Another Mexican Birthweight Paradox?
The Effect of Immigrant Enclaves and Neighborhood Poverty on the Birthweight of Mexican Origin Infants

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INTRODUCTION

Despite lower socioeconomic status, Mexican immigrants tend to have healthy birth outcomes compared to US-born (USB) non-Hispanic whites (Hayes-Bautista, 2002; Jasso, Massey, Rosenzweig, & Smith, 2004).. Immigrant enclaves may facilitate successful immigrant adaptation, although the Mexican health paradox has been studied primarily at the individual level. Examining whether contextual factors (ethnic enclaves, neighborhood poverty) play a role in Mexican-origin birth outcomes may contribute to assessing rival explanations for the Mexican health paradox. We examined whether infants born to US Mexican-origin women exhibited worse health in metropolitan areas (MA) with higher Mexican-American residential segregation (e.g. ethnic enclaves and neighborhood poverty), and whether associations were modified by nativity.

METHODS

Individual Level Data

We used the 2000 Natality Dataset (U.S. DHHS, CDC, & NCHS, 2002). Our outcome was birthweight, measured as number of grams at birth. Our individual-level predictor of interest was nativity, operationalized as the place of birth for the mother. We analyzed only Mexican origin Americans for associations between segregation and birth weight to the exclusion of other Hispanic groups. We defined women as Mexican immigrant (foreign-born) if they were born in Mexico and as US-born Mexican if they were born in the US and self-identified as of Mexican

origin. Throughout this manuscript, "Mexican" refers to both groups. We adjusted for other individual-level confounders.

Metropolitan Area Data and Measures

We operationalized the prevalence of ethnic neighborhood enclaves and neighborhood poverty at the metropolitan area (MA) level, applying measures from the residential segregation literature, i.e. exposure indices calculated for the Mexican-origin population. We considered three exposure indices: isolation (i.e. exposure of Mexican Americans to other Mexican Americans), exposure to foreign-born Mexican Americans, and exposure to poverty using Census 2000 data.

We modeled exposure measures as contrast coded quartiles. The reference group in all models is the lowest quartile, or low exposure. The other modeled categories were moderate exposure (2^{nd} quartile), high exposure (3^{rd} quartile), and very high exposure (4^{th} quartile).

We included metropolitan area level covariates as confounders, including: population size (log), poverty rate, and median household income (log), using Census 2000 data, as well as altitude with data from the US Geological Survey. We included the fixed effects of the 4 census regions to adjust for any systematic differences among the regions (West was the reference group).

Analytic Methods

We merged the exposure measures with the birth observations based on mother's MA of residence. We analyzed how birth outcomes are associated with neighborhood exposure

measures in a 2-level hierarchical multiple linear regression model of individuals within MAs, including random slopes models, using HLM 6.0 software (Raudenbush, Bryk, & Congdon, 2005).

RESULTS

We found no significant associations of the main effect of exposure measures with birthweight (main effect models) after controlling for all covariates. However, we found significant associations in the foreign-born cross level interaction models (Models b) for isolation, exposure of Mexicans to poverty, and exposure of Mexicans to foreign-born Mexicans.

First, the US-born coefficient for very high isolation demonstrates that infants born to US-born Mexican mothers in the highest isolated MAs exhibited a lower birthweight on average, compared to the lowest segregated MAs. However, the foreign-born do not experience this inverse association.

Overall, the associations driving the significance of the cross-level interaction models between nativity and exposure measures were the foreign-born coefficients in the highest quartile(s), which offset a negative birthweight association exhibited by the US born. For all the exposure measures, infants born to US-born mothers in the highest quartile of the exposure measure were born lighter on average than infants born to US born Mexican mothers in the lowest quartile,

Foreign-born Mexican women therefore did not experience the same negative associations of being exposed to high average neighborhood proportions of poverty, or high proportions of

Mexican foreign-born women, that the US born Mexican women did. Moreover, for exposure to foreign born, infants of women born in Mexico were significantly heavier if born in MAs with higher exposure to Mexican foreign-born women (quartiles 2-4), compared to foreign born women in quartile 1.

SUMMARY

In this analysis, we found that across US metropolitan areas, birthweight for Mexican origin infants was significantly patterned by the prevalence of ethnic neighborhood enclaves and by exposure to neighborhood poverty in the year 2000. We found that associations were modified by nativity for all measures for which we found significant associations.

First, we found that Mexican American isolation and exposure to foreign born Mexicans were associated with birthweight in final models adjusted for a range of individual and MA level (and region) covariates, and that these associations were substantially modified by nativity. The isolation measure demonstrated the strongest and most robust associations of all the measures tested. Mexican women born in the US exhibited worse birthweight outcomes if they lived in MAs characterized by the highest level of isolation. On the other hand, women born in Mexico not only had a counteractive effect so they did not experience this worse outcome in the highest quartile, they also experienced significantly heavier birthweight in the 4^{th} quartile compared to the 1^{st} (lowest) quartile of segregation. Therefore, it may be that some aspects of Mexican immigrant enclaves protect against the negative effects of neighborhood poverty.

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