table A5.2. Time spent in each family structure

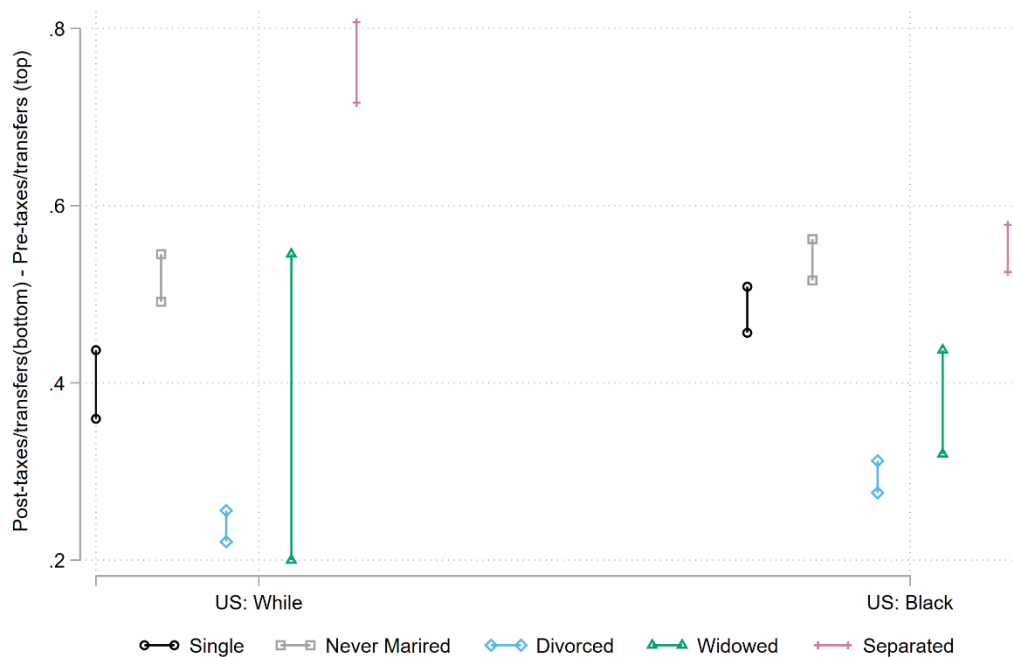
|             |        | Partnered | Never Married | Widowed | Divorced | Separated |
|-------------|--------|-----------|---------------|---------|----------|-----------|
| Overall     |        |           |               |         |          |           |
| Average     | time   | 88.8      | 64.0          | 52.7    | 46.6     | 27.7      |
| (%)         |        |           |               |         |          |           |
| Average     | length | 10.5      | 7.8           | 7.2     | 6.4      | 5.6       |
| (years)     |        |           |               |         |          |           |
| Australia   |        |           |               |         |          |           |
| Average     | time   | 87.9      | 61.7          | 51.7    | 50.3     | 29.3      |
| (%)         |        |           |               |         |          |           |
| Switzerland |        |           |               |         |          |           |
| Average     | time   | 94.7      | 78.8          | 65.3    | 50.1     | 30.5      |
| (%)         |        |           |               |         |          |           |
| Germany     |        |           |               |         |          |           |
| Average     | time   | 93.0      | 68.1          | 66.0    | 55.4     | 25.7      |
| (%)         |        |           |               |         |          |           |
| UK          |        |           |               |         |          |           |
| Average     | time   | 91.0      | 65.6          | 70.9    | 54.2     | 30.9      |
| (%)         |        |           |               |         |          |           |
| US          |        |           |               |         |          |           |
| Average     | time   | 81.5      | 61.3          | 40.4    | 37.5     | 26.3      |
| (%)         |        |           |               |         |          |           |

Notes: Authors' own calculations based on CNEF data.

## Appendix 6. Racial/ethnic differences across the US

In the US, there are large differences in poverty based on racial/ethnic belonging. Black individuals are more vulnerable to poverty than their White peers, even when all individual characteristics are similar. For these reasons, in this appendix I replicate the regression analysis in equations 1-4 to explore heterogeneities between Black and White individuals in the associations to poverty.

Figure A6.1. Coefficient plot for US – Black and White single parents



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty. They are all statistically significant at  $p < 0.01$ . The top dot represents the coefficient for pre-taxes/transfers poverty, and the bottom dot represents the coefficient for post-taxes/transfers poverty. The line is a visual representation for the difference between pre- and post-taxes and transfers poverty measures. The reference for the first line (black) is parents who are not single for any time while under observation, and for the next lines parents who spend no time in each specific single parent family type. The sample is composed of single parents who are observed for at least 5 years before their children turn 18 years old or move from the household. These regressions control for the gender of the parent, and year of their birth fixed-effects, to show unconditional associations between poverty and single parenthood.

## Appendix 7. Different sequence for difference across countries

In this appendix, I replicate the results in Figure 4 by changing the sequence of factors in the regressions analysis (for comparison purposes, the order in the graph has not changed). The order in this appendix is: baseline, sociodemographic characteristics, pathways, taxes/transfers. Results are similar, indicating sequencing does not play a major role in determining the coefficients.

Figure A7. Decomposition results for cross-national differences

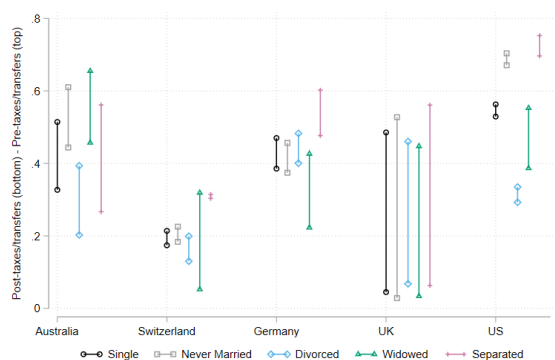


Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

## Appendix 8. Alternative Poverty Thresholds

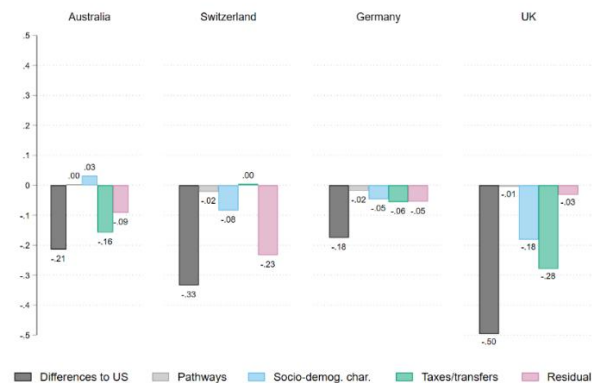
a) Poverty defined as equivalized annual income below 60% of the median annual income

Figure A8.1. Association between single parenthood and 60% poverty



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty. They are all statistically significant at  $p < 0.01$ .

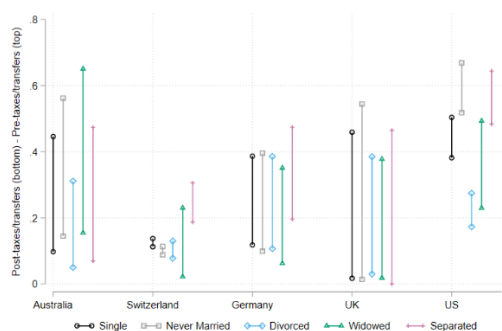
Figure A8.2. Decomposition of Cross-national Differences



Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

b) Poverty defined as equivalized annual income below 40% of the median annual income

Figure A8.3. Association between single parenthood and 40% poverty



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty. They are all statistically significant at  $p < 0.01$ .

Figure A8.4. Decomposition of Cross-national Differences

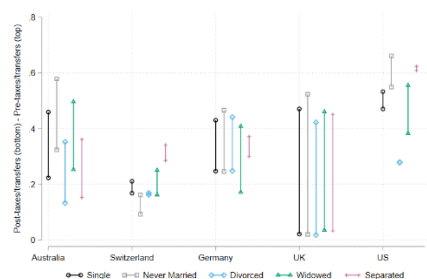


Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

## Appendix 9. Alternative restrictions on the number of years observed to be included in the sample

### a) 3 years

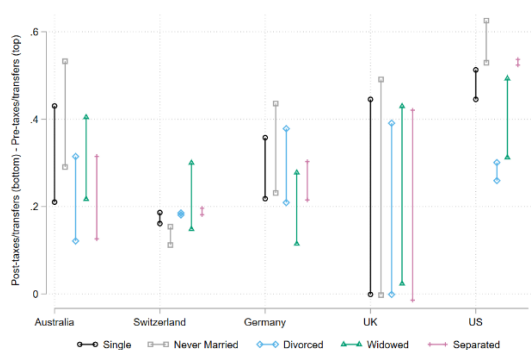
Figure A9.1. Association between single parenthood and poverty



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty. They are all statistically significant at  $p < 0.01$ .

### b) 1 year

Figure A9.3. Association between single parenthood and poverty



Notes: Author's own calculations based on CNEF data. X-axis shows the coefficient resulted from regression analyses following equation 1-4, interpreted as the association between spending one's entire childhood in a single parent family and poverty. They are all statistically significant at  $p < 0.01$ .

Figure A9.2. Decomposition of Cross-national Differences



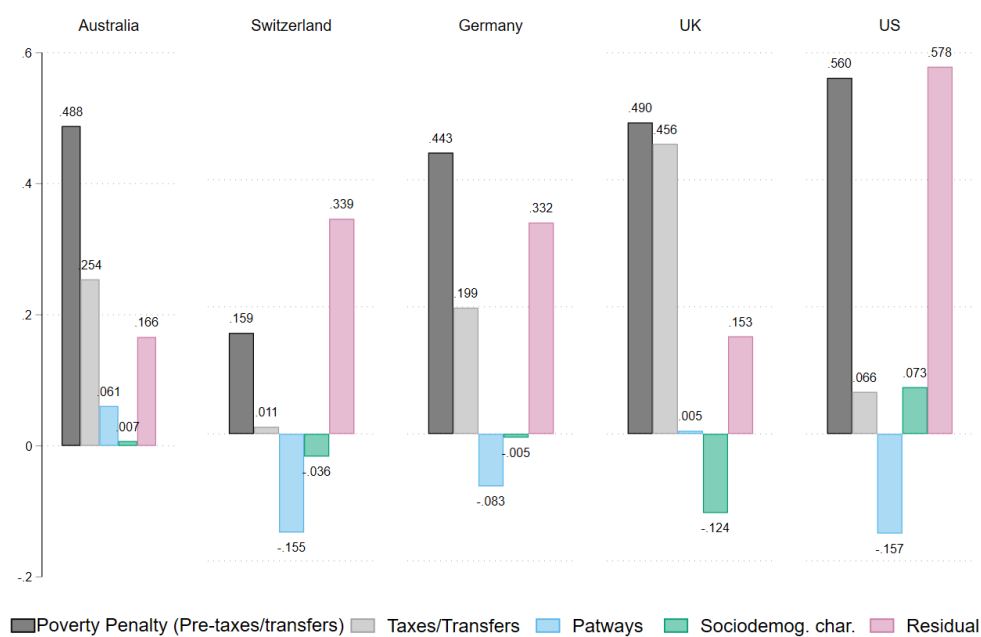
Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

Figure A9.4. Decomposition of Cross-national Differences



Notes: Author's own calculations based on CNEF data. Results are based on equation in Table 3. Difference to US refers to the differences in poverty penalty before taxes/transfers between each country and the US.

## Appendix 10. Decomposition of Poverty Penalty by Country



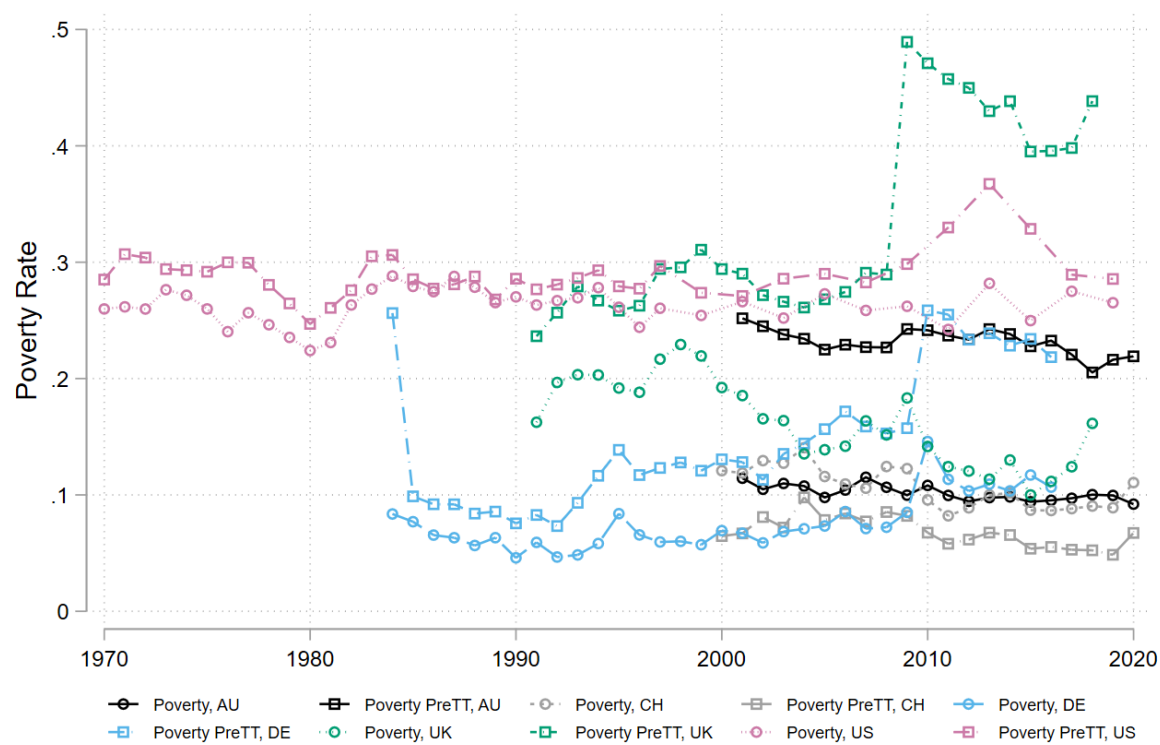
Notes: Author's own calculations based on CNEF data.

## Appendix 11. Alternative Decomposition Results: Australia as reference category



## Appendix 12. Poverty rates across countries

Figure A12. Poverty rates before and after taxes and transfers



Notes: Author's own calculations based on CNEF data.

# Chapter 4. Cumulative Disadvantage and Single-Parent Poverty

Roxana-Diana Burciu & Zachary Parolin

## 4.1. Introduction

Why do single-parent families in the United States (U.S.) experience such high rates of poverty relative to two-parent families? Social scientists have advanced several perspectives on this question, emphasizing either the reduced earnings potential for single-earner families (Kearney 2023; McLanahan and Percheski 2008), the family instability often associated with single parenthood (e.g. Härkönen et al. 2017), or the role of the state (or lack thereof) in supporting the incomes of single parents (e.g. Brady et al. 2017, Maldonado & Nieuwenhuis 2015). Most of these studies, however, examine poverty among single parents only after parenthood occurs, disregarding the poverty trajectory of single individuals (and women, especially) prior to them becoming parents. This study, in contrast, revisits the sources of single-parent poverty through the lens of cumulative disadvantages that stem from individuals' family poverty and county-level poverty rates during childhood.

Specifically, this study has two research objectives. First, we ask: to what extent can single parenthood be understood as a mechanism in a broader cumulative disadvantage process that links childhood poverty to adult poverty? Cumulative disadvantage theory (CD) posits that initial differences in resources between groups can generate persistently widening divergences in resources between those groups across the life-course (Schafer, Ferraro, and Mustillo 2011). In the context of our study, we examine how differences in exposure to poverty in childhood can generate persistent disadvantages in poverty throughout adulthood, impacting estimations of poverty among single-parents. Importantly, single parenthood can be conceptually

understood as a mechanism in that broader CD process if (a) there exists strong selection into single parenthood among adults from disadvantaged backgrounds and (b) single parenthood perpetuates income disadvantages in adulthood. That single parents tend to be less educated is well-documented in the literature (Harkness 2022; Hubgen 2020; McLanahan 2009; Zagel 2014); however, the extent to which these selection effects shape poverty rates of single parents (in general and relative to two-parent families) has rarely been addressed (see Geronimus and Korenman 1992; Hoffman, Foster, and Furstenberg 1993; Musick and Mare 2004 for exceptions).

This leads to our second objective: if single parenthood is part of a CD process, to what extent can CD explain single parents' poverty *rates* (i.e. the proportion of single parents at a given time who are in poverty) and their poverty *penalty* (i.e. the percentage-point difference in poverty rates for single parents versus partnered parents) relative to two-parent families? We introduce a decomposition framework that segments single-parent poverty into three main dimensions: (1) pre-parenthood poverty stemming from CD, (2) poverty driven by income losses after parenthood, and (3) the role of taxes and transfers in reducing poverty. While the former two dimensions are commonly studied in analyses of single-parent poverty rates (Brady, Baker, and Finnigan 2024; Kearney 2023), the first one is largely ignored, in part due to studies' reliance on cross-sectional data. We incorporate this third dimension so that its influence in shaping single-parent poverty rates can be directly compared to the other, more-frequently studied dimensions. More broadly, we advance an understanding of single-parent poverty that moves beyond the evaluation of observable, contemporaneous risks factors such as marital status or employment.

We pursue these research objectives using a restricted-access version of the Panel Study of Income Dynamics (PSID) covering 1970-2019. We analyze the extent to which *childhood poverty exposure* and *county poverty while young* influence selection into single parenthood and poverty in adulthood. We find that greater exposure to poverty during childhood leads to

compounding disadvantages for single parents' incomes, leading to a 'strict CD' form of persistently-widening income gaps over the life-course. Moreover, we document that single parenthood is one mechanism in this CD process.

Moreover, our decomposition analysis finds that pre-parenthood disadvantage explains 80 percent of the single-parent poverty *rate*, and 63 percent of the single-parent poverty *penalty*. In contrast, the income decline of single parents after childbirth explains 44 percent of the single-parent penalty.

Our analysis shows that evaluating single-parent poverty without considering the effect of CD are bound to conflate post-parenthood disadvantages with adverse childhood conditions that generate strong selection into single parenthood. In the case of single parents, the most important source of disadvantages, childhood poverty, pre-dates parenthood and family formation.

## 4.2. Background

### 4.2.1. Poverty and Single Parenthood

Few demographically-defined groups have received as much attention across the social sciences as single parents. Statistically, single mothers are far more likely to be in poverty compared to married mothers (Brady, Finnigan, and Hübgen 2017; Kearney 2023; McLanahan and Percheski 2008; Moullin and Harkness 2021).

Scholars have regularly debated the primary sources of single parents' higher poverty rates. On one hand, the decline of the two-parent family is linked to increases in inequality and poverty among children (McLanahan 2004, 2009), largely due to their reduced earnings potential compared to two-parent families (Kearney 2023; McLanahan and Sandefur 1994) accompanied by the increases in care responsibilities as a result of an absent parent. This lack of resources associated with the absence of a parent has negative consequences for children (McLanahan and Percheski 2008). Thus, one way to decrease poverty is for young women to

postpone fertility until they find a suitable partner (McLanahan 2004), or to restore the norm of two-parent families among the economically disadvantaged (Kearney 2023).

Critics of this family-structure-focused explanation to single-parent poverty argue that the analytical emphasis should instead be on the role of the state (Baker 2015; Lang and Zagorsky 2001; Nieuwenhuis and Maldonado 2018). Generous child benefits, access to childcare, and more generally a generous welfare system can substantially alleviate poverty among single parents (Aerts, Marx, and Parolin 2022; Brady and Burroway 2012; Gornick, Maldonado, and Sheely 2022; Maldonado and Nieuwenhuis 2015).

However, each of these perspectives – whether emphasizing family structure, employment, or the role of the state in reducing the association of family structure with poverty – tends to focus exclusively on post-parenthood outcomes and rarely account for disadvantages that may have pre-dated parenthood. Put differently, studies tend to evaluate group differences in poverty by focusing only on characteristics *after* the single adult has had a child. In doing so, these studies largely overlook the role of pre-parenthood conditions that may generate large selection into single parenthood and, in turn, poverty. To be sure, scholars have acknowledged that single parents tend to have lower levels of education and higher poverty rates even before having children (Harkness 2022; Hubgen 2020; Kearney 2023; McLanahan 2009). Yet, this standard acknowledgement of selection effects still lacks (1) appropriate theorization of how pre-parenthood disadvantages should be understood when considering single-parent poverty and (2) an analytical framework that distinguishes between pre- and post-parenthood outcomes in explaining single-parent poverty.

#### **4.2.2. Cumulative Disadvantage**

Conceptually, we propose that single parenthood – as a family structure defined by the presence of one parent in a household with at least one dependent child under the age of 18 and no other co-residing adults – can be viewed as one mechanism in a cumulative disadvantage (CD) process that ensures that children born into poor families and/or counties remain poor in

adulthood. Cumulative advantage (CA, the inverse of CD) is a process in which conditions or events from earlier points in an individual's life will influence future developments and create divergence between those who experience the condition and those who do not (Schafer et al. 2011; Dannefer 2003). Given that we focus on persisting *disadvantages*, we use the CD labeling, but our subsequent discussion could be equally interpreted through the lens of CA (DiPrete and Eirich 2006).<sup>5</sup>

A CD process can be shaped by social systems that generate inequality and manifest at demographic and developmental levels over the life-course (Ferraro and Shippee 2009). This underlines that inequality and poor life outcomes are structurally generated, sometimes even before the individual is born. In this context, childhood conditions become fundamental to adult well-being, making the family an important channel of transmission of advantages or disadvantages (Schafer et al. 2011).

In their review of CD processes, DiPrete and Eirich (2006) distinguish between two types of commonly studied CD: (1) “strict CD,” in which small initial (dis)advantages between individuals or groups of individuals are magnified with time, making it difficult for those who are behind at some point to catch up; and (2) a status-attainment version of CD, typified by Blau and Duncan (1967). In this less-strict version of CD, a status variable has a persistent effect on the life-course outcomes of an individual. This approach does not imply increasing divergence over time (as does strict CD), but a stable difference between groups based on a status variable that has both direct and indirect effects on life outcomes.<sup>6</sup>

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<sup>5</sup> We acknowledge that there is some space for nuance in this claim (Ferraro and Shippee 2009). *Advantages* are exposure to opportunities and the lack of exposure to risks, while *disadvantages* are exposure to risk and the lack of exposure to opportunities. A child who is born in a disadvantaged family may be different from an advantaged child not only because she does not have the same economic resources, but also because she might be exposed to food and housing insecurity, an experience that the child with wealthier parents will not have.

<sup>6</sup> In a practical example of how this type of CD reinforces group differences, Blau and Duncan (1967) investigated racial disparities in economic outcomes and concluded that Black men have a cumulative disadvantage compared to White men because their racial belonging directly and indirectly affects their life-course outcomes, such as educational opportunities, occupation, and social standing.

In the poverty literature, cumulative disadvantage posits that the likelihood of poverty is a function of past poverty experiences, due to small early life differences that continue to influence individuals throughout their life course. Empirical results have shown that inequalities grow larger over the life course (Vandecasteele, 2011) and that the effect of early disadvantages continue to persist into adulthood (Layte & Whelan, 2002). Growing up in a poor family will have a direct effect on adult poverty and other economic well-being indicators, as well as an indirect effect by shaping education, employment, and family structure. At the same time, being raised in a poor *neighborhood* may reduce cognitive ability (Sharkey & Elwert, 2011), educational attainment (Sharkey & Faber, 2014), as well as adult income (Chetty & Hendren, 2018), all with long-term implication for poverty.

Past research occasionally accounts for negative selection into single parenthood by controlling for a variety of family background characteristics (McLanahan and Sandefur 1994) or the use of sibling comparisons (Geronimus and Korenman 1992; Hoffman et al. 1993). Our CD framework encompasses negative selection but also gives greater emphasis to (1) the possibility of persistent and widening consequences of childhood poverty across an individual's life-course and (2) explicit accounting of the extent to which pre-parenthood disadvantages explain post-parenthood poverty rates (in general and relative to two-parent families).

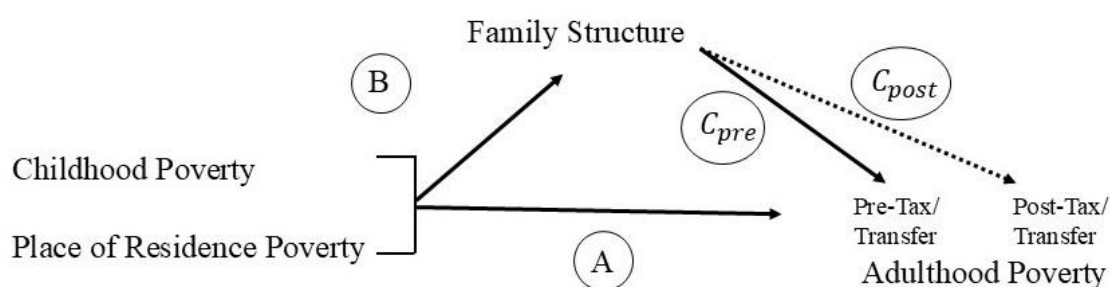
Notably, though, the role of family incomes during childhood and the poverty status of one's neighbors are rarely studied together in explaining later-life outcomes (Brooks-Gunn, Duncan, and Aber, 1997). In fact, much of the CD literature relies on a unidimensional conceptualization of CD: a single indicator of disadvantage is used to explain later-life disparities. This study, instead, proposes a multidimensional perspective on CD with application to the study of single-parent poverty: we study how family poverty during childhood *and* the poverty status of one's neighborhood potentially additively generate a CD process that shapes (1) the likelihood of single parenthood and (2) disparities in adult poverty outcomes.

We ask two research questions. First, to what extent can single parenthood be understood as a mechanism in a broader CD process that links childhood poverty to adult poverty? In broad terms, this first objective focuses on whether childhood disadvantages affect the likelihood of group formation and, in turn, later-life disadvantages. Second, to what extent can CD explain the single-parent poverty *rate* and poverty *penalty* relative to two-parent families? This second question is interested in whether group differences in poverty are primarily attributable to disadvantages that pre-date single parenthood.

#### 4.2.3. Single Parenthood and Cumulative Disadvantage

Figure 4.1 outlines our conceptual framework for viewing single-parent poverty through the lens of CD.

**Figure 4.1.** *Conceptual perspectives on single parenthood and poverty*



**Pathway A** in Figure 4.1 represents the association of childhood circumstances (in this case, childhood poverty and county poverty) with one's likelihood of poverty in adulthood. As noted, we evaluate the potential for childhood and county poverty to have additive, unfavorable effects on adult poverty status. We do not adopt an *a priori* perspective on whether we should expect these childhood conditions to affect adult poverty in a *strict CD* manner (so that more-disadvantaged individuals see steadily increasing likelihood of poverty relative to less-disadvantaged individuals across the life-course) or a Blau-Duncan-type status-attainment model, in which childhood circumstances directly and indirectly affect adult circumstances, though not in a compounding manner; instead, we empirically test for both types of CD. Several

mechanisms may connect childhood economic circumstances and adult poverty, including family investment, parental education, schooling quality, job opportunities, role models, cultural influences, and structural factors (DiPrete and Eirich 2006; Parolin et al. 2024).<sup>7</sup>

**Pathway B** focuses on how CD affects group formation. In our case, this represents the association of childhood and county-level poverty with the likelihood of becoming a single parent. Within our CD framework, single parenthood is essentially a mechanism (or *mediator*) in a broader CD process that connects childhood to adult circumstances. Growing up in poverty can influence single parenthood in several ways. As one example, low childhood incomes are associated with lower likelihood of having access to contraceptives and receiving sex education (Cha and Weitzman 2023). Moreover, women from lower-income backgrounds have lower levels of contraceptive use, less trust in family planning services, and limited access to quality family planning compared to women from higher-income backgrounds (Cha and Weitzman 2023; Guzzo and Hayford 2020). Given that child poverty is linked to lower educational attainment and more union instability in adulthood (Engle and Black 2008), accumulated poverty increases the likelihood of unintended births and single parenthood (Guzzo and Hayford 2020).

Growing up in poor counties can also increase the likelihood of single parenthood. Poor areas often lack role models for stable relationships, making early and out-of-wedlock pregnancy more socially accepted (Brooks-Gunn et al. 1993; Cha and Weitzman 2023). Limited access to stable employment for men makes them less attractive on the marriage market and leads women to choose to raise children alone (Edin and Kefalas 2011). Additionally, fewer institutional resources reduce exposure to medical professionals who provide crucial information on sex and contraception (Cha and Weitzman 2023; Sharkey and Faber 2014).

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<sup>7</sup> Our goal is not to fully explain the intergenerational transmission of poverty and as a result, in this paper, we focus on family structure as one such mechanisms while recognizing the importance of other contributing factors.

Given this evidence, we expect that both childhood and county poverty increase the likelihood of becoming a single parent; if so, one might view single parenthood as an outcome of early disadvantage and potentially a consequence of poverty, rather than (or in addition to) a cause.

**Pathway C** (inclusive of  $C_{pre}$  and  $C_{post}$ ) in Figure 4.1 represents the association of single parenthood with poverty before accounting for government taxes and transfers (*pre*) and after accounting for taxes and transfers (*post*). Most of the research on single-parent poverty focuses solely on this relationship, effectively ignoring Pathways A and B. Scholars studying the income penalty associated with single parenthood tend to focus on  $C_{pre}$ , while scholars emphasizing the role of taxes/transfers tend to focus on  $C_{post} - C_{pre}$ . We expect to find single parenthood is associated with higher likelihood of poverty (before or after taxes/transfers), consistently with nearly all prior literature (e.g. Brady et al., 2017; Kearney, 2023; McLanahan, 2009).

## 4.3. Data & Methods

### 4.3.1. Data

In our analysis we rely on restricted access data from the Panel Study of Income Dynamics (PSID), a longitudinal data set that follows the same U.S. households between 1969 and 2019. The PSID provides data on household- and individual-level variables and has been used for past research on family structure and poverty (Parolin et al. 2022). This allows us to identify transitions into (single) parenthood and union dissolutions, but also individual outcomes, such as education or employment. The restricted-access version allows us to identify the counties in which persons live, allowing us to produce estimates of county-level poverty rates during childhood.<sup>8</sup> Our samples contain all parents who are the household head or the partner of the household head. We use two different samples for our analysis. In studying the cumulative disadvantage process, the analysis is year-specific, while the sample in the

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<sup>8</sup> In practice, we use county-level poverty rates in our baseline analysis, given that Census tract poverty rates are not consistently available back to 1970. In years for which both are available, we find very strong and positive correlations between Census tract and county poverty rates.

decomposition analysis is pooled across all years. We explain in detail how each sample is created in the next sections.

We define single parenthood as an adult individual (regardless of their gender) who lives alone with their minor children, in line with other approaches in the literature (Brady et al. 2017). This definition excludes cohabitation as a form of single parenthood, in line with previous research (Brady and Burroway 2012; Kennedy and Fitch 2012; Moullin and Harkness 2021). Our sample includes both women and men who go on to become single parents. However, because poverty dynamics are different across gender, in Appendix C, we provide results only for single mothers. Results are similar but confirm that single mothers experience higher poverty outcomes during adulthood, and stronger selection into single parenthood compared to the sample that also includes men. This definition includes all pathways into single parenthood (divorced, separated, widowed, and never married) to engage with the literature that acknowledges diverse pathways into single parenthood (Burciu and Parolin 2024); however, we recognize that pathways into single parenthood may shape poverty outcomes in different ways and we provide alternative results in Appendix B.

#### **4.3.2. Is Single Parenthood Part of a Cumulative Disadvantage Process? (Research Objective 1)**

##### *Measures & Sample*

In studying whether single parenthood is part of a CD process, and how childhood and place of residence poverty conditions influence that process, we need the following indicators: exposure to poverty during childhood (defined here as birth through age 17), local poverty rates during childhood, and poverty rate in adulthood (defined here as ages 25 to 45 to capture the post-education but core-working-age lifespan of most individuals in our sample<sup>9</sup>). We measure

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<sup>9</sup> We make this analytical choice because we wish to observe poverty outcomes at a consistent age for all parents in our sample, regardless of their family structure. Moreover, including poverty at ages 18-24 captures the poverty at a transition period, which is not the goal of this paper. We expand the age range to 55 years old in Appendix F.

poverty during childhood and adulthood directly in the PSID, imposing a sample restriction that an individual must be observed at least five (non-consecutive) times throughout childhood in the PSID, and at least five (non-consecutive) times during the age 25-45 period, to provide reliable estimates of poverty.<sup>10</sup> The sample size given the restrictions above amounts to 59,754 observations from 6,167 unique respondents (of which 57% of are women).

We apply post-tax/transfer measures of income (using the Cross-National Equivalent File) and a relative poverty threshold set at 50 percent of national equivalized annual median income.<sup>11</sup> We adjust household incomes with the square root equivalence scale (Smeeding 2016). We also use a continuous measurement of resources that captures the income-to-needs ratio, which allows us to assess changes across the income distribution beyond a binary poverty status indicator<sup>12</sup>. To measure county poverty rates, we import data from the decennial U.S. Census files, which offer county-level poverty rates (using the official poverty measure, OPM) each decade from 1960 through 2010.<sup>13</sup>

### *Method*

We will evaluate whether single parenthood is part of a CD process, following the conceptual framework depicted in Figure 1. First, we will use OLS regression models to test the empirical associations between childhood and county poverty with adult poverty (Pathway A in Figure 1), as formalized in Equation 1.

$$AdultPov_i = \beta_1 ChildPov_i + \beta_2 CountyPov_i + C_i + \epsilon(1)$$

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<sup>10</sup> We provide alternative results that relax these inclusion criteria in Appendix E.

<sup>11</sup> The Supplemental Poverty Measure (SPM) is not generally available in the PSID. The official poverty measure, meanwhile, does not include near-cash and tax-based transfers, and is thus well-regarded as an incomplete measure of poverty. Accordingly, we do not use it this study. Alternative results using an absolute measure of poverty are presented in Appendix I.

<sup>12</sup> Evaluating income-to-needs ratio provides a more comprehensive understanding of how cumulative disadvantages shape the trajectory of income growth and encompasses income disparities above the poverty threshold, unlike our primary outcome variable (binary poverty).

<sup>13</sup> This is preferable to estimating local-level poverty rates directly from the PSID, given that the sample composition of each county is not representative of the county's population.

The model in Equation 1 estimates  $\beta_1$  as the association between childhood poverty and adult poverty, and  $\beta_2$  as the association between county poverty during childhood and adult poverty. The estimation includes a vector of controls  $C_i$  for oldest age observed in the sample, sex, year-fixed effects, and dummies for the total number of adult years observed in the PSID. The sex of the individual is important, as women often experience higher poverty risks compared to men. We control for the oldest age an individual is observed in the sample to ensure our results are not biased by cohort effects, since not all individuals are born in the same year. We control for year-fixed effects to eliminate from our estimation changes in policy or economic cycles. Given that county poverty and childhood poverty are moderately, positively correlated ( $r = 0.30$ ), we also provide results where we include each individually before including them in the same model together.

The second step in testing the CD process is determining if the initial disadvantage associated with childhood circumstances worsens across the life-course (DiPrete & Eirich, 2006). This would indicate a ‘strict’ CD process, rather than a simpler status-attainment version of CD. To do this, we estimate the increase in poverty as individuals get older, as formalized in Equation 2:

$$AdultPov_{ij} = \beta_1 ChildPov_i \times Age_i + \beta_2 CountyPov_i \times Age_i + C_i + \epsilon \quad (2)$$

The outcome variable is now the poverty status in the given year of adulthood. By including an interaction between child and place of residence poverty and a linear age term, we empirically test for a strict-CD process in which initial poverty disadvantages increase across the life-course. If  $\beta_1$  is positive, it suggests that the consequences of exposure to childhood poverty worsen across one’s life-course in adulthood (similarly for  $\beta_2$  as the estimation of the association between county poverty and adult poverty). We apply the same logic to the continuous measure of income relative to needs line. These models identify the net effect of early-life disadvantage on adult poverty. They do not model multiplicative or compounding

processes<sup>14</sup>. Therefore, the results will reflect additive cumulative disadvantage rather than exponential divergence.

We then bring single parenthood into the analysis. First, we replicate Equations (1) and (2) but when using a binary indicator of whether the adult is a single parent in place of the childhood poverty indicators, while the outcome remains adulthood poverty status (or, separately, income relative to the poverty line). These analyses provide a first indication of whether any CD process we observed based on childhood poverty is mirrored when substituting single parenthood as the independent variable. We then connect the link between childhood circumstances and single parenthood (see Pathway B in Figure 1, the association of childhood and county poverty with family structure). To do so, we estimate the likelihood of becoming a single parent based on the time spent in a poor family and a poor county in childhood. The regression follows the model in equation 3:

$$SingPar_i = \beta_1 ChildPov_i + \beta_2 CountyPov_i + C_i + \epsilon \quad (3)$$

In Equation 3, the likelihood of ever becoming single parent,  $SingPar_i$ , is a function of childhood and county poverty, while considering a vector of controls,  $C_i$  that includes year fixed effects, age, gender, and the number of years observed in the PSID during the age 25-45 range.  $\beta_1$  and  $\beta_2$  tell us the increased likelihood of becoming a single parent associated with more of childhood spent in poverty and living in a poor county. Recall that we define single parenthood as an adult who lives alone with their minor children. For this equation, we calculate whether an individual is complying with this definition for at least one wave of data collection.

These initial results will inform us, in short, whether family and place of residence poverty during childhood have additive effects on adult poverty, and whether the disadvantages associated with family and county poverty worsen across the life-course. Moreover, the results

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<sup>14</sup> When we use a logit model to explore the potential multiplicative effects of child poverty and age on adult poverty, we find similar results (not shown): increases in age slightly reduce the influence of child poverty on adult poverty. For clarity, we prefer to present the results of OLS models that facilitate interpretation.

will indicate whether single parenthood may be a mechanism in this cumulative disadvantage process and, specifically, the extent to which family and county poverty in childhood are associated with the likelihood of becoming a single parent.

### **4.3.3. How Does Cumulative Disadvantage Explain Single-Parent Poverty? (Research Objective 2)**

#### *Measures & Sample*

Our decomposition of the single-parent poverty rate builds off our CD sample. In the decomposition analysis, we compare single parents to partnered parents before and after their families have their first child. Our ‘treatment group’ of single parents includes parents who live alone with their children for at least 2 waves of data collection before their oldest child turns 10.<sup>15</sup> The 2-year restriction ensures single parenthood is not just a temporary status or measurement error.<sup>16</sup> While many parents experience single parenthood at some point, it is often its cumulative duration that significantly impacts poverty (Brown 2006; Harcourt and Adler-Baeder 2015; Zagel 2023). Our measure has the added advantage of not relying on cross-sectional snapshots, considering past and future family structures (Cross 2020b).

Parents who are not living alone with their children (partnered parents) form our reference, or control, group. Recall from our single parenthood definition that parents who co-reside with adults other than their partners are not included in our sample.

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<sup>15</sup> We only include the parenthood status of an individual relative to their oldest child to ensure that parents cannot be categorized as single for one child and not single for other children. For observations after 1997, when the PSID started collecting data biannually, this restriction becomes two waves of data collection rather than two years.

<sup>16</sup> Appendix B tests alternative definitions, including those single at birth and those single for at least one, five, or all years before their child turns 10.

As we explain later, we apply event-study-type estimates that require stable treatment and comparison groups. Thus, single parents who meet these conditions form the treatment group, and we will evaluate their outcomes both before and after becoming parents.

*Treatment Timing:* We consider the year of birth of the oldest child in the household as the treatment in our analysis (i.e. when the adults become parents). For the event-time-like analysis, as well as the decomposition, we restrict our sample to individuals who are observed for at least 2 years before and after the treatment to ensure that we can adequately measure pre- and post-treatment outcomes.

We measure pre- and post-tax/transfer poverty using the same concepts as in the CD sample described previously. We separate poverty rates into childhood and adulthood as before, but also distinguish between a *post-treatment poverty rate*, defined as the poverty outcomes of adults in either our treatment or comparison group for the 10 years after having a child; and a *pre-treatment poverty*, as the poverty outcomes of individuals for the 10 years before they have a child.

Given our focus on poverty during longer timespans before and after childbirth, we expand the sample relative to our CD sample. The decomposition sample consists of parents from 10 years before the birth of their first child to 10 years after the first of their first child. We exclude the year 1969 because of the lack of information on a range of key variables.<sup>17</sup> We also exclude adults who are childless throughout the time they are observed in the PSID from our decomposition sample. This sample contains 166,389 observations from a total of 13,131 distinct individuals, a sample larger than the one used for research objective 1, given that the 5-years restriction of observations in childhood and adulthood does not apply here. We apply the cross-sectional PSID sample weights in all analysis to ensure sample representativeness (results are consistent when applying longitudinal weights).

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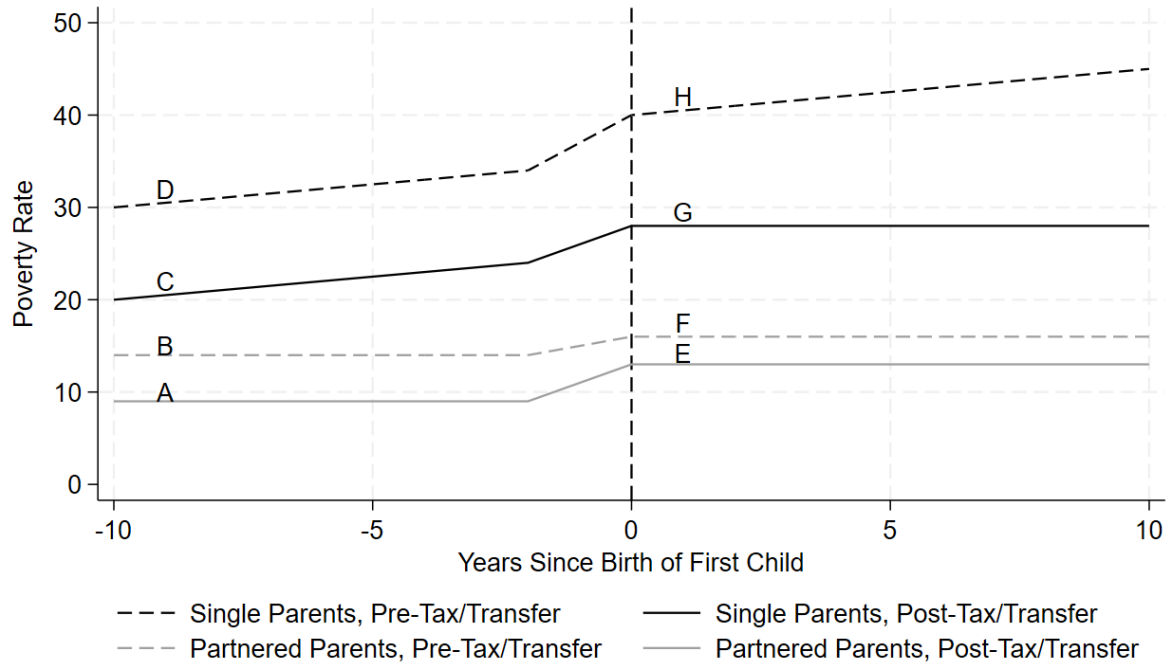
<sup>17</sup>This sample selection is conducted after we construct the relative poverty measure. The full sample is used to define the median income and poverty status.

## Method

Should single parenthood be a mechanism in a cumulative disadvantage process, then attempts to explain poverty among single parents must consider the economic circumstances that pre-date parenthood (such as poverty when the individual was young). The decomposition framework we present below builds off our primary analyses with the intent of dissecting the single-parent poverty rate and the single-parent poverty penalty into *cumulative disadvantages* (Pathways A and B from Figure 1), *child income penalty* (Pathway  $C_{pre}$ ) and the *role of taxes/transfers* (Pathway  $C_{post}$ ). Figure 2 documents the logic of our decomposition framework. Recall that in all the following analysis, the reference category – or the control group – is made up of partnered parents.

We use eight distinct poverty rates to inform our decomposition: *post-tax/transfer* poverty rates *before* childbirth for the partnered-parents group (labeled “A” in Figure 2) and single-parent group (“C”); *pre-tax/transfer* poverty rates *before* childbirth for the partnered-parents (“B”) and single-parent (“D”) groups; *post-tax/transfer* poverty rates *after* childbirth (“E” for partnered-parents and “G” for single-parent group); and *pre-tax/transfer* poverty rates *after* childbirth (“F” for partnered-parents and “H” for single-parents group). Note that line G – post-tax/transfer poverty for single parents after childbirth – is the single parent poverty rate, which we decompose using information from the other seven rates; the difference between G and E is the additional penalty for single parents.

**Figure 4.2.** *Stylized example of decomposition of single-parent poverty rate and single-parent poverty penalty*



Specifically, we use these poverty rates to decompose the post-tax/transfer poverty rate for single parents into five distinct sources: (1) the effect of taxes/transfer in reducing poverty for two-parent families with children (line E minus F); (2) the additional poverty-reduction effect of taxes/transfers for single-parent families beyond that provided for two-parent families (line G minus H, minus the effect for two-parent families described previously); (3) the child income penalty, or increase in pre-tax/transfer poverty rate for having a children for two-parent families (F minus B); (4) an additional child income penalty for having a child for single parents (H – D, minus the penalty described for two-parent families); and (5) pre-treatment poverty for parents who eventually become single (line D). This final source is our proxy of cumulative disadvantage, and we anticipate that higher pre-child poverty rates among individuals who become single parents can largely explain post-child poverty rates among single parents.

Following the notations of our eight measures, one can confirm that:

$$\underbrace{G}_{\text{Single Parent Poverty}} = \underbrace{(E - F)}_{\text{Taxes and Transfers, All Parents}} + \underbrace{(G - H) - (E - F)}_{\text{Extra Taxes and Transfers, Single Parents}} + \underbrace{(F - B)}_{\text{Child Income Penalty, All Parents}} + \underbrace{(H - D) - (F - B)}_{\text{Additional Child Income Penalty, Single Parents}} + \underbrace{D}_{\text{Pre-Parenthood Disadvantage, Single Parents}} \quad (4)$$

Note that these three broad explanations (taxes/transfers, child income penalty, and pre-treatment disadvantage) align with the three pathways in the conceptual framework we put forth in Figure 1. Should our hypothesis that cumulative disadvantage is a dominant driver of single-parent poverty, line D (the pre-treatment poverty rate of individuals who become single parents) will carry a particularly large weight among the five sources. Instead, should being a single be the dominant driver of single-parent poverty, then the ‘additional child income penalty for single parents’ should be the dominant component. Note that the ‘additional child income penalty for single parents’ is the equivalent of most estimations of single-parent poverty from the literature. In Appendix G, we further link the pre-treatment poverty rate (line D) to our direct indicators of cumulative disadvantage, namely exposure to childhood poverty and higher county poverty during childhood.

The calculation of the single-parent poverty *penalty* (the post-treatment poverty rate for single parents compared to two-parent families) simply involves the differences among several components above:

$$\frac{G - E}{\text{Single Parent Penalty}} = \underbrace{\frac{(G - E) - (H - F)}{\text{Tax and Transfer Effect for Single Parents vs. Two Parent}}} + \underbrace{\frac{(H - D) - (F - B)}{\text{Child Income Penalty for Single Parents vs. Two Parent}}} + \frac{(D - B)}{\text{Pre-Parenthood Disadvantage for Single Parents vs. Two Parent}} \quad (5)$$

The difference between the post-tax/transfer poverty rate of single parents minus that of partnered-parents is equal to the poverty-reduction effect of taxes/transfers for single parents relative to partnered parents, plus the differences in the pre-tax/transfer poverty increase after childbirth relative to before childbirth, plus the differences in pre-treatment pre-tax/transfer poverty disadvantages. Here, we are particularly interested in understanding how the pre-treatment poverty differences compare to the increase in poverty due to childbirth, or the role of taxes/transfers, in explaining poverty rates for single parents compared to partnered parents.

In the last step, we use a Fairlie decomposition to link child poverty and county poverty to our estimation for pre-treatment disadvantage. The Fairlie decomposition (Fairlie, 2005) is a method used to decompose differences in binary outcomes (in our case, poverty) between two

groups. The groups in our model refer to the treatment and control group as they are described above. The decomposition separates group differences in those who can be attributed to different characteristics of the groups and those attributable to the different effects of those characteristics.

## 4.4. Findings

### 4.4.1. Descriptive Findings

Table 4.1 provides descriptive information on the relationship between childhood poverty and county poverty with our primary adulthood outcomes (single parenthood, and adult poverty). For this descriptive table, we segment the child and county poverty distributions of our sample into three equal-sized groups, naming these *high*, *medium*, and *low* poverty.

Among the third of our sample who experience low childhood poverty, the average poverty rate in adulthood was 8 percent, while 8 percent of such adults (and 14 percent of women) became single parents. These rates gradually increase when advancing to the medium- and high-child-poverty groups. The medium-child-poverty group spent an average of 15 percent of their childhoods in poverty; the average poverty rate in adulthood among this group was 13 percent, while 12 percent overall (and 20 percent of women) became single parents. In the highest-poverty group (mean of 66 percent childhood poverty exposure), the average adult poverty rate was 28 percent, while 22 percent of the group (and 38 percent of women) became single parents. In short, more time in childhood spent in poverty is associated with higher likelihood of becoming a single parent and higher likelihood of adult poverty.

**Table 4.1.** *Descriptive data on poverty and single parenthood by childhood circumstances*

|                          | Share of<br>Childhood in<br>Poverty<br>(Ages 0-17) | Poverty in<br>Adulthood<br>(Ages 25-45) | % Single<br>Parents (All,<br>Ages 25-45) | % Single<br>Parents<br>(Women Only,<br>Ages 25-45) |
|--------------------------|----------------------------------------------------|-----------------------------------------|------------------------------------------|----------------------------------------------------|
| Low Childhood Poverty    | 0.00                                               | 0.08                                    | 0.08                                     | 0.14                                               |
| Medium Childhood Poverty | 0.15                                               | 0.13                                    | 0.12                                     | 0.20                                               |
| High Childhood Poverty   | 0.66                                               | 0.28                                    | 0.22                                     | 0.38                                               |
| Low County Poverty       | 0.12                                               | 0.11                                    | 0.10                                     | 0.18                                               |
| Medium County Poverty    | 0.15                                               | 0.14                                    | 0.12                                     | 0.21                                               |
| High County Poverty      | 0.27                                               | 0.18                                    | 0.14                                     | 0.26                                               |

Notes: Authors' own calculations based on PSID data. County poverty refers to mean county poverty rate during childhood. The low, medium, and high poverty categories are equal categories created from the continuous measure of poverty – the share of childhood years spent in poverty.

The bottom half of Table 4.1 shows similar gradients when focusing on county poverty during one's childhood. The higher the county poverty exposure during childhood, the higher the percentage of adults who experience poverty and who go on to become single parents.

#### 4.4.2. Single Parenthood and Cumulative Disadvantages (Research Objective 1)

We now turn to our first research objective, investigating how single parenthood fits into a broader CD process that influences adult poverty status. Table 4.2 presents results of how childhood and county poverty are associated with adult poverty, and whether these early exposures to poverty generate a 'strict CD' process of persistently-widening disparities (Pathway A of Figure 4.1). The top half of Table 2 focuses on our binary poverty outcome, while the bottom half employs the continuous income-to-needs ratio.

Column A shows that an individual experiencing all of her childhood in poverty is 41.9 percentage points more likely to be poor in adulthood relative to an individual who experiences no childhood poverty, and has an income-to-needs ratio of 2.06 points lower. Column B finds similar results when substituting child poverty with county poverty: the poverty disadvantage in adulthood amounts to 38.8 percentage points, and a 2.88-point penalty in the income-to-needs ratio. Column C adds both indicators into the same model; the strength of the association for either declines somewhat compared to Columns A and B, as expected given the moderate ( $r = 0.30$ ) correlation between childhood and county poverty. However, both forms of poverty

**Table 4.2.** *Associations between childhood poverty, county poverty, and adult poverty*

|                   | A) Poverty<br>(Ages 25-45) | B) Poverty<br>(Ages 25-45) | C) Poverty<br>(Ages 25-45) | D) Poverty<br>(Ages 25-45) |
|-------------------|----------------------------|----------------------------|----------------------------|----------------------------|
| Child Poverty     | 0.419***<br>(0.008)        |                            | 0.409***<br>(0.014)        | 0.490***<br>(0.014)        |
| County<br>Poverty |                            | 0.388***<br>(0.015)        | 0.071***<br>(0.015)        | 0.051<br>(0.026)           |

|                   |                                            |                                            |                                            |                                            |
|-------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|--------------------------------------------|
| Child<br>Pov*Age  |                                            |                                            |                                            | -0.009***<br>(.001)                        |
| County<br>Pov*Age |                                            |                                            |                                            | 0.003<br>(.003)                            |
|                   | A) Income to<br>Needs Line<br>(Ages 25-45) | B) Income to Needs<br>Line<br>(Ages 25-45) | C) Income to<br>Needs Line<br>(Ages 25-45) | D) Income to Needs<br>Line<br>(Ages 25-45) |
| Child Poverty     | -2.06***<br>(0.24)                         |                                            | -1.83***<br>(0.027)                        | -1.69***<br>(0.043)                        |
| County<br>Poverty |                                            | -2.88***<br>(0.078)                        | -1.46***<br>(0.080)                        | -1.65***<br>(0.118)                        |
| Child<br>Pov*Age  |                                            |                                            |                                            | -0.017***<br>(.005)                        |
| County<br>Pov*Age |                                            |                                            |                                            | 0.002<br>(.015)                            |
| No. of Obs.       | 59,745                                     | 59,745                                     | 59,745                                     | 59,745                                     |

Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. Controls include age, gender, and total number of years observed in sample during adulthood. The age variable is centered at age 25 and the interaction term is linear. Sample includes adults between ages 25 to 45 who meet the sample criteria specified in the Methods section. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

remain positively associated with adult poverty and negatively associated with the adult income-to-needs ratio, suggesting that family- and county-level resources have additive influence on adult poverty. This further validates our inclusion of the place-level poverty indicators to the study of CD.

Column D explicitly tests whether childhood and county poverty while young generate a 'strict CD' process in widening resource differences across the life-course. Strict CD is only evident when examining how childhood poverty exposure affects the evolution of one's income relative to the poverty line across the adult life-course. We do not find significant effects for a strict CD process related to county poverty (at least while conditional on childhood poverty), and we find a reversion to the mean when studying the association between childhood poverty status and trends in the binary adult poverty outcome.<sup>18</sup> Thus, while Columns A through C

<sup>18</sup> The different directions of strict CD effects for poverty and income-to-needs is not necessarily surprising given that different properties of the two indicators. The binary poverty outcome experiences downward convergence across the life-course, but incomes above the poverty line further diverge across the life-course.

unambiguously suggest the existence of CD in the Blau-Duncan status-attainment manner, evidence of the stricter version of CD is present only when studying income disparities beyond the poverty line. In all cases, though, we find that child poverty generates sustained – and sometimes compounding – disadvantages in adulthood poverty and resources.

Table 4.3 now brings single parenthood in the study, focusing on Pathway B of Figure 4.1 (the association of childhood and county poverty with becoming a single parent).

**Table 4.3.** *Associations between childhood poverty, county poverty, and single parenthood*

|                | A) Single<br>Parenthood | B) Single<br>Parenthood | C) Single<br>Parenthood |
|----------------|-------------------------|-------------------------|-------------------------|
| Child Poverty  | 0.223***<br>(0.007)     |                         | 0.230***<br>(0.007)     |
| County Poverty |                         | 0.133***<br>(0.012)     | -0.046***<br>(0.013)    |
| No. of Obs.    | 59,873                  | 59,873                  | 59,873                  |

Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Controls include year fixed effects, age dummies, gender, and number of adulthood years observed in the PSID sample.

Table 4.3 documents that full exposure to childhood poverty increases one's likelihood of becoming a single parent by 22.3 percentage points compared to an individual who experiences no childhood poverty. Moreover, Column B shows that greater county poverty during childhood is also associated with a higher likelihood of single parenthood; however, this effect diminishes and switches signs when included simultaneously with childhood poverty in Column C (which sees an increase in its conditional association to 23 percentage points). Thus, family-resources while young appear to carry the greater influence of the two and demonstrate clear evidence of selection into single parenthood based on childhood poverty status.

**Table 4.4.** *Associations between single parenthood and adult poverty*

|                      | A) Poverty<br>(Ages 25-45) | B) Poverty<br>(Ages 25-45) | C) Income to Poverty<br>Line<br>(Ages 25-45) | D) Income to Poverty<br>Line<br>(Ages 25-45) |
|----------------------|----------------------------|----------------------------|----------------------------------------------|----------------------------------------------|
| Ever a Single Parent | 0.237***<br>(0.007)        | 0.328***<br>(0.014)        | -1.143***<br>(0.022)                         | -1.065***<br>(0.036)                         |

|                        |        |           |        |         |
|------------------------|--------|-----------|--------|---------|
| Ever a Single Parent * |        | -0.105*** |        | -0.009* |
| Age                    |        | (0.001)   |        | (0.004) |
| No. of Obs.            | 59,745 | 59,745    | 59,702 | 59,702  |

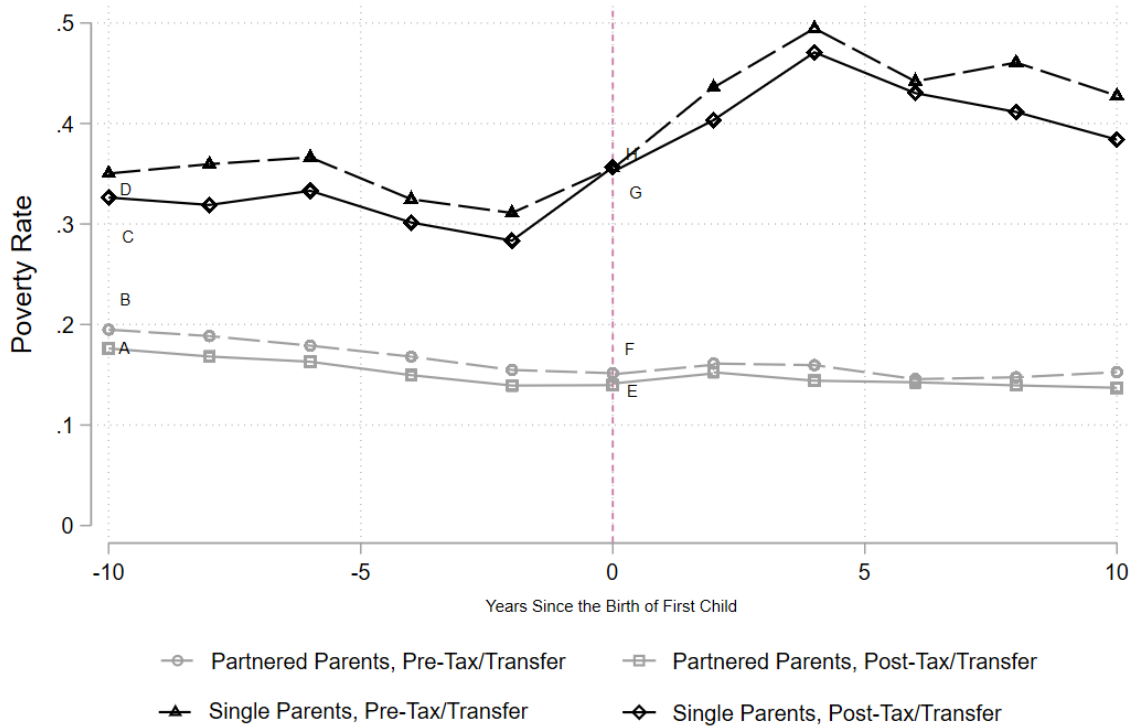
Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. Controls include year fixed effects, age dummies, gender, and number of adulthood years observed in the PSID sample. The continuous age variable is centered at age 25. Sample includes adults between ages 25 to 45 who meet the sample criteria specified in the Methods section. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

In Table 4.4, we present the association of single parenthood with adult poverty, or Pathway C in Figure 1. Confirming most results in the literature, single parenthood is associated with higher poverty rates in adulthood (a 23.7 percentage point increase), and a lower income-to-needs ratio (a 1.14-point disadvantage). Columns B and D study whether single parenthood has CD properties consistent with our childhood and county poverty indicators. As in Table 4.2, focusing on binary poverty status suggests reversion to the mean (see the negative, significant interaction of single parenthood with the linear age trend in Column B), but focusing on the continuous income-to-needs ratio (Column D) suggests widening income gaps across the adult life-course for single parents relative to other individuals. The consistency of these patterns with the CD evidence presented in Table 4.2, and the evidence of strong selection into single parenthood in Table 4.3, support our claim that single parenthood is a mechanism in a broader CD process that connects childhood disadvantages to adult poverty.

#### 4.4.3. Does Cumulative Disadvantage Explain Single-Parent Poverty? (Research Objective 2)

To what extent can CD explain single parents' poverty *rates* and their poverty *penalty* relative to two-parent families? We now turn to this question, which is central to our second research objective.

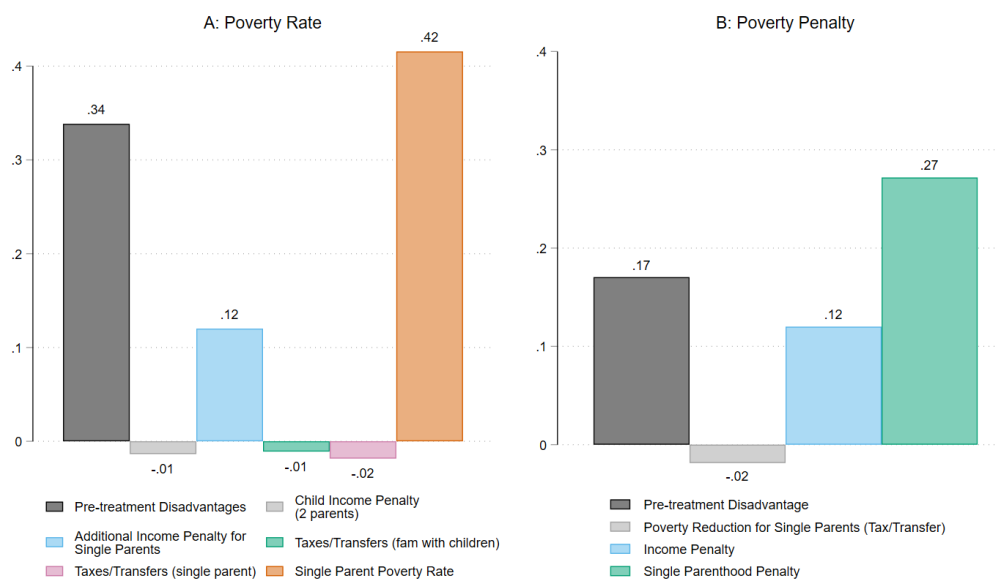
**Figure 4.3.** *Poverty rates among single parents and partnered parents from 10 years prior to the birth of their first child to 10 years after the birth of their first child*



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection after the birth of their first child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

Figure 4.3 presents the pre- and post-childbirth poverty trends for individuals who become single parents versus those who do not. This figure mirrors the stylized example presented in our *Methods* section and is used to inform our subsequent decompositions of the single-parent poverty rate and penalty. The descriptive trends in Figure 4.3 show that single parents have consistently higher poverty rates compared to non-single parents, even during the 10 years before the birth of their first child. On average in the pre-treatment period, the single-parent group has a post-tax/transfer poverty rate that is around 15 percentage points greater than that of the partnered-parents.

**Figure 4.4.** *Decomposition of single-parent poverty rate and poverty penalty*



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection after the birth of their first child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the percentage of individuals who are in poverty based on this definition. The decomposition in Panel A follows Equation 4. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered-parents. The decomposition in Panel B follows Equation 5.

The difference in poverty increases with childbirth: five years after the birth of a first child, for example, the post-tax/transfer poverty rate of single parents is nearly 30 percentage points higher than the partnered parents. Taxes and transfers only slightly improve the gaps between the two groups relative to pre-tax/transfer poverty gaps. These descriptive trends thus suggest that all three previously-discussed perspectives on single-parent poverty are at play: increases in poverty at childbirth, driven by larger income losses; some offsetting effect of taxes and transfers; and, uniquely documented in this study, a strong pre-treatment poverty disadvantaged for the individuals who become single parents.

To better understand the weights of these different contributions, Figure 4.4a presents our results of the decomposition analysis for the single-parent poverty rate.

The average poverty rate of single parents (after childbirth) in our sample is 42 percent, as indicated by the orange bar on the right side of Figure 4.4a. The preceding components add

up to that 42 percent, following Equation 5. Two components stand out: the pre-treatment disadvantages of single parents (explaining 34 points of the overall 42 percent) and the extra increase in pre-tax/transfer poverty rates that single parents experience after childbirth relative to two-parent families (explaining 12 points of the overall 42 percent). The pre-treatment poverty status of single parents clearly stands out: it explains 81 percent (34 p.p. / 42 p.p.) of the overall post-treatment poverty rate of single parents. Taxes and transfers contribute marginally but do not come close to offsetting the pre-treatment disadvantages or post-childbirth income losses.

Figure 4.4b switches focus from the poverty *rate* of single parents to their *penalty* relative to the post-treatment poverty rate for partnered parents (following Equation 6). On average, single parents were 27 percentage points more likely to be poor than partnered parents after each group had its first child (see right-most bar of Figure 4.4b). The most important contributor to this higher poverty rate is the pre-treatment disadvantage of single parents: at 17 percentage points, pre-treatment disadvantages explain 63 percent of the single-parent penalty. In contrast, the larger income losses for single parents after childbirth explain 12 percentage points (or 44 percent of the overall disadvantage).

**Table 4.5.** Fairlie decomposition of pre-childbirth, pre-tax/transfer poverty rates among individuals who become single parents versus individuals who have their first child in a two-parent household

|                                      | A) Pre-Tax/Transfer<br>Poverty Rate<br>(10 Years Before<br>Childbirth to Year Before<br>Childbirth) | B) Pre-Tax/Transfer<br>Poverty Rate<br>(10 Years Before<br>Childbirth to Year Before<br>Childbirth) | C) Pre-Tax/Transfer<br>Poverty Rate<br>(10 Years Before Childbirth<br>to Year Before Childbirth) |
|--------------------------------------|-----------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------------------|--------------------------------------------------------------------------------------------------|
| Poverty Rate for Two-Parent Group    | 0.179                                                                                               | 0.179                                                                                               | 0.179                                                                                            |
| Poverty Rate for Single Parent Group | 0.342                                                                                               | 0.342                                                                                               | 0.342                                                                                            |
| Difference (percentage point)        | -0.163                                                                                              | -0.163                                                                                              | -0.163                                                                                           |
| Share Explained by Observables       | -0.092                                                                                              | -.008                                                                                               | -0.092                                                                                           |
| Child Poverty                        | -0.092***<br>(0.001)                                                                                |                                                                                                     | -0.090***<br>(0.001)                                                                             |
| County Poverty                       |                                                                                                     | -0.006***<br>(0.000)                                                                                | -0.001***<br>(0.000)                                                                             |

| No. of Obs.                                                                                                                                                                                                                                                                                                                                                                                                                                                          | 59,745 | 59,745 | 59,702 |
|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|--------|--------|--------|
| Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. Additional variables include year fixed effects, age dummies, and gender. Any small remaining difference between "Share explained" and the sum of the child poverty and county poverty coefficients is attributable to these additional controls. The sample is limited to our treatment and control groups in the 10 years prior to treatment. *** p<0.01, ** p<0.05, * p<0.1. |        |        |        |

In Table 4.5, we further link the estimation of pre-treatment disadvantages to our main indicators of CD: child poverty and county poverty. Applying a Fairlie decomposition to analyze the sources of pre-childbirth variation in poverty rates among the group that becomes a single parent, versus the group that does not, we find that the childhood and county poverty together explain 52 percent of such variation (8.7 percentage points of the overall 17 percentage point disadvantage). In other words, exposure to poverty during childhood explains the majority of the “pre-treatment disadvantage” component.<sup>19</sup> We can also abstract further: given 63 percent of the single parent poverty penalty is attributable to pre-treatment disadvantages (see Figure 5), and 52 percent of pre-treatment disadvantages for the treatment group are attributable to childhood poverty (computed above), we can deduce that exposure to poverty during childhood alone explains approximately 33 percent ( $0.63 * 0.52$ ) of the single-parent poverty penalty, comparable to the share explained by income penalty that single parents face after childbirth. Thus, regardless of whether one focuses on the full set of pre-treatment disadvantages, or our core CD measures of exposure to childhood and county poverty specifically, our evidence suggests that the poverty status of single parents *before they actually gave birth* explains more of the single-parenthood poverty rate, and the poverty penalty relative to two-parent families, than single parenthood.

#### 4.4.4. Sensitivity Tests & Alternative Results

<sup>19</sup> While fully explaining pre-treatment disadvantages is beyond the analytical scope of this paper, past literature suggests that other characteristics of a child’s family (parental education, occupation, wealth, and more) may affect disadvantage independent of childhood poverty status (McLanahan and Sandefur 1994).

We perform a series of sensitivity analyses to assess the robustness of our results. First, in our main analysis we present results that categorize single parents as such if they have been the only adult in the household with their children for at least two years. In Appendix B, we present results of our decompositions using alternative measures for single parenthood. We use three stricter definitions: one that requires parents to be single the year their oldest child is born, one that requires them to be single for at least 5 years before their child turns 11 years old, and one that requires them to be single for the entire observed period between the birth of their child and the year when the child turn 11 years old. We then relax the conditions and consider single parents as all individuals who are the only adult in a household with a child younger than 11 years old for at least one year. Results are similar, but show that the more stable the single parenthood, the greater the contribution of pre-treatment disadvantages to the poverty rate and penalty. By restricting the sample to individuals who are single parents for the whole period, we also remove the potential diluting effect of parenthood transitions (such as repartnering) on the estimations in the main results.

We have adopted a gender-neutral approach towards our labeling of single parenthood throughout this paper; however, in reality, a majority of single parents in the US and in our sample are women. Single mothers are more vulnerable to poverty than single fathers (Edin and Kissane 2010). For this reason, in Appendix C we replicate our decompositions exclusively on a sample of women. Results are similar but support the fact that single mothers have higher poverty rates and penalties compared to our sample that includes single fathers.

We also consider different ways of measuring poverty. In Appendix D, we replicate our decompositions analysis using a poverty threshold set at 40 percent the yearly median equivalized income, at 60 percent the yearly median equivalized income, and at 50 percent the 2019 median income adjusted for inflation. Results are comparable with each measure. In Appendix I we use an absolute measure of poverty, similar to the OPM.

In Appendix E we replicate our CD analysis by relaxing the restriction that requires individuals to be observed for at least 5 years in childhood and adulthood to be included in our sample. We first present alternative results that have no such restriction, and then alternative results with a restriction of 3 years. Results are similar. We extend our samples to adults of ages 25 to 55, rather than ages 25 to 45, for our CD analyses in Appendix F. Results are similar.

Appendix G displays results segmented by race/ethnicity. We find that the single parent poverty rate among Black individuals is 25 percentage points (pp) higher than for White individuals. Of particular importance is the substantially larger part of Black single parent poverty attributable to cumulative disadvantages: 91% compared to 63% for the entire sample of single parents. While this is a very important result, it goes beyond the purpose of this paper to explore the mechanisms behind these differences.

In Appendix H, we test for selective attrition in our main decomposition sample. Of the 9,461 parents identified at the time their child's birth, 6,612 are observed at time  $t-10$  (10 years before childbirth), and 5,478 at time  $t+10$ . The likelihood of being part of the sample in  $t-10$  is higher for individuals with higher poverty rates, while the likelihood decreases with poverty in  $t+10$ . Attrition is much smaller between  $t-5$  and  $t+5$ . When replicating our core results in an event window from  $t-5$  to  $t+5$ , however, our results are not meaningfully different.

## 4.5. Discussion & Conclusion

Single parenthood has long been identified as key source of poverty and inequality in the U.S. (Kearney 2023; McLanahan 2004). But why are single parents much more likely to be poor relative to partnered parents? Prior studies, generally focusing on post-parenthood poverty outcomes, have addressed the relative roles of single parents' reduced earnings capabilities and the U.S.'s comparatively weak tax and transfer systems. Both perspectives are clearly important, yet they lack attention to what we argue is the largest source of single-parent poverty:

pre-parenthood disadvantages, stemming from childhood circumstances, that generate large selection into single parenthood.

Conceptually, we advance the study of cumulative disadvantage (CD) to understand whether single parenthood can be understood as one mechanism in the transmission of childhood disadvantages to adult disadvantage. Adopting a measure of CD that identifies childhood poverty status based on family resources, as well as county poverty status while young, we find consistent evidence that childhood disadvantages (1) are strongly associated with the likelihood of becoming a single parent and (2) generate persistent, and sometimes widening, gaps in economic resources throughout an adult's life-course. Childhood and county poverty have additive effects on the likelihood of adult poverty.

Empirically, we introduce a decomposition framework that allows researchers to integrate CD directly into single-parent poverty rates and the single-parent poverty penalty (relative to partnered parents). Following the logic of event-study analyses, we dissect post-parenthood poverty rates among single parents into income losses upon becoming a parent, the role of taxes and transfers in reducing poverty, and pre-treatment disadvantages. The first two of these three perspectives are acknowledged regularly in studies of single-parent poverty, partially due to the availability of labor market indicators and income transfer information in oft-used cross-sectional datasets (i.e. the Current Population Survey). The third perspective – pre-treatment CD – is less-frequently acknowledged in debates regarding single-parent poverty and, to our knowledge, has not been incorporated into an accounting framework that can distinguish its relevant weight in explaining single-parent poverty to that of the other two perspectives.

Substantively, we find that pre-treatment disadvantages explain the majority of the single-parent poverty rate and penalty. For example, of the 27-percentage point difference in the post-parenthood poverty rate for single parents versus partnered parents, 17 percentage points (or 63 percent) is attributable to pre-treatment disadvantages. In contrast, the larger

earnings losses for single parents after childbirth explains 12 percentage points (or 44 percent) of the overall disadvantage. Childhood poverty alone explains one-third of the pre-childhood disadvantage that accounts for single parents' poverty, indicating the importance of early life circumstance in creating disadvantage among single parents.

Post-childhood income disparities and taxes/transfers are clearly important, and our findings do not undermine the labor market challenges that single parents face, or the strong connection between non-employment and poverty (Baker 2015; Brady et al. 2024). Moreover, our findings do not undermine the importance of the welfare state for increasing the economic well-being of single parents. Our results do emphasize, though, that the study of group differences in adult poverty rates must move beyond an observation of contemporaneous poverty 'risk factors,' or individual-level characteristics that are solely observed post-parenthood, and instead incorporate disparities in early life circumstances. This point speaks to DiPrete and Eirich's (2006:280) concern that "if group differences grow because of a small initial mean difference between groups that is widened through a group-neutral path-dependent CA process, an analyst who fails to look for this CA process may incorrectly conclude that group membership has a persisting effect on outcomes and that group membership is somehow magnifying group-level differences. This incorrect specification could then lead to the search for a continuing group-level mechanism that in fact does not exist." In the context of single parents' economic resources, ignoring initial differences in family and county poverty has arguably led some researchers to an errant search for a group-level mechanism (i.e. post-parenthood employment rates) to explain the single-parent poverty penalty. Instead, in evaluating single-parent poverty through the lens of CD, this study recognizes that single-parent poverty penalty is the continuation of long-running disadvantages that pre-date parenthood.

Our study has several limitations. First, we do not differentiate between married and cohabitating couples. Although these family structures are similar (Kennedy and Fitch 2012), especially with regard to conditions that might influence the results in this paper, such as the

potential number of earners, cohabitation is much less stable in the US than in other countries and is more common among low-income families (Cooper and Pugh 2020; Kearney 2023). Second, we exclude parents who double-up or live with extended families. Although this is not common among the U.S. population (Bernardi and Mortelmans 2018:41), these single parents have additional resources compared to those who live by themselves, their exclusion is important to consider. Similarly, our results cannot be generalized to other high-income countries because they are specific for the U.S. case, a larger country, more racially heterogeneous, with higher poverty and inequality, and a smaller welfare state compared to other high-income countries (Sawhill 2022). Next, data does not allow for the identification of complex living arrangements, such as shared or joint custody. Separated couples who co-parent and equally support their children might be different compared to single parents who parent by themselves. Due to small sample sizes, we are also unable to accommodate other sources of heterogeneity among single parents, all with important implications for poverty, adoption, same-sex parenthood, and disability. However, our results can then be interpreted as conservative estimations of poverty and the contribution of pre-parenthood disadvantages to the creation of single parent poverty.

Despite these limitations, this paper advances the literature's understanding of single-parent poverty and, more generally, the use of CD and life-course data in the study of group differences in economic well-being.

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## APPENDICES

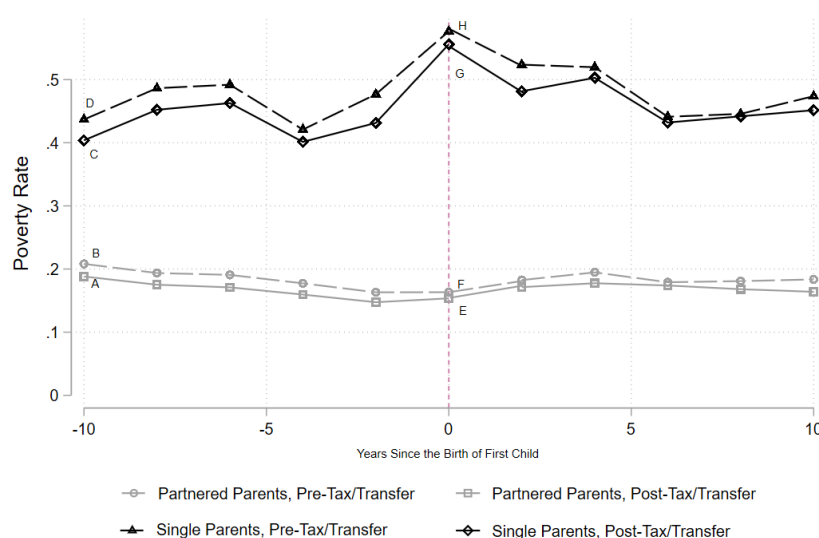
### Appendix A: Descriptive Statistics

| Variable       | Mean | Standard Deviation | Min  | Max  |
|----------------|------|--------------------|------|------|
| Child Poverty  | 0.28 | 0.34               | 0    | 1    |
| County Poverty | 0.18 | 0.12               | 0.03 | 0.61 |
| Age            | 26.6 | 6.2                | 18   | 45   |

Notes: The sample includes all individuals who are observed at least twice in the 10 years period before and after the birth of their oldest child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. County poverty refers to mean county poverty rate during childhood.

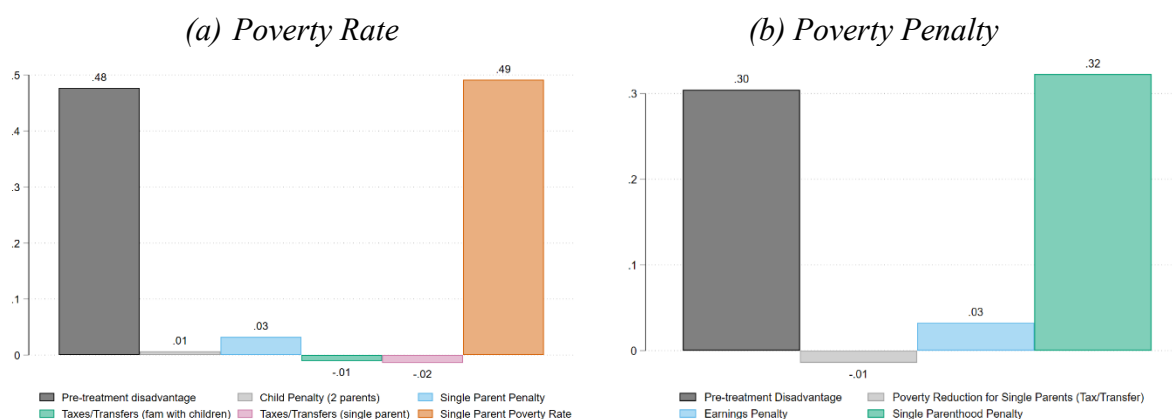
## Appendix B: Alternative definitions of treatment groups

**Figure B1.** Long-term trends in poverty among parents, single at birth



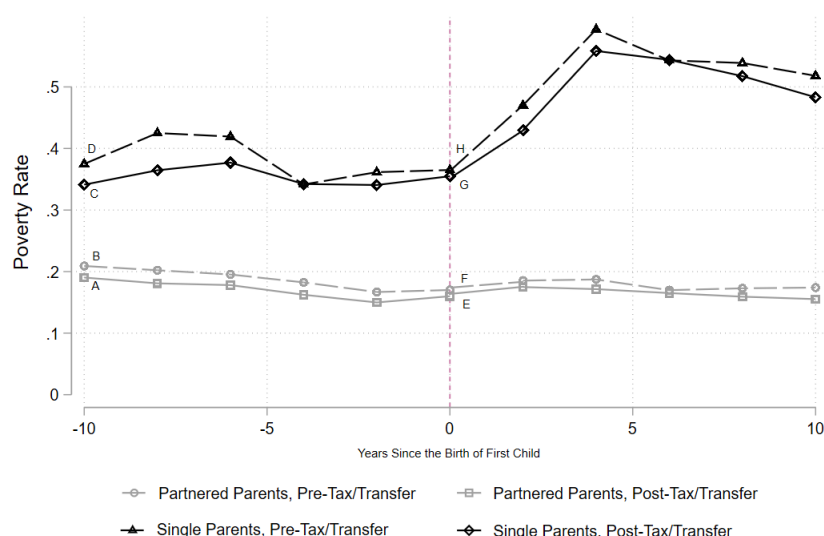
Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition in the year of the birth of their first child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

**Figure B2.** Decomposition of single-parent poverty, single at birth



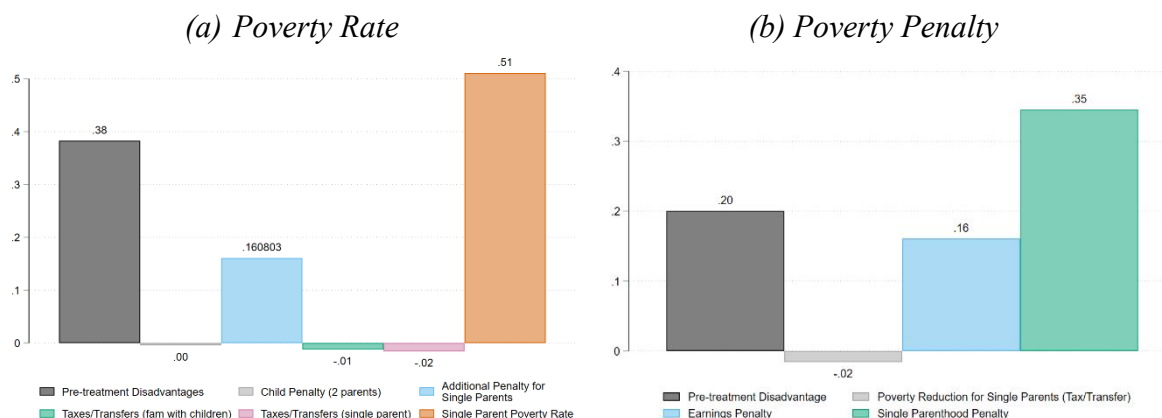
Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition the year of the birth of their first child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

**Figure B3.** Long-term trends in poverty among parents, single for at least 5 years



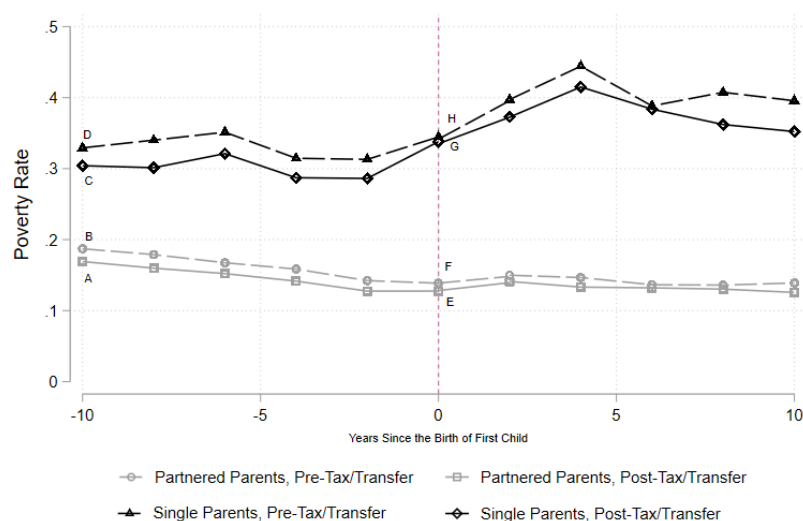
Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 5 years before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

**Figure B4.** Decomposition of single-parent poverty, single for at least 5 years



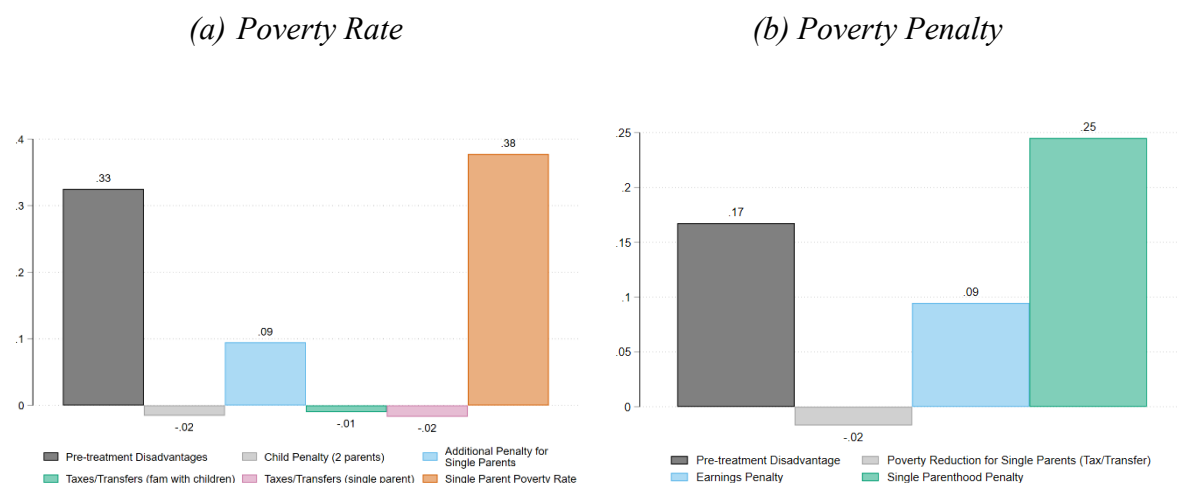
Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 5 years before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

**Figure B5.** Long-term trends in poverty among parents, single for at least one year



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least one year before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

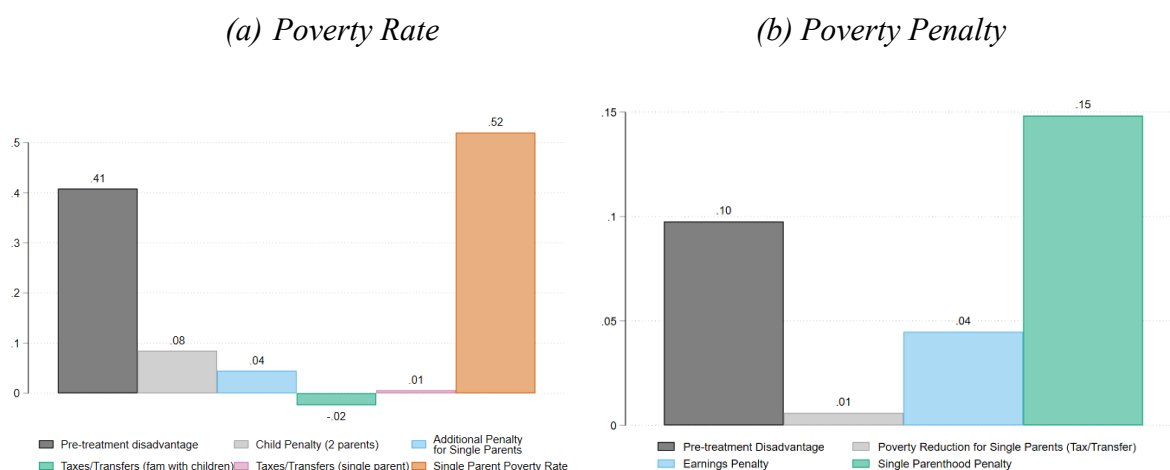
**Figure B6.** Decomposition of single-parent poverty, single for at least one year



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least one year before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

For the sample selection criteria that requires single parents to be single for the entire observed period after the birth of their child (until the child turns 11 years old), the sample sizes are too small to allow for the investigation of long-time trends in single parenthood. For this reason, we only present the results of the decomposition, where single parents are pooled across years (N = 346).

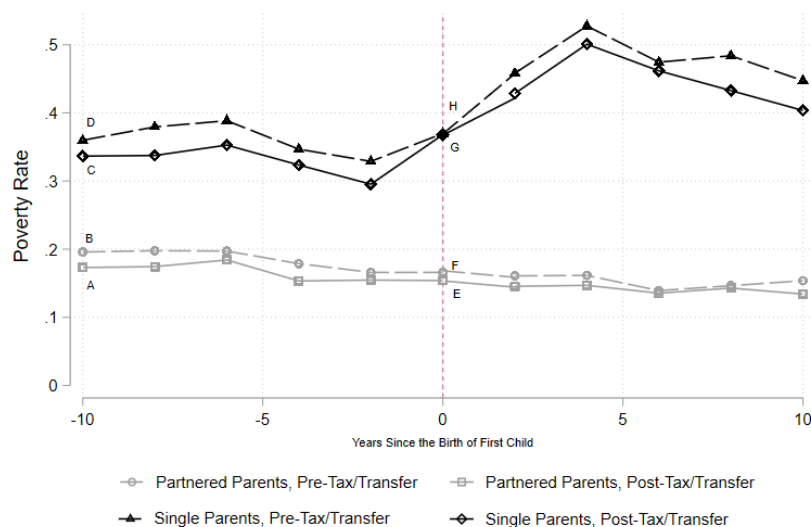
**Figure B7.** Decomposition of single-parent poverty, single for the entire period after childbirth



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for the entire period between childbirth and when their child turns 11 years old (or the entire period they are observed between 0 and 10 years old if they are not observed consistently in each year). Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

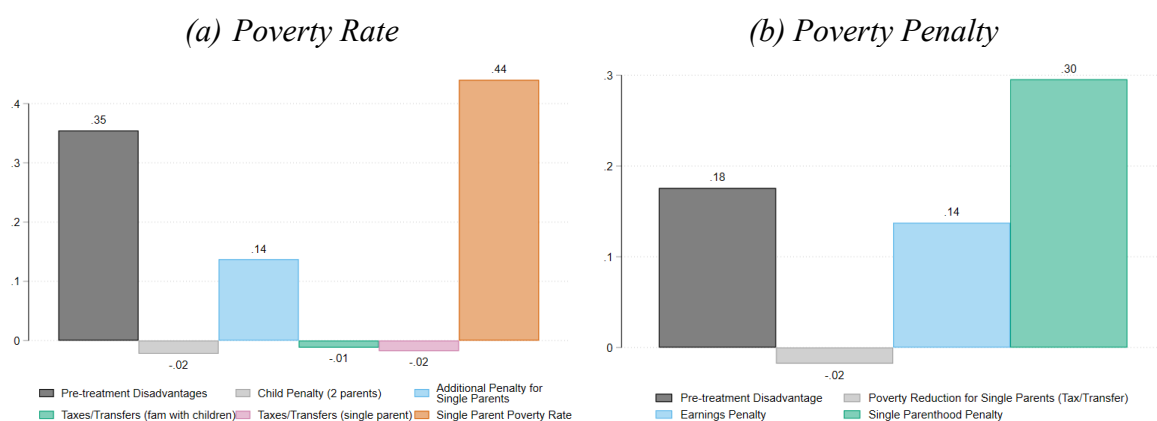
## Appendix C. Main decomposition with a sample of women only

**Figure C1.** Long-term trends in poverty among mothers



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of women who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

**Figure C2.** Decomposition of single-mother poverty

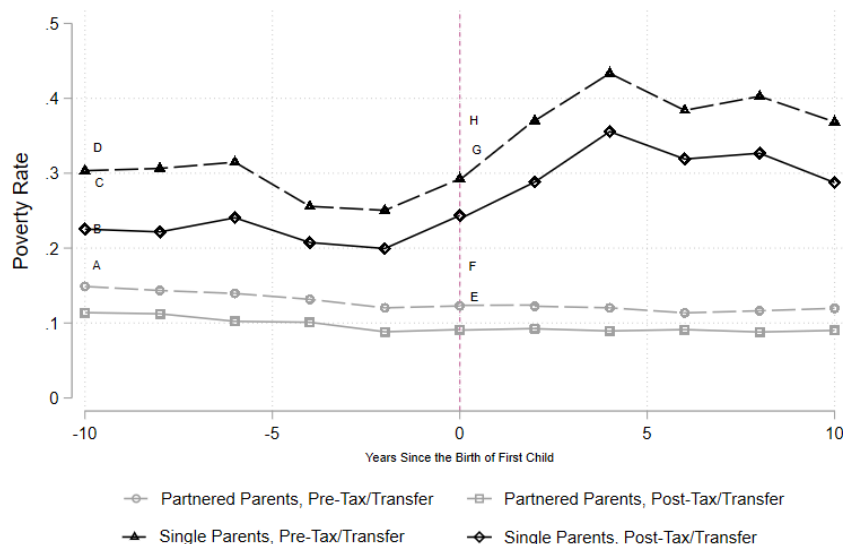


Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of mothers who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

## Appendix D. Alternative Poverty Measures

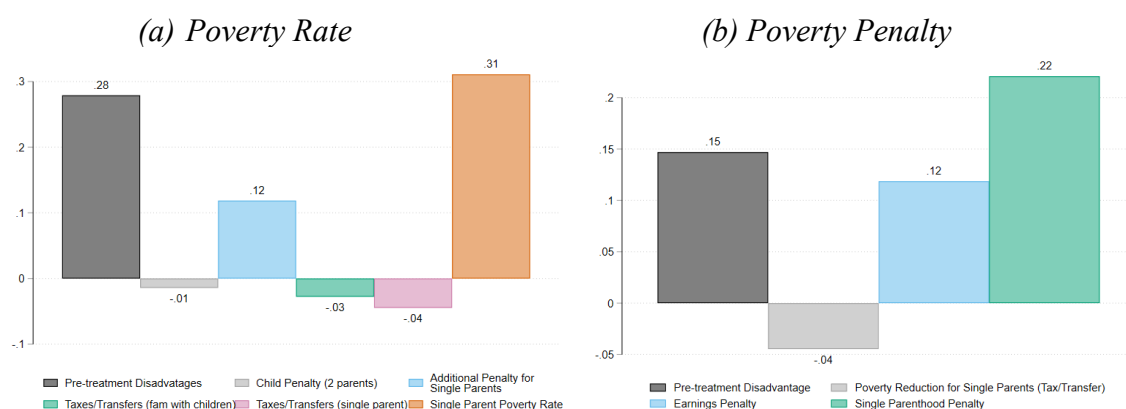
### 1. Poverty below 40% of the annual median income

**Figure D1.** Long-term trends in poverty among parents



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 40% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

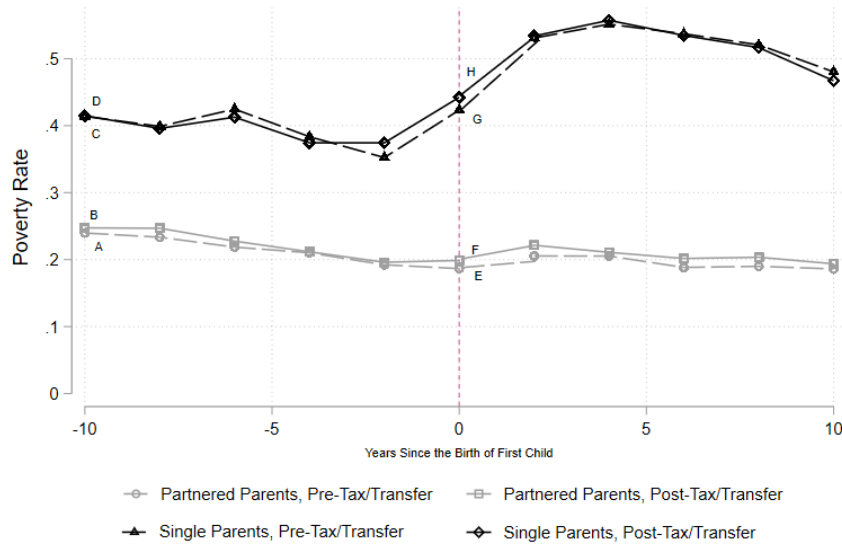
**Figure D2.** Decomposition of single-parent poverty



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 40% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

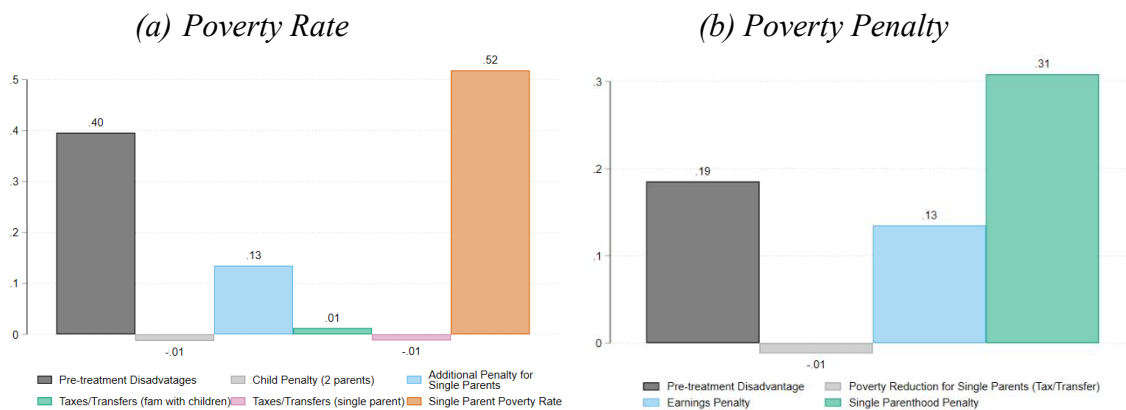
## 2. Poverty below 60% of the annual median income

**Figure D3.** Long-term trends in poverty among parents



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 60% of the median income in that year. We present results for every second year because the PSID started collecting data only every second year since 1997.

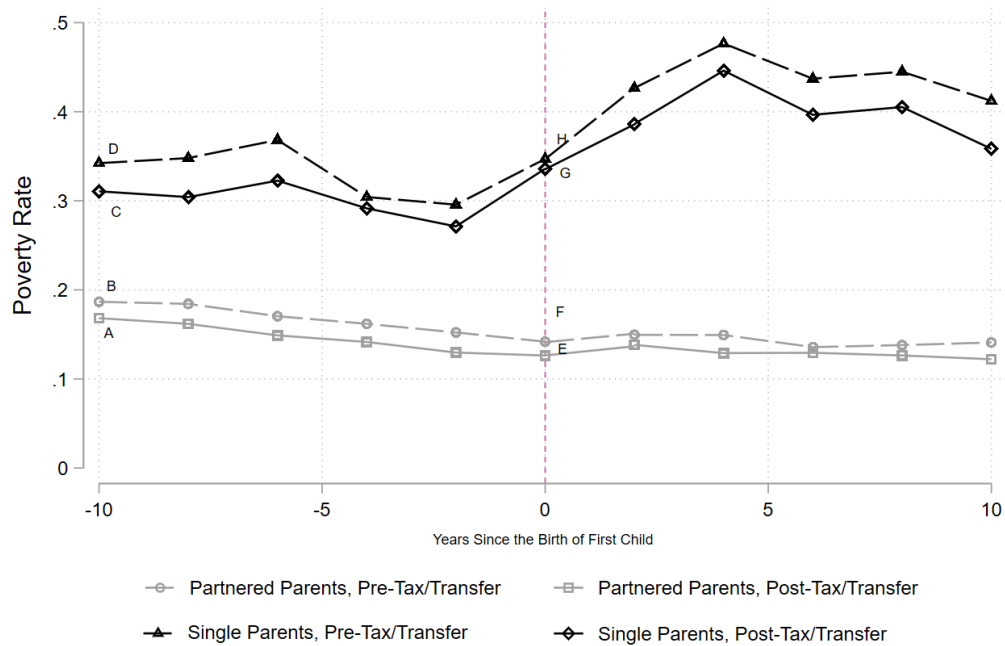
**Figure D4.** Decomposition of single-parent poverty



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 60% of the median income in that year. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

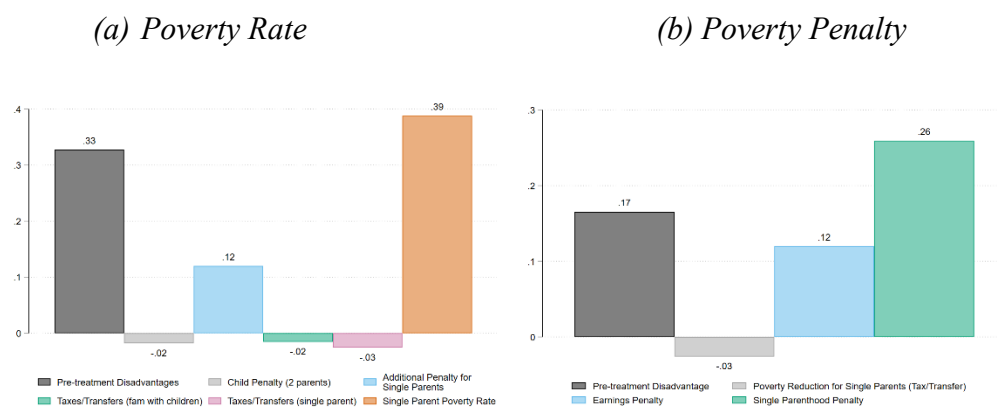
### 3. Poverty at 50% below the 2019 median income, adjusted for inflation

**Figure D5.** Long-term trends in poverty among parents



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in 2019 adjusted for inflation using the CPS inflation adaptation variable *cpi99* (<https://cps.ipums.org/cps/cpi99.shtml>). We present results for every second year because the PSID started collecting data only every second year since 1997.

**Figure D6.** Decomposition of single-parent poverty



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in 2019 adjusted for inflation using the CPS inflation adaptation variable *cpi99* (<https://cps.ipums.org/cps/cpi99.shtml>). The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.

**Appendix E:** Alternative results when varying sample criteria related to number of years observed in childhood and adulthood within PSID

**Table E1:** No restriction on number of years observed during childhood or adulthood to be included in sample: Associations between childhood poverty, place of residence poverty and adult poverty

|                   | A) Poverty<br>(Ages 25-45)                   | B) Poverty<br>(Ages 25-45)                   | C) Poverty<br>(Ages 25-45)                   | E) Poverty<br>(Ages 25-45)                   |
|-------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Child Poverty     | 0.352***<br>(0.006)                          |                                              | 0.336***<br>(0.006)                          | 0.379***<br>(0.011)                          |
| County<br>Poverty |                                              | 0.395***<br>(0.012)                          | 0.115***<br>(0.035)                          | 0.118***<br>(0.022)                          |
| Child<br>Pov*Age  |                                              |                                              |                                              | -0.006***<br>(.001)                          |
| County<br>Pov*Age |                                              |                                              |                                              | 0.000<br>(.002)                              |
|                   | E) Income to<br>Poverty Line<br>(Ages 25-45) | F) Income to<br>Poverty Line<br>(Ages 25-45) | G) Income to<br>Poverty Line<br>(Ages 25-45) | H) Income to<br>Poverty Line<br>(Ages 25-45) |
| Child Poverty     | -1.76***<br>(0.019)                          |                                              | -1.54***<br>(0.021)                          | -1.49***<br>(0.032)                          |
| County<br>Poverty |                                              | -2.84***<br>(0.061)                          | -1.57***<br>(0.063)                          | -1.52***<br>(0.094)                          |
| Child<br>Pov*Age  |                                              |                                              |                                              | -0.007<br>(.004)                             |
| County<br>Pov*Age |                                              |                                              |                                              | -0.005<br>(.012)                             |
| No. of Obs.       | 59,745                                       | 59,745                                       | 59,745                                       | 59,745                                       |

Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. Controls include age, gender, and total number of years observed in sample during adulthood. The age variable is centered at age 25 and the interaction term is linear. Sample includes adults between ages 25 to 45 who meet the sample criteria specified in the Methods section. Instead of requiring 5 years of observed childhood and adulthood years in the PSID, this specification imposes no restrictions. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Table E2:** Restriction of three years observed during childhood or adulthood to be included in sample: Associations between childhood poverty, place of residence poverty and adult poverty

|                   | A) Poverty<br>(Ages 25-45)                   | B) Poverty<br>(Ages 25-45)                   | C) Poverty<br>(Ages 25-45)                   | E) Poverty<br>(Ages 25-45)                   |
|-------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Child Poverty     | 0.389***<br>(0.006)                          |                                              | 0.375***<br>(0.006)                          | 0.431***<br>(0.012)                          |
| County<br>Poverty |                                              | 0.407***<br>(0.0124)                         | 0.105***<br>(0.013)                          | 0.101***<br>(0.023)                          |
| Child<br>Pov*Age  |                                              |                                              |                                              | -0.007***<br>(.001)                          |
| County<br>Pov*Age |                                              |                                              |                                              | 0.000<br>(.002)                              |
|                   | E) Income to<br>Poverty Line<br>(Ages 25-45) | F) Income to<br>Poverty Line<br>(Ages 25-45) | G) Income to<br>Poverty Line<br>(Ages 25-45) | H) Income to<br>Poverty Line<br>(Ages 25-45) |
| Child Poverty     | -1.91***<br>(0.022)                          |                                              | -1.69***<br>(0.024)                          | -1.62***<br>(0.032)                          |
| County<br>Poverty |                                              | -2.92***<br>(0.068)                          | -1.55***<br>(0.070)                          | -1.58***<br>(0.094)                          |
| Child<br>Pov*Age  |                                              |                                              |                                              | -0.008<br>(.004)                             |
| County<br>Pov*Age |                                              |                                              |                                              | -0.002<br>(.012)                             |
| No. of Obs.       | 59,745                                       | 59,745                                       | 59,745                                       | 59,745                                       |

Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. Controls include age, gender, and total number of years observed in sample during adulthood. The age variable is centered at age 25 and the interaction term is linear. Sample includes adults between ages 25 to 45 who meet the sample criteria specified in the Methods section. Instead of requiring 5 years of observed childhood and adulthood years in the PSID, this specification imposes a 3-year restriction. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

**Appendix F:** Alternative results when extending age range of primary sample to 55

**Table F1:** Adult age range extended from age 45 to 55: Associations between childhood poverty, place of residence poverty and adult poverty

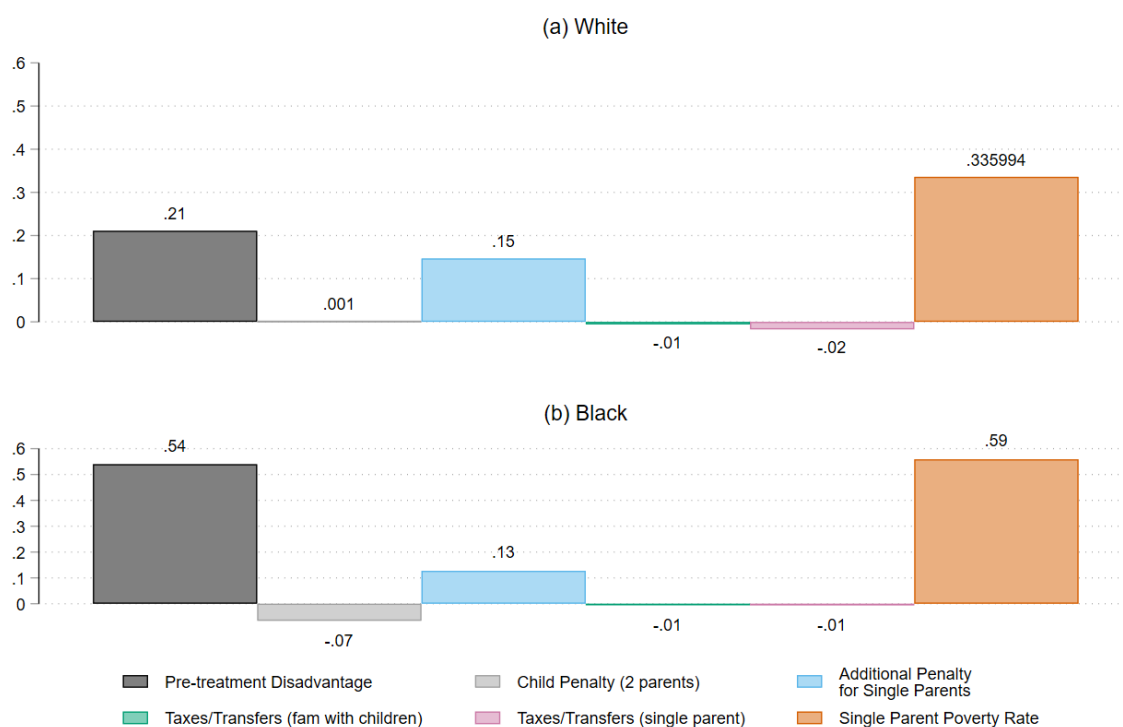
|                   | A) Poverty<br>(Ages 25-55)                   | B) Poverty<br>(Ages 25-55)                   | C) Poverty<br>(Ages 25-55)                   | E) Poverty<br>(Ages 25-55)                   |
|-------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|----------------------------------------------|
| Child Poverty     | 0.405***<br>(0.007)                          |                                              | 0.394***<br>(0.008)                          | 0.478***<br>(0.013)                          |
| County<br>Poverty |                                              | 0.371***<br>(0.014)                          | 0.069***<br>(0.014)                          | 0.052*<br>(0.023)                            |
| Child<br>Pov*Age  |                                              |                                              |                                              | -0.0067**<br>(.001)                          |
| County<br>Pov*Age |                                              |                                              |                                              | 0.002<br>(.002)                              |
|                   | E) Income to<br>Poverty Line<br>(Ages 25-55) | F) Income to<br>Poverty Line<br>(Ages 25-55) | G) Income to<br>Poverty Line<br>(Ages 25-55) | H) Income to<br>Poverty Line<br>(Ages 25-55) |
| Child Poverty     | -2.09***<br>(0.025)                          |                                              | -1.85***<br>(0.028)                          | -1.72***<br>(0.040)                          |
| County<br>Poverty |                                              | -2.89***<br>(0.076)                          | -1.47***<br>(0.079)                          | -1.45***<br>(0.107)                          |
| Child<br>Pov*Age  |                                              |                                              |                                              | -0.012**<br>(.004)                           |
| County<br>Pov*Age |                                              |                                              |                                              | -0.001<br>(.001)                             |
| No. of Obs.       | 68,065                                       | 68,065                                       | 68,065                                       | 68,065                                       |

Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. Controls include age, gender, and total number of years observed in sample during adulthood. The age variable is centered at age 25 and the interaction term is linear. Sample includes adults between ages 25 to 55 who meet the sample criteria specified in the Methods section. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1.

## Appendix G. Decomposition by Race/Ethnicity

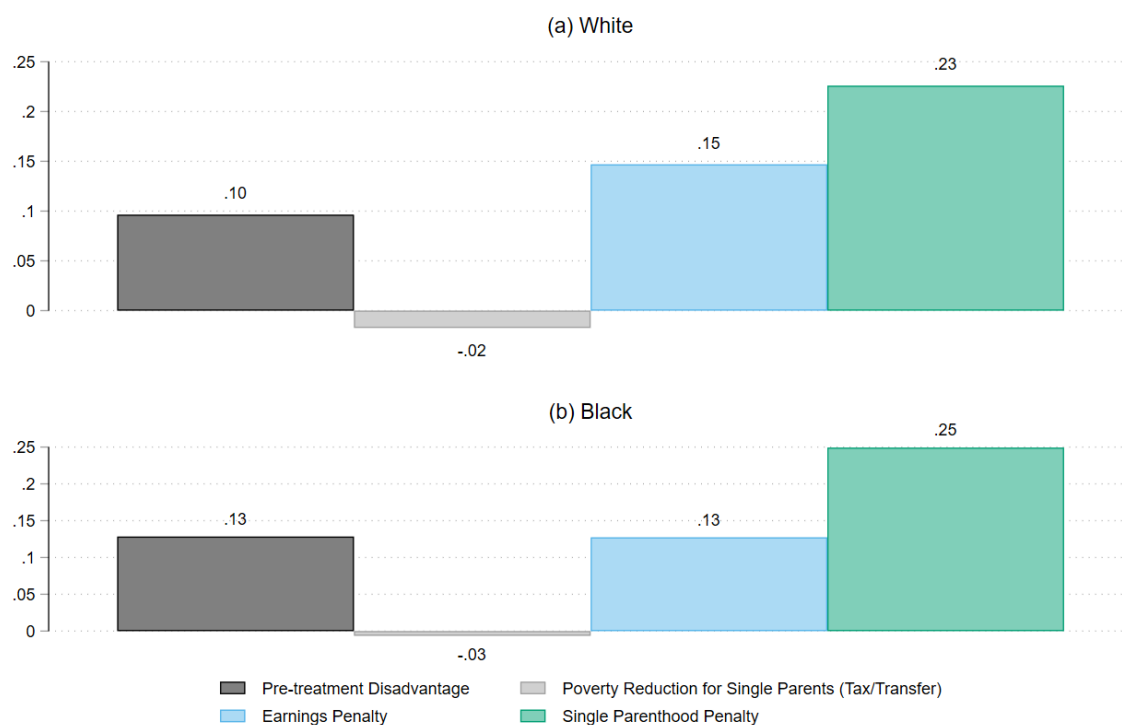
Acknowledging the importance of racial/ethnic belonging in US poverty as well as differences in single parenthood between White and Black families, this appendix replicates the main decomposition analysis by presenting results separated for these two racial groups.

**Figure G1.** Decomposition of Single Parent Poverty Rate by Race/Ethnicity



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection after the birth of their first child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty rate is the percentage of individuals who are in poverty based on this definition. Racial/ethnic belonging is determined based on PSID labels. This decomposition follows Equation 4.

**Figure G2.** Decomposition of Single Parent Poverty Penalty by Race/Ethnicity



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection after the birth of their first child. Poverty is measured as a binary outcome indicating if an individual's equivalized income is below 50% of the median income in that year. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered-parents. Racial/ethnic belonging is determined based on PSID labels. This decomposition follows Equation 5.

## Appendix H. Attrition of decomposition sample

**Table H1.** Sample sizes by time

| Time Since the Birth of the First Child | Sample Size | Attrition Rate Compared to t (%) |
|-----------------------------------------|-------------|----------------------------------|
| t-10                                    | 6612        | 43.1                             |
| t-9                                     | 6969        | 26.3                             |
| t-8                                     | 7020        | 25.8                             |
| t-7                                     | 7467        | 21.1                             |
| t-6                                     | 7480        | 20.9                             |
| t-5                                     | 8087        | 14.5                             |
| t-4                                     | 8331        | 11.9                             |
| t-3                                     | 9187        | 2.9                              |
| t-2                                     | 9654        | 0                                |
| t-1                                     | 9633        | 0                                |
| t (childbirth)                          | 9461        |                                  |
| t+1                                     | 9593        | 0                                |
| t+2                                     | 9127        | 3.5                              |
| t+3                                     | 8834        | 6.6                              |
| t+4                                     | 8250        | 12.8                             |
| t+5                                     | 7985        | 15.6                             |
| t+6                                     | 7370        | 22.1                             |
| t+7                                     | 7096        | 25.0                             |
| t+8                                     | 6494        | 31.4                             |
| t+9                                     | 6261        | 33.8                             |
| t+10                                    | 5478        | 42.1                             |

Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed in the specific wave before and after the birth of their oldest child. Sample sizes are larger in t-2, t-1 and t+1 compared to t because the PSID collects data biannually before 1997: for children born in years when the PSID was not collecting data, observations are only available in the years before and after.

**Table H2.** Likelihood of being in the sample in t-10 and t+10

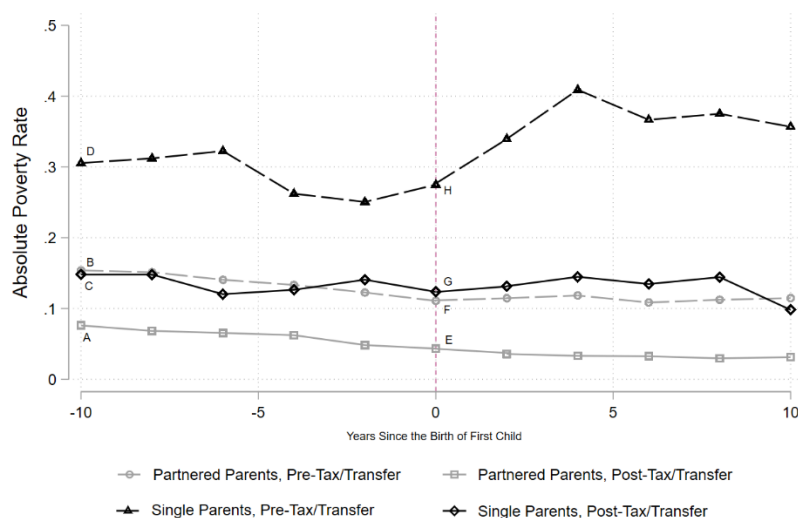
|               | A) Likelihood of being in the sample in t-10 | B) Likelihood of being in the sample in t+10 |
|---------------|----------------------------------------------|----------------------------------------------|
| Child Poverty | 0.0475***<br>(0.00433)                       | -0.0690***<br>(0.00649)                      |
| Constant      | 0.864***<br>(0.00153)                        | 0.597***<br>(0.00229)                        |
| Observations  | 63,801                                       | 63,744                                       |
| R-squared     | 0.058                                        | 0.036                                        |

Notes: Authors' own calculations based on PSID data. Standard errors in parentheses. \*\*\* p<0.01, \*\* p<0.05, \* p<0.1. Controls include year fixed effects.

## Appendix I. Alternative Results Using an Absolute Poverty Measure

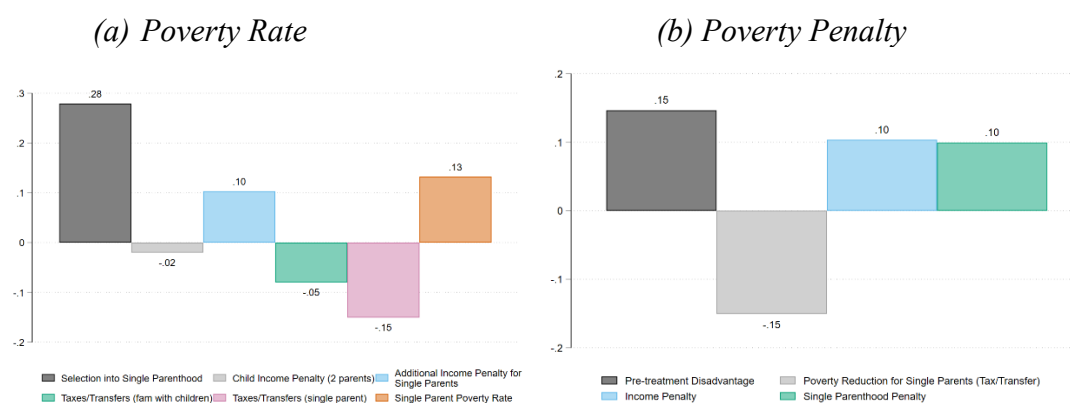
We replicate our main decomposition analysis using the PSID Census Needs Standard variable that sets the threshold for poverty based on sex of household head, family size, the number of persons in the family under age 18, and the age of the householder.

**Figure I1.** Long-term trends in poverty among parents



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. We exclude individuals who are observed for less than 2 waves of data collection before and after the treatment time (i.e., the birth of their oldest child). A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's income is below the poverty threshold. We present results for every second year because the PSID started collecting data only every second year since 1997.

**Figure I2.** Decomposition of single-parent poverty



Notes: Authors' own calculations based on PSID data. The sample includes all individuals who are observed 10 years before and after the birth of their oldest child. A single parent is defined as an adult (over 18 years old) who lives alone with children – the sample of single parents is composed of those who comply with this definition for at least 2 waves of data collection before their first child turns 11 years old. Poverty is measured as a binary outcome indicating if an individual's income is below the poverty threshold. The poverty rate is the average poverty in the single-parent group. The poverty penalty is the difference between the post-tax/transfer poverty rate of single parents minus that of partnered parents. The decomposition in Section (a) follows Equation 4 and the one in Section (b) follows Equation 5.