

Decomposing the Household Food Insecurity Gap for Children of U.S.-Born and Foreign-Born Hispanics: Evidence from 1998 to 2011

Irma Arteaga¹ · Stephanie Potochnick¹ · Sarah Parsons¹

Published online: 13 March 2017
© Springer Science+Business Media New York 2017

Abstract Using the Early Childhood Longitudinal Study-K, multivariate analysis, state fixed effects, and regression decomposition, we examine changes in food insecurity for Hispanic kindergarteners between 1998 and 2011, a time period of rapid immigration and political/socio-economic changes. During this time the household food insecurity gap between children of U.S.-born and foreign-born mothers increased by almost 7 percentage points. The factors—child, family, and state—that contributed to the nativity gap differed over time. In both periods, lower familial resources among immigrant families, i.e. endowment effects, contributed to the gap; this was the main component of the gap in 2011 but only one component in 1998. In 1998, heterogeneity in state effects was positively associated with the nativity food insecurity gap. This means that children of foreign-born mothers experience higher household food insecurity than do children of U.S.-born mothers in the same state, even after controlling for child and family characteristics. In 2011, almost half of the gap remained unexplained. This unexplained portion could be driven by differential effects of the Great Recession, growing anti-immigrant sentiment, and/or the relatively large share of unauthorized immigrants in 2011.

Keywords Hispanic · Food insecurity disparities · Cohort analysis · Decomposition technique

Introduction

Nearly one in five Hispanic children experiences household food insecurity [1]. The risk is greatest among Hispanic children of immigrants, especially Mexicans, 46% of whom experience food insecurity [2]. Food insecurity—the inability to acquire sufficient or nutritionally-acceptable food due to financial constraints—hinders children’s cognitive development, physical health, and socio-emotional growth with long-term effects into adulthood [3, 4]. Thus, for young Hispanic children who are already at increased risk of poor health and development [5, 6], household food insecurity is a severe health risk.

The majority of studies on Hispanic and immigrant food insecurity utilize data from the mid-1990s to the early 2000s—a time period during which the U.S. experienced a new era of immigration sparked by record waves of new arrivals and changing settlement patterns [7]. Though prior studies identify important risk factors that contribute to Hispanic and immigrant families’ higher levels of food insecurity (e.g., low levels of education, unstable and low-paying employment, non-citizenship status, family structure, and low household income) [8–14], the prevalence and relevance of these risk factors may have changed over time as immigration and the overall U.S. political and economic context has evolved.

First, the diversification of Hispanic immigrant families’ backgrounds during this time may have strong implications for food insecurity. As migration to the U.S. reached peak levels in the 2000s, Hispanic immigrants grew more diverse in terms of community of origin (e.g., more Central Americans) and characteristics (e.g., younger arrivals, higher levels of education, and broader occupational profiles) [15]. Additionally during this time, unauthorized migration primarily by Hispanics surpassed legal migration

✉ Irma Arteaga
arteagai@missouri.edu

¹ Harry S Truman School of Public Affairs, University of Missouri, 229 Middlebush Hall, Columbia, MO 65211, USA

[16] and, as a result, about 8% of current U.S. children have an unauthorized immigrant parent [17].

Second, changing settlement patterns of Hispanic and immigrant families may also influence food insecurity. Many Hispanic families have moved to rural and suburban areas in new destination states rather than urban centers in traditional destination states (e.g., Texas, California) [18]. These new destinations often have stronger economic opportunities, which may ameliorate food hardship; however, governments and communities also struggle to provide basic services and resources to immigrant populations [19, 20].

Third, changes in the social and economic context confronting Hispanic families today may heighten their food insecurity risk. Across the U.S., the political environment has grown more anti-immigrant and anti-Hispanic, with governments at all levels restricting immigrant access to resources (e.g., driver's licenses) and support systems (e.g., public assistance), which could make it more difficult for immigrant households to maintain sufficient food [21–24]. Furthermore, evidence from the Great Recession suggests that immigrants, particularly Hispanics, experienced greater job loss and economic hardship than natives and that they have yet to fully recover [25, 26]. Both social isolation and economic hardship are known risk factors of food insecurity [4, 27].

Our study advances the literature on food insecurity among households with Hispanic children of immigrants by examining how levels and predictors of food insecurity have changed from 1998 to 2011. This time period spans the new era of migration marked by unprecedented growth and dispersion, as well as the greatest economic recession since the 1930s. As a result, we examine how five different factors may contribute to changing household food insecurity patterns among Hispanic children of U.S.-born and foreign-born mothers: (1) changes in familial resources and characteristics, i.e., endowment effects; (2) changes in returns on familial resources and characteristics, i.e., impact effects; (3) change in the influence of these two factors, i.e., interaction effects; (4) changes in settlement patterns, i.e., state sorting effects; and (5) changes in discrimination and other unexplained factors within a state, i.e., heterogeneity in state effects.

Methods

Data

The data for this study are from the Early Childhood Longitudinal Study Kindergarten (ECLS-K) 1998–1999 and

2010–2011 cohorts collected by the National Center of Education Statistics (NCES). Designed to allow cross-cohort comparisons, the ECLS-K is a rich, nationally-representative dataset of children attending kindergarten. For each cohort, NCES gathers extensive information on maternal immigration status and child, family, and home characteristics. The ECLS-K 1998 and 2011 observed food insecurity for 16,700 and 12,700 kindergartners, respectively, of which 2150 and 2800 identified as Hispanic. This constitutes our sample.

Dependent Variable

The ECLS-K includes a binary classification of food insecurity status over the past 12 months, where a “1” is assigned for food insecurity among households with children if three or more questions on the U.S. Department of Agriculture's 18-item survey were answered affirmatively [28].

Independent Variables

The main independent variable is maternal nativity status. Most of the literature on food insecurity uses this variable when studying immigrant populations [9, 10, 13]. Though mother's citizenship status has also been used [10], these data are not available in ECLS-K 2011, and research on Hispanics finds that food insecurity among households with children do not differ by citizenship status [11, 29].

We control for child and family characteristics previously shown to be associated with food insecurity. Family covariates include maternal age, educational attainment, employment, marital status, family composition, number of children in household, household income, welfare participation, and urbanicity. Child covariates include child's age and preschool participation. Preschools participation is important because preschools often provide food supports.

Analysis

All analyses use survey weights following NCES guidelines to adjust for the complex ECLS-K survey design. First, we present descriptive statistics for Hispanics mothers by nativity status and year. Second, we estimate food insecurity using regression analysis. Third, we decompose the nativity food insecurity gap. To explain differences in food insecurity between foreign-born and U.S.-born mothers, we apply a variation of the Blinder-Oaxaca decomposition technique that includes interaction effects [30] and state effects [31, 32], as follows:

$$\begin{aligned} \bar{Y}^{NB} - \bar{Y}^{FB} = & (\bar{X}^{NB} - \bar{X}^{FB})\beta^{FB} + \bar{X}^{FB}(\beta^{NB} - \beta^{FB}) + (\bar{X}^{NB} - \bar{X}^{FB})(\beta^{NB} - \beta^{FB}) \\ & + \sum_{k=1}^{50} (\alpha_k^{NB} - \alpha_k^{FB})\bar{D}_k^{FB} + \sum_{k=1}^{50} \alpha_k^{NB}(\bar{D}_k^{NB} - \bar{D}_k^{FB}) \end{aligned} \tag{1}$$

where the bar represents sample averages, *FB* represents children with foreign-born mothers, and *NB* represents children with U.S.-born mothers. *Y* represents household food insecurity, *X* is a vector of child and family characteristics, β is a vector of the corresponding coefficients, and the \bar{D}_k^{NB} and \bar{D}_k^{FB} variables indicate the fraction of kindergarten children with U.S.-born and foreign-born mothers, respectively, found in each of the 50 states in the ECLS data.

The term $\bar{Y}^{NB} - \bar{Y}^{FB}$ indicates the difference in food insecurity by maternal nativity status. This food insecurity gap can be explained by five terms: The first term, $(\bar{X}^{NB} - \bar{X}^{FB})\beta^{FB}$, captures how much of the gap is due to child and family characteristics (endowment effects). The second term, $\bar{X}^{FB}(\beta^{NB} - \beta^{FB})$, indicates the differential impact if children of foreign-born mothers had the same endowment as children of U.S.-born mothers (impact effects). The third term accounts for the interaction between nativity’s endowments and impacts/returns (interaction effects). In our case, it is possible that foreign-born mothers have lower levels of endowments because past and/or current discrimination prevents them from investing in endowments such as employment and education. If foreign-born mothers continue to experience lower impacts/returns on investments via lower wages, they may be less willing to invest in employment and education, which further heightens food insecurity risk; this is known as a “chilling effect.” The fourth term, $\sum_{k=1}^{50} (\alpha_k^{NB} - \alpha_k^{FB})\bar{D}_k^{FB}$, indicates how much of the food insecurity gap would close if children of foreign-born mothers had the same state-specific impacts/returns as the children of U.S.-born mothers who live in the same state (state sorting effects). The last term, $\sum_{k=1}^{50} \alpha_k^{NB}(\bar{D}_k^{NB} - \bar{D}_k^{FB})$,

explains how much more the gap would close if the kindergarteners of foreign-born mothers were distributed across the states in the same proportions as the kindergarteners of U.S.-born mothers (heterogeneity in state effects).

Results

Food Insecurity Patterns

Figure 1 shows rates of household food insecurity by mothers’ nativity status for kindergartners in 1998 and 2011. We observe that food insecurity has increased over time. This increase, however, is most notable for children of foreign-born mothers. In 2011, over one in four Hispanic children of foreign-born mothers experienced household food insecurity compared to less than one in five a decade ago.

Child and Family Resources

Table 1 presents descriptive statistics. Overall, we observe that, in terms of endowments, children with foreign-born mothers are more disadvantaged in family characteristics and resources compared to children with U.S.-born mothers. Foreign-born mothers compared to U.S.-born mothers have fewer educational, employment, and income supports to protect their children against household food insecurity. These nativity differences remain relatively robust across the two cohorts observed, with a few exceptions. In 2011, foreign-born mothers are more likely to be unemployed, and children are more likely to have two biological parents, and less likely to have any other type of family structure compared to their U.S.-born counterparts.

Fig. 1 Household food insecurity status: 1998 and 2011 Kindergarten children with Hispanic mothers

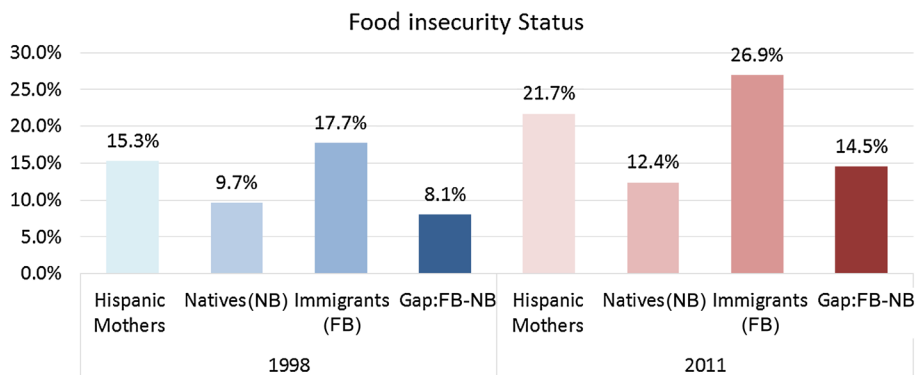


Table 1 Descriptive statistics

	1998				2011			
	Hispanic mothers	U.S.- born Hispanic mothers	Foreign-born Hispanic mothers	Gap = Foreign–U.S. Born	Hispanic mothers	U.S.- born Hispanic mothers	Foreign-born Hispanic mothers	Gap = Foreign–U.S. born
Family variables								
Food insecurity	0.1526	0.0966	0.1773	0.0806***	0.2171	0.1241	0.2694	0.1453***
Mother's age	32.0272	31.6979	32.1725	0.4747	33.0601	32.2089	33.5380	1.3292***
Maternal employment								
Mother works full-time	0.4283	0.5127	0.3912	−0.1216***	0.3357	0.4463	0.2655	−0.1809***
Mother works part-time	0.1648	0.1917	0.1529	−0.0388**	0.1447	0.1367	0.1493	0.0125
Mother unemployed	0.0394	0.0383	0.0399	0.0016	0.0742	0.0911	0.0647	−0.0265**
Mother not in labor force	0.3479	0.2393	0.3958	0.1565***	0.3323	0.2684	0.3682	0.0998***
Maternal education								
Mother less than high school diploma	0.3380	0.1534	0.4195	0.2661***	0.3678	0.1684	0.4797	0.3114***
Mother finished high school	0.3061	0.3773	0.2747	−0.1026***	0.2745	0.2734	0.2751	0.0016
Mother has some college	0.2624	0.3466	0.2253	−0.1213***	0.2230	0.3557	0.1485	−0.2072***
Mother has college or more	0.0934	0.1227	0.0805	−0.0422***	0.1347	0.2025	0.0967	−0.1059***
Family structure								
Both biological parents	0.6981	0.6825	0.7050	0.0225	0.7151	0.6456	0.7541	0.1085***
Step-parent	0.0812	0.0844	0.0798	−0.0045	0.0610	0.0810	0.0498	−0.0313***
Single parent	0.2047	0.2132	0.2009	−0.0122	0.2085	0.2519	0.1841	−0.0678***
Other family type	0.0160	0.0199	0.0142	−0.0057	0.0155	0.0215	0.0121	−0.0094*
Number of children	2.6305	2.5215	2.6786	0.1571***	2.7451	2.6722	2.7861	0.1139**
Household income in 1998 dollars	35,327	46,179	30,540	−15,638***	31,777	43,438	25,229	−18,209***
Participant of welfare	0.0920	0.0782	0.0981	0.0199	0.0792	0.0810	0.0782	−0.0028

Table 1 (continued)

	1998				2011			
	Hispanic mothers	U.S.- born Hispanic mothers	Foreign-born Hispanic mothers	Gap = Foreign–U.S. Born	Hispanic mothers	U.S.- born Hispanic mothers	Foreign-born Hispanic mothers	Gap = Foreign–U.S. born
Lives in non-rural area	0.9765	0.9571	0.9851	0.0281***	0.8844	0.8430	0.9076	0.0646***
Children variables								
Child's age in months	73.8797	74.2029	73.7371	−0.4657**	73.7920	73.9530	73.7017	−0.2513
Attended pre-kin-dergarten	0.4192	0.4632	0.3999	−0.0633***	0.4515	0.4608	0.4463	−0.0144

As per National Center for Education Statistics requirements when using Early Childhood Longitudinal Study-K data, all n values are rounded to the nearest 50. Sample weights are used

Estimates of the Relationship of Maternal Nativity Status and Household Food Insecurity

Table 2 shows regression results, which assess the extent to which differences in child and family characteristics account for observed differences in household food insecurity by maternal nativity status in both 1998 and 2011. We run two different models: Model 1 includes maternal nativity status, and Model 2 adds child and family characteristics. Both models include state fixed effects to control for unobserved variation at the state level.

Model 1 shows that, among low-income Hispanic kindergarten children in 1998, the risk of household food insecurity is 6.2 percentage points higher for children with foreign-born rather than U.S.-born mothers. After controlling for child and family variables (Model 2), this association becomes statistically non-significant, meaning that in 1998 the maternal nativity gap in household food insecurity risk for kindergartners is fully attributed to child and family characteristics. In contrast, we find that, for Hispanic kindergartners in 2011, the maternal nativity gap in household food insecurity risk, though smaller, remains robust to all controls. In Model 1, the food insecurity gap is 13.5 percentage points; when we add child and family characteristics in Model 2, the gap reduces to 6.7 percentage points and remains statistically significant. We observe that mothers' age and welfare receipt (an indicator of need) are positively related to food insecurity, while household income is negatively related. Surprisingly, we find that food insecurity risk is higher in a two-biological-parent household (the reference category) compared to other family structures, as indicated by the negative and significant coefficients. These results could be capturing mixed-status families (i.e., citizen children with undocumented foreign-born parents), which are not observable in ECLS-K or most national data.

Decomposition of Household Food Insecurity Gap

Table 3 uses the Blinder-Oaxaca decomposition technique and includes interaction effects as well as state sorting and heterogeneity effects. For both cohorts, food insecurity among households with children is larger for foreign-born mothers compared to U.S.-born mothers, and the differences are statistically significant. The size of the gap and some of the factors that contribute to the gap, however, differ across cohorts.

For 1998, we observe that family endowments explain most of the gap (almost 75%: $(0.55/0.076) \times 100 = 72\%$). If children of foreign-born mothers had the same family endowments as children of U.S.-born mothers, the food insecurity gap would only be 2.1 percentage points rather than 7.6 percentage points (7.6–5.5). Figure 2 (panel A) depicts the specific components that affect the gap. The gap increases because children in with foreign-born mothers live in households with more children, lower income, and lower levels of maternal labor force participation and education. Conversely, we observe that the interaction effect of family variables decreases the nativity gap in 1998 (Table 3). The size and negative sign on the interaction indicates that this component contributes to a reduction of the food insecurity gap by a third ($-0.025/0.076 = -0.33$). This suggests that though households with foreign-born mothers have lower levels of endowments in 1998, the interaction between endowment and impact/returns serve as a protective factor for food insecurity. One explanation is that foreign-born parents believe they can get greater returns by working harder and investing more in their endowments; the opposite of the “chilling effect.” Fig. 2 (panel A) shows that household income, maternal education, maternal employment, and number of children in the household are all factors that contribute to the

Table 2 Predicting household food insecurity by mother's nativity status

	1998				2011			
	Model 1		Model 2		Model 1		Model 2	
	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.	Coef.	Std. Err.
Family variables								
Food insecurity	0.0621***	0.0124	0.0149	0.0095	0.1349**	0.0100	0.0666***	0.0106
Mother's age			0.0031**	0.0015			0.0062***	0.0010
Maternal employment								
Mother works part-time			-0.0019	0.0207			0.0337*	0.0167
Mother unemployed			0.0855**	0.0387			0.0317	0.0716
Mother not in labor force			0.0609***	0.0158			-0.0245**	0.0107
Maternal employment missing			-0.0265	0.0628			-0.0165	0.0493
Maternal education								
Mother less than high school diploma			0.0557**	0.0245			0.0809***	0.0217
Mother finished high school			0.0822***	0.0273			0.0240*	0.0120
Mother has some college			0.0089	0.0199			0.0021	0.0119
Family structure								
Step-parent			0.0246	0.0227			-0.0073	0.0158
Single parent			0.0263	0.0368			-0.0184	0.0148
Other family type			-0.0308	0.0329			-0.1295*	0.0675
Number of children			0.0276***	0.0048			0.0202***	0.0052
Household income in 1998 dollars			-0.0614***	0.0126			-0.0758***	0.0064
Participant of welfare			0.0602	0.0394			0.1384***	0.0289
Lives in non-rural area			-0.0140	0.0115			-0.0097	0.0187
Children variables								
Child's age in months			-0.0010	0.0016			0.0007	0.0031
Attended pre-kindergarten			0.0019	0.0177			-0.0074	0.0123

Sample weights are used in all regressions. The signs ***, **, * indicate the statistical significance at the 1, 5, and 10 percent level, respectively. State fixed effects are used in all regressions

Table 3 Blinder-Oaxaca decomposition gap

	1998		2011	
	Coeff	S.E.	Coeff	S.E.
U.S.-born Hispanic mothers	0.1035***	0.0126	0.1260***	0.0165
Foreign-born Hispanic mothers	0.1790***	0.0112	0.2701***	0.0270
Difference	0.0755***	0.0136	0.1441***	0.0130
Family variables				
Endowment	0.0547***	0.0114	0.0784***	0.0086
Impact	0.0337	0.1272	0.0071	0.0657
Interaction	-0.0254*	0.0144	-0.0290	0.0253
Children variables				
Endowment	-0.0004	0.0024	0.0014	0.0013
Impact	0.0054	0.2751	-0.5046	0.3947
Interaction	-0.0006	0.0046	-0.0026	0.0015
State sorting effect	0.0047	0.0052	-0.0093	0.0074
Heterogeneity in state effects	0.0611**	0.0289	-0.0141	0.0476

Sample weights are used in all regressions. The signs ***, **, * indicate statistical significance at the 1, 5, and 10 percent level, respectively

interaction effect. Lastly, we observe that heterogeneity in state effects contributes to the food insecurity gap, as observed by the positive and significant coefficient. This means that children of foreign-born mothers are more food insecure than children of U.S.-born mothers in the same state, even after controlling for child and family characteristics.

In 2011, we observe a different picture. The nativity gap is larger than in 1998, and though family endowments still contribute, it only explains a portion of the gap: about 54% ($0.078/0.144=0.54$). As in 1998, household income, number of children in the household, and maternal education are important components of the gap (see Fig. 2, panel B). However, in 2011, no other component examined contributes to the household food insecurity gap. Unlike in 1998, neither heterogeneity in state effects nor the interaction effect of family endowments contribute to the household food insecurity gap. Instead, for 2011, much of the gap in food insecurity remains unexplained in our models. This suggests that unobserved factors, perhaps the growth in the unauthorized population, are contributing to the heightened nativity food insecurity gap among households with children in 2011.

Discussion

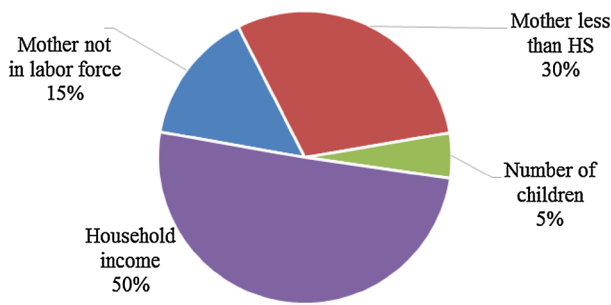
This paper adds to the limited but growing research on food insecurity among households with children of foreign-born mothers. We focus on young Hispanic children, the largest immigrant group and the group most at risk of experiencing food insecurity [2], and compare food insecurity risk before

and after a time period marked by record-level immigration and economic and political turmoil. Our results suggest a different pattern in the food insecurity risk of Hispanic kindergartners with foreign- and U.S.-born mothers in 1998 and 2011.

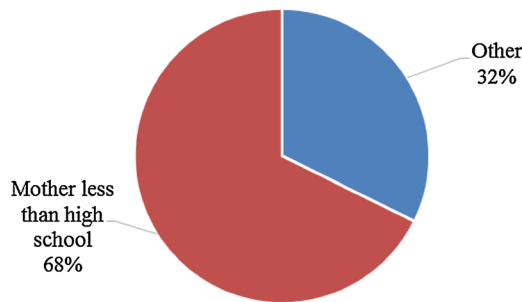
In 1998, we observe that the food insecurity gap by maternal nativity is about 8 percentage points, with children of foreign-born mothers experiencing higher household food insecurity. Family endowment factors are associated with an increase in the gap, meaning that the lower family endowments of households with foreign-born mothers of Hispanic children contribute to higher household food insecurity risk. In contrast, the interaction between these endowment factors and their return is negatively associated with the gap. Thus, we do not find a “chilling effect” for children of foreign-born mothers. Instead, these foreign-born families are investing more in their endowments, perhaps because they believe that though their current wages are lower than those of U.S.-born families (endowment effect), if they work hard, their income return will be higher (interaction effect). This belief is consistent with immigrant optimism theories and the American Dream: the belief that through hard work and determination, an immigrant can overcome barriers and succeed in the U.S [33]. Lastly, heterogeneity in state effects was positively associated with the nativity food insecurity gap. This means that children of foreign-born mothers experience higher household food insecurity than do children of U.S.-born mothers in the same state, even after controlling for child and family characteristics. This result suggests that immigrant families with foreign-born mothers in 1998 did not benefit from the same protective resources against food insecurity

Panel A: 1998

Decomposition Gap for 1998: Endowment Effect



Decomposition Gap for 1998: Interaction Effect



Panel B: 2011

Decomposition Gap for 2011: Endowment Effect

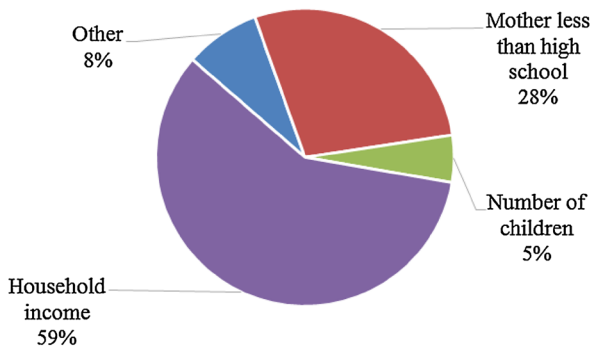


Fig. 2 Contribution of Individual Variables to Nativity Household Food Insecurity Gap. *Panel A* 1998. *Panel B* 2011. *Note* Only statistically significant variables are used in this graph; all other variables are under the “Other” category. *Panel A* Endowment effects contribute to increase the gap while interaction effects contribute to decrease the gap. *Panel B* Endowment effects contribute to increase the gap

as did their co-state resident peers with U.S.-born mothers. This unequal state effect may be an implication of the 1996 Welfare Reform, which restricted non-citizens access to safety net programs and delegated authority to states. Since then, many states and the federal government have restored immigrant access to safety net programs, but many of these provisions occurred after 1998 and confusion about immigrant eligibility persists [21, 22].

In 2011, the maternal nativity gap in household food insecurity was nearly double in size compared to 1998 but much of the gap was unexplained. Decomposition analysis revealed that only family endowments/characteristics were associated with the food insecurity gap. As in 1998, endowments were an important component that explains the household food insecurity gap by maternal nativity, but in 2011 this component explained less of the gap than in 1998; moreover, no other factor contributed to the gap. Instead, about half of the gap was unexplained in our model. This unexplained portion could be driven by differential effects of the Great Recession, growing anti-immigrant sentiment, and/or the relatively large share of unauthorized immigrants in 2011. Research, for instance, indicates that children of unauthorized immigrants face heightened risk of food insecurity and other economic hardships [34]. Lastly, we did not find that state sorting effects contributed to the nativity food insecurity gap in 1998 or 2011. This may be because there are both positive factors (e.g., stronger economy) and negative factors (e.g., lack of immigrant-specific resources) associated with different settlement destinations.

This study has several limitations. First, we cannot infer causality because data are cross-sectional. Second, food insecurity is self-reported and may contain measurement error; if foreign- and U.S.-born mothers’ responses were systematically different systematically then our estimates might be biased. Third, as with most national data, ELCS-K does not have information on legal status and might affect our results, particularly in 2011.

Overall, our results suggest that policy interventions are needed to address the growing risk of food insecurity among all Hispanic households with young children, but particularly for those with foreign-born mothers. The heightened food insecurity risk of Hispanic households with foreign-born mothers is reflective of some of the same challenges experienced by immigrants in prior decades but also reflects new challenges. Though family endowments/characteristics were the main components that affected the maternal nativity household food insecurity gap among Hispanic kindergartners in 1998 and 2011, family endowments was the only component that contributed to the gap in 2011; the rest of the gap remained unexplained. Moreover, though interaction effects of family endowments and returns on those endowments were protective of the gap in 1998, this factor was no longer protective in 2011. It is possible that, after the Great Recession, immigrant families no longer feel that hard work will lead to greater returns. Today’s harsher economic and political environment, sparked by growing anti-immigrant sentiment, may be making it more difficult for Hispanic immigrant families to combat household food insecurity even after accounting for differences in immigrant family characteristics and

settlement patterns. Respectful immigration policies that protect children and avert discrimination are key in our current context.

Acknowledgements The authors wish to thank the University of Missouri's Research Board for its grant support. We are also thankful to Christal Hamilton for her research assistance.

Funding This study was funded by the University of Missouri Research Board Grant.

Compliance with Ethical Standards

Conflict of interest Arteaga, Potochnick and Parsons declares that they have no conflict of interest.

Ethical Approval This article does not contain any studies with human participants performed by any of the authors.

References

- Coleman-Jensen A, Gregory C, Singh A. Household food security in the United States in 2013. USDA-ERS Economic Research Report 2014;173.
- Van Hook J, Landale NS, Hillemeier, MM. Is the United States bad for children's health? Risk and resilience among young children of immigrants. Washington, DC: Migration Policy Institute; 2013. Retrieved 30 Nov 2013.
- Cook JT, Frank DA. Food security, poverty, and human development in the United States. *Ann N Y Acad Sci*. 2008;1136(1):193–209.
- Gundersen C, Kreider B, Pepper J. The economics of food insecurity in the United States. *App Econ Perspect Policy*. 2011. Doi:10.1093/aep/ppr022
- Capps R. The health and well-being of young children of immigrants. 2005.
- Perreira KM, Ornelas IJ. The physical and psychological well-being of immigrant children. *Future Child*. 2011;21(1):195–218.
- Potochnick S, Mooney M. The decade of immigrant dispersion and growth: a cohort analysis of children of immigrants' educational experiences 1990–2002. *Int Migr Rev*. 2015;49(4):1001–41.
- Chávez N, Telleen S, Kim YOR. Food insufficiency in urban Latino families. *J Immigr Minor Health*. 2007;9(3):197–204.
- Chilton M, Black MM, Berkowitz C, Casey PH, Cook J, Cutts D, et al. Food insecurity and risk of poor health among US-born children of immigrants. *Am J Public Health*. 2009;99(3):556–62.
- Kalil A, Chen JH. Mothers' citizenship status and household food insecurity among low-income children of immigrants. *New Dir Child Adolesc Dev*. 2008;121:43–62.
- Kaushal N, Waldfogel J, Wight VR. Food insecurity and SNAP participation in Mexican immigrant families: the impact of the outreach initiative. *BE J Econ Anal Policy*. 2013;14(1):203–40.
- Kersey M, Geppert J, Cutts DB. Hunger in young children of Mexican immigrant families. *Pub Health Nutr*. 2007;10(04):390–5.
- Kimbro RT, Denney JT, Panchang S. Individual, family, and neighborhood characteristics and children's food insecurity. *J App Research Child. Inform Policy Child Risk*. 2012;3(1):8.
- Quandt SA, Shoaf JI, Tapia J, Hernández-Pelletier M, Clark H, Arcury TA. Experiences of Latino immigrant families in North Carolina help explain elevated levels of food insecurity and hunger. *J Nutr*. 2006;136(10):2638–44.
- Rosenblum MR, Brick K. US immigration policy and Mexican/Central American migration flows. Washington, DC: Migration Policy Institute; 2011.
- Passel JS. Demography of immigrant youth: past, present, and future. *Future Child*. 2011;21(1):19–41.
- Passel JS, Taylor P. Unauthorized immigrants and their US-born children. Washington, DC: Pew Hispanic Center; 2010.
- Massey DS. New faces in new places: the changing geography of American immigration. New York City: Russell Sage Foundation; 2008.
- Crowley M, Lichter DT, Qian Z. Beyond gateway cities: economic restructuring and poverty among Mexican immigrant families and children. *Family Relat*. 2006;55(3):345–60.
- Hirschman C, Massey DS. Places and peoples: The new American mosaic. *New faces in new places: The changing geography of American immigration*. 2008;1–21.
- Filindra A, Blanding D, Coll CG. The power of context: state-level policies and politics and the educational performance of the children of immigrants in the United States. *Harvard Educ Rev*. 2011;81(3):407–38.
- Fortuny K, Chaudry A. A comprehensive review of immigrant access to health and human services. Washington, DC: Urban Institute; 2011.
- Martin SF, Gozdziaik EM. Beyond the gateway: immigrants in a changing America. Lanham: Lexington Books; 2005.
- Laglagaron L, Rodríguez C, Silver A, Thanasombat S. Regulating immigration at the state level: highlights from the database of 2007 state immigration legislation and the methodology. Washington, DC: Migration Policy Institute, 2008.
- Kochhar R, Espinoza CS, Hinze-Pifer R. After the great recession: foreign born gain jobs; native born lose jobs. Washington, DC: Pew Hispanic Center; 2010.
- Liu CY, Edwards J. Immigrant employment through the Great Recession: Individual characteristics and metropolitan contexts. *Soc Sci J*. 2015;52(3):405–414.
- Martin KS, Rogers BL, Cook JT, Joseph HM. Social capital is associated with decreased risk of hunger. *Soc Sci Med*. 2004;58(12):2645–54.
- Nord M, Andrews M, Carlson S. Household food security in the United States, 2004. USDA-ERS Economic Research Report. 2005(11).
- Potochnick S, Arteaga I. A decade of analysis household food insecurity among low-income immigrant children. *J Family Issues*. 2016. Doi:10.1177/0192513X16661216.
- Daymont TN, Andrisani PJ. Job preferences, college major, and the gender gap in earnings. *J Human Resour*. 1984;19:408–428.
- Arteaga I, Glewwe P. Achievement gap between indigenous and non-indigenous children in Peru: an analysis of young lives survey data. 2014.
- Glewwe P, Krutikova S, Rolleston C. Do schools reinforce or reduce learning gaps between advantaged and disadvantaged students? Evidence from Vietnam and Peru. Oxford: Young Lives; 2014.
- Kao G, Tienda M. Optimism and achievement: the educational performance of immigrant youth. *The new immigration: an interdisciplinary reader*. 2005;331–343.
- Yoshikawa H, Kalil A. The effects of parental undocumented status on the developmental contexts of young children in immigrant families. *Child Dev Perspect*. 2011;5(4):291–7.