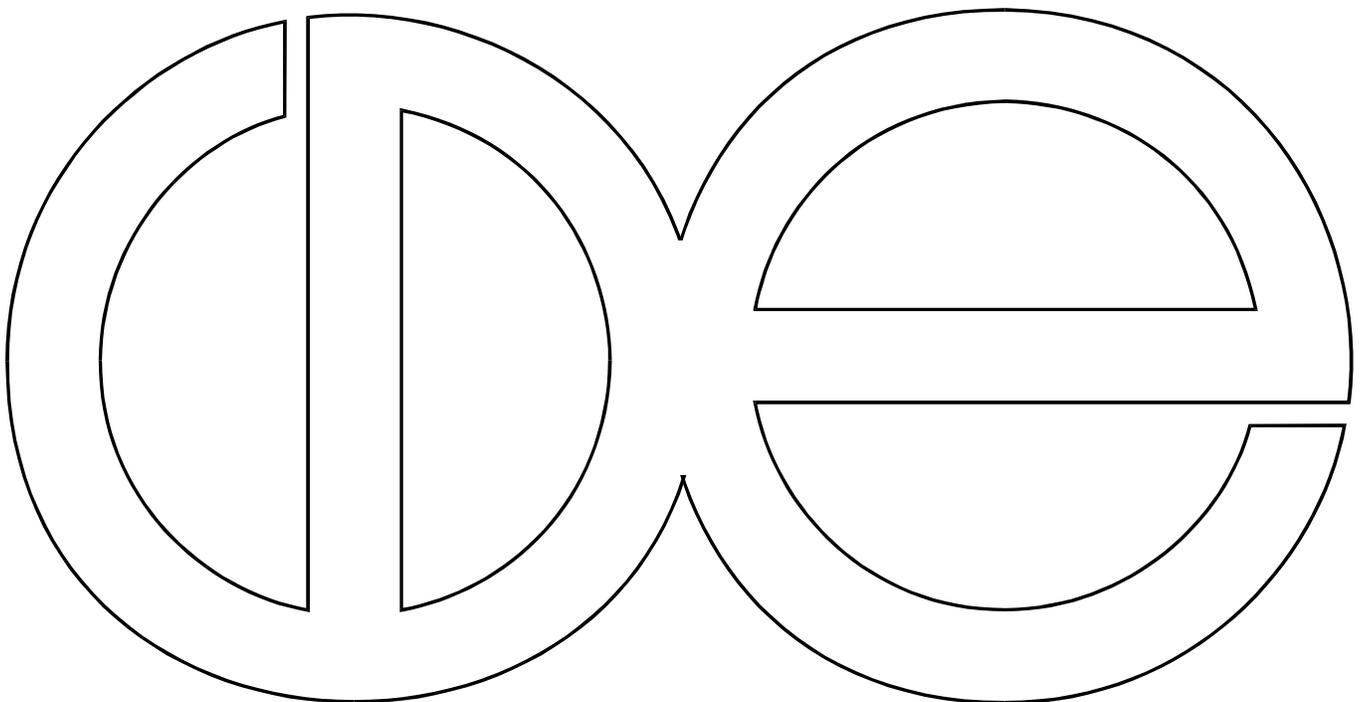


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**Unpartnered Mothers, Living Arrangements, and Poverty:
A Cross-national Comparison**

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CDE Working Paper No. 2014-06



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June 18, 2014

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This research was supported by a grant from the National Science Foundation (Award 115914) and was conducted at the Center for Demography and Ecology and the Center for the Demography of Health and Aging at the University of Wisconsin-Madison, which are supported by Center Grants from the National Institute of Child Health and Human Development (R24 HD047873) and National Institute on Aging (P30 AG17266), respectively. Also Smeeding thanks the Institute for Research on Poverty for their support of this work. The authors and none of their institutions or sponsors are responsible for the opinions and findings in this paper. Please direct correspondence to either James Raymo at: Department of Sociology, University of Wisconsin, 1180 Observatory Dr., Madison, WI 53706. email: jraymo@ssc.wisc.edu, tel: 608-262-2783 or Timothy Smeeding at Institute for Research on Poverty, University of Wisconsin, 1180 Observatory Dr., Madison, WI 53706. email: smeeding@lafollette.wisc.edu, tel: 608-890-1317.

Unpartnered Mothers, Living Arrangements, and Poverty: A Cross-national Comparison

Abstract

We examine relationships between living arrangements and the economic well-being of unpartnered mothers relative to partnered mothers in five countries – Australia, Germany, Korea, the U.K. and the U.S. Using harmonized data from the Cross-National Equivalent File (CNEF), we demonstrate marked cross-national differences in the living arrangements of ‘unpartnered’ mothers, with lone-mother households relatively common in Germany and coresidence with parents common in the U.S. and Korea. There are also clear differences in the economic benefits that unpartnered mothers derive from coresidence with parents and others, which are most pronounced in Australia, but relatively limited in the U.S. These findings have implications for understanding the ways in which unpartnered parenthood and living arrangements contribute to differences in levels of poverty and inequality across countries and in comparison to the United States.

It is important to recognize that many single mothers are not ‘lone’ mothers. In the U.S. and most European countries, a significant proportion of unmarried mothers are cohabiting with partners or others (Heuveline, Timberlake, and Furstenberg 2003). Because cohabiting unions are stable, marriage-like relationships in many countries (Kiernan 2004), it often makes sense to define single mothers as unpartnered mothers rather than unmarried mothers. Further, even among unpartnered mothers, not all are lone mothers. In some countries, including the U.S., many unpartnered mothers coreside with parents or other family members (Kalil, DeLeire, Jayakody, and Chin 2001; Raymo, Park, Iwasawa, and Zhou 2014).

This complexity of living arrangements has important implications for comparative research on the economic well-being of ‘single’ mothers given that cross-national data on the poverty rates of single mothers are generally based on lone-mother households only (OECD 2011). Unfortunately, most research to date has paid little attention to variation in the household structure of single-mother families. A small number of studies have shown that coresidence with parents is relatively common in the U.S. and Japan, especially among the most disadvantaged (Magnuson and Smeeding 2005), and that official poverty figures overstate the economic deprivation of single mothers by not including those who are coresiding with parents (Shirahase and Raymo 2014).¹

Given the central policy relevance of understanding the causes and consequences of economic deprivation among single-parent families (and the role of family support) in the U.S., cross-national comparative research is a valuable source of insight (Cherlin 2009; Rainwater and

¹ We use the more general term “single mothers” when discussing previous research and the more specific term “unpartnered mothers” when describing our own research questions and analytical strategies.

Smeeding 2003). In this paper, we use harmonized data from the U.S. and four other wealthy countries to investigate relationships between unpartnered mothers' family structure and poverty across very different national contexts. Findings will have implications for understanding the ways in which living arrangements contribute to differences in levels of poverty across countries and in comparison to the United States.

Our approach builds upon a theoretical emphasis on family 'income packages' which recognizes that a family's economic well-being is shaped by its own market labor income or net asset income, assistance from coresident family members, and state support in terms of net income transfers (Rainwater and Smeeding 2003). In settings like the U.S., where state income support is relatively limited, cohabitation with unmarried partners is positively associated with economic well-being, and therefore with poverty reduction. Further, it appears that coresidence with parents, siblings, or friends is also associated with increased employment and economic self-sufficiency among single mothers. However, no research has examined how living arrangements are related to poverty (and other measures of economic well-being) across countries characterized by very different economic, social, and policy contexts. Our goal in this paper is to begin filling this important gap in our understanding of relationships between single parenthood and economic deprivation. To this end, we focus on differences between partnered mothers, lone mothers, and unpartnered mothers living with others to address the following four research questions.

1: How do the living arrangements of unpartnered mothers (lone parent vs. coresiding with parents/relatives) differ across countries?

2: How does the prevalence of poverty among unpartnered mothers depend on living arrangements? How do these relationships differ across countries? To what extent are differences

across countries in poverty among unpartnered mothers explained by differences in living arrangements?

3: To what extent do lower levels of poverty among unpartnered mothers coresiding with parents/relatives reflect additional income? To what extent do they reflect economies of scale? To what extent do these relationships differ across countries?

4: To what extent do cross-national differences in poverty among mothers reflect differences in the prevalence of unpartnered mothers and their living arrangements?

Background

Comparative research on the poverty of single mothers

Cross-national variation in levels of poverty among single mothers is substantial. For example, recent OECD cross-national comparative data indicate that the proportion of single mothers in poverty ranges from a low of 10% in Sweden to a high of 54% in Japan (OECD 2011). Efforts to explain cross-national differences have focused primarily on variation in single mothers' employment and market earnings and on variation in levels of public income support and work support (Misra, Moller, and Budig 2007; Brady and Burroway, 2010; Misra, Moller, Strader, and Wemlinger 2012). This focus is perhaps not surprising given that some European countries have experienced reductions in public support similar to those in the U.S. while others are characterized by more effective support for work-family balance supports such as subsidized child care, and support for single-parent families in particular (Jenkins and Seidler, 2007).

From this research, it is clear that single mothers are more likely to be in poverty in countries like the U.S. where public support is less generous and less likely to be in poverty in countries like Sweden and the Netherlands where public support is more generous (Brady and Burroway 2012; OECD 2011; Smeeding 2006a). Similarly, poverty is more prevalent in settings

where women's wages are relatively low compared to men's (Christopher et al. 2012) and in countries where policies are less supportive of work-family balance (Misra et al. 2007, 2012).

Single mothers, living arrangements, and poverty

Previous research on the U.S. has shown that coresidence with parents is more common among young, never-married mothers, especially those with limited earnings potential and lower levels of welfare receipt. It also established a positive association between intergenerational coresidence and single mothers' subsequent economic well-being that reflects both the sharing of economic resources and economies of scale from shared living space, as well as access to childcare and social and emotional support (Baydar and Brooks-Gunn 1998; Casper and Bianchi 2002; Sigle-Rushton and McLanahan 2002). These factors in turn have enabled young single mothers to complete more schooling, enter employment, and become economically self-sufficient such that they can improve their living standards and have more choice in living arrangements (Hao and Brinton 1997; Mutchler and Baker 2009; Sandfort and Hill 1996; Snyder, McLaughlin, and Findeis 2006).

Social science interest in the role of intergenerational coresidence or "doubling up" has increased following reductions in public income support and associated increases in employment incentives for single mothers following the welfare policy reforms of the mid-1990s and, more recently, the Great Recession. Single mothers' access to economic resources via intergenerational coresidence is particularly important in light of evidence that the poverty rates of lone mothers are several times higher than for the population as a whole (Ellwood and Jencks 2004). The rise in single parenthood has thus contributed to increases in aggregate levels of poverty and inequality in the United States and elsewhere (Karoely and Burtless 1995; Lerman 1996; Rainwater and Smeeding 2003; Martin 2006; Western, Bloome, and Percheski 2008).

While it is clear that the United States' welfare reform of the mid 1990s has led to increased employment and earnings amongst single mothers, it has not led to increases in overall economic well-being (Blank 2006). The market income of single mothers who would otherwise be on welfare is not sufficient to reduce poverty (Bauman 2000; Krysik and Nichols-Casebolt 1997) and a substantial proportion of single mothers continue to face significant material hardship (Blank 2006; Teitler, Reichman, and Nepomnyaschy 2004). For these women, it appears that intergenerational coresidence provides an important buffer against further disadvantage (Haider and McGarry 2006; Magnuson and Smeeding 2005).

Despite recognition that private support via coresidence is an important economic resource for the most economically disadvantaged, empirical evidence of the prevalence, magnitude, and implications of transfers is limited. In two of the only studies to date, Haider and McGarry (2006) and Magnuson and Smeeding (2005) both find that intergenerational coresidence and associated income sharing and access to housing are the most important source of economic resources for many of the most disadvantaged single mothers. Information countries other than the U.S. is limited. In one exception, Shirahase and Raymo (2014) demonstrate the importance of intergenerational coresidence for understanding poverty among single mothers in Japan. They show that conventional measures overstate the proportion of single mothers in poverty by as much as 20 percent by excluding the roughly 30 percent of single mothers who coreside with parents. If we are truly interested in understanding how the economic circumstances of single mothers and their children vary across countries (and policy regimes), it is necessary to explicitly account for the support that intergenerational coresidence provides via both income sharing and economies of scale. Attention to the role of intergenerational coresidence and family support

may be particularly important in countries where public support and job opportunities for single mothers are weakest.

Research questions: Contributions of this paper

The previous research on the U.S. and Japan just summarized suggests that a solid empirical understanding of living arrangements is a basic prerequisite for comparing levels of poverty among unpartnered mothers across countries. What proportion of unpartnered mothers in a given country is actually “lone mothers?” What proportion is coresiding with parents or other relatives? Living arrangements are likely to be of particular importance for understanding the well-being of single mothers in societies where public policy has assumed a strong private family safety-net (e.g., Southern Europe and East Asia) and in societies where recent policy shifts have reduced public support for vulnerable subpopulations (e.g., the U.S.).

The absence of this basic descriptive information limits our understanding of relationships between changes in family structure (i.e., the growing prevalence of single-mother families) and aggregate-level trends in poverty. This is an important limitation given that increasing inequality and increasing levels of poverty (especially among children) are issues of major policy relevance and academic interest in the U.S., the U.K., and elsewhere (Waldfogel 2013). Previous research provides little or no basis for understanding the extent to which cross-national differences in levels of poverty among single mothers reflect differences in living arrangements (e.g., Brady and Burroway 2012; Christopher 2002; Misra, Moller, and Budig 2007). An obvious first step in assessing the role of living arrangements is to calculate poverty rates for lone mothers and unpartnered mothers coresiding with parents or other family members across countries. These figures will allow us to answer several important questions. How does the prevalence of poverty (or near-poverty) in each of the living arrangement categories differ across countries? Do

unpartnered mothers living with parents fare better than their lone counterparts in all countries? To what extent do differences in poverty among these two groups differ across countries? That is, does coresidence with parents appear to be more beneficial in some countries than others?

It is also important to understand the mechanisms through which intergenerational coresidence shapes the economic well-being of single mothers (and their children). To the extent that intergenerational coresidence limits poverty among single mothers, there is significant value in understanding the relative importance of additional income provided by coresiding parents (or other relatives) and economies of scale.² Presumably both play a role but the potential policy implications of additional income and economies of scale for reducing poverty are arguably quite different and ought to be accounted for separately. To assess the roles of additional income and economies of scale, we can make use of counterfactual calculations. As described below, expressing the equivalent (size-adjusted) household income of unpartnered mothers coresiding with others as the product of mothers' own equivalent income, additional income from coresident household members, and a factor representing economies of scale, allows us to recalculate poverty rates after counterfactually removing the income provided by coresident parents (relatives) and again after counterfactually eliminating the benefits of sharing income among a larger number of household members. Comparing poverty rates based on these counterfactual income calculations with observed poverty rates allows for a straightforward

² It is also important to understand the roles that other adults, especially grandparents, play in providing child care and nurture to their grandchildren so that single mothers can work in the market, but such data are not available in a comparative framework (Dunifon 2012; Dunifon and Kowaleski-Jones 2007).

assessment of the relative importance of additional income and economies of scale in limiting poverty among unpartnered mothers and of how these relationships differ across countries.

After establishing a descriptive understanding of cross-national differences in unpartnered mothers' poverty across living arrangements, it is also useful to quantify the extent to which the observed differences in mothers' poverty reflect both union status and living arrangements. That is, to what extent do observed differences in maternal poverty across countries reflect differences in the prevalence of unpartnered mothers? To what extent do they reflect differences in the prevalence of coresidence among unpartnered mothers? Because so little attention has been paid to shared income via intergenerational coresidence in other countries, we have no empirical basis for assessing the generality of patterns observed in the U.S. and the U.K. (OECD 2011; Waldfogel 2013). It also means that we know nothing about the role of familial support in settings where single motherhood is increasing, employment opportunities for single mothers are limited, and public policies differ in the effectiveness with which they support single-mother families. If we believe that family changes associated with the second demographic transition – including the rise in single-parent families – will spread widely to low fertility countries in Asia or Latin America where public support for families is relatively weak, there is clear value in understanding the role of intergenerational coresidence in family adaptation to the rise in single parenthood across a range of countries.

One way to answer these questions is to conduct counterfactual comparisons of poverty across countries by standardizing on the partnership status and living arrangement distributions for a given reference country. By counterfactually applying the partnership status and living arrangements of mothers in the U.S. to mothers in other countries, we can assess changes in the observed cross-national differences in the poverty of mothers. Does the observed difference in

the poverty rates of mothers increase or decrease when we standardize on partnership status and living arrangements in this way? For example, do we see that differences in poverty between Germany and the U.S. shrink when we counterfactually apply the relatively high prevalence of unpartnered mothers in the U.S. to Germany? Do we see that differences between Germany and the U.S. increase when we apply the (presumably) higher levels of intergenerational coresidence of unpartnered mothers in the U.S. to Germany? Answering these questions will allow for a better understanding of the extent to which observed cross-national differences in poverty levels reflect compositional differences (the prevalence of single mother families and their living arrangements) or differences in poverty net of these compositional differences.

Expanding our understanding of the role of intergenerational coresidence in these ways is vital given the centrality of relationships between single-parenthood and poverty to both policy development and social scientific theory development. In the U.S., recent policy efforts have focused on cost-effective means of supporting children and childcare, improving women's (and men's) ability to balance work and family, and in promoting marriage. Scholarly interest in poverty among single mothers includes implications for theories regarding economic inequality, gender inequality, children's well-being, and the reproduction of disadvantage. For example, recent theorization about the second demographic transition highlights the implications of socioeconomic bifurcation in family behavior (including single parenthood) for "diverging destinies" of children (McLanahan 2004). Similarly, gender stratification research emphasizes the role of increasing single-parent families (the majority of which are headed by women) for trends in gender inequality (Christopher 2002). In neither case do scholars address the potential role of intergenerational coresidence and associated support in moderating relationships between family change and economic well-being within or across generations, thus limiting our

understanding of patterns and implications of family adaptation to rapid social change and policy differences across nations. An explicit focus on the role of living arrangements across a range of countries thus has the potential to inform multiple frameworks for understanding the economic well-being of single mothers (and their children).

Data

We use the Cross-National Equivalent File (CNEF), which includes harmonized data from the Household, Income and Labour Dynamics in Australia (HILDA), the German Socio-Economic Panel (GSOEP), the Korean Labor & Income Panel Study (KLIPS), the British Household Panel Survey (BHPS), and the Panel Study of Income Dynamics (PSID) (Burkhauser et al. 2001).³ Because we are interested in recent relationships between living arrangements and poverty and because our analyses do not require longitudinal information, we analyze data from 2007—the most recent year available for most of the countries. The 2007 BHPS file lacks some crucial income data so we use 2006 data for the U.K. We restrict our analyses to households that include at least one minor child (under age 18) and that child’s mother⁴.

The primary outcome of interest is relative poverty, which we define as equivalent household income that is less than one-half the country-specific median value (calculated from the full sample for each country). Equivalent household income is defined as total household

³ Because we do not exploit the panel nature of the CNEF in this study, we could have used data from the Luxembourg Income Study. However, we prefer the CNEF for its more complete definitions of family structure and intra-household relationships and for the fact that it also includes one East Asian country (Korea).

⁴ Because the time period is before the Great Recession, our results do not reflect the effects of the recession on “doubling up” and are thus more likely to represent normal economic times.

post-transfer income divided by the square root of household size (Rainwater and Smeeding 2003; Smeeding 2006b). One of the advantages of using equivalent income, rather than per-capita income, is that it captures the economies of scale that arise from increasing household size. For a full discussion of the income variables used in the analysis, see Appendix 1.

Figure 1 presents the income distribution for all households in each of the five countries. We consider a household to be “poor” if its post-tax and post-transfer equivalent disposable income is below the poverty line (one-half of the median value). A household is “near poor” if its equivalent income is above the poverty line but no more than 1.5 times greater than the poverty line. A household is considered to be “working class” if its equivalent income is between 1.5 and 2 times greater than the poverty line. A household is considered to be “middle class” or higher if its equivalent income is 2 or more times greater than the poverty line (i.e., their equivalent income is greater than the median equivalent income). From this figure, we see that poverty is relatively high in the U.S., Australia, and Korea and lower in the U.K. and Germany. These figures are similar to the poverty rates provided by OECD, but diverge somewhat as a result of differences in data sources and equivalence scales.

[Figure 1 about here]

Data on each household member’s age, gender, and relationship to the household head allow us to group minor children and their mothers into family and household units. In the vast majority of cases, the family and household units are identical and there is no ambiguity about relationships among household members. However, when additional individuals are living in the household, there can be some ambiguity about relationships between specific household members and, consequently, the family units. In these cases, we use information on each individual’s characteristics (e.g., sex, age, marital/partnership status) to make decisions about

relationships among household members. Because the CNEF files do not distinguish married couples from cohabiting couples, our focus is on unpartnered mothers rather than unmarried mothers.⁵ A detailed description of our decision rules is provided in Appendix 2. Importantly, the number of ambiguous households is small in all countries and our results are not sensitive to alternative assumptions about the allocation of household members into family units.

Using information on relationships among household members in units with children under age 18, we construct family groups within households, and the focal mother's union status, we classify each household into one of three categories:⁶

- i) Coupled-parent households
- ii) Lone-mother households
- iii) Unpartnered mothers living with other adults

Coupled-parent households are households that include both a head and the head's partner (married or cohabiting), at least one minor child (and, in some cases, adult children of the head) but no other adults. 'Lone'-mother households are households in which unpartnered mothers live only with their children (at least one of which is under the age of 18) and no other adults.

Unpartnered mothers living with other adults are households in which an unpartnered mother

⁵ Ideally, we would like to distinguish married mothers from unmarried mothers cohabiting with partners, but the European and Australian surveys ask only if respondents are "married or living together as married."

⁶ There is a small subset of households in our analysis that do not fit into any of these three categories and are, therefore, excluded from our analysis. This group consists primarily of households in which coupled parents are living with other adults who are not adult-aged children (e.g., parents). Information on the number of omitted households can be found in Appendix 2.

coresides with one or more adults who are not her minor child(ren) or her adult child(ren). The distribution of mothers' living arrangements in the five countries is shown in Figure 2. From this figure, it is clear that the prevalence of unpartnered mothers (lone mothers and unpartnered mothers coresiding with others) differs dramatically across countries, ranging from a high of 35% in the U.S. to a low of 10% in Korea. It is also clear that the living arrangements of unpartnered mothers differ substantially, with Korea and Germany at the extremes. In Germany, only 7% of unpartnered mothers coreside with other adults (typically parents). This share rises to 15% in Australia and 19% in the U.K., but jumps to 31% in the U.S. and 40% in Korea.

Having classified households into one of three categories, we can compare the equivalized income distributions of households in each category across the five countries. Figure 3 shows the income distribution of lone-mother households. The prevalence of poverty and near poverty is high among lone-mother households in all five countries, with the highest levels of poverty observed in the U.S. (42%) and Korea (43%). Only a small proportion of lone-mother households have incomes above the median (middle class), suggesting that while poverty prevention for lone mothers varies significantly across nations, few lone mothers can obtain middle class or higher living standards (see also Rainwater and Smeeding 2003, 2004). At only 29%, Korea has the highest prevalence of lone-mothers in the middle class. As shown in Figure 4, coupled-parent households have much lower levels of poverty than lone mothers. Again, poverty is highest in the U.S. (10%), Korea (8%), and Australia (8%) but over three-fourths these households are working class or middle class four of the five countries (72% in the U.K.).

A comparison of Figures 3 and 5 provides a preliminary answer to our second research question. The income distribution of households in which an unpartnered mother is coresiding with another adult (Figure 5) indicates that the proportion of these households in poverty is

typically lower than for lone-mother households (Figure 3).⁷ However, the magnitude of the difference between these two groups varies markedly by country. In fact, in the U.S., the proportion of these families in poverty is the same as that of lone-mother households (42%), indicating a high degree of economic deprivation among both the single mothers and the other adults (parents) comprising these households. This is consistent with the aforementioned work of Furstenberg and others who highlight the prevalence of co-residential living arrangements among the most disadvantaged families in the U.S. It also reflects the intergenerational transmission of poverty in the United States, where poor adults are much more likely to have poor parents than in other nations (Duncan, et al. 1997, 1998).

Interestingly, a similar pattern is observed in Korea, where the proportion in poverty is the same for multi-generational households is somewhat higher (48%) than in lone-mother households (43%). A recent paper on Japan also demonstrates the prevalence of poor single mothers coresiding with poor (grand)parents (Shirahase and Raymo 2014). In the other three countries, however, the prevalence of poverty among unpartnered mothers coresiding with others is substantially lower than for lone mothers and the majority of these households are either working class or middle class. The reduction in poverty is most pronounced in Australia where only 4% of households comprised of single mothers and other adults are below the poverty line. This likely reflects both unpartnered mothers' coresidence with relatively well-off parents under the age of 65 and well-targeted means-tested income support for those age 65 or over in Australia. It may also reflect the high cost of housing in Australia, which pushes some who

⁷ The number of mothers identified in our sample that fall into this category is small, but sufficient for the exercises presented in this paper. For a full summary of sample sizes in each survey, see Table A1 of Appendix 2.

might be lone mothers into coresiding with their relatives (Bradbury 2010; Yates and Bradbury, 2010). The prevalence of near poor is relatively large in Australia and the level of economic deprivation is similar to that in Germany if we focus on households below 1.5 times the poverty line.

Analyses

Coresidence with other adults and poverty

To better understand the relative importance of government transfers and the shared income provided by coresidence, we focus our attention on households comprised of unpartnered mothers and other adults. Our analytic strategy is to examine change in the proportion in poverty after counterfactually removing the unpartnered mother and her children from the household – i.e., assuming that she becomes a lone mother. In this exercise, mothers take with them their own labor income, all household public transfers (apart from social retirement benefits), and all household private transfers while the other household members retain all other sources of household income, including their own labor earnings, asset income, social security benefits, and private retirement income, as well as all taxes.⁸ We recognize that the hours of employment, and

⁸ In Korea, household income also includes windfall income. In Australia, there is not a separate category for social security and public income payments to the elderly are instead included in the variable “public transfers.” For this reason, we assume that if an Australian single mother is living with an adult who is 60 or older, she keeps 50% of the household’s public transfers in these counterfactual calculations. This admittedly arbitrary allocation rule is empirically motivated by figures from the other CNEF countries in which the ratio of household public transfers to total household government transfers (public transfers + social security) ranges

thus earnings, of single mothers (and other adults in the household) may be endogenous to living arrangements, but for the sake of simplicity assume that the relationship between employment hours and living arrangements is negligible (at least at the aggregate level). Evidence from a similar analysis of living arrangements and poverty among single mothers in Japan is consistent with this assumption (Shirahase and Raymo 2014).

Figure 6 compares the observed income distribution for households that include both unpartnered mothers and other adults to the counterfactual distribution obtained by assuming that these mothers live on their own. Differences in the observed and counterfactual levels of poverty provide an intuitive metric for assessing the extent to which coresidence limits poverty among single mothers in the five countries. Clearly, “doubling up” is an effective strategy for limiting poverty in all five countries. The ratio of observed to counterfactual poverty rates ranges from .13 in Australia to .62 in the U.S. These figures reflect our decision to follow previous work in assuming full sharing of pooled resources within coresidential households (Short and Smeeding 2005). The apparent economic benefits of coresidence would be lower if we were to make alternative assumptions about the degree to which unpartnered mothers (and their children) share the income of coresidential (grand)parents (Shirahase and Raymo 2014).

Figure 7 compares the observed and counterfactual income distributions for the remaining household members after removing the coresiding unpartnered mother and her children. These counterfactual income distributions shed light on the economic circumstances of the other adults (typically parents) with whom single mothers (and their children) coreside. The fact that the counterfactual poverty rates are higher than the observed rates in all countries indicates that, in between 33% (in the U.S) and 81% (in the UK) among households in which a single mother is living with an adult 60 or older.

many cases, poor single mothers coreside with poor parents (or other adults). Without the income of the unpartnered mother, the other household members would be in poverty as well. This pattern is particularly pronounced in the Australia, Germany, and the U.K. In the U.S. and Korea, the relatively high levels of poverty among other adults in the household are largely unchanged by removal of the single mother and her children. In fact, the most notable change in the U.S. is a reduction in the prevalence of near-poor and working-class households and a corresponding increase in the proportion of middle-class households. This is further evidence of the particularly low levels of economic well-being of single mothers living with others in these two countries.

The benefits of coresidence: Additional income and economies of scale

To evaluate the relative importance of additional income and economies of scale in limiting poverty among single mothers, we use a counterfactual approach similar to that employed in the previous section. Again, we limit our attention to unpartnered mothers coresiding with other adults in each of the five countries. We begin with the following representation of their equivalent household income:

$$\frac{y_m + y_o}{\sqrt{n_m + n_o}} = \frac{y_m}{\sqrt{n_m}} * \left(1 + \frac{y_o}{y_m}\right) * \frac{n_m + n_o}{\sqrt{n_m + n_o}} * \frac{\sqrt{n_m}}{n_m + n_o}$$

Here, n_m and n_o are the number of people in the mother's family (i.e., the number of children she has plus one) and the number of other adults in the household, respectively. Similarly, y_m and y_o are the total, post-transfer incomes for the mother (and her children) and the other household members. The first term on the right-hand side is the equivalent income for just the mother (and her children), the second term represents the additional income provided by other household members, the third term represents the economies of scale derived from coresidence and the fourth term is an adjustment factor reflecting the relative size of the mother's family and the coresidential household. We first assume that the mother continues to live with the other

households members but receives no additional income from them (i.e., $y_o=0$) and recalculate the prevalence of poverty based on this counterfactual income measure. The extent to which poverty rates based on this counterfactual measure of income are higher than the observed rates provides an intuitive metric for evaluating the role of additional income in limiting poverty among unpartnered mothers living with other adults. We then assume that there are no economies of scale from coresiding (i.e., the third term is set to $\frac{n_m+n_o}{n_m+n_o} = 1$). Again, the extent to which poverty calculated based on this counterfactual income measure is greater than the observed poverty level provides a metric for evaluating the importance of economies of scale in limiting poverty.

The results of this counterfactual exercise are presented in Figure 8.⁹ Not surprisingly, the additional income provided by other coresident adults plays a critical role in limiting poverty among unpartnered mothers (and their children). In all but one country, the counterfactual poverty rate calculated by removing others' income is over 50% (49% in Australia) and is over 80% in Korea. In the absence of others' income, only a very small proportion of unpartnered mothers in these households would be in the middle class (ranging from 0% Korea to 4% in the U.S.). The results for economies of scale are more varied across the five countries. Economies of scale are always less important than additional income but appear to be more important for limiting poverty in Korea, the U.K., and the U.S. than in Germany or Australia. Given the small numbers in some groups (e.g., unpartnered mothers living with others in Korea), we do not want

⁹ There are differences in observed poverty levels when using total post-government income, as in Figure 5, and constructed post-government income, as in Figure 8. This is due to survey error and a small number of households have total income that is more (or less) than the sum of its parts.

to give too much weight to these point estimates, but rather emphasize that shared income is more important than economies of scale in all countries.

U.S. poverty in comparative perspective: The role of union status and living arrangements

Finally, we use standardization techniques to assess the extent to which cross-national differences in the levels of poverty (among mothers) reflect differences in partnership status, differences in living arrangements, and differences in poverty rates across combinations of partnership status and living arrangements. We begin with the following equation expressing the poverty rate (of mothers) as a function of the proportion of mothers who are (un)partnered, the proportion of unpartnered mothers living alone (i.e., lone mothers), and the level of poverty among these different groups of mothers:

$$\frac{P}{N} = \frac{P_p + P_u}{N} = \left[\frac{P_p}{N_p} * \frac{N_p}{N} \right] + \left[\frac{N_u}{N} \right] * \left\{ \left[\frac{P_{ul}}{N_{ul}} * \frac{N_{ul}}{N_u} \right] + \left[\frac{P_{uc}}{N_{uc}} * \frac{N_{uc}}{N_u} \right] \right\}.$$

The poverty rate is the number of mothers in poverty (P) divided by the population of mothers (N). P and N are the sums of partnered mothers (P_p and N_p) and unpartnered mothers (P_u and N_u). Unpartnered mothers are further broken down into those who are lone-mothers (P_{ul} and N_{ul}) and those who are coresiding with other adults (P_{uc} and N_{uc}). Using this equation, we first recalculate poverty rates assuming that all countries have the same union-status distribution as the U.S. (i.e., $\left[\frac{N_p}{N} \right]$ and $\left[\frac{N_u}{N} \right]$ are identical to U.S. values in all countries). We then recalculate poverty rates assuming that the living arrangements of unpartnered mothers $\left[\frac{N_{ul}}{N_u} \right]$ and $\left[\frac{N_{uc}}{N_u} \right]$ are the same in all countries, again using the U.S. values as the standard. Finally, we recalculate overall poverty rates assuming that the group-specific poverty rates $\left[\frac{P_p}{N_p} \right]$, $\left[\frac{P_{ul}}{N_{ul}} \right]$, and $\left[\frac{P_{uc}}{N_{uc}} \right]$ are equal to the observed U.S. values in all countries. The results presented in Figure 9 are clear; in all cases, the higher group-specific poverty rates in the U.S. explain the bulk of the difference between the

overall poverty rates in the U.S. and the other countries. Importantly, however, the higher prevalence of unpartnered mothers in the U.S. accounts for some of the difference in poverty rates in comparison with Germany and especially with Korea. If Korean mothers had the same partnership status distribution as their counterparts in the U.S., their poverty rate would be nearly twice as high as the observed rate (20.7% vs. 11.9%). In all cases, the living arrangements of unpartnered mothers account for very little of the differences in poverty across countries.

Discussion

Our goal in this paper is to extend the small, but growing, body of research on the role of coresidence (with parents) in limiting poverty among single mothers in the U.S and elsewhere. To this end, we have used harmonized data from five different countries to describe the living arrangements of unpartnered mothers, quantify the extent to which coresidence with other adults limits poverty, examine the relative importance of additional income and economies of scale in limiting poverty among unpartnered mothers coresiding with other adults, and evaluate the role of union status and living arrangements in shaping cross-national differences in poverty.

Descriptive analyses replicate known differences across countries in the overall level of poverty and demonstrate that lone mothers are particularly disadvantaged in all five countries. We also show that the prevalence of coresidence among unpartnered mothers varies substantially across countries, with relatively high levels of coresidence in the U.S. and Korea and much lower levels in Germany. Comparison of income distributions for lone mothers and unpartnered mothers living with others suggests that role of coresidence in limiting poverty differs markedly across countries. In Australia (and to a lesser degree Germany and the U.K.), the level of poverty is much lower among unpartnered mothers coresiding with other adults (in comparison with lone mothers). The difference between these two groups is much smaller in the U.S. and Korea,

suggesting that coresidential living arrangements may be more common among particularly disadvantaged families in those two countries.

A counterfactual exercise to assess the extent to which coresidential living arrangements limit poverty by providing additional income and by increasing economies of scale demonstrated that, not surprisingly, the additional income provided by coresident adults is of primary importance. Over 50% of unpartnered mothers are in poverty when we counterfactually assume that income provided by coresident adults is zero (the figure is 49% in Australia). However, the importance of economies of scale differs substantially across countries – it is relatively important in Korea, the U.K. and the U.S. but less so in Germany and Australia.

Finally, the results of a standardization exercise show that the relatively high rate of poverty among mothers in the U.S. is partially explained by the relatively high prevalence of unpartnered mothers in this country (especially in comparison with Germany and Korea). However, the living arrangements of unpartnered mothers does little to explain observed differences in poverty rates—i.e., the relatively high prevalence of coresidential living arrangements in the U.S. does little to mitigate differences in poverty between the U.S. and other countries. The most important difference, by far, between the U.S. and the other countries is the relatively high rates of poverty amongst all groups of mothers in the U.S.

One important limitation of this work is the need to group married and cohabiting mothers together in the category “partnered” mothers. Cohabitation varies significantly across countries, with nonmarital unions longer lasting and more like marriage in Northern Europe, shorter and distinct from marriage in the English-speaking countries we study, and relatively uncommon in Korea and Germany (Kiernan, 2004).

Further, we do not know whether the choices unpartnered mothers make to coreside with parents or other relatives are voluntary or not. In many cases, high housing costs and limited economic opportunities may well force mothers into living arrangements that are not consistent with their preferences. We can only observe shared living arrangements and their relationship to the poverty status of mothers and their children. We are also limited by a lack of information about the nature of income sharing within intergenerational households. Our assumption of full income sharing provides one extreme estimate of the benefits of coresidence. Our counterfactual analyses presented in Figure 6 provide another extreme estimate – i.e., assuming no income sharing within households. The actual level of sharing presumably falls somewhere between these two extremes and further efforts to quantify the degree of sharing would allow for improved estimates of the benefits of “doubling up.”

Despite these limitations, our explicit focus on the role of intergenerational coresidence, shared income, and economies of scale represents an important extension of existing research on the economic well-being of single mothers in cross-national context. Continued attention to the role of private support provided via intergenerational coresidence may be particularly important for understanding the implications of increases in divorce and nonmarital childbearing in familistic societies characterized by limited public support for single-parent families. Attention to the process by which unpartnered mothers select into coresidential living arrangements and the stability of those arrangements is also an important direction for subsequent research, especially during the period following the Great Recession. To this end, we plan to exploit the panel data in the CNEF to examine the factors associated with changes mothers living arrangements, the stability of living arrangements, and changes in poverty status.

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Appendix 1: Description of Cross National Equivalent File (CNEF) Data Used in This Paper

The following is a description the CNEF harmonized variables used in our analysis. For a more detailed description, see Lillard et al. 2008.

Household post-government income is the sum of household pre-government income, household social security pensions, and household public transfer income minus household taxes. Refundable taxes (in-work benefits like the EITC in the U.S. and the WFTC in the U.K.) and near cash benefits such as food stamps and housing allowances are part of post-government income. Household pre-government income is the sum of household gross labor income, household asset income, household private transfer income, and household private retirement income. The only exceptions to this rule are the Korean data (where post-government income also includes windfall income but does not include private retirement income) and the Australian data (where there are no social security payments because in Australia [pension payments] are funded from general revenue and not from individual contributions to Social Security Funds and so the pension payments are included under household public transfers) (Lillard et al. 2008). This variable is missing for the 2007 BHPS because the household tax numbers were not yet produced at the time of analysis. This is why we instead use the 2006 BHPS. As mentioned earlier, total income is more (or less) than the sum of its parts in a small number of households.

The **Individual Labor Earnings** of each household member includes annual wages, salary, and bonuses from both primary and secondary jobs as well as self-employment. Individual labor earnings are summed across all household members to generate the household-level variable.

Household Social Security Pensions is the annual combined pensions from public sources and includes payments for national retirement, widowhood, or disability pensions. As previously mentioned, the HILDA data does not include social security pensions.

Household Public Transfers includes all public welfare subsidies including refundable tax credits and near cash benefits, unemployment assistance, student assistance, family tax benefits, and maternity or child benefits

Household Private Transfers consists of payments received from anyone outside of the household and “mainly consist of child support and alimony” (Lillard et al. 2008).

Household Total Taxes consists of the total tax bill of the household, which includes itemized state, federal, and Social Security taxes in the U.S., U.K, and Germany. Taxes can be negative, indicating a net tax refund to the household.

Household Windfall Income is only relevant in the KLIPS data and “represents the combined incomes from windfall sources such as severance payments, inheritances, lottery or track winnings, condolence or celebration payments, disaster or injury compensation, etc. for all household members” (Lillard et al. 2008).

Individual Partnership Status indicates whether each household member is: i) married (or cohabiting) and living with a partner, ii) unmarried and not living with a partner, iii) widowed and not living with a partner, iv) divorced and not living with a partner, or v) separated (legally married) and not living with a partner. For many of the individuals in the PSID we only know whether he/she is living with a partner, but this does not affect our analysis since we are not interested in the reasons individuals are living without partners. In the KLIPS, BHPS, and HILDA data, we only know the partnership status of individuals 15 and older and in the SOEP

data we know the partnership status of individuals 16 and older; however, this does not impact our results since our analysis assumes that only women 18 and older can be mothers.

The **Age** of each individual household member is measured in years.

Individual Relationship to the Household Head indicates whether each individual in the household is: i) the household head, ii) the partner of the household head, iii) a child of the household head, iv) a (non-child) relative of the head, or v) a non-relative of the head.

Unfortunately, if an individual is not the head or partner, then we do not know with certainty if that individual is the parent of another household member. This complication requires the assumptions and allocation rules described in Appendix 2.

Appendix 2: Defining families and household structure

We restrict our analysis to households that include at least one minor child (younger than 18) and that child's mother. We allocated each of these households to one of the following mutually-exclusive, but not exhaustive, categories:

- i) Coupled-parent household
- ii) Lone-mother household
- iii) Unpartnered mother cohabitating with other adults

Assignment into one of these household categories is done at the level of the mother, rather than the household. That is, we consider all women age 18 and over in a household that includes minors to be potential mothers and classify them into one of the three categories based on their relationship to the children in the household, the presence of a partner, and the presence of other adults in the household. There is an implied fourth category – coupled-parent households coresiding with other adults. We generated this category in the household allocation process as a residual group used to check assignment into the other three categories, but do not include this relatively small group in our analyses.

In this appendix, we describe the criteria for assignment into each category, discuss the limitations posed by the data, and explain a series of assumptions we used to deal with these limitations. We also include the proportion of mothers in each country whose allocation to a particular household type requires us to make one of these assumptions.

Coupled-parent households: A household is considered a coupled-parent household if it meets the following two criteria: i) the female is the partnered head or spouse/partner of the head, and ii) all remaining household members are minor children of the household head. In a small number of cases, ambiguities with respect to these two criteria required us to make assumptions

about relationships of household members. With respect to the second criterion, a few households (0.0% – 0.7% of the total sample for each country) contained additional minors who were either related or unrelated to the household head (but not identified specifically as children of the head). We assumed these minors to be children of the household head (or his/her partner) and thus allocated these households to the coupled-parent category. A larger share of coupled-parent households also included children older than age 18 (ranging from 7.5% in U.S. to 30.7% in Korea). Again, we included these households in the coupled-parent category.

With respect to the first criterion, there were some households in which information regarding union status was inconsistent with observed household composition. For example, in a small set of households (0.0% - 0.6% of the total sample) the female household head indicated that she was partnered, but there was no partner present in the household roster. In these cases, we prioritized information about union status, assuming that individuals are partnered if their union status is “married or living with a partner” and unpartnered otherwise. Assuming that the partner exists but is absent from the survey, we allocated these households to the coupled-parent category. A much more common occurrence was households in which the household roster indicates the presence of a partner but union status was not “married or living with a partner.” For example, the potential mother may be listed as the spouse/partner of the household head but the union status variable indicates that she is unpartnered, or contains no information. This was rare in some surveys (e.g., only 0.4% of the sample in Korea), but very common in others (e.g., 54.4% of the sample in the U.K.). In these cases, we privileged the information on relationship to head over the measure of union status and allocated these mothers to coupled-parent households.

Lone-mother households: A household is considered a lone-mother household if it satisfies the following two criteria: i) the household head is an unpartnered woman and ii) all other

household members are children of the household head. As with coupled-parent households, lone-mother households also include cases in which other minors who are either related or unrelated to the head, but not listed as children of head, are present (0.0% - 0.5% of sample) and cases in which adult children are also present (2.3% - 3.7% of sample).

Unpartnered mothers coresiding with other adults: The households in which an unpartnered mother is coresiding with other adults are more complicated. Using information on women's relationship to household head, union status, and household composition, the following four sets of criteria are used to allocate mothers to this category:

- 1) i) the adult female is head of the household, ii) she is unpartnered, iii) minor children of the household head are present in the household, and iv) there is at least one adult present in the household who is not a child of the household head.
- 2) i) the adult female is the child of the household head, ii) she is unpartnered, and iii) there are minors related to the household head present.
- 3) i) the adult female is related to the household head, ii) she is unpartnered, and iii) there are minors related to the household head present.
- 4) i) the adult female is unrelated to the household head, ii) she is unpartnered, and iii) there are minors unrelated to the household head present.

Of these four cases, (1) is the most straightforward, following the same assumptions about additional minors and adult children used to define coupled-parent and lone-mother households. In this case, the relationship between the mother and children is clear from information regarding relationship to the household head. There is no need to make assumptions about other adults in the household – it is only their presence that is required for classifying mothers into the category of unpartnered coresiding with other adults.

The remaining three cases only establish that the household contains both an adult female and minors who are related (or unrelated) to the household head. The nature of the relationship between the adult female and the minors must be inferred from other characteristics. The proportion of households falling into cases (2), (3), or (4) is relatively small, especially outside of the U.S. This proportion is 8.0% in the U.S., but only 1.2% in Australia, 1.3% in Germany, 3.2% in Korea, and 3.3% in the U.K.

A large portion (20.0% to 47.3%) of this small share of complex households are easily classified because there are no other adults present besides the head, meaning the children belong to the adult female by definition. Another large portion (10.7% to 16.5%) contains households in which other adults present in addition to the female adult are either male or unrelated (related) to the head and therefore unrelated (related) to the related (unrelated) children. Here, the only assumption necessary is that the minors in the household are the children of the female and not the male. For the remainder of the households in which an adult female is the unpartnered adult child of the head, unpartnered relation of the head, or unpartnered non-relation of the head, the household composition includes multiple possible mothers. For example, there could be two adult female children of the head and related minors in the household, or there could be an adult female child of the head and an adult female relation of the head and related minors in the household. Because the data do not allow us to unambiguously identify which of the adult females is the mother, we have made the simplifying assumption that each of the females is a mother of a minor in the household. This assumption affects 0.6% - 2.7% of the sample, and results are unchanged when we conduct analyses excluding these women (i.e., by assuming that none of the adult females in the household is the mother). A summary of sample sizes for each

household type by country, as well as the number of mothers affected by this assumption that all of the females are mothers, is presented in Table A1.

Table A1: Mothers, by Household Type and Country

	Coupled-parent households	Lone-mother households	Single-mothers living with other adults	Coupled-parents living with other adults	Single-mothers Living with Other Adults Affected by Motherhood Assumption
Australia	1,713 77.6%	354 16.0%	71 3.2%	69 3.1%	13 0.6%
Germany	2,363 84.0%	371 13.2%	29 1.0%	51 1.8%	18 0.6%
Korea	377 78.9%	27 5.6%	17 3.6%	57 11.9%	10 2.1%
UK	2,155 77.6%	467 16.8%	104 3.7%	51 1.8%	37 1.3%
US	2,193 62.5%	829 23.6%	387 11.0%	99 2.8%	96 2.7%

Figure 1: Household Income Distribution Among All Sample Households

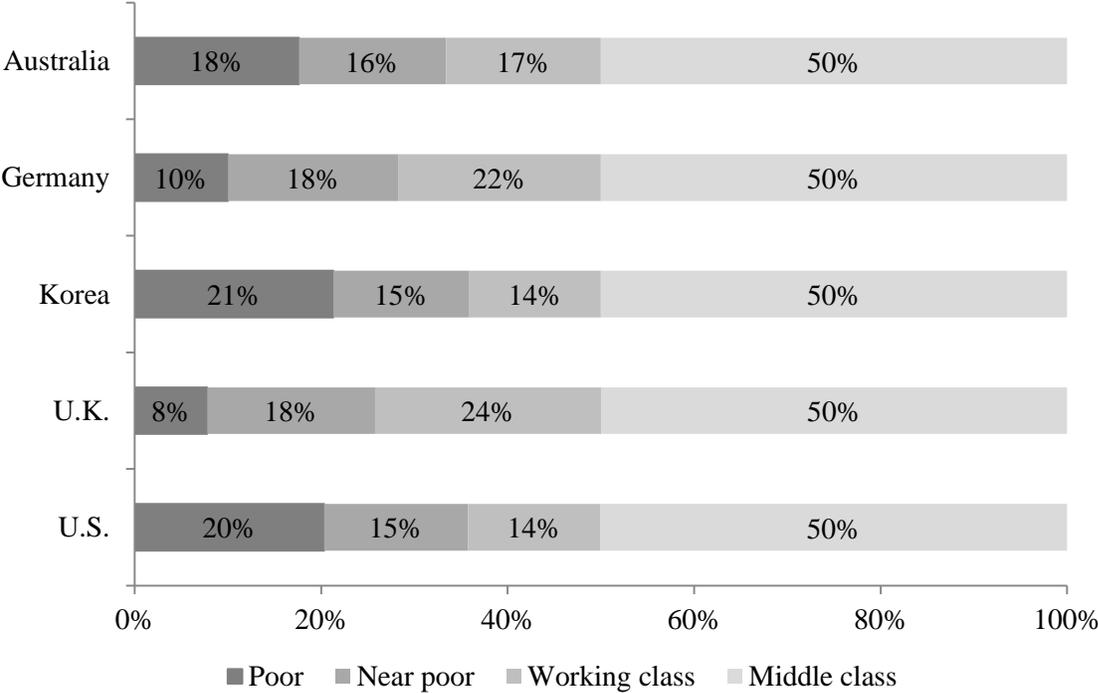


Figure 2: Distribution of Mothers' Union Status and Living Arrangements, by Country

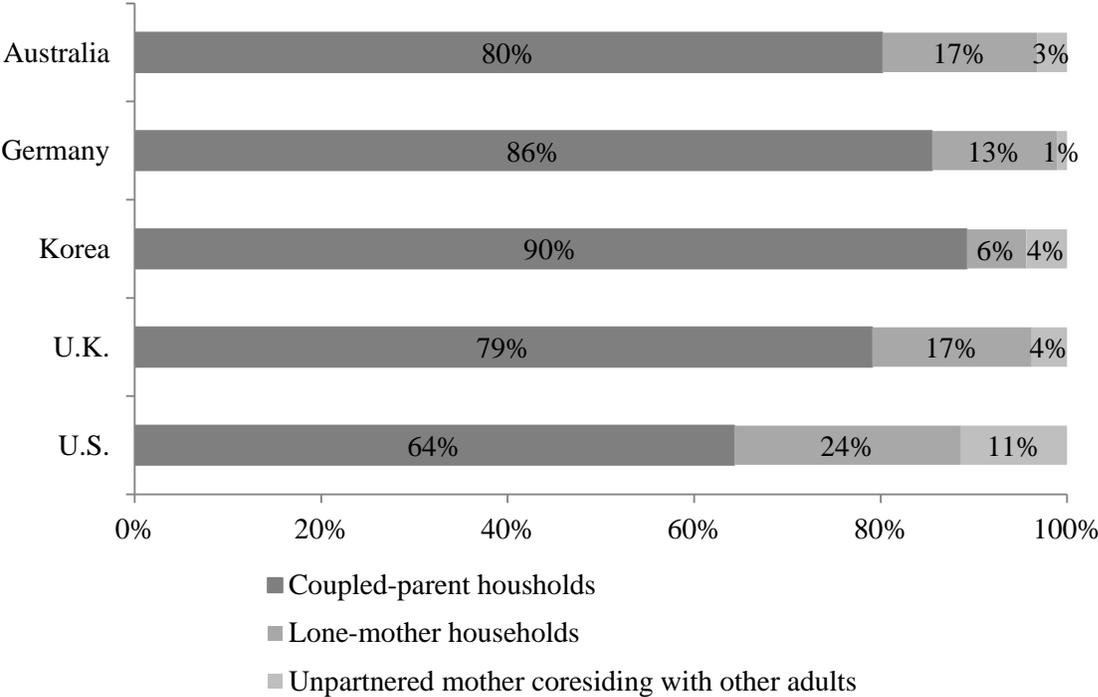


Figure 3: Income Distribution Among Lone-Mother Households

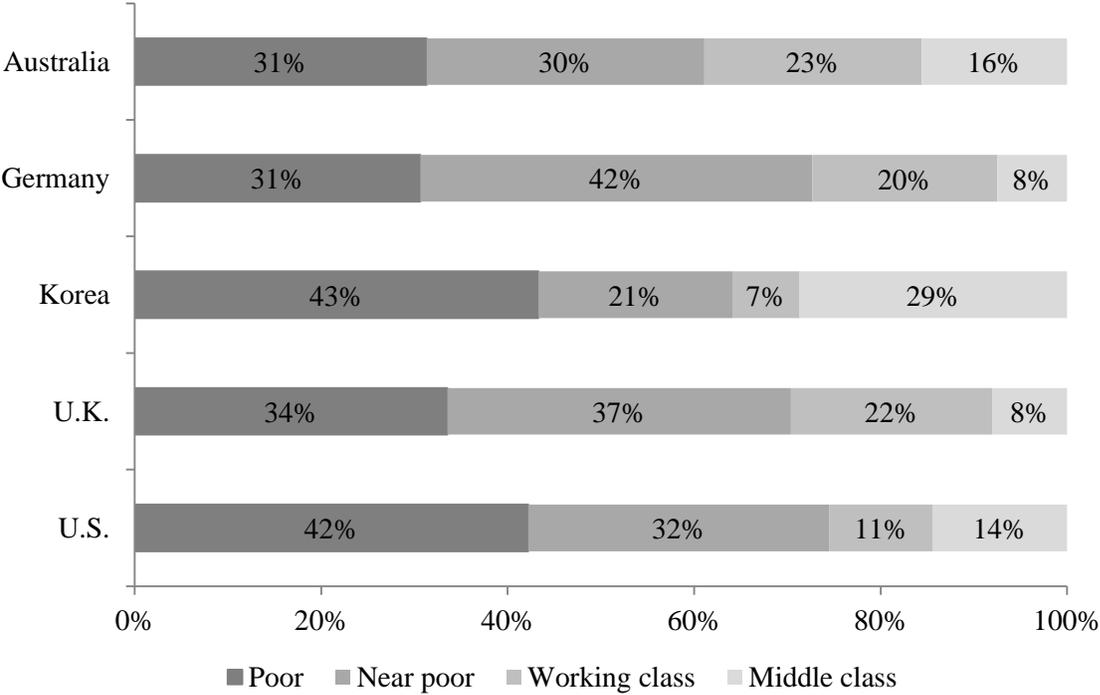


Figure 4: Income Distribution Among Coupled-Parent Households

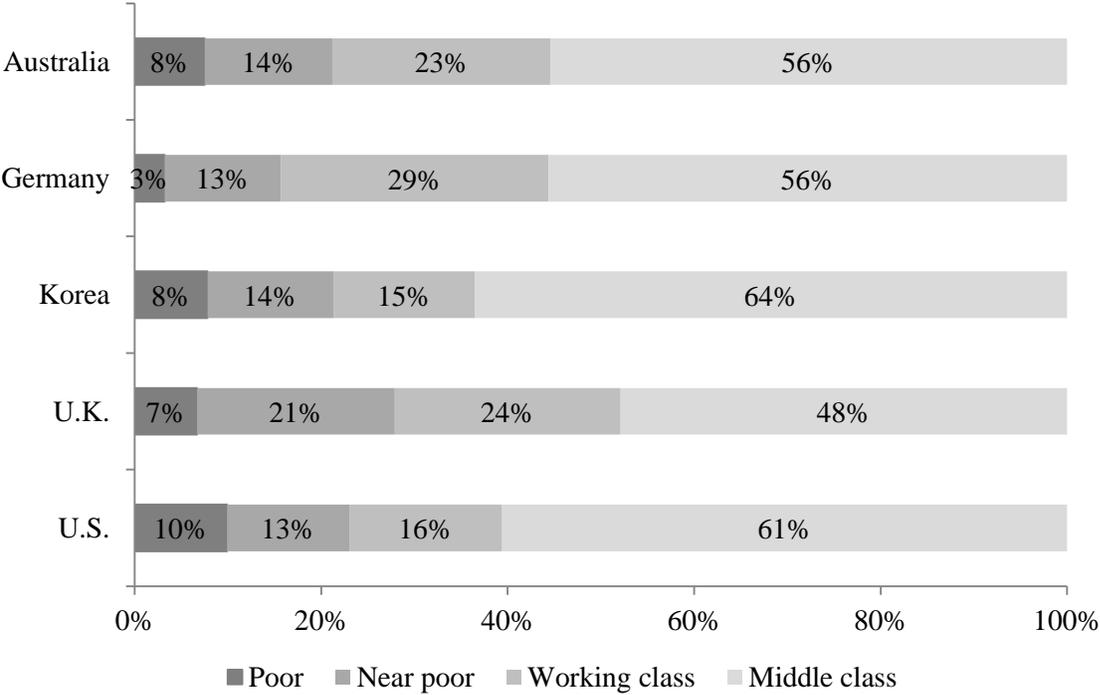


Figure 5: Income Distribution Among Unpartnered Mothers Coresiding with Other Adults

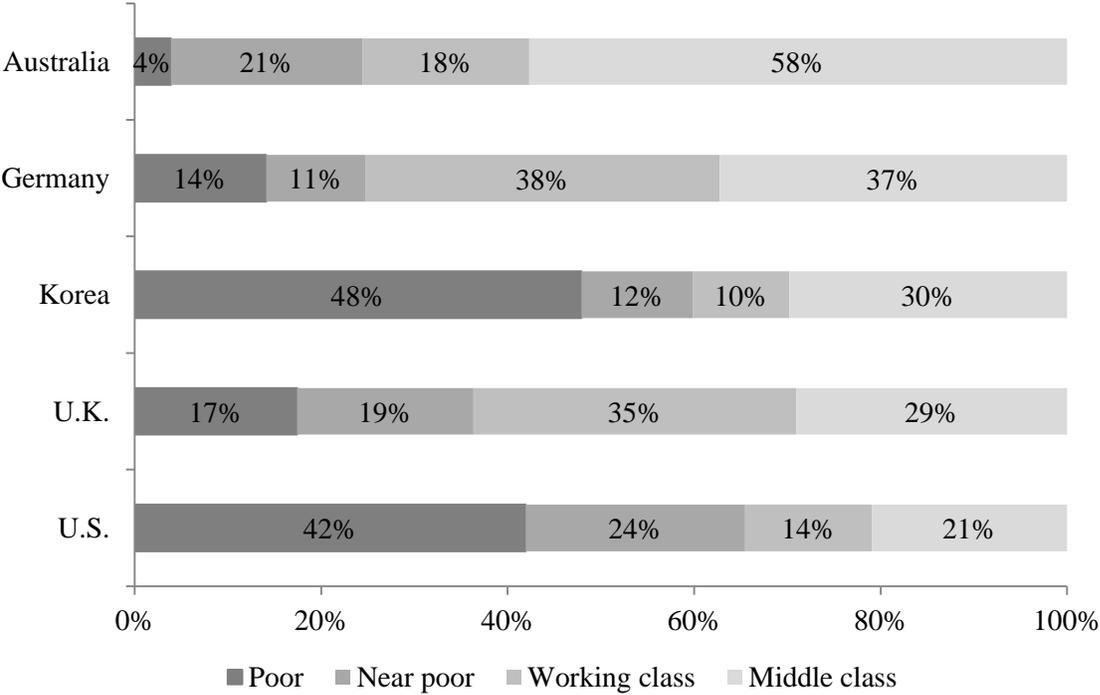


Figure 6: Observed and Counterfactual Income Distributions When Unpartnered Mothers Living With Others Are Assumed To Be Lone Mothers

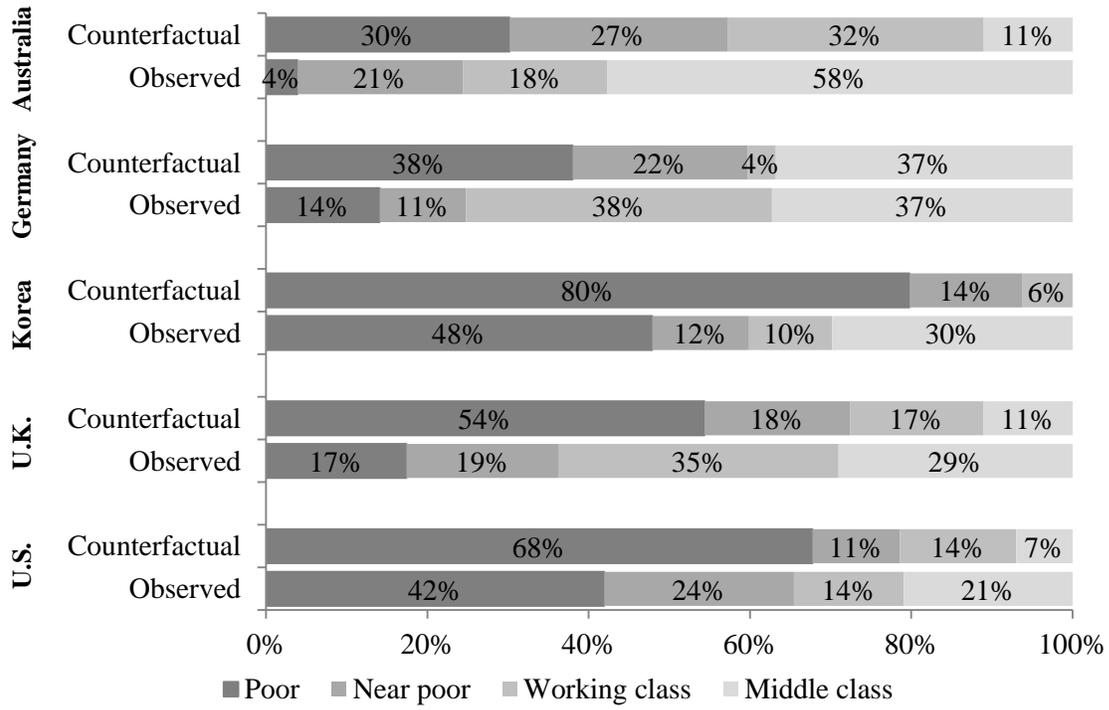


Figure 7: Observed and Counterfactual Income Distributions Among Remaining Household Members

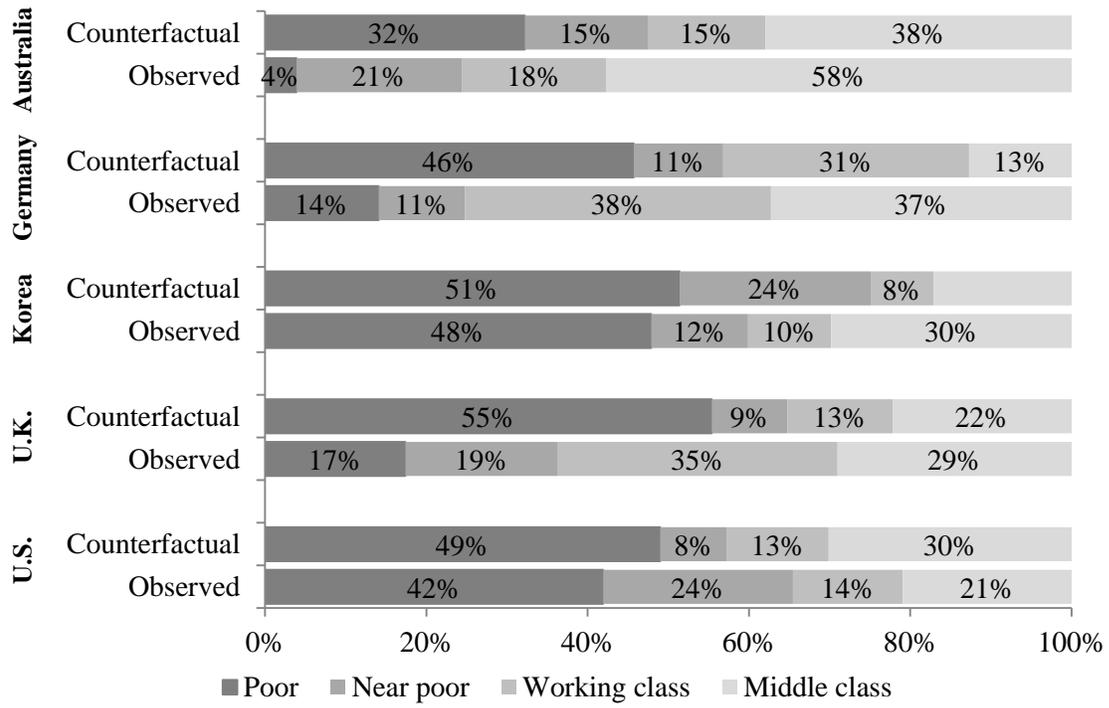


Figure 8: Observed and Counterfactual Income Distributions for Unpartnered Mothers Coresiding with Other Adults, by Country

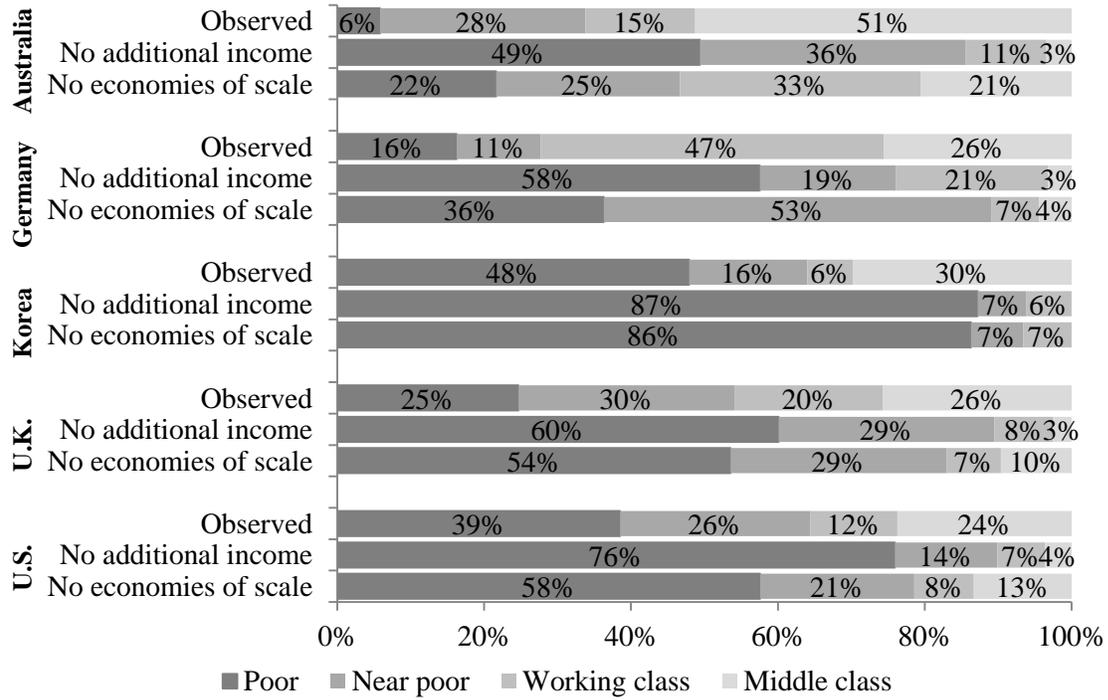
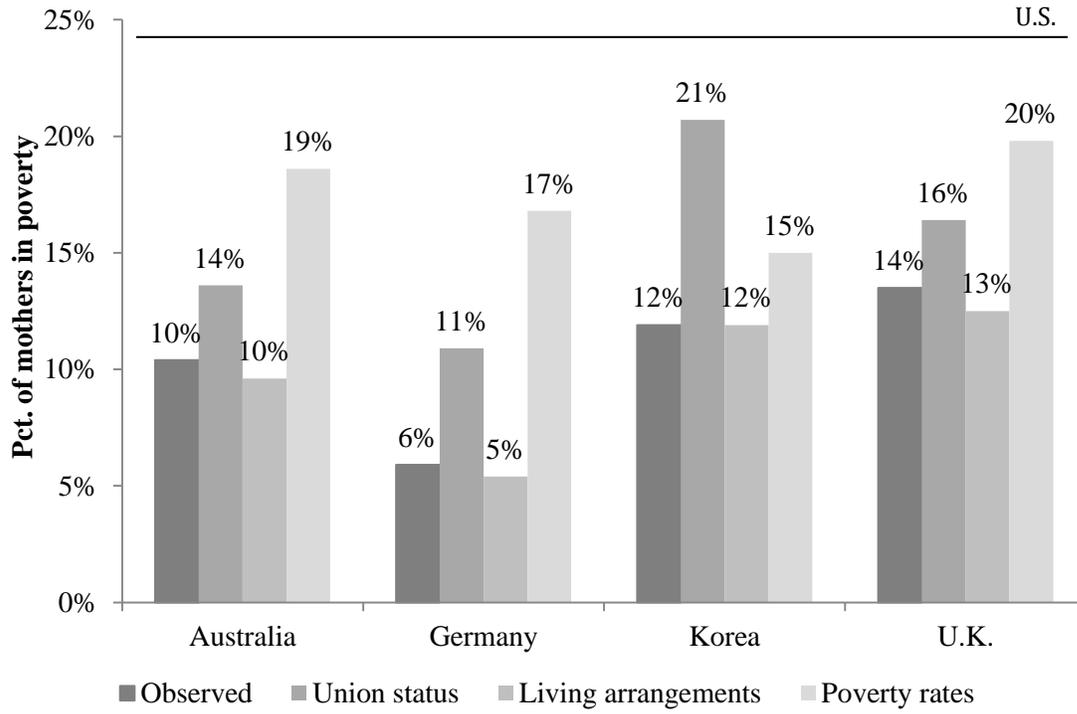


Figure 9: Observed and counterfactual poverty rates in comparison to U.S.
 (using U.S. as standard)



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