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ABSTRACT

Objectives: This study examined whether food insecurity was different for children in cohabiting or repartnered families compared to those in single mother or married (biological) parent families.

Methods: We compared probabilities of child food insecurity across different family structures in four national datasets the Early Childhood Longitudinal Study–Birth Cohort ECLS-B); the Fragile Families and Child Well-Being Study (FFWCS); the Early Childhood Longitudinal Study–Kindergarten Cohort (ECLS-K); and, the Panel Study of Income Dynamics-Child Development Supplement (PSID-CDS).

Results: Bivariate probabilities of child food insecurity in cohabiting or repartnered families were generally higher than in married biological parent families and often statistically indistinguishable from single mother families. However, in multivariate models, most differences among family types were attenuated and no longer statistically significant.

Conclusion: Children whose biological parents are cohabiting or whose biological mothers have repartnered have comparable risk for food insecurity to those in single mother households. However, family structure is not related to child food insecurity above and beyond the influence of other factors such as household income, family size, and maternal race, ethnicity, education, and age.

INTRODUCTION

In 2012, 10 percent of U.S. households had food insecure children, meaning that access to adequate food for these children was limited by their household's lack of money and other resources.[1] Food insecurity poses a serious risk to the health and well-being of children; it has been linked to behavioral problems, developmental risk, poor health in infants and toddlers,[2, 3] and negative academic, social, and psychological outcomes in older children and adolescents.[4, 5]

Traditionally, households headed by single mothers have had the highest rates of child food insecurity while married-couple households have had the lowest rates: 18.7 vs. 6.3 percent according to the most recent data from the United States Department of Agriculture (USDA).[1] However, federal reports do not provide data on child food insecurity in households characterized by other family structures, which are of increasing prevalence and interest. The most common of these family structures is cohabitation. Today, a fifth of all children in the US are born to cohabiting, but not married, parents.[6-8] There is also little information on child food insecurity in repartnered families where only one of the two adults heading the household is a biological parent of the child(ren) in the household. Although there are few consistent estimates of the prevalence of these types of families in the U.S., Census Bureau data suggest that between 10-20% of children currently live in repartnered families, and more than one-third of children will experience this type of living arrangement.[9, 10] National reports do not provide estimates of child food insecurity for this group; rather, families in which one biological parent has remarried are currently grouped together with families in which the biological parents of the child are married to each other.[1]

There is good reason to believe that the prevalence of child food security in cohabiting or repartnered families may be very different compared to married biological parent families. Most studies find that cohabiting unions are less stable and that these families have fewer resources than married parent families,[11-13] although findings on child well-being in cohabitating households are mixed. New partners may contribute resources, thereby improving food security,[14] but prior research suggests that step-parents may underinvest in non-biological children, because they may be providing resources to their prior biological children in other households or because they are less committed to non-biological children.[15, 16] Additionally, the instability that often accompanies repartnering may be harmful for child well-being.[17, 18]

Economic models for the dynamics of food insufficiency[19, 20] suggest that decisions about food consumption are driven in part by families' past and future resources and ability to smooth consumption over time, implying that stability and consistency may be as important for children's food security as absolute level of resources. Thus, while single mother households may have the fewest resources, they may not necessarily have a higher risk of food insecurity than these other non-traditional family types (cohabiting parents and repartnered parents), because of the potential instability of these family structures. While a handful of previous studies have examined food insecurity across different family structures, these studies are dated, rely on limited measures to assess food insecurity, or do not distinguish between household and child food insecurity.[21, 22] One recent study of family change using a comprehensive measure of food insecurity, found that transition into a maternal union was associated with lower household food insecurity, but this study did not investigate child food insecurity, nor did it report on rates of food insecurity by different family structures. [23]

This study examined rates of child food insecurity in different family structures using data from four, nationally representative and complementary datasets, each of which contains the full module of questions used to identify child food insecurity in USDA reports. We investigated two complementary research questions: How do rates of child food insecurity for children in cohabiting and repartnered homes compare to those for children living with married biological parents or single mothers?; and, do any differences in the rates of food insecurity among children in different family structures persist after adjusting for socio-demographic factors typically associated with both family structure and food insecurity? We emphasize the importance of both questions. While findings from our unadjusted models provide comprehensive and contemporary evidence about child food insecurity across various family structures, results from our adjusted (multivariate) models are ultimately those most relevant to efforts to reduce food insecurity, as they inform policies and programs that might target children living in various family types.

METHODS

Datasets

Each of the four datasets contains detailed information on family structure as well as the USDA's Child Food Security Scale (CFSS), the scale used to measure national levels of food security in official USDA reports. These datasets (along with the age of children in our analytic samples) were: the Early Childhood Longitudinal Study – Birth Cohort (ECLS-B; ages 0-6), the Fragile Families and Child Wellbeing Study (FFCWS; ages 2-6), the Early Childhood Longitudinal Study Kindergarten Cohort (ECLS-K; ages 5-14), and the Panel Study of Income Dynamics – Child Development Supplement (PSID-CDS; ages 3-17). Detailed information on each dataset is provided elsewhere. [24-27]

We examined multiple datasets for two main reasons. First, given the lack of recent data on family structure and child food insecurity, the use of multiple, recent datasets offered the opportunity to provide comprehensive evidence regarding an important child health problem.

Second, although there are many similarities among our sources of data, each is also unique in some regards, affording us a more nuanced understanding of the relationship between family structure and food insecurity derived from the strengths of each dataset. By adopting this approach, our expectation was that consistent results across datasets would offer more compelling evidence, while divergent findings would prompt reflection on the causes and consequences of those differences and stimulate future research.

Study Samples

For each dataset, we focused on households in which the respondent was the biological mother of at least one child in the household and excluded all other households. To ensure consistency across datasets, we analyzed data regarding one child in a given household, selecting a random child from households with twins in the ECLS-K and the ECLS-B and from households with more than one focal child in the PSID-CDS. In the FFCWS, data are collected only on a single focal child. We separated households into four groups based on parental reports of family structure: married biological parent households; cohabiting biological parent households; single mother households; and, repartnered households (where the biological mother is cohabiting with or married to a partner who is not the biological father of the child(ren)).

The Children's Food Security Scale

All four datasets use mothers' responses to the USDA's Food Security Module (FSM) to measure household food insecurity. Given our focus on child food insecurity, we utilized the eight child-referenced questions of the FSM, which comprise the CFSS.[28] The CFSS was included in the 9-month, 2-year, 4-year, and 5-year waves of the ECLS-B; the 3-year and 5-year waves of the FFCWS; the Kindergarten, 3rd grade, 5th grade, and 8th grade waves of the ECLS-K;

and the CDS I and CDS II waves of the PSID. We examine these waves of data for our analyses. It is important to note that the questions in the CFSS ask about all children in the household and as such, identify whether any child in the household was food insecure but not the food security status of individual children. As per USDA guidelines for assessing food security for households with children,[29] households with CFSS raw scores (number of affirmative responses) of 0-1 were classified as having children that were food secure, and households with raw scores of 2 or higher were classified as having children that were food insecure. Although this approach follows guidance provided by the USDA, it is a conservative assessment of the inability to meet food needs as even one affirmative response to the CFSS could be cause for concern.

Control Variables

In analyses described below, we controlled for a common set of factors in each dataset. We selected variables that have been established in previous literature as being related to both family structure and child food insecurity, and which might explain any differences in child food insecurity among family structures. These included: mother's race or ethnicity (non-Hispanic white, non-Hispanic black, Hispanic of any race, non-Hispanic other); mother's education (less than high school, high school degree, more than high school); mother's age in years (less than 24, 24-29, 30-35, older than 35); household income (in 2011 thousands of dollars); the number of children and adults in the household; and the focal child's age in years. Descriptive information on each of these variables is provided in Table 1.

Analysis

For each dataset, we created pooled cross-sections of family-wave observations by combining data for cases with complete information from all available waves. To assess the relationship between family structure and child food insecurity, we first specified both unadjusted and adjusted logistic regression models, clustering standard errors at the individual level to account for the non-independence of repeated observations. Thus, our primary analytic approach was to take advantage of the large sample sizes of our datasets to estimate the cross-sectional relationship between family structure and child food insecurity

To improve interpretability and to produce what we consider to be more realistic estimates, we used the results of the logistic regression analyses to generate predicted probabilities of child food insecurity holding all controls in the adjusted models at their mean values in each dataset. We compared these probabilities among family structure types, employing a Bonferroni adjustment for multiple comparisons. Because our predicted probability results adjust for multiple comparisons and compare food insecurity across different family structures that are average in all other regards, these are our preferred results.

Our unadjusted results indicate whether rates of child food insecurity differ by family structure, an important question given the dearth of recent research and the policy-relevant potential for targeted food assistance programs to alleviate food insecurity. Our adjusted models provide additional insight, helping to clarify whether differences are due to income, family size, or other family characteristics (which are typically understood to influence food insecurity and are related to family structure), or whether family structure is relevant above and beyond the influence of these controls. All analyses were completed using STATA 12 software.

RESULTS

Table 2 presents results from both the unadjusted and adjusted cross-sectional logistic regression models of child food insecurity on family type. Overall, in our bivariate models, the odds of child food insecurity were higher in other family types compared to married biological parent families. Except in the PSID-CDS, our unadjusted results indicated that the odds of child food insecurity were higher for children in cohabiting, single, and repartnered families compared to those living with married biological parents. In the PSID-CDS, odds of food insecurity were significantly higher for children in single and repartnered families, but not in cohabiting families. In our adjusted models, there were fewer statistically significant differences between odds of food insecurity for children in married biological parent households and other family structures, and the magnitudes of the statistically significant coefficients were smaller than in the unadjusted results. Compared with children in biological parent families, children in single and repartnered households had significantly higher odds of food insecurity in the ECLS-B and PSID; children in cohabiting and single mother families had higher odds of food insecurity in the ECLS-K, and children in single mother families had higher odds of food insecurity in the FFCWS.

Figure 1 presents predicted probabilities of child food insecurity by family structure and dataset based on both the adjusted and unadjusted models, holding all covariates at their means in the adjusted models. Error bars in the Figure indicate 95% confidence intervals for the predictions. Predicted probabilities sharing a letter (lowercase for unadjusted results and uppercase for adjusted results) were not significantly different at the $p<.05$ level. For example, in panel A the letter 'a' shared by cohabitating and repartnered indicates that the difference in the predicted unadjusted probability of child food insecurity in these two family structures was statistically insignificant.

Predicted probabilities of child food insecurity varied by family type. Unadjusted predicted probabilities (represented by the darker bars in the Figure) of child food insecurity are between 0.031(ECLS-K) and 0.044 (FFCWS) for married parent families, between 0.056 (PSID) and 0.109 (ECLS-K) for cohabiting parent families, between 0.096 (ECLS-K) and 0.126 (PSID) for single mother families, and between 0.051 (ECLS-K) and 0.092 (ECLS-B) for repartnered families. Predicted probabilities based on our unadjusted models largely replicated the pattern of results summarized in Table 1. Two sets of results from these unadjusted models are noteworthy. First, in three of the datasets (ECLS-B, FFCWS, and ECLS-K), the predicted unadjusted probabilities for children living with married biological parents were significantly lower than for all other family types. Second, in all four datasets, the probability of child food insecurity in single mother families was statistically indistinguishable from those for children in cohabiting and/or repartnered families. For example, in the ECLS-B, the probability of food insecurity for children in cohabiting and repartnered homes was twice as high as for children from married biological families, but there was no statistical difference in probabilities between repartnered and single mother households. Similarly, in the FFCWS, the probability of food insecurity was highest for children in single mother households, but was not statistically different from those for children in cohabiting or repartnered households.

The lighter colored bars in Figure 1 present predicted probabilities from the adjusted models. The inclusion of controls and the Bonferroni adjustment for multiple comparisons resulted in a pattern of predicted child food insecurity that was markedly different from the adjusted logistic regression results in Table 1. These results indicate that after controlling for other correlates of food insecurity and family structure (mother‘s race and ethnicity, mother’s education, mother’s age household income, the number of children and adults in the family, and child’s age), the predicted probability of child food insecurity in an average household was nearly identical among the different family types. Only in the ECLS-K and PSID datasets were any family type comparisons still statistically significant in the adjusted models. In the ECLS-K, the probability of child food insecurity was statistically significantly lower in married biological parent households and repartnered households than in single mother households although these differences were small in magnitude (0.007 and 0.006, respectively). In the PSID, only the difference between cohabiting and single mother families remained statistically significant.

DISCUSSION

Using data from four nationally representative U.S. datasets, this study found that rates of child food insecurity in families where biological parents are cohabiting but are not married and in families where biological mothers are repartnered (cohabiting with or married to new partners who are not the biological father of the focal child) were high and often statistically indistinguishable from those in single mother families, the group typically identified as being at highest risk of child food insecurity in federal reports.[1, 29, 30] However, family structure was not related to child food insecurity above and beyond the influence of other factors such as household income, family size, and maternal race, ethnicity, education, and age. Our adjusted results demonstrate that there were few significant differences in predicted probabilities of food insecurity among children in various family structures that were average in other regards. Although our descriptive data indicate differences among our four samples, our bivariate and multivariate results were largely consistent across data sources.

Few prior studies have examined associations between family structure and food insecurity. These generally found that single mother households had the highest levels of food insecurity, married-couple households had the lowest, with cohabiting households in between[11, 21, 22, 31, 32]. The studies which also examined biological relationships between parents and children in two-parent (cohabiting or married) households also found that these households had lower food insecurity than households with one biological and one non-biological parent; that is, regardless of biology, married households had lower food insecurity.[11, 21, 31, 32] Our unadjusted results, which point to levels of child food insecurity in cohabiting biological and repartnered mother households that were often indistinguishable from those in single mother families, are only partially consistent with this prior work, though our finding that rates were lowest in married biological parent homes supports the conclusions of previous research. Our adjusted results, indicating substantially attenuated differences between family types after controlling for sociodemographic characteristics are consistent with at least one previous study.[11]

Prior studies[12,22,23,32,33] have a number of limitations which this study addresses. First and foremost, none of these previous studies distinguished between household level food insecurity and food insecurity among children. Second, none of these studies used the full USDA food security module[28], which is used to generate the official nationally representative estimates of child food insecurity. Previous studies relied instead on small set of questions such as the three questions available in the National Survey of American Families,[11, 21, 22, 31, 32] or the single question available in the Survey of Income and Program Participation[22]. Thus, our study contributes to this literature by focusing specifically on child food insecurity – a more severe and potentially harmful indicator of material hardship – and by using the full CFSS module, which is a more valid and reliable measure of food insecurity and is comparable to national data.

In addition, our study is the first, to our knowledge, to compare rates of child food insecurity among single mother families and cohabiting and repartnered families after adjustment for other factors; previous multivariate analyses did not examine single mothers[11] or examined food insecurity as part of a group of material hardships.[21] Explicit comparisons among cohabiting, repartnered, and single mother families is an important contribution given the increasing prevalence of complex and non-traditional family forms[6-10] and given the long-held assumption that children in single mother families are at highest risk for food insecurity. After controlling for maternal race and ethnicity, maternal education, maternal age, household income, child's age, and the number of adults and children in the household, most of the differences in child food insecurity among the different family structures were no longer statistically significant. This is important as previous research consistently points to less material hardship in married two-parent families compared to cohabiting or single parent families[21, 22]. Future research should seek to confirm the findings presented here using other data sources and the CFSS to investigate whether family structure contributes to child food insecurity and other measures of hardship above and beyond related factors.

Our study had some limitations. Despite its many benefits, the CFSS (like many other scales) measures food security for all children in the household. Thus, we were unable to explore differences in the relationship between family structure and food insecurity by the age of focal children in our datasets, a topic of potential concern to policy makers. Future research focusing on single-child households or using alternative measures of food insecurity might better explore this issue. Further, despite our use of data from relatively large national surveys, at times small subgroup sizes precluded us from performing finer grained analyses. In particular, the ability to separate repartnered families into those who are cohabiting and those who are married would have been desirable. That said, our adjusted models suggest that family structure may be related to child food insecurity through other downstream factors such as household income, parental education, or family size. In seeking to remediate food insecurity, policy makers might focus on children in non-traditional family types given their high levels of risk. However, efforts to eliminate child food insecurity might be better directed to more proximal determinants.

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Table 1: Sample Characteristics by Dataset

	ECLS-B, *n* = 31900[a]	FFCWS, *n* = 5761	ECLS-K, *n* = 41530	PSID-CDS, *n* = 2788
Child Food Insecurity, n (%)	1850 (5.8)	467 (8.1)	1960 (4.7)	189 (6.8)
Family Type				
Married, n (%)	20550 (64.5)	1807 (31.4)	28850 (69.5)	1675 (60.1)
Cohabiting, n (%)	3350 (10.5)	1054 (18.3)	1120 (2.7)	107 (3.8)
Single, n (%)	6800 (21.4)	2192 (38.1)	7830 (18.9)	838 (30.1)
Repartnered, n (%)	1150 (3.6)	708 (12.3)	3730 (9.0)	168 (6.0)
Mother's Race/Ethnicity				
Non-Hispanic White, n (%)	14400 (45.2)	1286 (22.3)	26800 (64.5)	1389 (49.8)
Non-Hispanic Black, n (%)	5200 (16.3)	2860 (49.6)	4380 (10.5)	1130 (40.5)
Hispanic (any race), n (%)	6000 (18.9)	1431 (24.8)	6470 (15.6)	170 (6.1)
Non-Hispanic other, n (%)	6250 (19.6)	184 (3.2)	3890 (9.4)	99 (3.6)
Mother's Education				
Less than High School, n (%)	5250 (16.5)	1491 (25.6)	4320 (10.4)	522 (18.7)
High School or equivalent, n (%)	8650 (27.2)	1598 (27.7)	10760 (25.9)	908 (32.6)
More than High School, n (%)	17950 (56.4)	2672 (46.4)	26450 (63.7)	1358 (48.7)
Mother's Age, years, mean (SD)	30.4 (6.6)	29.0 (6.1)	37.3 (6.69)	36.3 (7.0)
Household Income , thousands, $2011, mean (SD)	66.8 (61.6)	43.8 (53.6)	74.0 (57.0)	75.3 (91.9)
Number of children in household, mean (SD)	2.34 (1.19)	2.44 (1.34)	2.46 (1.13)	2.18 (1.04)
Number of adults in household, mean (SD)	2.16 (0.82)	2.00 (0.89)	2.11 (0.73)	1.90 (0.70)
Child's age, years, mean (SD)	2.4 (1.9)	3.8 (1.1)	8.8 (2.9)	9.1 (3.7)

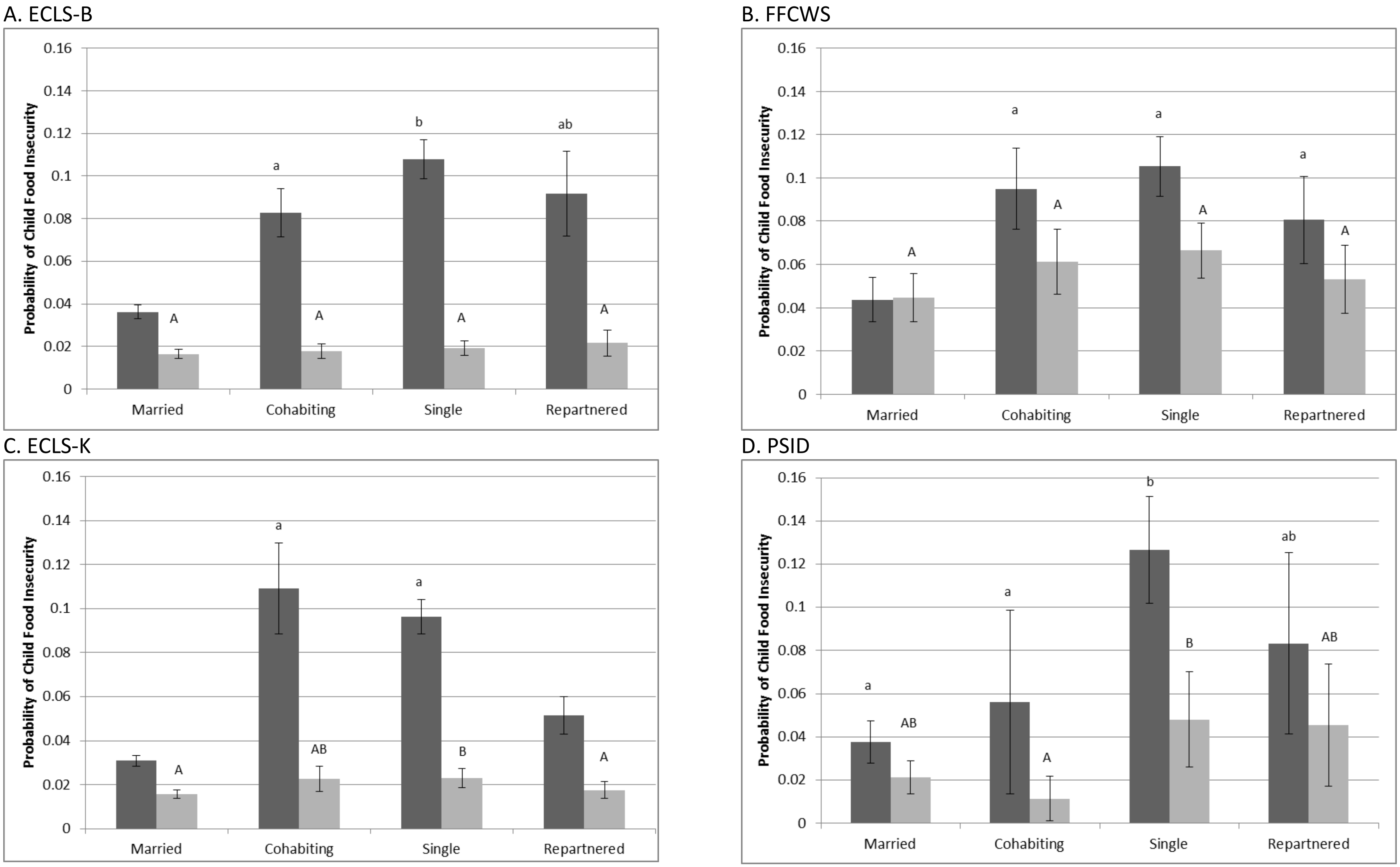
a – As per data license restriction, sample sizes are rounded to the nearest 50 in the ECLS-B and the nearest 10 in the ECLS-K.

Table 2 – Unadjusted and Adjusted Odds of Child Food Insecurity by Family Structure and Dataset

	Odds Ratios (95% Confidence Intervals)							
	ECLS-B		FFCWS		ECLS-K		PSID	
	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted	Unadjusted	Adjusted
Family Type								
Cohabiting+	2.40***	1.08	2.29***	1.40+	3.85***	1.45**	1.52	0.53
	(2.02-2.85)	(0.91-1.30)	(1.65-3.19)	(0.98-2.01)	(3.07-4.82)	(1.14-1.84)	(0.65 - 3.56)	(0.22-1.31)
Single	3.21***	1.17*	2.58***	1.53*	3.34***	1.47***	3.71***	2.33**
	(2.82-3.66)	(1.01-1.37)	(1.93-3.43)	(1.09-2.14)	(2.96-3.77)	(1.27-1.70)	(2.60 - 5.28)	(1.36-3.98)
Repartnered	2.69***	1.32*	1.92***	1.20	1.70***	1.11	2.33**	2.20*
	(2.08-3.47)	(1.00-1.37)	(1.32-2.77)	(0.80-1.82)	(1.41-2.06)	(0.91-1.36)	(1.26 - 4.30)	(1.11-4.35)
Mother Non-Hispanic Black+		0.92		0.82		1.04		1.23
		(0.77-1.10)		(0.59-1.16)		(0.86-1.26)		(0.77-1.96)
Mother Hispanic (any race)		1.20*		1.09		1.65***		2.67**
		(1.02-1.41)		(0.78-1.53)		(1.42-1.91)		(1.48-4.82)
Mother Non-Hispanic other		1.04		1.08		1.39**		1.34
		(0.86-1.25)		(0.51-2.67)		(1.14-1.69)		(0.57-3.17)
Mother HS or equivalent+		0.76***		0.96		0.76***		0.50**
		(0.66-0.87)		(0.74-1.25)		(0.65-0.87)		(0.33-0.77)
Mother More than HS		0.57***		0.87		0.63***		0.50**
		(0.48-0.67)		(0.66-1.14)		(0.54-0.74)		(0.32-0.79)
Mother 24-29 Years-old+		1.58***		1.24		1.20		2.04
		(1.34-1.85)		(0.93-1.65)		(0.84-1.69)		(0.86-4.82)
Mother 30-35 Years-old		2.00***		1.15		1.52*		1.25
		(1.66-2.42)		(0.81-1.63)		(1.08-2.16)		(0.51-3.06)
Mother >35 Years-old		2.30***		1.95***		1.64**		1.72
		(1.87-2.84)		(1.38-2.77)		(1.16-2.35)		(0.69-4.30)
Household Income (1000s $2011)		0.96***		0.98***		0.97***		0.98***
		(0.96-0.96)		(0.97-0.98)		(0.97-0.97)		(0.97-0.99)
Number of children		1.18***		1.17***		1.23***		1.30***
		(1.13-1.23)		(1.09-1.25)		(1.18-1.28)		(1.13-1.50)
Number of adults		0.99		1.09		1.02		1.47**
		(0.93-1.06)		(0.97-1.22)		(0.95-1.09)		(1.12-1.92)
Child's age		1.04***		0.96		1.01		1.01
		(1.02-1.07)		(0.89-1.04)		(0.99-1.03)		(0.95-1.06)

+ = referent category; * p<.05, ** p<.01, *** p<.001, all standard errors are clustered by child. + Married, Mother Non-Hispanic White, Mother Less than High School, and Mother <24 Years-old are omitted.

Figure 1 – Unadjusted and Adjusted Predicted Probabilities of Child Food Insecurity by Family Structure and Dataset



Unadjusted Probabilities Adjusted Probabilities

Predicted probabilities sharing a letter are not significantly different at the α = .05 level.

Lower case letters refer to comparisons for unadjusted probabilities. Upper case letters refer to comparisons for adjusted probabilities. Adjusted models control for mother's race/ethnicity, mother's education, mother's age, household income, the number of children and adults in the household, and child age.