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Mothers' Citizenship Status and Household Food Insecurity Among Low-Income Children of Immigrants

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Abstract

Recent data have shown that children of immigrant noncitizens experience more persistent and higher levels of food insecurity than the children of citizens following welfare reform. However, little is known about the range of factors that might explain different rates of food insecurity in the different populations. In this study, the authors used national data from the Early Childhood Longitudinal Study–Kindergarten cohort to assess this question, using multivariate probit regression analyses in a low-income sample. They found that households of children (foreign and U.S.-born) with noncitizen mothers are at substantially greater risk of food insecurity than their counterparts with citizen mothers and that demographic characteristics such as being Latina, levels of maternal education, and large household size explain about half of the difference in rates.

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Children of immigrants are the fastest-growing component of the child population. Although immigrants comprise only 11% of the total population, children of immigrants represent 22% of children under 6 years of age in the United States (Capps, Fix, Ost, Reardon-Anderson, & Passel, 2004). The 1996 federal welfare reform law introduced, among other things, broad restrictions on immigrants' eligibility for many health and social service programs, including cash welfare assistance (TANF), Food Stamps, and subsidized health insurance. Caseloads for these benefit programs have fallen dramatically in the wake of welfare reform (Blank, 2002), but the declines have been steeper for immigrants than for native-born citizens (Fix & Passel, 1999), even when immigrant families remain eligible for assistance.

In light of their more limited use of government assistance programs, it is not surprising that immigrant families are poorer and suffer more material hardships than their native counterparts (Capps, 2001). In particular, after welfare reform, children of immigrant noncitizens experienced more persistent and higher levels of food insecurity compared to the children of citizens (Van Hook & Balistreri, 2006).

Food insecurity, defined as limited or uncertain access to enough nutritious and safe food or limited or uncertain ability to acquire acceptable foods in socially acceptable ways (Bickel, Nord, Price, Hamilton, & Cook 2000), is prevalent among many low-income families. In 2002, about 11% of American households were classified as food insecure (Wilde & Nord, 2005), but the rate was higher in households with children (18%), poor families (37%), and in Black (24%) and Hispanic (22%) households (Nord, Andrews, & Carlson, 2003). Notably, a recent study of low-income legal immigrants in California, Texas, and Illinois reported rates of food insecurity of 80% (Kasper, Gupta, Tran, Cook, & Meyers, 2000). As measured by the U.S. Food Security Scale (Bickel, Nord, Price, Hamilton, & Cook, 2000), food security is considered a marker for the adequacy and stability of the household food supply over the past 12 months for active, healthy living for all household members (Bickel et al., 2000). Clearly, however, there is wide variation in low-income families' experience of food insecurity, given that not all children in low-income families are food insecure.

A number of studies has shown the potential negative impact of food insecurity on children's health and development. Food insecurity is associated with poor child outcomes in the realms of physical health as well as psychological and academic functioning (Alaimo, Olson, & Frongillo, 2001; Casey et al., 2006; Dunifon & Kowaleski-Jones, 2003; Slack & Yoo, 2005; Winicki & Jemison, 2003). Adverse impacts of food insecurity on young children's health and development are important given the linkages between early childhood circumstances and later life outcomes (Case, Fertig, & Paxson, 2003). Food insecurity may be a particular concern for the young low-income children of immigrants, given their already elevated risk for poor health (Huang, Yu, & Ledsky, 2006).

Few studies have aimed to explain food insecurity among low-income families, and even fewer have focused specifically on low-income immigrant families and how or why they differ from their native counterparts. It is not surprising that standard demographic characteristics such as differing levels of program participation, education, employment, and income are important determinants of food insecurity within low-income populations. Given important differences in such socioeconomic characteristics between low-income native and immigrant populations, it is plausible to hypothesize that these variables would account for the higher levels of food insecurity among immigrant populations. However, in immigrant populations additional factors may account for their higher levels of food insecurity, including parents' citizenship status and parents' integration into the community. Immigrant noncitizens are less likely to be aware of community programs and health services compared to their native and naturalized citizen counterparts (Huang et al., 2006; Yu, Huang, Schwalberg, & Kogan, 2005). Immigrant parents are also more likely than their native counterparts to be limited English proficient (LEP). This lack of social and linguistic integration could result in higher rates of food insecurity if families are unable to make use of community resources that could ease material hardships.

We used a national data set that contains an unusually wide range of potentially important variables to explain the differential rates of food insecurity between low-income native and immigrant populations, allowing us to gain a deeper perspective on the factors that predict food insecurity among low-income families and, in particular, the key factors that explain differences in rates of food insecurity among the children of immigrant noncitizens, children of immigrant citizens, and children of natives.

Background

Rates of food insecurity are higher in the low-income immigrant population compared to the low-income native population (Capps, 2001; Van Hook & Balistreri, 2006). It is well documented that low-income immigrant families have less education, work at lower-quality jobs (as defined by wage rates and benefits), and are less likely to participate in government benefit programs than their native counterparts. For example, in 2002, the individual Food Stamps Program participation rate for citizen children living with noncitizen adults was 44%, compared to 70% for all eligible children (Cunnynham, 2004). Higher levels of education allow individuals to secure better-remunerated jobs with better benefits, thus providing more income and insurance to the household. Employment that provides greater earnings and insurance can boost the resources available for consumption, which can, in turn, alleviate food insecurity. Alaimo, Briefel, Frongillo, and Olson (1998) found that income is negatively related to food insufficiency among low-income individuals in the NHANES III. Gundersen and Gruber (2001

reported similar findings. Finally, the Food Stamp Program has been shown to alleviate food insecurity (Gundersen & Oliveira, 2001).

Beyond demographic characteristics that may increase the risk of food insecurity among low-income immigrant populations, psychological and family factors may also play a role. The transition to a new society is a major life change that could place a high degree of stress on foreign-born noncitizen mothers of young children. Such stress could potentially increase maternal depression. Depression and stress may, in turn, interfere with a parent's ability to work or to manage a household or a monthly food budget on a limited income. Casey and colleagues (2004) show that maternal depression is associated with higher rates of food insecurity in low-income populations. Some research suggests that whereas Mexican-born immigrants are less likely to exhibit frank psychopathology than their U.S.-born ethnic counterparts, they are more likely to have unexplained somatic symptoms, which are generally taken as symptoms of distress (Escobar, Waitzkin, Silver, Gara, & Holman, 1998).

Parenting skills and knowledge may also be important correlates of food insecurity insofar as they reflect an ability to effectively manage a household, including its budget. Several studies have found that more acculturated Latinos make greater use of preventive health services (Lara, Gamboa, Kahramanian, Morales, & Bautista, 2005). With respect to children's preventive health care, this type of behavior could proxy for parents' knowledge and skills (especially if insurance coverage is held constant). In addition, Dumka, Roosa, and Jackson (1997) suggested that less-acculturated Mexican immigrant mothers demonstrated poorer parenting skills vis-à-vis their more acculturated and Mexican American counterparts. We do not know of any studies that have assessed the association of mothers' mental health or parenting behaviors with household-level food insecurity. It is important to bear in mind, however, that the associations between food insecurity and mothers' mental health or parenting behaviors may run in both directions.

Despite knowing these basic differences between low-income native and immigrant families, it remains unknown if a standard set of demographic and socioeconomic characteristics, or even an augmented set of factors that also includes parental well-being and parenting characteristics, will account for the differential rates of food insecurity in low-income native and immigrant populations. We propose that an important characteristic of the low-income immigrant population—one that has not been well-studied in relation to food insecurity—is its relative lack of social integration. This stems in many respects from the language barriers faced by many non-English speakers. A lack of English ability could impede the development of communication skills that enable immigrant parents to better negotiate with the bureaucracies of government assistance programs or private charities (Huang et al., 2006). Low-income immigrant mothers, for example, are less likely to be involved in their children's schools and other civic organizations

compared to low-income native mothers (Crosnoe, 2006). Social isolation, which may result from linguistic isolation, may make it difficult to learn about, develop, and successfully execute coping strategies to deal with material hardship and ward off food insecurity. In one recent local study of Latino families in Chicago, more than half of the food-insufficient mothers (most of whom were Mexican immigrants) did not know where to seek food if they were short of money (Chavez, Telleen, & Kim, 2007). Parents who interact with and trust their neighbors may be able to shop more effectively for food (e.g., by borrowing a car or getting a ride to the store) or to approach or rely on neighbors for assistance (e.g., by borrowing or exchanging services for food). Social capital (a measure of trust, reciprocity, and social networks) has been associated with household food security in low-income households, independent of socioeconomic factors (Martin, Rogers, Cook, & Joseph, 2004). However, the role of co-ethnic enclaves has been implicated in the relatively poorer economic outcomes of immigrants with limited human capital (Borjas, 2006). Thus, to the extent that high levels of social capital correlate positively with more compact co-ethnic immigrant social networks that interact little with the economic mainstream, such a measure might actually be positively correlated with food insecurity.

In light of the potential importance of social integration, we propose two key distinctions. First, it is important to distinguish among children who are born in the United States to foreign-born parents from those children who are themselves born abroad. Second, it is important to distinguish among children of immigrant parents of differing citizenship statuses. By definition in our data, children who are born abroad are more recent arrivals to the United States. Newly arrived parents, who likely maintain strong ties to their country of origin, will have had less time to accumulate the social capital and know-how that could help them secure material support in times of need. Similarly, immigrant mothers who have not completed the path to citizenship are presumably less socially integrated than their immigrant counterparts who have been naturalized.

The relevance of citizenship, recency of arrival, and social capital are particularly important in the post-welfare reform era. Immigrants were the target of many of the most stringent federal reforms under the Personal Responsibility and Work Opportunity Reconciliation Act (PRWORA; Pub. L. 104-193, 1996). Prior to the reforms enacted in 1996, legal immigrants and their children were generally eligible for public benefits under the same terms as citizens (although undocumented immigrants have never been eligible for benefits). However, by the late 1990s, immigrant families faced a vastly different policy environment—one marked by a potentially confusing set of rules concerning their eligibility to receive public assistance. The so-called chilling effect hypothesis maintains that immigrant families are reluctant to access public assistance because of confusion about eligibility and fear of the potential consequences for family members (Shields & Behrman, 2004). Parents who are not citizens may not be aware of their

U.S.-born children's eligibility for important benefits. Immigrant parents may also believe that seeking assistance for their eligible children will hinder other family members' efforts to obtain citizenship or legal status or their ability to re-enter and stay in the United States (Capps, 2001; Fix & Passel, 1999). Immigrant parents' high likelihood of being LEP could also contribute to their misunderstanding or confusion regarding the policy changes or their eligibility for programs. Thus, having access to neighbors one can rely on and trust, or being integrated into social networks that could impart useful information, might be especially important to low-income immigrants in times of heightened policy flux.

In summary, a variety of studies has linked demographic, human capital, and personal characteristics to rates of food insecurity in low-income populations. Food insecurity is an important correlate of poor health and developmental outcomes in children. Low-income immigrant families, compared to their native counterparts, are at greater risk of food insecurity and, in general, have worse profiles on the range of socioeconomic and demographic factors that correlate with food insecurity. One might reasonably assume that these differences in socioeconomic characteristics explain the observed differences in rates of food insecurity in the different populations. Surprisingly, little research has answered this question. We speculate that socioeconomic and personal characteristics are not sufficient to explain the gaps in food insecurity and that attention to immigrants' social integration may be an important component of differences. We address this point by distinguishing among foreign-born children with citizen versus noncitizen mothers as well as native-born children with foreign-born citizen versus noncitizen mothers, and by drawing on measures that plausibly indicate social integration to explain any remaining differences in food insecurity in the different populations, after socioeconomic and personal characteristics have been accounted for.

Sample

This study used data from the second wave of the public use version of the Early Childhood Longitudinal Study-Kindergarten Cohort (ECLS-K), a nationally representative sample of approximately 22,000 children enrolled in about 1,000 kindergartens during the 1998–1999 school years. The children were on average 75 months old at the second wave. Our dependent variable (food insecurity) was unavailable in the first wave. We restricted our sample to those families below 200% poverty threshold in Wave 2 (based on household income and size); this was designed to target households at risk for food insecurity as well as to compare immigrant children (many of whom are low income) to their low-income native counterparts. A sample of 6,445 was obtained. Further deletion of the data was due to missing values on the dependent variable and grouping variables (defined in the following section). Our final sample size was 6,068.

Variables

Dependent Variable. Parents in the ECLS-K completed the 18-item U.S. Household Standard Food-Security/Hunger Survey Module created by the U.S. Department of Agriculture (USDA; Bickel, Nord, Price, Hamilton, & Cook, 2000). Food insecurity was captured at the household level and assessed experiences in the past 12 months such as running out of food, perceptions that the food was of inadequate quality or quantity, and reduced food intake—all due to financial constraints. In our analysis, the dependent variable was a dummy variable indicating whether the family was food insecure or not. This measure was constructed from the four-part food security status variable (precoded in ECLS-K and described in Nord & Bickel, 2002), which reported the family as being *food secure*, *food insecure without hunger*, *food insecure with moderate hunger*, or *food insecure with severe hunger*. We grouped the last three responses together as food insecure (1/0), which means that the parent answered affirmatively to fewer than three items on the 18-point scale. It is important to note, however, that families in the omitted group (*not food insecure*) may still have experienced worries that food would run out or have experienced actual food shortages.

Defining Groups. One of the strengths of this study is that our data allowed us to go beyond the oft-used distinction of “children of immigrants” (Hernandez, 2004) and to categorize different types of immigrant families depending on the parental birthplaces and mother’s citizenship status. Information on the mother’s birthplace was available from the second, fourth, and fifth waves of the survey. Data on the father’s birthplace was available in the fourth and fifth waves. We first transformed these variables into binary variables. Parents who were born in the United States were coded as U.S.-born and others were coded as foreign-born. We considered those who were born in U.S. unincorporated territories (that is, American Samoa, Guam, Puerto Rico, Northern Mariana Islands, U.S. Virgin Islands) as U.S.-born. To minimize the possibility of misreporting, we used all three waves of information (two waves for father). In case of inconsistencies across waves, the solutions were as follows: If a mother reported being U.S.-born in any two waves and foreign-born in the remaining wave, we assigned her as U.S.-born. If a mother reported being foreign-born in any two waves and U.S.-born in the remaining wave, we assigned her as foreign-born. If only two waves of data were available (by definition, this includes all fathers) and there was an inconsistency in his or her country of birth (U.S.- or foreign-born), we assigned them as foreign-born.

The second variable in our group definition was mothers’ citizenship. We only considered mother’s citizenship because mothers are usually the primary caregivers in the household and there were substantial numbers of single-mother families in our low-income sample. Dichotomous variables of mother’s citizenship were available at Waves 4, 5, and 6. However, unlike birthplace, one’s citizenship does change. Using citizenship information

from the fourth wave to determine mother's citizenship status in the second wave (i.e., when our outcomes measure of food insecurity is assessed) may have run the risk of underestimating the number of noncitizen mothers. That is, mothers who were not U.S. citizens in the second wave may have become U.S. citizens in the fourth wave. We identified 127 mothers who were not U.S. citizens in Wave 4, but who became U.S. citizens by Wave 6. Therefore, we suspect the number of mothers who became citizens between the second and fourth wave was very small. However, even if we had underestimated the size of the noncitizen population, our coefficients in the regressions would have been an underestimate of the risks facing noncitizens. Our estimates were relatively conservative in this sense.

Using information on mothers' citizenship and parental birth places, we created the following seven mutually exclusive groups: (1) child and parents foreign-born, noncitizen mother ($n = 144$); (2) child and parents foreign-born, citizen mother ($n = 23$); (3) child U.S.-born, parents foreign-born, noncitizen mother ($n = 694$); (4) child U.S.-born, parents foreign-born, citizen mother ($n = 398$); (5) child U.S.-born, only one parent foreign-born, noncitizen mother ($n = 40$); (6) child U.S.-born, only one parent foreign-born, citizen mother ($n = 232$); and (7) child, parents U.S.-born ($n = 4,537$).

Because we did not use current marital status as a criterion in creating our groups, all seven groups contained both single-parent and two-parent families. That is, having information on both mothers and fathers did not preclude the child from living in a single-parent family.

Demographics. Our analysis contained a series of demographic variables. Child's race was represented by a series of dummy variables that distinguished White, Latino, African American, and children of other races. We grouped Asian American, Native American, Pacific Islanders, mixed races, and cases where race is uncertain in the other races category due to the relatively small size of each of these groups (around 3%) in our sample. Given the heterogeneity of this group, however, caution should be exercised in interpreting its coefficient in the regression analysis. Mothers' employment status was coded in four categories—full-time, part-time, unemployed, and out of labor force (this is the omitted group). Mothers' education was also coded in multiple categories (with “no high school degree” serving as the omitted group). We also included a dummy variable for whether the child lived in a single-parent family (these were almost all single-mother families) and a continuous measure of family size.

Income and Program Participation. Family income plays a central role in determining the economic resources of a family. We included a continuous income variable measured by thousands of dollars in our regression. In addition to income, welfare programs affect economic well-being among low-income families. We therefore included the Aid to Families with Dependent Children (AFDC) program and Food Stamp Program participation during the past 12 months as covariates. In addition, we added two controls to represent resources the family may have had available that would have freed up other

resources to direct toward food. The first variable indicated the child's participation in the free lunch program at school and the second indicated whether the child had health insurance. All program participation variables were coded one if the respondent took part in the program and zero otherwise.

Parent mental health and behavior. We included three variables we considered as proxies of parental well-being and behavior. First, we included a dummy variable for maternal depression. This survey question was originally worded as, "How often during the past week have you felt depressed?" with possible responses including *never*, *some of the time*, *a moderate amount of time*, and *most of the time*. We recoded this measure into a dummy variable where *never* = 0 and all other responses = 1. Second, we used a binary indicator of a routine health check for the child in the past 12 months as another proxy for parenting behaviors. A value of one indicated that the child had been brought to a routine health visit within the past 12 months and zero if not. Finally, we constructed a mealtime routine score from a set of measures recording how many days a family had dinner and breakfast together and how many days they had dinner and breakfast at a regular time during the week. We relied on this measure as an indicator of how organized and attentive mothers were in managing household routines (and possibly, by extension, their family's food budget and plan). The actual mealtime routine score ranged from 1 to 7.

Social Integration. In the final set of predictor variables, we sought to control for the extent to which household food insecurity was associated with the family's social integration. First, we aimed to capture such an effect using two measures of the family's connections to the community: a subjective measure of mothers' perception of the level of support in the community served by their child's school and a subjective measure of her perceptions of the safety of the neighborhood. The respondents were originally asked one question about whether they thought the community served by their child's school was supportive, with response scales ranging from 1 = *strongly disagree* to 5 = *strongly agree*. We transformed this variable to a binary variable by coding *strongly agree* and *agree* as one and all other responses as zero. The neighborhood safety question was originally coded on a 3-point response scale asking mothers how safe they thought it was for children to play outside during the day in the neighborhood, where 1 = *not at all safe*, 2 = *somewhat safe*, and 3 = *very safe*. We coded this variable as one if the respondent answered *very safe*; otherwise this was coded as zero.

As a measure of potential linguistic isolation, we also included a variable asking the mother how often she spoke to her child in English. Responses ranged from 1 = *speak English only* to 4 = *very often speak language other than English*. This measure is potentially reflective of the extent to which immigrant families are linguistically integrated into society and civic organizations. Finally, we included a constructed measure of the mothers' proportion of time in the United States over their life course. To create this variable, we first measured each immigrant mother's length of stay in the

United States by subtracting her age of entry into the United States from her current age. Next, we computed the ratio of her length of stay to her current age. Intuitively, this new variable represented the proportion of time of an immigrant mother's stay in the United States over her life course. By default, a native mother would spend all her time in the United States. We therefore assigned the value of one to all native-born mothers on this variable.

Statistical Procedures

We used Probit regression to account for the binary nature of our dependent variable. Our analyses proceeded as follows. We began by regressing food insecurity on the demographic variables in Model 1. In the second model (Model 2), we added income and program participation variables. Model 3 included the measures proxying for mothers' well-being and parental behavior. In Model 4, we added the four measures of social integration. To correct for the clustered nature of the data, we used a robust standard error estimator. We also applied the Wave 2 survey sampling weight to all analyses.

All missing values were dealt with by one of two methods. For categorical variables, we coded the missing cases into a missing category and included a missing data dummy in the regression (Eberwein, Ham, & LaLonde, 1997). For continuous variables, we imputed missing values. We first regressed the to-be-imputed variable on all other independent variables (demographics, parenting, social integration, and so on) for cases where data were not missing and obtained the coefficient estimates. Next, we used these estimates to generate predicted values of the to-be-imputed variable. Lastly, we assigned the predicted values to the missing variable. By doing so, we retained our sample size of 6,068 in all regression analyses. Most of the variables in our analysis contained only a small number of missing values, ranging from 0% to 5%. Two variables, however, had a larger proportion of missing values: mother's employment status (14%) and the measure of support in the community served by the child's school (21%).

Descriptive Statistics

Table 4.1 presents descriptive statistics across all groups of children. The rate of household food insecurity among low-income native-born children with native-born parents is 8%. Two groups—foreign-born children with foreign-born parents and a noncitizen mother, as well as U.S.-born children with all foreign-born parents and a noncitizen mother—had significantly higher rates of food insecurity (20%) compared to low-income native-born children with native-born parents (hereafter called *native families*). Differences between other types of immigrant families and native families were not significant (we did not put too much stock in the results for the group of foreign-born children with citizen mothers or the group with one foreign-born parent and a

noncitizen mother due to small sample sizes). Of interest, however, is that a large group of children with both foreign-born parents/citizen mothers had a comparable rate of food insecurity compared to native families.

In general, the descriptive characteristics show that children with noncitizen mothers (compared to children in native families and those with foreign-born citizen mothers) face a number of risk factors that might explain their higher likelihood of being food insecure. For example, they are more likely to have mothers with very limited education and employment and to have lower rates of health insurance coverage, TANF use, and Food Stamps program participation. Such children are also significantly more likely to have a mother who is depressed. In addition, foreign-born children with noncitizen mothers are less likely to have had a routine doctor visit in the past 12 months. Children with noncitizen mothers are also the least likely to have mothers who speak to them exclusively in English (they are also much more likely to be Latino than native-born children) and their mothers have stayed a smaller share of their lifetimes in the United States compared with mothers who are citizens. Finally, children of noncitizen mothers are the most likely to rate their neighborhoods as not safe.

Multivariate Analysis

Table 4.2 presents the marginal effects from the probit regressions of food insecurity on the independent variables. Model 1 controlled only for demographic variables. Recall that in the univariate comparisons, the difference in rates of food insecurity for children with noncitizen mothers compared to children of native mothers was about 12 percentage points (i.e., 20% in the former groups compared to 8% in the latter). Here, we see that with the addition of the set of demographic characteristics, this differential is reduced to about six percentage points (for the larger group of native-born children with noncitizen mothers on whom we focus in these multivariate regressions). Interestingly, however, the group of children with one foreign-born parent and a U.S. citizen mother was significantly less likely to be food insecure compared to natives once the demographic characteristics are controlled.

Among this important set of variables, several show significant associations with food insecurity in the expected direction, including mothers' education and household size. Households in which mothers had the least amount of education were the most likely to be food insecure, as were those with more household members. Latino families were also significantly more likely to be food insecure than Whites. Thus, several of the distinguishing characteristics of immigrant families with noncitizen mothers (low education, Latino, and larger household size) correlated with food insecurity and explained a substantial share of the gap in the prevalence of food insecurity in this population compared to households with native-born mothers.

Table 4.1. Descriptive Statistics (Weighted)

	Child FB, Mom Noncitizen (N = 144)	Child FB, Mom U.S. Citizen (N = 23)	Both Parents, FB Mom Noncitizen (N = 694)	Both Parents, FB Mom U.S. Citizen (N = 398)	One Parent, FB Mom Noncitizen (N = 40)	One Parent, FB, Mom U.S. Citizen (N = 232)	Both Parents U.S. Born (N = 4537)
Food insecure (%)	20	20	20	10	7	6	8
White (%)	5	28	4	12	6	30	50
Latino (%)	85	26	86	57	89	57	12
African American (%)	6	29	5	7	2	5	30
Other races (%)	5	16	5	24	3	8	8
Mom's employment:							
Fulltime (%)	26	51	27	41	32	40	43
Part-time (%)	14	6	14	16	24	21	20
Unemployed (%)	3	0	4	6	0	3	8
Out of labor force (%)	56	42	54	37	44	37	30
Mom's education:							
HS Dropout or less (%)	46	23	62	31	38	27	21
HS, GED (%)	27	23	26	35	37	37	43
Some college (%)	17	35	8	25	23	29	31
College or above (%)	10	19	3	10	2	7	5
Average household size	5.26	4.66	5.33	5.10	4.69	5.14	4.74

Single parent family (%)	20	41	32	34	43	30	54
Income	\$17,062	\$20,371	\$18,029	\$22,323	\$19,757	\$22,078	\$19,650
Insurance coverage (%)	46	73	71	82	75	83	88
AFDC Recipient (%)	7	17	11	12	2	11	14
Free school lunch (%)	66	47	76	61	75	62	60
Food Stamp recipient (%)	13	16	26	22	23	26	38
Mom depressed (%)	48	24	42	34	46	27	36
Routine doctor visit (%)	83	90	89	92	100	94	95
Mealtime routine score	5.52	6.00	5.22	5.22	5.14	5.33	5.42
Mother's language to child:							
Speaks English only (%)	8	36	11	18	12	45	90
Sometimes speaks language other than English (%)	4	4	4	18	13	21	6
Often speaks language other than English (%)	12	22	13	18	15	16	2
Very often speaks language other than English (%)	76	40	71	46	61	17	2
Neighborhood safety (%)	41	62	44	56	33	56	63
Supportive community (%)	80	93	78	80	82	80	81
Proportion stayed in the U.S. over the life course (%)	15	37	34	50	40	91	100

Note: FB = Foreign-born; HS = high school; GED = general education diploma; AFDC = Aid to Families with Dependent Children Program.

Table 4.2. Marginal Effects From Probit Regression Results for Food Insecurity

	<i>(Standard Errors in parentheses; N = 6,068)</i>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Child FB, noncitizen mother	.075* (.041)	.062 (.039)	.035 (.035)	.046 (.061)
Child FB, mother U.S. citizen	.081 (.098)	.081 (.096)	.106 (.099)	.123 (.111)
Both parents FB, noncitizen mother	.063** (.022)	.065** (.023)	.053** (.022)	.065 (.045)
Both parents FB, mother U.S. citizen	-.035 (.021)	-.025 (.022)	-.029 (.021)	-.020 (.032)
One parent FB, noncitizen mother	-.087* (.041)	-.077 (.044)	-.078 (.041)	-.080 (.042)
One parent FB, mother U.S. citizen	-.077** (.021)	-.073** (.021)	-.067** (.020)	-.066** (.021)
Latino	.038* (.018)	.024 (.018)	.019 (.017)	.013 (.019)
African American	-.009 (.014)	-.031 (.014)	-.041** (.014)	-.051*** (.013)
Others	.016 (.019)	-.008 (.018)	-.004 (.018)	-.006 (.018)
Fulltime	.011 (.013)	.037** (.014)	.031* (.014)	.030* (.013)
Part-time	-.007 (.017)	.004 (.017)	.001 (.016)	-.002 (.016)
Unemployed	.013 (.024)	.002 (.023)	-.001 (.022)	-.004 (.022)
HS Diploma or equivalent	-.026* (.013)	-.014 (.013)	-.010 (.013)	-.006 (.013)
Some college or vocational training	-.038** (.014)	-.015 (.015)	-.001 (.015)	.002 (.015)
College or above	-.109*** (.016)	-.080** (.020)	-.066* (.022)	-.062* (.022)
Household size	.010** (.003)	.013*** (.003)	.014*** (.003)	-.014*** (.003)
Single-parent family	.059*** (.011)	.017 (.012)	.006 (.012)	.005 (.012)
Income (per thousand dollars)		-.003*** (.000)	-.003*** (.000)	-.003*** (.000)
Insurance coverage		-.036* (.016)	-.026 (.015)	-.026 (.015)
AFDC recipient		.045** (.017)	.049** (.018)	.043** (.017)

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Table 4.2. Marginal Effects From Probit Regression Results for Food Insecurity

	<i>(Standard Errors in parentheses; N = 6,068)</i>			
	<i>Model 1</i>	<i>Model 2</i>	<i>Model 3</i>	<i>Model 4</i>
Children receive free school lunch	-.001 (.012)	-.005 (.012)	-.004 (.011)	
Food Stamp recipient	.049*** (.015)	.045*** (.014)	.041** (.014)	
Mother depressed			.138*** (.012)	.132*** (.012)
Routine doctor visit			-.078*** (.023)	-.078*** (.023)
Mealtime routine			-.017*** (.004)	-.015*** (.004)
Speak English only				.010 (.022)
Sometimes speak language other than English				.015 (.028)
Often speak language other than English				-.022 (.025)
Neighborhood safety				-.067*** (.011)
Supportive community				.004 (.014)
Proportion of stay in the U.S. over the life course				.015 (.048)

Note: Both parents U.S. born, White, out of labor force, HS dropout, very often speak language other than English categories were omitted. FB = Foreign-born; HS = high school; AFDC = Aid to Families with Dependent Children

* $p < .05$. ** $p < .01$. *** $p < .001$.

In Model 2, we controlled for economic resources and program participation. Doing so did not change the coefficients and the significance level of food insecurity across groups very much. These results suggest that economic resources and program participation explain little of the remaining gap in the rate of food insecurity across groups. At the same time, income did appear to matter. Our estimates show that an increase of income of \$10,000 would reduce the probability of food insecurity by three percentage points. Participation in welfare programs—AFDC and Food Stamps—showed positive marginal effects on food insecurity, illustrating the adverse selection into these programs (Gundersen & Oliveira, 2001). In contrast,

households in which children had health insurance were less likely to be food insecure.

In Model 3, we added three proxies of parental well being and behavior—maternal depression, routine doctor visit, and mealtime routines. Doing so also did not change the coefficients and the significance level of food insecurity across groups very much, with the exception that adding these measures reduced the coefficient on child foreign-born/noncitizen mother by about 40%, to 3.5 percentage points. At the same time, these measures highly correlated with food insecurity. For example, having a depressed mother was associated with an increased likelihood of being food insecure by about 14 percentage points (the strongest correlate among all of our measures). In contrast, families in which parents had brought their children for a routine health check within the past 12 months were eight percentage points less likely to be food insecure. Regular mealtime routines had a moderate negative association with food insecurity.

Finally, Model 4 added four proxies of a family's degree of social integration. These measures did not explain any of the residual gap in rates of food insecurity across populations and among these variables; only outdoor safety was significantly correlated with food insecurity. Living in a community perceived as safe was associated with a decrease in a family's probability of food insecurity by approximately seven percentage points.

Summary and Conclusions

There are several significant aspects of this study. First, we used data from a nationally representative survey to assess patterns of food insecurity in immigrant children and their families. Second, we were able to draw on information about children and parents' nativity and mothers' citizenship status to create a more comprehensive grouping system than previous studies have done. Third, our data provide an unusually rich set of putative mediators to more fully explore the reasons why young low-income children in immigrant families experience higher levels of food insecurity than their native counterparts. At the same time, our analyses were based on cross-sectional data. As such, even though we illustrated several interesting and substantively important associations between the predictor variables and food insecurity, reverse causality is always a possibility.

Our analysis shows that children with foreign-born mothers, but only those with a noncitizen mother, have higher levels of food insecurity than their native counterparts. The magnitude of the difference between the two populations is sizeable: children with noncitizen mothers are more than twice as likely to be food insecure as their counterparts with native-born parents. In contrast, low-income families in which foreign-born mothers are citizens are at approximately the same risk for food insecurity compared to their counterparts with native-born mothers.

Our first main finding is that demographic characteristics (race, maternal employment and education, and household structure) account for about half of the difference in rates of food insecurity between children with native and noncitizen mothers. Among this set of measures, low maternal education, being Latina, and having a larger household size were all significantly correlated with food insecurity. These variables, in turn, were far more likely to characterize immigrant households with noncitizen mothers compared to households with native mothers.

These findings raise interesting questions for future research. Larger households clearly suggest more mouths to feed. Holding income constant (as we did here) means that the same amount of food will go less far in meeting each householder's needs. In contrast, low education might translate into a lack of knowledge about food banks or other ways to alleviate material hardship or strategies to make ends meet. It would be interesting for future research to investigate why Latina mothers are more likely to be food insecure than their White counterparts. This may suggest a role of cultural mismatch between service-providing organizations and the families that need those services. In this instance, in-depth qualitative research could go a long way toward understanding what are undoubtedly nuanced phenomena associated with interpersonal interactions.

At the same time, the size of the association of the Latina variable decreased across models (refer to Table 4.2) suggesting that it is correlated with other measures in our model that also predict food insecurity. For example, the association was only half as strong in Model 2, which added the income and program participation variables. Lacking health insurance was more characteristic of immigrant families with noncitizen mothers (most of whom are Latina) compared to families with native mothers, and lack of health insurance was, in turn, associated with higher levels of food insecurity. Thus, part of the Latina effect is really a lack of health insurance effect, which presumably indicates something about the families' expenditures and consumption because income was held constant.

Our second main finding is that, having explained about half of the differential rate of food insecurity between families with noncitizen mothers and those with native mothers, neither family economic resources nor program participation variables, nor parental characteristics explain much of the residual gap across these populations. Thus, mothers' citizenship status plays an important role in low-income children's food insecurity, but in ways that we are not able to fully understand with the survey data we have available here.

These questions thus remain important ones for future work. It is possible that noncitizen parents are at a higher risk of alienation from systems of support that are available to low-income and vulnerable populations in the United States, although whatever factors these might be, they are not clearly linked to the level of support in the community served by their child's school, their perceptions of safety in their neighborhood, and some

factors related to acculturation, such as English language use with their children or length of time in the United States.

What else might characterize the experience of low-income immigrant families with and without a citizen mother that are associated with food insecurity? One factor might be differences in the quality of social networks and the resources that such networks provide. These networks could differ among those who have yet to become citizens (and could in fact, make the difference between becoming and not becoming a citizen), or one's networks could change after becoming a citizen. Future work could rely on quantitative and qualitative approaches to understanding this question.

Relatedly, future work could examine the process and meaning of becoming a citizen. For example, the process of applying for citizenship may involve repeated contact with governmental officials or other people. This, in turn, may give families new and important information, or may help familiarize families with the process of interacting with government officials and service providers, all of which could provide material, social, and cultural advantages that could help mitigate exposure to food insecurity.

Future work should explore these questions using longitudinal data with analytic techniques designed to rule out selection bias. For example, for the process of becoming a citizen to play a causal role in food insecurity, one should observe changes in food security over time within families whose mothers become citizens. One could rely on the multiple waves of the ECLS-K to answer this question. If such changes are not observed, these associations may simply be driven by unmeasured factors that differentiate these two populations, which also drive the differences in rates of food insecurity.

Finally, given these alarmingly high rates of food insecurity in low-income immigrant populations, one clear direction for future work is to understand whether and in what ways this marker of material hardship is associated with children's development, and especially whether these patterns are similar or different for children with citizen versus noncitizen mothers. In our data, the majority of the noncitizen immigrant families were from Latin America. Our sample was not large enough to separate this group from Asian or other immigrant populations and to see if the same associations hold in different groups of low-income immigrants with noncitizen mothers. This is another important goal for future work, perhaps relying on high-quality local data that oversample Asian and other non-Latin American immigrant populations.

The immigrant children who were the focus of this study are America's future workers and parents. The productivity of the nation will increasingly rest on their achievement, health, and integration in their communities. It is thus imperative to understand the early life circumstances that shape whether and how these children reach their fullest potential, especially in an increasingly diverse population. If barriers are identified, there may be a role for public policy to intervene. Clearly, more work is needed to understand why immigrant families with noncitizen mothers experience such

high rates of food insecurity. To the extent that differences in families' experiences of material hardship and food insecurity are associated, ultimately, with differences in children's health and well being, it will be critical to develop culturally sensitive outreach programs and the development of other mechanisms to help all families receive assistance to meet their needs and ensure their children's economic security and healthy development.

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