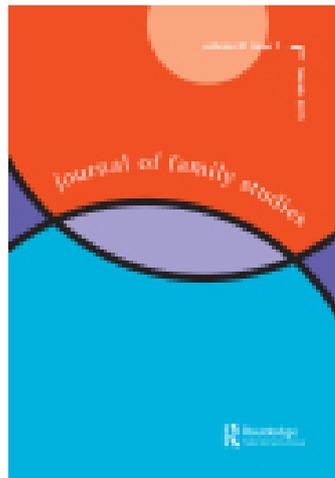


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Child support and food insecurity among custodial-mother families in Colombia

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ABSTRACT: *In this study I examine the food insecurity experiences of custodial-mother families in Colombia and the extent to which child support receipt helps prevent uncertain or limited access to adequate food. Using data from the 2008 Quality of Life Survey, which has detailed information to calculate the Latin American and Caribbean Scale to Measure Food Security, I found that more than half (57.3%) the custodial-mother families experienced some level of food insecurity in 2008. My multivariate analyses suggest that families receiving child support are less likely to experience inadequate consumption of food; a 10% increase in child support income is associated with a 9% decline in the chances of experiencing this hardship. This association is particularly concentrated among single-mother families and families headed by younger mothers. Overall, my results suggest that policies that increase child support receipt in less-developed countries like Colombia are likely to decrease food insecurity among custodial-mother families.*

KEYWORDS: food insecurity, child support, custodial-mother families, family policy, Colombia

Noncustodial fathers' financial contributions, more generally known as child support, reduce income poverty among custodial-mother families (that is, families in which the children's father is alive but not living with the children and their mother) in a wide range of countries (Bartfeld, 2000; Cancian, Meyer, & Park, 2003; Cuesta & Meyer, 2014; Hakovirta, 2011; Meyer & Hu, 1999; Nichols-Casebolt, 1986; OECD, 2011). Less is known about the role of child support in avoiding material hardship, especially in the context of less-developed nations. While child support receipt may increase a family's financial resources, this additional income may not necessarily reduce the inadequate consumption of very basic goods, such as food and housing. In fact, research conducted in developed countries shows that associations between material hardship and income and material hardship and poverty status are weaker than would be expected (Cancian & Meyer, 2004; Mayer & Jencks, 1989; Nepomnyaschy & Garfinkel, 2011; Sullivan, Turner, & Danziger, 2008).

Various reasons may explain the modest association between these constructs. Income is a limited measure of economic wellbeing; in fact,

access to in-kind resources or credit may lead to different living standards among families with the same incomes (Beverly, 2001). Also, even if families have incomes above the poverty threshold (and therefore are considered not poor), physical and mental health issues or alcohol and drug problems may affect parents' ability to manage resources (Heflin, Corcoran, & Siefert, 2007; Nepomnyaschy & Garfinkel, 2011). Overall, material hardship and income poverty are better considered as alternative conceptions of poverty (Beverly, 2001) rather than substitutes for each other. Examining the role of child support income on material hardship expands prior knowledge on the antipoverty effectiveness of child support by looking at a conceptually different approach to poverty. Because poverty is a multidimensional phenomenon that cannot be fully explained with the single dimension of income, this analysis is instrumental in understanding the economic wellbeing of custodial-mother families.

Food insecurity, considered one of the more severe and potentially harmful experiences of material hardship (Miller, Nepomnyaschy, Lara Ibarra, & Garasky, 2014; Nepomnyaschy, Miller, Garasky, & Nanda, 2011), is highly prevalent in Colombia. According to the National Survey of Nutritional Status (ENSIN for the Spanish

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acronym), 42.7% of Colombian households experienced some level of food insecurity in 2010. Of the poorest households in the country, 60.1% experienced inadequate food consumption in the same year (Profamilia, 2011b). Empirical evidence also shows that food insecurity is more prevalent in female-headed households than male-headed households (Alvarez-Uribe, Estrada-Restrepo, & Fonseca-Centeno, 2010), and single-mother families are more likely to experience food insecurity than two-parent families (Isanaka, Mora-Plazas, Lopez-Arana, Baylin, & Villamor, 2007).

The purpose of this paper is to examine food insecurity experiences among custodial-mother families in Colombia and the extent to which child support receipt is helping to prevent these circumstances. Specific aims are: (1) To calculate the percentage of custodial-mother families experiencing overall food insecurity and different levels of this hardship; (2) to estimate the association between child support income and food insecurity; and (3) to examine whether the association of child support income with food insecurity varies by family structure and custodial-mother's age.

I study the case of Colombia for two main reasons. First, it has experienced substantial family changes over the last few decades (Cuesta & Meyer, 2014; Esteve, Lesthaeghe, & Lopez-Gay, 2012; Profamilia, 2011a) and aggregate figures suggest that in Colombia both female-headed households and single-parent families are among the highest in Latin America (Cerrutti & Binstock, 2009; ECLAC, 2004). These demographic changes along with very little extant research on their concomitant child support issues make Colombia an interesting case study. Another reason I chose Colombia is because it has a unique dataset that facilitates the systematic identification of custodial-mother families and provides key information to measure food insecurity. Specifically, I am able to calculate the Latin American and Caribbean Scale to Measure Food Security (ELCSA for the Spanish acronym), adapted and validated for Colombia.

This study extends prior research through several avenues. First, examining the association between child support and food insecurity in Colombia

provides an alternative perspective on poverty experienced by custodial-mother families in less-developed countries. As discussed above, poverty is not a one-dimensional construct and, therefore, using an alternative assessment is particularly important to improve our current understanding of the economic wellbeing of these families. Literature on this topic is scarce and, to the best of my knowledge, there is no research that looks at these issues in the context of nations like Colombia. Second, findings from this study can help to enhance child support policies. Specifically, if there is a high incidence of food insecurity among custodial-mother families, children in these families would be facing issues that, at least in theory, could be addressed by the child support system (CSS); findings from this study could initiate a debate on the purposes of the CSS and specific ways in which it is falling short. These results could also highlight the need for collaboration between the CSS and government agencies in charge of nutritional programs and health care provision.

The remainder of this paper proceeds as follows. The Colombian child support system section describes the Colombian CSS. Literature review section discusses findings from prior research and hypotheses of the role that child support income may have in the food insecurity experiences of custodial-mother families in Colombia. Data, sample, measures, and methods section presents data, sample, methods, and measures, and Results section describes the results. In the Discussion and conclusions section I discuss findings, limitations, and conclusions of the study.

THE COLOMBIAN CHILD SUPPORT SYSTEM

Colombia has a CSS that comprises three main actors: The judicial system, a government agency called the National Institute of Family Well-being (NIFW), and local governments. These actors intervene in different circumstances and sometimes cooperate to get child support arrangements in place. When parents get divorced, child support arrangements are made through legal divorce proceedings. If there is a no marital birth or parental separation, the CSS intervention depends entirely on the custodial parent's initiative to pursue a child support order. However, parents can make a private

agreement that – at least in theory – is enforceable by the CSS. If there is no private agreement, the custodial parent may either sue the noncustodial parent or request support from the NIFW.

Four major tasks describe the Colombian CSS's operation: (1) Request for intervention, (2) order establishment and revision, (3) collection and distribution of payments, and (4) enforcement (Cuesta & Meyer, 2012). The first task, request for intervention, should be initiated by the custodial parent at a local NIFW agency or family court. The CSS begins the process of locating the absent parent and, if needed, paternity is established. Overall, the process through the NIFW is meant to be less adversarial than the judicial procedure. All services provided through NIFW are free of cost while the costs of legal counseling and representation in court are incurred by the custodial parent.

With respect to the second task, order establishment and revision, the CSS promotes parents' agreement on the amount and type of support. If parents agree, the amount and characteristics of support (e.g., type, regularity, etc.) become enforceable by the CSS. If parents disagree, the NIFW officer is authorized to set up an administrative order (as is the family judge if the custodial parent goes to court). The Colombian CSS does not have guidelines for the amount of support except that it cannot be higher than 50% of the noncustodial parent's monthly wage. As a result, the NIFW staff and family judges have a lot of discretion when establishing child support orders.

The third task, collection and distribution of payments, depends primarily on the parents and no intervention of a public agency is expected. Wage withholding may occur if the custodial parent sues the noncustodial parent and the family judge determines that such procedure should be granted. In this case, the employer forwards payments to the judicial system and the judicial system issues a check that the custodial parent retrieves at the court office. The fourth task, enforcement, occurs only if the custodial parent sues the noncustodial parent. The system itself does not initiate any action against the noncustodial parent unless it is requested by the custodial

parent. Penalties for noncompliance include prison sentences and loss of parental rights.

The Colombian CSS shares several characteristics of systems in developed countries. For instance, it has a combination of judicial and government actors that provide services to custodial parents and there are some penalties for noncompliance with child support orders. The Colombian system also encourages private agreements among parents, which is one key feature of the most recent reforms in countries like the United Kingdom and Australia (Cuesta & Meyer, 2014). Of course there are some differences between the Colombian system and schemes in developed countries. For example, some procedures are more standardized in developed countries and do not require much action from the custodial parent (e.g., wage withholding, monitoring payments). Many developed countries also have large scale enforcement programs while Colombia relies mostly on custodial parent agency and self-advocacy. It is also worth noting that the CSS receives less policy attention in Colombia than in many developed countries.

LITERATURE REVIEW

Theoretical perspectives

Child support income may reduce food insecurity through different avenues. The most obvious mechanism is by increasing a family's income and, therefore, providing additional resources to facilitate the adequate consumption of food. An influential qualitative study conducted by Edin and Lein (1997) describes ways in which noncustodial fathers' contributions may help custodial-mother families to avoid material hardship experiences in the United States. Holding other factors constant, child support income may directly increase financial resources to buy food, clothing, and pay rent and utilities, or it may allow mothers to reallocate resources that they would have spent on those items (Edin & Lein, 1997; Garasky & Stewart, 2007; Nepomnyaschy & Garfinkel, 2011). However, the literature for a wide range of countries shows that receipt rates of child support are generally low (Cuesta & Meyer, 2012; Hakovirta, 2011; Skinner & Davidson, 2009) and families receiving these transfers usually get small amounts of support (Cancian et al., 2003). In Colombia, only one

in four families eligible for child support receives these transfers (Cuesta & Meyer, 2012) and the mean amount received is \$36 per month (Cuesta & Meyer, 2014). These conditions may limit the potential of child support to prevent food insecurity among custodial-mother families in Colombia.

Another theoretical approach suggests that child support income may reduce food insecurity by facilitating accountability on how resources are spent. Specifically, custodial-mothers may be more inclined to spend noncustodial fathers' transfers on items like food than they would have been spending other types of income on the same item (Del Boca & Flinn, 1994; Garasky & Stewart, 2007; Nepomnyaschy & Garfinkel, 2011; Nepomnyaschy et al., 2011). This can be particularly relevant if the father keeps contact with his children and sees their living conditions and overall wellbeing; this process, also known as monitoring (Seltzer, 1994), may create incentives to invest child support in consumption of basic goods and services for children (Garasky & Stewart, 2007). Yet, others argue that it is also likely that noncustodial father's visitation may increase family's hardships by discouraging searches for outside support (e.g., accessing a food pantry); these authors suggest that stigma associated with welfare receipt and the noncustodial father's sense of being financially responsible for their children may be some of the drivers of this behavior (Coe & Hill, 1998; Garasky & Stewart, 2007; Stewart, 2003). The possibility that noncustodial father's visitation entails consuming family resources could also increase food insecurity (Garasky & Stewart, 2007; Stevens, 2010). Nepomnyaschy and Garfinkel (2011) and Nepomnyaschy et al. (2011) also suggest that child support receipt may increase this hardship if child support income discourages contributions from other family members, relatives, or even friends. However, as these authors discuss, this is highly unlikely as noncustodial fathers' payments would need to be large enough to offset contributions from other individuals.

Empirical evidence

To the best of my knowledge, there is no quantitative study that looks at the association between

child support income and food insecurity in Colombia or any other developing country. Some studies for Colombia show that food insecurity is highly prevalent (Profamilia, 2011b), especially among female-headed households (Alvarez-Uribe et al., 2010). One study that focuses on Bogotá, the capital of Colombia, also shows that single-parent families are more likely to experience food insecurity than two-parent families (Isanaka et al., 2007). Yet, none of these studies examine the prevalence of food insecurity among custodial-mother families nationwide and the extent to which child support may help to prevent these experiences.

Studies that look at this issue in developed countries are very scarce and the vast majority of published, quantitative research focuses on the United States. Overall, this literature shows that child support income does not have a consistently significantly negative association with food insecurity (Garasky & Stewart, 2007; Nepomnyaschy & Garfinkel, 2011; Nepomnyaschy et al., 2011). Nepomnyaschy et al. (2011) explore potential explanations for this result, including the irregularity of child support payments among low-income families and the fact that recipients of public assistance (e.g., cash welfare or food vouchers) may not receive the full amount of child support paid on behalf of their children, if any. These supplementary analyses show no consistent evidence on whether regularity of payments matters for child support income to prevent food insecurity. Also, their main findings do not change after controlling for public assistance receipt; while child support income was negatively associated with food insecurity, findings were not always significant in alternative specifications.

Recent empirical evidence suggests that child support income reduces income poverty among custodial-mother families (Cuesta & Meyer, 2014). If additional income provides opportunities to either buy food or to reallocate custodial-mother's income to do so, we may expect child support to be negatively associated with food insecurity in Colombia. Moreover, child support may have a stronger association with food insecurity in Colombia than in the

United States. First, if food insecurity levels are high in developing countries, any income source may have stronger effects. Second, in the majority of United States, child support payments are fully withheld from recipients of cash welfare in order to recoup costs. In contrast, the Colombian CSS does not have a systematic interaction with the country's public assistance scheme, so child support income may have a stronger negative and statistically significant association with food insecurity in Colombia than in the United States. On the other hand, there is also evidence that child support receipt is particularly low (28% of custodial-mother families in 2008) and amounts received relatively small (mean \$36 per month) in Colombia (Cuesta & Meyer, 2014), suggesting that child support income may not be enough to help custodial-mother families avoid food insecurity experiences. Further research is needed in order to better understand the association between child support income and food insecurity in less-developed countries like Colombia.

Multivariate analyses of this paper include standard sociodemographic factors associated with the inadequate consumption of food (e.g., custodial-mother's education, age, and employment; number of children in the family; whether the family lives in a rural or urban area) and other income sources that may also influence food insecurity experiences (e.g., earnings, government transfers). One proxy of noncustodial father's contact with his young children is included as well. While this paper focuses on child support income, including other types of noncustodial father's contributions is instrumental to provide more robust estimates of the association between child support income and food insecurity.

DATA, SAMPLE, MEASURES, AND METHODS

Data

I use the 2008 Quality of Life Survey (QLS), a nationally representative household survey that is run by the Colombian National Department of Statistics (DANE for the Spanish acronym). It was conducted about every other year between 1997 and 2008. In 2009, the QLS became an annual survey that has some special modules

conducted every other year (e.g., food insecurity, social mobility). In addition to standard information on family demography, the 2008 QLS provides necessary items to calculate the Latin American and Caribbean Scale to Measure Food Security (ELCSA for the Spanish acronym), which can be used to examine food insecurity among custodial-mother families in Colombia. The survey also includes two questions on child support (receipt and amount received). Even though there is information on food insecurity in the 2012 QLS, this version does not include data on noncustodial father's physical contact with his young children. Hence, I use the 2008 data in order to include a key measure of father involvement in my analyses. The QLS is based on a multistage probability sample. In 2008, 13,611 households (50,542 individuals) participated in the survey.

Sample

In this study I use the sample of custodial-mother families constructed by Cuesta and Meyer (2014) using the 2008 QLS. Custodial-mother families are defined as a group of at least two persons residing together, at least one of whom is a child (i.e., from 0 to 17 years old) and one who is that child's mother (who is at least 18 years old). Families also include the spouse or cohabiting partner of the mother, any half- or step-siblings of the child, and any children of the spouse/partner. The QLS has data for each child on whether the father and mother are in the household, who they are, and, if they are not in the household, whether they are alive. I used the responses to these questions to create families within households and to determine whether any family was a custodial-mother family (that is, there was a child living with his mother whose father was alive but lived elsewhere). This procedure provides a sample of 3,359 custodial-mother families, 2,616 who are single-mother families (an unpartnered mother and her children) and 743 who are repartnered-mother families (that is, families in which there is a mother, a mother's spouse/partner, and at least one child who is the mother's child but not the spouse/partner's child).

Measures

Food insecurity

This hardship is observed at the household level. In order to determine whether a household experienced low, moderate, or severe food insecurity, I use the Latin American and Caribbean Scale to Measure Food Security (ELCSA for the Spanish acronym), adapted and validated for Colombia. The 2008 QLS includes questions needed to measure the 15 items included in ELCSA. Specifically, households were asked whether, due to lack of money, they experienced any of the following events, 30 days prior to the survey: (1) Running out of food; (2) an adult did not have access to a healthy diet; (3) an adult did not have breakfast, lunch, or dinner; (4) an adult could not vary food; (5) an adult ate less than he/she is used to; (6) an adult felt hungry or complained of being hungry but could not buy more food; (7) an adult had only one meal in the day; (8) an adult went to bed hungry; (9) a child did not have access to a healthy diet; (10) a child could not vary food; (11) a child ate less than he/she is used to; (12) an adult had to serve less food to a child; (13) a child complained of being hungry but could not buy more food; (14) a child went to bed hungry; and (15) a child had only one meal or did not have any meal in the day. Following the ELCSA protocol, households were assigned one point for each event they experienced. A household's overall score (0–15 points) for the scale was then calculated by summing the scores on the individual items. Households were classified as food secure if they got 0 points (households show no or minimal evidence of food insecurity); minimally food insecure if they got 1–6 points (households worrying about running out of food and adjusting food quality and variety, but not reducing quantities of food intake below normal levels); moderately food insecure if they got 7–11 points (households in which adults skip or cut the size of their own meals and reduce their food intake below normal levels to provide for their children); and severely food insecure if they got 12–15 points (households in which both adults and children reduce food intake and experience hunger). In addition to examining these levels of food insecurity, I construct a

dichotomous measure for experiencing any level of food insecurity.

Child support income

It is measured as a continuous variable that reflects the amount of support received by the custodial-mother family in the month prior to the survey. This value includes both formal (with a legal order) and informal (without a legal order) child support. Along with other sources of income described below, child support income is included in the multivariate analyses as the logarithm of the amount converted to United States dollars (1,920 Colombian pesos = 1 United States dollar as of May 19, 2014). In the model that includes income variables as dichotomous measures, this variable is coded as 1 if the custodial-mother family received any amount of child support in the month prior to the survey.

Labor income

It is measured as a continuous variable that includes wages or earnings received in the month prior to the survey, from all jobs held by all family members who were employed or self-employed at the time of the survey. In the model that includes income variables as dichotomous measures, this variable is coded as 1 if the custodial-mother family received any labor income in the month prior to the survey.

Other income

It is measured as a continuous variable that reflects other sources of income such as pensions, support from others, and rental income received in the month prior to the survey, from all family members. In the model that includes income variables as dichotomous measures, this variable is coded as 1 if the custodial-mother family received any amount of other transfers in the month prior to the survey.

Government transfers

It is measured as a continuous variable that includes items such as conditional cash transfers, unemployment subsidies, emergency support, and subsidies for the elderly. Because this information is reported at the household level,

I estimate the amount per custodial-mother family. For this calculation, I assume that transfers are distributed equally across household members and then sum these per capita transfers across the members of the custodial-mother family. Because this information is reported for the 12-months prior to the survey, I divide the year amount by 12 to approximate a monthly amount per family. In the model that includes income variables as dichotomous measures, this variable is coded as 1 if the custodial-mother family received any government transfers during the 12-months prior to the survey.

Noncustodial father's contact with his young children

This variable is measured as a dichotomous variable. Families in which at least one child under 5 years old has a noncustodial father who usually does any of the following activities with the child are coded as 1, and 0 otherwise. The activities are: (1) Sing or read stories, (2) go to the park, (3) play sports, (4) do artistic activities, (5) have at least one meal per day together, and (6) do homework together.

Other covariates associated with food insecurity

I also included dichotomous measures for the following characteristics: Family type (single-mother family = 1); number of children in the family (one child, two children, and three children or more; one child as a reference category); custodial-mother's age (<30, between 30 and 40, and more than 40 years old; the latter as a reference category); custodial-mother's education (less than high school, high school, and more than high school; the latter as a reference category); mother's status in the labor market (employed = 1); mother's self-reported health status (very good and good = 1); whether the household is located in urban or rural area (urban = 1); whether the family lives in a multi-family household (yes = 1); and whether the family lives in a household that experienced any of the following economic losses between 2004 and 2008: (1) Head of the household job loss, (2) spouse or partner's head of the household job loss, (3) other member of

the household lost his/her job, (4) family business went out of business, or (5) other important economic loss.

Methods

I address aim 1 – to calculate the percentage of custodial-mother families experiencing food insecurity – by conducting descriptive analyses for the full sample of families. I calculate the percentage of custodial-mother families experiencing different levels of food insecurity, as described above. In order to address the second aim, I use a series of probit regressions to estimate the relationship between child support and the likelihood of experiencing food insecurity. When examining this relationship, I estimate one model that includes income variables as dichotomous measures and another model that includes income variables as continuous measures. The purpose of these analyses is to explore whether the amount matters or only whether something is received. I use Akaike's Information Criterion (AIC) and Schwarz's Information Criterion (BIC) to determine the best fitted model. For all analyses I use the strategy of adding control variables progressively. The first specification includes only child support income. In the second model I add other sources of income. In the final model I include variables generally associated with food insecurity. The second and third models help examine whether any estimated relationship between child support and food insecurity remains when other variables are controlled. In order to address the third specific aim of the study I estimate the association between child support and food insecurity by subcategories of family structure (single-mother family and repartnered-mother family) and custodial-mother's age (from 18 to 29, 30 to 40, or 41 or more years old).

RESULTS

Descriptive analyses

Table 1 presents the frequency of overall food insecurity as well as different levels of this hardship among custodial-mother families in Colombia. My analyses show that 57.3% of these families experienced food insecurity 30 days prior to the 2008 QLS. Some variation on the extent of food insecurity is observed. Of all custodial-mother families in the sample, 13.3%

experienced severe food insecurity (adults and children reduced food intake and experienced hunger), and 16.2% experienced moderate food insecurity (adults skipped or cut the size of their own meals and reduced their food intake below normal levels to provide for their children). Families receiving

child support are less likely to experience this type of hardship than those who do not benefit from these transfers, especially if they are facing moderate and severe episodes of food insecurity. These differences between recipients and non-recipients of child support are statistically significant.

TABLE 1: FREQUENCY OF FOOD INSECURITY AMONG CUSTODIAL-MOTHER FAMILIES IN COLOMBIA

	Full sample	Received CS	Do not received CS	
Overall food insecurity	0.573	0.511	0.593	***
Food secure	0.427	0.489	0.407	***
Low food insecurity	0.273	0.265	0.276	
Moderate food insecurity	0.162	0.136	0.170	*
Severe food insecurity	0.133	0.104	0.143	**
Observations	3359	839	2520	

Unweighted. Source: Author's calculations based on 2008 QLS, DANE, Colombia. Proportions presented. Statistical significance of bivariate tests for differences between those families receiving child support and those families not receiving these transfers: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

Multivariate analyses

Table 2 shows probit regressions in which income variables are included as dichotomous measures. Results suggest that there is a statistical association between child support receipt and experiencing food insecurity. However, this relationship weakens dramatically (in size and statistical significance) once I include other factors related to food insecurity more generally. Table 3 presents

TABLE 2: REGRESSIONS ON OVERALL FOOD INSECURITY

	Model 1	Model 2	Model 3
Received child support	-0.081*** (0.019)	-0.086*** (0.019)	-0.040* (0.019)
Received earnings		-0.082*** (0.018)	0.031 (0.029)
Received other transfers		-0.000** (0.000)	-0.000* (0.000)
Received government transfers		0.227*** (0.017)	0.137*** (0.017)
Young child contact with noncustodial father			-0.073** (0.023)
Custodial-mother is 30–40 years old			-0.051* (0.020)
Custodial-mother is more than 40 years old			-0.018 (0.021)
Custodial-mother did not complete high school			0.209*** (0.026)
Custodial-mother completed high school			0.117*** (0.029)
Custodial-mother is working			-0.086*** (0.026)
Custodial-mother is in good health			-0.156*** (0.017)
Single-parent family			0.091*** (0.025)
Two children			0.053** (0.019)
Three children			0.151*** (0.023)
Family lives in a multi-family household			0.037 (0.022)
Economic loss between 2004 and 2008			0.176*** (0.018)
Family lives in urban area			-0.068*** (0.017)
Total observations	3.359	3.359	3.359

Probit model results. Income variables as dichotomous measures. Source: Author's calculations based on 2008 QLS, DANE, Colombia. Marginal effects (and standard errors) presented. Statistical significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

TABLE 3: REGRESSIONS ON OVERALL FOOD INSECURITY

	Model 1	Model 2	Model 3
Log (child support income)	-0.151*** (0.022)	-0.150*** (0.021)	-0.090*** (0.021)
Log (earnings)		-0.167*** (0.010)	-0.142*** (0.015)
Log (other income)		-0.061* (0.025)	-0.060* (0.025)
Log (government transfers)		0.568*** (0.080)	0.318*** (0.077)
Young child contact with noncustodial father			-0.081*** (0.022)
Custodial-mother is 30–40 years old			-0.031 (0.020)
Custodial-mother is more than 40 years old			0.003 (0.021)
Custodial-mother did not complete high school			0.135*** (0.027)
Custodial-mother completed high school			0.050 (0.030)
Custodial-mother is working			0.034 (0.020)
Custodial-mother is in good health			-0.134*** (0.017)
Single-parent family			-0.030 (0.025)
Two children			0.058** (0.019)
Three children			0.154*** (0.023)
Family lives in a multi-family household			0.037 (0.021)
Economic loss between 2004 and 2008			0.168*** (0.018)
Family lives in urban area			-0.040* (0.017)
Total observations	3.359	3.359	3.359

Probit model results. Income variables as continuous measures. Source: Author’s calculations based on 2008 QLS, DANE, Colombia. Marginal effects (and standard errors) presented. Statistical significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

probit regressions in which income variables are included as continuous measures. This analysis shows a negative, statistically significant association between child support income and experiencing inadequate consumption of food, even after including other variables related to food insecurity. Descriptive analyses also show a high standard deviation (United States 211) of mean amounts (United States 132) among those who actually received child support. Taken together, these analyses suggest that the amount received is important, not merely whether something is received. That is, being a recipient of child support may not make a substantial difference for family’s food security if the amount paid is negligible. Because AIC and Schwarz’s Information Criterion (BIC) analyses support the preference for including child support (and other income variables) as continuous measures, analysis by subcategories of family structure and custodial-mother’s age are conducted using continuous measures of income.

Results presented in Table 3 suggest that child support income is negatively associated with food

insecurity. The marginal effect of child support income is nearly identical after adding other sources of income (Model 2), and smaller after adding other variables associated with food insecurity (Model 3), but the association between this type of support and food insecurity remains negative and statistically significant across different specifications. Also, while the negative association between earnings and food insecurity is larger than the negative association between child support and food insecurity, analyses show no statistically significant differences between these two marginal effects. The positive and statistically significant association between government transfers and food insecurity probably reflects reverse causality; that is, custodial-mother families experiencing food insecurity are more likely to receive public assistance than those who do not face inadequate consumption of food.

My analyses also show that a child’s contact with the noncustodial father has a negative association with food insecurity. This result, along with the marginal effect of the child support income variable, suggests that noncustodial fathers’ contributions

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(represented in cash and time spent with young children) may help to avoid inadequate consumption of food among custodial-mother families in Colombia. Marginal effects for covariates theoretically associated with food insecurity coincide with prior empirical research in this area: Custodial-mothers with more education and good health are less likely to experience inadequate consumption of basic goods and services (and marginal effects are statistically significant) than custodial-mothers with less education and poor health. There is no association between mother's age and food insecurity or between mother's employment and food insecurity. In regards to family structure, I did not find any association between being a single-parent family or living in a multi-family household and experiencing food insecurity. However, the families with two or more children examined in this study are more likely to face episodes of food insecurity. Having an economic loss in the 4-years prior to the survey is positively related with food insecurity at the time of the 2008 QLS, while residing in an urban area reduces the likelihood of experiencing inadequate consumption of food.

Finally, Table 4 shows probit regressions by subgroups. These results indicate that the association between child support income and food insecurity is most heavily concentrated among single-mother families and families whose mother is 18–29 years old.

DISCUSSION AND CONCLUSIONS

My analyses suggest that child support income may help to prevent food insecurity in Colombia. In contrast, previous evidence for the United States does not

show a consistently significantly negative association between noncustodial father's financial contributions and the inadequate consumption of food (Garasky & Stewart, 2007; Nepomnyaschy & Garfinkel, 2011; Nepomnyaschy et al., 2011). Although my study is not strictly comparable with research conducted for the United States, one potential explanation for these differences is related to the lack of systematic interaction between the Colombian CSS and the country's public assistance scheme. Specifically, the absence of welfare-cost-recoupment policies in Colombia may strengthen the potential of child support income to prevent food insecurity among recipients of cash welfare, which most likely are those at greater risk of this hardship.

Findings from this study should be interpreted in light of the following limitations. First, and foremost, I am unable to estimate the causal effect of child support on food insecurity. My analyses suggest that noncustodial fathers' financial contributions are negatively associated with food insecurity but I cannot test whether this result is driven by unobserved differences between families receiving and not receiving child support income. Nevertheless, causal analysis was not the goal of this paper, and future research on this topic should take advantage of an instrumental variable or other identification strategies that may help to estimate the causal effect of child support on food insecurity.

A second limitation of the study is that I am relying on household level reports of food insecurity. If we believe that households with multiple families pool resources, this is probably a minor issue as one can assume that decisions on food

TABLE 4: REGRESSIONS ON OVERALL FOOD INSECURITY

	Family structure		Custodial-mother's age		
	Single-mother families	Repartnered-mother families	18–29	30–40	40+
Log (child support income)	–0.090*** (0.022)	0.037 (0.096)	–0.159*** (0.042)	–0.065 (0.034)	–0.069 (0.036)
Proportion of sample	0.78	0.22	0.38	0.35	0.27
Total observations	2.616	743	1.276	1.174	909

Probit model results: Subgroup analyses by family structure and custodial-mother's age. Source: Author's calculations based on 2008 QLS, DANE, Colombia. Marginal effects (and standard errors) presented. Models adjusted for all of covariates in Table 2 (except dichotomous variable of single-parent family for family structure models, and dummies of mother's age for age models). Statistical significance: * $p < 0.05$, ** $p < 0.01$, *** $p < 0.001$.

security would affect all families in the household equally. It is also important to note that only 16% of custodial-mother families in the sample live in a multi-family household and all multivariate analyses include a dichotomous measure of this status to try to address this issue.

A third type of limitation has to do with the measurement of key constructs. The measure of child support received covers only the previous month, and if child support is irregular, a 1-month window may not be an accurate representation of the typical pattern. Unfortunately, the QLS does not include any questions about the regularity of support. Also, I include only one proxy of mother's ability to avoid food insecurity (e.g., self-reported health status). Other aspects such as mother's cognitive ability and mother's impulsivity have been found to be associated with food insecurity experiences in developed countries like the United States.

Despite these limitations, this study provides an important first look at the food insecurity experiences of custodial-mother families in Colombia and the role that child support may play in avoiding these events. Findings suggest that noncustodial fathers' financial contributions help custodial-mother families to escape food insecurity in this country. A 10% increase in child support income is associated with a 9% decline in the chances of experiencing this hardship. Those receiving child support are less likely to face episodes of food scarcity or hunger and this association is particularly important for single-mother families and families whose mothers are 18–29 years old. Because food security is such an important factor for human development, these results suggest that child support may play a key role in family wellbeing beyond the obvious, mechanical increase of total family income. Of course mother's earnings are also helping these families to avoid food insecurity, but there is no statistical difference between the marginal effects of child support income and earnings on food insecurity, suggesting that both custodial-mother's earnings and noncustodial father's financial contributions are instrumental in preventing these events.

This study suggests that policies that increase child support receipt in less-developed countries like Colombia are likely to decrease food insecurity among custodial-mother families. Policy-makers might consider any child support policies in use in

developed countries that have been found to be associated with increase receipt to see if they might be applicable to developing countries. These results also highlight the need for collaboration between government agencies in charge of nutritional programs and the health care system and the child support scheme.

Finally, this study also has implications for future research. The association between food insecurity and child support needs to be further explored with data that provide information on the type (formal vs. informal; cash vs. in-kind) and regularity of support, and that use longitudinal data, instrumental variables or other identification strategies. These types of analyses will allow us to have more certainty in determining policy recommendations. Research on the relationship between child support and other measures of material hardship, including unmet medical need or housing problems due to lack of income, also need to be studied. Some exploratory analyses with the 2008 QLS show that 13% of custodial-mother families live near a sewer or garbage dump, which may be an indication of other material hardships such as inadequate or substandard housing. Unfortunately, the QLS does not include good measures of these constructs. Other material hardship experiences need to be examined with different data.

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