Variation in Birth Outcomes among Native Born and Foreign Born Black Women in the United States

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Short Abstract

In this paper, we contribute to the literature on infant health by investigating differentials in birth outcomes (birth weight, prematurity, small-for-gestational age) among native born and foreign born non-Hispanic blacks. We expand prior research in several ways. We distinguish foreign born blacks by country/region of birth and include data from a wider set of states (birth registration areas) than in prior studies. In addition, we use more recent data than what have been used in previous research. Our preliminary results show significant variation in birth outcomes by mother's region of birth such that infants born to women born in Africa have the most favorable birth outcomes followed by infants of Caribbean-born women who in turn have better outcomes than U.S.-born black women. The inclusion of maternal socio-demographic characteristics did little to explain these disparities.

Extended Abstract

In this paper, we contribute to the literature on infant health by investigating differentials in birth outcomes (birth weight, prematurity, small-for-gestational age) among native born and foreign born non-Hispanic blacks. Much of the prior research on native and foreign born differentials in infant health has focused on Hispanics—and within this ethnic group the focus has been mainly on Mexicans and Puerto Ricans (Acevedo-Garcia, Soobader, and Berkman 2007; Buekens et al. 2000; Hummer et al. 2007; Landale and Oropesa 2001). Far fewer studies have examined native born and foreign born differentials among black U.S. residents and most of these studies have not distinguished foreign born blacks by country or region of birth (Acevedo-Garcia, Soobader, and Berkman 2005; Baker and Hellerstedt 2006; Hummer et al. 1999). Those that have, have been limited to select cities or states (e.g., Cabral et al. 1990; Howard et al. 2006; Wasse, Holt, and Daling 1994).

What makes the study of infant health outcomes among the foreign born of particular interest at this time is the growing diversity among immigrants who came to the United States in the last 30 years. Growing diversity among the sending countries is also evident among black immigrants. Early waves of black immigrants following the 1965 immigration reform came mainly from the Caribbean with a more recent increase in immigration from Africa (Kent 2007). The growth in black immigration is reflected in the percentage of black U.S. residents who are foreign born – up from less than one percent in 1960 to eight percent in 2005 (Iceland 2009; Kent 2007; Logan and Deanne 2003).

This paper expands prior research in several ways. We distinguish foreign born blacks by country/region of birth and include data from a wider set of states (birth registration areas) than in prior studies. Many of these states are new destination areas of black immigrants. We will examine whether birth outcomes vary among native-born and foreign born blacks by the mother's birth place and whether individual-level socio-demographic characteristics, health behaviors, and maternal health explain these differentials. In addition, we use more recent data than what have been used in prior studies.

Together the above analyses will improve our understanding of the contribution of race/ethnicity and place of origin to disparities in infant health outcomes among black U.S. residents and help identify areas for future research.

Data and Methods

Birth records are one of the principal data sources for the study of birth outcomes in the United States and have been widely used for this purpose in prior studies (e.g., Alexander et al. 2007; Buka et al. 2003; Hummer et al. 1999; Morenoff 2003; Sastry and Hussey 2003;). We will base our analysis on 2005 vital statistics birth record data from states that have implemented the 2003 revision of the US birth certificate. We have obtained IRB approval for this study from the Institutional Review Board of the University of Pennsylvania. We also obtained approval from the National Association for Public Health Statistics and Information Systems (NAPHSIS) for information on the mother's country of birth. These data were recently provided to us by the National Center for Health Statistics (NCHS).

Based on preliminary tabulations of these data, the data set contains 1,270,132 births using the 2003 revision of the U.S. birth certificate. Of these births, about 22% were births to foreign born women, and among the foreign born about 9% were to foreign born non-Hispanic black women. Among the births to foreign born black women, the vast majority (81%) of the mothers were born in countries located in Africa or the Caribbean.

Birth Outcomes

We will examine differences in three birth outcomes that have been the subject of recent studies: preterm birth (e.g., Messer et al. 2006; Reagan and Salsberry 2005) and small-for-gestational age births (e.g., Elo et al. 2008). Preterm birth is defined as gestational length < 37 weeks; we define SGA based on sex- and parity-specific SGA cut-points (Elo et al. 2008). Both are key risk factors for infant mortality, morbidity, and developmental outcomes and the reduction in their prevalence is a key health priority of the U.S. government (Hummer 1993; Schoendorf et al. 1992). Although SGA captures delayed growth across the entire birth weight distribution, we also model birth weight in its continuous form which, when adjusted for gestational age, is also related to intrauterine growth retardation (IUGR) (e.g., Buka et al. 2003, Sastry and Hussey 2003; Morenoff 2003). Furthermore it allows us to model variation in birth weight across the entire birth weight distribution. This specification also has statistical advantages over the relatively rare dichotomous outcomes – SGA and preterm birth – which can lead to a loss in statistical power.

Individual-level Characteristics

In the preliminary analysis presented below, we have categorized women according to their place of birth as follows: native-born, Caribbean born, and African born women. In addition to mother's place of birth, we have included the following maternal socio-demographic characteristics: maternal age, education, and marital status, as well as the child's sex. In subsequent analysis, we will also explore variation in birth outcomes by the mother's country of birth and will include information on health behaviors (e.g., smoking and prenatal care use), weight gain and indicators of maternal health, and explore alternative methodologies, e.g., propensity score matching (Guo and Fraser 2010f).

In the preliminary analysis below, we estimated logistic regression to predict preterm birth and ordinary least squares regression to model birth weight. All analysis were carried out with STATA 10. We show results from two models. Model 1 controls only for mother's place of birth. Model 2 includes race/ethnicity and maternal socio-demographic characteristics and the child's sex in addition to the mother's place of birth.

Preliminary Results

As seen in Table 1, birth outcomes varied substantially among black women by nativity in 2005. On average, infants of Non-Hispanic black women born in Africa were 228 grams heavier than infants of NH native-born black mothers and 123 grams heavier than infants of non-Hispanic black women born in the Caribbean. Similarly, African-born black women were significantly less likely to have a preterm birth than native-born black women. Caribbean-born black women were also less likely to have a preterm birth than native-born black women, although somewhat more likely than the African-born women. This pattern of differentials in birth outcomes by place of birth is similar to differentials in maternal health and health behaviors among black women during pregnancy (Elo and Culhane, forthcoming) and disability among black adults in the United States (Elo, Mehta, and Cheng, forthcoming; Read and Emerson 2005).

Maternal characteristics also varied by mother's place of birth. Foreign born women were significantly more likely to give birth at older ages, had higher levels of education and were significantly more likely to be married than native-born black women. In Table 2, we show results from preliminary analysis examining whether maternal socio-demographic characteristics can help explain differences in birth outcomes by mother's place of birth. These results suggest that maternal characteristic do little to explain the differentials in birth outcomes among US-born, Caribbean-born and African-born women.

Next Steps

As noted above, in subsequent analysis, we will explore variation in birth outcomes by the mother's country of birth and will include information on health behaviors (e.g., smoking and prenatal care use), weight gain and indicators of maternal health. We will also explore interactions between nativity and maternal characteristics.

For example, in an analysis of adult disability among US black residents the foreign born advantage was most evident among those with lowest level of education (Elo, Mehta and Huang, forthcoming).

In addition, relatively few studies have systematically examined factors that contribute to differentials in birth outcomes among the various foreign born subgroups, e.g., non-Hispanic whites, non-Hispanic blacks, Hispanics and Asians (Fuentes-Afflick, Hessol, and Perez-Stables 1998; Hummer et al. 1999). In supplementary analysis, we will broaden the scope of the analysis by examining differentials among the foreign born by race/ethnicity, i.e., among foreign born non-Hispanic whites, foreign born non-Hispanic blacks, Hispanics and Asians by country/region of birth. The inclusion of all four race/ethnic groups will enable us to examine the interaction between race/ethnicity and mother's place of birth among the foreign born, which can shed additional light on factors that may explain the observed differentials in birth outcomes among native-born and foreign-born black women.

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Table 1. Descriptive Statistics, Means and Standard Deviations or Percentages for Individual-level Characteristics, United States 2005[1]

Characteristic	Total	Native-born Non-Hispanic Blacks	Caribbean-born Non-Hispanic Blacks	Africa-born Non-Hispanic Blacks	p-value
	N=151,722	N=133,137	N=12,616	N=5,969	
Birth Outcomes					
Mean birthweight in grams	3,072(639.6)	3,054(637.2)	3,163(647.4)	3,286(619.9)	0.000
% preterm birth (< 37 weeks gestation)	18.2	18.6	16.4	12.6	0.000
Socio-demographic Characteristics					
Maternal Age					
< 20	17.6	19.6	3.9	2.8	0.000
20-24 years	33.2	35.6	17.2	13.2	
25-29 years	24.4	23.9	27.8	29.6	
30-34 years	15.3	13.3	27.4	33.4	
35+ years	9.5	7.6	23.7	21.0	
Mother's Education					
Less than HS diploma	24.4	25.0	20.7	19.4	0.000
HS or GED	35.2	35.8	33.4	23.9	
Some college	29.4	29.3	30.2	28.5	
College grad	11.1	9.9	15.7	28.3	
Married					
Married	30.9	26.3	57.1	77.6	0.000
Not Married	69.1	73.7	42.9	22.5	
Child's sex					
Male	50.6	50.6	50.4	50.4	0.930
Female	49.5	49.4	49.6	49.6	

Source: Authors' calculations; 2005 vital statistics birth record data for select states in the United States 2005. Including Florida.
Note: Standard deviations in parentheses.
[1] States using the 2003 revised birth certificate: list states.
[2] Among women with a prior live birth.

Table 2. Results from Logistic Regression Predicting Preterm Birth (Odds Ratios) and OLS Regression (Coefficients) Predicting Birth Weight, Unites States 2005[1]

	Preterm Birth		Birth Weight	
Characteristic	Model 1	Model 2	Model 1	Model 2
Mother's Place of Birth (US)[2]				
Caribbean	0.86**	0.81**	108.50**	89.86**
Africa	0.63**	0.62**	232.06**	193.84**
Sociodemographic Characteristics				
Maternal Age (20-24)				
< 20		1.02		-17.94**
25-29 years		1.07**		8.35
30-34 years		1.25**		1.76
35+ years		1.59**		-34.95**
Mother's Education (HS or GED)				
Less than HS diploma		1.10**		-33.88**
Some college		0.91**		30.77**
College grad		0.77**		62.67**
Married (Not Married)		0.90**		50.82**
Child's sex (Male)				
Female		0.96**		-111.17
Constant			3092.91**	3054.09**

Source: Authors' calculations; 2005 vital statistics birth record data for select states in the United States 2005.
[1] States using the 2003 revised birth certificate.
[2] Omitted category in parentheses.
** $p < 0.01$