ARTICLE

Hispanic Concentration and the Conditional Influence of Collective Efficacy on Adolescent Childbearing

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Objective: To determine how Hispanic residential concentration moderates the relationship between neighborhood collective efficacy and teenage birth rates.

Design: Cross-sectional analysis of census tract level survey data and birth records.


Participants: Measures of neighborhood collective efficacy from 2600 adults from the Los Angeles Family and Neighborhood Study (LAFANS) survey were linked with demographic information from the US 2000 Census and Los Angeles County birth records for 10- through 19-year-old mothers.

Main Exposures: Collective efficacy and Hispanic residential concentration.

Main Outcome Measures: Married and unmarried teenage birth rates.

Results: In census tracts with less than a 50% Hispanic population, a 1-SD increase in collective efficacy was associated with a 5.07 births per 1000 decrease in the unmarried teenage birth rate ($P<.05$). In census tracts with a 50% or greater Hispanic population, a 1-SD increase in collective efficacy was not statistically related to unmarried rates, but it was associated with a 3.43 increase in the married teenage birth rate ($P<.05$).

Conclusions: Collective efficacy may help reduce adolescent childbearing in some, but not all, neighborhoods. An interaction between collective efficacy and Hispanic population concentration suggests cultural variation may play a role in how collective efficacy influences adolescent fertility. Possible explanations for the positive relationship between collective efficacy and married birth rates found in segregated Hispanic neighborhoods include pro-fertility orientations and availability of childrearing networks for young parents. To help harness social capital to improve public health outcome, we suggest future studies examine the role of community cultural variation.

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Recent research examines how the social characteristics or contexts of neighborhoods can influence residents' health outcomes. Emphasis has been focused on how neighborhood poverty or disadvantage may influence the health of residents. A less studied neighborhood attribute that could potentially ameliorate negative health outcomes, however, is that of collective efficacy, or the degree to which communities exhibit social cohesion and informal social control. Seminal research on collective efficacy theory by Sampson et al suggests that neighborhoods characterized by solidarity and mutual trust, in which neighbors watch out for one another and are willing to intervene, have less criminal activity. Extending collective efficacy theory to more general social behavior, researchers have found associations with respiratory disease, premature mortality, self-rated health, and adolescent sexual activity. We explore how neighborhood collective efficacy may be related to teenage birth rates.

Adolescent childbearing is generally regarded as a social problem. Early motherhood has been linked to lower educational achievement and worse employment outcomes. In addition, children born to teenage mothers tend to experience less positive educational and health outcomes than their counterparts in more traditional families. Although some scholars have questioned the negative effects of teenage parenting, there is still substantial support for defining teenage pregnancy and childbirth as a public health issue.

Teenage fertility rates are strongly related to race/ethnicity; Hispanic and black women are significantly more likely than white or Asian women to have children during adolescence. These higher rates remain even after traditional measures of...
Persistent differences have led some researchers to suggest that cultural norms may be partially accountable. If Hispanic or black communities implicitly condone adolescent childbearing, then collective efficacy is unlikely to suppress teenage birth rates. Consequently, as an ethnic population becomes increasingly influential within a community, cultural orientations may moderate the influence of neighborhood collective efficacy on adolescent childbearing. We explored this possibility by examining the relationship between collective efficacy and married and unmarried teenage birth rates in Hispanic and non-Hispanic neighborhoods. Hispanics have the highest teenage birth rates and are the largest and fastest-growing minority group in the United States, making the study of this population particularly important.15,19

Hispanic women across age groups have comparatively high fertility, both in the United States and Latin America, particularly Mexico to which approximately 72% of the Los Angeles (California) County Hispanic population identify their ancestry.20 One popular explanation links high fertility with adherence to pronatalist norms that value motherhood and discourage contraception and abortion.21 In one study, lower prevalence of contraception and abortion accounted for higher rates of Mexican American adolescent childbearing.22 Ethnographic studies in Southern California have found that for disadvantaged Hispanic teenagers a normative environment that is less critical of premarital sex and childbearing coexists with traditional ideals stressing marriage, motherhood, and sexual discretion.23,24 This is consistent with general accounts of acculturation where Hispanic teenagers simultaneously grapple with traditional cultural norms and mainstream American culture.25 The fact that Mexican American adolescents have higher fertility rates than Mexican adolescents and evidence that teenage pregnancy risk increases with US acculturation suggests that adolescent childbearing is more than an extension of immigrant pronatalist norms.26

Other profamily norms such as familism, an orientation that stresses the importance of emotional and social relations with extended family and children, may also play a role.27 Familism is consistent with a willingness on the part of older community members to provide material and care-giving support to young mothers. Familism coupled with the social cohesion found in efficacious neighborhoods may provide a supportive environment for early childbearing.

As suggested by collective efficacy theory, we expect collective efficacy will be associated with lower teenage birth rates for integrated and non-Hispanic white neighborhoods. Because childbirth among married adolescents is more socially acceptable, the negative relationship should be weaker than for unmarried births. We suspect collective efficacy operates differently in Hispanic neighborhoods. Based on a review of the literature, we hypothesize that collective efficacy will have less of an effect on adolescent birth rates in neighborhoods with high concentrations of Hispanic residents. Birth rates may even increase if conservative norms and familism are activated by collective efficacy, encouraging pregnant teenagers to marry and give birth.

**METHODS**

This study links data from 3 different sources across 63 US census tracts in Los Angeles County: the 2001 Los Angeles Family and Neighborhood Study (LAFANS), the 2000 US Census, and Los Angeles County birth records. The LAFANS is a study of families in Los Angeles County designed in part to address questions about how neighborhoods affect a broad set of family outcomes for adults and children. Based on a presurvey assessment, neighborhoods were defined by US census tract boundaries. Between April 2000 and December 2002, researchers interviewed adults and children in 3083 households in a stratified probability sample of 65 census tracts throughout Los Angeles County. To develop a measure of collective efficacy, the current analysis uses responses from 2565 adult residents, with a response rate of approximately 85%. On average, there were 40 respondents per census tract, with none of the tracts having fewer than 27 respondents. Among other questions, respondents were asked to provide perceptions of current neighborhood characteristics. A detailed methodology of the LAFANS survey is available elsewhere.28

**INDEPENDENT MEASURES**

The collective efficacy variable combines measures of social cohesion and informal social control constructed from LAFANS survey responses. Social cohesion includes respondents’ agreement with the following statements about their neighborhoods: (1) this is a close-knit neighborhood; (2) there are adults children can look up to; (3) people are willing to help their neighbors; (4) neighbors generally do not get along with each other; (5) you can count on adults to watch out that children are safe and do not get in trouble; and (6) neighbors do not share the same values. Informal social control is captured by asking residents to estimate the likelihood that neighbors would do something if: (1) neighborhood children were skipping school and hanging out on a street corner; (2) children were spray-painting graffiti on a local building; and (3) a child was showing disrespect to an adult. All items were represented by a 5-item Likert scale. Possible responses to the social cohesion items were strongly agree, agree, unsure, disagree, or strongly disagree and possible responses to the informal social control items were very likely, likely, unsure, unlikely, or very unlikely. To obtain a neighborhood measure of collective efficacy, we combined the 9 items to form a single scale (Cronbach α = 0.79) and aggregated individual scores up to the census tract level. Table 1 provides descriptive statistics for the collective efficacy measure by the ethnic category of the respondents. This measure of collective efficacy is based on standard items and aggregation techniques used by Sampson et al29 and Browning et al.29

We assigned demographic and socioeconomic characteristics to each of the 65 census tracts based on 2000 US census

<table>
<thead>
<tr>
<th>Race/Ethnicity</th>
<th>No. of Respondents</th>
<th>Mean (SD) Collective Efficacy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hispanic</td>
<td>1435</td>
<td>3.34 (0.66)</td>
</tr>
<tr>
<td>White</td>
<td>677</td>
<td>3.70 (0.65)</td>
</tr>
<tr>
<td>Black</td>
<td>247</td>
<td>3.38 (0.73)</td>
</tr>
<tr>
<td>Asian</td>
<td>173</td>
<td>3.53 (0.64)</td>
</tr>
<tr>
<td>Other</td>
<td>33</td>
<td>3.35 (0.76)</td>
</tr>
</tbody>
</table>

Table 1. Numbers of Respondents, Means, and Standard Deviations for Collective Efficacy Measure by Race/Ethnicity

**TABLE 1. NUMBERS OF RESPONDENTS, MEANS, AND STANDARD DEVIATIONS FOR COLLECTIVE EFFICACY MEASURE BY RACE/ETHNICITY**
data. Neighborhood composition was captured by measuring the percentage of households in a census tract that possess specific demographic characteristics, including the percentage of residents who are Hispanic, the percentage of non-Hispanic residents who are black, and the percentage of Hispanic residents who are foreign born. Because black and Hispanic fertility rates follow similar patterns, we included the measure of black concentration as a covariate. While we believe a similar relationship may exist between black concentration and collective efficacy, there were insufficient numbers of black residents across census tracts to conduct a similar analysis. We also included a variable to capture socioeconomic disadvantage within each census tract. The socioeconomic disadvantage measure is constructed from the following 4 items: percentage of male unemployment, female-headed households, families in poverty, and families receiving public assistance.30

DEPENDENT VARIABLES: BIRTH RATES

The California Department of Health Services, Center for Health Statistics, Sacramento, provided the age, marital status, and census tract of residence for all women in Los Angeles County who gave birth in 2000 and 2001. With these data we computed married and unmarried teenage birth rates for each of the 65 census tracts. Rates were standardized as the number of births per year to 10- through 19-year-old females for every 1000 10- through 19-year-old females in the population, averaged for the years 2000 and 2001.

STATISTICAL ANALYSIS

We used ordinary least-squared regression to test for significant relationships between census tract characteristics and corresponding birth rates, including interactions between Hispanic concentration and collective efficacy. Estimates were calculated using the SAS PROC REG (SAS Institute Inc, Cary, NC) procedure. A multiple regression model was run for each of the 2 birth rate measures—marital and nonmarital. In addition to our explanatory collective efficacy variable, the analyses include the following census level covariates: socioeconomic disadvantage, percentage of the non-Hispanic population that is black, percentage of the Hispanic population that is foreign born, and a dummy variable indicating whether the population of the census tract is greater or less than 50% Hispanic. For the analysis, we converted collective efficacy into standardized z scores with a mean (SD) of 0 (1).

To determine whether the effect of collective efficacy varied by Hispanic concentration, an interaction term composed of the dummy 50% Hispanic and collective efficacy variable was also included in the model. The nondummy independent variables were mean centered to facilitate the interpretation of the coefficients. Consequently, the coefficients can be understood as the slope of the corresponding measure when all other covariates are at their mean. Statistically significant interactions (P<.05) were followed up to evaluate whether the simple collective efficacy slopes for high and low Hispanic tracts were significantly different from 0 (t test, P<.05). Since less than 50% Hispanic concentration is the comparison group (<50%=0 and ≥50%=1), the regression coefficient for collective efficacy is the simple slope for census tracts with less than 50% Hispanic concentration. By substituting a recoded dummy variable (≥50%=0 and <50%=1) and rerunning the regression model, we obtained the simple slope for census tracts with a greater than 50% Hispanic concentration.31

Table 2 gives descriptive statistics for each of the census tract variables for all tracts and by Hispanic concentration. Consistent with the Los Angeles population, the concentration of Hispanic residents in the sampled census tracts was high, with a mean concentration of 55.2%. In the mean census tract, 47.2% of the Hispanic residents were foreign born and 25.7% of the non-Hispanic residents were black. On average, the 39 census tracts in which 50% or more of the population was Hispanic had higher married and unmarried birthrates, lower collective efficacy, higher concentrations of foreign-born Hispanics and black non-Hispanics, and were more socioeconomically disadvantaged than the 26 census tracts with lower Hispanic resident concentrations. Hispanic neighborhoods in our sample had a mix of immigrant and native Hispanic residents. Within the 39 high Hispanic census tracts, foreign-born residents were less than 40% of the total Hispanic population in only 2 tracts and more than 70% in only 1 tract. Los Angeles County Hispanic teenagers account for a disproportionate amount of teenage childbearing. While in 2000 approximately 53% of Los Angeles County females aged 10- through 19-years-old were Hispanic, 77%
of unmarried teenage births and 81% of married teenage births were to Hispanic mothers. Within the sampled census tracts, highly populated Hispanic tracts had significantly higher married and unmarried birthrates than low Hispanic tracts (P < .001). High Hispanic tracts averaged 11.85 married births and 18.50 unmarried births per 1000 adolescent females while the low Hispanic tracts, averaged 4.13 married and 7.95 unmarried births per 1000 adolescent females. In addition, in high Hispanic tracts a greater percentage of total teenage births were to married adolescents: 38% vs 29% in low Hispanic tracts (P < .001).

To provide a description of mean birth rates by Hispanic concentration and collective efficacy, we created 4 types of census tracts: low collective efficacy/low Hispanic concentration, low collective efficacy/high Hispanic concentration, high collective efficacy/low Hispanic concentration, and high collective efficacy/high Hispanic concentration. Table 3 lists the unadjusted means and margins of error for the 4 groups. Consistent with our hypothesis, census tracts with lower concentrations of Hispanic residents and higher levels of collective efficacy had the lowest mean birthrates. High Hispanic tracts had higher rates with less difference between the collective efficacy categories.

Table 4 gives the results of the multiple regression analyses. The interaction terms are significant (β = 5.49, P < .05; and β = 4.36, P < .05), indicating the relationship between collective efficacy and adolescent childbearing depends on the Hispanic composition of the neighborhood. The simple slopes indicate that in census tracts with less than a 50% Hispanic population a 1-SD increase in collective efficacy was associated with a 5.07 births per 1000 decrease in the unmarried birth rate (P < .05). In census tracts with more than a 50% Hispanic population, a 1-SD increase in collective efficacy was not statistically related to unmarried rates but was instead associated with a 3.43 births per 1000 increase in the married birth rate (P < .05).

The Figure shows the interaction by graphing the calculated regression equations for unmarried and married birth rates, respectively. The lines represent the corresponding simple collective efficacy slopes after statistically controlling for the covariates. Figure A shows that as collective efficacy increased, unmarried teenage birth rates decreased in the census tracts with less than a 50% Hispanic population. Figure B shows that as collective efficacy increased, married teenage birth rates increased in census tracts with 50% or greater Hispanic populations. The fact that the lines for the 50% or greater Hispanic unmarried birth rates and the less than 50% Hispanic married birth rates run parallel to the y-axis reflects the finding in Table 1 that the simple collective efficacy slopes for these 2 groups were not significantly different from 0. Note that the pattern for married rates is similar to that of unmarried, only shifted upward.

**Table 3. ANOVA for Unadjusted Mean Birth Rates by Collective Efficacy and Percentage of Hispanics**

<table>
<thead>
<tr>
<th>Collective Efficacy*</th>
<th>% Hispanics†</th>
<th>Sample Size</th>
<th>Mean ± SD Teenage Birth Rate per 1000 Females Aged 10 to 19 Years</th>
</tr>
</thead>
<tbody>
<tr>
<td>Low</td>
<td>Low</td>
<td>5</td>
<td>13.95 ± 5.98</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>32</td>
<td>19.13 ± 2.36</td>
</tr>
<tr>
<td>High</td>
<td>Low</td>
<td>21</td>
<td>6.52 ± 2.92</td>
</tr>
<tr>
<td></td>
<td>High</td>
<td>7</td>
<td>17.56 ± 5.06</td>
</tr>
</tbody>
</table>

*For collective efficacy, low is defined as below the mean; high, above the mean.
†For percentage of Hispanics, low is defined as less than 50% in the census tract; high, 50% or higher in the census tract.
‡Least squares means test with Tukey-Kramer adjustment for multiple comparisons indicate married and unmarried teenage birth rates for the high-low group are significantly lower than those for both the high-high and the low-high group. Married (mean difference = high-high group: −7.99 [95% confidence interval, −13.64 to −2.34], low-high group: 1.02 [95% confidence interval, −4.38 to 6.42]). Unmarried (mean difference = high-high group: −13.64 [95% confidence interval, −22.91 to −4.38], low-high group: 1.02 [95% confidence interval, −13.64 to −2.34]).

**Table 4. Multivariate Analysis for the Effects of Collective Efficacy and Hispanic Concentration on Married and Unmarried Teenage (10- Through 19-Year-Old) Birth Rates**

<table>
<thead>
<tr>
<th>Variable</th>
<th>Unmarried</th>
<th>Married</th>
</tr>
</thead>
<tbody>
<tr>
<td>Intercept</td>
<td>12.48† (8.67 to 16.3)</td>
<td>7.79† (5.11 to 10.46)</td>
</tr>
<tr>
<td>Collective efficacy</td>
<td>−5.07* (−8.83 to −1.31)</td>
<td>−0.93 (−3.57 to 1.72)</td>
</tr>
<tr>
<td>Socioeconomic disadvantage</td>
<td>−27.77 (−71.97 to 16.42)</td>
<td>34.54* (3.50 to 65.58)</td>
</tr>
<tr>
<td>% Hispanic foreign born</td>
<td>−2.74 (−16.77 to 11.28)</td>
<td>−1.60 (−11.44 to 8.25)</td>
</tr>
<tr>
<td>% Non-Hispanic black</td>
<td>12.09† (5.71 to 18.48)</td>
<td>6.63† (2.14 to 11.12)</td>
</tr>
<tr>
<td>≥50% Hispanic</td>
<td>6.57* (1.84 to 11.29)</td>
<td>4.18* (0.87 to 7.5)</td>
</tr>
<tr>
<td>≥50% Hispanic * collective efficacy</td>
<td>5.49* (0.94 to 10.03)</td>
<td>3.36* (1.16 to 7.55)</td>
</tr>
<tr>
<td>Adjusted R²</td>
<td>0.51</td>
<td>0.54</td>
</tr>
<tr>
<td>Simple slopes: collective efficacy</td>
<td></td>
<td></td>
</tr>
<tr>
<td>≧50% Hispanic</td>
<td>0.42 (−3.85 to 4.68)</td>
<td>3.43* (0.43 to 6.43)</td>
</tr>
<tr>
<td>&lt;50% Hispanic</td>
<td>−5.07* (−8.83 to −1.31)</td>
<td>−0.93 (−3.57 to 1.72)</td>
</tr>
</tbody>
</table>

* P < .05.
† P < .01.

In this study, we used collective efficacy theory to explore how neighborhoods influence married and unmarried teenage birth rates. To provide a description of mean birth rates by Hispanic concentration and collective efficacy, we created 4 types of census tracts: low collective efficacy/low Hispanic concentration, low collective efficacy/high Hispanic concentration, high collective efficacy/low Hispanic concentration, and high collective efficacy/high Hispanic concentration. Table 3 lists the unadjusted means and margins of error for the 4 groups. Consistent with our hypothesis, census tracts with lower concentrations of Hispanic residents and higher levels of collective efficacy had the lowest mean birthrates. High Hispanic tracts had higher rates with less difference between the collective efficacy categories.

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ried teenage birth rates in a sample of 65 Los Angeles County US census tracts. As predicted, we found differential effects of collective efficacy on adolescent childbearing based on Hispanic residential homogeneity. Collective efficacy was associated with lower unmarried birth rates in census tracts where the population was less than 50% Hispanic. In census tracts in which the population was 50% or greater Hispanic, however, collective efficacy was not associated with lower unmarried teenage birth rates but instead was linked to higher married teenage birth rates.

Collective efficacy theory has increasingly been applied to public health issues and, in general, the findings have supported the conclusion that cohesive communities in which neighbors reproach inappropriate behaviors may be potential allies in promoting positive public health outcomes. Our findings are consistent with this conclusion. This study indicates that neighborhood collective efficacy may be capable of influencing adolescent behaviors. The results also suggest, however, that collective efficacy may not improve public health outcomes in all settings. Collective efficacy seems to have a complex relationship with teenage childbearing; one that is likely conditioned by neighborhood cultural norms.

Our analysis does not allow us to speak directly to why the relationship between collective efficacy and adolescent childbearing differed by ethnic homogeneity. Consequently, we can only speculate about the underlying explanations for our findings. One possibility is that Hispanic normative orientations help define how collective efficacy in a neighborhood is manifested. If communities view behaviors as less problematic, social control motivators are absent. This explanation is probably most applicable to marital adolescent childbearing where cross-cultural variation in acceptability has been noted. Consistent with this reasoning, teenage mothers in high percentage Hispanic census tracts were more likely to be married than other teenage mothers. Norms do not have to directly encourage adolescent childbearing to have an effect. Pronatalist views might be extended to adolescent nonmarital childbearing under certain circumstances, such as when adolescents observe peer behavior or when there are few economic incentives to delay childbearing. Assimilation into the more liberal sexual and gender norms of the wider US society, acceptance of profamily norms, negative or ambivalent views on birth control and abortion, and disadvantaged socioeconomic conditions may combine to create an environment conducive to adolescent childbearing. Such an environment may override concurrent norms that value marriage and condemn premarital sex.

Another, more structural, explanation is that social cohesion found in high collective efficacy neighborhoods provides material and emotional support for adolescent parenting. Communities with high collective efficacy and familism may provide young mothers with needed resources. Some scholars have argued that early childbearing can function as a healthy adaptive strategy in populations where delaying childbearing has fewer economic returns, especially when family members are available to assist with childrearing. Higher teenage birth rates may be less problematic in such neighborhoods.

There are several limitations in our analysis. First, as an ecological study, the analysis is limited to interpretation at the neighborhood, in this case, census tract level. Therefore, one must be careful not to directly infer a relationship between individual experiences of collective efficacy and the likelihood of giving birth as an adolescent. Second, the analysis is cross-sectional in nature and consequently limited in its ability to differentiate between correlation and causation. By including characteristics that may be related to both Hispanic concentration and teenage birth rates such as socioeconomic disadvantage and immigrant and black population concentrations, we try to account for some of these factors. In general, however, almost all neighborhoods in Los Angeles County that have a high concentration of Hispanics are comparatively disadvantaged, making it difficult to untangle issues of ethnicity and economic conditions. In addition, while our analysis suggests neighborhood cultural differences based on Hispanic concentration, cultural differences are never directly measured or modeled. Based on a reading of the previous literature, profamily and fertility norms are believed to be present in neighborhoods with a high concentra-
tion of Hispanics and helped form the basis for our hypothesis.

Although we are unable to directly support conclusions based on the role of Hispanic family norms, we believe that our findings are consistent with this line of inquiry and contribute to a more general discussion regarding the increasing Hispanic teenage birth rates in the United States. We hope future research will more directly examine these issues by including questions related to attitudes and beliefs about sexuality and family formation. Examining variations in cultural norms and neighborhood dynamics may be an important next step in further elucidating how collective efficacy may be harnessed to improve public health outcomes.

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