

**Regional Effects on Maternal and Infant Health of the  
Mexican-Origin Population in the United States**

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This study evaluates the existence and persistence of the health advantage of Mexican-origin birth outcomes by state and region of the U.S. using national data on birth outcomes of Mexican-origin women living the United States. Our objective is to examine the relationship of recent and historical immigration and residential patterns to the health of this population by disaggregating national data on birth outcomes of U.S.-born and non-U.S-born Mexicans in the United States relative to non-Latino Whites. This comparative analysis will be conducted using data from the U.S. Natality Detail Public-Use Data Files and the 1995 National Survey of Family Growth Cycle 5 (NSFG V). Preliminary analysis show differences in low birth weight among U.S.- and Mexico-born Mexican-origin women by states with historically high Mexican populations and between those states with recent migration flows of Mexicans immigrants.

## **Background**

A study of infant mortality in Texas in the early 1960s by Teller and Clyburn (1974) found the surprising result that infant mortality rates among the Spanish-speaking population in Texas was only slightly higher than that of Whites. Since then, numerous studies using local, state, and national data show that birth and health outcomes of infants (low birth weight, prematurity, intrauterine growth retardation (IUGR), and survival during the first year) born to Hispanics (except Puerto Ricans) in general, and Mexican-origin women in particular, are nearly equal to, or better than, birth outcomes of infants born to U.S.-born White women (Frisbie, Forbes, and Hummer 1998; Cobas et al. 1996; Scribner and Dwyer 1989; Shiono et al. 1986; Rumbaut 1992; Williams et al. 1986; Becerra et al. 1991, Albrecht et al. 1996; Cramer 1987). This finding is referred to here as the 'Latino epidemiological paradox' (or also known as the

‘Hispanic Paradox’) because the observed high level of favorable health outcomes is unexpected in a population whose members are predominantly from lower socioeconomic background. But, simultaneously, it has been observed that these health advantages, particularly for Mexican women, are not sustained with increased duration of residence in the United States. Several studies find that birth outcomes for Mexicans, for example, deteriorate for later generations (Guendelman et al. 1990; Scribner and Dwyer 1989; Zambrana et al. 1997). When comparing health differences among generations, we find that U.S.-born Latinos have higher rates of infant mortality and of low birth weight than non-U.S.-born Latinos (Landale et al, 1997). This finding is inconsistent with a widely-held expectation based on an assumed acculturation process of immigrants to the U.S that should lead to improvements in their lives with increased time spent in the United States. This regularity has been labeled the ‘acculturation paradox’. The first and most often posited explanation is that changes in health behaviors are affected by the acculturation process which may have negative or positive effects on health. This is called here the “acculturation hypothesis.” The second and less studied explanation is called the return migration selection hypothesis. This posits that Mexican immigrants returning to Mexico are selected based on their health status. Those who return migrate are more likely to be healthier than those who stay.

### **The Data**

For this preliminary analysis we use national data on low birth weight of U.S.-born and non-U.S born Mexicans and U.S.-born non-Latino whites from the 1999 and 2003 U.S. Natality Detail, Public-Use Data Files, which include information on all births in the United States for those years (Natality Detail File, 1999, 2003). This data provides a complete reporting of birth

outcomes for all 50 states and the District of Columbia with is necessary for comparing the outcomes in the more recent migrant-receiving states including the Northeast, South, and Midwest regions which up until more recently, have had very small numbers of Mexican immigrant.

We also will use the 1995 National Survey of Family Growth Cycle 5 (NSFG V), which includes data on family growth, formation, and dissolution, and births, infants, and fetal deaths, marriages and divorces, and other information on childbearing, reproductive health, migration history, and language usage for 10,847 women aged 15-44 years (Mosher 1998; Potter et al. 1998). The NSFG V drew its sample from the 1993 National Health Interview Survey (NHIS), in order to enrich the data with variables of the NHIS that provided more detailed background data (Kelly et al. 1997). The sample size for Latinos is 1,553 and includes respondents from nearly every state and all of the largest metropolitan areas in the U.S. The NSFG also contains information on length of stay in the U.S., language spoken during the interview, and behavioral and social variables of interest, including measures of stress, smoking, parity, education, and marriage.

### **Preliminary Analysis**

Preliminary analysis of the data comparing selected states including those with historically large Mexican immigrant and Mexican American populations, including Arizona, California, Colorado, Illinois, New Mexico, and Texas, and six states with historically low proportions of Mexican-origin populations but with recent large Mexican immigrants flows, including Georgia, Iowa, Missouri, Nebraska, North Carolina, and South Carolina. Results indicated two interesting patterns.

Results from an ANOVA analysis indicates that for both 1999 and 2003 non-U.S.-born Mexicans have lower levels of low birth weight than U.S.-born Mexicans and non-Latino Whites overall and for all four regions of the country ranging from 1999 to 2003, 1.3 and 1.5 percent low birth weight lower among non-U.S.-born Mexicans relative to U.S.-born Mexicans and 1.2 and 1.3 percent lower relative to non-Latino Whites, respectively (Tables 1 and 2).

Disaggregating by state we find significant differences between states and over the two time periods. Colorado, New Mexico, Iowa, and South Carolina indicate non-U.S.-born Mexican have over 2.0 percent low birth weight lower than U.S.-Mexicans, which represents a 29% to 41% difference (Tables 3 and 4). However, for 2003, while we find these high levels of difference only for New Mexico, all states with historically high Mexican populations, except for California have show a difference of 20% or greater while for the recent migrant receiving states; only Georgia has a high level of difference. These results are suggestive of different patterns emerging in birth outcomes between U.S.-born and non-U.S.-born Mexicans by region in the U.S. This may suggest differences influenced by the regions that may be uncovered with additional analysis using of social, economic, and demographic variables available in these national data files of the Mexican-origin populations.

Table 1: Percentage Low Birth Weight of Mexican-Origin and non-Latino White Population in the U.S. by region, 1999 with ANOVA results.

<i>1999</i>	US Born Mexican	Non-US Born Mexican	Non-Latino White	Overall
Region				
North East	7.72	5.74	6.53	6.51
Midwest	6.87	5.67	6.52	6.49
South	7.05	5.61	7.12	6.96
West	6.41	5.29	6.11	5.94
Overall	6.7	5.44	6.66	6.52

Main Effect of Ethnicity:  $F(2, 2,756,708) = 95.73, p < .0001$

-LSD Minimum Mean Difference = .00071

Main Effect of Region:  $F(3, 2,756,708) = 54.12, p < .0001$

-LSD Minimum Mean Difference = .00101

Interaction:  $F(6, 2,756,708) = 8.68, p < .0001$

-LSD Minimum Mean Difference = .00175

Table 2: Percentage Low Birth Weight of Mexican-Origin and non-Latino White Population in the U.S. by region, 2003 with ANOVA results

2003	US Born Mexican	Non-US Born Mexican	Non-Latino White	Overall
Region				
North East	6.55	5.57	6.83	6.78
Midwest	6.98	5.48	6.79	6.7
South	7.74	5.93	7.43	7.26
West	6.68	5.45	6.37	6.16
Overall	7.1	5.62	6.94	6.77

Main Effect of Ethnicity:  $F(2, 2,786,882) = 187.70, p < .0001$

-LSD Minimum Mean Difference = .00072

Main Effect of Region:  $F(3, 2,786,882) = 98.72, p < .0001$

-LSD Minimum Mean Difference = .00121

Interaction:  $F(6, 2,786,882) = 6.01, p < .0001$

-LSD Minimum Mean Difference = .00177

Table 3: Percentage Low Birth Weight of Mexican-Origin and non-Latino White Population in the U.S. by state, 1999 with ANOVA results

	US Born Mexican	Non-US Born Mexican	Non-Hispanic White	Overall
State				
Arizona	7.47	6.05	6.48	6.57
California	6.05	5.07	5.51	5.47
Colorado	9.13	6.88	7.98	7.94
Illinois	7.01	5.75	6.55	6.44
New Mexico	9.41	5.38	7.38	7.15
Texas	7.09	5.67	6.66	6.53
Georgia	6.33	5.22	6.86	6.69
Iowa	8.02	4.49	5.84	5.84
Nebraska	7.18	6.23	6.39	6.4
North Carolina	7.36	6.05	7.32	7.21
South Carolina	7.61	5.4	7.35	7.29
Overall	6.73	5.42	6.53	6.3

Main Effect of Ethnicity:  $F(2, 920,276) = 31.09, p < .0001$   
 -LSD Minimum Mean Difference = .00120

Main Effect of State:  $F(6, 920,276) = 75.58, p < .0001$   
 -LSD Minimum Mean Difference = .00183

Interaction:  $F(12, 920,276) = 3.40, p = .0001$   
 -LSD Minimum Mean Difference = .00319



Table 4: Percentage Low Birth Weight of Mexican-Origin and non-Latino White Population in the U.S. by state, 2003 with ANOVA results

	US Born Mexican	Non-US Born Mexican	Non-Hispanic White	Overall
State	100	100	100	100
Arizona	7.39	5.7	6.65	6.51
California	6.28	5.26	5.97	5.76
Colorado	9.22	7.36	8.64	8.47
Illinois	7.11	5.3	7.06	6.7
New Mexico	9.47	6.45	7.62	7.79
Texas	7.8	5.99	7.07	6.96
Georgia	7.47	5.7	7.1	6.88
Iowa	6.35	5.65	6.55	6.51
Nebraska	6.71	5.58	6.83	6.72
North Carolina	6.51	5.75	7.61	7.35
South Carolina	8.29	6.87	7.64	7.6
Overall	7.15	5.61	6.96	6.63

Main Effect of Ethnicity:  $F(2, 952,881) = 56.92, p < .0001$   
 -LSD Minimum Mean Difference = .00121

Main Effect of State:  $F(6, 952,881) = 95.54, p < .0001$   
 -LSD Minimum Mean Difference = .00185

Interaction:  $F(12, 952,881) = 5.12, p < .001$   
 -LSD Minimum Mean Difference = .00321

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