

Has the Hispanic Paradox Persisted in Childhood

Health

(Preliminary)

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September 2008

ABSTRACT

Using the Early Childhood Longitudinal Study-Kindergarten Cohort data, this paper addresses whether Hispanic immigrants pass on their health advantages to their children. After controlling for family background, our preliminary findings indicate that the Hispanic paradox has persisted through childhood for most of health indicators we examined. Hispanic children born to Mexico immigrants face the lowest risks of developing chronic health problems, such as asthma and sinusitis. Hispanic children of Mexican origin are less likely to develop cognitive disability, behavioral and emotional problems. Part of their health advantages can be traced to their better health condition at birth and maternal health. Yet, almost all Hispanic children suffer from obesity, regardless of their mothers' ethnicity and nativity. Overall, these findings provide the supporting evidence for the Hispanic paradox hypothesis in childhood health.

Introduction

First generation Hispanic immigrants enjoy favorable health and mortality outcomes, despite their low socioeconomic status in the United States (Palloni and Arias 2004, Crimmens et al. 2007, Markides and Eschbach 2005). The newborns of some first generation Hispanic immigrants have a better chance of survival, and of being born full-term and with normal birth weight (Hummer et al. 2007, Acevedo-Garcia et al. 2007). This set of evidence suggests that some Hispanic infants have inherited health advantages from their parents. However, it remains unclear whether their health advantages persist through their childhood. The answer to this question has great public health implications.

Empirical evidence of healthy school-aged children of Hispanic immigrants is limited and mixed. Past studies have focused on a limited range of health indicators, such as asthma and obesity (Mendoza and Fuentes-Afflick 1999, Kimbro et al. 2006, Whitaker and Orzol 2006). By and large, it is still unclear whether the Hispanic paradox manifests in children's mental health and other dimensions of physical health. A large body of clinical studies has linked poor health conditions at birth with development deficits and behavioral problems during childhood (Bhutta et al. 2007, Saigal and Doyle 2008, Msall and Park 2007) and it is necessary to learn whether healthy infants of Hispanic immigrants have grown up to be healthy children.

To fill in this gap, we offer a comprehensive examination of the Hispanic paradox hypothesis in children's physical and mental health, using the Early Childhood

Longitudinal Study-Kindergarten cohort data. Most of the child development and health indicators are closely tied to genetic inheritance, and some of them may result from external causes. We find that some Hispanic immigrants have transferred their health advantages to their children in most of the health domains of interest, in particular in asthma and cognitive development, and their better health conditions are effective channels to generating the advantage. Yet, we also find that all Hispanic descendants have carried the burden of obesity.

The rest of the paper is structured as follows: section 2 reviews past studies with respect to the Hispanic paradox hypothesis. Section 3 describes the data and empirical method. Section 4 presents the results from health conditions at birth and during childhood. Section 5 discusses the results and concludes the paper.

Hispanic Paradox in Children's Health

A series of review articles have summarized that Hispanic immigrants have enjoyed favorable mortality and morbidity of both adults and infants in the United States from 1970 to 2000, despite their low levels of socioeconomic status (Franzini, Ribble, and Keddie 2001, Markides and Eschbach 2005). In this section, we review the evidence on the Hispanic paradox pertinent to our study question: Have first generation Hispanic immigrants passed on their health advantages to their children?

Studies of adult mortality and morbidity find that the health advantages of Hispanic immigrants have the following features. First, the better chance of survival is specific to a certain group and is strongest for foreign-born and for elder members of that group (Palloni and Arias 2004). The biological risk profiles, heights and prevalence of asthma show similar patterns (Crimmens 2007, Cohen and Celedon 2006, Rosenbaum 2008). Selective return migration and healthy selection among immigrants are two major explanations for the initial Hispanic paradox in regards to adult mortality and morbidity (Markides and Eschbach 2005). However, the initial health advantages may wane as the acculturation process starts. For example, Antecol and Bedard (2006) find that female Hispanic immigrants' Body Mass Index almost completely reaches the same level as that of American women within 10 years of arrival. Uretsky and Mathiesen (2007) find that self-rated health deteriorates among Hispanic immigrants in California the longer they stay in the United States. Hispanic women have four times the risk of a preterm birth if they are more acculturated as measured by English proficiency (Frisbie and Song 2003). Acculturation may lead to diminished health advantages among Hispanic immigrants (Markides and Eschbach 2005).

Researchers have found favorable birth outcomes among infants of Hispanic immigrants, including lower risks of infant mortality, being born prematurely and with low birth weight. Hummer and colleagues (2007)'s recent study clearly shows that infants born to Mexican immigrants have lower levels of first-hour, first-day, and first-week mortality rates. Findings from Acevedo-Garcia and colleagues (2007) provide further evidence that foreign-born status is protective against low birth weight among Latino subgroups, and this protective effect is stronger among women with low education and is more

pronounced in foreign-born Mexicans. In a clinical setting, Brown and colleagues (2007) find that the odds for almost all measures of birth outcomes and pregnancy complications are lower for foreign-born Hispanics than for African-American women of similar socioeconomic status.

Although there is a great volume of studies on adult and infant health, few studies have examined the Hispanic paradox in childhood health. The only comprehensive review comes from the Hispanic Health and Nutrition Examination Survey (HHANES) in the early 1980s. These findings suggest that Mexican Americans and Cuban Americans have a three or four percent greater prevalence of chronic medical conditions than other US children, while the prevalence of asthma is higher among Puerto Ricans (Mendoza and Dixon 1999). There is little evidence that Hispanic children of immigrants have enjoyed favorable health outcomes. In the case of obesity, recent studies from the Fragile Family Study have found that the Hispanic health advantages have been lost in childhood obesity (Fuentes-Afflick 2006). The prevalence of obesity among Hispanic children is larger at age 3 and starts earlier than among whites. The studies on ethnic disparities in children's mental health are also limited.

Studies linking better birth outcomes to better childhood health among Hispanic children are scarce. However, a number of clinical studies have linked poor health conditions at birth to adverse health outcomes during childhood. In a special issue of "Seminar in Perinatology", Casey (2007) finds that infants of low birth weight tend to have excessive growth gain in the early years of life, which is associated with childhood and adult

obesity, and a risk for later cardiovascular diseases. Saigal and Doyle (2008) show that very preterm survivors have reduced lung function, higher blood pressure, and other cardiovascular abnormalities that may lead to adverse cardiopulmonary outcomes much earlier in adult life than would normally be expected. In addition to neurodevelopmental disorders such as cerebral palsy, blindness, deafness, and severe intellectual disability, researchers have also found that children born between 1980 and 2000 who survived very low birth weight (VLBW) and extremely low birth weight (ELBW) were prone to externalizing behaviors or internalizing behaviors such as inattention, hyperactivity, and social skill difficulties (Bhutta et al. 2002, Msall and Park 2007). Most of these findings are based upon the white population and are clinical studies with a small number of observations and geographic locations. It remains unknown whether this set of findings applies to the Hispanic children of immigrants.

A brief review of the Hispanic paradox literature suggests three questions remain unanswered: First, has the Hispanic paradox manifested itself in a wide spectrum of indicators of childhood health? Second, is there an association between parents' health and children's health problems? Or, are the children of healthy immigrants healthy during their childhood? If so, do better health conditions at birth lead to favorable health conditions during childhood for Hispanic children? If not, what factors can explain the diminishing health advantages faced by these children?

To answer these questions, using the Early Childhood Longitudinal Study-Kindergarten data, we investigate the presence of the Hispanic paradox in a variety of health conditions

at birth and during childhood.. We model the role of parental health and health conditions at birth in generating the ethnic disparities in the United States. We find that children of first generation Mexican immigrants have better physical and mental health during childhood than children born to U.S. –Mexican mothers and children born to white and African American mothers, despite their low socioeconomic status. Part of their better childhood health can be attributed to their favorable health at birth and to maternal health. Yet, the prevalence of childhood obesity may offset their health advantages in other aspects, and lead to a pessimistic parental view of children’s health.

We derive the following hypotheses to guide our investigation:

If first generation Hispanic immigrants have transferred their health advantages to their children, we would see that the Hispanic children with foreign born biological mothers have the following advantages relative to their white and Hispanic peers with U.S.-born biological mothers, after controlling for family socioeconomic status

1. Lower risk of poor health conditions at birth
2. Lower risk of health problems which are closely tied to genetic inheritance at third and fifth grade, if poor health conditions at birth partly contribute to the health problems during childhood
3. About equal risk of health problems in external injuries.

Data, Measurements and Method

Data

The Early Childhood Longitudinal Study-Kindergarten cohort data is nationally representative data collected by the Department of Education starting from the fall of 1998. The ECLS-K followed a group of children enrolled in kindergarten in the fall of 1998 through their elementary years and collected a series of important indicators of children's development, including their health conditions at birth and during childhood, their family background and parental involvement, and their school experiences. The ECLS-K employed a multistage probability sample design, where students are nested in schools and schools are nested in the primary sampling units (PSUs)¹. The attrition is mainly due to children moving outside of the primary sampling units or to areas in which they could not be located.

The ECLS-K has several advantages in addressing the Hispanic paradox in regard to childhood health. First, it collected information on biological mothers' ethnicity and nativity, which enables us to examine the key questions pertaining to the health advantages enjoyed by specific Hispanic groups. Second, it contains relatively precise measures of children's physical and mental health. Most health indicators come from parental report or professional diagnosis. Child development indicators are measured by trained staff members of the ECLS-K. Third, it includes several measures of maternal health, such as depression and self-rated health. These indicators of maternal health facilitate our examination of the inheritance of health advantages among some Hispanic groups.

¹ The ECLS-K Base Year User Guide, chapter 4.

We limit our analytical sample to children living with their biological mothers. Our sample size is 9700, which includes 7296 white children, 1308 black children, 390 Hispanic children with U.S.-born Mexican mothers, and 700 Hispanic children with Mexico-born mothers.

Measurements

Child ethnic groups

The key to examining the Hispanic paradox hypothesis for childhood health is the biological mothers' ethnicity and nativity. Past studies have suggested that Hispanic immigrants have relatively better health than African Americans, even though they share a similar low level of socioeconomic status. Considering that the Hispanic paradox is strong among first generation Mexico-born immigrants, we differentiate the children into four categories by their biological mothers' ethnicity and nativity: (1) White children with U.S.-born white biological mothers; (2) African Americans with U.S.-born black biological mothers, (3) Hispanic children with U.S.- born Mexican mothers, and (4) Hispanic children with Mexico born mothers.

Health condition at birth

The two indicators of health condition at birth are low birth weight and premature birth, both of which come from parental report during the kindergarten survey. Low birth weight is a dummy variable which equals 1 if a child's birth weight is less than 5.5 pounds and equals 0 otherwise. Premature birth is a dummy variable which equals 1 if a child is born more than two weeks before full term and equals 0 otherwise.

Health problems in childhood

The children's health conditions at birth and during childhood come from parental reports and direct child assessment. We combined health information in the third grade and fifth grade, which covers children age 9 to age 12. Most of the child development and health indicators are closely tied to genetic inheritance, including height, weight, sinusitis, asthma, hay fever, emotional problems, behavior problems, and cognitive disabilities. Some of them are caused by an external force, such as an injury. These ten indicators can be grouped into three categories: (1) Children's physical health, including weight, height, chronic sinusitis, asthma, hay fever and cognitive disability. (2) Children's mental health, including behavior problems and emotional problems. (3) Children's overall health as evaluated by their parents.

To begin with, we follow the CDC 2002 growth chart and create age-gender adjusted BMI z-scores and height z-scores. We define a child as overweight if his/her BMI z-score is above the 85th percentile. A child is short if his/her height is below the 15th percentile. Both overweight and shortness are dummy variables.

Second, parents are asked to report whether their children have been diagnosed with health problems by a health professional during the previous school year. The question is "Has a doctor, nurse, or other medical professional ever told you that {CHILD} has chronic sinusitis/asthma/hay fever?" We create dummy variables for these health problems. Furthermore, the ECLS-K asks parents to report whether their children have

obtained professional diagnosis of a cognitive disability, including learning, hearing, vision and speech. Since the cases of cognitive disability in learning, hearing and speech are only a few, and the vision problem is common among children, we combine disability in learning, hearing and speech to create a single dummy variable, indicating whether a child has any one of the cognitive disabilities. And we create an additional dummy variable for vision problems. In addition, we also include children's injury which originates from external cause. Since the ECLS-K frames the question as "whether your child has been hospitalized due to injury", it is likely that this measure may underestimate the actual incidences of injury, since Hispanic immigrants have poorer coverage by health insurance.

Third, children's mental health is gauged by two measures. Parents report whether they have obtained a professional diagnosis of their children's behavioral problem or emotional problem. These two measures indicate that a child has a severe mental health problem if they have been diagnosed with these behavioral or emotional problems.

Finally, parents are asked to evaluate their children's overall health in a five-point Likert scale (excellent, very good, good, fair and poor). We create a dummy variable "poor health" if a parent rates her child's health as "fair" or "poor". This measure of children's overall health comes from proxy report, and may underestimate children's health in two ways: (1) parents may be reluctant to evaluate their own children's health as "poor"; (2) parents may be unaware of hidden behavioral problems a child may have.

Maternal health

We use three measures to assess maternal health. First, the ECLS-K adopts a short-version of the depression scale and its depression section includes 12 out of 20 items of the standard Depression Scale from the Center for Epidemiological Studies (CES-D). These items all measure parents' negative feelings, such as feeling blue and feeling sad. We follow the CES-D and create a continuous variable for the depression scale, in which a higher value indicates a higher level of depression. Since it is difficult to interpret the single increment of the depression scale, we create a dichotomous variable for the severity of the depression, which equals 1 if a mother's depression score is in the top 25th percentile, and equals 0 otherwise. Second, the ECLS-K asks whether a mother is afflicted with a severe health problem which has prohibited them from working. Third, parents evaluated their own health in a five-point Likert scale. This self-rated health is generally regarded as a good measure of adults' health.

Family socioeconomic status

We use maternal education, paternal occupational status and poverty line to measure children's social origin. First, we use Hauser (2008)'s measures of occupational education as indicators of occupational status (personal correspondence)². Hauser (2008) generated the percentage of college graduates for 21 types of occupation in the ECLS-K.

² The measurement of parental occupation is problematic in the process of data coding by the ECLS-K. During the coding process, the ECLS-K classified occupation into 21 categories using the "Manual for Coding Industries and Occupations," March 1999 (National Household Education Survey, NHES: 99). Twenty-five percent of the observations were coded automatically by software and the other 75% were coded by two coders, under the supervision of a supervisor. The occupational prestige score for an occupation was generated by averaging the 1989 General Social Survey (GSS) prestige scores of the occupation². Therefore, the aggregate level of prestige scores is too coarse to capture the subtle difference between occupations, and the final decision in a disagreement regarding occupation coding was left to the discretion of one individual, whose credibility in occupation measurement is questionable. Most importantly, prestige scores cannot capture the effect of occupational status very well (Hauser and Warren, 1997).

Furthermore, we generate dummy variables indicating the highest level of education a mother obtained: less than high school, high school or equivalent, some college or vocational school, college or more. In addition, we use the below poverty status to indicate a family's economic resources. If a household's income is below the 1998 federal poverty line (family-size adjusted), we define it as below poverty.

Method

We use probit regression to analyze out dichotomous outcome variables. The estimators reflect the marginal effect (dy/dx). Our empirical strategy has four steps. First, we analyze whether Hispanic children have better childhood health. Second, we analyze whether Hispanic children have better health conditions at birth and whether Hispanic mothers have better health, after controlling for family origin. Third, we examine whether health conditions at birth predict childhood health. Fourth, we assess how much the Hispanic childhood health can be explained by maternal health and children's health conditions at birth.

Results

Descriptive analysis

We begin with a descriptive analysis of the racial and ethnic differentials in childhood health. Table 1 shows the mean differences in twelve childhood health indicators across

these four groups. Figures 1A- 1C show the group differentials in the mean prevalence of these childhood health problems within the same poverty level.

Hispanic children with Mexico-born biological mothers have fewer health problems between age 9 and age 12 than whites, African Americans and Hispanic children of U.S.-born Mexicans, yet they face higher risks of developing obesity and are more likely to be evaluated as being in poor health by their mothers.

Among children living in poverty, Hispanic children born to Mexican immigrants rank the highest in almost every indicator of physical and mental health, mostly followed by Hispanic children born to U.S.-Mexicans or whites, while African American children have the poorest health conditions. This rank order holds for vision problems, cognitive disability, chronic sinusitis, asthma, hay fever, behavior and emotional problems. For example, among Hispanic children of Mexican immigrants, 12% develop asthma, 10% have hay fever, and 4% endure chronic sinusitis. The prevalence is much lower than among their white peers. Furthermore, it is notable that poor Hispanic children born to Mexican immigrants excel their non-poor white peers in critical cognitive development and mental health. For example, around 16% of white children living above the poverty line have developed at least one type of learning, speech or hearing disability, yet only 6% of poor Hispanic children with Mexico-born mothers have suffered from these cognitive disabilities.

The prevalence of obesity is strikingly high among Hispanic children with any Mexico origins, regardless of their poverty levels. More than 55% of Hispanic children are classified as in obesity (BMI z-score is above 85th percentile) by the CDC 2000 age-gender-specific growth chart. African Americans suffer from a similar high level of obesity prevalence. The obesity prevalence among white children is slightly lower, reaching 40% even if they live above the poverty line. However, even though our descriptive analysis shows better health among Hispanic children of first generation Mexican immigrants, we find that these Mexico-born immigrants' mothers are more likely to evaluate their children as being in poor health. Among these Hispanic children born to Mexican mothers, 21% of these mothers think that their children's health is "fair" or "poor", which is twice that of white mothers.

In short, we find that Hispanic children with Mexico-born biological mothers seem to maintain their health advantages between age 9 and age 12, with a few exceptions, such as obesity. However, findings from these descriptive analyses may be confounded by a number of factors, such as maternal education, parental employment, parental health and children's health conditions at birth. Moreover, the descriptive analysis can not establish the causal relationships between mothers' origin and children's health. Therefore, we turn to regression analysis in the following sections, in order to control for potential confounders and make a causal interpretation.

The Hispanic paradox in maternal health

The Hispanic paradox hypothesis implies that Mexican immigrants have better health conditions than native-born whites, despite their poor socioeconomic status. We test whether the Hispanic paradox is manifest in maternal health, which is closely tied to genetic inheritability by their offspring. We use three measures of maternal health: depression, severe impairments prohibiting, and self-rated overall health. Figure 2A shows the mean differentials in maternal health across four child groups, and Column 1-3 of Table 2 present the estimated marginal changes in the probability of suffering from poor maternal health, after controlling for family social origin. The unit of estimators is percentage points, which reflect the marginal increments/decrements in the dependent variables associated with any one unit change in the explanatory variables.

To begin with, Mexican immigrant mothers and U.S.-Mexican mothers have better health than whites, and African American mothers have the poorest health, keeping family social origin constant. Column 1 of Table 2 shows that compared with white mothers, the predicted probability of developing severe depression (top 25th percentile) is 5 points less for first generation Mexican immigrant mothers and around 2 points less for U.S.-born Mexican mothers. Yet it increases 8.6 points for African American mothers. That is, if 6% of white mothers' depression scales lie in the top 25th percentile in 1999, only 1% of Mexican immigrant mothers and 4% of U.S.-Mexican mothers have severe depression, and around 14.6% of African American mothers suffer from severe depression. Similarly, the estimated probabilities of severe health problems are around 2 points smaller among Mexican immigrants and U.S.-Mexican mothers. Therefore, we find supporting evidence

for the Hispanic paradox hypothesis in maternal depression and several work-prohibiting health problems.

Although mothers of Mexico origin are more likely to rate their own health as poor than whites, they still have slightly better self-rated health than African American mothers. Column 3 of Table 2 shows that both Mexican immigrants and U.S.-born Mexicans are around 5 points more likely to rate their health as “poor” or “fair” than whites, and this estimated probability increases 6 points among African American mothers. Thus, the estimates from self-rated health generally support the Hispanic paradox hypothesis.

A minor issue here is how can we explain that Mexican immigrants and U.S.-born Mexican mothers are more likely to rate their overall health as poor, despite their better health as measured by depression and severe health problems. We think that self-rated health is still a valid overall health indicator, and may not necessarily agree with every specific health problem. Health problems other than severe depression and work-prohibiting impairments may affect mothers’ perception of their own health, such as chronic diseases, or mild symptoms. In short, we think this discrepancy does not affect the general conclusion that Mexican immigrants and U.S.-Mexicans have better health than whites and African Americans.

The Hispanic paradox in birth outcomes

The next question to test the Hispanic paradox is whether the newborns of Hispanic immigrants are healthier than others. Columns 4-5 of Table 2 show racial and ethnic disparities in the probabilities of having newborns with low birth weight or of having premature births among immigrant mothers and native mothers. The unit of estimate in Table 2 is percentage points (dy/dx).

Hispanic infants born to mothers of Mexican origin are as healthy as whites and healthier than African Americans at birth. First, the estimated probability of being born with low birth weight is about the same for Hispanic infants of Mexican origin as that for white infants, but African American infants are 6 percentage points more likely to have a birth weight lower than 5.5 pounds, after controlling for family socioeconomic status. Considering four children with the same family background, if 5.6% of white infants are born with low birth weight in 1993, around 11.6% of African American infants have this poor birth weight outcome, yet only around 6.6% of Hispanic infants of Mexican origin suffer from low birth weight. However, the estimated probabilities of being born prematurely show a slightly different pattern across these four racial and ethnic groups than the estimates of low birth weight do. All the African American and Hispanic infants of Mexican origin have a probability of being born two weeks before the due date that is similar to that of white infants. Therefore, the Hispanic paradox hypothesis receives less support in birth outcomes as measured by premature birth.

Poor maternal health leads to poor birth outcomes. The probability of having low birth weight births increases 0.1 percentage points when a mother moves from mild depression

to severe depression. Severe impairments of biological mothers have even larger effects on infants' health. A mother with severe health problems is 3.3 percentage points more likely to give birth to a child that is below 5.5 pounds than a healthy mother. Yet, the effects of maternal health on pre-term birth are not statistically significant, although the signs are in the expected directions.

In short, we find that only Hispanic children whose mothers emigrate from Mexico are less likely to be low birth weight and of premature birth. Our results are consistent with previous findings that the health advantages only manifest among some particular immigrant groups, such as immigrants from Mexico. We have found that Mexican immigrant mothers are less likely to have severe depression and work-prohibiting health problems than whites. One way to interpret better health conditions among Hispanic infants is that their biological mothers may have passed on their health advantages to their offspring.

Connections between health conditions at birth and health problems during childhood

Have healthy infants grown up to be healthy children? We examine the long-term effect of health conditions at birth on children's health during childhood through a relatively comprehensive bulk of indicators between third and fifth grade, including overweight, shortness, asthma, hay fever, injury, cognitive disability, behavior problem, emotional

problem, and being evaluated as in poor health. All the indicators are dummy variables. The estimated effects are reported in Table 3 in percentage points.

Child development

First, health conditions at birth are predicted to influence children's physical development. Children with low birth weight are shorter than those with normal birth weight. The estimated probability of being short for a child will increase 11.6 percentage points when we move from a child with normal birth weight to a child with low birth weight (less than 5.5 pounds). Premature children are predicted to be less likely to be short, but the effect is not significant at the 95% level. In addition, both low birth weight and prematurity reduce a child's chance of being overweight (≥ 85 percentile), but these estimates are not significant and the effect sizes are relatively small.

Low birth weight affects children's cognitive development. A child with low birth weight is 5.5 percentage points more likely to develop any one type of learning, vision, hearing or speech disability. That is, if 43 % of fifth graders with normal birth weights have at least one type of these four cognitive disabilities in 2004, around 48.5 % of them with low birth weights suffer from these cognitive disabilities. Since more than half of the cognitive disabilities are vision problems, we separate vision problems from cognitive disability and create two additional dummy variables. Results from these two separate indicators are consistent with those from this summary measure, and the effect sizes are slightly smaller (4 percentage points vs. 5.5 percentage points), and are significant at the 0.90 significance level.

Common health problems

Low birth weight and prematurity predict relatively well the risks of having common health problems between third and fifth grade, yet the effects are not quite the same across health problems, suggesting that these two health conditions at birth possess distinctive features.

A child with low birth weight is more likely to have asthma, but less likely to have injury, chronic sinusitis and hay fever. Compared with a child born with normal birth weight, the probability of suffering from asthma for a child with low birth weight will be 7.7 percentage points higher. Yet, a low-birth weight child is predicted to have roughly 3.7 percentage points less chance of being hospitalized due to injury between third and fifth grade.

Premature birth predicts poor childhood health. Compared with full-term births, a child born prematurely has 2.4 percentage points higher probability of having chronic sinusitis between third and fifth grade, and his chance of suffering from hay fever rises around 4.4 percentage points. A premature child is also more likely to have asthma and cognitive disability, but these effects are not statistically significant.

Mental health

Children's health conditions at birth influence their mental health between third and fifth grade. Two indicators of mental health are dummy variables on professional diagnosis of behavior problems and emotional problems.

Premature birth leads to more emotional problems. The estimated probability of being diagnosed with an emotional problem is 2 percentage points higher for a child with low birth weight, relative to a child with normal birth weight. But low birth weight has less predictive power in estimating the risks of having emotional problems. Although both low birth weight and being born prematurely increase a child's chance of being diagnosed with a behavior problem by 0.6 percentage points, these effects are not statistically significant at the 0.95 level.

Finally, poor health conditions at birth predict poor health conditions between third and fifth grade. Children of low birth weight are 3.3 percentage points more likely to be evaluated as in poor health by their parents. The effect of being born prematurely is small and not statistically significant.

In summary, poor health conditions influence a wide spectrum of childhood health aspects, including height, cognitive development, asthma, hay fever, emotional problems and parent-rated health.

The Hispanic paradox in health problems during childhood

In the previous sections, we find that Hispanic children with Mexico-born biological mothers have better health conditions at birth, and better health conditions at birth predict fewer health problems during childhood. So, we ask the question: Have the healthy Hispanic infants grown up to be healthy children? In this section, we explore the Hispanic paradox in regard to health problems during childhood, after controlling for family socioeconomic status and health conditions at birth. We present our estimates in percentage points in Table 4. Figures 3A-3C show the predicted racial and ethnic differentials in childhood health between third and fifth grade, controlling for family social origin, maternal health and health conditions at birth.

To examine the existence of the Hispanic paradox, we must find those health indicators in which those Hispanic children born to immigrant mothers perform better than their white peers, but in which those Hispanic children of U.S.-Mexican mothers do poorer than their white counterparts. Under this guideline, we find that ten childhood health indicators can be classified into three groups: (1) Advantages specific to Hispanic children born to first generation Mexican immigrants, such as shortness, asthma and cognitive disability. (2) Advantages for all the Hispanic descendants of Mexican origin, such as chronic sinusitis, hay fever, injury and mental health. (3) Disadvantages for all the Hispanic descendants of Mexican origin, such as being overweight and parent-rated overall health.

Health advantages specific to Hispanic children of Mexico-born immigrants

First, we find that only Hispanic children of first generation Mexican immigrants possess health advantages over whites, and these health advantages diminish among Hispanic children born to U.S.-born Mexicans. Figure 3A shows that Hispanic children born to Mexican immigrants face significantly lower risks of developing asthma, chronic sinusitis, hay fever and vision problems between third and fifth grade. In the case of asthma, around 18% of white children and 15% of Hispanic children of Mexico-born immigrants are predicted to suffer from asthma in 2004 if they were at a similar level of socioeconomic background, maternal health and birth conditions. In contrast, the predicted prevalence of asthma among Hispanic children of U.S.-born Mexicans reaches 26%. African American children endure a nearly doubled prevalence of asthma. With respect to chronic sinusitis, the health advantages of Hispanic children of Mexico-born immigrants are much larger in the relative term. Only 5% of them develop chronic sinusitis, while 8% of white children do so. Although vision problems are common among all children, Hispanic children of Mexico-born immigrants still maintain their advantages.

Second, the lower risks of developing asthma, chronic sinusitis, hay fever and vision problems among Hispanic children of Mexico-born immigrants may be partially owing to their better maternal health and birth conditions. Recall that low birth weight or being born prematurely significantly increases the probability of developing asthma, chronic sinusitis and vision problems. For Hispanic children of Mexico-born immigrants, adding maternal health and birth conditions furthers their health advantages in asthma from 2.9 to 3.4 percentage points. Low birth weight remains a significant predictor and leads to

around a 6-point reduction in the probability of developing asthma. With respect to chronic sinusitis and vision problems, the role of low birth weight is weaker, yet poor maternal health still significantly predicts a higher prevalence of childhood health problems. In addition, maternal health and birth conditions may reduce the black-white gap in asthma, chronic sinusitis and vision problems among children of U.S.-born mothers. Adding maternal health and birth conditions reduces the black-white gap in the probability of developing asthma and vision problems by 1 percentage point.

In short, only Hispanic children of first generation Mexican immigrants possess physical health advantages over whites, and these health advantages diminish among Hispanic children born to U.S.-born Mexicans. These health advantages can be partially explained by their better maternal health and birth conditions. This set of evidence suggests that Mexico-born immigrants are able to pass on their better health to their children.

Health advantages possessed by all Hispanic children of Mexican origin

Almost all Hispanic children of Mexican origin have lower risks of developing a cognitive disability, hospitalized injury, behavioral and emotional problem. Figure 3B shows the predicted racial and ethnic differentials in developing these health problems when we assume that all children have a similar level of family socioeconomic status, maternal health and birth conditions.

While all Hispanic children of Mexican origin have better health than white children, the health advantages are larger among Hispanic children who are born to first generation

Mexican immigrants. With respect to the predicted probability of developing any one of learning, hearing and speech disabilities in cognitive development, the ethnic gap between Hispanic children of first generation Mexican immigrants and whites is 11.3 percentage points, and the gap between Hispanic children of U.S.-born Mexicans and whites is 8 percentage points. The predicted health advantages possessed by those Hispanic children of first generation Mexican immigrants are even larger in hospitalized injury (35.2 percentage points vs. 13.4 percentage points).

We observe similar mental health advantages enjoyed by all Hispanic children of Mexican origin. Hispanic children with Mexico-born mothers are 1.6 percentage points less likely to be diagnosed with a behavioral problem and around 2 percentage points less likely to be diagnosed with an emotional problem. These mental health advantages are smaller and weaker than physical health. Furthermore, severe maternal depression leads to poor mental health among children. In addition, it is worth noting that African American children are less likely to be diagnosed with emotional problems, and these effects are statistically significant.

In brief, we find that almost all the Hispanic children of Mexican origin have lower risks of developing a cognitive disability, hospitalized injury, behavioral and emotional problem, and the health advantages possessed by Hispanic children born to first generation Mexican immigrants are larger than those of Hispanic children born to U.S.-Mexicans. These findings provide further supporting evidence for the presence of the Hispanic paradox in children's mental health and cognitive development.

Health disadvantages faced by all Hispanic children of Mexican origin

Despite the health advantages estimated for Hispanic children in physical and mental health, we also find that all Hispanic children of Mexican origin are disadvantaged in certain areas of child development. Figure 3C shows that they are more likely to be overweight (BMI > 85th percentile), short (height < 15th percentile) and evaluated as in poor health by their parents between third and fifth grade.

Certain disadvantages are specific to Hispanic children of first generation Mexican immigrants. Strikingly, they are 12.2 percentage points more likely to be overweight than whites and they are 4.6 percentage points more likely to be evaluated by their mothers as in poor health. Yet, those Hispanic children of U.S.-born Mexicans are free of these health disadvantages when we control for their maternal health and birth conditions. The Hispanic-white gap in being overweight and parent-rated health is not statistically significant among children of U.S.-born mothers. Moreover, maternal health and birth conditions have little influence on children's weight status, so the overwhelmingly high prevalence of overweight among Hispanic children of Mexico-born immigrants may result from other factors, such as diet, physical activity, and sedentary practices.

Certain disadvantages are specific to Hispanic children of U.S.-born Mexicans. They are 7 percentage points more likely to be short (height below 15th percentile) than whites. Yet, those Hispanic children of Mexico-born immigrants have around the same probability of being short as whites. Recall that low birth weight is a strong predictor of height, and 7%

more Hispanic children of U.S.-born Mexicans have low birth weight than whites if they both live in poverty. Adding maternal health and birth conditions reduces the Hispanic-white gap in shortness by 1 percentage point. Therefore, the higher risk of shortness among Hispanic children born to U.S.-Mexicans can be partially attributed to their relatively low birth weight.

In summary, we find supporting evidence for the Hispanic paradox for most of the childhood health indicators. Hispanic children born to first generation Mexican immigrants have the best physical health and mental health by far, since only they possess certain physical health advantages, and they have larger advantages in cognitive and mental health. Part of their health advantages can be traced to their better birth conditions and maternal health. Yet, all Hispanic children of Mexican origin are disadvantaged in weight, height and parent-rated overall health.

Discussion and Conclusion

In this paper, we aim to examine whether Hispanic immigrants have passed on their health advantages to their children, using the ECLS-K data. We address the following research questions: First, has the Hispanic paradox manifested itself in a wide spectrum of areas of childhood health? Second, are the children of healthy immigrants healthy during their childhood? If so, do better health conditions at birth lead to favorable health conditions during childhood for Hispanic children? If not, what factors can explain the diminishing health advantages faced by these children?

We find supporting evidence for the Hispanic paradox for most of the childhood health indicators. We differentiate our finding into three groups by the strength of the health advantages enjoyed by the Hispanic descendants. First, some health advantages are particular to certain groups. Only Hispanic children of first generation Mexican immigrants face significantly lower risks of developing asthma, chronic sinusitis, hay fever and vision problems between third and fifth grade. Second, almost all Hispanic children of Mexican origin have lower risks of developing a cognitive disability, hospitalized injury, behavioral and emotional problem, and the health advantages possessed by Hispanic children born to first generation Mexican immigrants are larger than those of Hispanic children born to U.S.-Mexicans. However, we also find that all Hispanic children of Mexican origin are disadvantaged in weight, height and parent-rated overall health.

Part of the Hispanic paradox can be traced to their maternal health and birth conditions. We find that Mexican immigrant mothers and U.S.-Mexican mothers have better health than whites as measured by severe depression and work-prohibiting health problems. Those maternal health advantages among Mexican immigrants have resulted in healthier infants. We further find that poor birth conditions lead to poor childhood health. Adding the birth conditions and maternal health significantly reduces the black-white gap in physical and mental health, and renders the Hispanic-white gap in child development insignificant. Therefore, our findings indicate that maternal health and birth conditions are important mechanisms generating inequality in childhood health.

Our study contributes to the literature in two ways. First, we examine children's mental health as measured by professional diagnosis of behavior and emotional health, as well as a wide spectrum of indicators of childhood development and physical health. Our relatively comprehensive evaluation of childhood health reveals the multidimensional nature of the Hispanic paradox. Our substantive findings provide supporting evidence with respect to the presence of the Hispanic paradox. Second, we directly address the question of the link between parental health and children's health. Our findings suggest that maternal health and birth conditions have far-reaching effects on children's development. Some Mexico-born immigrants are able to pass on their health advantages to their infants and children. The health advantages possessed by Hispanic infants are able to persist into their childhood. To our knowledge, this is the first study on the inheritance of health advantages based upon a nationally representative sample.

However, two caveats caution our interpretations. First, a large number of children are lost to follow-up due to moving to other schools. If sick children are more likely to move, our estimates could underestimate the black-white or Hispanic-white gap in childhood health. Second, the ECLS-K lacks a broad range of indicators of maternal health, knowledge of which is critical to examining the inheritance of health.

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1. Table 1. Descriptive statistics of health conditions at births and during childhood by family
SES: ECLS-K

Variables	White with native born biological mothers			Black children with US-born black biological mothers			Hispanic children with US-born Mexican biological mothers			Hispanic children with Mexican-born biological mothers		
	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.	N	Mean	Std. Dev.
Health conditions at birth												
Low Birth Weight (<5.5lbs)	7296	0.05	(0.22)	1308	0.12	(0.33)	390	0.07	(0.25)	700	0.07	(0.25)
Premature (>2 weeks)	7311	0.16	(0.37)	1312	0.19	(0.39)	397	0.18	(0.39)	738	0.14	(0.35)
Health conditions between third and fifth grade												
Overweight (BMI ≥ 85%)	5142	0.42	(0.49)	793	0.58	(0.49)	294	0.56	(0.50)	598	0.58	(0.49)
Short (Height <15%)	4879	0.17	(0.38)	690	0.17	(0.38)	274	0.27	(0.45)	565	0.22	(0.42)
Chronic Sinusitis	4813	0.08	(0.28)	595	0.14	(0.35)	256	0.10	(0.30)	523	0.05	(0.21)
Asthma	4925	0.18	(0.38)	666	0.33	(0.47)	264	0.24	(0.43)	531	0.14	(0.35)
Hay Fever	4939	0.26	(0.44)	635	0.28	(0.45)	260	0.22	(0.41)	526	0.11	(0.32)
Hospitalized due to Injury	5594	0.70	(0.46)	721	0.60	(0.49)	284	0.60	(0.49)	553	0.32	(0.47)
Vision problem	5038	0.34	(0.47)	661	0.40	(0.49)	271	0.36	(0.48)	550	0.30	(0.46)
Cognitive disability +	4927	0.17	(0.38)	615	0.16	(0.37)	260	0.12	(0.32)	532	0.07	(0.25)
Cognitive Disability++	5188	0.44	(0.50)	688	0.48	(0.50)	279	0.44	(0.50)	554	0.34	(0.47)
Behavior Problem	4753	0.03	(0.16)	580	0.01	(0.12)	252	0.02	(0.13)	526	0.00	(0.06)
Emotional Problem	4807	0.07	(0.26)	590	0.04	(0.19)	257	0.05	(0.22)	528	0.04	(0.19)
Poor Health	4755	0.03	(0.18)	594	0.13	(0.33)	256	0.11	(0.31)	540	0.18	(0.38)
Family socioeconomic status at kindergarten												
Below poverty	7321	0.08	(0.26)	1321	0.40	(0.49)	400	0.25	(0.43)	740	0.51	(0.50)
Mothers: less than high school	7321	0.05	(0.21)	1320	0.16	(0.37)	400	0.26	(0.44)	740	0.57	(0.50)
Mothers: HS diploma or equivalent	7321	0.29	(0.45)	1320	0.38	(0.49)	400	0.36	(0.48)	740	0.26	(0.44)
Mothers: Some college	7321	0.34	(0.48)	1320	0.35	(0.48)	400	0.31	(0.46)	740	0.13	(0.34)
Mothers: Bachelor or more	7321	0.32	(0.47)	1320	0.11	(0.31)	400	0.07	(0.26)	740	0.03	(0.18)
Father work 35 hrs or more per week	6406	0.94	(0.23)	561	0.88	(0.33)	316	0.88	(0.32)	628	0.88	(0.32)
Occupational education	6263	0.29	(0.32)	533	0.17	(0.22)	303	0.18	(0.23)	599	0.10	(0.17)
Household income(log)	7310	10.83	(0.82)	1297	9.89	(1.04)	399	10.29	(0.88)	736	9.80	(0.96)
Biological mothers' health at kindergarten												
Depression scale	6901	5.14	(5.03)	1198	7.53	(6.58)	354	5.81	(5.77)	689	5.12	(5.84)
Self-rate poor health	6942	0.05	(0.22)	1206	0.15	(0.36)	355	0.14	(0.35)	695	0.20	(0.40)
Health problem prohibit them from working	6943	0.04	(0.19)	1206	0.06	(0.24)	355	0.03	(0.17)	695	0.02	(0.15)

Note: Occupational education: percent of college graduates among job incumbents. Cognitive disability +: if a child has any of disability in learning, speech and hearing. Cognitive disability ++: if a child has any of disability in learning, speech, hearing and vision.

Table 2: Probit regressions of Maternal health and health conditions at birth on family socioeconomic status (probits reported as marginal effects (dp/dx))

	Maternal Health			Birth outcomes	
	Severe depression (top 25th percentile)	Health problem prohibit them from working	Self-rated poor health	Low Birth Weight (<5.5lbs)	Premature (>2 weeks)
<i>Child characteristics (reference: White children with US-born biological mothers)</i>					
Black children with US-born black biological mothers	0.086 (4.59)**	0.000 (0.06)	0.06 (5.35)**	0.061 (5.00)**	0.031 (1.67)
Hispanic children with US-born Mexican biological mothers	-0.019 -0.81	-0.021 (2.42)*	0.045 (3.18)**	0.012 (0.75)	0.039 (1.62)
Hispanic children with Mexican-born biological mothers	-0.05 (2.70)**	-0.02 (3.36)**	0.05 (4.31)**	0.01 (0.88)	-0.03 (1.59)
<i>Family socioeconomic status</i>					
Below poverty level at Kindergarten (yes=1, no=0)	0.054 (3.05)**	0.018 (2.35)*	0.023 (2.58)**	-0.008 (0.81)	-0.026 (1.48)
Mom' education: HS diploma or equivalent (yes=1, no=0)	-0.06 (3.52)**	-0.01 (1.44)	-0.03 (4.05)**	-0.01 (1.20)	-0.02 (0.76)
Mom's education: VOC/Tech program or some college (yes=1, no=0)	-0.10 (5.61)**	-0.01 (2.03)*	-0.05 (6.52)**	-0.01 (0.74)	0.00 (0.11)
Mom's education: Bachelor or more (yes=1, no=0)	-0.14 (7.89)**	-0.03 (4.77)**	-0.06 (7.13)**	-0.02 (1.73)	-0.02 (1.05)
Father work 35 hrs or more per week (yes=1, no=0)	-0.01 (0.51)	-0.01 (0.64)	-0.02 (1.79)	-0.01 (0.67)	0.01 (0.56)
Fathers' occupational education (%college graduates)	-0.04 (2.21)*	-0.02 (1.80)	-0.04 (3.10)**	0.00 (0.42)	0.00 (0.10)
<i>Biological mothers' health at kindergarten</i>					
Severe depression (top 25th percentile)				0.001 (2.27)*	0.001 (1.09)
Self-rate poor health				0.005 (0.46)	0.023 (1.14)
Health problem prohibit them from working				0.033 (2.02)*	0.009 (0.34)
Observations	7166	7203	7202	7107	7155

Note:

I. Source: Early Childhood Longitudinal Study-Kindergarten to Fifth Grade. * significant at 5%; ** significant at 1%; *** significant at 0.1%, Robust z statistics in parentheses.

Table 3: Probit regression of health conditions at childhood on poor health conditions at birth (probits reported as marginal effects (dp/dx))

	Overweight (BMI ≥ 85%)	Short (Height <15%)	Chronic Sinusitis	Asthma	Hay Fever	Hospitalized due to Injury
Low Birth Weight (<5.5lb)	-0.005 (0.19)	0.116 (5.02)**	0.012 (0.76)	0.077 (3.42)**	-0.036 (1.51)	-0.037 (1.44)
Premature (>2 weeks)	-0.008 (0.44)	-0.004 (0.26)	0.024 (2.18)*	0.028 (1.94)	0.044 (2.75)**	-0.01 (0.61)
Observations	6743	6331	6116	6312	6289	7076

	Vision problem	Cognitive disability +	Cognitive Disability++	Behavior Problem	Emotional Problem	Poor Health
Low Birth Weight (<5.5lb)	0.042 (1.56)	0.040 (1.91)	0.055 (2.01)*	0.006 (0.75)	-0.014 (1.10)	0.033 (2.31)*
Premature (>2 weeks)	-0.017 (0.96)	0.019 (1.37)	0.002 (0.11)	0.006 (1.01)	0.02 (2.16)*	-0.003 (0.32)
Observations	6449	6263	6638	6040	6110	6073

Note:

1. Source: Early Childhood Longitudinal Study-Kindergarten to Fifth Grade;
2. * significant at 5%; ** significant at 1%; *** significant at 0.1%, Robust z statistics in parentheses.
3. Cognitive disability+ is a dummy variable indicating whether a child has been diagnosed with anyone of the following types of disability: learning, speech and hearing.
4. Cognitive disability++ is a dummy variable indicating whether a child has been diagnosed with anyone of the following types of disability: learning, speech, vision and hearing.

Table 4: Probit regression of health conditions at childhood on child family background (probits reported as marginal effects (dp/dx))

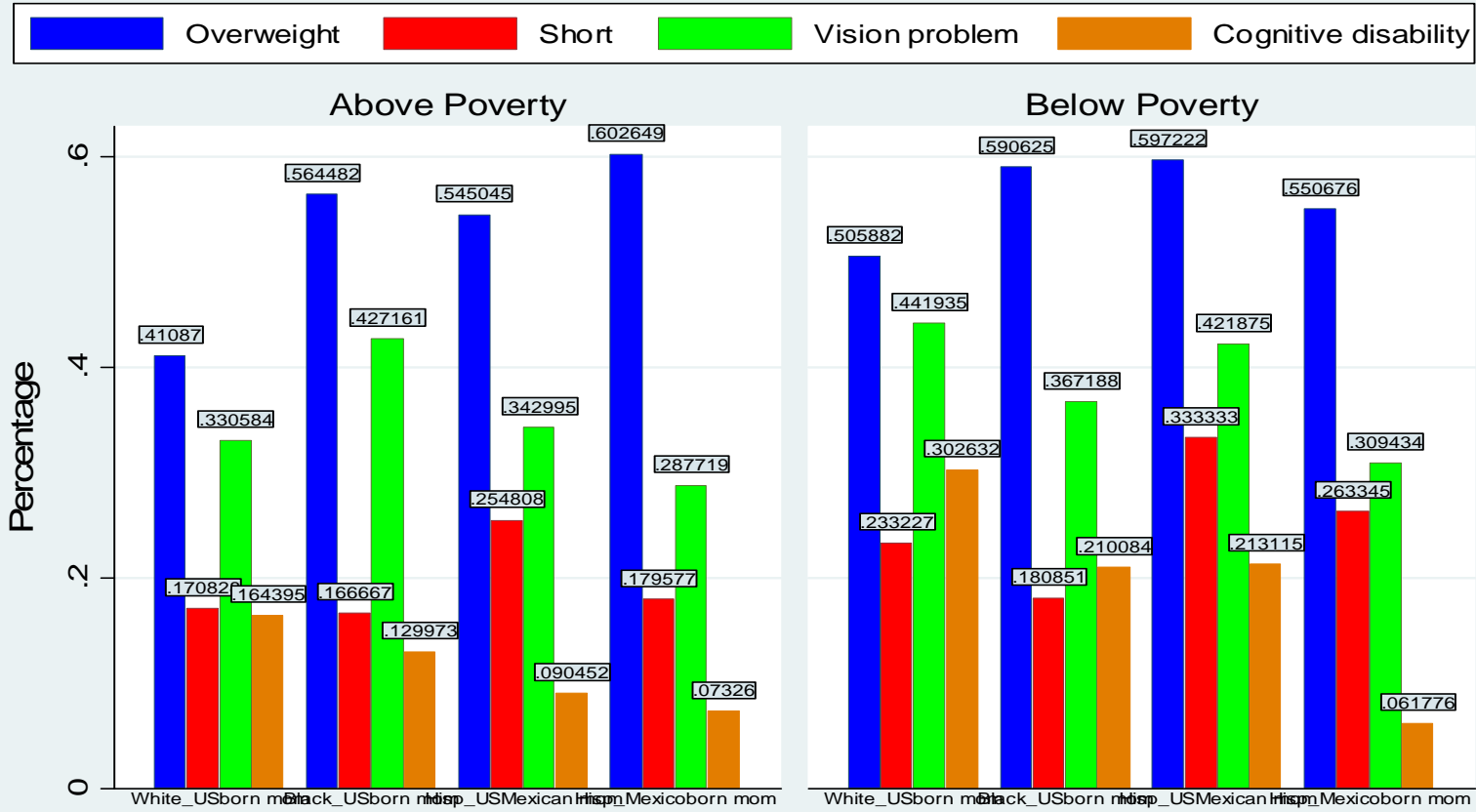
	Overweight		Short		Chronic Sinusitis		Asthma		Hay Fever		Hospitalized Injury	
<i>Child characteristics (ref: white with native born biological mothers)</i>												
Black children with US-born black biological mothers	0.176 (5.89)**	0.179 (5.52)**	-0.003 (0.12)	-0.002 (0.07)	0.028 (1.54)	0.02 (1.06)	0.134 (5.13)**	0.121 (4.32)**	0.066 (2.30)*	0.078 (2.50)*	-0.08 (2.63)**	-0.08 (2.44)*
Hispanic children with US-born Mexican biological mothers	0.086 (2.44)*	0.074 (1.95)	0.083 (2.94)**	0.073 (2.41)*	-0.003 (0.17)	-0.009 (0.44)	0.086 (2.95)**	0.08 (2.59)**	-0.024 (0.73)	-0.015 (0.42)	-0.118 (3.33)**	-0.134 (3.58)**
Hispanic children with Mexican-born biological mothers	0.115 (3.91)**	0.122 (3.87)**	-0.014 (0.63)	-0.019 (0.80)	-0.047 (3.06)**	-0.045 (2.74)**	-0.029 (1.23)	-0.034 (1.37)	-0.099 (3.74)**	-0.1 (3.59)**	-0.362 (11.90)**	-0.352 (10.87)**
<i>Health conditions at birth</i>												
Low Birth Weight (<5.5lb)		-0.027 (0.80)		0.092 (3.37)**		0.006 (0.31)		0.061 (2.33)*		-0.012 (0.40)		0 (0.01)
Premature (>2 weeks)		-0.018 (0.85)		0 (0.02)		0.026 (2.18)*		0.016 (0.98)		0.049 (2.60)**		-0.01 (0.51)
<i>Biological mothers' health at kindergarten</i>												
Severe depression (top 25th percentile)		0.011 (0.58)		-0.009 (0.61)		0.026 (2.37)*		0.048 (3.06)**		0.006 (0.37)		0.001 (0.04)
Self-rate poor health		0.025 (0.78)		0.022 (0.88)		0.049 (2.58)**		0.096 (3.56)**		-0.04 (1.35)		0.051 (1.66)
Health problem prohibit them from working		0.07 (1.59)		-0.019 (0.56)		0.001 (0.04)		-0.008 (0.23)		0.039 (0.93)		0.073 (1.75)
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5440	5066	5167	4816	4934	4613	5039	4713	5050	4722	5554	5190

Table 4 continued

	Vision problem	Cognitive Disability+	Cognitive Disability++	Behavior Problem	Emotional Problem	Poor Health						
<i>Child characteristics (ref: white with native born biological mothers)</i>												
Black children with US-born black biological mothers	0.071 (2.27)*	0.061 (1.82)	-0.007 (0.33)	-0.011 (0.48)	0.05 (1.59)	0.038 (1.13)	-0.032 (2.26)*	-0.032 (2.34)*	0.096 (6.22)**	0.084 (5.21)**		
Hispanic children with US-born Mexican biological mothers	0.014 (0.39)	-0.005 (0.15)	-0.06 (2.57)*	-0.084 (3.56)**	-0.032 (0.89)	-0.067 (1.76)	-0.007 (1.02)	-0.005 (0.28)	-0.005 (0.29)	0.053 (3.63)**	0.027 (1.93)	
Hispanic children with Mexican-born biological mothers	-0.051 (1.78)	-0.047 (1.57)	-0.102 (5.43)**	-0.113 (5.93)**	-0.124 (4.19)**	-0.131 (4.15)**	-0.018 (3.52)**	-0.016 (3.18)**	-0.021 (1.58)	-0.025 (1.83)	0.06 (4.91)**	0.046 (3.82)**
<i>Health conditions at birth</i>												
Low Birth Weight (<5.5lb)		0.034 (1.03)	0.047 (1.95)		0.067 (2.00)*		-0.002 (0.26)		-0.002 (0.11)		0.02 (1.64)	
Premature (>2 weeks)		-0.025 (1.26)	0.017 (1.15)		-0.005 (0.22)		0.006 (1.28)		0.014 (1.47)		-0.005 (0.83)	
<i>Biological mothers' health at kindergarten</i>												
Severe depression (top 25th percentile)		0.021 (1.09)	0.051 (3.61)**		0.056 (2.88)**		0.017 (3.50)**		0.044 (4.52)**		0.018 (2.52)*	
Self-rate poor health		0.068 (2.14)*	0.075 (2.98)**		0.105 (3.16)**		0.013 (1.47)		0.029 (1.78)		0.061 (4.78)**	
Health problem prohibit them from working		0.096 (2.19)*	0.004 (0.15)		0.105 (2.31)*		0.021 (1.99)*		0.035 (1.63)		-0.021 (1.87)	
Controls	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes	Yes
Observations	5143	4806	5021	4690	5252	4910	4657	4202	4924	4599	4904	4579

Note: 1. Controls include child's age, gender, poverty status, maternal education, paternal employment and occupational status. 2. significant at 5%; ** significant at 1%; *** significant at 0.1%, Robust z statistics in parentheses.

Figure 1A. Racial and ethnic differentials in childhood health by poverty level: physical and cognitive development



Graphs by Below poverty level at Kindergarten=1 (from WKPOVRTY)

Figure1B. Racial and ethnic differentials in childhood health by poverty level: common health problems

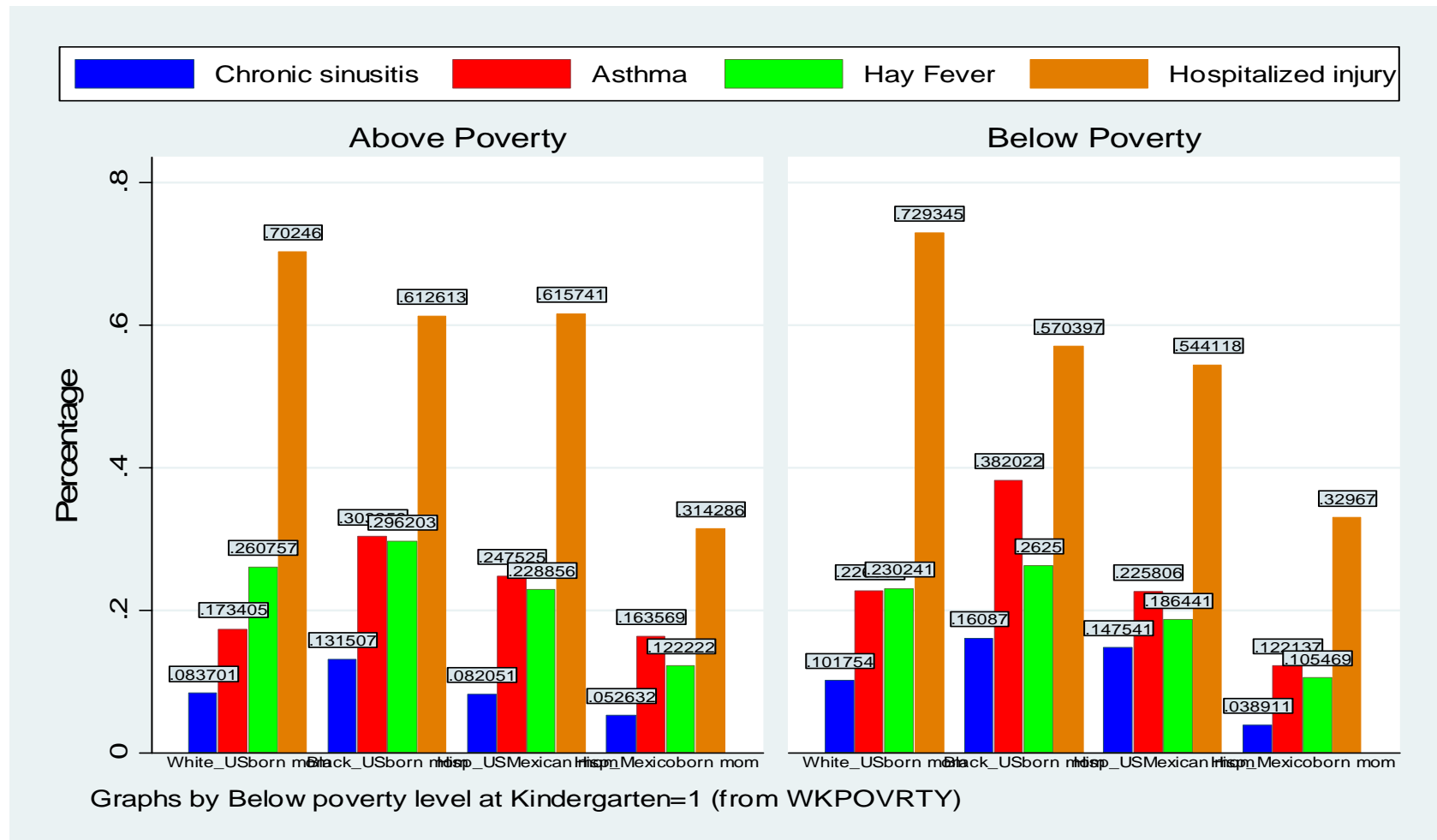


Figure1C. Racial and ethnic differentials in childhood health by poverty level: mental health and overall health

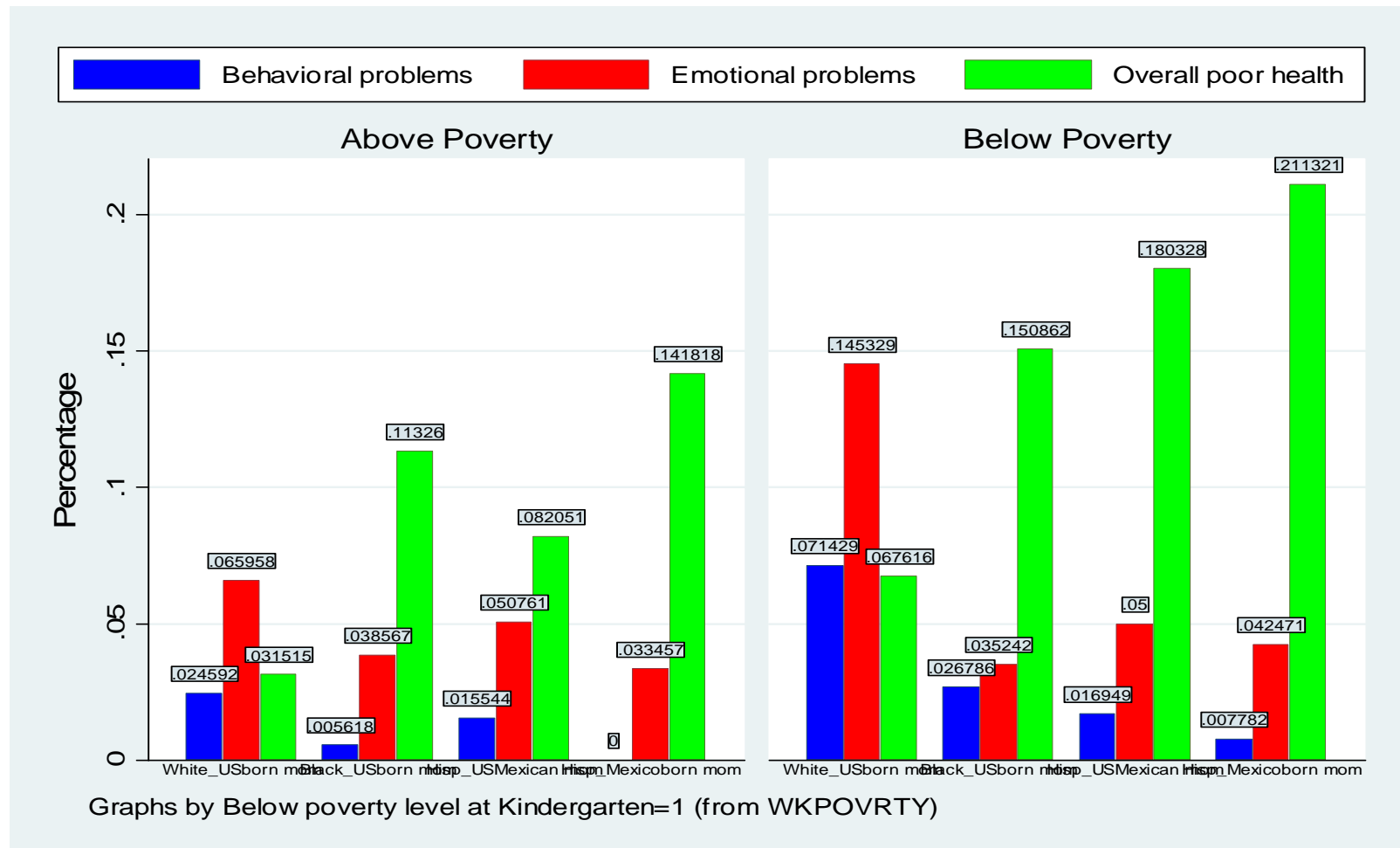


Figure2A . Racial and ethnic differentials in maternal health by poverty level

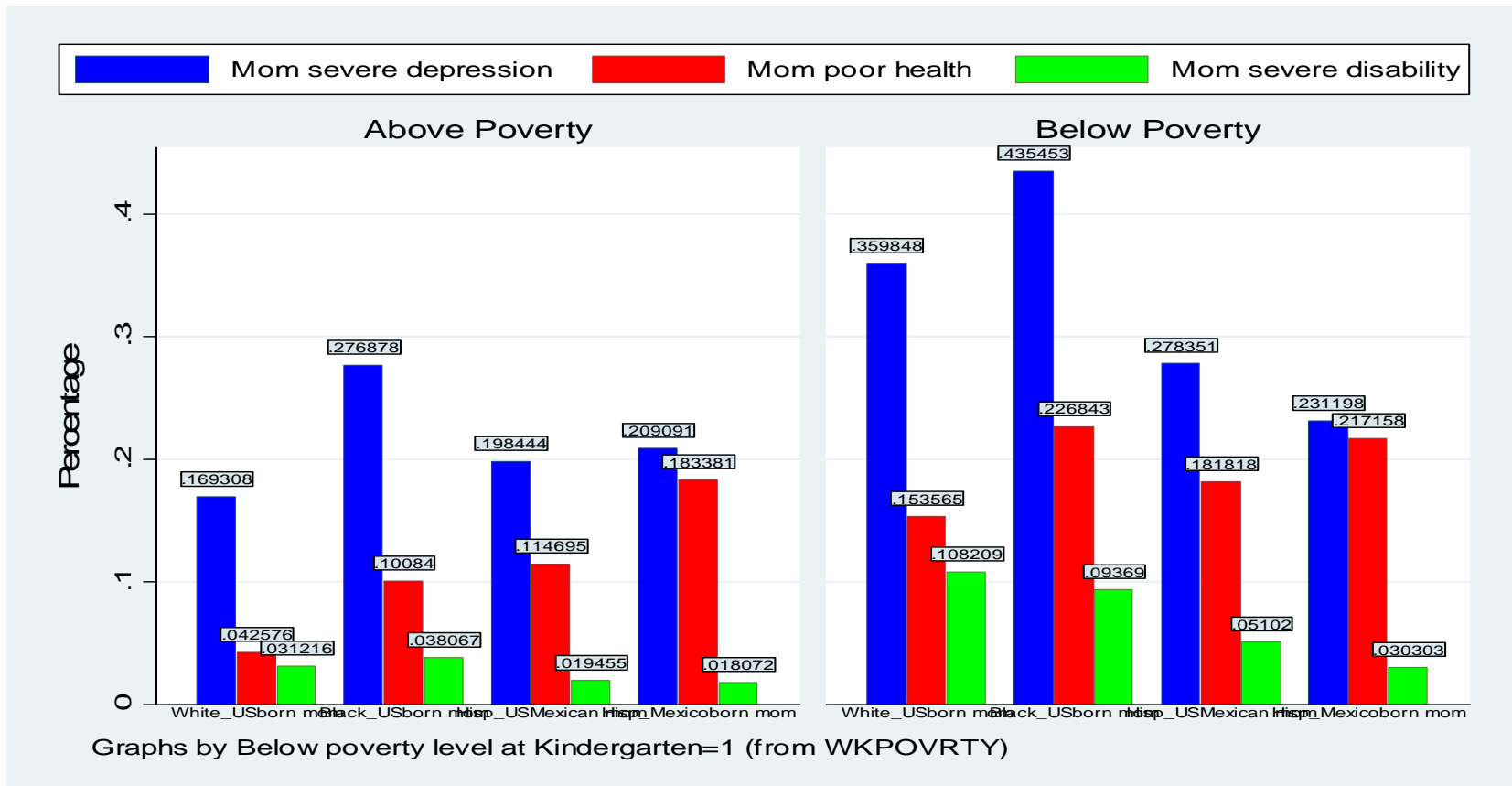


Figure2B. Racial and ethnic differentials in health conditions at birth by poverty level

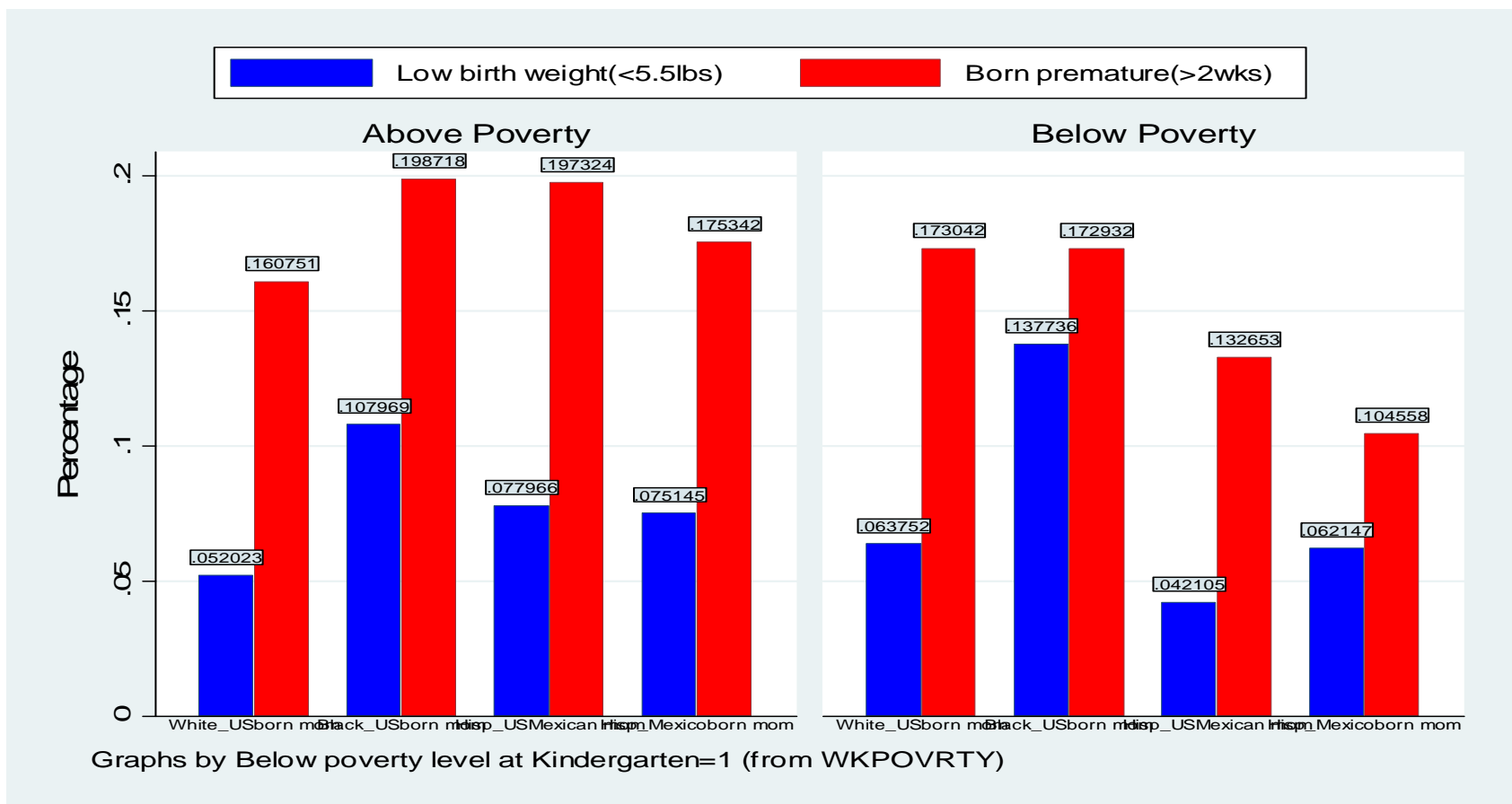


Figure 3A: Predicted health advantages specific to Hispanic children of first generation Mexican immigrants

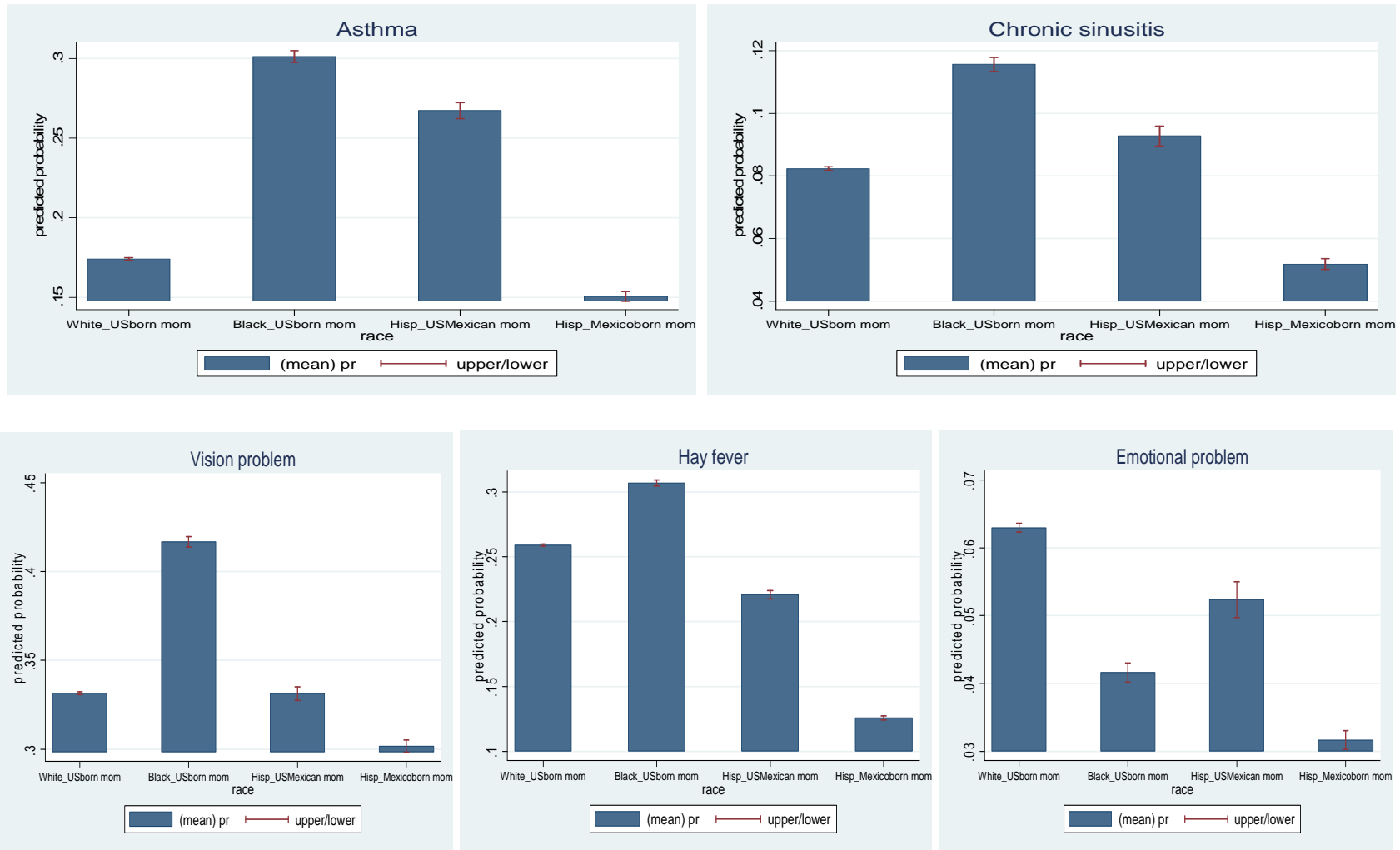


Figure 3B: Predicted health advantages of Hispanic children of Mexican origin.

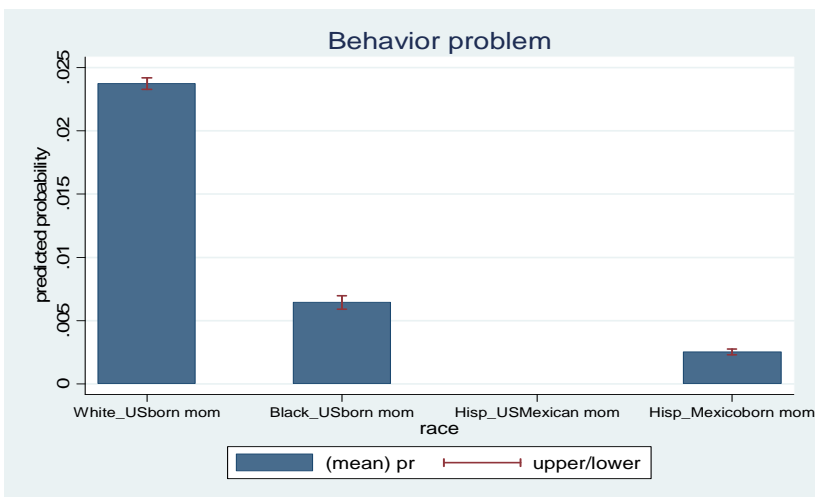
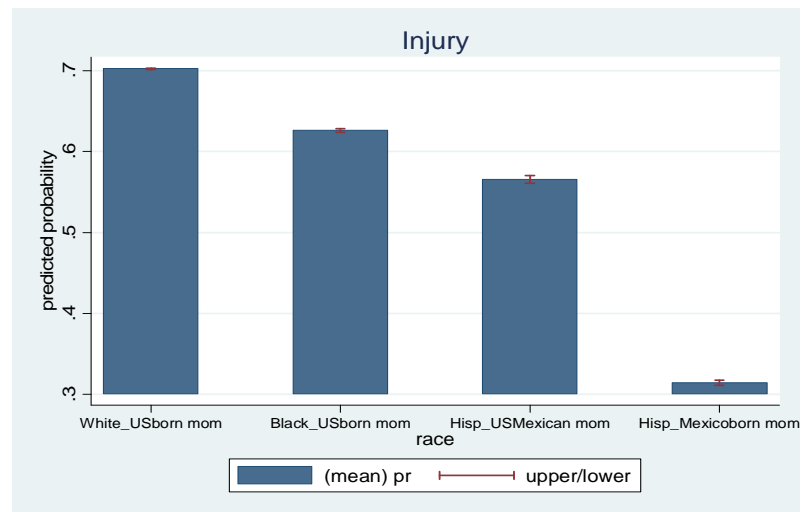
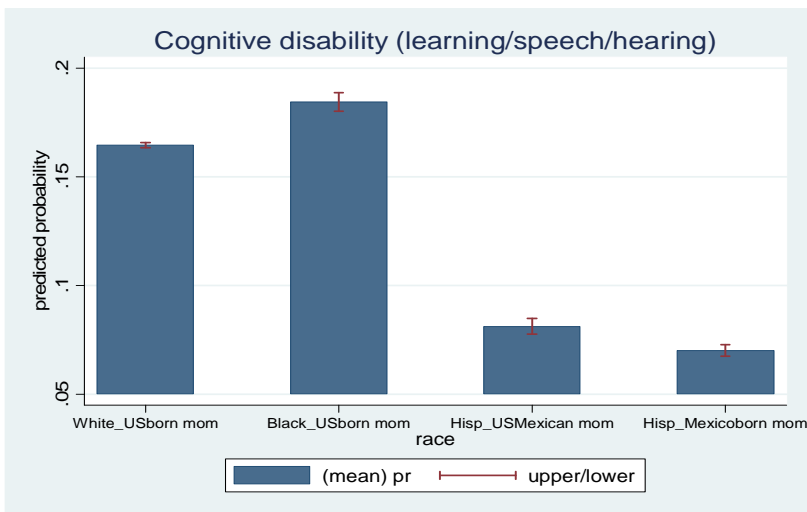


Figure 3C: Predicted health disadvantages of Hispanic children of Mexico origin

